



Induction Training Module for Medical Officers

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**STATE INSTITUTE OF HEALTH & FAMILY WELFARE,
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PREFACE

Primary Health Centre and rural hospitals become an integral part of our rural life and accepted as temples of health in the rural areas of state. All round efforts are being taken to develop the primary health centres to be able to fulfill the expectations of our rural community. The doctor at the primary health centre and rural hospitals is perhaps the only qualified modern medical personnel that most people in Maharashtra can access. However the medical officer posted there has been trained in a setting of relatively high availability of diagnostics and in a setting where a number of colleagues and seniors have been available for consultation. Thrust suddenly into the milieu of the village primary health centre with little diagnostics and no one to consult it is very difficult for the medical officer to cope with clinical decision making. This book is meant to reach out to professionals in such a situation and guide them in their daily clinical as well as administrative work.

This book was formulated by written contributions from many of the experts in the respective specialties. Later it was also discussed with senior officers in the government system. This book is mainly meant to be used by the medical officer at the primary health centre level and the community health centre. We have not tried to cater to specialist services of the district hospital or the tertiary care services. A well planned and designed induction will give new medical officers a sense of belonging and lead to greater motivation and productivity. It can also help new employees to quickly settle in their new jobs. Besides, a standard Induction Manual will ensure that there is consistent application of knowledge to new medical officers across the Public Health department for effective career development.

This manual is humble effort in the required direction and is expected to cater knowledge, skills and expertise necessary for day-to-day functioning of health centres and practical solutions to routine problems faced by devoted team of health functionaries under the leadership of MO. More than a doctor, MO is expected to be a better leader, an efficient manager, successful communicator and most importantly acceptable to the people whom MO is expected to serve on one hand and support entire team on the other hand. This manual deals with the PHC as an Institution, people's aspirations vis-à-vis democratic decentralization, duties of the team individuals, principles of modern management, essential aspects of communication as well as the technical details. Care has been taken to describe even the finer details of common difficulties and prescribe remedies based on the feedback of working staff, bureau chiefs and even the retired officers from the department.

We hope this Manual will be useful to medical Officers of RH/SDH/PHC and staff and inspire them to care for the reputation of the services in the public eyes. We also hope that every Medical Officer will read the manual thoroughly and work as a successful team-leader inspiring the confidence of the team members, local people and their representatives thereby ensuring peoples fullest co-operation and participation in the health programmes.

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List of Contribution

	Adverse Events Following Immunisation	Dy. CEO	Deputy Chief Executive Officer
AFB	Acid Fast Bacilli	EC	Eligible Couple
AFP	Acute Flaccid Paralysis	EC	Exposure Code
AIDS	Acquired Immune Deficiency Syndrome	ECG	Electro Cardio Graph
ANC	Ante Natal Care	ECP	Emergency Contraceptive Pill
ANM	Auxilliary Nurse Midwife	EDPT	Early Detection Prompt Treatment
APH	Ante Partum Haemorrhage	ELA	Expected Level of Achievement
ARI	Acute Respiratory Infection	ESR	Erythrocyte Sedimentation Rate
ART	Anti-Retroviral Therapy	FEFO	First Expire First Out
ASFR	Age Specific Fertility Rate	FHAC	Family Health Awareness Campaign
ASV	Anti Snake Venum	FIFO	First In First Out
ATP	Advanced Tour Program	FP	Family Planning
AW	AnganWadi	FRU	First Referral Unit
AWW	Angan Wadi Worker	FTD	Fever Treatment Depot
BCG	BacillusCalmetteGuerin	FW	Family Welfare
BDO	BlockDevelopmentOfficer	GAD	General Administration Department
BPL	Below Poverty Line	GFR	General Fertility Rate
CAFO	Chief Accounts and Finance Officer	GIS	Group Insurance Scheme
CBR	Crude Birth Rate	GP	Gram Panchayat
CC	Conventional Contraceptives	GPF	General Provident Fund
CCA	City Compensatory Allowance	GRR	Gross Reproduction Rate
CDPO	Child Development Project Officer	HA	Health Assistant
CEO	Chief Executive Officer	HAF	Home Available Fluid
CL	Casual Leave	HAV	Hepatitis-A Virus
CNAA	Community Needs Assessment Approach	Hb	Haemoglobin
CPR	Couple Protection Rate	HBV	Hepatitis-B Virus
CR	Confidential Report	HCV	Hepatitis-C Virus
CRS	Civil Registration System	HCW	Health Care Worker
CRT	Condensed Radical Treatment	HDV	Hepatitis-D Virus
CS	Civil Surgeon	HEV	Hepatitis-E Virus
CSSM	Child Survival and Safe Motherhood	HIV	Human Immunodeficiency Virus
CTZ	Co-Trimoxazole	HQ	Head Quarter
DA	Dearness Allowance	HRA	House Rent Allowance
DBCS	District Blindness Control Society	HW	Health Worker
DDC	Drug Distribution Center	ICDS	Integrated Child Development Scheme
DDK	Disposable Delivery Kit	IEC	Information Education Communication
DDO	Drawing and Disbursing Officer	IFA	Iron Folic Acid
DEC	Diethyl Carbamazine Citrate	ILR	Ice Lined Refrigerator
DF	Deep Freezer	IM	Intra-muscular
DF	Dengue Fever	IMR	Infant Mortality Rate
DH	District Hospital	IPD	In Patient Department
DHF	Dengue Haemorrhagic Fever	IPPI	Intensive Pulse Polio Immunisation
DHO	District Health Officer	ITDP	Integrated Tribal Development Project
DHS	Directorate of Health Services	IUCD	Intra Uterine Contraceptive Device
DIO	District Immunisation Officer	IV	Intra-Venous
DMC	Designated Microscopic Center	JA	Junior Assistant
DMO	District Malaria Officer	LBW	Low Birth Weight
DOTS	Directly Observed Treatment Shortcourse	LHV	Lady Health Visitor
DPT	Diphtheria Pertussis Tetanus	MB	MultiBacillary
DR	Death Rate	MCH	Maternal and Child Health
DSS	Dengue Shock Syndrome	MCP	Maternal and Child Health Protection
DT	Diphtheria Tetanus	MCSR	Maharashtra Civil Services Rules

MDT	MultiDrugTreatment	POL	Petrol Oil Lubricant
MICU	Medical Intensive Care Unit	PPH	Post Partum Haemorrhage
MIS	Management Information System	PPI	Pulse Polio Immunisation
MLC	MedicoLegalCase	PPM	Parts Per Million
MLEC	Modified Leprosy Elimination Campaign	PS	Panchayat Samiti
MLO	Mosquito Larvicidal Oil	PTLA	Part Time Lady Attendent
MMR	Maternal Mortality Rate	RBC	Red Blood Cell
MO	Medical Officer	RCH	Reproductive and Child Health
MPW	MultiPurposeWorker	RDD	Rural Development Department
MS	Medical Superintendent	RH	Rural Hospital
MTP	Medical Termination of Pregnancy	RL	Ringer's Lactate
MWRA	Married Women in Reproductive Age	RNTCP	Revised National Tuberculosis Control Program
MYP	MidYearPopulation	RRT	Rapid Response Team
NGO	NonGovernmentOrganisation	RT	Radical Treatment
NLEP	National Leprosy Eradication Program	RTI	Reproductive Tract Infection
NMEP	National Malaria Eradication Program	SAPEL	Special Action Plan for Elimination of Leprosy
NNT	NeoNatal	SC	Sub Center
NPCB	National Programme for Control of Blindness	SCD-R	Survey of Causes of Death-Rural
NRHM	National Rural Health Mission	SDH	Sub-District Hospital
NRR	Net Reproduction Rate	SHTO	State Health Transport Organisation
NSV	No-Scalpel Vasectomy	SPR	Slide Positivity Rate
NVBDCP	National Vector Borne Diseases Control Program	STD	Sexually Transmitted Disease
OP	Oral Pill	STI	Sexually Transmitted Infection
OPD	Out Patient Department	TA	Travelling Allowance
OPV	Oral Polio Vaccine	TB	Tuberculosis
ORI	Outbreak Response Immunisation	TBA	Trained Birth Attendant
ORS	Oral Rehydration Solution	TCL	Tropical Chloride of Lime
OT	Operation Theater	TFR	Total Fertility Rate
PB	Pauci Bacillary	THO	Taluka Health Officer
PBS	Peripheral Blood Smear	TT	Tetanus Toxoid
PCV	Packed Cell Volume	TU	Tuberculosis Unit
PEM	Protein Energy Malnutrition	VCTC	Voluntary Counselling and Testing Center
PEP	Post-Exposure Prophylaxis	VED	Vital-Essential-Desirable
PH	Public Health	VPD	Vaccine Preventable Disease
PHC	Primary Health Center	VVM	Vaccine Vial Monitor
PHD	Public Health Department	WBC	White Blood Cell
PHI	Peripheral Health Institute	WBCT	Whole Blood Clotting Time
PIH	Pregnancy Induced Hypertension	WHO	World Health Organisation
PM	Post Mortem	WMF	Wastage Multiplication Factor
PMOA	Para Medical Ophthalmic Assistant	ZP	Zilla Parishad
PNC	Post Natal Care		

A) MATERNAL HEALTH

1. ANTENATAL CARE

Antenatal period is the most crucial period as the services provided during this period can have positive impact on health of both the mother and her child.

1. Essential obstetric care to every pregnant woman:

- Registration of all pregnant women before 12 weeks

2. Detailed history at first visit:

- Menstrual history: Regularity of cycles, date of LMP, calculate EDD and record on Mother Child Protection (MCP) card
- Obstetric history: Number of prior pregnancies and outcome of each pregnancy (full term birth, preterm birth, abortion), place and mode of delivery, weight of baby, Live birth/stillbirth, complications during ,after delivery (PPH, Retained Placenta, Infection)
- Past history : Hypertension, Diabetes Mellitus, Tuberculosis, Asthma, Heart disease, any other, surgical procedures undergone, medications taken during pre conception period, history of bleeding.
- H/O current symptoms, perception of fetal movements if pregnancy > 16 weeks

3. Schedule of Examination:

- **1st visit:** Within 12 weeks—preferably as soon as pregnancy is suspected—for registration of pregnancy and first antenatal check-up
- **2nd visit:** Between 14 and 26 weeks
- **3rd visit:** Between 28 and 34 weeks
- **4th visit:** Between 36 weeks and term

4. Examination at antenatal clinic

Table 1: Examination at antenatal clinic.

*Height	*Breast examination
Weight : Compare with previous visit (calculate BMI in first trimester)	*Systemic examination : Auscultate chest
Pallor, icterus	P/A: Fundal height & its correlation with period of amenorrhea (POA)
Edema over feet, hands, face	Fetal presentation and position after 32 weeks
Blood pressure	Fetal heart rate

* During first check up

- The last two visits are important as many of the pregnancy complications are detected during last trimester. For 'high risk' mothers more frequent examinations will be required.
- Medical officer should perform at least one check up during the third trimester and auscultate her chest to rule out any systemic abnormality.

5. Investigations

Table 2: Investigations

Hemoglobin estimation	VDRL
Urine Analysis: Protein and sugar	Voluntary HIV testing
Test for sickling in selected tribal area	Blood sugar testing
Blood grouping, Rh typing	Hepatitis B surface antigen (HbsAg)
Ultrasonography (16 to 18 weeks)	Malarial parasite in Endemic area.
Hemoglobin estimation	VDRL
Urine Analysis: Protein and sugar	Voluntary HIV testing

Test for sickling in selected tribal area	Blood sugar testing
Blood grouping, Rh typing	Hepatitis B surface antigen (HsAg)
Ultrasonography (16 to 18 weeks)	Malarial parasite in Endemic area.

Table 3: Examination and action to be taken during ANC check up.

Examination	Action
Edema	➤ Examine whether edema is on one leg or both legs and is it pitting. Look for edema over face, hands, and abdomen. Check for proteinuria and hypertension. ➤ High blood pressure and albuminuria refer to specialist as she has pre-eclampsia. ➤ History of kidney disease, if yes refers to specialist. ➤ If edema is on one leg, refer to specialist. ➤ If bilateral pedal edema without albuminuria and normal BP: Reassure mother, check for anemia and give IFA tablets as required
Weight gain	Record monthly weight on MCP card of mother, calculate weight gain since the previous visit Weight gain more than 3 kg. in a month: Suspect pre-eclampsia ➤ Weight gain less than 1 kg in a month: Suspect fetal growth retardation.
Blood Pressure	➤ If 140 / 90 mm Hg or more, advise mother to rest for half hour and then repeat the BP recording. Check for proteinuria ➤ If systolic between 140-160 and /or diastolic 90 or above: advise extra rest and refer to MO PHC ➤ If systolic 160 or more or diastolic > 100 : refer to specialist
Fundal Height	Examine fundal height in weeks and compare with calculated duration of pregnancy as per LMP. If it is greater or lesser refer to specialist. Causes of fundal height less or more than expected are given in table below
Fetal Presentation	Noncephalic (correction can be attempted at 36 weeks in suitable cases) by Obs/Gyn specialist.
Fetal Heart Rate	FHR < 120 or > 160 /minute : Refer to specialist
Hemoglobin %	Hb 11 gm% or more: IFA 100 tablets Hb between 7-11 gram%: Start IFA double dose* and reexamine after one month - If improvement of Hb by more than 1gm%, continue IFA. Give tab Albendazole (during second trimester) Hb < 7 gm % - Refer anemia treatment guidelines
Proteinuria	If proteinuria present suspect pre-eclampsia and refer to specialist
Risk factors	All high-risk pregnancies should be checked by MO and then referred to specialist if necessary for further check up or during delivery depending upon the risk factor.

* For better absorption, IFA tablets should be taken 2 hours before meals

Table 4: Fundal Examination

Fundal height < Period of Amenorrhea	Fundal height > Period of Amenorrhea
Wrong dates	Wrong dates
Infrequent periods prior to conception	Poly hydramnios
Intrauterine Growth retardation(IUGR)	Twins
Oligohydramnios	Big baby

Intrauterine fetal death.	Hydatidiform mole
	Uterine fibroids

6. Education and counseling regarding care during pregnancy

6.1. First and second trimester:

- Diet: More than one meal a day and evening snacks (most important), inclusion of sprouted legumes, pulses, green leafy and other vegetables, seasonal fruits.
- Rest: 2 Hours in afternoon and 8 hours at night in lateral position
- Exercise: Walking for 30 minutes daily
- Habits: Avoid tobacco in any form, avoid alcohol
- Practicing safe sex
- Self-reporting of danger signals, e.g. Abdominal pain, severe headache, giddiness, palpitations, easy fatigability, breathlessness, fever, generalized edema, vaginal bleeding, watery discharge per vaginum, blurred vision, excessive vomiting, reduced fetal movements
- Consumption of iron folic acid 180 tablets for anemia prophylaxis and consumption of 360 tablets for treatment of anemia.
- Tetanus Toxoid 2 doses/booster dose
- Calcium through diet and Calcium carbonate tablets 1 gm daily.

6.2. Third trimester:

- Avoid heavy work and jerky travel on bad roads.
- Importance of institutional delivery, safe delivery, inform TOLL free No.102 and 108 for free ambulance service, JSY, JSSK and other benefits, Plan for place of delivery, preparation for delivery.
- Importance of early initiation of colostrum feeding within one hour of birth & exclusive breast-feeding for 6 months, child immunization and contraception especially PPIUCD.
- Ask about birth companion.

Table 5: Identify high-risk mothers:

Risk factors detectable during first check up	Abnormalities developing during Current pregnancy
Age : Teenage/ elderly primi, Para 4 and above Short stature, limping gait, vertebral spine abnormalities Bad obstetric history: H/O stillbirth, neonatal death, LBW baby, recurrent abortions Previous Caesarean delivery H/O PE/eclampsia, PPH, retained placenta during previous pregnancies Preexisting medical conditions : Heart disease, diabetes mellitus, renal disease HIV /VDRL positive gravida Rh negative gravida	Anemia Hypertension, proteinuria Vaginal bleeding during pregnancy Premature rupture of membranes (PROM) Gestational diabetes mellitus (GDM) Fundal height < POA or > POA Uterus over distension: Twins, Polyhydramnios Fetal malpresentation persisting near term Pregnancy > 41 weeks Reduced fetal movements

Table 6: Actions suggested for some high risk indicators

RISKS	ACTION
1. Elderly Primi	
➤ Hypertension during pregnancy ➤ Gestational diabetes	➤ Refer to specialist soon after registration for evaluations to exclude fetal anomalies (biochemical markers and

RISKS	ACTION
➤ Difficult labor - Chances of caesarean section are higher ➤ Fetal abnormalities.	- ultrasonography) ➤ Regular ANC: B.P, urine analysis every month ➤ Pelvic assessment at or after 36 weeks. ➤ Institutional delivery under care of specialist.
2. Teenage primi	
➤ Hypertension during pregnancy ➤ Anemia ➤ Pre-term labor ➤ Fetal growth retardation. ➤ Difficult labor	➤ Regular antenatal care ➤ Hb%, BP, urine analysis more frequently ➤ Adequate rest ➤ IFA tablets, nutrition guidance ➤ Pelvic assessment at 36 weeks ➤ Hospital delivery.
3. Primi : Height less than 145 cms	Regular ANC check. Assessment of place of delivery by specialist. Observe progress of labor partographically.
4. Primi having vertebral /limb deformity	Regular check up at PHC, Assessment by specialist for place of delivery.
5. Grand multipara (para 4 and more)	
➤ Anemia ➤ Malpresentation ➤ Atonic PPH ➤ Uterine rupture	- Supplement IFA, nutrition guidance - At 34 and 36 weeks look for fetal malpresentation - Hospital delivery - Avoid injudicious use of oxytocics for augmenting labor - Active management of 3rd stage of labor - Keep IV line ready

KEY MESSAGES

- Register every pregnancy within 12 weeks.
- Track every pregnancy by name for provision of quality ANC, skilled birth attendance and postnatal services.
- Ensure four antenatal visits to monitor the progress of pregnancy. This includes the registration and 1st ANC in the first trimester.
- Give every pregnant woman Tetanus Diptheria (Td) injections and Iron Folic Acid (IFA) supplementation.
- Test the blood for hemoglobin, urine for sugar and albumin

EVERY VISIT.

- Record blood pressure and weight at every visit.
- Advise and encourage the woman to opt for institutional delivery.
- Maintain proper records for better case management and follow up.
- Do not give a pregnant woman any medication during the first trimester unless advised by a physician.

Expected Place of Delivery {EPD} and Calculation of EDD:

It is important to record the date of the LMP during the first visit as this helps to calculate the EDD and prepare a birth plan.

Remember that the LMP refers to the FIRST day of the womans last menstrual period. Make sure that the woman is not referring to the date of the first missed period, i.e. the date when menstruation was expected to occur the following month and failed to occur. This mistake will lead to a miscalculation of the gestational age and EDD by about four weeks.

- If the woman is unable to remember the exact date, encourage her to remember some major event, festival or occurrence which she might link with her LMP. A calendar with the Indian system of months and local festivals might come in handy while determining the LMP.
- If the exact date of the LMP is not known and it is late in the pregnancy, ask for the date when the foetal movements were first felt. This is known as 'quickening' and is felt at around 18-20 weeks of gestation. This information would give a rough idea about the period of gestation, which needs to

be correlated with the fundal height to estimate the gestational age. Calculate the EDD on this basis. A special note should be made of such cases in the records.

- If the woman is not able to recollect any of the above things, encourage her to mention what she believes is her current month of pregnancy. For example, if a woman has come to the ANC clinic on 20 September and says that she completed eight months of her pregnancy 10 days ago, it becomes clear that she will be completing her ninth month on 10 October and her EDD (9 months plus 7 days) is 17 October.

If the woman has undergone a test to confirm the pregnancy, ask her the approximate date of the test and also, after how many days of amenorrhea it was conducted. This will also assist you in estimating her LMP. The LMP is used to calculate the gestational age at the time of check-up and the EDD. The following formula is used to calculate the EDD. It is based on the assumption that the menstrual cycle of the woman was regular before conception and that it was a 28–30 days' cycle.

EDD = Date of LMP + 9 months + 7 days

It is important to also know her expected place of Delivery {EPD} for smooth monitoring and follow up of ANC.

Each Village wise chart should be displayed indicating EDD and EPD of all ANC mother.

- 1 month prior to EDD, mother should be counseled for delivery at health centre.[table 1]
- High risk ANC mothers should be visited regularly and give the referral services

Table 1:

Village wise EDD:

Village name:

Subcentre:

Table 2: High risk mother and follow up up register.

Name of the village

subcentre:

Sr.no	Name of the ANC mother	Cause of high risk	EDD	Follow up*visit date or condition/treatment and referral services					Result
				date	condition	date	Condition		

Note- from the date of high risk condition according to the type of risk regular follow up and visit to be given enter the visit date and follow up date should be mentioned in the register.

EXERCISE FOR PARTICIPANTS

Q.1. Write in brief about education & conseling during pregnancy

Q.2. Identify high risk mothers & Suggest action for high risk indicators

Q.3. Write short notes on

- Ante natal Care
- Schedule of Examination for ANC Checkup
- Investigations during pregnancy
- EDD & EPD

2. INTRA-PARTUM CARE

Introduction

Normal labour is a spontaneous process of expulsion of the fetus and placenta. However it is important to remember that during the intra partum period the woman and the baby go through physical as well as mental trauma. You, as an SBA, have the responsibility of providing the necessary care for the management of labor as well as emotional support, and must ensure a successful outcome for the mother and the baby.

Assessment, Supportive Care and Vaginal Examination during Labor:

Assessment

Assessment consists of the following components:

- Inquire about the woman's history of labour, asking the following questions:
 - When did the contractions begin?
 - How frequent are the contractions? How strong are they?
 - Has there been any watery discharge? If so, what colour was it?
 - Has there been any bleeding? If so, how much?
 - Is the baby moving?
 - Are there any other complaints?
- Check the woman's record for history of the present pregnancy, e.g. the haemoglobin status, TT immunization, Rh status, any complications and any other significant history.
- If there is no record, then ask the following:
 - When was the LMP? What is the period of amenorrhea? On this basis, determine the EDD.
 - Ask for the history of any past pregnancy.
 - Any other significant history.
- Conduct general physical examinations; record the temperature, pulse, blood pressure and weight, and check for pallor, edema, and so on.
- Conduct an abdominal examination to assess the foetal lie and presentation, FHR, and frequency and duration of contractions.
- Conduct a P/V examination to decide the stage of labour (as mentioned later in this section).

Vaginal examination

During a vaginal examination, determine the following:

- A. Pelvic adequacy
- B. Progress of labour
- C. Stage of labour

Remember

- Vaginal examinations are rarely required during pregnancy.
- During labour, vaginal examination should not be attempted more than once every four hours (to avoid unnecessary infection).

Do not carry out a vaginal examination if the woman is bleeding at the time of Labour or at any time during pregnancy. Manage this as a case of 'vaginal bleeding in pregnancy'

- Do not start a vaginal examination during a contraction.

Steps for doing a P/V examination:

- Do not shave the perineal area.
- Explain to the woman what is being done and always ask for her consent before doing a vaginal examination.

- Ask the woman to pass urine.
- Wash your hands with soap and water before and after each examination. Carry out the vaginal examination under strict aseptic conditions.
- Place the woman in the supine position with her legs flexed and apart.
- Perform the vaginal examination very gently, wearing clean/sterile gloves.
- Clean the vulva and perineal area with a mild antiseptic solution. Wipe the vulva first, then labia majora and lastly labia minora with cotton swabs from the anterior to the posterior direction. Use a swab only once. Use separate swabs for each side.
- Separate the labia with the thumb and forefinger of the left hand and clean the area once again.
- Use two fingers of the right hand (index and middle fingers) and insert them gently into the vaginal orifice without hurting the woman.

A. Pelvic adequacy

Pelvic assessment is important in the case of both primigravida and multigravidas, who have a past history of prolonged or difficult labour, which could be associated with Cephalopelvic Disproportion (CPD).

1. Pelvic Assessment

Table 1:

Parameter	Adequate	Suggestive of abnormality
Sacral promontory	Not felt	Felt easily
Diagonal Conjugate*	>11.5 cms	< 11.5 cms
Sacral curvature	Well curved	Flat
Lateral Pelvic walls	Parallel	Converging
Ischial spines	Both cannot be palpated simultaneously	Both spines can be palpated simultaneously
Subpubic Angle	Accommodates two fingers (85°)	Acute
Inter tuberous diameter	Accommodates closed fist (4 Knuckles)	Cannot accommodate 4 knuckles

* If sacral promontory is felt, the distance between the sacral promontory and the lower border of pubic symphysis is measured.

2. Clinical Examination for CPD

- Place the woman in dorsal position.
- Hold the fetal head by left hand.
- Place two fingers of gloved right hand into the vagina at the level of ischial spines.
- Place the thumb of right hand on the pubic symphysis.
- Push the head into the pelvic inlet and note whether it descends into the pelvis (felt by fingers in vagina) or overhangs on the public symphysis.
- If head descends with no overlap at public symphysis: No inlet CPD.
- If the head is engaged it indicates that the pelvic inlet is adequate.

B. Determining progress of labour—cervical effacement and cervical dilatation in centimeters

Assessing cervical effacement and dilatation during a vaginal examination is important to monitor the progress of labour.

- Cervical effacement: This is progressive shortening and thinning of the cervix during labour.
- Cervical dilatation: This is an increase in the diameter of the cervical opening in centimeters (distance in centimeters between the outer aspects of both examining fingers.) A fully dilated cervix has an opening of 10 cm—at this stage, the cervix is no longer felt on vaginal examination.

Normal effacement and dilatation will facilitate expulsion of the foetus in the second stage of labour

Recognizing True Labour

True labour pains	False labour pains
Regular and predictable	Irregular
Felt first in lower back and sweeps towards lower abdomen	Remains confined to lower abdomen
Not relieved by rest	Often relieved by rest
Increase in duration, intensity and frequency with time	Does not increase in duration, intensity or frequency
“Show” blood stained mucus discharge present	“Show” absent
Accompanied by cervical changes	Not accompanied by cervical changes

Stages of Labour:

First stage: From onset of labour pains till full dilatation of cervix. Has two parts:

Latent Phase (maximum 8 hours)

- Cervix dilatation < 4 cms
- 2 or less contractions per ten minutes

Active phase

- Cervix dilatation > or = 4 cms
- Contractions 3 or more per 10 min lasting >40 sec
- Rate of cervical dilatation 1cm / hour or more
- True labour pains are associated with changes in cervical condition

Key Actions associated with Stages of Labour:

Stage 1 – Monitoring of labour with partograph

Stage 2 – Preparation for birth of baby

Stage 3 – Performing AMTSL

Stage 4 – Review of condition of mother and newborn

Second Stage of Labour:

Part of labour beginning with full dilatation of cervix and ends with the expulsion of the foetus

Normally lasts between 1 – 2 hours

Care during Early part of Second Stage:

Watch for signs of imminent delivery (provide supportive care)

- Gaping of vulva
- Thinning and bulging of perineum
- Pouting of anus
- Head of the baby seen at vulva
- Urge to push
- Encourage the woman to push during contractions when she has an urge to do so while taking deep breaths

√	• When the cervix is fully dilated, during a contraction, encourage the woman to take deep breaths and push down.
X	• Bearing down efforts are not required until the head has descended into the perineum. Therefore, the woman should be advised not to push actively until the foetal head is distending the perineum. • Occasionally, the woman may feel the urge to push before the cervix is fully dilated. This

	must be discouraged as it can result in edema of the cervix, which may delay the progress of labour. • Do not apply fundal pressure on the abdomen to facilitate expulsion of the baby.

Supporting Delivery of Head

- Clean the perineum with anti-septic solution with strokes of swabs from above downward
- Ensure controlled delivery of the head:
- Keep one hand gently on the head as it advances with contractions.
- Support perineum with other hand and cover anus with pad held in position by palm of the hand during delivery.
- Ask the mother to breathe steadily and push only during contraction.
- Encourage rapid breathing with mouth open.
- Allow spontaneous rotation and restitution of head after delivery

Managing Cord around Neck

Feel gently around the baby's neck for presence of umbilical cord. If it is loose around the neck, deliver the baby through the loop of the cord, or slip the cord over the baby's head. If it is tight around the neck, doubly clamp and cut in between.

Delivery of Shoulders and Rest of the Body

- Wait for the spontaneous rotation and delivery of the shoulders. This usually happens within 1-2 minutes of delivery of head
- Apply gentle pressure downwards to deliver the top (anterior) shoulder
- Then lift the baby up, towards the mother's abdomen, to deliver the lower (posterior) shoulder
- Rest of the baby's body follows smoothly
- Note the time of birth

Third stage of labour:-

Active Management of the Third Stage of Labour (AMTSL)

AMTSL is recommended for all deliveries and consists of the following three activities:

1. **Uterotonic drug**— Inj. Oxytocin is the drug of choice for all health facilities (including SC), whereas Tab. Misoprostol is to be used when adequate refrigeration of Injection Oxytocin is not possible during high temperature. Tab. Misoprostol can also be used for home delivery or any OR delivery.
2. **Controlled cord traction.**
3. **Uterine massage.**

1) Uterotonic drug

An uterotonic drug enhances contraction of the uterine muscles, thereby facilitating expulsion of the placenta and diminishing bleeding. This helps to prevent PPH. An uterotonic drug should be given after the delivery. Rule out the presence of another baby before giving the uterotonic drug.

- Oxytocin is the drug of choice for AMTSL at the SC/PHC/FRU/health facility. It should be kept at a temperature 4-8°C but should not be frozen. It should ideally be stored in a refrigerator.
- Administer 10 units of oxytocin injection (intramuscular) to the mother if the delivery has taken place at the SC/PHC/FRU/health facility or give her a Tablet Misoprostol tablet (600 mcg) orally if the mother has been delivered at home and Injection Oxytocin is not available due to the problems of high ambient temperatures and unavailability of a refrigerator.

- You can also use it at the SC/PHC in case an Oxytocin injection is not available or if there are problems related to refrigeration. Inform the woman that shivering and gastrointestinal disturbances are common side-effects of Misoprostol, and should not be a cause for worry.

2) Controlled Cord Traction (CCT)

CCT is a technique that assists in the expulsion of the placenta, and helps to reduce the chances of a retained placenta and subsequent bleeding, i.e. PPH.

- Clamp the maternal end of the umbilical cord close to the perineum with a pair of artery forceps.
- Hold the clamped end of the cord with one hand.
- Place the other hand on the mother's abdomen to feel the uterine contraction.
- Maintain slight tension on the cord.

When the uterus contracts, as will be evidenced by the uterus becoming hard and globular, gently pull downwards on the cord to deliver the placenta. Simultaneously, place one hand just above the pubic symphysis to apply counter-traction (pressure in the opposite/upward direction towards the umbilicus) on the uterine fundus.

- If the placenta does not descend within 30–40 seconds of CCT, do not continue to pull on the cord.
- Wait for the uterus to contract strongly again and repeat CCT with counter-traction.
- Do not exert excessive traction on the cord while performing CCT. Do not repeat the manoeuvre more than once.
- As the placenta delivers, hold it with both hands to prevent tearing of the membranes. Normally, the placenta delivers within five minutes of the birth of the baby if the third stage of labour is managed actively.
- If the membranes do not slip out spontaneously, gently turn the placenta so that the membranes are twisted into a rope and move them up and down to assist separation. If pulled at, the thin membranes can tear off and get retained in the uterus.
- If the membranes tear, use your fingers or a pair of sponge forceps to remove any pieces placenta of membrane that might be present.
- **Controlled cord traction – Remember... You should never apply cord traction (pull) without a contraction and without applying counter traction (push) above the pubic symphysis with the other hand.**
- Ensure that the placenta is delivered completely with all membranes. Retained placental fragments or pieces of membrane will cause PPH. This can be suspected if a portion of the maternal surface of the placenta is missing or the membranes with their vessels are torn.
- If the placenta is not delivered after 30 minutes of inj. Oxytocin or Tablet Misoprostol, refer the woman to an FRU. Information on the drugs given, the dosage and time of administration on the referral slip, should also be sent along with the woman.

Examination of the placenta, membranes and the umbilical cord

Examine the placenta and the membranes for completeness as follows:

- Maternal surface of the placenta:
- Hold the placenta in the palms of the hands, keeping the palms flat and the maternal surface facing you. Look for the following:
- All the lobules (15–20) must be present.
- The lobules should fit together.
- There should be no irregularities in the margins.
- If any of the lobes are missing or the lobules do not fit together, suspect that some placental fragments may have been left behind in the uterus.

Foetal surface

- Hold the umbilical cord in one hand and let the placenta and membranes hang down like an inverted umbrella.
- The umbilical vessels will be seen passing from the cord and gradually fading into the edge of the placenta.
- Look for free-ending vessels and holes which may indicate that a lobule has been left behind in the uterus.
- Look for the insertion of the cord, particularly the velamentous insertion (the point where the cord is inserted into the membranes and from where it travels to the placenta).

Membranes

- Both the layers (chorion and amnion) can be seen at the edge of the hole where the membranes rupture and the foetus comes out.
- If the membranes are ragged, place them together and make sure that they are complete.
- Umbilical cord
- Normally, the umbilical cord has two arteries and one vein. If only one artery is found, look for congenital malformations in the baby.

3) Uterine massage

This technique helps in contraction of the uterus and thus prevents PPH.

- Immediately after delivery of the placenta, massage the fundus of the uterus through the woman's abdomen until it is well contracted. Repeat the uterine massage every 15 minutes for the first two hours.
- Ensure that the uterus does not become relaxed (soft) after you stop the uterine massage. If the uterus remains soft and flabby, the woman may be suffering from Atonic PPH.
- Approximately 66% cases of PPH can be prevented if AMTSL is done in all cases after delivery
- It helps in expulsion of placenta and reduction in blood loss to mother

Key Messages

- Encourage woman to push down only during contractions and after she feels an urge to push
- Ensure delayed cord clamping and cutting (after 1-3 minutes of delivery of baby)
- Perform active management of third stage of labour in all cases to help in separation of placenta and prevent PPH: Give uterotonic (injection Oxytocin 10 IU IM) immediately after the delivery of baby
- Perform controlled cord traction to help deliver the placenta
- Perform uterine massage

After delivery:

- Examine the perineum, vulva, lower vagina for tears.
- Examine the placenta and membranes carefully for completeness and any abnormality
- Observe the mother every 15 minutes for two hours for general condition, pulse, vaginal bleeding, pallor, uterine contraction.
- Repeat uterine massage every 15 minutes for 2 hours
- Encourage mother to take the baby to breast within ½ hour of delivery.

Fourth stage of labour

The first two hours after the delivery of the placenta are referred to as the fourth stage of labour. This stage comprises both observation and care of the mother and newborn. The mother and her newborn should not be separated, unless required.

Care of the mother

- After the delivery of the placenta, check to see if the uterus is well contracted (i.e. it is hard and round) and ascertain that there is no heavy bleeding. Repeat the check every 15 minutes.
- If the uterus is not well contracted and there is bleeding, massage the uterus and expel the clots. If the bleeding continues, manage as indicated under 'Management of postpartum haemorrhage'.
- Examine the perineum, lower vagina and vulva for tears. If present, manage accordingly.
- Clean the woman and the area beneath her. Put a sanitary pad or a folded cloth under her buttocks to collect the blood. Counting the number of pads/cloths soaked will help in estimating the amount of blood lost.

Estimate the amount of blood loss throughout the third stage of labour and immediately afterwards. If the bleeding has stopped, observe the woman for the next 24 hours. If bleeding has not stopped, then manage as post-partum haemorrhage, as per steps given in module II.

- Check the following every 15 minutes for the first two hours:
 - General condition, blood pressure and pulse
 - Vaginal bleeding
 - Uterus, to make sure that it is well contracted.
- Dispose of the placenta and others waste according to BMW 2016 guidelines.
- Counsel the mother to breastfeed, including colostrums feeding, within an hour of the birth. Ask her to take warm fluids, eat well, take adequate rest, sleep and maintain hygiene. The latter would include maintaining perineal hygiene, taking a bath every day and washing her hands before handling the baby.
- Encourage the woman to pass urine. If the woman has difficulty in passing urine, or the bladder is full (as evidenced by a swelling over the lower abdomen just above the symphysis pubis) and she is uncomfortable, help her pass urine by gently pouring warm water over her vulva.
- Ask the birth companion to stay with the mother and not leave her and the newborn alone. Ask the companion to call for help if any of the following conditions occur:
 - Excessive bleeding per vaginum
 - Dizziness, severe headache, visual disturbance or epigastric pain
 - Convulsions
 - Increased pain in the perineum
 - Urinary incontinence or inability to pass urine.

Care of the newborn

- Place an identity label with the mother's name and any other identification information as may be required on the baby's wrist or ankle, if not done earlier.
- Give the baby a vitamin K injection 1.0 mg, intra muscular to all newborns weighing 1500 gm and above and in a dose of 0.5 mg to newborns weighing less than 1500 gm.
As per the current provision SNs/LHVs are permitted to administer Injectable drugs like Vitamin K to new born.
- The site for the injection is the quadriceps muscle group of the upper, outer thigh by sterile 1-inch needle of the smallest size, available.
- Vitamin K is needed for prevention of hemorrhagic disease of new born. Babies have very little vitamin K in their bodies at birth. Vitamin K does not cross the placenta into the developing baby, and the gut does not have any bacteria to make vitamin K before birth. There is very little vitamin K in breast milk and it takes several weeks before the normal gut bacteria start making it.
- Examine the baby quickly for malformations or any birth injury. If there is major malformation or severe birth injury, refer the baby to the newborn unit in the FRU. Ensure that the baby is warm during the examination and when being transported. Check the baby's colour and breathing every five minutes.

- If the baby becomes cyanotic (bluish) or is having difficulty in breathing (less than 30 or more than 60 breaths per minute), make initial attempts at resuscitation. If this does not help, a referral to the MO at the FRU is necessary.
- Check if the baby is warm, by feeling his/her feet every 15 minutes.
- If the baby's feet feel cold, check the axillary temperature.
- If the baby's temperature is below 36.5°C, provide warmth to the baby by placing him/her under a radiant warmer.
- Teach the mother to provide skin-to-skin contact, a component of Kangaroo Mother Care (KMC).
- Two components of KMC are skin-to-skin contact and exclusive breastfeeding.

Check the cord for bleeding every 15 minutes.

- If the cord is bleeding, re-tie it more tightly.
- Do not apply any substance to the stump.
- Leave the stump uncovered and dry.
- Wipe off any meconium or blood from the baby's skin.
- Encourage breastfeeding within an hour of birth.
- Emphasise the importance of colostrum, which helps to protect the baby against infections.
- Check if the baby's position and his/her attachment to the breast are correct at the first feed. The baby can feed whether the mother is lying down or sitting. What is important is that both mother and baby should be comfortable.
- Do not give artificial teats or pre-lacteal feeds, such as sugar water or local foods, or even water to the newborn.
- Weigh all babies before they leave the delivery room.
- Delay the baby's first bath to beyond 24 hours of birth.
- Ensure that the baby is dressed warmly and is with the mother.
- Watch for complications such as convulsions, coma and feeding problems. Refer the baby if these are present.

EXERCISE FOR PARTICIPANTS

Q.1. Define normal Labour & Write in brief about assessment & vaginal examination during labour.

Q.2 Write difference between true labour pains & false labour pains.

Q.3. Describe active Management of the Third Stage of Labour.

Q.4. Write short notes on

- a) Stages of Labour
- b) Per vaginal examination
- c) Pelvic adequacy
- d) Controlled Cord traction
- e) Fourth stage of labour

3. POST-PARTUM CARE

Conventionally, the first 42 days (six weeks) after delivery are considered the post-partum period. The first 48 hours of the post-partum period, followed by the first one week, are the most crucial period for the health and survival both of the mother and her newborn. Most of the fatal and near-fatal maternal and neonatal complications occur during this period. Evidence has shown that more than 60% of maternal deaths take place during the post-partum period.

PPH—blood loss of 500 ml or more following and up to six weeks after delivery

- Types of PPH:
- Immediate PPH/primary PPH—during and within 24 hours of delivery
- Delayed PPH/secondary PPH—after 24 hours of delivery until six weeks postpartum

Bleeding during and within 24 hours of delivery (immediate PPH)

PPH is defined as the loss of 500 ml or more of blood during or within 24 hours of the birth and up to six weeks after delivery. PPH may be immediate or delayed.

- Immediate PPH may be due to a number of causes, such as:
 - Atonic uterus
 - Tears in the lower vagina, cervix or perineum
 - Retained placenta or placental fragments
 - Inverted or ruptured uterus
- The general steps to be taken for the management of PPH, before referring the woman to an FRU, are as follows.
- Evaluate her general condition and look for signs of shock (cold, clammy skin), check the level of consciousness, pulse (should not be weak or fast, at 110 per minute or more), blood pressure (systolic should not be less than 90 mmHg), respiration (the RR should not be more than 30 breaths per minute) and temperature
 - Monitor the vital signs every 15 minutes and estimate the amount of blood loss.
 - Try and ascertain the cause of PPH using the flowchart given above.
 - Give the woman an Oxytocin injection (10 IU, intramuscular stat). (If she has already received a prophylactic Oxytocin injection or a Misoprostol tablet during AMTSL, this is not required).
 - Massage the uterus to expel blood and blood clots. Blood clots trapped in the uterus will inhibit effective contractions.
 - Establish an intravenous line and start an intravenous infusion of Ringer Lactate or normal saline. Do not use dextrose solutions unless others are unavailable.
 - Add 20 IU of oxytocin to 500 ml of Ringer Lactate/normal saline that is running intravenously at the rate of 40–60 drops per minute. (If an intravenous line cannot be established, give her an intramuscular Oxytocin injection (10 IU) stat).
 - If the bleeding persists and the uterus continues to be in the relaxed state (i.e. it is soft), make arrangements for transporting the woman to the FRU, where facilities for blood transfusion and appropriate surgical care are available.
 - Do not give the woman anything to eat or drink since she may require an obstetric intervention under anaesthesia.
 - If the woman is bleeding heavily, i.e. soaking one pad or cloth in less than five minutes, or if she is in shock, give her fluids rapidly (60 drops per minute) through another drip.
 - Raise the foot end of the bed so that her head is lower than her body. This will help increase the flow of blood to the heart.
 - Keep the woman warm and covered with a blanket. If she is in shock, she might feel cold even in warm weather.

Utilise the intervening time to perform bimanual compression. **Role and Visit of ASHA during ANC and PNC:**

- **List all pregnant women:** Ensure that you cover the women in the poorest families, and in the sections which tend to get left out, e.g. women from SC/ST communities, women living in hamlets far from the main village, or in hamlets that fall between villages, newly migrant women and women headed households.

- **Early registration:** Help pregnant women getting registered as early as possible but within 12 weeks of pregnancy.
- **Ensuring full ANC:** educate women about the importance of the four ANC visits. Remind them when next ANC is due and/or escort them to VHND if they need such support.

Counseling for ante-natal care

- Importance of a balanced and nutritious diet:
- Importance of adequate rest and harmful effects of heavy manual
- Danger signs during pregnancy
- Supplementary Ration from Anganwadi Centre (AWC):
- Safe institutional delivery
- Counseling for family planning

Tasks of ASHAs during Post-natal care:

Home Visits You should visit the mother and newborn from the time of birth till six weeks after the delivery and provide counseling for appropriate care of the mother and newborn.

You should at least pay **six/seven visits** as per the following schedule –

For **Home Delivery visit** on Days - 1, 3, 7, 14, 21, 28 and 42

For **Institutional Delivery visit** on Days - 3, 7, 14, 21, 28 and 42.

Important messages for post-natal mothers Counsel the mother on following:

Nutritious diet:

Adequate rest:

Exclusive breastfeeding

Postnatal check-ups: Counsel the mother that she must be seen by the ANM for at least three post-natal checkups.

KEY MESSAGES

Mother

- Make at least four post-partum visits to ensure that complications during the post-partum period are recognized in time.
- Look out for symptoms and signs of PPH and puerperal sepsis during post-partum visits as they are the major causes of maternal mortality.
- Advise the mother on colostrum feeding and exclusive breastfeeding.
- Advise the couple on family planning.

Newborn

- Keep the baby warm.
- Ensure care of the umbilicus, skin and eyes.
- Ensure good suckling while breastfeeding.
- Screen the newborn for danger signs.
- Advise the mother and family members on immunization.

EXERCISE FOR PARTICIPANTS

Q.1. Write in brief about post natal care.

Q.2. Role and Visit of ASHA during ANC and PNC:

4. MANAGEMENT OF OBSTETRIC COMPLICATIONS

Maternal mortality occurs due to various pregnancy-related complications, childbirth or later during the puerperium due to haemorrhage, hypertensive disorders of pregnancy, abortion, obstructed labour or puerperal sepsis. It is now well-recognized that antenatal care alone, no matter how good the quality and the coverage, cannot alleviate the major burden of suffering during and around childbirth. For reducing maternal mortality and morbidity, skilled attendance at every birth and provision of emergency obstetric care are essential.

Countries that have been successful in bringing down the maternal mortality ratio are those that have ensured that emergency obstetric care is accessible to all women. The Government of India envisages that under the Reproductive and Child Health (RCH)-II Programme, 50% of the primary health centres (PHCs) will start functioning round-the-clock and will provide basic emergency obstetric care services, including facilities for parenteral administration of antibiotics, oxytocics and anticonvulsant drugs, manual removal of the placenta, removal of the retained products of conception and assisted vaginal delivery. Facilities for ensuring referral form an integral component of this package of services.

a) HYPERTENSIVE DISORDERS OF PREGNANCY

Hypertensive disorders in pregnancy include

- Gestational hypertension
- Pre-eclampsia (hypertension with proteinuria)
- Eclampsia (pre-eclampsia with superadded convulsions)
- Chronic hypertension (hypertension antedating pregnancy and persisting postpartum)
- Chronic hypertension with superadded pre-eclampsia or eclampsia

DEFINITIONS

I. Pre-eclampsia:

Pre-eclampsia is a condition specific to pregnancy, arising after the 20th week of gestation, characterized by hypertension and proteinuria. Edema may also be present.

II. Hypertension

Hypertension is defined as:

- BP of 140/90 mmHg or more taken on two occasions 6 hours apart.
- an increase in the systolic pressure by 30 mmHg or more (if the "usual level", i.e. BP taken before 16 weeks of gestation, is known)
- An increase in the diastolic pressure of 15 mmHg or more (if the "usual level" is known). An increase in the diastolic pressure is more significant because, unlike the systolic pressure, it is not affected by posture or excitement. It should be taken on at least two occasions, about 6 hours apart.

III. Proteinuria

Proteinuria is defined as a protein concentration of 0.3 g/L or more (or 1+ or more on urine strips) in at least two random urine samples collected 6 or more hours apart. A woman developing pre-eclampsia rarely has proteinuria before there is a rise in her BP. When proteinuria is present with a normal BP, it usually does not indicate pre-eclampsia but could indicate urinary tract infection (UTI), kidney disease or contamination of the sample, and is also found after prolonged standing.

IV. Edema

Edema, especially pedal edema, is commonly seen in normal pregnancy and is, therefore, not a reliable sign of pre-eclampsia except when edema of the hands and/or face starts suddenly. Sometimes edema is not obvious on examination but manifests itself only by excessive weight gain (this is called occult edema or hidden edema). An excessive weight gain of 1 kg or more in a week (or 3 kg in a month) is indicative of pre-eclampsia (the normal weight gain is about 0.5 kg per week, or 2 kg in a month).

Edema in a case of pre-eclampsia may occur at the following sites:

- * The front of the legs (pre-tibial)/dorsum of the foot and over the ankles
- * Hands/fingers
- * Face, eyelids
- * Abdominal wall
- * Sacral area
- * Vulva

Classification Of Pre-Eclampsia

Pre-eclampsia may be classified as mild and severe. Table 1 lists the clinical features of both these categories.

Table 1: Classification of pre-eclampsia

Finding	Mild pre-eclampsia	Severe pre-eclampsia
Blood pressure (BP)	• The diastolic pressure rises 15-20 mmHg above the "usual" level; OR • The absolute level of BP is >140/90 mmHg but <160/110 mmHg	• The diastolic pressure rises >20 mmHg above the "usual" level; OR • The absolute level of BP is >160/110 mmHg
Proteinuria	Present, but 2+ or less	3+ or persistently greater
Generalized edema (including in the face and hands)	May or may not be present	Present
Headache	Absent	Present
Visual disturbances	Absent	Present
Upper abdominal pain	Absent	Present
Oliguria	Absent	Present
Diminished foetal movement	Absent	Present

It is not necessary that all these signs are present in all cases.

V. Eclampsia

Eclampsia is a condition peculiar to pregnant or recently delivered women. It is characterized by convulsions/fits followed by more or less prolonged coma. The woman usually has hypertension and proteinuria. The convulsions may occur in the ante-partum, intra-partum or the postpartum period.

Pre-eclampsia and eclampsia are part of the same spectrum of disorders with eclampsia being the severe form of the disease. Pre-eclampsia almost always precedes eclampsia. Not all cases follow an orderly progression from mild to severe disease; some women may develop severe pre-eclampsia or eclampsia suddenly.

Sometimes convulsions seem to occur at apparently normal BP levels (although this is rare); in such cases, one should consider what is normal for each person. In some women, the "usual/normal" BP is low, in the order of 100/60 mmHg, and in these individuals eclampsia could occur at a BP of 120/80 mmHg, which is usually considered normal, but represents hypertension in these women. **Thus, it is re-emphasized that it is the rise in BP (above the "usual" values) that counts more than the absolute value.**

Premonitory symptoms of eclampsia

- Headache
- Blurring of vision

Giddiness
Epigastric pain & vomiting

VI. Fulminating pre-eclampsia

Fulminating pre-eclampsia is severe pre-eclampsia that occurs suddenly. The woman can rapidly develop eclampsia. This is an obstetric emergency and management should start immediately.

VII. Imminent eclampsia

Imminent eclampsia means that an eclamptic fit is likely to occur very soon.

SYMPTOMS OF IMMINENT ECLAMPSIA:

- Severe headache
- Drowsiness
- Mental confusion
- Visual disturbances (e.g. blurred vision, flashes of light, double vision)
- Epigastric pain
- Nausea, vomiting
- Decreased urinary output

SIGNS OF IMMINENT ECLAMPSIA:

- A sharp rise in the BP
- Increased proteinuria
- Exaggerated knee jerk

VIII. Status eclampticus

Status eclampticus refers to a state in which convulsions or eclamptic fits continue one after the other. This condition is dangerous for both the mother and the foetus, and can lead to maternal and foetal mortality.

STAGES OF AN ECLAMPTIC FIT

The stages of an eclamptic fit are similar to those of an epileptic fit.

1. Premonitory stage

This stage lasts for 10-20 seconds during which:

- the eyes roll or stare;
- the muscles of the face and hand(s) may twitch;
- Loss of consciousness.

2. Tonic stage

This stage lasts for 10-20 seconds during which:

- the muscles go stiff or rigid;
- the diaphragm is in spasm, so that breathing stops and cyanosis occurs;
- the back may be arched;
- the teeth are clenched;
- Eyes bulge.

3. Clonic stage

This stage lasts for 1-2 minutes and is marked by:

- violent contraction and relaxation of the muscles;
- increased salivation causing "frothing" at the mouth;

- deep, noisy breathing;
- inhalation of mucus or saliva;
- the face looks congested (filled with blood) and swollen;
- Tongue may be bitten by violent clenching of the teeth and jaws.

4. Coma stage

This stage may last for several minutes or hours. During this time:

- there is a stage of deep unconsciousness;
- the breathing is noisy and rapid;
- cyanosis fades, but the face remains congested and swollen;
- Further fits may occur before the woman regains consciousness.

If and when the woman regains consciousness, she does not remember that she had fits.

IX. Convulsions

Table 2 provides the differential diagnosis of convulsions during pregnancy.

Convulsion:

- can occur regardless of severity of hypertension
- are difficult to predict and typically occur in the absence of hyper-reflexia, headache and visual changes
- occur after childbirth in 25% of cases (postpartum eclampsia)
- are tonic-clonic and resemble grand mal epileptic fits
- may occur in a rapid sequence
- may not be observed if the woman is alone
- may be followed by coma that lasts for minutes or hours depending on the frequency of convulsions.

Table 2: Differential diagnosis of convulsions during pregnancy

Symptoms and signs typically present	Symptoms and signs sometimes present	Probable diagnosis
• Convulsions • BP 140/90 mmHg or more after 20 weeks of gestation; rarely only 110/90 mmHg • Proteinuria 2+ or more		Eclampsia
• Trismus (difficulty in opening the mouth and chewing) is the first symptom, followed by: - spasms of the face, neck and trunk - arched back - board-like abdomen - spontaneous, violent spasms		Tetanus
• Convulsions • Normal BP • Past history of convulsions		Epilepsy
• Headache • Fever with chills and rigors • Muscle/joint pains	• Jaundice • Anaemia • Enlarged & tender spleen • Convulsions	Complicated malaria (especially Plasmodium falciparum infection)
• Convulsions • Irritability	• Headache • Neck rigidity • Confusion • Drowsiness	Meningitis or encephalitis

- a) Give analgesics (e.g. Paracetamol 500 mg orally) as required.
- b) If the diagnosis of eclampsia cannot be ruled out, continue treatment for eclampsia. If spinal fluid examination cannot be done, refer to a higher health facility.

HOW ECLAMPSIA / SEVERE PRE ECLAMPSIA AFFECTS THE MOTHER AND FOETUS

In eclampsia, there is a widespread spasm of the arterioles which affects most organs in the body causing organ failure that endangers the lives of both the mother and the foetus. Hence, remember that untreated hypertension in pregnancy can cause maternal and perinatal death.

Effects on the mother

These include

- * Respiratory (asphyxia, aspiration of vomitus, pulmonary edema, bronchopneumonia)
- * Cardiac (heart failure)
- * Brain (haemorrhage, thrombosis, edema)
- * Renal (acute kidney failure)
- * Hepatic (liver necrosis)
- * HELLP syndrome (haemolysis, elevated liver enzymes, low platelet count)
- * Haemorrhage due to coagulation defect, i.e. disseminated intravascular coagulopathy (DIC), which is often associated with eclampsia
- * Visual problems (temporary blindness: due to edema of the retina)
- * Injuries (fractures, tongue bite)

The most common causes of maternal death in eclampsia are aspiration of vomitus, kidney failure, intracerebral haemorrhage, and multi-organ failure (e.g. heart + liver + kidneys).

Effects on the fetus

Placental insufficiency leads to:

- * Hypoxia: This may lead to permanent brain damage, which may result in
- * physical handicap
- * cerebral palsy
- * mental retardation
- * IUGR
- * Stillbirth

CHECKLIST FOR PRE- ECLAMPSIA

Pre-eclampsia and therefore the risk of eclampsia is more common in the following groups:

- * Primigravidas (especially young teenagers and women over the age of 35 years)
- * Obese women
- * Women with essential hypertension
- * Women with multiple pregnancy
- * Women with diabetes, hydatidiform mole, polyhydramnios
- * Women with a h/o pre-eclampsia or eclampsia in a previous pregnancy
- * Women with a family history of eclampsia

The following factors increase the chances of a woman with hypertensive disorder of pregnancy dying due to eclampsia.

- * Failure to monitor the BP and urine for proteins during prenatal care
- * Failure to counsel the woman and her family about the dangerous symptoms of pre-eclampsia and the importance of prenatal care
- * Delay in referral of a woman with eclampsia
- * Lack of a clear-cut management strategy for dealing with pre-eclampsia and eclampsia
- * Lack of proper equipment and drugs to treat eclampsia
- * Failure to carry out timely management of complications arising due to eclampsia.

DIAGNOSIS OF HYPERTENSION DURING PREGNANCY

The possible presentations of hypertension during pregnancy are:

- * A pregnant woman, or a woman who has delivered recently, complains of severe headache and/or blurred vision.
- * A pregnant woman, or a woman who has delivered recently, is found unconscious or is having convulsions.
- * A pregnant woman has an elevated BP.

The hypertensive disorders of pregnancy include chronic hypertension (elevation of the BP before 20 weeks of gestation) and PIH. Headache, blurred vision, convulsions and loss of consciousness are often associated with hypertension in pregnancy but are not necessarily specifically due to it. Other conditions that may cause convulsions or coma include epilepsy, complicated malaria; head injury, meningitis, encephalitis, etc. (see Table 13 "Differential diagnosis of convulsions during pregnancy"). Table 3 gives the differential diagnosis of hypertensive disorders of pregnancy.

Table 3: Differential diagnosis of hypertensive disorders of pregnancy

Symptoms and signs	Probable diagnosis
• BP 140/90 mmHg or more before the first 20 weeks of gestation	Chronic hypertension
• BP 140/90 mmHg or more before 20 weeks of gestation • Proteinuria	Chronic hypertension with superimposed pre-eclampsia
• Two readings of BP 140/90 mmHg or more, taken at least 4 Hrs apart • Pregnancy-induced hypertension hours apart, after 20 weeks of gestation • No proteinuria	Pregnancy-induced hypertension
• Two readings of BP >140/90 mmHg but <160/110 mmHg, taken 4 hours apart, after 20 weeks of gestation • Proteinuria up to 2+	Mild pre-eclampsia
• BP 160/110 mmHg or more, taken after 20 weeks of gestation • Proteinuria 3+ or more	Severe pre-eclampsia
Severe pre-eclampsia PLUS any two of the following: • Headache (increasing frequency, unrelieved by regular analgesics) • Clouding of vision • Pain in the upper abdomen (epigastric pain or pain in the right upper quadrant) • Oliguria (passing less than 400 ml urine in 24 hours) • Hyperreflexia (exaggerated knee jerk) • Pulmonary edema	Imminent eclampsia
• Convulsions • BP 140/90 mmHg or more after 20 weeks of gestation; rarely only 110/90 mmHg • Proteinuria 2+ or more	Eclampsia

MANAGEMENT OF PRE-ECLAMPSIA

At each prenatal visit, check the woman's BP, test the urine for the presence of protein; examine her for generalized body edema; and note her weight. Encourage every pregnant woman to come for the

first ANC visit as early as possible in their pregnancy so that a baseline value for their BP can be obtained. If there is a rise in the BP, monitor the woman's BP weekly.

Mild pre-eclampsia

Gestation less than 37 weeks: Allow the woman to stay at home and advise her to rest as much as possible. Ask her to return to the PHC every week or ask the ANM in charge to ensure a weekly domiciliary visit for giving the following care to the woman.

At each visit:

- * Check the BP
- * Test the urine for the presence of protein
- * Weigh the patient
- * Check for generalized body edema
- * Exclude symptoms of severe pre-eclampsia
- * Monitor foetal growth, ask the woman about foetal movements
- * Check the FHR.

Register the woman for delivery at the PHC.

Gestation more than 37 weeks: In case there are signs of foetal compromise, assess the cervix and expedite delivery. Admit the woman to a hospital for observation and management. In the hospital:

- * Let the woman rest in a quiet room
- * Check the BP 4-hourly (2-hourly if the woman is severely affected)
- * Test the urine for the presence of protein twice daily
- * Monitor the FHR twice daily
- * Weigh the woman twice weekly, if possible

Eclampsia (or severe pre-eclampsia)

Eclamptic fits can begin before, during or after delivery. The management is the same in each case but if the patient has not delivered, carry out the delivery as soon as possible.

The management of eclampsia involves six major steps:

1. Making sure that the woman can breathe
2. Controlling the fits
3. Controlling the BP
4. Controlling the fluid balance
5. Delivering the baby
6. Giving care after delivery

Making sure that the woman can breathe

This is achieved in four steps:

- Place the woman on her left side (in the semi-prone position) so that mucus or saliva can drain out, for, with deep breathing, there is a grave danger of inhaling mucus and saliva.
- Clean the mouth and nostrils by applying gentle suction and remove the secretions.
- Give oxygen (if available) and continue for five minutes after each fit, or longer if cyanosis persists.
- Instruct the nursing staff to make sure that:
 - the patient's airway remains clear;
 - injury, especially to the tongue (tongue bite), is prevented during the clonic stage of convulsions; this can be done by placing padded tongue blades or pads between her teeth, which are secured to prevent aspiration. (Do NOT attempt this during a convulsion.)

1. **Controlling the fits:** There are two widely accepted drugs for controlling fits: Magnesium sulphate or Diazepam. Remember, Diazepam is not the drug of first choice for managing eclamptic fits. It should be used only when Magnesium sulphate is not available.

MAGNESIUM SULPHATE

Administration of the drug: For the loading dose, give Inj. Magnesium sulphate 4 g (20 ml of 20% solution), slow IV, at the rate of 1 ml every minute. Magnesium sulphate should not be given as a bolus. (The woman may feel warm during the injection.)

Thereafter, also administer Inj. Magnesium sulphate IM. Initially, 5 g should be injected into each gluteus muscle (10 ml of 50% solution, in each buttock), deep IM, with 1 ml of 2% Lignocaine in the same syringe.

If the staff is not trained in administration of IV, give Inj. Magnesium sulphate through the IM route only.

If referral is delayed for long, or the woman is in the late stage of labour, continue treatment as below:

Give 5 g of 50% Magnesium sulphate solution IM with 1 ml of 2% Lignocaine every 4 hours alternately in each buttock. Catheterize her and refer her to an FRU immediately.

Before giving the next dose of Magnesium sulphate, ensure that:

- * The urine output is at least 100 ml per 4 hours; (30 ml/hr)
- * Knee jerk reflexes are present;
- * The RR is at least 16 breaths/minute.
- Reassess after 1 hour. Postpone the next dose if the above criteria are not met.

Advantage: Magnesium sulphate has been shown to be more effective than Diazepam or Phenytoin in preventing the recurrence of fits.

Disadvantage: Magnesium sulphate can cause respiratory depression in the mother and foetus. This is why a rapid IV infusion should be avoided.

Precautions:

- Do NOT give 50% Magnesium sulphate solution IV without diluting it to 20%.
- Do NOT give a rapid IV infusion of Magnesium sulphate as it can cause respiratory failure or death.
- If respiratory depression occurs (RR <16 breaths/minute) after giving Magnesium sulphate, discontinue the drug. Give the antidote; Calcium gluconate 1 g IV (10 ml of 10% solution) over a period of 10 minutes.

DIAZEPAM

Diazepam is not the drug of first choice for a case of eclampsia. As per the Cochrane Review, Magnesium sulphate appears to be substantially more effective than Diazepam for the treatment of eclampsia. It should be used only when Magnesium sulphate is not available.

Administration of the drug: Loading dose: Give 10 mg of Diazepam IV slowly over a period of 2 minutes. If convulsions recur, repeat the dose.

Maintenance dose: Give Diazepam 40 mg in 500 ml of IV fluids (Ringer lactate [R/L] or normal saline) titrated over 6-8 hours to keep the woman sedated but rousable. Do not give more than 100 mg in 24 hours.

Diazepam may also be given by the rectal route in case IV access is not possible

Advantage: Diazepam may be more readily available than Magnesium sulphate.

Disadvantage: Diazepam can cross the placenta and cause problems in the foetus such as maintaining the body temperature and breathing difficulties while feeding.

Precautions:

- Diazepam can cause respiratory depression. Therefore, if the RR becomes <16 breaths/minute, stop the maintenance dose; give assisted ventilation using a bag and mask, if required.
- Never give Diazepam as an IV bolus as it can cause cardiac arrest.
- If there is maternal respiratory depression due to the use of Diazepam, it may compromise the foetus too. Hence, if delivery is imminent, one should be prepared for neonatal resuscitation.
- An excessive dose of Diazepam also increases the chances of hyperbilirubinaemia in the neonate.

2. Controlling the blood pressure

Antihypertensive therapy:

During a normal pregnancy, there are considerable changes in the BP. The BP falls within the early weeks, largely due to general relaxation of the muscles within the blood vessels. From around the middle of the pregnancy, it rises slowly again until, at term, the BP is close to the level it was before pregnancy. During pregnancy, the BP can be influenced by many factors including the time of day, physical activity, position and anxiety. High BP alone has little effect on the outcome of pregnancy, but a rise in the BP is associated with other complications of which the most common is pre-eclampsia. Keeping in view the many factors that can influence BP, it is not surprising that there is often uncertainty about whether a specific abnormal reading is potentially harmful for the woman. The goal of treatment is to keep the diastolic pressure between 90 and 100 mmHg to prevent cerebral haemorrhage. This management can be given for eclampsia, fulminating pre-eclampsia or severe pre-eclampsia.

There is no good evidence that any one antihypertensive is better than another for reducing the BP.

However, Diazoxide is best avoided.

LABETALOL:

Give 20mg IV over 2 minutes initially.

Then 40 to 80 mg IV over 10 minutes.

Total dose not to exceed 300mg or 1 to 2mg/minute by continuous IV infusion.

NIFEDIPINE

In case Hydralazine is not available, Nifedipine is the next drug of choice for controlling the BP.

Dose and administration: The dose of Nifedipine is 5 mg orally. No sublingual Nifedipine should be given, as it causes sudden hypotension. If the BP is still not brought under control, another 5 mg of the drug can be repeated similarly.

Disadvantage: Nifedipine may cause a sudden and massive fall in BP. Hence, it should be used with caution, and the dose delivered slowly.

Precaution: Nifedipine, when used in conjunction with Magnesium sulphate, can cause a dangerous fall in BP. Hence, when Nifedipine and Magnesium sulphate are used together, the BP should be monitored carefully.

3. Controlling the fluid balance

- Insert an indwelling urinary catheter with an open drainage system to measure the urinary output. Record the urine output every 4 hours. Suspect kidney failure if the urine output is less than 100 ml per 4 hours.
- Record the fluid intake. Give all the necessary fluids slow IV. The patient should receive sodium lactate or 5% dextrose @ 60 ml (maximum) per hour unless there is an unusual fluid loss from vomiting, diarrhea, or excessive blood loss at delivery.

- Maintenance of proper fluid balance is essential to prevent water intoxication, dehydration, hyponatraemia, or pulmonary edema.
- Diuretics should not be used. As such, diuretics are contraindicated in pregnancy, and in these conditions, the utero-placenta perfusion is already reduced, e.g. in pre-eclampsia, IUGR.

4. Delivering the baby

You, as the MO, should decide on the method of delivery depending on whether or not the woman has gone into labour, and the stage and progress of labour. In severe pre-eclampsia, delivery should occur within 24 hours of the onset of symptoms; in eclampsia, delivery should occur within 12 hours of the onset of convulsions.

If a vaginal delivery is not anticipated, or the cervix appears unfavorable, or there are signs of foetal distress, refer to a specialist at an FRU at the earliest.

Before labour, or in the latent phase of labour

It is always better to refer all cases of hypertensive disorders of pregnancy to an FRU, after initial management, such as controlling the BP, controlling convulsions (if present), starting IV fluids, etc. This is done to avoid the development of other complications which cannot be managed at the PHC level.

Active phase of the first stage of labour, or second stage of labour

A woman in the late first stage of labour can be delivered better if referred to an FRU. If immediate referral is difficult due to any reason (such as a long distance to the FRU or transportation problems), and you anticipate that the woman might not be able to reach the FRU in time for her delivery, carry out a vaginal delivery at the PHC. However, if there is an anticipated or actual delay in the progress of labour and delivery, refer the woman to an FRU immediately.

While managing the labour and delivery at the PHC, ensure that the labour is progressing quickly and there are no contraindications to a vaginal delivery (such as CPD).

Difficult deliveries must be avoided at the PHC.

All patients with eclampsia in the second stage of labour should be delivered at the PHC and then, after giving routine immediate postpartum care, the woman should be referred to an FRU for further management.

Hence, the thumb rule for deciding upon the management option is:

If a woman with a hypertensive disorder of pregnancy presents to you in the early first stage of labour, refer her to an FRU. However, if she is in the late first stage or second stage of labour, conduct the delivery and then refer the woman to an FRU for further management.

5. Giving care after delivery

It is important to realize that fits can occur for the first time after delivery, especially during the immediate postpartum period. Fits, if they have occurred before delivery, can also recur after delivery. Therefore, the patient must be carefully observed during the immediate postpartum period.

Points to be noted in providing care during the postpartum period:

- Refer the woman to an FRU one hour after delivery, after ruling out immediate PPH, and ensure that the woman's condition is stable.
- If the patient has fits after delivery, continue to observe and manage her for 48 hours after the last fit (if she has not been referred to an FRU due to some problems).
- Nurse the patient in the labour ward or other area of intensive care (if present) where she can be closely observed.
- Continue treatment as required (and as mentioned before).

- Monitor the BP every hour. Continue giving antihypertensive as and when required, until the diastolic BP drops below 110 mmHg.
- Monitor the urinary output carefully. A woman in such a condition tends to retain fluid. This is because the kidneys are slow to excrete the extra circulating fluid after delivery. This may lead to a rise in the BP. Be careful not to give too much fluid intravenously during this period.
- If, after 48 hours, there are no fits, the urinary output is good and the diastolic BP is below 100 mmHg, the patient can be discharged.
- Advise the woman to have her BP checked every 4 hours for a few days. Intimate the condition of the woman and this advice to the ANM in charge. If regular BP checks are not feasible at home, do not discharge the woman for at least 72 hours after delivery.
- Arrange for follow up 7-10 days after delivery.

PROBLEMS AND COMPLICATIONS:

Continued fits: Refer such cases to the FRU without any delay.

Following eclampsia, the BP may:

- return to normal within a few days of delivery (within 2-3 days or 48-72 hours)
- return to normal after a few weeks
- remain high permanently.

You will have to decide on the method of management. Usually during the first week postpartum, further doses of drugs are given, e.g. Hydralazine is given if the diastolic the BP rises above 110 mmHg. If the BP is still very high 48 hours after delivery, a standard antihypertensive regimen should be started. The patient must then be reassessed by you, or a physician, who will decide whether long-term management is necessary.

Anticonvulsive and antihypertensive drugs schedules

If Magnesium sulphate is not available, an alternative is Diazepam, although there is a greater risk of neonatal respiratory depression because diazepam crosses the placenta freely. A single dose of diazepam to abort a convulsion seldom causes respiratory depression in the newborn. Long-term continuous IV administration increases the risk of respiratory depression in babies who may already be suffering from the effects of uteroplacental ischemia and preterm birth. The effect may last for several days.

Magnesium sulphate schedules for severe pre-eclampsia and eclampsia

Magnesium sulphate is the drug of choice for preventing and treating convulsions in severe pre-eclampsia and eclampsia.

Loading dose

- Give Magnesium sulphate 4 g IV as 20% solution (20 ml) over a period of 5 minutes. (A 20% solution can be prepared by diluting 50% Magnesium sulphate solution with water for injection. Take 8 ml of the 50% solution and 12 ml of the diluting fluid to prepare 20 ml of the 20% solution.)
- Follow promptly with 10 g of 50% Magnesium sulphate solution (20 ml), 5 g (10 ml) in each buttock as deep IM injection with 1 ml of 2% Lignocaine in the same syringe. Ensure an aseptic technique while giving an injection of Magnesium sulphate deep IM. Explain to the woman that she might feel warm when Magnesium sulphate is given.

Maintenance dose

- 5 g of Magnesium sulphate is given as 50% solution (10 ml) + 1 ml of 2%.
- Treatment with Magnesium sulphate should be continued for 24 hours after delivery or the last convulsion, whichever occurs later.

- Before repeat administration, ensure that:
 - the RR is at least 16 breaths/minute
 - knee jerk reflexes are present
 - The urinary output is at least 25–30 ml per hour for 4 hours (100 ml in 4 hours).
- Keep the antidote ready (Calcium gluconate, 1 g IV, 10 ml of 10% solution for 10 minutes)
- In case of respiratory arrest:
 - provide assisted ventilation (mask and bag)
 - Give Calcium gluconate 1 g (10 ml of 10% solution) IV slowly until respiration begins.

This drug immediately antagonizes the effects of Magnesium sulphate.

Diazepam schedules for severe pre-eclampsia and eclampsia

NOTE: Use Diazepam only if Magnesium sulphate is not available.

A. Intravenous administration

Loading dose

Diazepam 10 mg IV slowly over a period of 2 minutes. If the convulsions recur, repeat the loading dose.

Maintenance dose

Diazepam 40 mg in 500 ml IV fluids (R/L or normal saline) titrated over 6-8 hours to keep the woman sedated but arousable.

Provide assisted ventilation (mask and bag, anesthesia apparatus, endotracheal intubation), if necessary.

Do not give more than 100 mg in 24 hours.

B. Rectal administration

Loading dose

Give Diazepam rectally when IV access is not possible. The loading dose is 20 mg (4 ml) in a 10 ml syringe (or a urinary catheter).

Remove the needle, lubricate the barrel and insert the syringe into the rectum to half its length. Discharge the contents and leave the syringe in place, holding the buttocks together for 10 minutes to prevent expulsion of the drug.

If the convulsions are not controlled within 10 minutes, or they recur, give another 10 mg (2ml).

Maintenance dose

Administer an additional 10 mg (2 ml) per hour during transport. Refer to a higher health facility.

Antihypertensive drugs for PIH

If the diastolic pressure is 110 mmHg or more, give antihypertensive drugs. The goal is to keep the diastolic pressure between 90 mmHg and 100 mmHg to prevent cerebral haemorrhage.

Labetalol:

- Give 20mg IV over 2 minutes initially.
- Then 40 to 80 mg IV over 10 minutes.
- Total dose not to exceed 300mg or 1 to 2mg/minute by continuous IV infusion.

Nifedipine

- * Give Nifedipine if **Hydralazine is not available**. Puncture a 5 mg capsule, squeeze out half the contents (2.5 mg) and give it orally or sublingually.
- * **Monitor the BP after 5 minutes. If there is no precipitous fall in the BP, give the remaining 2.5 mg in a similar manner.**
- * **If the response is inadequate (diastolic pressure remains above 110 mmHg) after 10 minutes, give an additional 5mg as above.**
- * **There is a concern regarding the possibility for an interaction with Magnesium sulphate that can lead to hypotension. Nifedipine should only be used as a second line of treatment.**

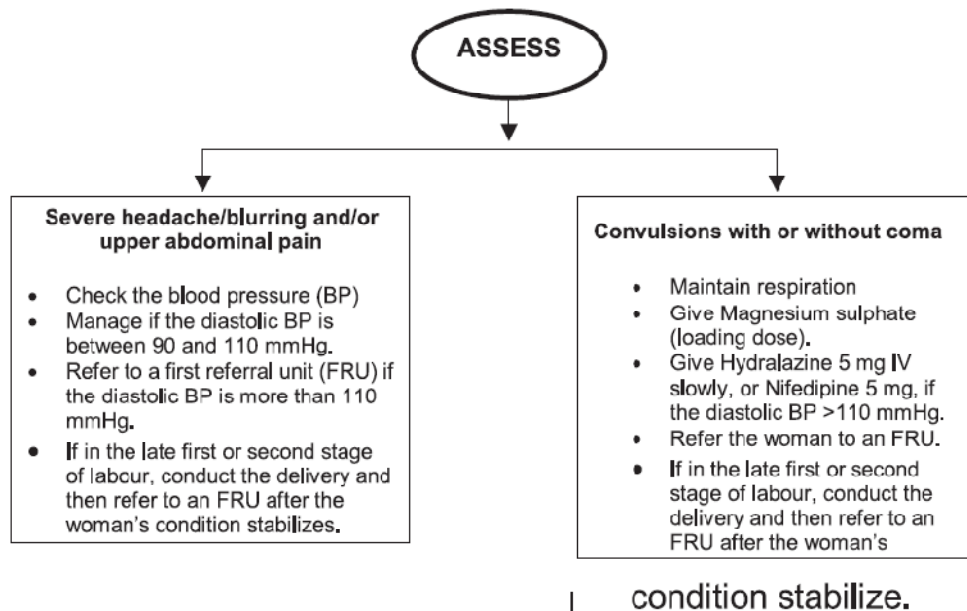
Anti-hypertensives used in pre-eclampsia

- α methyl dopa
- Labetalol
- Nifedipine

For mild pre-eclampsia to severe pre-eclampsia

- Methyl dopa 250mg TDS/QID upto 500mg QID
- Labetalol 100mg TDS upto 200mg TDS
- Nifedipine 5mg to 10mg QID

Chart 4 : Management of pre-eclampsia and eclampsia



EXERCISE FOR PARTICIPANTS

Q.1. Define

a) Proteinuria	b) Pre-eclampsia
d) Eclampsia	e) Convulsions
f) Fulminant Pre-eclampsia	g) Fulminant eclampsia
h) Status Eclampticus	i) Hypertension

Q.2. Classify Pre-eclampsia

Q.3. Define eclampsia and give stages of eclamptic fit

Q.4. Give differential Diagnosis of

a) Convulsions in pregnancy
b) Hypertension in pregnancy

Q.5. Enumerate the effects of eclampsia on mother and fetus.

Q.6. Write the management of pre-eclampsia.

Q.7. Write in brief about post partum care in hypertensive delivery.

Q.8. Enumerate problems and complication of hypertensive disorders in pregnancy.

Q.9. Write short notes on

a) Magnesium sulfate schedule
b) Symptoms of imminent eclampsia

b) PROLONGED/ OBSTRUCTED LABOUR

DEFINITIONS

1) Prolonged labour

Prolonged labour is active labour with regular uterine contractions but without adequate cervical dilatation and/or descent of the presenting part, lasting for more than 12 hours.

Prolonged labour can be due to:

- * **Incoordinate uterine contractions:** These are contractions that are weak or not effective enough to result in cervical dilatation and/or foetal descent. There is no mechanical obstruction in these cases.

If not managed properly, these cases may ultimately develop uterine fatigue. An ascending infection may also occur, especially if the membranes have ruptured. There is a danger of foetal death in these cases.

- * **Foetopelvic disproportion:** This means that it is difficult or impossible for the foetus to pass safely through the pelvis. As the cephalic end is the most common presenting part, this condition is also known as Cephalopelvic disproportion (CPD). This condition, if not managed in time, will lead to obstructed labour.

CPD occurs when the foetal head is large compared with the pelvis. CPD may be due to a small pelvis with a normal-sized head, or a normal pelvis with a large foetus, or a combination of a large baby and small pelvis. CPD cannot be diagnosed before the 37th week because before then the head has not reached its birth size.

2) Obstructed labour

Obstructed labour means that, in spite of strong uterine contractions, the foetus cannot descend because of mechanical factors. Obstruction may occur at the inlet, within the cavity or outlet of the pelvis.

Though CPD is the commonest cause of obstructed labour, other factors such as malpresentation (transverse lie, brow presentation, mentoposterior presentation) and rarely large tumors in the pelvis may cause mechanical obstruction leading to obstructed labour.

Complications resulting from obstructed labour can be avoided if a woman in obstructed labour is identified early, and appropriate action is taken. In such cases, a caesarean section is often required for delivery.

DIAGNOSIS OF PROLONGED/OBSTRUCTED LABOUR

A partograph is a tool to assess the progress of labour. When, despite good uterine contractions for 8 hours, the woman is still in the latent phase of labour, or when the partograph crosses the "Alert line" it is an indication that the labour is not progressing normally and that the woman needs referral to an FRU, or any other health facility where facilities for surgical intervention are available.

COMPLICATIONS FOLLOWING OBSTRUCTED LABOUR

Maternal complications

- **Premature rupture of membranes**

This is due to the extra force on that portion of the membranes in contact with the internal os. This can subsequently lead to an ascending infection and foetal and/or maternal death

- **Slow dilatation or edema of the cervix**

This is due to inadequate pressure of the foetal presenting part on the cervix causing no or slow dilatation. It may also lead to an edematous cervix, further preventing descent of the head.

- **Maternal fatigue**

Due to prolonged labour, the mother may be dehydrated and may go into ketoacidosis.

- **Uterine rupture**

This occurs when there is rupture of the membranes and the amniotic fluid has drained away. The uterus is tonically retracted over the foetus and does not relax at all. In these cases the foetal parts cannot be palpated clearly. Alternatively, the foetus is forced into the lower uterine segment and, with continuing uterine contractions; the lower segment becomes thin and is likely to rupture.

Rupture of the uterus following obstructed labour is more common in multiparous women and in those with a uterine scar due to a previous caesarean section.

Rupture of the uterus results in haemorrhage (usually internal) and shock. It is usually fatal if not managed immediately.

- **Puerperal sepsis**

The chances of infection are increased due to premature rupture of the membranes and the increased frequency of vaginal examinations that health personnel undertake in these circumstances.

- **Fistulae**

These occur due to excessive pressure on the tissues of the bladder, vagina and rectum, which are trapped between the obstructed foetal head and the pelvic bones. Due to decreased oxygenation, the tissues undergo necrosis, forming various types of fistulae such as vesicovaginal (between the bladder and vagina), vesicocervical (between the bladder and the cervix), or rectovaginal (between the rectum and vagina). These fistulae allow leakage of urine or faeces from the vagina, and represent the extreme morbid conditions that may occur following an unmanaged or poorly managed obstructed labour.

- **Maternal death**

The mother may die either due to uterine rupture and the resultant haemorrhage and shock, or death may result from the DIC triggered by decay of the dead foetus.

Foetal complications

- **Caput succedaneum**

This is a boggy swelling on the foetal scalp formed due to pressure of the maternal pelvic bones on the foetal skull. It usually subsides on its own after a few days.

- **Excessive moulding of the foetal skull**

This may cause a change in the shape of the baby's head.

- **Birth asphyxia and its complications**

This is a dangerous complication. The foetus is deprived of the necessary oxygenation while the mother is in labour. This can lead to foetal death/stillbirth. If the baby survives, it may have complications resulting from birth asphyxia, such as cerebral palsy and/or mental retardation.

- **Foetal death**

This may occur due to prolonged, excessive pressure on the placenta and umbilical cord, leading to decreased oxygenation and death of the foetus.

Clinical picture

History

The following points must be asked to any woman who comes to the PHC with suspected obstructed/ prolonged labour.

Age

A teenage mother has greater chances of going into obstructed labour as her pelvic bones and the shape of her pelvis has not developed enough physically to allow the foetus to deliver normally.

Parity

Though there is no difference in the incidence of obstructed labour between a primipara or a multipara, the risk of uterine rupture as a complication of obstructed labour is much higher in a multiparous woman.

Previous operative delivery

The indication for the previous operative delivery (if present) will give an insight into the probability of a foetopelvic disproportion during the present delivery. Also, the presence of a previous uterine scar following a caesarean section puts the woman at greater risk of having a uterine rupture following obstructed labour.

Previous still birth

The cause of the stillbirth, such as birth asphyxia, will tell you whether the woman is at risk of suffering from the same complication again in the present pregnancy.

Duration of labour so far

This is important to decide whether you can still wait or need to refer the woman urgently to an FRU for operative intervention. A partograph at this stage will also help to decide whether the woman has crossed the alert/action line.

Previous history of babies with developmental anomalies

A previous history of developmental anomalies increases the chances of the present baby having one also. Developmental anomalies are one of the main causes of obstructed labour, and are therefore often associated with it.

Progress of labour

The woman may complain of excessive abdominal pain, or give a history that initially the labour had proceeded normally followed by sudden stoppage of the pains and contractions. Such a history points towards the stage of uterine inertia, which usually occurs following a prolonged labour.

Rupture of the membranes and their timing

Obstructed labour predisposes to premature rupture of the membranes which, in turn, results in an increased frequency of puerperal sepsis during the postpartum period.

If the membranes have ruptured, ask for or note the colour of the amniotic fluid to assess the presence of foetal distress.

Inj. Oxytocin

Ask the woman and/or her family if she has received Inj. Oxytocin before coming to the PHC. If she has, what was the total dose received? Giving Inj. Oxytocin in such cases increases uterine contractions and the chances of uterine rupture.

Examination**General examination**

In cases of obstructed labour, the following signs are present:

- Physical and mental exhaustion
- Dehydration and ketoacidosis (ketonuria, dry mouth, tachycardia)
- Fever (in cases of sepsis)
- Shock (as evidenced by tachycardia, low BP, cold extremities, pale complexion, history of oliguria or anuria). The cause of shock may be a ruptured uterus or sepsis.

Abdominal examination

In cases of obstructed labour, abdominal examination may reveal the following:

- The foetal head (or the presenting part) can be felt above the pelvic brim because it is unable to descend.
- The woman may have frequent and strong uterine contractions. But if she has been in labour for a long time, the contractions may have stopped because of uterine exhaustion/inertia or because of rupture of the uterus.
- The uterus may have gone into tonic contraction and is tightly moulded around the foetus.
- **Bandl's ring** may be seen. Bandl's ring is the name given to the area between the upper and lower uterine segments when it becomes visible and/or palpable during labour. During normal

pregnancy and labour, this area is called a retraction ring. It should not normally be seen or felt on abdominal examination.

Bandl's ring is a late sign of obstructed labour. It can be seen as a depression across the abdomen at about the level of the umbilicus. Above this is the retracted upper uterine segment. Below the Bandl's ring is the distended lower uterine segment. This is dangerously thin and can rupture if not managed in time. A distended lower uterine segment is not the only cause of a bloated lower abdomen. The lower abdomen can be further distended by a full bladder and gas in the intestines.

- The shape of the uterus looks like a peanut shell.
- Palpation will confirm the signs noted on observation.

Foetal condition: Try and listen for the FHS. An FHR of <120 beats/minute or >160 beats/minute is indicative of foetal distress

Vaginal examination

- Look for the following danger signs related to obstruction:
- Discharge from the vagina
- Foul-smelling meconium may be seen draining from the vagina. It indicates foetal distress with possible infection.
- The amniotic fluid may have already drained away. This is dangerous with regard to survival of the foetus.
- Edema of the vulva may be seen, especially if the woman has been bearing down for a long time.
- The vagina may be hot and dry because of dehydration.
- Edema of the cervix may be present; this further prevents descent of the head;
- Incomplete dilatation of the cervix (in mid-cavity obstruction; though the cervix may be fully dilated in the case of outlet obstruction).
- A large caput succedaneum, or any other abnormal presentation, can be felt. The cause of the obstruction may be felt, e.g. a severely moulded head stuck in the pelvis, shoulder presentation, any other abnormal presentation, prolapsed arm, or a compound presentation such as head with hand, cord, etc.

Urine examination

Test the woman's urine for the presence of ketone bodies using a ketostix, if available (ketonuria is present in ketoacidosis and dehydration). Treat with IV fluids (R/L) if ketosis is present.

Symptoms and signs suggestive of ruptured uterus

Symptoms

- Shock may be present
- There is severe abdominal pain
- Vaginal bleeding may or may not be present

Signs on abdominal examination

- Abdominal tenderness is present
- The foetal parts felt superficially
- The uterine contour is not felt
- The FHS is not heard

Signs on vaginal examination

- The presenting foetal part is either very high up, or may not be felt at all.

MANAGEMENT OF OBSTRUCTED LABOUR

1. Rehydrate the patient

It is essential to maintain a normal plasma volume and prevent or treat dehydration and ketosis.

- Start an IV line. Use a large needle (no. 18) or cannula
- Infuse with R/L or normal saline.
- Run the fluid at a moderate rate of approximately 25-30 drops/minute.

2. Give antibiotics

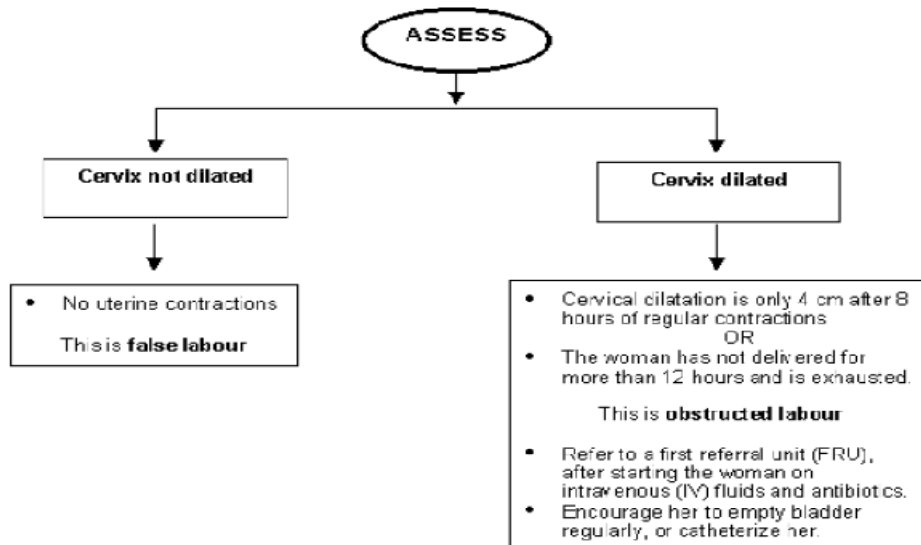
To prevent puerperal sepsis, which may occur due to frequent vaginal examinations and premature rupture of membranes, the following antibiotics need to be administered to the woman:

- Inj. Ampicillin 1 g IV, after sensitivity testing (AST)
- Inj. Gentamicin 80 mg IV
- Inj. Metronidazole 400 mg, preferably IV (if available), otherwise orally.

3. Refer the patient

- Refer the woman immediately to an FRU as operative intervention is usually required to relieve the obstruction and deliver the baby.

Chart 5 : Management of suspected obstructed labour



EXERCISE FOR PARTICIPANTS

- Q.1. Define a) Prolonged Labour b) Obstructed Labour
- Q.2. Write in brief about Diagnosis of Prolonged/ Obstructed Labour
- Q.3. Write in brief about Examination in case of Prolonged/ Obstructed Labour.
- Q.4. What are the maternal and fetal complications of obstructed labour
- Q.5. Write short note on a) Vaginal examination in Prolonged/ Obstructed Labour b) Bandl's ring

C) PUERPERAL SEPSIS

Definition

Puerperal sepsis is an infection of the genital tract at any time between the onset of rupture of membranes or labour and the 42nd day following delivery or abortion in which any two or more of the following signs and symptoms are present:

- Fever of 38.5 °C or higher, measured orally on any one occasion;
- Abnormal vaginal discharge;
- Abnormal smell, foul odour of the vaginal discharge;
- Pelvic pain;
- Delay in the rate of reduction of the size of the uterus (sub involution of the uterus; <2 cm/day).

How puerperal sepsis occurs

Puerperal sepsis occurs due to colonization of the genital tract by microorganisms. These organisms can be introduced from within (infection of endogenous origin), or from outside (infection of exogenous origin).

Endogenous infections are caused by bacteria that normally live in the vagina and rectum without causing harm (commensals). These bacteria can become harmful if:

- They are brought into the uterus by the examining finger or by instruments during pelvic examinations
- There is bruised, lacerated or dead tissue
- They ascend into the uterus during premature and prolonged rupture of the membranes.

Exogenous infections are introduced into the vagina from outside the body, by:

- Unclean hands and unsterile instruments
- Foreign substances introduced into the vagina, e.g. herbs oils, etc. during an illegal and unsafe abortion
- By sexual activity.

Puerperal sepsis can occur both intrapartum and postpartum.

- During the intrapartum period, due to PROM, the bacteria ascend and can cause chorioamnionitis. This is a very serious condition and can endanger the life of both the mother and the baby.
- During the postpartum period, puerperal sepsis may be localized to the perineum, vagina, cervix or uterus; or it can spread and also infect the fallopian tubes, the ovaries, etc. It can lead to parametritis, peritonitis and even septicaemia. It can result in complications such as DIC, and can be rapidly fatal for the woman.

Women are vulnerable to infection during the puerperium due to the large, raw placental site that is warm, dark and moist. It has a rich blood supply. The site is not far from the outside environment and the rectum. These factors make it very easy for bacteria to enter and colonize the genital tract. The scars in the cervix, vagina, and/or perineum which may have occurred during the birthing process make the genital tract even more susceptible to infection, and for the infection to spread to the underlying tissues.

The most common site of infection in puerperal sepsis is the placental site in the uterus. Other sites of infection are tears of the cervix, vagina, perineum and the site of episiotomy

Risk factors for puerperal sepsis

Patient related risk factors

- Poor patient hygiene

- Pre-existing anaemia and malnutrition
- Pre-existing sexually transmitted infections (STIs)/RTIs
- Not immunized against tetanus
- Pre-existing diabetes

Risk factors related to the delivery process and interventions

- Failure to follow aseptic techniques
- Frequent vaginal examinations
- Manipulations high in the birth canal
- Presence of dead tissue in the birth canal (due to IUD, retained placental fragments or fragments of membranes, necrosis of tissue due to prolonged labour, etc.)
- PROM
- Prolonged/obstructed labour
- Caesarean section, or other assisted deliver (forceps, ventouse)
- Unrepaired vaginal/cervical lacerations
- PPH

Risk factors related to health service delivery

- Delivery by untrained persons
- Lack of asepsis during delivery
- Lack of routine postpartum care
- Inadequate monitoring of the temperature during prolonged labour and after delivery
- Non-availability of proper antibiotics
- Inadequate management with appropriate antibiotics in a case in whom puerperal sepsis has set in
- Further operative intervention in a case where puerperal sepsis has set in

Causes of fever in the puerperium

Infectious causes

1. Puerperal sepsis, depending on how far it has spread, may present as:
 - Localized infection of a vaginal/cervical laceration or episiotomy;
 - Infection of a laceration or episiotomy which has spread to the underlying soft tissue, e.g. ischiorectal abscess;
 - Infection of the uterine lining-endometritis;
 - Infection of the fallopian tubes-salpingitis;
 - Parametritis;
 - Generalized peritonitis;
 - Septic thrombophlebitis;
 - Tubo-ovarian abscess;
 - Broad ligament abscess;
 - Abscess in the pouch of Douglas (peritoneal abscess);
 - Abscesses at other sites in the abdomen or chest;
 - Septicaemia (an infection that has entered the blood stream and is a very serious condition);
 - Septic shock (may complicate septicaemia).
2. Breast infection such as mastitis or, at a later stage, breast abscess
3. UTI
4. Wound infection (e.g. of the caesarean section incision)
5. Thromboembolic disorders, including superficial thrombophlebitis and deep vein thrombosis, sometimes give rise to fever and tachycardia.

Non-infectious causes

Low-grade fever is very common in the postpartum period, especially in the first 24 hours. The causes include dehydration, tissue trauma, reaction to foetal proteins and breast engorgement. Although fever occurring in the first 24 hours after delivery has generally been regarded as being unrelated to infection, a temperature of 38.5°C or higher within the first 24 hours should alert you to the possibility of puerperal sepsis developing in the patient.

Management of puerperal sepsis

- The basic principles of infection control should be followed to prevent the spread of infection to other women and their babies.
- Women will die of puerperal sepsis and septicaemia if appropriate antibiotic therapy is not given early enough. The aim of starting antibiotic therapy immediately is to manage/treat the current infection and to stop it from spreading further.

Antibiotics

Give the first dose of the following regimen of antibiotics and refer the woman to an FRU as soon as possible:

- If the woman is not very sick (e.g. there is no fever or it is low grade, the pulse is not very high, and the consciousness is normal), you may start the woman on:
Cap. Ampicillin 1 g stat orally PLUS Tab. Metronidazole 400 mg orally PLUS Inj. Gentamicin 80 mg IM
- If the woman is very sick (e.g. she has very high fever, a rapid pulse, appears confused), more than one microorganism is usually involved. A combination of antibiotics which provide as broad coverage as possible should be given, preferably through the parenteral route. A useful regime is:
Inj. Ampicillin 1 g IV stat PLUS Metronidazole 400 mg IV, PLUS Inj. Gentamicin 80 mg IM

Give plenty of fluids

The aim of this is to correct or prevent dehydration and to help bring down the fever.

In severe cases (e.g. if the woman is in shock or is in a confused, delirious state), it is necessary to give IV fluids immediately. If the woman is conscious and there is no indication that a general anaesthetic may be needed in the next few hours, she should also be given oral fluids. In mild cases, a simple increase in the oral fluid intake is sufficient.

Rule out the presence of retained placental fragments

Retained placental fragments can be a cause of puerperal sepsis. Suspect this if the uterus is soft and bulky and if the lochia is excessive and contains blood clots. Refer the woman to an FRU that has the equipment and health care personnel trained to perform curettage.

Refer to an FRU

Refer the woman as soon as possible to an FRU after initiating the required treatment. It is important to write a full description of the treatment offered in the referral card. Ask the ANM in charge of the area to follow up the condition of the woman after she is discharged from the FRU.

Tetanus toxoid

If there is a possibility that the woman was exposed to tetanus (if, for example, cow dung, mud or herbs were inserted into the vagina), and there is uncertainty about her vaccination history, then give her TT. A case of tetanus needs management that will not be possible in a PHC setting. Hence, the woman must be urgently referred to an FRU.

Provide skilled nursing care

This requires careful attention. Nursing staff must be instructed to ensure the following:

- Advise the woman to take bed rest;
- Monitor vital signs (temperature, pulse, BP, RR);
- Measure intake and output of fluids;
- Keep an accurate record of the medicines given;
- Prevent the spread of infection and cross-infection.

EXERCISE FOR PARTICIPANTS

Q.1. Define Puerperal sepsis

Q.2. How Puerperal sepsis occurs.

Q.3. What are the risk factors for puerperal sepsis

Q.4. What are the causes of fever in the puerperium.

Q.5. Write in brief about management of puerperal sepsis

d) ANEMIA

Definition

Anaemia in pregnancy is defined as Haemoglobin level of <11 g/dl during pregnancy (and in the immediate postpartum period). A pregnant woman with Hb level of <7 g/dl is said to have severe anaemia.

Diagnosis

Examine and investigate the woman for the following:

- Conjunctival pallor
- Severe palmar pallor
- Pallor of the tongue, palate and oral mucosa
- RR (count for 1 minute)
- Level of Hb

Table 1 : Diagnosis of anaemia and its severity

Symptoms and signs	Probable diagnosis
Haemoglobin >11 g/dl No pallor	No clinical anaemia
Haemoglobin 7-11 g/dl OR Palmar or conjunctival pallor	Moderate anaemia
Haemoglobin <7 g/dl AND/OR Severe palmar and conjunctival pallor or any pallor with any of the following: * >30 breaths/minute Easy fatiguability Breathlessness at rest	Severe anaemia

Management

No anemia

- Give IFA tablet (with 60 mg elemental iron and 0.5 mg folic acid) once daily for 180 days (6 months) starting after the first trimester
- Counsel the woman on the need for compliance with treatment.

Moderate anemia

- Give double the prophylactic dose of IFA, i.e. 1 tablet twice daily for 180 days (6 months).
- Counsel the woman on the need for compliance with treatment.
- Give appropriate antimalarial drugs in accordance with the NAMP guidelines, especially if you are in a malaria-endemic zone.
- Give the woman an antihelminthic for deworming (Albendazole 400 mg stat), especially if you are in a hookworm-endemic area. Do NOT give Albendazole in the first trimester; but it is safe for use from the second trimester onwards.

Reassess the woman after one month.

- If the Hb level increases, continue treatment.
- However, if anaemia persists, refer the woman to an FRU for typing the anaemia, finding out the cause, and further management.

- If a woman with moderate anaemia comes to you in labour, conduct the delivery at the PHC, but keep the following points in mind:
 - * Do not discharge her before 24 hours.
 - * Check the Hb level after 3 days.
 - * Give double the dose of iron (1 tablet of 60mg twice a day) for 6 months postpartum.
- Reassess the woman at the next postnatal visit (after 6 weeks). If there is no improvement, refer her to an FRU.

Severe anaemia

- Revise the birth plan to conduct the delivery in a facility with blood transfusion services.
- Give treatment similar to that mentioned above (see under "Moderate anaemia").
- Refer the woman to an FRU for further investigations and treatment. This woman might also need a blood transfusion.
- If a woman with severe anaemia comes to you in the early first stage of labour, or postpartum, refer her urgently to an FRU.
- If such a woman comes in the late first stage or second stage of labour:
 - Deliver the woman at the PHC.
 - Monitor the vital signs intensively during the delivery.
 - Try to minimize blood loss during delivery.
 - Refer her urgently to an FRU after delivery. Ensure that the woman is stable before you refer her.
- Follow up the woman in two weeks to check the clinical progress, test results and compliance with treatment of double dose of iron (1 tablet twice a day) for 6 months postpartum.

In case of moderate to severe anaemia, give 360 tablets of IFA during Ante-natal period

Severe Anaemia

2 nd Late Management	-	needs blood transfusion IV Iron Sucrose
Advantage	-	1) No gastrointestinal side effects 2) Good in patients with poor compliance.
Dose Calculation		
Dose of Iron = $\frac{[2.4 \times (\text{Target Hb \%} - \text{Actual Hb \%})] \times \text{Pre pregnancy weight (kg)}}{1000 \text{ mg for stores}}$		

EXERCISE FOR PARTICIPANTS

Q.1. Define anaemia and write in brief about its diagnosis.

Q.2. Write in brief about management of anaemia.

Q.3. Write short notes on a) Severe Anaemia b) IV Iron Sucrose

e) MANAGEMENT OF APH AND PPH

A) ABORTIONS: HAEMORRHAGE DURING EARLY PREGNANCY

Vaginal bleeding during early pregnancy (up to 20 weeks of gestation) can be due to various types of abortions, ectopic pregnancy or the presence of a hydatidiform mole (molar pregnancy).

Definitions

Spontaneous abortion is defined as the spontaneous loss of a pregnancy at a period of gestation before the stage of foetal viability (20 weeks' gestation). The stages of spontaneous abortion include:

- * Threatened abortion (the pregnancy may continue);
- * Inevitable abortion (the pregnancy will not continue and will proceed to incomplete/complete abortion);
- * Incomplete abortion (the products of conception are partially expelled);
- * Complete abortion (the products of conception are completely expelled).

Induced abortion is defined as a process by which the pregnancy is deliberately terminated before foetal viability.

Unsafe abortion is defined as an induced abortion performed either by persons lacking the necessary skills, or in uncertified facilities, or both.

Septic abortion is defined as abortion complicated by infection. Sepsis may result from infection if the organisms ascend from the lower genital tract following either a spontaneous or an unsafe abortion. Sepsis is more likely to occur if there are retained products of conception and evacuation has been delayed. Sepsis is a frequent complication of unsafe abortion involving instrumentation.

Differential diagnosis

Table 1 lists the symptoms and signs for differential diagnosis of vaginal bleeding during early pregnancy.

Symptoms and signs typically present	Symptoms and signs sometimes present	Probable diagnosis
- Light bleeding - Closed cervix - The size of the uterus corresponds to the gestational period	- Cramping/lower abdominal pain - Uterus softer than normal	Threatened abortion
- Heavy bleeding - Dilated cervix - The size of the uterus corresponds to the gestational period	- Cramping/lower abdominal pain - No expulsion of the products of conception - The uterus is tender	Inevitable abortion
- Heavy bleeding - Dilated cervix - The size of the uterus is smaller than that expected for the gestational period	- Cramping/lower abdominal pain - History of partial expulsion of the products of conception	Incomplete abortion
- Light bleeding - Closed cervix - The size of the uterus is smaller than that expected for the gestational period - Uterus softer than normal	- Light cramping/abdominal pain - History of expulsion of the products of conception	Complete abortion
- Light bleeding - Abdominal pain, may be severe - Closed cervix - The size of the uterus is slightly larger than normal - Uterus softer than normal	- Amenorrhoea/irregular bleeding - Fainting - Presence of tender adnexal mass - Tenderness on moving the cervix	Ectopic pregnancy
- Heavy bleeding - Partial expulsion of the products of conception which resemble grapes	- Nausea/vomiting - Spontaneous abortion - Cramping/lower abdominal pain	Molar pregnancy

• Dilated cervix • The size of the uterus is larger than that expected for the gestational period • Uterus softer than normal	• Presence of ovarian cysts (easily ruptured) • Early onset of pre-eclampsia • No evidence of a fetus	

Light bleeding: Takes five minutes or longer for a clean pad or cloth to be soaked

Heavy bleeding: Takes less than five minutes for a clean pad or cloth to be soaked

Management

Table 2 gives the guidelines for complete assessment of a woman with spontaneous abortion.

Complete clinical assessment	
History (Ask about and record the of her LMP) information)	• Period of amenorrhea (ask her the date) • Bleeding (duration and amount) • Abdominal cramping (duration and severity) • Foul-smelling vaginal discharge • Abdominal or shoulder pain • Allergy to drugs • H/o passage of the products of conception/foetus/blood clot • H/o inserting something into the vagina (suggestive of an illegal abortion)
Routine physical examination	• Check the vital signs (temperature, pulse, respiratory rate, blood pressure) • Examine the general condition of the woman (malnourished) • Look for pallor • Examine the respiratory system, cardiac system and extremities
Abdominal examination	• Auscultate for bowel sounds (absent in peritonitis due to septic abortion) • Check whether the abdomen is distended (hydatidiform mole, ectopic pregnancy) • Assess the presence, location and severity of pain • Palpate for abdominal rigidity (tense and hard) and guarding (peritonitis, ectopic pregnancy) • Palpate for rebound tenderness • Assess the abdominal mass (molar/ectopic pregnancy)
Pelvic examination	• External pelvic and vaginal examination: * Look for lacerations outside the vagina, or over the external genitalia * Assess the amount of bleeding (light/heavy) * Look for protruding products of conception lying outside the vaginal canal • P/S examination Look for: * Any visible product of conception protruding from the cervical os or visible in the vaginal canal * Foul-smelling vaginal/cervical discharge * Cervical lacerations (indicative of instrumentation; may be suggestive of illegal abortion) * Foreign bodies in the vagina • P/V examination * Assess the amount of bleeding (light/heavy) * Check whether the cervical os is open or closed (to determine the stage of abortion) • Bimanual examination * Estimate the size of the uterus * Palpate for any pelvic masses * Examine for pelvic pain (note severity, location, and what causes the pain: is it present at rest; does it occur/increase with touch and pressure; does it occur/increase on moving of the cervix).
Investigations	• The woman's blood group, especially her Rh status, should be a part of routine investigations during the clinical assessment in cases of abortion.

To check for rebound tenderness, keep a hand over the abdomen and press gently. Then suddenly remove your hand to release the pressure rapidly. If removal of the hand causes pain or worsens it, there is rebound tenderness. Rebound tenderness is a sign of peritoneal inflammation.

^bIn this document, the uterine size is measured by weeks passed after the last menstrual period (LMP) (the uterine size is equivalent to a pregnant uterus of a given number of weeks since LMP) rather than by gestational weeks.

Management of threatened abortion

- Medical treatment is usually not required.
- Advise the woman to avoid strenuous activity and sexual intercourse; complete bed rest is, however, not necessary.
- If the bleeding stops, follow up in an antenatal clinic. Reassess if the bleeding recurs.
- If the bleeding persists, assess for foetal viability (pregnancy test/ultrasound) or ectopic pregnancy. Persistent bleeding, particularly in the presence of a uterus larger than expected, may indicate twins or molar pregnancy. Such cases should be referred to an FRU.

NOTE: Do not give medications such as hormones (e.g. oestrogens or progestins) or tocolytic agents (e.g. Salbutamol or Indomethacin) as they will not prevent miscarriage.

Management of inevitable abortion

- If the pregnancy is **less than 12 weeks**:
 - * Plan for evacuation of the contents of the uterus [*see Annexure 18: "Procedure for manual vacuum aspiration for incomplete abortion"*].
 - * Give Misoprostol 400 mcg (2 tablets of 200mcg each) orally. Repeat once after 4 hours, if necessary.
 - * Arrange for evacuation as soon as possible.
- If the pregnancy is **more than 12 weeks**:
 - * Await spontaneous expulsion of the products of conception and then evacuate the uterus to remove any retained products of conception.
 - * If necessary, augment uterine contractions and expulsion of the products of conception by infusing Oxytocin 20U in 500ml of R/L @ 40 drops/minute;

OR

 - * Administer Tab. Misoprostol, 800 mcg (4 tablets of 200 mcg each), per vaginally. Give two tablets (400 mcg) again after 4 hours if the woman has not aborted till then.

Management of incomplete abortion

- If the **bleeding is light to moderate** and the pregnancy is **less than 12 weeks**, use your fingers or a pair of ring (or sponge) forceps to remove the products of conception protruding through the dilated cervix.
- If the **bleeding is heavy** and the pregnancy is **less than 12 weeks**, evacuate the uterus.
 - * Manual vacuum aspiration (MVA) is the preferred method of evacuation [*see Annexure 18: "Procedure for manual vacuum aspiration for incomplete abortion"*]. Do not carry out evacuation by sharp curettage.
 - * If evacuation is not immediately possible, give Tab. Misoprostol 400 mcg orally (repeated once after 4 hours, if necessary)
- If the pregnancy is **more than 12 weeks**:
 - * Start an Oxytocin drip, i.e. 20 U of Oxytocin in 500 ml of R/L @ 40 drops/minute until the products of conception are expelled.
 - * If necessary, give Tab. Misoprostol 200 mcg vaginally every 4 hours until the

products of conception are expelled; do not administer more than a total of 800mcg.

- * Evacuate any remaining products of conception from the uterus.
- After 12 weeks of pregnancy the foetus is usually expelled in toto but the placenta may be retained, which has to be expelled.
 - * If the placenta does not deliver normally, and there is no bleeding, start an Oxytocin drip (as in the case of a delayed third stage of labour with retained placenta). You can keep the patient at the PHC for about 2 hours after starting the Oxytocin drip; waiting for the placenta to be expelled. However, if bleeding occurs, refer immediately to an FRU.
 - * If the placenta is still retained, and the woman is bleeding, she needs immediate referral to the FRU. Establish an IV line, start the Oxytocin drip, and refer.
 - * In rare cases, even after expulsion of the placenta, the woman may bleed. Such patients too need to be referred to an FRU.
- Ensure post-abortion follow up of the woman after treatment [see below].

Management of complete abortion

- Evacuation of the uterus is usually not necessary as all the products of conception have been expelled.
- Observe for heavy bleeding. In case the bleeding continues, refer to an FRU.
- Ensure post-abortion follow up of the woman after treatment [see below].

Table 6 gives a summary of the management of bleeding in early pregnancy.

Table 6: Management of bleeding in early pregnancy

Condition	Management
Threatened abortion	• Advise bed rest • No medication required
Inevitable abortion	• Evacuate the uterus using MVA • Control the bleeding or augment the process of evacuation by giving a drip of Oxytocin (20 U in 500 ml of R/L @ 40 drops/minute) or Misoprostol tablets (4 tablets of 200 mcg each)
Incomplete abortion	• Carry out digital evacuation of the protruding products of conception • Evacuate the uterus using MVA • Deliver the placenta by augmenting uterine contractions with Inj. Oxytocin • If the bleeding is heavy, refer the woman to an FRU
Complete abortion	• Check for any retained products of conception and/or bleeding • No further management is required if the condition of the woman is stable
Septic abortion	• Give Aspirin (2 tablets) or Paracetamol (1 tablet of 500 mg) to control fever (temperature >38 °C) • Examine for the presence of any foreign body in the vagina • Thoroughly irrigate the vagina to remove any herbs, local medications or caustic substances • Give the following antibiotics: * Inj. Ampicillin 2 g IV, every 6 hours PLUS * Inj. Gentamicin 5 mg/kg body weight, IV, every 24 hours PLUS * Inj. Metronidazole 500 mg IV, every 8 hours, until the woman has no fever for 48 hours. (To avoid phlebitis, change the infusion site every three days or at the first sign of inflammation). • If the bleeding is minimal, conduct evacuation of the uterus after 48 hours of antibiotic coverage; preferably use MVA. • If the bleeding is more than 200 ml refer the woman to an FRU.

General treatment of vaginal bleeding in early pregnancy

Universal measures

Monitor the woman's vital signs and general condition. When complications exist, it is important to take steps to continue stabilizing the woman's condition, before giving specific management for abortion. If the condition of the patient suddenly worsens, reassess for shock or other complications and treat as appropriate.

Oxygen

If the woman is stable and there are no life-threatening complications (i.e. she is not in shock and the vital signs are normal), oxygen is NOT required. If she is being given oxygen because of a complication, continue oxygen as directed in the relevant chapter(s) related to the complication(s).

Fluids

If the woman is stable and there are no complications (i.e. she is not in shock and the vital signs are normal), IV fluids are NOT required. If she requires IV fluids because of a complication, continue treatment according to the relevant chapter(s) related to the complication(s).

Medicines

Oral medicines may be given if the woman is stable and there are no life-threatening complications. The IV or IM routes of administration are the ONLY acceptable routes for giving medicines if the woman is in shock. If she is also being treated for a life-threatening condition, follow the treatment guidelines for that condition.

Antibiotics: Antibiotics should preferably be given intravenously. If an evacuation is needed, start antibiotics before carrying out the evacuation. In case of a septic abortion, give the woman an antibiotic cover for at least 48 hours before carrying out uterine evacuation.

Tetanus toxoid : If there is a possibility that the woman was exposed to tetanus (if the abortion was not performed with sterile instruments, and/or if there was any contamination of the instruments or wound with dirt, as may be the case in an unsafe abortion, there is a chance of exposure to tetanus), and her vaccination history is uncertain, give her Inj. TT (0.5 mg IM) and tetanus antitoxin.

Pain control : For the control of pain, give Pethidine 1 mg/kg body weight (but no more than 100 mg) IM or IV slowly every 4 hours as needed. This may be given with or without Diazepam. Diazepam may be given in increments of 1 mg IV. Wait for at least two minutes before giving another increment. A safe and sufficient level of sedation is achieved when the woman's upper eyelids droop and just covers the pupil. Monitor the RR. If the RR falls below 10 breaths/minute, stop administration of all sedative or analgesic drugs.

Do not mix Diazepam with Pethidine in the same syringe, as the mixture forms a precipitate. Use separate syringes.

Additional measures

The woman's Rh status should be routinely assessed in pregnancy, and especially so in cases of abortion. If the patient is Rh-ve, give a dose of anti-D globulin (1500 IU IM) within 48 hours of uterine evacuation.

Complications of abortion

Patients who bleed in early pregnancy may also present with complications of abortion. In these cases there will invariably be a history of induced abortion at the hands of unqualified personnel. Table 7 gives the diagnosis and management of complications of abortion.

Table 7: Diagnosis and management of complications of abortion

Complications	Symptoms and signs		Management
Injuries Uterine, vaginal, urinary bladder or bowel (if left unattended, these injuries can get infected and lead to sepsis)	Symptoms	• Abdominal pain/cramping • Shoulder pain • Nausea/vomiting • Vaginal bleeding • Retention of urine or dysuria or incontinence	• Start an IV line; infuse R/L as a maintenance drip. • Refer to an FRU. Ensure that facilities for conducting an operation are available at the FRU.
	Signs	• Fever (if associated with infection/sepsis) • Distended abdomen • Rigid (tense and hard) abdomen • Rebound tenderness • Vaginal haematoma	
Infection/sepsis (might result from aseptic techniques and interventions, or might occur as a further complication of the injuries mentioned above)	Symptoms	• Pain in the lower abdomen • Malaise • Prolonged bleeding • Foul-smelling vaginal discharge • Fever	• Start an IV line; infuse R/L. • Give an antipyretic such as Aspirin or Paracetamol to control the fever. • Begin antibiotics* as soon as possible before attempting uterine evacuation by MVA (in cases of incomplete abortion and heavy bleeding). • If you cannot perform MVA, or the bleeding continues, or the condition deteriorates, refer the woman immediately to an FRU.
	Signs	• Rebound tenderness • The uterus is tender to the touch • Purulent cervical discharge • Tenderness on moving the cervix	

*Give Ampicillin 2 g IV every 6 hours PLUS Gentamicin 5 mg/kg body weight IV every 24 hours PLUS Metronidazole 500 mg IV every 8 hours until the woman is fever free for 48 hours.

Follow-up of women who have had an abortion

Before discharge, tell a woman who has had a spontaneous abortion that:

- Spontaneous abortion is common and occurs in at least 15% (1 in 7) of clinically recognized pregnancies.
- The chances of a subsequent successful pregnancy are good unless there has been sepsis or the cause of abortion is identified, which may have an adverse effect on future pregnancies (this is rare).
- It is better to delay the next pregnancy till the woman has completely recovered, even though she may want to become pregnant soon after having an abortion.

Contraceptive counseling

Depending on the reproductive decision of the couple, contraceptive counseling should be offered. This is especially important for women who have had an unsafe abortion. If pregnancy is not desired, certain methods of family planning can be started immediately (within 7 days), provided:

- there are no severe complications requiring further treatment and

- the woman receives adequate counseling to help her select the most appropriate family planning method (*see Table 8*)

Table 8 : Family planning methods advisable after an abortion

Type of contraceptive	Advise to start
Hormonal (pills, injections, implants)	• Immediately
Condoms	• Immediately
Intrauterine device	• Immediately • If infection is present or suspected, delay insertion till it is cleared • If the level of hemoglobin (Hb) is less than 7 g/dl, delay until the anaemia improves • Provide an interim method (e.g. condom)
Voluntary tubal ligation	• Immediately • If infection is present or suspected, delay surgery until it is cleared • If the Hb level is less than 7 g/dl, delay until anaemia improves • Provide an interim method (e.g. condom)

B) ANTEPARTUM HAEMORRHAGE: HAEMORRHAGE DURING LATE PREGNANCY AND LABOUR

Definitions

Vaginal bleeding occurring after 20 weeks of pregnancy or during labour (but before delivery of the baby) is known as ante partum haemorrhage (APH).

APH can be due to 3 causes:

- * **Placenta praevia:** This is defined as implantation of the placenta at or near the cervix.
- * **Abruptio placentae (accidental haemorrhage):** This is due to detachment of a normally located placenta from the uterus before the foetus is delivered.
- * **Ruptured uterus:** Bleeding from a ruptured uterus may occur vaginally unless the foetal head blocks the pelvis. Bleeding may also occur intra-abdominally. Rupture of the lower uterine segment into the broad ligament, however, will not release blood into the abdominal cavity. Rather, it may form a haematoma in the broad ligament.

A woman with APH, if not managed in time, can bleed to death within 12 hours of the start of bleeding. It is an important cause of maternal mortality.

Clinical features and diagnosis

- Table 9 gives the clinical features and differential diagnosis of APH.

Table 9 : Diagnosis of antepartum haemorrhage

Criteria	Placenta praevia	Abruptio placentae	Uterine rupture
Nature of the bleeding	- Painless, causeless and recurrent - The bleeding is always revealed	- Painful; pain is often localized to start with and later becomes generalized, attributed to pre-eclampsia or trauma and is continuous. - The bleeding is revealed, concealed, or usually mixed	- The bleeding often occurs after the woman has been in labour for a long time. - The bleeding may be concealed or mixed
General condition and anaemia	Proportional to the amount of blood loss	Out of proportion to the visible blood loss in the concealed variety	Out of proportion to the visible blood loss
Features of pre-eclampsia	Not relevant	Present in one-third of cases	Not relevant
Height of the uterus	Proportional to the gestational age	May be disproportionately enlarged in the concealed type	Uterine contour not felt; occasionally, the uterus is felt separately on to one side
Feel of the uterus	Soft and relaxed	May be tense, tender and rigid	
Malpresentation	Common; the head is high and floating	Unrelated; head may be engaged	Foetal parts felt superficially; malpresentation may be present
Localization of placenta	Placenta is in the lower segment of the uterus	Placenta is in the upper segment	The placenta may be attached to the uterus or may be lying free in the peritoneal cavity
Vaginal examination	Placenta felt in the lower segment	The placenta is not felt in the lower segment	The presenting part is high up or not felt; the contracted uterus may be felt on one side

A careful P/S examination may be performed to rule out other causes of bleeding such as cervicitis, trauma, cervical polyps or cervical malignancy. The presence of these, however, does not rule out placenta praevia.

GENERALMANAGEMENT

- Make a rapid evaluation of the general condition of the woman including vital signs (pulse, BP,RR,temperature)

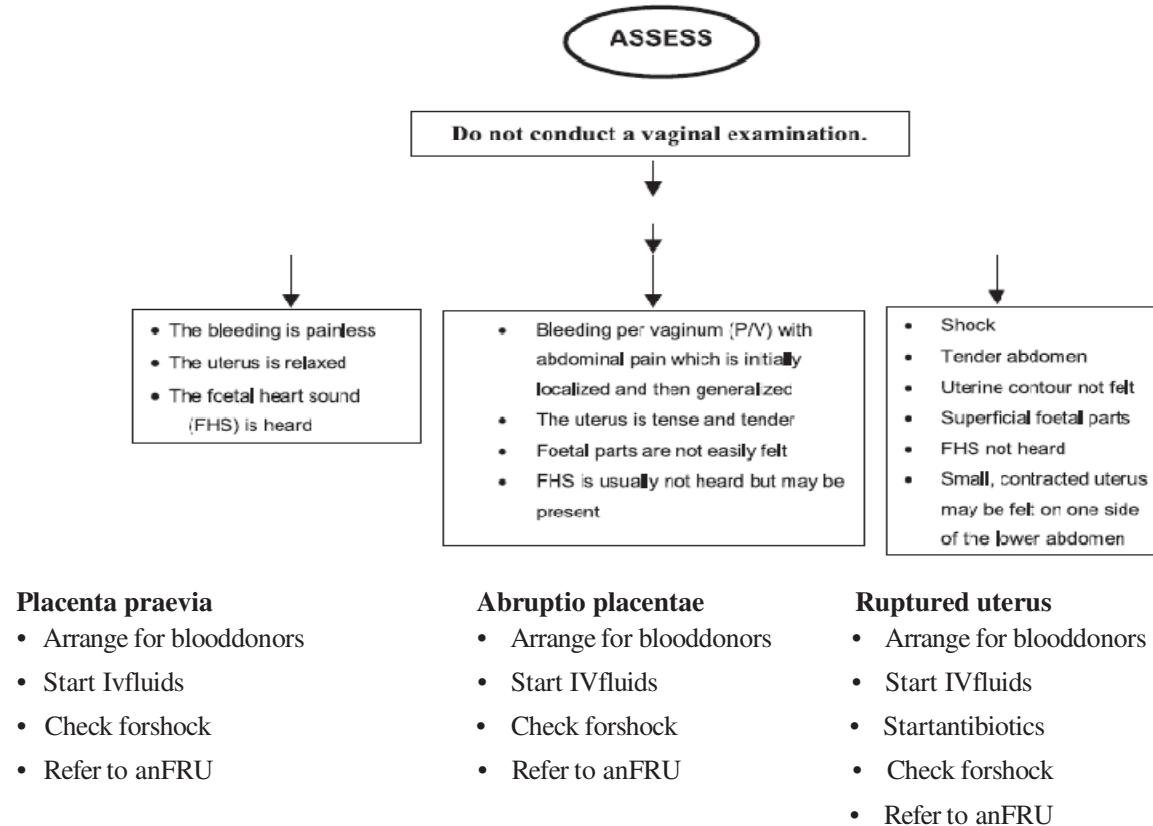
Do NOT carry out a vaginal examination at this stage.

- If shock is suspected, immediately begin treatment. While evaluating the woman, keep the possibility of shock in mind even if signs of shock are not present because her status may worsen rapidly. If shock develops,it is important to begin treatment immediately
- Start IV infusion
- Give oxygen by nasalcatheter.
- Assess the clotting status using a bedside clotting test. Failure of a clot to form after 7 minutes or formation of a soft clot that breaks down easily suggests the presence of a coagulopathy (in abruptioplacentae).
- Do not sedate a woman with APH, even if she is in pain, as sedation may mask the signs of hypoxia should it occur as a consequence of haemorrhage andshock.
- Refer such patients to a specialist at anFRU.
- If the woman has a ruptured uterus, start IV antibiotics and insert a self-retaining Foley catheter before referring the woman to anFRU.

Management/referral

A woman with placenta praevia, abruptio placentae or ruptured uterus should not be managed at the PHC because there are no facilities for blood transfusion or surgical intervention, if required. Refer such a woman immediately to an FRU equipped with facilities for surgical obstetrics, blood transfusion and anaesthesia after providing general management as discussed above.

Chart 2 : Management of antepartum haemorrhage



(a) POSTPARTUM HAEMORRHAGE: HAEMORRHAGE AFTER CHILDBIRTH

Excessive bleeding after childbirth or postpartum haemorrhage (PPH) is defined as bleeding in excess of 500ml following delivery. This is a life-threatening condition and is a major cause of maternal mortality.

DEFINITIONS

Postpartum haemorrhage

PPH is defined as the loss of 500 ml or more of blood from the genital tract after a vaginal delivery up to the end of the puerperium. As it is difficult to measure the exact amount of blood loss, an operational definition of PPH, important from the point of view of making a diagnosis, is the soaking of more than one pad per hour or bright red bleeding with or without clots after delivery. As the same amount of blood loss may have a variable effect in different women (the effect is more in those with PIH, dehydration, short stature, anaemia), the qualitative definition is more important. This includes any amount of blood loss after delivery up to 6 weeks, but which affects the woman's haemodynamic stability. It is important to remember that a lower level of blood loss can cause the woman's condition to deteriorate in certain circumstances. This will include the presence of anaemia, PIH, pre-eclampsia or other medical conditions, e.g. cardiac disease. Often, it is difficult to assess the amount of blood a woman has lost. The blood may be mixed with the amniotic fluid or urine or may simply be dispersed on the linen or on the floor. A woman with normal Hb will tolerate blood loss better; the same amount would be fatal for an anaemic woman.

Immediate postpartum haemorrhage

This includes all occurrences of increased bleeding within 24 hours after delivery. Excessive bleeding during the third stage of labour, which is also known as "third-stage haemorrhage" is included in immediate PPH. Immediate PPH is more common than delayed PPH [see below in this chapter], it generally involves heavier bleeding and is associated with greater morbidity. Immediate PPH most often occurs within 4 hours after delivery.

Immediate PPH is most commonly caused by uterine atony, i.e. failure of the uterus to contract properly after childbirth. Other causes include trauma to the genital tract or presence of retained placenta and placental fragments. The placenta is said to be retained when it has not been delivered within half an hour after delivery.

Delayed postpartum haemorrhage

All cases of PPH occurring between 24 hours after delivery and 6 weeks postpartum are included. The main causes of PPH are atonic uterus or trauma to the genital tract.

Atonic bleeding: This occurs from the placental site because the uterus is unable to contract adequately and thus the blood vessels are not compressed and bleeding is not controlled. Any condition that interferes with uterine contraction, such as a retained placenta, will predispose to atonic bleeding.

Active management of the third stage of labour for preventing PPH

Active management of the third stage of labour helps in preventing PPH. It is recommended that the practice of active management including prophylactic administration of oxytocics, CCT and uterine massage should be routinely followed, as far as possible. By carrying out active management of the third stage of labour it has been found that the length of the third stage and the incidence of PPH are significantly reduced.

PPH: Identifying the problem

It is crucial to understand the importance of identifying and defining the problem of PPH in order to provide effective management.

Table 10 : Diagnosis of vaginal bleeding after childbirth

Symptoms and signs typically present	Symptoms and signs sometimes present	Probable diagnosis
Immediate PPH ^a (the uterus is soft and not contracted)	Shock	Atonic uterus
Immediate PPH (the bleeding is bright red)	• Complete placenta • Uterus contracted	Tears in the cervix or vagina
Placenta not delivered within 30 minutes after delivery	• Immediate PPH • Uterus relaxed	Retained placenta
A portion of the maternal surface of the placenta is missing or the membranes are torn	• Immediate PPH • Uterus relaxed	Retained placental fragments
• The uterine fundus is not felt on abdominal palpation • Slight or intense pain	• Inverted uterus apparent at the vulva • Immediate PPH^b	Inverted uterus
• Delayed PPH • Uterus softer and larger than expected for the elapsed time	• Bleeding is variable (light or heavy, continuous or irregular), and foul-smelling • Anaemia	Delayed PPH
• Immediate PPH (bleeding is intra-abdominal and/or transvaginal) • Severe abdominal pain (may decrease after rupture of the uterus)	• Shock (may be out of proportion to visible blood loss) • Rapid maternal pulse • Tender abdomen • Uterine contour not felt	Ruptured uterus

Bleeding may be light if a clot blocks the cervix or if the woman is lying on her back. There may be no bleeding with complete inversion.

Atonic uterus is the cause of 80% of cases of PPH. Hence, the most important step in making a diagnosis of the cause of PPH is to keep a hand on the lower abdomen of the woman and feel for the uterine tone. If the uterus is soft and not contracted, it indicates atonic PPH (with or without associated genital tract trauma). Manage as given below. If the uterus is contracted but the bleeding continues, it is a case of traumatic PPH, which could be because of vaginal/cervical/perineal tears or lacerations, ruptured uterus, inversion of the uterus, etc. Manage accordingly, as appropriate at the PHC level.

Managing specific problems

Atonic PPH with Placenta delivered

Atonic PPH refers to bleeding from the placental site due to lack of tone in the uterus. In this case, the uterus is not well contracted. To stop the bleeding it is essential to make the uterus contract and empty it. It is soft, distended and lacking in tone. The management of atonic bleeding when the placenta has been delivered is given below.

- Rub up contraction and expulsion of clots [You may need the help of an assistant to compress the uterus.
- Give an oxytocic. Give a bolus dose of Inj. Oxytocin 10 UIM.
- Start an IV line [see Annexure 14: "Inserting an IV line and giving IV fluids"] with an 18- or 16-gauge needle.
- Withdraw blood for grouping.
- Start IV fluids (3U of R/L for every unit of blood lost). Infuse Oxytocin 10 IU in 500 ml (1 bottle) of IV fluids @ 60 drops/minute.
- In case IV access is not possible, give Inj. Oxytocin IM.
- Catheterize the patient to facilitate uterine contraction and to assess the urine output in case of shock.
- Assess the patient's condition (pulse, BP, colour, consciousness, uterine tone, urinary output) and estimate how much blood has already been lost. If the woman is in shock, make sure that the airway is open, turn her head to one side, and give her oxygen, if available, @ 6-8 L/minute through a mask or nasal cannula. Raise the foot end of bed [by one foot] in case of shock.
- Monitor the vital signs-BP, pulse, RR and urinary output. Check that the expelled placenta and membranes are complete.
- Anticipate the need for blood. Refer in case blood transfusion is necessary. An R/L drip is recommended (if R/L is not available, give normal saline) and if the woman is in shock, it should be given fast (1 L in 15 minutes) until the condition of the woman stabilizes. A rising BP (systolic 90 mmHg) and heart rate/ pulse under 90 beats/minute are signs of stabilization.
- Empty the urinary bladder and keep it empty. Insert a catheter if the woman is unable to use a bed pan.
- Keep the uterus well contracted. Add 10 U of Oxytocin to 500 ml of IV fluids and run it @ 40 drops/ minute as a continuing dose (you may need to set up a second IV drip). No more than 100U of Oxytocin should be given in 24 hours. **Oxytocin should never be given as an IV bolus.** Try putting the baby to the breast or use nipple stimulation if the baby does not suckle. If the bleeding persists and the uterus continues to be in the relaxed state, use bimanual compression.
- In emergency situations, if bleeding continues perform **bimanual compression of the uterus**
- After the procedure, broad-spectrum antibiotics may be started as a prophylaxis against infection.

Atonic PPH with retained placenta

- Follow the same procedure as above, with uterine massage, expulsion of clots, Inj. Oxytocin IM,

starting an IV line with Oxytocin infusion, etc. Do NOT give Ergometrine as it causes tonic uterine contraction, which may delay expulsion.

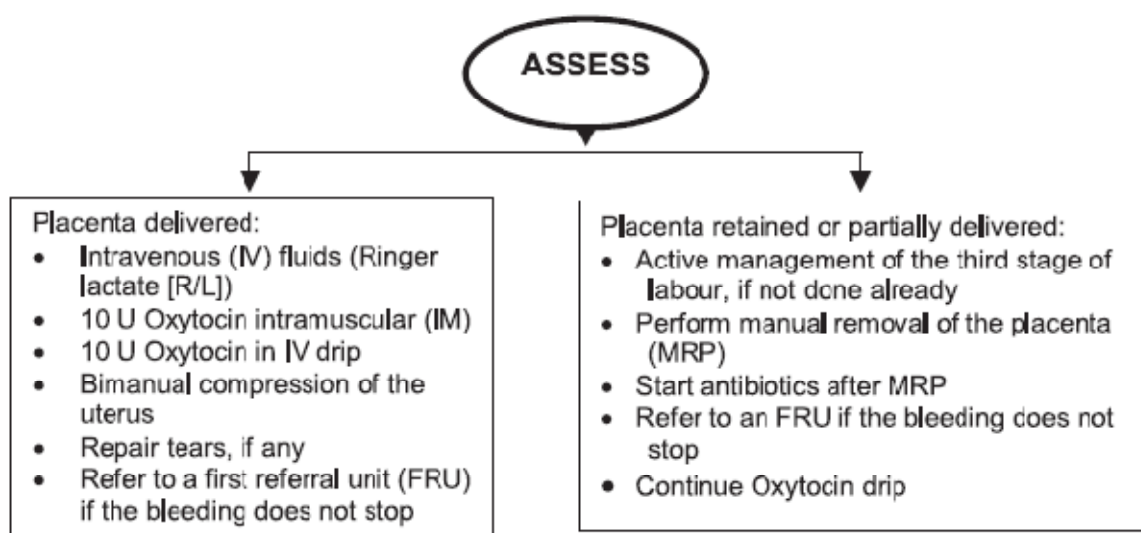
- Assess the patient's condition (pulse, BP, colour, consciousness, uterine tone) and estimate how much blood has already been lost. If the woman is in shock, make sure that the airway is open, turn her head to one side and give her oxygen, if available, @6-8L/minute through a mask or nasal cannula.
- Empty the bladder and attempt CCT [*see Annexure 9*]. If it is successful, examine the placenta to ensure that it is complete.
- Keep the uterus contracted by massaging the fundus. Put 20 IU of Oxytocin in 500 ml of R/L (1 bottle) and run it rapidly @ 40 drops/minute. (You may need to set up a second IV drip.) Put the baby to the breast or use nipple stimulation if the baby does not suckle.
- If CCT is not successful, a gentle vaginal examination should be performed. If the placenta can be felt protruding through the cervix, it should be grasped with the fingers and steadily withdrawn. The other hand fixes the uterus over the suprapubic space, pushing the uterine fundus upwards to prevent inversion of the uterus.
- If the placenta cannot be delivered, and the cervix is dilated, manual removal of the placenta (MRP) should be attempted after giving the patient plasma expanders if needed and keeping an Oxytocin drip running.
- After MRP has been carried out, continue IV infusion of Oxytocin as above and massage the uterus. The woman should be started on broad-spectrum antibiotics.
- If the placenta is retained BUT the woman is not bleeding, start the woman on IV fluids (without Oxytocin) and refer her to an FRU for further management.

NOTE: Very adherent tissue may indicate placenta accreta. Efforts to extract a placenta that does not separate easily may result in heavy bleeding or uterine perforation, which usually requires hysterectomy. Hence, it is advisable to refer such cases to an FRU immediately.

Post-procedure care in atonic PPH with/without retained placenta

- Monitor the vital signs (pulse, BP, RR) every 10 minutes for the first 30 minutes, every 15 minutes for the next 30 minutes and then every 30 minutes for the next 3-6 hours or until stable.
- Palpate the uterine fundus to ensure that the uterus remains contracted.
- Check for excessive bleeding every 30 minutes.
- Continue infusion of IV fluids.
- If the bleeding continues, assess the clotting status using a bedside clotting test. Failure of a clot to form after 7 minutes or formation of a soft clot that breaks down easily suggests coagulopathy. In such cases, refer the woman immediately to an FRU.
- If there are signs of infection (fever, foul-smelling vaginal discharge), give antibiotics.
- Monitor the urinary output (should be more than 400ml in 24 hours).

Chart 3 : Management of atonic postpartum haemorrhage



Referral and transfer

You should arrange referral to a higher facility if:

- The bleeding is not controlled;
- There are retained bits of placenta which cannot be removed manually;
- The placenta is retained due to a constriction ring or if hours or days have passed since delivery, as in these cases it may not be possible to get the entire hand into the uterus. Since facilities for giving anaesthesia are not available at the PHC, it is advisable to refer such patients to an FRU.
- Inversion or rupture of the uterus is the cause of PPH.

Table 11 : Use of oxytocic drugs for the management of postpartum haemorrhage

	Oxytocin	Ergometrine/ Methylethergometrine	15-methyl Prostaglandin F2a
Dose and route	• IV: Infuse 10 U in 500 ml R/L @ 60 drops/minute • IM: 10 U	IM or IV (slowly): 0.2 mg	IM: 0.25 mg
Continuing dose	IV: Infuse 20 U in 500 ml R/L @ 40 drops/minute	• Repeat 0.2 mg IM after 15 minutes • If required, give 0.2 mg IM or IV (slowly) every 4 hours	0.25 mg every 15 minutes
Maximum dose	Not more than 100 U of Oxytocin in 24 hours	5 doses (total 1.0 mg)	5 doses (total 1.5 mg)
Precautions/ contraindications	Do not give as an IV bolus	Pre-eclampsia, hypertension, heart disease	• Asthma • Never give IV
Side-effects	Hypotension (if given as IV bolus)	Vomiting	• Nausea/vomiting • Diarrhoea

Traumatic PPH

Traumatic PPH is recognized when there is bleeding from the genital tract but the uterus is well contracted and placenta has been delivered completely along with the membranes. Suspect traumatic bleeding in cases of instrumental delivery, precipitate labour and previous scar in the uterus. The bleeding may be coming from any of the following:

- Perineum: tear or episiotomy wound
- Vulva: ruptured varicosities, tears or a haematoma can occur (haematoma may not be obvious immediately after delivery but can cause severe pain and shock)
- Vagina: lacerations of the wall or rupture of varicosities
- Cervix: lacerations/tear
- Uterus: rupture or inversion of the uterus can also occur and is accompanied by marked pain and shock.

General management of a case of traumatic PPH

- Check the pulse and BP and observe the general condition. Estimate the blood loss.
- Set up an IV line; give R/L. You may also give plasma expanders if they are available and if the woman is in shock.
- If the bleeding is from the lower genital tract (vulva, perineum, lower vagina) repair the tear with catgut
- If a small bleeder is seen, catch it with an artery forceps and tie it with catgut.
- If the tear cannot be managed at the PHC, refer to an FRU after packing the vagina with gauze.
- Start the woman on a broad-spectrum antibiotic such as Inj. Ampicillin 1 g stat IM followed by 500 mg every 6 hours for five days, or Cap. Amoxicillin 1 g stat orally followed by 500 mg every 8 hours.

Rupture of the uterus

Injury to the uterus can be caused by rough handling of the uterus during MRP. Women who present with a retained placenta after a home delivery are the most likely to have injury to the uterus from an unsuccessful attempt(s) to remove the placenta. If the woman has previously had curettage, or a caesarean section, or a uterine operation, there may be weak areas on the uterine wall, making it susceptible to rupture.

A woman with uterine rupture will have PPH along with abdominal pain. The abdomen is tender on palpation and the uterine contour will not be easily felt. The woman may even be in shock.

Rupture of the uterus requires immediate laparotomy with possible hysterectomy or repair of the uterine tear. Hence, such cases should be immediately referred to an FRU.

Vaginal/cervical/perineal tears

These tears need to be sutured to stop the haemorrhage. If you cannot repair the tear, or if the woman continues to bleed even after suturing, refer her immediately to an FRU where the services of an obstetrician are available. Remember to pack the vagina with sterile gauze before referring the woman.

Care after repairing a vaginal/cervical/perineal tear

- Check the woman's vital signs (pulse, BP, temperature) every 15 minutes for 1 hour, then every 30 minutes for the next 2 hours, then monitor as per the condition of the woman.
- Watch for bleeding and/or the development of a haematoma.
- Give IV fluids according to the patient's condition.
- Give prophylactic antibiotics, e.g. Cap. Amoxicillin 500 mg orally every 8 hours for 5 days.
- Follow up the patient in 10 days, then in 6 weeks to check that the wound is healing properly.

Complications after repairing a tear and their management

Early complications

1. **Bleeding:** It may occur if the blood vessels have not been ligated properly. Prevent it by carefully ligating the bleeding points while suturing. Make sure that the bleeding is not coming from an atonic uterus.
2. **Haematoma:** This refers to a collection of blood in the vaginal wall, which commonly occurs as a complication of vaginal injury. It may be present with vaginal or vulval swelling or intense pain and retention of urine. Prevent it by carefully ligating the bleeding points while suturing. If the haematoma is large and painful, refer the woman to an FRU, as the haematoma needs to be incised and drained under general anaesthesia.
3. **Retention of urine:** The woman should be encouraged to pass urine frequently. She can sit or squat for the same. If she is unable to pass urine on her own, a self-retaining catheter may have to be inserted to avoid straining. Keep the catheter in place for 48 hours under antibiotic cover.
4. **Infection:** This is a common complication and may be avoided by giving the woman prophylactic antibiotics and using an aseptic technique to repair the tear. However, if infection sets in, remove the sutures which come out or are lying loose. Remember all the sutures need not be removed at the same time. If the wound is gaping, secondary sutures need to be applied but only after the infection has cleared.

Late complications

1. **Scarring and vaginal stenosis** (narrowing) may occur in some cases of neglected tears of the vagina and may cause pain during intercourse and obstructed labour in subsequent deliveries.
2. **Cervical scarring** due to an unrepaired cervical tear may lead to prolonged labour in subsequent pregnancies because the cervix cannot dilate properly. If cervical tears are not sutured properly, it may lead to repeated abortions on account of "cervical incompetence". There is also a tendency for repeat cervical tear in subsequent deliveries at the site of the previous tear.
3. Vesicovaginal, vesicocervical or rectovaginal fistulae can occur if vaginal or cervical tears extend into the bladder or rectum.

EXERCISE FOR PARTICIPANTS

- Q. 1 Define a) Spontaneous abortion
b) Incomplete abortion
c) Induced abortion
d) Complete abortion
- Q. 2 What do you mean by abortion? What are differential diagnosis for ante partum hemorrhage in early pregnancy?
- Q. 3 What are differential diagnosis for ante partum hemorrhage in late pregnancy?
- Q. 4 Write short notes on
- a) Management of incomplete abortion
 - b) Atonic PPH
 - c) Traumatic PPH
 - d) Care after repairing a vaginal/cervical/perineal tear
 - e) Complications after repairing a tear and their management

5. MATERNAL DEATH REVIEW

Background Information

Each year in India, roughly 28 million women experience pregnancy and 26 million have a live birth. Of these, an estimated 67,000 maternal deaths and one million newborn deaths occur each year. In addition, millions more women and newborns suffer pregnancy and birth related ill-health. Thus, pregnancy-related mortality and morbidity continues to have a huge impact on the lives of Indian women and their newborns.

Maternal death is defined as the death of a woman who dies from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy or child birth or within 42 days of termination of pregnancy, irrespective of duration and site of the pregnancy.

Maternal Mortality Ratio (MMR) is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 1,00,000 live births.

- **Maternal Mortality Ratio (MMR) in India has shown an appreciable decline. Levels of maternal mortality vary greatly across the regions, due to variation in underlying access to emergency obstetric care, antenatal care, anemia rates among women, education levels of women, and other factors.** In India, Maternal Mortality continues to be a major public health concern. Currently Maharashtra has MMR 38 in 2017-19 (*India MMR- 103 & Kerala – 30, Source: Special Bulletin on Maternal Mortality in India 2017-19 released in March 2021*).

Maternal Death Review (MDR) is an important strategy :

- To improve the quality of obstetric care and reduce maternal mortality and morbidity.
- To generate evidence for determining interventions, to fill the gaps in service.
- To provide the data needed to feed into the national civil registration system for the computing of MMR.
- A commitment to Act upon the findings. Not for punitive action.

Avoiding maternal death is possible even in resource-limited countries, but the correct information on which to base maternal health programmes is required. Maternal death review is one of the oldest and the most documented. The importance of MDR lies in the fact that it provides detailed information on various factors at facility, district, community, regional and national level that are needed to be addressed to reduce maternal deaths. Analysis of these deaths can identify the delays that contribute to maternal deaths at various levels and the information used to adopt measures to fill the gaps in service.

Different approaches for investigation of maternal deaths

1. Community based maternal death review (Verbal autopsy)
2. Facility based maternal death review
3. Confidential enquiries into maternal deaths
4. Surveys of severe morbidity (near miss)
5. Clinical audit

Government of India has decided to take up Community based maternal death review (CBMDR) and the Facility based maternal death review (FBMDR) which would help in identifying the gaps in the existing health care delivery systems, prioritize and plan for intervention strategies and to reconfigure health services.

1. Community-Based Maternal Death Review / Verbal Autopsy

Definition: Community based MDR using a verbal autopsy format is a method of finding out the medical causes of death and ascertaining the personal, family or community factors that may have contributed to the death of a woman. The verbal autopsy consists of interviewing people who are knowledgeable about the events leading to the death such as family members, neighbors and traditional birth attendants.

Community based reviews must be taken up for all deaths that occurred in the specified geographical area, irrespective of the place of death, be it at home, facility or in transit.

Requirements: Co-operation from the family of the woman who died and sensitivity is needed in discussing the circumstances of the death.

Advantages: Provides means to arrive at medical cause of death when a woman dies at home allows both medical and non-medical factors to be explored and provides the opportunity to include the family's perspective on health services.

Disadvantages: Different assessors may arrive at different causes of death, deaths from indirect causes may be over-looked / under-reported.

Steps of community based MDR

a) Notification

The ASHA/AWW/ANM will notify all women deaths in the age group of 15 to 49 years from her area by telephone to the BMO within 24 hours. The local panchayats and other relevant persons/ groups may also be encouraged to inform the BMO about women's deaths in their area.

The ASHA/AWW/ANM will fill up the format for primary informer (Annex 6) for all women's deaths (age 15-49) and send the format to the BMO within 24 hours. Format for primary informer gives information whether the death is a suspected maternal death or a non-maternal death.

Line listing of maternal deaths should be submitted to the BMO by the ASHA, using annex 4, by the 5th of every month. In case no death has occurred during the month, the ASHA has to submit a nil report. The ASHA/AWW/ANM should also ensure the availability of the respondents during the visit of the investigation team.

b) Investigation

Investigation of the maternal deaths will be done using Verbal Autopsy Format (annex 2). In section 11 of the format, narration on the various events which led to the death of the mother, should be explained in detail.

The Block Medical Nodal Officer (BMNO): is the MO in charge of the Block PHC. The BMNO is overall responsible for the MD review process at the block and will act as a supervisor for the investigation team.

Responsibilities:

- Appoint the ANM/LHV to visit the family of the deceased to verify whether or not it is a maternal or non- maternal death, after receiving annex 6 from the notifier.
- Report all suspected maternal deaths to the district DNO based on the report from the primary informant (by phone and by sending Format for Primary Informer (Annex6).
- Report suspected maternal deaths to the state nodal officer by telephone within 24hours.
- Maintain registers of all women deaths (15-49 yrs) (Annex – 5) & maternal deaths (Annex4).
- Assigns interview team to investigate and fills the first page of the Format for Verbal Autopsy (Annex 2). The cause of the death in Page 1 of Annex – 2 can be filled based on the findings after the investigation is completed.

- It is desirable that the BMO should be part of the investigation team. In his absence, he may nominate another medical officer from the block PHC to be a part of the team.
- Scrutinize filled up forms to ensure the form is complete and filled correctly.
- Prepare Case summary (Annex 3) for all the maternal deaths in consultation with the team which investigated and send it to the DNO along with the filled in investigation format (Annex 2), within a month of the date of notification.
- Conduct monthly meetings to review the whole process and take corrective actions at his level. Reporting system should be reviewed even if there are no cases in his block.
- The BMO would pay Rs. 50/- to the primary informant (only ASHA and AWW is eligible) and Rs 100/- per person for conducting the investigation in the field (subject to a maximum of 3persons)

Investigators: The investigators could be the Block Medical Officer (BMO)/ other Medical Officers (MO), Lady Health Visitor (LHV), Block Public Health Nurse (BPHN), Sector Health Nurse, Health supervisor, Nurse tutor or Auxiliary Nurse Midwife (ANM). The investigating team should ideally comprise of 3 persons: one for conducting the interview, one for recording and the other to co- ordinate the process. The investigators must be properly trained to communicate with bereaved families.

Responsibilities:

- To investigate the maternal death using the format for Verbal Autopsy (Annex2) within 3 weeks of notification.
- Make sure all relevant information is captured during interview. If not, a follow up interview may be required. If needed, with another respondent.
- Assist the BMO in preparation of Case summary (Annex3)
- Hand over the filled up Format for Verbal Autopsy (Annex 2) to the BMO for onward transmission to the District Nodal Officer (DNO) who will prepare a compiled Line Listing for Maternal Deaths (Annex 4) of all maternal deaths from all blocks.

2. Facility-Based Maternal Death Review

Definition: A qualitative, in-depth investigation of the causes of and circumstances surrounding a maternal death at a health facility; the death is initially identified at the facility level but such reviews are also concerned with identifying the combination of factors at the facility and in the community that contributed to the death, and which ones were avoidable.

Requirements: Cooperation from those who provided care to the woman who died, and their willingness to report accurately on the management of the case.

Advantages: Is a well-understood process in some settings, allows for complete review of medical aspects, provides a learning opportunity for all staff, and can stimulate improvements to medical care.

Disadvantages: Requires committed leadership at the facility level, does not provide information about deaths occurring in the community.

Facility Based Maternal Deaths Reviews will be taken up for all Government teaching hospitals, referral hospitals and other hospitals (District, Sub district, CHCs) where more than 500 deliveries are conducted in a year.

Steps of Facility-based MDR

a) Notification

- All Maternal deaths occurring in the hospital, including abortions and ectopic gestation related deaths, in pregnant women or within 42 days after termination of pregnancy irrespective of duration or site of pregnancy should be informed immediately by the Medical officer who has treated the mother and was on duty at the time of occurrence of death to the Facility Nodal officer (FNO)
- The FNO of the hospital should inform the maternal death to the District Nodal Officer (DNO) and state nodal officer by telephone within 24 hours of the occurrence of death. The Nodal officer of the hospital should complete the primary informant format Annex 6 and send it to the DNO within 24hrs of the occurrence of maternal death

b) Investigation

- Any maternal death which occurred in the hospital should be immediately investigated within 24hrs by the Medical officer who had treated the mother and was on duty at the time of occurrence of death using the Facility Based Maternal Death Review (FBMDR) Format (Annex 1). The form would be submitted under the guidance and approval of the FNO. The FBMDR format should be filled in triplicate, one copy would be retained by the FNO, one would be sent by the FNO to the DNO within 24hrs and the other to the Facility Maternal Death Review (MDR) committee of the Hospital.
- All medical officers in the facility must be aware about the MDR program and oriented on the use of the FBR form. All pregnant and postpartum women that were treated, and died, in other departments than the OB/GYN department, must also be reported and investigated.

Facility Nodal Officer (FNO)

- Inform the District Nodal officer and state nodal officer on the occurrence of maternal death in the hospital within 24 hours.
- Send the primary informant format (Annex 6) duly filled to the District Nodal officer within 24 hours
- To review the FBMDR format filled by the medical officer and approve it.
- Retain one copy of the FBR format with him/her; send one copy to the Facility based Maternal Death Review Committee and the other to the DNO within 24hrs of the maternal death.
- He/ She have to prepare a case summary and send it to the Facility based Maternal Death Review Committee along with a copy of the case sheet.
- The case sheet should be numbered and have the patient's name and registration number on each page.
- Will keep a register of all maternal deaths in the facility; line listing of maternal deaths (Annexure 4)
- Even if there is no death in a month, the facility should report that there was no death in that month. (Nil death report)
- He/ She will be the nodal persons for organizing the FBMDR Committee at the hospital.
- He/ She will be attending the FBMDR Committee meeting at the district level and also the Review conducted by the District Magistrate (DM).
- Another senior officer may be nominated in his/her absence.

Facility Maternal Death Review Committee (FMDRC)

Members of the FMDRC may be the following:

➤ Teaching hospital:

- Superintendent of the Hospital/ Other Administrative Head of the Institution
- Head Of Department (OBG dept)
- FNO (Obstetrician from the department): At least three members should be OBG specialists from the Dept

- One anesthetist
 - One blood bank MO
 - Nursing representative
 - One physician
- **District/Other hospitals: Hospital superintendent**
- FNO (Obstetrician from the Dept): At least two obstetricians/MO in OBG department as members
 - One anesthetist
 - One blood bank MO
 - Nursing representative
 - One physician
- **FBMDR committee:**
- The FNO fixes the monthly meeting in discussion with the Hospital superintendent of the hospital
 - Conducts monthly review meeting once in a month with the FBMDR format and case summary.
 - Suggests corrective measures and steps to be taken to improve quality of care at the hospital
 - Suggests steps to be taken at the District level and State level.
 - Sends minutes of meeting to DNO along with the case summary prepared.

(FBMDR + CBMDR)

Monthly review meeting of the District MDR Committee chaired by Civil Surgeon and convened by District Nodal Officer every month on a prefixed date.

Monthly review meeting chaired by D.C., convened by the Civil Surgeon and assisted by the District Nodal Officer (2 relatives of the deceased to attend).

3. “Near Miss” Review

Definition: The identification and assessment of cases in which a pregnant woman survives an obstetric complication; there is no universally acceptable definition for such cases and it is important that the definition used be appropriate to local circumstances to enable local improvements in maternal care.

Requirements: Good-quality medical record system, a management culture where life-threatening events can be discussed freely without fear of blame, and a commitment from management and clinical staff to act upon findings.

Advantages: A “near-miss” may occur more frequently than a maternal death, it is possible to interview the woman herself during the review process, and can reduce the likelihood of future maternal deaths through quality improvement.

Disadvantages: Requires clear definition of severe maternal morbidity, selection criteria are required for settings with a high volume of life-threatening events.

MDR at District Level

At district level there will be two review meetings, one under the chairmanship of the CMO, second led by the District Magistrate.

District Maternal Death Review Committee

- The Chief Medical Officer (CMO) is mainly responsible for the Maternal Death Reviews at the District level. Both facility and community based reviews would be taken up at this level.
- The District CMO should form a Maternal Death Review Committee. Preferably, the District CMO can utilize existing quality assurance committee of the district or a new committee could be formed at the district level for MDR.
- The existing quality assurance committee or a newly formed committee should have following members: -
 - CMO/CS(chairman)
 - DNO(member secretary)
 - ACO
 - Head of Department of Obstetrics & Gynecology (teaching hospital/district hospital)
 - Anesthetist
 - Officer in charge of blood bank/blood storage center
 - Senior nurse nominated by the CMO/CS/DPHNO
 - MO who had attended the case in the facility should be invited

The district level nodal officer convenes the meeting of the committee under the chairmanship of CMO/CS/ACO once every month and will put up for review by committee all maternal death reports received in the last month.

Responsibilities of CMO

- Ensure the reception of all formats (facility and community)every month
- Review all the maternal deaths from both facility and community
- Hold monthly review meetings and recommend corrective measures.
- Select a few cases for review by the DM. Ensure participation of the family members. Selection of cases for review by DM, based on specified criteria (more deaths in one particular place, same type of deaths, unwanted referrals) in consultation with DM
- Conduct quarterly review meetings with analyzed data and process indicators identified.
- Find means of sharing the district level data from the verbal autopsy with the communities to create awareness and initiate action at village level.
- Facilitate, through the DNO, the monthly review meeting with the District Magistrate (DM), and send minutes of both meetings (District MDR committee meeting and the meeting with DM) to state level.
- Facilitate the data entry and analysis at the district level (including HMIS).

The minutes of the meeting will be recorded in a register. The corrective measures will be grouped into 3 categories with timelines:

- Corrective measures at the community level
- Corrective measures needed at the facility level
- Corrective measures for which state support is needed

District Nodal Officer (DNO)

The nodal officer is responsible for taking up the entire review process and follows up at the district level. The CMO has to provide necessary support to the District Nodal Officer for taking up the process.

Responsibilities

- Supervise MDR implementation in the district - both at facility and community level.
- Receive notification of all suspected maternal deaths from the BMO and maternal deaths from the nodal officer of the hospital (by phone and by Annex6)
- Receive investigation format and case summary of CBMDR from the blocks and FBMDR from the hospitals.

- Create a combined Line-listing of Maternal death (Annex 4) based on the case summary formats from both facility and community from all blocks
- Prepare a compiled case summary, when applicable
- Coordinate the District MDR committee meeting and the review meeting with the district magistrate(DM)
- Arrange to bring two relatives of the deceased to attend the review meeting with DM. Only relatives who were with the mother during the treatment of complications may be invited for the meeting.
- Paying Rs. 200/- per person to the relative of the deceased person who attends the DMs meeting. (subject to a maximum of 2 persons only)
- Ensure that the training of the block level interviewers and the BMO have taken place
- Ensure availability of funds for payment of incentives
- Facilitate the printing of formats by the District Health Society (DHS) (forms used at all levels) and ensure its availability at blocks and facilities.
- Represent the district in state level review meetings
- Prepare the minutes of the District MDR committee meeting and the meeting with the DM
- Follow up the recommendations/corrective actions at district, block and facility level
- Orientation to the Medical Officers of the hospital on use of FBMDR formats

MDR review meetings with the District Magistrate

All the Maternal Death Reports compiled by the District MDR Committee will be put up to the District Magistrate, who will have the option of reviewing a sample of these deaths, which will be representative of deaths occurring at home, at facilities and in transit.

This committee should have the following members:

- Chair: District Magistrate
- CMO
- DNO
- Facility based nodal officers
- FOGSI
- IMA
- The close relatives/friends who were with the deceased mother during the time would be invited for the meeting, as well as the service providers who had attended on the case.

Process of the meeting

The relatives of the deceased will first narrate the events leading to the death of the mother in front of the DM and the service providers who attended the deceased mother. The case history of each of the selected maternal deaths will be heard separately. After the deposition and getting clarifications from the relatives they will be sent back. Then the various delays, the decision making at the family, getting the transport and institutional delays would be discussed in detail. The outcome of the meeting will be recorded as minutes and corrective actions will be listed with time line to prevent similar delays in future.

Outcome

- To institute measures to prevent maternal deaths due to similar reasons in the district in future
- To sensitize the service providers to improve the in-accountability
- To find out the system gaps including the facility level gaps to take appropriate corrective measures with time-line
- To allocate funds from the district health society for the interventions
- Take necessary actions both with health and other allied departments and review action taken
- Liaise with the state on the recommendation made by the District level committees.

Activity	Time line
Reporting death of women (15-49 years) by ASHA/other person to the Block PHC MO	Within 24 hours of occurrence of death by phone
Reporting death of woman by Block MO to the DNO	Within 24 hours of occurrence of death by phone
Community based investigation	Within 3 weeks of occurrence of death
Submission of report by Block PHC MO/facility MDR Nodal MO to DNO in the prescribed form	Within 4 weeks of occurrence of death
Reporting deaths of women by Block MO/ Nodal Officer of Facility to the DNO	Within 24 hours of occurrence of death by phone
Conduct of facility based review meetings and preparation of district MDR report for all deaths in district by the district committee (chaired by the CMO)	Every Month for the deaths reported in previous month.
Conduct of MDR meeting chaired by District Magistrate/Dist. Collector	Once in a month

MDR at State Level

- The overall responsibility of the Maternal Death Review process lies with the state. The key steps to be taken by the state are:
- Nomination of the state nodal Officer (member of the Quality Assurance (QA) Cell/any other person)
- Formation of a state level taskforce.

State Nodal Officer (SNO)

Responsibilities

- Collect relevant data on maternal death from the district and carry out detailed analysis.
- Nominate the district level nodal officers.
- Facilitate the preparation of an annual maternal death report for the state and organize a dissemination meeting to sensitize the various service providers and managers. The annual report may contain typical maternal death case studies which may be used during the training of medical and paramedical functionaries.

State Level Taskforce (SLF)

The State level task force will be formed headed by Principal Secretary Health and Family Welfare, Mission Director SHS, Senior Obstetrician of the Medical College Hospital, IMA/FOGSI and any other members nominated by Government.

Responsibilities

- The State Level Task Force will meet once in 6 months under the chairmanship of Principal Secretary Health and Family Welfare to review data and minutes sent from district level, discuss the actions taken on the minutes of the last state level meeting and make recommendations to Government for policy and strategy formulations.
- Share operational issues /feedback with GOI.

Current Challenges and Issues in Implementation of MDR Process

- Under-reporting (only 17.6% of total expected deaths reported).
- Quality of maternal death reviews at district/facility level
- Focus on high case load facilities in high mortality district—need to prioritize on constitution of FBMDR Committees at High Case Load “Delivery Points”
- Capacity building of health care providers and community health workers

KEY POINTS TO REMEMBER

- Maternal death is defined as the death of a woman who dies from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy or childbirth or within 42 days of termination of pregnancy, irrespective of duration and site of the pregnancy.
- Different approaches for investigation of maternal deaths
 - Community based maternal death review (Verbal autopsy)
 - Facility based maternal death review
 - Confidential enquiries into maternal deaths
 - Surveys of severe morbidity (near miss)
 - Clinical audit
- Community based reviews must be taken up for all deaths that occurred in the specified geographical area, irrespective of the place of death, be it at home, facility or in transit.

EXERCISE FOR THE PARTICIPANTS

Q. 1 Define maternal death?

Q. 2 What is the purpose of reviewing a maternal death?

Q. 3 What is the significance of reporting of each maternal death?

Q. 4 What are different approaches to review the maternal death?

Q. 5 What process should be used to review a maternal death?

6. JANANI SURAKSHA YOJANA

Janani Suraksha Yojana is being implemented in Rural, Urban and Corporation area of the State by Govt. of India since 2005-06. Benefit of this scheme is being given if the JSY eligible mother delivers in Government Health Institute or Government accredited private hospitals for Janani Suraksha Yojana. Guidelines for implementation of this scheme are given below.

Implementation strategy:

- Under this Scheme Financial Benefit is to be given to pregnant mothers from SC, ST & BPL families.
- The eligible beneficiary is from rural area and delivered in Govt. Health institution/ Govt. accredited private health institution the beneficiary will be given financial benefit of Rs.700/-.
- The eligible beneficiary is from urban area and delivered in Govt. Health institution/ Govt. accredited private health institution the beneficiary will be given financial benefit of Rs.600/-
- The eligible beneficiary is either from rural area or from urban area and belongs to Below Poverty Line family and even if delivered at home, in such case a financial benefit of Rs. 500/- paid to such beneficiary .If JSY beneficiary need emergency LSCS for delivery in such case financial benefit upto Rs. 1500/- is to be given to JSYbeneficiary. This benefit will be given against expenditure receipts submitted by Beneficiary.
- For such cases, Civil Surgeon need to do enlisting of Gynaecologist working in Govt. Hospital
- A micropolitan is to be prepared by Civil Surgeon for LSCS services of Gynaecologists from Govt. Health Institution to other nearest health institute of Govt.
- 4% of JSY total grant is to be allocated for administrative expenses.
- ASHA incentive is divided into two categories. One is for giving all ANC check up services to JSY beneficiary during pregnancy and second is for promoting JSY beneficiary pregnant mother for Govt. institutional delivery.
- Rural areas- Asha incentive - Rs 300/- incentive for mobilization of JSY beneficiary for ANC Check up and Rs 300 for delivery at Govt. Health Institute only and stays with mother in hospital during delivery
- Urban areas – Incentive to link worker -Rs 200 for mobilization for ANC checkup and Rs 200 for delivery at Govt. Health Institute only and stays with mother in hospital during delivery
- If JSY beneficiary delivers in Govt. accredited hospital or other hospital ASHA/Link worker will not receive incentive of promoting Delivery in institute.
- This financial benefit is given to JSY beneficiary within 7 days after delivery by DBT/ Aadhar linked Bank account.

Process:

- The ANM/ ASHA will help the eligible JSY beneficiary to open Bank account and for Aadhar Card, if she is not having Aadhar Card/Bank account at the time of ANC Registration.
- The ANM/ ASHA will help the eligible JSY beneficiary to open zero balance Bank account with the help of Pradhanmantri Jan-Dhan - Yojana..
- Problems occurred in opening Bank accounts of beneficiaries are to be solved with the help of District Level Committee established as per the GR issued on 21-1-2016.
- The entry of Bank account number and Aadhar Card of JSY beneficiary is being taken in RCH Portal immediately after receipt of Bank Account Number and Aadhar Card Number.
- The documents required for JSY benefit are being collected from JSY beneficiary in time.
- JSY card is being given to each eligible mother by ANM/ Staff Nurse immediately after registration. The bank account number , aadhar card Number, RCH Portal number and caste details are being mentioned on JSY Card with due signature of ANM/Medical Officer. This card will help the Institute

to give the JSY benefit to eligible mother where she delivers. Printing of JSY card is being done through the funds available under 4% admin. Cost at District level.

- Once JSY beneficiary is registered either in Govt. or private accredited hospital for getting benefit her registration has to been done in RCH Portal.
- In no case the benefit will be given through bearer cheque or cash.
- Under JSY scheme, incentive to be paid to ASHA worker has to be transferred in their AADHAR linked bank account through DBT.

7. JANANI SHISHU SURAKSHA KARYAKRAM (JSSK)

Preamble:

It has been observed that most of the times due to delay in reaching health care facility mothers and infants are deprived of emergency care resulting in maternal morbidity and mortality, still birth and neonatal deaths. To prevent all these complications, it is important that mothers and sick infants up to age of 1 year should be provided quality care, free of cost including diet and transport facility on time.

Aims & Objectives:

The main aim of RCH programme is to reduce MMR and IMR. In the State percentage of institutional deliveries is 99.3% to total deliveries. In government hospitals drugs and consumables, lab diagnostics, LSCS if needed, or arrangement of vehicle in case of referral were the major causes of out of pocket expenses for delivered mothers. The goal of NHM is to reduce the maternal and neonatal death which may cause due to delay and lack of money.

In order to reduce the maternal and neonatal deaths, the Govt. of India has announced the **Janani Shishu Suraksha Karyakram (JSSK)**. As per Govt. Resolution dated 26th Sep.2011 Janani Shishu Suraksha Karyakram has been launched from 7th Oct. 2011 in all districts of Maharashtra. Under this scheme services are provided to pregnant & delivered mothers (up to 42 days after delivery) and sick infants upto the age of 1 year are getting free services in all government health facilities irrespective of poverty level, caste and parity.

Implementation of Janani Shishu Suraksha Karyakram:

1. **Free drugs & Consumables** - List of medicines required for mothers and sick infants is provided under JSSK as per GoI guidelines. Medicines are centrally procured and supplied to all districts and corporations as per annual demand.
2. **Free Referral Transport** - Each of the village, district or city is connected to one of the 1828 PHCs, 364 RH, 91SDH, 23 DH, 13 WH, 8 GH, 20 Government medical college hospitals and 26 Municipal Corporation Maternity Homes and hospitals under Public health department. Mothers and infants are being referred to nearest facility with availability of services needed. 24 X 7 Centralized call center is established at Pune. 108 & 102 Toll free numbers are available.
3. **Free Diagnostics** – Both essential and desirable lab investigations are conducted free of cost for pregnant mother during ANC, INC and PNC up to 6 weeks. Sick infants up to the age of 1 year are also provided free diagnostic services when needed.
4. **Free Diet To Delivered Mothers** – Delivered mothers are provided free diet in government health facilities up to 3 days for normal deliveries and up to 7 days for caesarean section delivery. During this period, mother is counselled for initiating breast feeding, diet, Family planning and immunization of neonates.
5. **Provision of Free Blood** – Free Blood transfusion is done whenever required to tackle emergencies and complications of deliveries & C – section in government health institutes.
6. **Exemption from User Charges** – Every pregnant mother, delivered mother up to 42 days and sick infants up to the age of 1 year are exempted from all kinds of user fees at Public health facilities.

Entitlement for Pregnant/ Delivered Mothers up to 42 days:

1. Free normal Delivery & Caesarean section delivery
2. Free drugs & consumables
3. Free essential diagnostics (blood, urine tests & ultra Sonography wherever available etc.)
4. Free diet during stay in the government health institutions. (Up to 3 days for normal delivery & 7 days for caesarian section.)
5. Free provision of blood transfusion.
6. Free transport from home to health institutions, between facilities in case of referral and drop back from institutions to home after delivery.
7. Exemption from all kinds of user fees

Entitlement for Sick infants up to the age of 1 year:

1. Free drugs & consumables
2. Free essential diagnostics / Lab investigation
3. Free provision of blood transfusion
4. Free transport from home to health institutions, between facilities in case of referral and drop back from institutions to home
5. Exemption from all kinds of user fees

Facilities Providing JSSK Services:

These facilities are provided at Sub-Centers, Primary Health Centers, Rural Hospitals, Sub-District Hospitals, District Hospitals, Women Hospitals and other Govt. health Institutes.

Manpower:

Each district has manned by 1 EMS coordinator. A centralized Call center is established at Pune, for contact toll free number 102/108 is allotted.

FIRST REFERRAL UNITS (FRU)

Delivery points are identified institutions where regular deliveries are conducted as per norms and definite services are made available. In view of this it was decided to review the district wise existing delivery points and plan for the required numbers. Depending upon the no. of deliveries and services available delivery points are classified into Level-1, Level-2 and Level-3 delivery points. It is desirable that delivery points are distributed uniformly as per population norm and time to care concept. Considering need for operationalization of First referral units(FRU) as per GoI norms, and availability of services provided to beneficiaries coming to health institute, specialists like Gynaecologist, Anaesthetists and Paediatrician are being appointed at identified First referral unit. Based on population and Time to care concept, 268 FRUs are identified in the State.

8. PRADHAN MANTRI SURAKSHIT MATRUTVA ABHIYAN

Overview

The Pradhan Mantri Surakshit Matrutva Abhiyan (PMSMA) has been launched by the Ministry of Health & Family Welfare (MoHFW), Government of India to provide fixed day assured and quality Antenatal care to over 3 crore pregnant women in the country. As part of the campaign, a minimum package of antenatal care services (including investigations and drugs) would be provided to the beneficiaries on the **9th day of every month**. If the 9th day of the month is a Sunday/ a holiday, then the Clinic would be organized on the next working day. These services will be provided in addition to the routine ANC at the health facility/ outreach.

Programme such as the PMSMA represent important milestones in India's efforts to achieve the 2030 targets of Sustainable Development Goals of MMR less than 70 per 100,000 live births, ending preventable deaths of newborns and children under 5 and Neonatal mortality 12 per 1,000 live births in the next 15 years :

- The programme is based on the premise that if each and every pregnant woman in India is examined by OBGY specialists/ physicians and appropriately investigated at least once during the PMSMA and then appropriately followed up, the Abhiyan can play a crucial role in reducing the number of maternal and neonatal deaths in our country.
- To supplement the efforts of the government sector, OBGY specialists/radiologists/ physicians from private sector would be encouraged to provide voluntary services at Public health facilities where government sector practitioners are not available or service provision is inadequate.
- As part of the campaign, a minimum package of antenatal care services would be provided to pregnant women in their 2nd/ 3rd trimesters at government health facilities (PHCs/ CHCs, DHs/ urban health facilities etc) in both urban and rural areas.
- While the target is to reach out to all pregnant women, special efforts would be made to reach out to women who have not registered for ANC (left out/missed ANC) and also those who have registered but not availed ANC services (dropouts) as well as High Risk pregnant women.

Goal

The Pradhan Mantri Surakshit Matrutva Abhiyan envisages improvement in the quality and coverage of Antenatal Care (ANC) including diagnostics and counseling services as part of the Reproductive Maternal Neonatal Child and Adolescent Health (RMNCH+A) Strategy. Govt. of India has launched ambitious "Pradhan Mantri Surkshit Matrutwa Abhiyan" scheme to provide quality health services to needy Pregnant Mothers in 2nd & 3rd Trimester. Laboratory tests, Sonographic examination, Physical & abdominal examination by Observation, timely diagnosis of high risk mothers, prompt referral services are important components of this campaign on 9th of every month. To implement this campaign effectively, participation of private obstetrician is very much essential. Campaign has already been started in selected eligible Govt. Institutions

Objectives

- Ensure at least one antenatal checkup for all pregnant women in their second or third trimester by an OBGY specialist/physician.
- Improve the quality of care during ante-natal visits. This includes ensuring provision of the following services:
 - A. All applicable diagnostic services
 - B. Screening for applicable clinical conditions
 - C. Appropriate management of any existing clinical condition such as Anaemia, Pregnancy induced hypertension, Gestational Diabetes etc.
 - D. Appropriate counselling services and proper documentation of services rendered
 - E. Additional service opportunity to pregnant women who have missed ante-natal visits

F. Identification and line-listing of high risk pregnancies based on obstetric/ medical history and existing clinical conditions

- Appropriate birth planning and complication readiness for each pregnant woman especially those identified with a risk factor or a co-morbid condition
- Special emphasis on early diagnosis, adequate and appropriate management of women with malnutrition
- Under chairmanship of District Collector, PMSMA committee is formed. At each district, Quarterly meetings are convened and FOGSI, IMA, Rotary, Lions, Private Nursing homes representative are invited.
- On 9th of every month, all Volunteers will visit the respective institute & spare their valuable time for provision of expert care to pregnant mothers.

9. PRADHAN MANTRI MATRU VANDANA YOJANA

Introduction:

In India Majority of pregnant women both above BPL and below BPL continues to work right up to last days of their pregnancy. Further, they resume to their work soon after child birth even though they are physically incapable for working. Health of children born to such type of undernourished pregnant women & Lactating mothers is severely affected. In order to improve maternal & child health by promoting importance of nutritional diet for pregnant women & lactating mothers which will help in reducing maternal & Child mortality, department of women & Child development, Govt. India has approved implementation of "Pradhan Mantri Matru Vandana Yojana" Since 1st January 2017.

Objectives:

One of the objectives of the scheme is also to meet purpose of loss of wages of pregnant women before & after delivery. Accordingly, the decision was taken during the cabinet meeting held on 21-11-2017 and implementation of scheme is started in entire Maharashtra State as per G.R. dated 8-12-2017. The scheme is centrally sponsored with budget share of 60% by central Govt. & 40% by State Govt.

Benefit:

Under "Pradhan Mantri Matru Vandana Yojana" cash incentive of Rs.5000/- will be given to pregnant women registered in govt. institution for 1st living issue only. (Women availing paid maternity leave will not be eligible for this benefit). Pregnant women & lactating mother shall receive a cash benefit of Rs.5000/- (direct benefit transfer through PFMS) in three installments at the following stages as specified in the following table:-

Installment	Amount of Benefit	Conditions for giving benefit
First Installment	1000/-	After registration of ANC within 150 days from last day of LMP
Second Installment	2000/-	Received at least one ANC checkup(can be claimed after 6 months of pregnancy)
Third Installment	2000/-	Child birth is registered & child has given 1st cycle of BCG,OPV0, Penta3 & OPV3 or its equivalent or substitute.

10. Labour Room Quality Improvement Initiative (LaQshya) implementation

LaQshya program is launched by MoHFW to improve quality of intrapartum care which reduces maternal deaths, neonatal deaths and still births. Furthermore, it improves patient's satisfaction towards services provided in public health facilities.

However, this increase in the numbers has not resulted into commensurate improvements in the key maternal & New-Born health indicators. It is estimated that approximately 46% Maternal Deaths, Over 40 % still births & 40 % newborn deaths take place on the day of delivery.

Improving quality of infrastructure care leads to reduction in maternal deaths, still births and neonatal deaths. MOHFW, GoI launched LaQshya program in December 2017 to improve quality of care during intra partum period. Major objective of the program is to improve quality of care in labour rooms, maternity OTs and obstetric ICUs and HDUs.

➤ LaQshya : Goal & Objectives

- 1) Reduce preventable maternal and newborn mortality, morbidity and stillbirths
- 2) Improve Quality of care during the delivery and immediate post-partum care
- 3) Enhance satisfaction of beneficiaries: - Respectful Maternity Care (RMC)

Monitoring mechanism for LaQshya Program:

LaQshya program envisions monitoring progress of labour rooms in two are as to assess progress towards LaQshya certification.

1. NQAS certification (LabourRoom, Maternity OT)
2. 70% achievement in 20 indicators developed in LaQshya Guidelines

11. SURAKSHIT MATRITVA AASHWASAN (SUMAN)

An initiative for zero preventable maternal and newborn death

The SUMAN initiative was launched by the honourable Health Minister on 10th October 2019, at the 13thconclave of the Central Council of Ministers, wherein the GoI and the State Governments collectively committed to achieve zero preventable maternal and newborn deaths in the country and providing service assurance for maternal and newborn care services. SUMAN promotes safe pregnancy, childbirth and immediate postpartum care with respect and dignity by translating the entitlements into a service guarantee which is more meaningful to the beneficiaries

VISION:

To create a responsive health care system which strives to achieve zero maternal and infant deaths through quality care provided with dignity and respect.

GOAL

To end all preventable maternal and newborn deaths.

BENEFICIARIES:

All pregnant women, all mothers upto 6 months post - delivery, all sick infants.

SERVICES:

Free services to all beneficiaries, Assured delivery plan to high risk pregnant women, ensuring quality standards at all levels of delivery points

SERVICE GUARANTEE:

JSSK, JSY, PMSMA, LaQshya, MAA, care for sick & small babies, Immunization, Home based care for mothers & newborn

NOTIFICATION OF SUMAN FACILITIES:

Identification of public health facilities providing services as per SUMAN Packages (Basic, BeMoc and CEmOc) : Based on available services 299 facilities are identified as SUMAN facilities in year 2020-22 Out of which 102 are CeMoC, 93 are BeMoC and 104 are Basic SUMAN facilities.

NQAS certification under SUMAN initiative.

- Department identification (As per level of facility) by SUMAN notified facility for NQAS certification
- Internal assessment by facilities based on NQAS certification.
- After gap assessment apply for State level and then National level certification.
- Sustainability after certification.

S. N	Level of Facilities	No. of Departments / themes	Department /Themes
1	District Hospitals	9	OPD (Antenatal and Paediatric services), Labour room, Maternity OT, Maternity ward, Paediatric ward, SNCU, Post-Partum unit, Blood Bank/Blood storage unit, General Administration
2	SDH /CHC	8	OPD (Antenatal and Paediatric services), Labour room, OT (maternity services),IPD, NBSU, Post-Partum unit, Blood Storage Unit, General Administration
3	PHC	6	LR, OPD, IPD, General Administration ,National Health Programme & Laboratory are optional departments.

B. CHILD HEALTH

12. CARE AT BIRTH

At the end of this chapter reader should be able to

- Provide evidence based routine care at and soon after birth to all newborn babies.
- Provide post natal care.
- Know the normal phenomena of newborn

Introduction

The first 24 hours of life is a very significant and highly vulnerable time due to critical transition from intrauterine to extrauterine life. Effective care at birth is needed for anticipation of problems with this transition and to provide support to ensure stabilization.

A) Routine Care at Birth

- Note the time of birth
- Receive baby in dry & warm linen
- Place baby prone on mother's abdomen
- Turn head to one side
- Wipe secretions if visible
- Dry baby, discard wet linen

B) Routine care

- Continue skin to skin care
- Ensure open Airway
- Cover baby and mother together
- Clamp & Cut cord between 1-3 mins
- Initiate breastfeeding
- Check Breathing and Colour
- Inj Vit K

The four basic needs of ALL newborns at the time of birth and for the first few weeks of life are:

1. Thermal protection
2. Normal breathing
3. Mother's milk
4. Protection from infection

1. Thermal protection

Newborn baby's temperature falls within seconds of being born. There are 4 ways by which a baby may lose heat. If the temperature continues to fall the baby will become sick and may even die.

Method of heat loss	Prevention
Evaporation (e.g. Wet baby)	Immediately after birth dry baby with a clean, warm, dry cloth
Conduction (e.g. contact with a cold surface of a weighing scale).	Put the baby on the mother's abdomen or on a warm surface
Convection (e.g. exposure to draught)	Provide a warm, draught free room for delivery at 26°C -28°C
Radiation (e.g. Cold surroundings)	Keep the room warm

At Birth :

- Ensure the delivery room is warm (26°C -28°C), with no draughts.
- Dry the baby immediately; remove wet cloth
- Wrap the baby with clean dry cloth
- Keep the baby skin-to-skin with mother

After delivery:

- Keep the baby clothed and wrapped; cover the head
- Postpone bathing particularly for low birth weight
- Keep baby close to the mother
- Use kangaroo care for stable LBW babies
- Show mother how to avoid and recognize hypothermia
- Initiate breastfeeding

If mother and baby's separation is necessary, do the following.

- Wrap the baby in a clean dry warm cloth and place under a radiant warmer. If warmer is not available ensure warmth by wrapping the baby in a clean dry warm cloth and cover with a blanket. Ensure baby's head, hands and feet are covered.
- Re-start Skin-to-skin contact as soon as mother and baby can be roomed-in

2. Normal breathing

See if the baby is crying/breathing:

Assessment	Decision
Baby is crying	No need for resuscitation or suctioning. Provide routine care.
Baby is not crying, but is breathing regularly between 40 to 60 times in a minute	No need for resuscitation or suctioning. Provide routine care.

Baby is gasping/not breathing **Resuscitate immediately.**

3. Mother's milk**Initiating breastfeeding**

- Keep the baby in skin-to-skin contact between mother's breast immediately after drying
- Help the mother in her first few attempts to breastfeed
- Make her and the baby comfortable
- Explain and show her proper positioning and attachment

Initiate breastfeeding within 1 hour

- Support mother to initiate breast feeding within the first hour.
- The baby's first feed of colostrum is very important because it helps to protect against infections.
- The baby can feed from its mother whether she is lying down or sitting; baby and mother must be comfortable

Do not give artificial teats or pre-lacteal feeds to the newborn e.g. sugar water or local foods or even water.

Even mothers who deliver by Cesarean Section or Assisted delivery should be supported for early breast feeding and should not be separated from their newborns

4. Prevention of Infections

AT DELIVERY: SIX CLEANS

1. **Clean hands** - vigilant handwashing and sterile gloves are essential for vaginal exams or when handling the baby
2. **Clean perineum (mother)** - faeces should be wiped away and the perineum washed prior to the birth (mother can shower or bathe)
3. **Clean delivery surface** at facilities, the delivery surface should be cleaned and then wiped with a 0.5% solution of chlorine after each use
4. **Clean cord cutting instrument** - autoclaved scissors or a new blade
5. **Clean cord tie** - the cord should be tied with a clean tie or clamp
6. **Clean cord care** - nothing should be applied on the cord, and it should be kept clean and dry at all times. Clean towels/sheets to dry the baby and then wrap the baby. Care is equally important for infection prevention.

Care of umbilical cord:

- Umbilical cord should be clamped between 1 and 3 minutes of birth.
- The cord should be clamped/tied using a sterile commercial clamp or thread.
- Cord should be cut with a sterile scissor between 3 and 5 cm (approx. 3 fingers from umbilicus)
- The cord should be inspected frequently during the initial few hours after birth for early detection of any oozing.
- Nothing should be applied on the cord stump.
- Ensure that the cord stump remains dry at all times.

Care of the eyes

- No routine eye care is required
- Clean eyes immediately after birth with swab soaked in sterile water
- Use separate swabs for each eye; clean from medial to lateral side
- Do not put anything else in baby's eyes

Examine the baby quickly for malformations/birth injury

Quick but thorough clinical screening is essential to identify any life threatening congenital anomalies e.g. meningomyelocele, omphalocele, anal atresia.

Weighing baby/ Anthropometric measurements

Weigh all babies before transfer from the delivery room.

POSTNATAL CARE

Examine the baby

- Count the breaths in one minute.
- Look for severe chest indrawing.
- Look and listen for grunting.
- Look at the umbilicus. Is it red or draining pus?
- Look for skin pustules. Are there 10 or more pustules or a big boil?
- Measure axillary temperature (if not possible, feel for fever or low body temperature):
 - Normal (36.5-37.4° C)
 - Mild hypothermia (36.0-36.4° C/ cold feet)
 - Moderate hypothermia (32.0° C – 35.9° C, cold feet and abdomen)
 - Severe hypothermia (< 32° C)
 - Fever (≥ 37.5° C/ feels hot)

- See if young infant is lethargic
- Look for jaundice. Are the face, abdomen or soles yellow?
- Look for Congenital malformations

Assess Breastfeeding

If infant has not fed in the previous hour, ask the mother to put her infant to the breast. Observe the breastfeed for 4 minutes.

- Is the infant able to attach? To check attachment, look for:
 - Chin touching breast
 - Mouth wide open
 - Lower lip turned outward
 - More areola above than below the mouth
 - If not well attached, help the mother to position so that the baby attaches well to the breast.
 - Is the infant suckling effectively (that is, slow deep sucks, sometimes pausing)?
 - If not sucking well, then look for:
 - ulcers or white patches in the mouth(thrush).
 - If there is difficulty or pain while feeding, then look for
 - Engorged breasts or breast abscess
 - Flat or inverted or sore nipples

Look for Normal Phenomena

There are several phenomena after birth that is normal and mothers only need reassurance.

- **Milia, Epstein pearls, Mongolian Spots, capillary nevi,** etc. There are a few developmental variants which may be present and be of concern to the mother. The mother needs to be reassured.
- **Red rashes** on the skin may be seen on 2-3 days of life. These are normal.
- **Weight loss** of 6-8% (10-12% in preterm infants) in the first few days of life is normal and most infants regain their birth weight by 10-14 days.
- **Regurgitation of feeds and vomiting.** Unlike vomiting, non-projectile expulsion of stomach contents without force (regurgitation) is normal and simply needs advice regarding feeding technique.
- **Bowel disorders.** No medication should be prescribed for passage of stools after each feed (exaggerated gastrocolic reflex) as this is normal in some babies. From 3rd to 14days many exclusively breastfed babies pass loose stools (10-15 times/day) without illness/dehydration. These are transitional stools and require no medication.
- **Delayed passage of urine.** Non-passage of urine by 48 hours after birth may suggest urinary tract anomalies. Such babies need to be investigated. Crying before passing urine is normal.
- **Jitteriness** is abnormal only when it is excessive or persists even during feeding and then it may suggest hypoglycaemia or hypocalcaemia.
- **Dehydration fever.** Transitory moderate fever (up to 38.50C) usually during the second or third day of life in summer months in an active baby, who sucks well, is normal and responds to lowering the environmental temperature.
- **Excessive crying.** Most baby cry when either they are hungry or are having discomfort such as due to full bladder before passing urine, wet napkin, nose block, etc. Excessive inconsolable crying or high-pitched crying is indicative of meningitis or any other painful inflammatory conditions.
- **Umbilical sepsis.** If there is pus discharge not extending to periumbilical skin, apply 10% Gentian violet or Povidone Iodine locally twice a day. However, if there is periumbilical erythema or induration administer syrup erythromycin – 40 mg/kg/day in 3-4 divided doses. If the newborn has any other high-risk factor, refer to a higher centre.

- **Umbilical granuloma.** A red flesh-like nodule at the base of umbilical cord can be managed by cautery with Silver Nitrate or application of common salt for 3 to 4 days.
- **Engorgement of breasts** in both sexes and vaginal bleeding after 4 days of birth is normal.

CordCare

Instruct the mother not to apply anything on the cord and keep it dry. Umbilical cord is an important portal of entry for pathogenic organism. Umbilical stump must be inspected after 2-4 hours of clamping. Bleeding may occur at this time due to shrinkage of the cord and loosening of the ligature.

Skin and Eye Care

Babies are not bathed routinely in the hospital to prevent complications like hypothermia and infection, they may however be sponged with lukewarm water. No routine eye care is required.

Vitamin K

1. Give Vitamin K at middle 1/3 of anterolateral aspect of thigh within 24 Hours after birth,
2. Dose to be given - birth weight 1000gm or more - 1mg IM
3. Birth Weight less than 1000gm - 0.5mg IM

Counsel the mother

- Warmth.
- Breastfeed frequently.
- Advise mother to wash hands with soap and water after using the toilet and after cleaning the bottom of the baby.
- Advice mother regarding danger signs and care seeking.

Immunization

- The baby should receive
- BCG
- OPV-0
- Hepatitis B (HB-0)

Follow-up

Schedule a postnatal visit within the first week on day 3 and day 7 of delivery. Also visit on day 14, 21 and 28 if baby is LBW.

In the follow up the baby should be assessed for growth and development and early diagnosis and management of illnesses. In addition, health education of parents should be done. It is preferable that every baby is seen and assessed by a health worker at least once every month for 3 months and subsequently 3 monthly till 1 year.

KEY POINTS TO REMEMBER

- Four basic needs at birth: warmth, normal breathing, breastfeeding, prevention of infections
- Ensure warmth by skin to skin contact with mother's chest/abdomen
- Help the mother to initiate early breastfeeding
- Follow 'six cleans' to prevent infections
- Give vaccination i.e. BCG, OPV, and Hepatitis-B. at birth.
- Give Vitamin K IM if not already received at birth.
- Schedule a postnatal visit within the first week on day 3 and day 7 of delivery. Also visit on day 14, 21 and 28 if baby is LBW.

EXERCISE FOR PARTICIPANTS

Q. 1 What are the four basic needs for all the newborns?

Q. 2 What are the signs of good attachment?

Q. 3 What are the Six cleans to be followed during delivery?

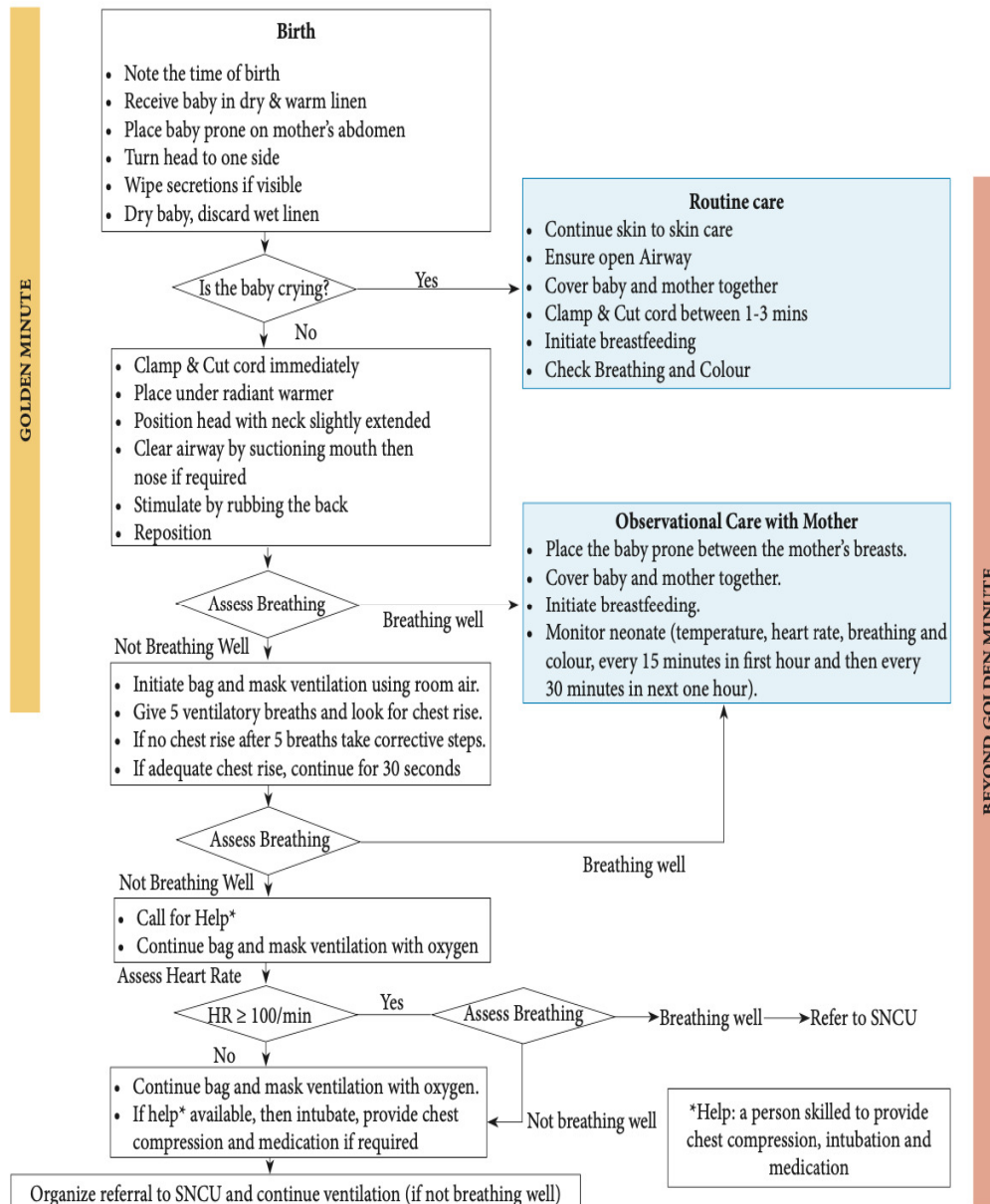
Q. 4 What points you will look for during post natal examination of newborn?

13. RESUSCITATION OF NEWBORN BABY

At the end of this session participants will be able to learn

- What is resuscitation
- Steps in resuscitation
- Bag and mask ventilation
- Post resuscitation care

WHAT IS NEONATAL RESUSCITATION?



Neonatal resuscitation means to revive or restore life to a baby from the state of asphyxia. The aim of neonatal resuscitation program is to teach the steps necessary to ventilate a newborn baby that is not breathing and protect the life of baby. Ninety percent of newly born babies make the transition from intrauterine to extra uterine life without difficulty. They require little or no assistance to begin spontaneous and regular respirations. Approximately 10 % of newborn require some assistance to begin breathing at birth and only about 1% may need extensive resuscitative measures to survive.

If meconium present

Meconium is the faeces passed by fetus in utero; it is greenish to brownish in color. If meconium is present and the baby is not crying you should **immediately** start suction. First do suction from mouth by inserting the tube of suction devise no more than 5 cm beyond the lip. Apply the suction while withdrawing the tube. Then insert the suction tube 1-2 cm into each nostril and apply suction while withdrawing the tube. For suctioning attach the mucus trap to a suction machine or suck from your mouth. Stop suctioning when secretions are cleared, even if the baby does not breathe.

Keep in mind

- Always do suction first from mouth then nose.
- Be careful not to suction vigorously or deeply (more than 5 cm in mouth and more then 2 cm in nose) as it can produce a vagal response, causing the heart rate to slow down or breathing to stop.

Apply suction while withdrawing the tube. Then do suction from both nostrils by placing the tube approximately 2 cm inside each

Assess the baby's breathing

The baby's breathing whilst drying: should be assessed

- ☐ Watch the way the baby's chest rises and fall
- ☐ The chest should move equally on both sides with no difficulty, between 30 to 60 times in a minute.

When baby's breathing is assessed: one of four

Assessment	Decision
Baby is crying	No need for resuscitation or suctioning. Provide routine care.
Baby is not crying, but his chest is rising regularly between 30 to 60 times in a minute	No need for resuscitation or suctioning. Provide routine care.
Baby is gasping	Start resuscitation immediately.
Baby is not breathing	Start resuscitation immediately.

INITIAL STEPS OF RESUSCITATION

If the baby needs resuscitation:

- Tie and cut the cord.
- Tell the mother that her baby is having difficulty beginning to breathe and that you are going to help him. Tell her quickly but calmly.

- Transfer the baby to a warm clean, flat and dry surface/ radiant warmer
- Provide warmth
- Position the baby
- Clear the airway
- Stimulate and reposition

Provide warm environment

To provide warm environment

- Place the newborn under overhead lamp with 200 watt bulb placed around 50-60 cm above surface OR
- Place the newborn under radiant warmer to prevent drafts of air shut all windows and switch off fan before birth

Open the baby's airway: position the head

Do this by:

- Place the baby on its back.
- Position the head so that it is slightly extended (to open the airway).
- Place a folded piece of cloth under the baby's shoulder cloth should not be too thick or thin this may cause overextension or flexion which will close the airway).

Open the baby's airway: suction the mouth and

Suction first the mouth and then the nose

Stimulate to breathe

If the baby doesn't cry after birth, wipe with dry cloth, position the baby and clear airway then stimulate the baby for breathing. Safe and appropriate methods of providing tactile stimulation include:

- Gently rubbing the back of the baby once or twice

Reposition the Baby's for Breathing

Suctioning may stimulate the baby to start breathing. If this happens (i.e. the baby is breathing), place the baby with mother and provide observational care.

Observational care

Baby who breathes after initial steps of resuscitation requires ongoing observation for the well being of baby. Observational care comprises of:

- **Keep baby with mother:** Do not separate the mother and the newborn. Allow the newborn skin-to-skin contact with the mother. Cover the baby & mother together.
- Monitor Neonates Temperature, heart rate, breathing & colour for every 15 min in the first hour & then every 30 min
- Watch for complications (convulsions, coma, etc); refer, if so
- Initiate breastfeeding, if well

IF THE BABY IS STILL NOT BREATHING: VENTILATE

Remember ventilation of the lungs is the single most important step in resuscitation of a newborn. If the baby is not breathing or breathing is abnormal at the end of the first 30 seconds after providing initial steps of resuscitation, then you should immediately start ventilation with bag and mask.

Basic parts of Bag and Mask Bag

It is a self-inflating bag, inflates automatically without a compressed gas source. It stays inflated at all times, unless being squeezed. Bags used for newborns should have a volume ranging from 240 to 500 ml usually 500 ml capacity bag is used for resuscitation. The bag is made of silicon rubber, which can be easily cleaned and autoclaved for reuse.

Posterior part of bag

The posterior part of bag consists of two inlet tubes smaller one is for oxygen and bigger one is for entry of air into the bag, oxygen reservoir if used is attached to air inlet tube.

Pop-off valve

Pop-off valve is situated on front side of the bag. It is a pressure release valve, which opens if excessive pressure is generated, thus limiting the pressure being transmitted to the baby. If you ventilate with high pressure and/or rate, the lungs could become over inflated, causing rupture of the alveoli and a resulting air leak.

Mask

Masks come in different sizes and shapes (round and anatomically shaped). Anatomically shaped masks are shaped to fit the contours of the face. They are made to be placed on the face with the pointed part of the mask fitting over the nose. Mask is attached at the anterior end of bag.

PREPARATION FOR VENTILATION WITH BAG AND MASK

Selection of mask

Selection of a mask for use with a particular newborn will depend on how well the mask fits the newborn's face. For the mask to be the correct size, the rim should cover the tip of the chin, the mouth, and the nose but not the eyes. If the mask is too large it may cause possible eye damage and will not seal well, If the mask is too small it will not cover the mouth and nose and may occlude the nose.

Clear airway

Be sure that the airway is clear; for this you may suction the mouth and nose one more time to assure there will be no obstruction to the assisted breaths that you will be delivering by bag and mask.

Position the baby's head

The baby's neck should be placed in "sniffing position" to maintain an open airway. You may use shoulder roll for better positioning of head if required.

Position yourself at the bedside

You should position yourself at the side or head of the baby to use the resuscitation bag effectively. Either position will allow you to hold the mask on the baby's face and allow you to have an unobstructed view of the abdomen and chest. If you are right-handed, you probably will feel most comfortable controlling the bag with your right hand and the mask with your left hand.

If you are left handed, you will probably want to control the bag with your left hand and hold the mask with your right hand.

It is important that the bag is positioned so that it does not block your view of the baby's chest, since you need to be able to observe chest movement during ventilation.

Positioning the bag and mask on the face

The mask should be placed on the face so that it covers the nose and mouth, and the tip of the chin rests within the rim of the mask. You should begin by cupping the chin in the mask and then covering the nose.

The mask usually is held on the face with the thumb, index, and/or middle finger encircling the rim of the mask in shape of letter **C** while the ring and fifth fingers bring the chin forward to maintain a patent airway.

Once the mask is positioned, using light downward pressure on the rim of the mask can form an airtight seal. Care should be taken in holding the mask.

Observe the following precautions:

- Do not “jam” the mask down on the face. Too much pressure can mound (flatten) the back of the head and bruise the face.
- Be careful not to rest your fingers or hand on the baby’s eyes.
- Make sure that adequate seal has been made between mask and face otherwise air would leak from the mask leading to ineffective ventilation.

Initiation of ventilation

Start ventilation by squeezing the bag to deliver breath. Remember, the lungs of a fetus are filled with fluid, so the first few breaths will often require higher pressures and longer inflation times than will subsequent breaths. Adequate pressure required to squeeze the bag should be just enough to produce gentle chest rise as it happens in normal breathing.

Remember if the baby appears to be taking a very deep breath, the lungs are being over inflated. You are using too much pressure and there is danger of producing an air leak in the lungs

How often should you squeeze the bag?

During the initial stages of neonatal resuscitation, breaths should be delivered at a rate of **40 to 60 breaths per minute**, or slightly less than once a second. To help maintain a rate of 40 to 60 breaths per minute, try saying to yourself as you ventilate the newborn: **“Breathe–Two–Three, Breathe–Two–Three.....”**.

If you squeeze the bag on “Breathe” and release while you say “Two, Three”, probably you are ventilating at a proper rate.

Ensure chest rise

After starting ventilation with bag and mask, you should look for chest movement after ventilating five times to ensure adequacy of ventilation. If the chest movement is absent or inadequate then you should immediately take

“Steps to improve ventilation”.

Reasons for inadequate or absent chest movements are

- The seal is inadequate
- The airway is blocked
- Not enough pressure is being given

You should immediately take following **“Steps to improve the ventilation”**

Steps to ensure chest rise and improve the ventilation”

If no chest rises after initial 5 breaths, take the following two corrective steps:

- Reapply the **mask** to the face and try to form a better seal. The most common place for a leak to occur is between the cheek and bridge of the nose.
- Check the baby's **position** and ensure that there is slight neck extension.
- Give five ventilatory breaths again and look for chest rise, if still there is no chest rise take the following additional corrective steps and look for chest rise:
- Check the mouth for secretions, **suction** the mouth and nose, if necessary.
- Use a little more pressure on the rim of the mask and lift the jaw a little more forward. Do not press down hard on the baby's face. Increase the **pressure** by squeezing the bag with more force, until there is visible movement of chest.

EVALUATE HEART RATE

Evaluate the heart rate by feeling the umbilical cord pulse or listening to the heart beat with stethoscope while you do ventilation for 6 secs. Feel the pulse in the umbilical cord where it attaches to the baby's abdomen. If no pulse can be felt in the cord, you or your helper must listen over the left side of chest with the stethoscope and count the heart beat. It may be necessary to stop ventilation for few seconds to listen with stethoscope.

Counting the number of beats in 6 seconds and multiplying by 10 can provide quick estimate of the beats per minute. (For example, if you count 8 beats in 6 seconds, announce the heart rate as baby's 80 beats per minute.)

- A heart rate above 100 beats per minute is normal
- A heart rate less than 100 beats per minute is slow.
- If you are unable to count the heart rate then minimize the time without ventilation by listening to the heart rate as below:
- If the heart rate sounds faster than your own pulse –probably the heart rate is normal
- If the heart rate sounds slower than your own pulse - probably the heart rate is slow

8.1 How does the heart rate change your further action?

Assess Heart rate

1. The heart rate may be assessed by using a stethoscope and counting it for 6 seconds and multiplying by 10 to get the actual rate per minute.
2. If the heart rate increases but the baby is not breathing adequately, ventilate at a rate of about 40-60 breaths per minute until there is adequate spontaneous breathing.
3. If heart rate is more than 100/minute and baby is breathing well, the baby may be shifted with the mother for observational care.
4. In case heart rate is less than 100/minute and baby is not breathing well, then:
 1. Take corrective steps and continue providing effective bag and mask ventilation with oxygen.
 2. If heart rate is < 60/minute and trained help is available, then provide chest compression, intubation and medication.
5. If the heart rate is slow, make sure that all the steps to improve ventilation have been taken. The chest should move gently with each breath. Continue to provide bag and mask ventilation and reassess heart rate after every 30 seconds. In the meantime a more skilled healthcare provider (doctor) should provide advanced care, if possible. The baby may need more advanced support such as endotracheal intubation, chest compressions and medications.

POST RESUSCITATION CARE

Babies who have received only brief ventilation can be given observational care. However babies who require prolonged positive pressure ventilation are at risk for deterioration, and are at high risk for developing subsequent complications; so these babies need supervised medical care (post resuscitation care).

- Keep the baby warm
- Check breathing, temperature, colour and CFT
- Monitor blood sugar
- Watch for complications
- Initiate breastfeeding if well

KEY POINTS TO REMEMBER

- Always do suction first from mouth then nose.
- Be careful not to suction vigorously or deeply (more than 5 cm in mouth and more than 2 cm in nose) as it can produce a vagal response, causing the heart rate to slow down or breathing to stop.
- Remember ventilation of the lungs is the single most important step in resuscitation of a newborn.
- If the baby is not breathing or breathing is abnormal at the end of the first 30 seconds after providing initial steps of resuscitation, then you should immediately start ventilation with bag and mask.

EXERCISE FOR PARTICIPANTS

Q1. What are the initial steps of resuscitation?

Q. 2 What precautions will you take during bag and mask ventilation?

Q.3 What are the reasons of inadequate or absent chest movements during bag and mask ventilation?

14. MANAGEMENT OF HYPOTHERMIA

At the end of this session participants will be able to learn

- Concept of warm chain
- Why newborn are more prone to hypothermia?
- Prevent and manage hypothermia

Introduction:-

Hypothermia can lead to hypoglycemia, bleeding diathesis, pulmonary hemorrhage, acidosis, apnea, respiratory failure, shock and eventually death. Neonatal hypothermia continues to be a very important cause of neonatal deaths due to lack of attention by health care providers.

Why are newborns prone to develop hypothermia?

- Larger surface areas
- Decrease thermal insulation due to lack of subcutaneous fat (LBW infant)
- Reduced amount of brown fat (LBW infant)

Mechanisms of heat loss

Newborn loses heat by evaporation (particularly soon after birth due to evaporation of amniotic fluid from skin surface), conduction (by coming in contact with cold objects- cloth, tray, etc.) convection (by air currents in which cold air replaces warm air around baby – open window, fans) and radiation (to colder solid objects in vicinity-walls). The process of heat gains is by conduction, convection and radiation.

Concept of warm chain

In order to prevent heat loss which can occur in a newborn after delivery, the baby must be kept warm at all times right from birth. Satisfactory control of temperature demands both prevention of heat loss and promotion of heat gain. The "warm chain" is a set of 10 interlinked interventions carried out at birth and later, which will minimize the likelihood of hypothermia in all newborns:

- Warm delivery room (26-28⁰c)
- Warm resuscitation
- Immediate drying
- Skin-to-skin contact between baby and the mother
- Breastfeeding
- Postponing bathing and weighing
- Appropriate clothing and keep mother and baby together
- Warm transportation
- Awareness-raising of healthcare provider

Assessment of hypothermia

What is hypothermia?

Normal axillary temperature is 36.5-37.5⁰c (97.7-99.5⁰F). In hypothermia the temperature is below 36.5⁰C.

Grading of hypothermia

- Cold stress : 36.4-36.0⁰C (97.5-96.8⁰F)
- Moderate hypothermia : 35.9-32.0⁰c (96.2-89.6⁰F)

- Severe hypothermia : $<32^{\circ}\text{C}$ (89.6°F)

Temperature recording

Following are the methods of assessment of temperature in a newborn:

- Axillary temperature is as good as rectal and safer (Less risk of injury or infection).
 - a. Digital thermometer: A digital thermometer needs to be switched on for recording the temperature. Temperature is recorded by placing the bulb of thermometer against the roof of dry axilla, free from moisture, Baby's arm is held close to the body to keep the thermometer in place. The temperature is read when the thermometer beeps.
 - b. Mercury thermometer: These are being phase out due to environmental pollution by mercury.
- Skin temperature: In a baby being nursed under a radiant warmer, the baby's temperature is usually recorded by a thermister probe. The thermister probe is attached to the skin over upper abdomen. The thermister senses the skin temperature and displays it on the panel.
- Human touch: Baby temperature can be assessed with reasonable precision by human touch, the reliability of which can be enhanced by training. Abdominal temperature is representative of the core temperature and it is reliable in the diagnosis of hypothermia. The warm and pink feet of the baby indicate that the baby is in thermal comfort, but when feet are cold and abdomen is warm, it indicates that the baby is in cold stress. In hypothermia, both feet and abdomen are cold to touch.

Clinical signs and symptoms

The signs and symptoms in a hypothermic baby may be subtle and nonspecific, therefore it is essential to have a high index of suspicion for hypothermia especially in LBW and preterm babies. The common signs and symptoms in a hypothermic baby are lethargy, irritability, poor feeding and breathing difficulty (tachypnea/apnea). Severe hypothermia may manifest with hypoglycemia, sclerema, DIC and internal bleeding.

Prevention and management of hypothermia

Common situations where hypothermia can occur:

- At birth (Delivery Room)
- During changing of nappy/clothes
- Malfunctioning heat source or removing the baby from heat source
- While transporting a sick baby

Prevention of hypothermia

1. Steps to prevent heat loss in the delivery room:

- Warm room ($26-28^{\circ}\text{C}$)
- Skin-to-skin contact (Kangaroo mother care)
- Immediately dry newborn with a dry, sterile and warm towel.
- Use another warm towel to wrap the baby in two layers.
- Ensure head is well covered.
- Keep the baby with the mother (mother's temperature will keep the baby warm)

Kangaroo mother care (KMC)

Kangaroo Mother Care (KMC) is a simple method of care for low birth weight infants that includes early and prolonged skin-to-skin contact with the mother (or a substitute caregiver) and exclusive and frequent breastfeeding.

KMC helps in

- Better thermal protection of neonates.
- Increasing milk production.
- Increasing the exclusive breastfeeding rates.
- Reducing respiratory tract and nosocomial infections.
- Improving weight of the baby
- Improving emotional bonding and
- Reducing hospital stay.

Assessing the eligibility for KMC

Mother/Father or any adult caretaker who is willing, free of illness and maintains a good hygiene can provide KMC.

Baby: KMC can be initiated immediately in all babies except those clinically unstable. The ongoing medical support, like oxygen therapy. IV fluids and tube feeding are not contraindications to KMC.

Technique and position

Counsel the mother regarding KMC, provide privacy, and request her to sit or recline comfortably. Place the baby between the breasts of the mother in skin to skin contact in upright position. Turn the head to one side to prevent airway obstruction. Slight extended position of the head facilitates eye contact with the mother. Ensure that the epigastrium of the baby is in close proximity to the epigastrium of the mother. Regular respiratory movements of mother prevent the occurrence of apnea. The hips should be flexed and the bottom of the baby should be supported, in this way the baby clings to the mother in a frog like position.

Skin to skin contact is the most practical, preferred method of warming a hypothermic infant in a health facility.

Clothing for the mother and baby

The mother can wear whatever she finds comfortable as per the environmental temperature prevailing at that time, provide the dress accommodates the baby, that is keeps the baby comfortably in contact with her skin. Special garments are not needed unless traditional ones are too tight. The baby is placed naked in kangaroo position, except for a diaper, cap socks and mittens.

Duration of KMC

KMC should be provided for as long as possible. Each session should be for duration of at least one hour. KMC may be continued till the baby finds it comfortable. When the baby on KMC wriggles, pulls limbs out or cries, KMC can be discontinued.

Management of hypothermia

At a health facility (FRU/SNCU), confirm diagnosis of hypothermia by recording actual body temperature. A hypothermia baby has to be rewarmed as quickly as possible. The most feasible method should be used.

For management purpose, hypothermia is graded as mild if the body temperature is between 35.5 to 36.4°C and Significant when the body temperature is below 35.5°C. As stated, the method of rewarming will depend on the severity of hypothermia. Severe hypothermia will require additional steps of management which will be discussed in this section.

Management of mild hypothermia (35.5° to 36.4°C)

- Provide supervised Kangaroo Mother Care (KMC), skin to skin contact is the best method to re-warm a baby with mild hypothermia.
- If KMC is not practical, warm the room using radiant heater or other appropriate heating device.
- Cover adequately and ensure to replace the cold clothes of the baby with warm clothes.
- Keep the room warm (26-28°C) and draught free.
- Continue breastfeeding.
- Monitor temperature and capillary filling time during re-warming. Watch for apnea and hypoglycemia.
- Monitor axillary temperature every ½ hour till it reaches 36.5°C, then hourly for next 4 hours, 2 hourly for 12 hours thereafter and 3 hourly as a routine.

Most of the babies will regain their temperature. However, if the baby remains hypothermic one hour after supervised KMC, or if danger signs appear at any stage of monitoring the baby, sepsis should be suspected and treated accordingly.

Wrapping the baby

The baby should be comfortable and clothed in multiple layers. Head should be covered with a cap and then the baby should be wrapped in 1-2 layers of sheets/blankets. The technique of wrapping will be demonstrated in the skill station.

Management of significant hypothermia (temp<35.5°C)

- Remove cold clothes from the baby and replace with warm clothes.
- Place under radiant warmer.
- Alternately, one may use room heater or other means to warm the baby.
- At times, KMC may be only option.
- Monitor temperature every 15-30 minutes.
- Monitor B.P., HR, temperature and glucose as needed (if facilities are available).
- The baby should be stabilized before being transported to higher centre.
- Following additional steps may be required in some babies.
 - Start IV 10% Dextrose.
 - If perfusion is poor, give 10ml/kg of Ringer Lactate or Normal Saline.
 - Give Inj Vit K (Refer to Chapter 2).
 - Provide oxygen and monitor O₂ saturation between 90-94%

EXERCISE FOR PARTICIPANTS

Q. 1 What is hypothermia?

Q. 2 Why newborn are prone to develop hypothermia?

Q. 3 What are the benefits of KMC?

15. MANAGEMENT OF LOW BIRTH WEIGHT BABIES

At the end of this session participants will be able to learn

- Modes of providing fluids and feeding.
- Immunization in special circumstances
- Follow up of LBW babies

Nearly 75 percent neonatal deaths and 50 percent infant deaths occur among the low birth weight neonates. Even after recovering from neonatal complications, some LBW babies may remain more prone to malnutrition, recurrent infections, and neurodevelopment handicaps. Low birth weight, therefore, is a key risk factor of adverse outcome in early life.

- Low birth weight (LBW) baby is the one who weighs less than 2500 g at birth.
- Low birth weight may result from either prematurity (gestational age <37 weeks) or intrauterine growth retardation (IUGR), which is also called small – for – date baby (SFD).

Treatment :

Indication for hospitalization are:

- Birth weight of less than 1800g;
- Gestational age of less than 34 weeks;
- Neonate who is not able to take feeds from the breast or by cup (Katori) and spoon (irrespective of birth weight and gestation);
- A sick neonate (irrespective of birth weight and gestation).

Keeping LBW Babies warm:

- Room temperature should be kept between 28-30°C.
- Baby should be provided skin to skin contact care (KMC) in the following ways:
- Provide privacy to the mother. If mother is not available, skin to skin contact may be provided by the father or any other adult.
- Request the mother to sit or recline comfortably.
- Undress the baby gently, except for cap, nappy and socks.
- Place the baby prone on mother's chest in an upright and extended posture, between her breasts, in Skin to Skin contact; turn baby's head to one side to keep airways clear.
- Cover the baby with mother's blouse, 'pallu' or gown; wrap the baby-mother duo with an added blanket or shawl.
- Breastfeed the baby frequently.
- If possible, warm the room (>25°C) with a heating device.
- Skin to Skin contact is the most practical, preferred method of warming a hypothermic infant in a primary health care facility. If not possible:
- Cloth the baby in 3-4 layers, cover head with a cap and body with a blanket or a shawl; hold baby close to caregiver's body, OR
- Place the baby under overhead radiant warmer, if available.
- Keep the young infant warm on the way to the hospital
- By Skin to Skin contact OR
- Cloth the baby in 3-4 layers, cover head with a cap and body with a blanket or a shawl; hold baby close to caregiver's body.

Nutrition & Fluids

- Neonates weighing less than 1200 g. or those having sickness should receive intravenous fluid initially.
- Enteral feeds should be introduced gradually by gavage as the baby's acute problem begins to settle.
- Infants weighing 1200-1800 g and not having significant illness should be put on gavage feeds initially.
- In order to promote lactation and enable the baby to learn sucking, all babies on gavage or katori-spoon feeds should be put on the breasts before each feed for 5 to 10 minutes. This will promote lactation and enable the baby to learn who to suck.
- When shifting a baby from one mode of feeding to another, be very careful. Introduce in new mode for only some of the feeds to begin with.
- The feeding of every baby should be individualized. The above recommendations should only serve as broad guidelines.
- Ensure use of expressed breast milk & start with small volume, and gradually build up.
- Most LBW babies weighing more than 1800 g are able to feed directly from the breast. In a stable, growing LBW baby daily intake of feeds should be gradually built up to 180- 200ml/kg.
- LBW babies should be fed every 2-3 hours starting at 2 hours of age.

Guidelines for the modes of providing fluids and feeding			
Age	Categories of neonates		
Birth weight (gm)	< 1200	1200-1800	> 1800
Gestation (weeks)	< 30	30-34	> 34
Initial	• IV fluids • Triage • Gavage feeds if sick	Gavage feeds	• Breastfeeds • If unsatisfactory, give cup-spoon feeds
After 1-3 days	Gavage feeds	Cup-spoon feeds	Breast feeds
Later (1-3 wks)	Cup-spoon feeds	Breast feeds	Breast feeds
After some time (4-6 ks)	Breast feeds	Breast feeds	Breast feeds

Vitamin Supplements :

Supplement	Indicated in which babies	When to start	Dose	Till when to administer
Vitamin D	All LBW babies (<2.5 kg) who are exclusively breastfed	When baby starts accepting full feeds	<2.5 kg: 400 IU	Till one year of age
Multivitamin drops with Zinc	All LBW babies (<2.5 kg)	From 2 weeks of age	1 ml/day	Till 40 weeks post menstrual age
Calcium & phosphorus	VLBW babies <1.5 kg	When baby starts accepting full feeds	120-160 mg/kg/day elemental calcium; 60-80 mg elemental phosphorus	Till 40 weeks post menstrual age
Iron	VLBW babies <1.5 kg	From 2 weeks of age	2 mg/kg/day	Till one year of age ; followed by routine IFA supplementation as in all children

Activate Windows
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Immunization in special circumstances

- 1. Immunization in preterm infants:** In general, all vaccines may be administered as per schedule according to the chronological age irrespective of birth weight or period of gestation. Very low birth weight / preterm babies can be given or period of gestation. Very low birth weight / preterm babies can be given immunization, if they are stable otherwise.
- 2. Children receiving corticosteroids:** Children receiving oral corticosteroids in high doses (Prednisolone 1-2 mg/kg/day) for more than 14 days should not receive live virus vaccines until the steroid has been discontinued for at least one month. Killed vaccines are safe but may not be completely effective in such situations. Patients on topical or inhaled steroids should not be denied their age appropriate vaccine.
- 3. Children awaiting splenectomy:** Immunization with pneumococcal, Hib, and meningococcal vaccine should be initiated a few weeks prior to splenectomy.
- 4. Vaccination in children with HIV infection:** Immune response may be suboptimal as it depends on the degree of immunodeficiency at that point of time. Re-administration of childhood immunization may be considered when their immune status has improved following anti-retroviral therapy.
- 5. Lapsed immunization:** There is no need to restart a vaccine series regardless of the time that has elapsed between individuals doses. In case of unknown or uncertain immunization status, however, it is appropriate to start the schedule as for an unimmunized child.
- 6. Minor illnesses,** e.g. fever, diarrhea, respiratory infections and malnutrition should not be construed as contraindications to immunization.

Follow up of LBW

Look and assess for:

- They are feeding from breast or breast and cup
- Gaining weight for 3 consecutive days
- No signs of illness
- Are able to maintain normal body temperature when roomed-in with mother

- Mother is confident of taking care of the baby

Counseling of Mother and family LBW

Mother and family must be provided counseling for care of LBW at home. They should be informed about

- Providing exclusive breast milk to the baby
- How to keep baby warm at home
- Identifying ‘Danger signs’ for seeking medical help
- Scheduled visits for assessing growth, monitoring illness and providing immunization. These visits should be at **weekly intervals till the infant reaches 2.5kg**
- Mother must be informed about her nutrition and health

Exercise for participants

Q. 1 what are the indications for hospitalization of neonate?

Q. 2 which vitamins and minerals should be supplemented to the LBWs?

Q. 3 how will you counsel the mother and family of LBW?

16. CHILDHOOD NUTRITION

Childhood is a stage in human life associated with growth and development. Growth proceeds rapidly in early life, slows down in middle childhood and acceleration at puberty before linear growth ceases with increasing age there is also physical and psychomotor malnutrition which influences activity, body composition, feeding skill & food choices. Adequate nutrition is essential for growth health & development of children.

Nutrition is the intake of food, considered in relation to the baby's dietary needs. In order for children to grow properly, they must eat a well-balanced diet. The nutrients needed by children are the same needed by adults, but the amounts vary. An adequate, well-balanced diet combined with regular physical activity is a cornerstone for good health.

Poor nutrition increases the risk of illness & is responsible directly or indirectly for one third of estimated deaths that occur in under 5 yr. children.

A period of 12 months of age after birth.

Early infancy: 0-6 months of age

Middle infancy: 6-9 months

Late infancy: 9-12 months

Infants are totally dependent on caregivers for the provision of nutritional needs infants and good child feeding practice is most effective interventions to improve child health. The WHO & UNICEF is global recommendations for optimal infant feeding state an infant's of life. Nutritionally adequate complementary feeding should be started after completing 6 months of age with continued breast feeding upto 2 yr of age or beyond that. However poor breast feeding & practices are widespread.

Breast feeding:-

Human breast milk is specifically designed for the requirement of a human baby. Breast milk contains all the nutrients that an infant needs in the first 6 months of life, including fat, carbohydrates, proteins vitamins, minerals & water.

Normal human growth is greatest during infancy. The infant gains about 10 g /kg/day until about 4 weeks post birth, at that point, the gain drops to 1g/kg by the end of the first year of life.

Around the world, breast milk composition is remarkably stable, varying only within a relatively narrow range. The nutritional status of mother does not appear to affect milk volume unless the mother is malnourished.

Composition of human milk

- 1) **Fat:** - fat of human milk provides half of the milk's calories. It is the most variable component fat content in human milk ranges from 22 to 62 g & is independent of breast feeding frequency. Fats provide about half of the baby energy intake.
The lipid fraction of human milk provides essential fatty acids. It has effect on brain growth.
- 2) **DHA:** LCPUFAs include docosahexanoic acid (DHA) and arachidonic acid (AA) which are associated higher visual acuity and cognitive ability of the child. DHA & AA are involved in early neurodevelopment by promoting healthy neurological growth, repair & maturation.
- 3) **Lactose:** - Lactose, disaccharide, accounts for most of the carbohydrates in human milk, although small quantities of oligosaccharides, galactose & fructose are also present. Lactose concentration is relatively constant in mature milk (7.0 g/dl). It is affected by maternal diet the more frequent the feeds the higher is concentration of lactose. Lactose enhances calcium

absorption and metabolizes readily to galactose & glucose, which supply energy to rapidly growing brain of the infant.

4) **Probiotic & prebiotic bacteria :-**

Probiotic bacteria are live micro organisms that can be a health benefit for ex. some probiotic bacteria that have lactobacillus strains act by competing other bacteria for nutrients thereby reducing the number of potentially pathogenic microbes. Certain lactobacillus strains may ameliorate the symptoms of rotavirus infections.

5) **Protein :-**

Protein content or nature human milk in malnourished mother is about 0.8 to 0.9 g of protein / dl. Human milk contains casein & whey protein. Levels change as lactation progresses to meet the nutritional need of the infant.

Whey protein is composed of five major components.

1) Lactalbumin 2) Serum albumin 3) Lactoferrin 4) immunoglobulin 5) lysozymes

The latter three elements play important roles in immunological defense. The lactoferrin concentration in milk is higher in iron deficient women as compared to well nourished mothers, therefore milk lactoferrin may also help protection the infant against iron deficiency. A large number of other proteins (enzymes, growth modulators & hormones) are present in low concentrate.

6) **NPN – Non protein nitrogen**

Milk proteins are synthesized from amino acid deride from the blood stream. Non protein nitrogen contain a number of free amino acids including glutamic acid, glycine, alanine, valine, leucine, aspartic acid, serine threonine, protine & taurine. The percentage of protein in juman colostrums is greater than that in mature breast milk. All 10 essential amino acids are present in colostrums and account for approximately 45% of its total of its total nitrogen content.

7) **Nucleosides :**

Nucleosides are low molecular weight compounds with a nitrogenous base. Necessary for energy metabolism enzymatic reaction and growth & maturation of of developing gastro intestinal tract. They also play several roles in immune function including enhancing lymphatic proliferation, stimulating immunoglobulin production in lymphougtes and increasing natural killer cell activity.

8) **Vitamins & micronutrients :-**

The amounts of vitamin & micronutrients in human milk vary from one mother to another because of diet & genetic differences.

Vit A :-Human milk is good source of Vit A (200 10/dl) which is present mainly as retinol (40-53 /U/ dl). Required for vision & maintenance of epithelial structures. Vit A reaches its highest level in breast milk in first week after birth & then gradually declines.

Vit D: - Human milk contains very little fat soluble vit D, consequently, breastfed infant can develop rickets although such event is uncommon.

Vit E:-Human colostrums is particularly rich in Vit E (tocopheral). A deficiency of Vit E in infancy can result in hermetic anemia, especially in premature infant because it is an antioxidant, Vit E protects cell membranes in retina & lungs against oxidant induced injury.

Vit K: - Vit K which is required for synthesis of blood clotting factor is present in human milk in small amounts.

Water soluble vitamin – ascorbic acid, nicotinic acid, B12, riboflavin and R B6 are readily influenced by the maternal diet. If maternal supplements are present the vitamin level in the milk increase & then plateau.

Vit B12:- Vit B12 is needed for early development of the babies central nervous system. A deficiency of B vitamin folate during pregnancy is associated neural tube defects. Campaign to educate women on the importance of taking folic acid supplements during preconception & pregnancy has reduced neural tube deformities. Folate (which is bound to folate binding protein) remain at same level throughout all stages of lactation.

9) Minerals :-

Total mineral content in human milk is fairly constant. Except for magnesium, minerals tend to reach their highest concentration in human milk in first few days after birth & then decrease slightly in consistent pattern throughout lactation, Maternal age, parity & did even when mother taken supplements, usually have minimal influence on mineral concentrations' in milk, probably because of their regulation from maternal body stores.

Sodium:-Breast milk sodium is elevated in early colostrums but falls dramatically by the third day postpartum & subsequently declines at a slower rate for 6 months. Elevated levels of sodium in human milk occur during weaning, mastitis & first month of gestation.

Zinc:-Zinc is 8 times abundant in human colostrums than nature milk. Requirement for this mineral is relatively high in very young infants.

Iron:-Human milk contains only a small amount of iron (0.5 – 1.0 mg/dl). Breast fed infants are sustained by sufficient iron stores laid down in utero & by the high factor & vit C levels in human milk is observed five times as well as a smaller amount from cow milk.

Calcium :- Calcium appears in only small quantities in human milk (20-34 mg/dl) yet babies observe 67% of calcium in human milk as compared to only 25% of that in cow milk.

Magnesium:-Magnesium is present in low level in breast milk greater & diverse in mature milk over the course of 3 to 6 month.

Other minerals:-

Copper levels are highest on the first few days post partum, decrease for about 5 to 6 months & then tend to remain stable. Selenium concentrations are usually higher in human milk than in formula. Minute amount of aluminum, iodine, chromium & fluorine are also found in breast milk.

Formula fed infant ingest as much as 80 times more manganese than do breastfed infant. Because manganese enters the neonatal brain at much higher rate than in the adult brain, neonates are at risk of neurotoxicity from excess manganese. High manganese levels in infant formula have been identified as being possibly related to neurocognitive deficits. (Trane et al 2002)

Anti infective properties:-

Breast milk offers the newborn protection against disease & can reduce the risk of deaths for infants. When researchers compared centre's for disease control & prevention records of children who died between 28 days and 1 year, children who were breastfed. The lower the risk of illness (Chen & Rogan, 2004)

Key concepts

- Human milk – the gold standard for infant nutrition has between 57 to 65 kcal of energy per deciliter
- Breastfed infants ingest less volume than formula fed infants because human milk is more energy efficient.

- Babies do not usually remove all the milk available in the breast during the single feeding, instead, they usually take about two thirds of available milk in the breast.
- Small amounts of colostrums are produced in the first day or two after delivery, followed by rapid increase to about 500 ml at five days postpartum.
- Babies take 11 breastfeeds per day an average, but this frequency ranges from 6 to 18 feed per day.
- Differences in milk output from the right & left breast are common.
- Milk storage capacity differs among women. Women with larger breast have a greater milk storage capacity and may breastfeed less often. Women with small capacity and may breastfeed less often, women with small breast may need to breastfeed more often. Otherwise, breast size does not affect the ability to breastfeed.
- Milk synthesis and volume differ between breasts.
- The nutritional status of a lactating mother has a minimal effect on milk volume unless she is malnourished.
- Multifarious women produce more breast milk than primiparous women, mothers produce significantly more breast milk with their second baby.
- Breastfed infants grow at about the same rate as those not breastfed for the first 3 to 4 months.
- Fat in human milk varies according to the degree which the breast is emptied high volume is associated a low milk fat content; accordingly, fat content progressively increases during a single feeding.
- Breast feeding should occur early & frequently, the larger the interval between feeding the lower the fat content.
- The type of fat the mother eats affects the type of fatty acid present in her milk.
- Primary or congenital lactose deficiency or intolerance in infants is rare or nonexistent.
- Lactose in human milk supplies which energy to the infants is rapidly growing brain.
- Human milk contains two main proteins: casein & whey. Casein is tough & less digestible curd, whey is soft and flocculent & is digested rapidly.
- The amount of protein in colostrums is greater than that in mature milk because of the immune factors (IgA, Lactoferin) present in colostrums.
- Preterm mother's milk contains high level of protein & fat compared with non preterm milk, thus using the milk of the preterm infants own mother is preferred. Generally speaking, human milk contains sufficient amounts of vitamin & minerals to meet the needs of full term infants.
- Mineral content in human milk is fairly constant, tending to be the highest right after birth & decreasing slightly throughout lactation.
- Healthy infants who consume enough breast milk to meet their energy need to receive enough fluid to satisfy their requirement even in hot & dry environments.
- In the first 1 to 2 days after birth, the infant ingest small amounts, approximately 1 to 14 ml of colostrums at each feeding. Milk yield gradually increase for the first 36 hours, then rapidly increase. By day 5 volumes is about 500ml /day, it reaches 800ml/day (range 550 to 1150) during months 1 to 6 of full breast feeding.
- Immunity occurs actively & passively. Colostrums is densely packed antibodies & immunoglobulin.
- Human milk contains two types of white cells: phagocytes & lymphocytes. Phagocytes engulf & absorb pathogens & release IGA.) Release IGA lymphocytes (83% are T cells) protect an infant by destroying the cell walls of viruses in a process called cell mediated immunity.

- Antibodies are immunoglobulins that act against specific antigen or pathogen. Secretory Ig A is major immunoglobulin total SIGA remains relatively constant throughout lactation
- SIGA passes from the mother's mucosa (intestinal, respiratory) to the mammary gland good/breast milk through lymphocyte traffic pathways (GALT & BALT)
- Immunity has dose, response effects the more breast milk the infant ingests the greater the immunity.

Exclusive breast feeding

What is exclusive breast feeding?

Exclusive breastfeeding means to feed the baby with only breast milk from birth till the completion of six months nothing else like (Water, formula, ghee, food sugar water or other fluids like gripe water etc.) should be given only mother's milk and medicines prescribed by doctor should be given.

Benefits of exclusive breastfeeding

- 1) Promote production of more milk
- 2) It decreases the chances of infection caused by feeding bottles, water and nutrients.
- 3) It gives infants the best chance to grow and stay healthy as it contains all nutrients.
- 4) Decreases the risk of ovarian and uterine cancer in mother.

Benefits to the child

- 1) The child gets complete food for first six months
- 2) The child is saved from illness like asthma pneumonia and other respiratory breast infections.
- 3) It helps brain development
- 4) Breast milk is easily digestible
- 5) It builds a loving relationship between the mother & child
- 6) Breast feeding protects the child against ear infection such as otitis media
- 7) Breast milk offers protection against illnesses beyond infancy to childhood and adulthood. Contributes to prevention of celiac disease, diabetes, multiple sclerosis, prevents hypothermia Sudden infant death syndrome, childhood cancer and many other health problems.

Benefits to the mother

- 1) Stops bleeding after delivery
- 2) Saves her from anemia after delivery
- 3) Builds her confidence
- 4) Helps delay her next pregnancy.
- 5) Saves her from risk of ovarian & breast cancer.

Benefits to the family

- 1) Saves money spent in buying milk from outside
- 2) Saves fuel & time spent on preparing milk.

Also benefits the society by reducing the load of biomedical waste and recycling of bottles and nipples and formulated tins.

Introduction of complementary food

Complementary feeding means introducing solids to an infant's milk diet. Breastfeeding has been shown to provide sufficient energy for normal growth and to meet recommended energy requirements for most infants at 6 months of age. After that nutritive food should be started.

After completion of six months introduce

- 1) Appropriate
- 2) Hygienically prepared
- 3) Home made
- 4) Mashed complementary feeds in adequate quantities
- 5) Do not give watery items like rice water, dal water etc.

What food is to be given after six months?

Five important things to remember about complementary feeding

Consistency	Quantity	Frequency	Density	Variety
- depends on age of the child and readiness to chew and swallow. Initially include soft and mashed foods. - Move gradually to foods with appropriate thick consistency. Give Daal (&not Daal ka Paani) - Feed prepared should not be too thin and too thick. Test: stays on a spoon when the spoon is tilted (see figure given below)	- Increase with the age of the child. - Encourage for better intake but not force child to eat more - At one-year, child should receive half the mother's nutrition	- Increase with the age of the child. - Number of feeds will increase gradually with increase in age of the child.	Add a spoon of some edible oils or fats/ghee/ butter; sugar/ jaggery (gur) to each feed, to make feed rich in energy.	Add fruits and vegetables- The rule is that the greener it is, or the more red and yellow is the feed, the more is the protective quality. Meat, egg, poultry, fish are liked by children and are also very nutritive and protective.

Provide snack in between like:

Mashed banana

Dalia or milk

Roti mashed in dal

Continue to encourage the child to eat so that he eats happily.

Continue breastfeeding

Give him variety of foods to eat.

Consistency

To provide more calories from smaller volume, food must be thick in consistency – thick enough to stay on spoon without running off, when the spoon is tilted.

Complementary food diversity

To improve the content of various nutrient and density of nutrients in the young Child's diet, WHO recommends four or more different types of food to be fed at least once in a day from completed six months.

A nutrition rich diet requires a variety of foods; micronutrients like iron, Vit A and iodine which are very important for development of brain as well as Child's growth. Zinc helps to prevent illness.

Sources of important micronutrient

Iron: Exclusive breastfeeding for 6 months meets the iron needs of the growing infant. Non vegetarian foods leafy vegetable, jaggery, dates are good sources of iron.

Zinc: Same as iron.

Vitamin A : Carrots, tomatoes, drumstick, leaves/pods, beetroot, papaya, mango, leafy vegetables, milk & milk products, egg yolk & fish are rich in Vit A.

Iodine: It is available in iodized salt. It is very important for brain development.

Remember:

Giving drinks with low nutritive value, such as tea, coffee & sugary drinks should be avoided.

Hygiene practices are essential for food safety during all the involved steps viz preparation, storage and feeding.

Practice of responsive feeding is to be promoted

Consistency of food should be appropriate to the developmental readiness of child in munching, chewing & swallowing.

Avoid obstacles (ex. Television, gossiping with others) while feeding.

Promote child to eat by singing nursing rhymes and strong telling.

Eating with family during meal times encourages child to eat more than eating alone.

EXERCISE FOR PARTICIPANTS

Q.1.What is exclusive Breast feeding? Write in brief benefits of breast feeding?

Q.2.What food is to be given to the infant after six month of age?

.

17. MAA

MAA – Mothers Absolute affection is a nationwide breast feeding promotion and support campaign. It is an intensified programme for promotion of IYCF (Infant and young child feeding) practices. Infant & young child feeding practices of children from time of birth to completion of 23 months of age. Attempts to intensify efforts to promote optional infant and young child feeding practices, with focus on breast feeding.

Goal:-

To revitalize efforts towards promotion, protection and support of breastfeeding practices to achieve higher breast feeding rates.

Objectives:

- 1) Build on enabling environment for breastfeeding through awareness generation activities.
- 2) Reinforce location support services at health facilities through trained healthcare providers & through skilled community health workers.
- 3) To incentives & recognize those health facilities that show high rates of breast feeding along with processes in place for location management.

To reduce the neonatal mortality and child mortality is the priority of health services 22% newborn deaths can be prevented if all children receive breastfeeding within one hour of birth optional breastfeeding can prevent 156000 child deaths every year.

Infants not breast fed are

- 15 times more likely to die from pneumonia.
- 11 times more likely to die from diarrhea than children who are exclusively breastfed.

NFHS – 5 in Maharashtra

- More than 94.7 % deliveries take place in health facilities. 53.2 % of children receive breastfeeding within one hour of birth.
- 71 % are exclusively breastfed for the first six months.
- 52.7 % of children between 6-8 months were given complementary foods along with breastfeeding.

The interventions expected under MAA programme:

- 1) Facility based intervention :

BFHI, four dimensional immunization clinics, baby friendly NICU, Hirkani room

- 2) Community based activities :

Mother support meeting (Present & lactating mother)

Follow up of mother infant pair at home till breast feeding is established

Continued support at home after the newborn period till second birthday for successful IYCN. (Includes explaining complementary feeding to the family at half year birthday)

Establishing Hirkani rooms

Public advocacy.

Baby friendly hospital initiative

- The baby friendly hospital initiative was launched in 1992 with aim of gans forming maternity facilities to provide this standard of care.
- The baby friendly – approach has been shown to be effective in increasing exclusive breastfeeding rates.
- Hospitals become baby friendly by implementing the ten steps to successful breastfeeding.

Ten steps to successful breastfeeding

Components of feeding during just 2 yrs.

Early initiation of breastfeeding

When

Normal delivery: - Immediately after birth, newborn baby should be given skin to skin contact and breast feeding should be started within one hour.

Caeserean section: - Within four hours with support.

Breast crawl method should be used to initiate early breastfeeding. It is important to support first 1000 days (from conception to 2 years of age), IYCF is not only important for young child survival, health, nutrition but it also enhances brain development & learning readiness is well. Approximately 80% neuronal connections made in the brain occur in the first three years of life.

Complementary feeding along with breastfeeding till 2 yrs.

To meet the increasing needs of a growing children timely introduction of appropriate & nutritive foods is essential. This good should be home made and hygienically proponed. Should be started after 180 days.

The food should include different food groups and should be nutrient dense. The child should be gently encourage eating and should not be force to cat.

IMS (Infant Milk substitute) Act

Infant malnutrition, morbidity is a major public health problem and can be reduced by improving poor breastfeeding practices.

The government of India, in 1992, enacted the IMS act (Infant milk substitute, feeding bottles and infant foods (Regulation of production, supply and distribution). The Act was amended in 2003 it bans the following:-

1. All forms of promotion of infant milk substitute, feeding bottles & baby foods.
2. All advertisements of infant milk substitute, feeding bottles and baby foods in any media.
3. Gifts and baby foods in any media.
4. Donation of educational materials, equipments or donation of these items.
5. Picture of the baby or mother or cartoons on babes of these items.
6. Sponsorships and displays in the healthcare system of such companies.
7. Payment of commission to staff by companies for promotions sales.

Criteria for admission to SNCU

(Special newborn can unit) (SAM)

- 1) Birth wt < 1800 gm, gestation < 34 wt.
- 2) Refusal to feed
- 3) Major malformation feeding problem.

Treat hypoglycemia

If the child is hypoglycemic and he is lethargic unconscious or convulsing give 5 ml/kg body weight of sterile 10% glucose by IV, followed by 50 ml of 10% glucose by IV, followed by 50 ml of 10% glucose or sucrose by NG tube. If the IV dose cannot be given the NG dose first.

If the child will be given IV fluids for shock, there is no need to follow the 10% IV glucose can NG bolus, as the child will continue to receive glucose in the IV fluids.

Start feeding starter diet half an hour after giving glucose & give it every half hours during the first 2 hrs for a hypoglycemic child, the amount to give every half hour is 1/4 of the 2 Harley amount. Hypoglycemia & hypothermia may co exist. So make sure to keep the child warm. Administer antibiotics as hypoglycemia may be a feature of underlying infection.

Continue blood glucose monitoring every 30 min till all blood glucose level becomes normal & stabilizes thereafter.

Management of Malnutrition in children

Three tier approaches is adopted in Maharashtra

- 1) Village child development centers/ Camps (VCDC) at AWCs – 30 days camp.
- 2) Child treatment centers / Camps (CTC) at PHC/ sub district / District hospitals – 21 days camp on residential basis
- 3) Nutrition Rehabilitation centers (NRC) – Medical college / superspeciality hospitals – as per need

Village child development camps / centers

- 1) Both SAM & MAM children can be admitted.
- 2) Conducted at village level at Anganwadi Centers.
- 3) It managed by Anganwadi worker & her helper.

Under nutrition is an underlying cause of more than one third of global deaths in children below the age of 5 yrs. It is also associated & growth fettering (i.e. deficit in height or stunting), micronutrient deficiencies, delayed cognitive development and mortality. Stunting and micronutrient deficiencies are significant health problems among infant and young children.

EXERCISE FOR PARTICIPANTS

Q.1. Write short notes on

- a) MAA
- b) Baby friendly hospital initiative
- c) VCDC

Q.2. What are the criteria for admission to SNCU

Q.3. What is IMS (Infant Milk substitute) Act

18. MALNUTRITION

INTRODUCTION

Malnutrition often refers to under nutrition resulting from inadequate consumption, poor absorption or excessive loss of nutrients but the term also encompasses over nutrition, resulting from excessive intake of specific nutrients.

Malnutrition in children is widely prevalent in developing countries including India. More than 33% of deaths in 0-5 years are associated with malnutrition.

Measuring Under nutrition

Measuring weight and height is the most common way of assessing malnutrition in a given population.

Anthropometry is a widely used, inexpensive and non-invasive measure of the general nutritional status of an individual or a population group. The three commonly used anthropometric indices are:

- Weight-for-age (WFA)
- Height/Length-for-age (HFA)
- Weight-for-Height/Length (WFH).

Types of Under nutrition

The three indices - weight-for-age, height/length-for-age, weight-for-height/length are used to identify three nutrition conditions: underweight, stunting and wasting, respectively. Each of the three nutrition indicators is expressed in standard deviation units (Z-scores) from the median of the reference population based on which under nutrition may be further classified as moderate or severe.

Underweight

Underweight, based on weight-for-age, is a composite measure of stunting and wasting and is recommended as the indicator to assess changes in the magnitude of malnutrition over time.

This condition can result from either chronic or acute malnutrition, or both.

An underweight child has a weight-for-age Z score that is at least two standard deviations (-2SD) below the median in the World Health Organization (WHO) Child Growth Standards.

Stunting

Failure to achieve expected height/length as compared to healthy, well-nourished children of the same age is a sign of stunting. Stunting is an indicator of linear growth retardation that results from failure to receive adequate nutrition over a long period or recurrent infections. Stunting often results in delayed mental development, poor school performance and reduced intellectual capacity.

A stunted child has a height-for-age Z score that is at least two standard deviations (-2 SD) below the median for the WHO Child Growth Standards.

Wasting

Wasting indicates current or acute malnutrition resulting from failure to gain weight or actual weight loss, episodes of diarrhea and other acute illnesses.

A wasted child has a weight-for-height Z score that is at least two standard deviations (-2SD) below the median for the WHO Child Growth Standards.

Severe Acute Malnutrition (SAM)

Severe acute malnutrition is defined by very low weight-for-height/length (Z- score below -3 SD of the median WHO child growth standards), or a mid-upper arm circumference < 11.5 cm, or by the presence of nutritional edema.

Severe Acute Malnutrition is both a medical and social disorder. Lack of exclusive breast feeding, late introduction of complementary feeds, feeding diluted feeds containing less amount of nutrients, repeated enteric and respiratory tract infections, ignorance, and poverty are some of the factors responsible for Severe Acute Malnutrition (SAM).

Effects of SAM

- Increases the risk of death in children under five years of age.
- Can be a direct or indirect cause of child death by increasing the case fatality rate infections.

Moderate Acute Malnutrition

A child with 70-80% of median weight-for- height (Z score of <-3SD to <-2 SD), or a Mid Upper Arm Circumference of 11.5-12.5 cm and no edema is classified as a case of Moderate Acute Malnutrition. In addition the child should have appetite, be alert and clinically well. Children with moderate acute malnutrition can be managed in the Outpatients setting where there is a provision for supplementary feeding.

Case Fatality in children with Severe Acute Malnutrition

The high case fatality has been attributed to various factors related to the management and includes:

1. Inability to distinguish between acute and rehabilitation phases
2. Excessive use of intravenous (IV) fluids
3. Fluid overload due to lack of monitoring during rehydration
4. Use of diuretics (for edema) and albumin
5. Not keeping the child warm and euglycaemic (normal blood glucose levels)
6. Low index of suspicion for infection
7. Early use of diets high in protein, sodium, energy
8. Failure to monitor food intake
9. Early treatment of anaemia with oral iron

The case fatality can be brought down to approximately 7-10% by standard case management protocol, which the participant will learn in this course.

5. Identification of children with severe acute malnutrition

SAM children should be identified at every health contact:

- Primary health centre
- Sub-centre
- health posts
- hospitals
- day-care centres
- Anganwadi centres

Recommended criteria for identifying SAM in infants >6 months of age

Any child who has following features are treated as severe acute malnutrition:

Weight-for-height less than -3 SD and/or

- Visible severe wasting and/or
- Mid arm circumference (MUAC) < 11.5 cm and/or
- Edema of both feet*

Recommended criteria for identifying SAM in infants <6 months of age

Any infant more than 49 cm** in length who has following features are treated as severe acute malnutrition:

- Weight-for-height less than -3 SD and/or
- Visible severe wasting and/or
- Edema of both feet*

* Other causes of edema e.g. nephrotic syndrome should be excluded.

** For children with length less than 49 cm in length, visible severe wasting can be used as criteria to identify SAM .

Standard Deviation

For identifying a child with severe acute malnutrition standard deviation score (SD-score) based on child's weight and length/height is determined.

An SD-score is a way of comparing a measurement, in this case a child's weight-for-length, to an "average". The "averages" referred to in the manual are WHO Growth Reference values for weight-for-height and weight-for-length.

SD-scores may be loosely interpreted as follows:

- 1 SD approximately corresponds to 90% of the median weight-for-height.
- 2 SD approximately corresponds to 80% of the median weight-for-height.
- 3 SD approximately corresponds to 70% of the median weight-for-height.

To use the reference table

- First find the child's length or height in the middle of the table. If the length or height is between those listed, rounds up or down: If the length/ height is 0.5 or more cm then take the next higher value.
- Look at the top of the column to see what the child's SD-score is. The child's weight may be between two SD-scores. If so, indicate that the weight is between these scores by writing less than (<). For example, if the score is between - 1 SD and -2 SD, write < -1 SD.

Assessment of Severe Acute Malnutrition

Identification of Edema

1. To assess edema, normal thumb pressure is applied to both feet up to 30 seconds
2. If a shallow pit persists on both feet then the child presents edema
3. Only bilateral edema is recorded as nutritional edema
4. Always test for edema by thumb pressure and not merely by looking
5. Degree of edema (0 to +++ is assessed each day)
 - +++ Gross edema

- (Generalised, all over body)
- ++ Moderate edema
 - (Upto thigh & hands)
- +
 - Mild edema (dorsum of both feet)

ANTHROPOMETRY

Measurement of MUAC

1. Alternative measure of thinness
2. Used for children 6-59 months
3. Measured on left upper arm
4. Indicates muscle mass and fat reserves
5. Is age independent
6. Best predictor of mortality

Procedure

1. Locate tip of child's shoulder
2. Bend child's elbow to make right angle
3. Place tape at tip of shoulder at zero
4. Pull tape straight down to the tip of elbow
5. Read no to nearest 0.1 cm. Divide no by 2 to get mid point
6. Mark midpoint on arm with a pen

Procedure

1. Straighten child's arm and wrap tape around the arm at midpoint
2. Ensure proper tension of tape – not too tight or too loose
3. At correct position with correct tension read measurement to the nearest 0.1cm
4. Record measurement immediately

Procedure for measurement of Weight

- Preferably by an electronic scale
- Use Calibrated machine
- Put weighing balance on flat surface
- Each time adjust to zero
- Keep the pan clean
- Weigh child with minimum clothing
- Weigh everyday at fixed time of the day
- Record weight to the nearest gram
- Standardize machine regularly
- Explain mother
- Plot daily weight chart

Measurement of Length

- Use length boards

- Put / mount on flat surface
- For children less than 87cm take length
- For children more than 87 cm take height
- If not then subtract 0.7 cm from length
- Clean everyday with disinfectant
- Record closest to 0.1 cm

To measure length

Use a measuring board like infantometer with a headboard and sliding foot piece.

Work with a partner. One person should stand or kneel behind the headboard and:

- Position the child lying on his back on the measuring board, supporting the head and placing it against the headboard.
- Position the crown of the head against the headboard, compressing the hair.
- Hold the head with two hands and tilt upwards until the eyes look straight up, and the line of sight is perpendicular to the measuring board.
- Check that the child lies straight along the centre line of the measuring board and does not change position.

To measure height

Use a Stadiometer with a vertical back board, a fixed base board, and a movable head board.

Work with a partner. One person should kneel or crouch near the child's feet and:

- Help the child stand with back of the head, shoulder blades, buttocks, calves and heels touching the vertical board.
- Hold the child's knees & ankles to keep the legs straight and feet flat.
- Prevent children from standing on their toes.
- Young children may have difficulty standing to full height. If necessary, gently push on the tummy to help the child stand to full height.

The other person should bend to level of the child's face and :

- Position the head so that the child is looking straight ahead (line of sight is parallel to the base of the board)
- Place thumb and forefinger over the child's chin to help keep the head in an upright position
- With the other, pull down the head board to rest firmly on top of the head and compress hair.
- Measure the height to the last complete 0.1 cm and record it immediately on the case recording sheet.

How to use growth chart?

World health organization (WHO) growth charts are used most often and considered the standard around the world:

Typical measurements taken for children 0-24 months include :

- Head circumference
- Length
- Weight

Measurement should be taken at regular intervals in order to observe reliable trends. Recommendation for measurement intervals include:

- Infants (0-12 months) : every 2 months
- Young children at 15, 18, 24 & 30 months
- Age 3+ every year.

	Age									
Measurement	3-5 days	1 mo.	2 mo.	4 mo.	6 mo.	9 mo.	12 mo.	15 mo.	18 mo.	24 mo.
Weight	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Length	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Head Circumference	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Weight-for-length	✓	✓	✓	✓	✓	✓	✓	✓	✓	*

*At 24 months, many health care professionals recommend using Body Mass Index (BMI) as an indicator instead of weight-for-length

1. Table based on recommendations made by the American Academy of Pediatrics (USA)

Activate Windows
Go to PC settings to activate Windows

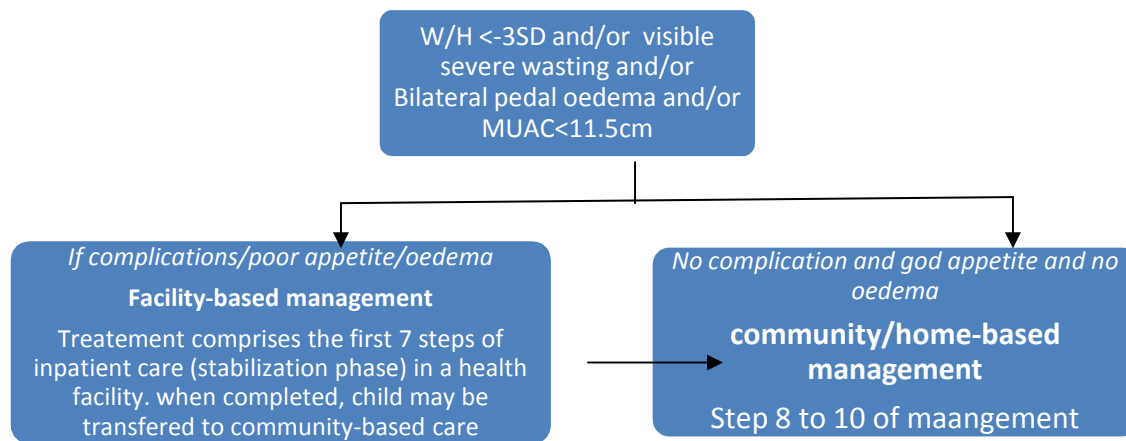
How to use growth charts

The following measurements can be applied to the most commonly used growth chart :

- Head circumference for age
- Length for age
- Weight for age
- Weight for length / weight for height

On the WHO growth charts, there are five curves. The middle curve (labelled 0) is the median on average. This line is also called the 50th percentile, because 50 percent of all children are above the median and 50 percent fall below. A normally growing child will typically have a growth curve that is parallel to the median.

Other lines in the curves, called z-score lines, indicate distance from the median curve. Points far from the median, such as a 3 or -3, typically indicate some kind of growth problem. One point on its own does not give an accurate assessment of a child's growth. Instead, a series of points provides insight into a child's growth patterns & tendencies over time.



Appetite test can be conducted poor appetite is a reliable indicator for severity of illness and thus need for hospitalization.

Children with following medical complications should be admitted in a Nutrition Rehabilitation centre or a health facility

- Presence of any of emergency signs
- Edema
- Persistent vomiting
- Very weak, apathetic
- Fever (Axillary temperature > 38.5 degree Celsius)
- Children with fast breathing / chest in drawing/ cyanosis

(Fast breathing is said to be present if number of breaths per minute is 60 or more in children up-to 2 months, 50 or more in children 2 months up-to 1 year and 40 or more in children 1 year up-to 5 years)

- Extensive skin lesions, eye lesions, post-measles states
- Diarrhoea with dehydration based on history and clinical signs
- Severe anaemia
- Hypothermia (Axillary temperature < 35 degree centigrade)
- Any other general sign which the clinician thinks warrants transfer to in-patient facility for assessment or care

In addition to above criteria if the caregiver is unable to take care of the child at home, the child should be admitted.

General principles of routine care (the 10 steps)

- Emergency treatment of shock and severe anaemia
- Treatment of associated conditions
- Failure to respond to treatment
- Discharge before recovery is complete

PREPARE FOR DISCHARGE

Criteria for Discharge from in patient care.

Child	• Achieved weight gain $\geq 15\%$ (See Annex 20 for target weight at 15 % weight gain) and has satisfactory weight gain for 3 consecutive days ($>5\text{gm/kg/day}$) • Edema has resolved • Child eating an adequate amount of nutrition food that the mother can prepare at home • All infections and other medical complications have been treated • Child is provided with micronutrients • Immunization is updated
Mother/caregiver	• Knows how to prepare appropriate foods and to feed the child • Knows how to make appropriate toys and play with the child • Knows how to give home treatment for diarrhea, fever and acute respiratory infections and how to recognize the signs that/he must seek medical assistance • Follow –up plan is completed

All children with SAM should be followed by the health workers at home or at community centers till s/he reaches weight for-height of -1 SD.

Teaching parents to care for the child and prevent recurring malnutrition

Parents should be educated about:

- Correct breastfeeding and feeding practices (frequent feeding with energy and nutrient dense foods)
- Taking the child for vitamin A supplementation (children aged 9-59 months) 6 monthly
- Taking the child to the health facility for vaccination as per the schedule in Mother and Child Protection card/Immunization card
- Giving structured play therapy to the child.

Follow-up

- Before discharge, make a plan with the parent for a follow-up visit at 1 week after discharge. Regular check-ups should also be made at 2 weeks in first month and then monthly thereafter until WHZ reaches -1 SD or above. If a problem is found, visits should be more frequent until it is resolved.

Give general discharge instructions

In addition to feeding instructions, mothers will need to be taught:

- How to continue any needed medications, vitamins, folic acid (for 2-weeks), and iron (for 2-3 months) at home.
- when to bring the child back for immediate care:
 - Not able to drink or breastfeed. Stops feeding.
 - Develops fever.
 - Has fast or difficult breathing.

- Has a convulsion.
- Has diarrhoea for more than a day, or blood in stool.

If early discharge is unavoidable, make special arrangements for follow-up

If a child must be discharged before the discharge criteria are met it is critical to make arrangements for follow-up of the child (for example, special visits by a health worker to the child's home, or outpatient care at a health facility or nutritional rehabilitation centre). Mothers will need special training to prepare feeds and give iron, folic acid, and multivitamins at home.

Admission criteria management protocol discharge and follow up for CTC is same as NRC VCDC (Village child development centre)

Criteria of admission :

- W/H <-3SD and/or
- visible severe wasting and/or
- Bilateral pedal edema and/or
- MUAC < 11.5cm

Functioning of VCDC

- Village level management of SAM and MAM at Anganwadi centre normal AWC functioning goes on simultaneously. SAM/ MAM children come at 8 am while regular AW starts around 9 am or 10 am.
- Anganwadi worker is the in charge personnel for VCDC.
- Duration – 1 month (30 days) excluding the holidays.
- Organization of VCDC- even one SAM or MAM child.
- Admission procedure-
 - A) Primary screening by AWW of SAM/ MAM without complication.
 - B) Medical checkup by MO
- Discharge criteria: After 30 days (after adopting new protocols after 21 days) irrespective of weight gain.
- If no/poor weight gain then child is to be referred to CTC/NRC
- No need for parents to stay with the child with some exceptions
- Low cost intervention

Nutrition Management

- Feeds are given in AWW from 9 to 12 pm and 2 to 4 pm.
- Various food items are given using THR, milk powder. The AWC meal of that day, banana, roasted potatoes, etc.
- The mother feeds between 12 to 2 pm at home.
- Occasionally eggs are served.
- All this is expected to improve the child's status.
- Not enough provision to meet the requirements.

Special Amylase feeds

- Amylase develops in sprouting grain & legumes
- Amylase helps digestion. For this wheat and green gram which are sprouted, dried and powdered.

- This flour mixed with groundnut flour, oil, sugar & makes a good paste for the child, most children like this.
- Micronutrients sachet is added to this once daily.

Medical management- Medicines and their Dosage

Sr. No	Name of drug	Dose	Time
1	Albendazol	1-2 years 200mg (5ml)	Once before admitting in VCDC
		2-3 years 400mg (10ml)	
		3-6 years 400mg (1 tab)	
2	Vitamin A (Confirm not given last 6 months)	1ml below 1 yr child	
		2ml above 1 yr child	
3	Tab Folic Acid	1mg, 1 tablet (everyday)	In the morning for 1 st 7 days
4	Amoxicillin	50 mg/kg/day	Morning/Afternoon/Evening for 7 days, all SAM and infected children
	Antibiotics (syr)		
5	Syrup Hovite RB/Visyneral-Z/ Containing medicine	1 to 2 yrs – 2ml	Afternoon
		2 to 6 yrs – 4ml	
6	Mecalvit Plus/ Containing medicine	1ml/kg/day	Morning
7	Orofex-XT/ Containing medicine	3mg iron/kg/day	Evening (After 7 days if the child starts gaining weight and is free from infection)

EXERCISE FOR PARTICIPANTS

Q.1.What is malnutrition? What are the types of under nutrition?

Q.2.Write short notes on

- a) Identification of children with SAM
- b) Anthroppmetry
- c) Rehilitation Center
- d) Functioning of VCDC
- e) Nutrition management
- f) Special amylase feeds

Q.3.How to use growth chart?

Q.4.What is the criteria for discharge from in patient care?

19. ROUTINE IMMUNIZATION

At the end of this session participants will know

- Introduction to Immunization Programme
- Immunization Schedule and FAQs
- Micro-planning
- Disease Surveillance
- Delivery of Immunization Services
- Adverse Events Following Immunization
- Cold Chain and Logistics
- Injection Safety
- Monitoring, Supervision, Information System and Evaluation

INTRODUCTION

- Vaccines in routine immunization are one of the most cost-effective health investments a country can make. The benefits to the individual include not only the prevention of disease and disabilities but also the opportunity for healthier and a more productive life.
- Expanded programme on immunization initiated in India in 1978
- Universal immunization programme launched on 19th November 1985
- Immunizations programme is one of the major components of national technology mission

Objectives of routine Immunization Programme

1. Rapidly increase immunization coverage
2. Improve quality of services
3. Establish a reliable cold chain system up to the health facility level
4. Achieve self-sufficiency in vaccine production

National Immunization Schedule for Infants, Children and Pregnant Women				
Vaccines	When to Give	Dose	Route	Site
For Pregnant Women				
Td-1 st dose	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
Td-2 nd dose*	4 weeks after Td-1	0.5 ml	Intra-muscular	Upper Arm
Td-booster dose	If received 2 Td doses in a pregnancy within last 3 years	0.5 ml	Intra-muscular	Upper Arm
For Infants				
BCG dose	At birth or as early as possible. Can be given up to 1 year of age.	0.1ml (0.05ml till 1mth of age)	Intra-dermal	Left upper arm
Hepatitis-B birth dose	At birth or as early as possible within 24 hours	0.5 ml	Intra-muscular	Antero-lateral side of left mid-thigh
OPV-zero dose	At birth or as early as possible within the first 15 days	2 drops	Oral	Oral
OPV 1 st , 2 nd & 3 rd dose	At 6 weeks, 10 weeks & 14 weeks	2 drops	Oral	Oral
Pentavalent 1 st , 2 nd & 3 rd dose	At 6 weeks 10 weeks & 14 weeks.	0.5 ml	Intra-muscular	Antero-lateral side of left mid-thigh
f-IPV 1 st & 2 nd dose	At 6 weeks & 14 weeks with OPV 1 st & 3 rd before completion of one year	0.1 ml	Intra-dermal	Right upper arm
RVV 1 st , 2 nd & 3 rd	At 6 weeks, 10 weeks & 14 weeks	2 ml	Oral	Oral
PCV 1 st , 2 nd & booster	At 6 weeks, 14 weeks & 9 months	0.5 ml	Intra-muscular	Antero-lateral side of right mid-thigh
MR 1 st dose	9 completed months to 12 months	0.5 ml	Sub-cutaneous	Right upper Arm
JE 1 st dose**	9 completed months to 12 months	0.5 ml	Intra-muscular	Antero-lateral side of left mid-thigh
Vitamin-A (1 st dose)	At 9 months with measles 1 st dose	1 ml (1 lakh IU)	Oral	Oral
For Children				
DPT Booster 1 st dose	16 months to 24 months	0.5 ml	Intra-muscular	Antero-lateral side of right mid-thigh
OPV Booster dose	16 months to 24 months	2 drops	Oral	Oral
MR 2 nd dose	16 months to 24 months	0.5 ml	Sub-cutaneous	Right upper Arm
JE 2 nd dose**	16 months to 24 months	0.5 ml	Intra-muscular	Antero-lateral side of left mid-thigh
Vitamin A (2 nd to 9 th dose) ***	16 month to 24 months with measles 2 nd dose. Then, one dose every 6 months up to the age of 5 years	2 ml (2 lakh IU)	Oral	Oral
DPT Booster 2 nd dose	5 to 6 years	0.5 ml	Intra-muscular	Upper Arm
Td dose	10 & 16 years	0.5 ml	Intra-muscular	Upper Arm

1. *Give Td-2nd or Booster dose before 36 weeks of pregnancy. However, give these even if more than 36 weeks have passed.

Give Td to a woman in labour, if she has not previously received Td.

2. **JE Vaccine is introduced in select endemic districts after the campaign.

3.*** The 2nd to 9th doses of Vitamin A can be administered to children 1-5 years old during biannual rounds, in collaboration with ICDS.

Remember

- Do NOT repeat BCG if given once, even if the eschar /scar does not appear.
- BCG vaccine can be given up to 1 year of age.
- Giving DPT/PENTA in buttocks (gluteal region) may injure the sciatic nerve and cause paralysis. Never give DPT /PENTA in buttocks.
- Always give DPT/PENTA in outer mid-thigh (Antero-lateral Thigh in vastus lateralis muscle).
- Wait at least 4 weeks (one month) after previous dose of PENTA-OPV before giving next dose.
- If child comes after gap of more than 4 weeks for its next dose of PENTA-OPV, give next dose of series. Do NOT repeat previous dose, as there is no maximum interval between doses.
- Wait at least 6 months after OPV3 & PENTA3 for booster dose of DPT and OPV
- DPT vaccine can be given up to 7 years of age.
- MR vaccine can be given up to 5 years of age.
- JE killed vaccine can be given up to 3 years of age.
- All due vaccines can be given at same time but in different limbs (sites)e.g., it is safe and effective to give BCG, PENTA, OPV, IPV, MR at same time to a 9-month-old child who has never been immunized.
- Even if the child is suffering from diarrhoea, mild fever or malnutrition, child should be vaccinated. Unless a child is very sick and needs hospitalization, do not stop vaccination

Frequently Asked Questions (F. A. Q.s)	
Scenario	Answer
At 6 weeks, without birth dose	OPV 1 + IPV 1, BCG, penta 1, PCV, Rota
> 6weeks but <1yr, no OPV, no penta	OPV 1, IPV 1, penta 1, if>9 months MR 1+Vit A
OPV 1, IPV 1& penta 1 and OPV 2, penta 2 between 6 weeks-1yr age: child comes after 1 yr	OPV3, IPV 2, penta 3 at earliest available opportunity

The goal is to fully immunise each and every child before his/her first birthday

Give these 4 Key Messages to the Caregiver:

1. What vaccine was given and what disease it prevents (e.g. BCG for preventing childhood TB)
2. When to come for the next visit.
3. What are the minor side-effects and how to deal with them.
4. To keep the vaccination card safe and to bring it along for the next visit

PLANNING IMMUNIZATION SERVICES

Immunization Microplan

- State Plan = Compiled District Plans + state specific activities
- District Plan = Area map, Compiled PHC plans + supervision, budget, IEC, training etc.
- PHC Plan = Area map, Compiled SC plans, supervision plan + alternate vaccine delivery, waste disposal etc.
- SC Plan = Area Map, estimation of beneficiaries, vaccine logistics and ANM work plan

Step 1

- List all villages and hamlets in SCarea. If hamlets have too small population, tag these along with larger nearby villages

Step 2

- Write population of each village and hamlet based on actual headcount

Steps 3 and 4

- Write the annual target of pregnant women and infants

Steps 5 and 6

- Write the monthly target of pregnant women and infants

Step 7

- Calculate the beneficiaries per month for each vaccine and Vitamin A

Td = Monthly target of pregnant women x 3.5 doses

BCG = Monthly target of infants x 1 dose

PENTA = Monthly target of infant x 3 dose

DPT = Monthly target of infants x 2 doses

OPV = Monthly target of infants x 5 doses

IPV = Monthly target of infant x 2 doses

HepB = Monthly target of infants x 1 doses

MR = Monthly target of infants x 2 doses

PCV = Monthly target of infants x 3 doses

Rota = Monthly target of infants x 3 doses

JE = Monthly target of infants x 2 doses

Vit.A = Monthly target of infants x 9 doses

Step 8**Calculate the requirement of vaccine vials and Vitamin A per month**

$$\diamond BCG = \frac{\text{Beneficiaries per month} \times 1 \text{ dose} \times 2(\text{WMF})}{10}$$

$$\diamond Td/ Penta/DPT/HepB = \frac{\text{Beneficiaries per month} \times \text{number of doses} \times 1.11 (\text{WMF})}{10}$$

$$\diamond OPV = \frac{\text{Beneficiaries per month} \times 5 \times 1.11(\text{WMF})}{20}$$

$$\diamond IPV = \frac{\text{Beneficiaries per month} \times 2 \times 1.11(\text{WMF})}{25}$$

$$\diamond MR = \frac{\text{Beneficiaries per month} \times 2 \times 1.33 (\text{WMF})}{5}$$

$$\diamond PCV = \frac{\text{Beneficiaries per month} \times 2 \times 1.11 (\text{WMF})}{5}$$

$$\diamond JE = \frac{\text{Beneficiaries per month} \times 2 \times 1.11(\text{WMF})}{5}$$

$$\diamond \text{VitA} = \{(\text{monthly target of infants} \times 1 \text{ ml}) + (\text{monthly target of infants} \times 2 \text{ ml} \times 8)\} \times 1.11$$

- Vaccines = 25% wastage rate or 1.33 WMF (Wastage Multiplication Factor) 10% wastage rate or 1.11 WMF*

- For – BCG = 50 % wastage rate or 2 WMF
- For – Penta = 10 % wastage rate or 1.11 WMF
- For – MR = 25 % wastage rate or 1.33WMF

Step 9

- Calculate the requirement of Syringes per month
 $0.1 \text{ ml ADS} = \text{Beneficiaries for BCG} + \text{Beneficiaries for IPV} \times 1.1 \text{ WMF}$
 $0.5 \text{ ml ADS} = \text{Number of doses required for Beneficiaries (Td+ Penta + HepB+ MR + DPT+PCV+JE)} \times 1.1.$
 $\text{Reconstitution Syringes} = (\text{BCG} + \text{MR vials}) \times 1.1 \text{ WMF}$
** Syringes = 10% wastage rate or 1.11 WMF (Wastage Multiplication Factor)*

Steps 10 to 13

- List all villages & hamlets in Sub-Center area in the same order as Step 1
- Write distance of village from the closest ILR
- List names of the AWW and ASHA
- Write the monthly injection load per village

Step 14 to 15

Calculate the number of sessions required per month (in column sessions required per month)

Outreach sites	Fixed sites
• 1-25 injections = 1 session every alternate month • 26-50 injections= 1 session per month • 51-100 injections = 2 sessions per month, etc <i>For hard-to-reach areas with popn. less than 1000 = minimum of 4 sessions a year</i>	• 1-39 injections = 1 session every alternate month • 40-70 injections= 1 session per month • 71-140 injections = 2 sessions per month, etc <i>For a busy CHC/RH, plan daily sessions.</i>

- Write day of immunization session in village

Step 16

Area Map

- Prepare a map of the Sub-Center area including all villages and hamlets with their:
- Total population and annual target infants
- Anganwadi Centers and session sites
- Distance from the ILR point and transport mode
- Landmarks e.g. Panchayat, school, roads etc.

Step 17

Prepare a quarterly supervision plan at the PHC level

How to calculate vaccine requirement for PHC:

1. Annual target beneficiaries of your PHC
2. Number of doses per child per antigen as per national immunization schedule

Calculation of monthly working stock requirement for each antigen in doses as under:

- $\text{BCG} = \frac{\text{Yearly target infant} \times 1 \text{ dose} \times 2.0 \text{ (WMF)}}{12}$

- $\text{DPT} = \frac{\text{Yearly target infant} \times 2 \text{ doses} \times 1.11 \text{ (WMF)}}{12}$
- $\text{OPV} = \frac{\text{Yearly target infant} \times 5 \text{ doses} \times 1.11 \text{ (WMF)}}{12}$
- $\text{IPV} = \frac{\text{Yearly target infant} \times 2 \text{ dose} \times 1.11 \text{ (WMF)}}{12}$
- $\text{MR} = \frac{\text{Yearly target infant} \times 2 \text{ doses} \times 1.33 \text{ (WMF)}}{12}$
- $\text{Td} = \frac{\text{Yearly target (PW)} \times 3.5 \text{ doses} \times 1.11 \text{ (WMF)}}{12}$
- $\text{Hep. B} = \frac{\text{Yearly target infant} \times 1 \text{ dose} \times 1.11 \text{ (WMF)}}{12}$
- $\text{Pentavalent} = \frac{\text{Yearly target infant} \times 3 \text{ doses} \times 1.11 \text{ (WMF)}}{12}$
- $\text{PCV} = \frac{\text{Yearly target infant} \times 3 \text{ doses} \times 1.11 \text{ (WMF)}}{12}$
- $\text{JE} = \frac{\text{Yearly target infant} \times 2 \text{ doses} \times 1.11 \text{ (WMF)}}{12}$

CALCULATION OF REQUIREMENT OF AD AND DISPOSABLE SYRINGES

Calculate monthly syringes requirement:

$$\text{0.1 ml AD syringes} = \frac{\text{Yearly target infants} \times 3 \text{ dose} \times 1.1 \text{ (WMF)}}{12 \text{ Months}}$$

$$\text{0.5 ml AD syringes} = \frac{\text{Yearly target infants} \times (1 \text{ doses Hep B} + 2 \text{ doses DPT} + 3 \text{ doses of Pentavalent} + 2 \text{ dose of IPV} + 2 \text{ doses MR} + 3.5 \text{ doses Td} + 3 \text{ doses PCV} + 2 \text{ doses JE}^*) \times 1.1 \text{ (WMF)}}{12 \text{ Months}}$$

$$\text{5 ml disposable reconstitution syringes} = \frac{\text{Annual requirement of (BCG + MRvials)} \times 1.1 \text{ (WMF)}}{12}$$

12

DISEASE SURVEILLANCE

- **Diphtheria:**
 - Sore throat with gray patch(es) in throat
- **Pertussis (whooping cough):**
 - Repeated & violent coughing, with:
 - Cough persisting for 2+ weeks, fits of coughing,
 - Cough followed by vomiting, typical whoop in older infants.
- **Tetanus:**
 - Suck & cry in first 2 days of life,
 - Illness between 3- 28 days of life,
 - Inability to suck followed by stiffness of neck & body &/or muscle jerking

DELIVERY OF IMMUNISATION SERVICES

Reasons for failure of immunization

- Unaware of need
- place and time unknown
- fear of side effect
- wrong ideas about immunization
- place too far to go
- Inconvenient time
- vaccinator absent
- mothers too busy
- child ill
- no faith
- Misleading rumours

Why families do not use immunization services

- Lack Of Information
- Long Wait
- Rudeness Or Insensitivity on part of health worker
- Unscheduled Facility Closures
- Time Constraints
- Not Be The First Priority For A Mother
- Social, Cultural Or Political Barriers
- Misinformation
- Distance

STRATEGIES FOR INCREASING THE USE OF ROUTINE IMMUNISATION SERVICES

(A) Reaching The Unreached

- Improvement in scheduling
- raising awareness
- improving and expanding outreach services
- targeting services to meet urban needs
- Flexible timing
- Catch up sessions

B) Reducing Drop-Outs:

Example:

DISTRICT 'A'

50% of children have access to immunization

Services using penta - 1 coverage as an indicator. 42% complete the three - dose series of penta
calculate the drop-out rate

$$\frac{(50\% - 42\%) * 100}{50\%} = 16\%$$

DISTRICT 'B'

85% of children have received penta-1 and 58% completed the three dose series of penta
calculate the drop-out rate

$$\frac{(85\%-58\%)*100}{85\%} = 32\%$$

ADVERSE EVENTS FOLLOWING IMMUNIZATION (AEFI)

What is an AEFI?

Adverse Event Following Immunization is defined as any untoward medical occurrence which follows immunization and which does not necessarily have a causal relationship with the usage of the vaccine.

CAUSE SPECIFIC DEFINITION OF AEFI

S.N	Type of AEFI	Definition	Example
1	Vaccine product-related reaction	An AEFI that is caused or precipitated by a vaccine due to one or more of the inherent properties of the vaccine product.	Extensive limb swelling following DPT vaccination.
2	Vaccine quality defect-related reaction	An AEFI that is caused or precipitated by a vaccine that is due to one or more quality defects of the vaccine product including its administration device as provided by the manufacturer.	Failure by the manufacturer to completely inactivate a lot of inactivated polio vaccine leads to cases of paralytic polio.
3	Immunization error-related reaction	An AEFI that is caused by Inappropriate vaccine handling, prescribing or administration.	Transmission of infection by contaminated multidose vial
4	Immunization anxiety-related reaction	An AEFI arising from anxiety about the immunization.	Vasovagal syncope in an adolescent following vaccination.
5	Coincidental event	An AEFI that is caused by something other than the vaccine product, immunization error or immunization anxiety	A fever after vaccination (temporal association) and malarial parasite isolated from blood.

Elicit past history of AEFIs

Ask parents about history of any adverse reaction following earlier vaccinations, such as convulsion after DPT vaccination.

Preventing AEFIs

- Training health workers - reconstitution procedures, administration techniques - safe injection practices
- Train cold chain handlers and vaccinators and monitor correct storage procedures
 - **Do not store drugs and other substances in ILR, use exclusively for vaccine storage.**
 - **Keep reconstituted vaccines on one ice pack per session**
 - **Strictly follow Open Vial Policy guidelines**
- Ensure only one session per day. Use separate vaccine carriers for separate sessions
- Strictly no house-to-house vaccination
- Direct observation of vaccinated children for 1/2 hour for AEFI
- Investigate, identify program or operational error and correct immediately to avoid recurrence.

How to minimize AEFIs?

1. Use separate site for each vaccine.

2. Use one syringe and one needle for each injection.
3. Use auto-disable syringes for all immunization injections.
4. Reconstitute vaccines only with diluents supplied by the manufacturer for that vaccine.
5. Use MR and BCG vaccine within 4 hours of reconstitution.
6. Keep diluents of BCG and MR vaccine separate from other potentially harmful liquids.
7. Do not keep needles in the rubber cap (stopper) of vaccine vials. This can cause toxic shock syndrome, a deadly and completely avoidable adverse event.
8. Do not store other drugs or substances in the ice-lined refrigerator or deep freezer

What to Report?

- All abscesses
- Serious events requiring hospitalizations
- Deaths
- Clustering of Cases

Management of anaphylaxis

- Clear the airway
- Cardiopulmonary resuscitation
- Injection Adrenalin 1:1000 (by deep intramuscular into opposite limb, subcutaneous in mild cases).
- Adrenalin in doses:- 1:1000 at the dose of 0.01 ml/kg up to a maximum .05 ml IM/SC

Age group) in years)	One inch needle gauge	Dosage (in ml) using 1ml tuberculin syringe	Dosage(in Units) using 40 units Insulin syringe
0-1	25G/25G	0.05	2
1-6		0.1	4
6-12		0.2	8
12-18		0.3	12
Adults		0.5	20

If no improvement, repeat within 10-20 minutes of the first injection, up to a maximum of three doses, in total.

- Give Inj. Hydrocortisone IM or slow IV per dosage
- If patient conscious after adrenaline is given, place his/her head lower than the feet and keep the patient warm.
- Give oxygen by face mask, if available.
- Mark the immunization card clearly to prevent future repeat dose of offending vaccine.
- Report anaphylaxis to the appropriate officer

District/Corporation AEFI committee meetings

- Constitute district/corporation AEFI Committees, review membership of existing committees
- Organise meeting to orient members on UIP, AEFI surveillance, their role in investigations and managing media.
- Minutes of district AEFI committee meetings should be recorded, shared with state, national level.

Response to an AEFI

Provide immediate primary management for any adverse event

- Minor AEFIs – provide symptomatic treatment and refer, if needed
- Serious/severe AEFIs -
 - Refer immediately to nearest health facility/AEFI management centre and inform appropriate authority to ensure proper treatment
 - In case state ambulance service (108/102) is not available or delayed, arrange local transportation. Costs may be borne through untied funds (sub centre/Village Health and Sanitation Committee)

AEFI surveillance: roles

- All ANMs/ASHAs/AWWs and MOs must
 - be sensitized/oriented/trained to recognize and notify/report AEFI promptly.
 - know what to do when an AEFI occurs
 - be aware of location of the nearest AEFI management centre.
- Job Aids for Medical officers should be printed and displayed in OPDs, casualty/emergency wards and paediatric OPDs.
- Job Aids for ANMs should be translated into vernacular language and disseminated prior to campaign. Every government health facility (PHC and above with at least one medical officer) will function as an AEFI management centre
 - Private clinics / hospitals may also be designated as an AEFI management centre if possible, with arrangements for reimbursement of treatment costs on case-to-case basis
 - Ensure AEFI kits are available at all AEFI management centres with contents within expiry dates, especially adrenaline
- All clinicians to be trained in standard AEFI management and reporting procedures
- All medical officers acting as supervisors will carry an emergency AEFI treatment kit.
- Micro-plans and session tally-sheets must include names, address & contact numbers of the nearest AEFI management centre
- State ambulance services (108 or 102) may be instructed to be on standby to ensure immediate transportation

OPEN VIAL POLICY

- Applicable to DPT, Hep B, Td, OPV, IPV, PCV, JE and pentavalent vaccines
- Not applicable for BCG, MR containing vaccine, JE, rotavirus vaccines.
- Write date and time of opening on labels of all vials.
- Partially used vials can be used at more than one immunization session up to four weeks of opening the vial provided
 - VVM is in usable stage,
 - vaccine is not beyond expiry date,
 - vial has been stored under cold chain during transportation and storage,
 - vaccine vial septum has not been submerged in water or contaminated in any way
 - aseptic technique has been used to withdraw all doses

COLD CHAIN AND LOGISTICS

Definition

Cold Chain is a system of transporting and storing vaccines at recommended temperature from the point of manufacture to the point of use.

Essential Elements of Cold Chain

- PERSONNEL to organize and manage vaccine distribution
- EQUIPMENT for storage and transport of vaccines.
- Transport facilities
- Maintenance of equipment
- Monitoring

In general

- All Vaccines tend to lose potency on exposure to heat above +8⁰ C
- Some Vaccines lose potency when exposed to freezing temperatures
- The damage is irreversible

Ice lined refridgerators (ILRs)

- Capacity: 140 litres at PHC level (1200 vials)
- Ideal Temperature: +2°C to 8°C(Effective with electricity supply of 8/24 hrs)
- Safe Storage: Always in the basket section(all T series,PENTA, Hepatitis-B and Diluents)
- OPV/MR/BCG,may be kept below basket in case space is not available
- Thermometer: Place in the ILR-basket

Right way of keeping vaccines in ILR

- Keep all vaccines in baskets
- Avoid placing vaccines at bottom of ILR.
- Leave space between the vaccine boxes
- Place a thermometer in the center of the ILR.
- Same vaccines in same area.
- Diluent / freeze sensitive/ Closer expiry date vaccines on top
- Heat sensitive / Further expiry date vaccines in the bottom of basket

Deep freezers (DF)

- Capacity: 140 litres at PHC level
- Ideal Temperature: -18°C to -20°C (In case of power failure - maintain temperature for 18-20 hrs)
- Ice Pack Freezing Capacity: freezes 20 ice packs every 24 hours.

Cold Boxes

- Type: Insulated boxes of 5 litre capacity
- Usage: Stores & transports vaccine. Also stores frozen Ice Packs
- Capacity: 1500 doses (mixed antigen) or 5000 doses (only OPV) with 24 ice packs.
- Holdover Time:3 days (Keep thermometer inside)
- Vaccine Layout: Direct contact of frozen Ice packs spoils the vaccine. Give carton spacers/surround vaccine by OPV vials.
- Label Protection: Place vaccine in cartons or polythene bags.

Vaccine Carrier

- Type: Insulated boxes used for carrying small quantities of vaccine.
- Capacity: 16-20 vials
- Holdover Time: Maintain +2 to +8⁰ C for about 24 hours (one day)
- Ice packs: A maximum of 4 frozen packs
- Vaccine Layout: Keep vaccines in a plastic bag (not in direct touch with the Ice packs)

Ice Packs

- Do not fill 100%.
- Leave 10 mm room for expansion as water freezes.
- Close the cap tightly
- Clean the outer surface dry before freezing

Ice Pack Freezing

- Ice Packs to be frozen ROCK Solid
- Freezing is faster & uniform if gap /breathing space is left between ice packs
- Ice Packs are best frozen in Deep Freezers

CONDITION BEFORE USE**Preparing icepacks for use: Conditioning**

- On the session day, take the frozen ice-packs you need from the freezer and place on a table
- Allow ice-packs to sweat (droplets of water) at room temperature
- Shake the ice pack to listen to sound of water.

Maintenance of Equipment

- Defrosting/Cleaning: Ice deposit 5mm & over in freezer or at the bottom of ILR results in rise in temperature. Periodic defrosting & cleaning ensures trouble free performance for a long period.
- Cold boxes/Vaccine Carriers: Cold box hinges, lid knobs & chains are often damaged. Replace or repair locally. Minor insulation casing cracks/gaps can also be repaired with fresh PUF insulation
- Ice Packs: Fill clean water for freezing & leave 10mm room for expansion as water freezes. Cap tightly to avoid leakage. Keep pack clean & dry.

Vaccine Distribution

- Follow first-in-first - out rule (FIFO)
- Also: first to expire - first out. (FEFO)
- Vaccines are not stored at the sub-centre level and must be supplied on the day of use
- Note manufacturer, batch no, VVM status

Storage Temperature

- Monitor temperature twice daily.
- All vaccines at PHC are stored between +2 to +8°C

Vaccine/Diluent storage in ILR

- On Ice Pack- BCG and MR (place them in the holes on ice pack), OPV vaccine should be placed on the surface of the ice pack.
- Remember – IPV, HepB, Td, DPT and Penta should never be kept on the ice pack.

INJECTION SAFETY

Safety of the

- Client
- Service Provider
- Community
- Environment

SAFE INJECTION POLICIES

- Hand Wash
- Reduction of unnecessary injections
- Promotion of safe injection practices
- Sufficient quantities of injection equipments
- Management of sharp waste

MONITORING, EVALUATION & INFORMATION MANAGEMENT

Basic monitoring tools

- Maps
- Patient registers
- vaccination cards
- tickler files
- tally sheets
- immunisation monitoring charts

MONITORING & EVALUATION

Indicators	What it may indicate
Penta -1 coverage	coverage availability of, access to, and initial use of immunization services
Penta-3 coverage	coverage continuity of use of service, client satisfaction, capability of the system
Penta -1 to penta -3 drop out	quality of services, quality of communication
Td. -1	coverage availability of, access to, and use of immunization services by A.N.C.
Td. -2	continuity of use, client satisfaction, capability of the system
Number of immunization sessions	quality of program sessions held compared to number planned
Temperature of cold chain equipment	quality of cold chain equipment management and vaccine storage
Updated inventory	quality of cold chain management
Use of sterile syringes	quality of injection

Using Routine Data for Action

- PENTA 1 Doses administered
- PENTA 3 Doses administered
- PENTA 1 Coverage (%)
- PENTA 3 Coverage (%)

- Unimmunized with PENTA 3 (No.)
- PENTA 1 to PENTA 3 Drop- out rates (%) indicates utilization of services
 - Low drop out (<5 %): Good utilization
 - High drop out (>10%): Poor utilization

Analysis and use of routine data

A) Immunisation coverage:

$$\text{Penta -3 coverage: } \frac{\text{No. Immunised by penta -3 in a year} * 100}{\text{No. Of surviving infants < 12 months of Age in the same year}}$$

$$\text{MR coverage: } \frac{\text{No. Immunised by 12 months with MR in a year} * 100}{\text{No. Of surviving infants < 12 months of Age in the same year}}$$

B) Drop-out rates:

$$\text{Drop-out of Penta-1 and Penta-3: } = \frac{\text{Penta 1 cumulative total} - \text{penta 3 cumulative total} * 100}{\text{Penta cumulative total}}$$

$$\text{Ex. Penta-1} = 176, \text{ Penta-3} = 134$$

$$\frac{176 - 134}{176} * 100$$

$$\text{Drop-out rate: } = 23.86 \%$$

Doses of highest coverage - doses of lowest coverage *100

Drop-out of BCG to MR 1 coverage

$$\text{Ex. MR: } 286, \text{ B.C.G: } 442$$

$$\frac{442 - 286}{442} * 100$$

$$\text{Drop-out rate: } = 35.29 \%$$

Regular monitoring and review of Micro plan

- Analysis of Monthly reports
 - Sessions held vs planned
 - coverage and dropouts
- Regular Review meeting
 - coverage monitoring chart
 - Review missed sessions
 - other problems
 - revise session plan and work plan (if needed)
- Supportive supervisory visits
 - monitoring the work in the field,

- providing on-the-job training,taking notes for future discussion at review meetings
12 Months

EXERCISE FOR PARTICIPANTS

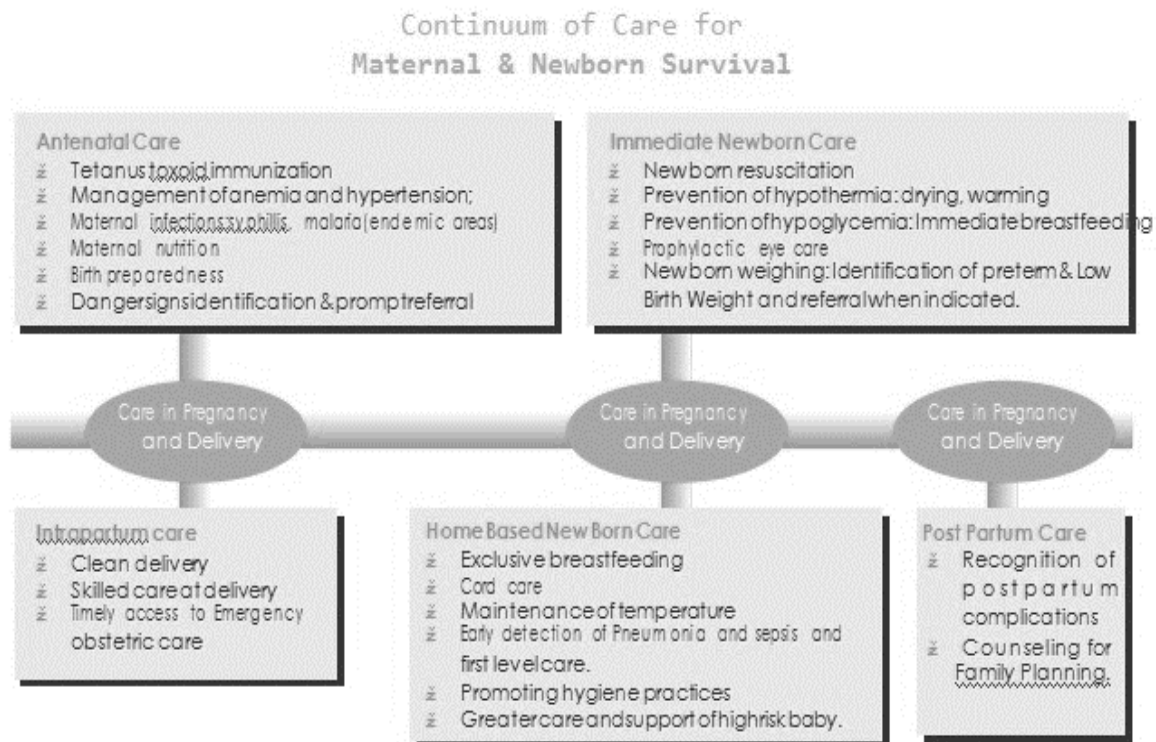
- Q.1. Write about immunization schedule, points to be remembered about vaccination and 4 key messages to be given to the caretaker?
- Q.2. What are the steps in planning of immunization services?
- Q.3. How to calculate number of sessions required per month?
- Q.4. What are the reasons for failure of immunization?
- Q.5. What are the strategies to increase use of routine immunizations services?
- Q.6. What is AEFI? What are its types and how will you minimize AEFI?
- Q.7. Define cold chain. What are the elements of cold chain?
- Q.8. Write short notes on
 - a) Conditioning of ice pack
 - b) Shake test
 - c) Monitoring and evaluation of routine immunization
- Q.9. How will you calculate vaccine requirement for your PHC?

20. Home Based Neonatal Care (HBNC)

Defining Neonatal and Infant Deaths

1. **Neonatal Mortality:** Deaths occurring during the neonatal period, commencing at birth attending 28 completed days after birth.
 - a) **Early Neonatal mortality:** Deaths occurring during the neonatal period, from birth to seven days after birth.
 - b) **Late neonatal mortality:** Deaths of the infants occurring during the neonatal period, from the eighth day after birth to 28 completed days after birth.
2. **Still Births:** Death of foetus after 28 completed weeks of pregnancy, or the birth of a dead fetus which weighs over 1000gms or is more than 35cm body length.
3. **Perinatal Mortality:** Deaths occurring after 28 completed weeks of gestation (stillbirths) and upto seven completed days (early neonatal deaths) after birth.
4. **Infant Mortality:** Death occurring in a child before it reaches the age of one year.

All these are expressed per 1000 live births in one year, which is defined as the rate. Thus for example; Neonatal Mortality Rate is the number of neonatal deaths in a given year per 1000 live births in that year.



Rationale for Home Based Newborn care.

- In cases of institutional delivery, where the baby and mother are discharged after 48 hours according to current guidelines, it is expected that care for the newborn during this period is provided in the institution. When the mother and baby return home, although the newborn has crossed the critical first day,

there is still the remainder of the first week and month during which neonatal mortality could be as high as 54%, and for which care has to be provided. Any illness during this period could result in the newborn dying at home, unless the baby is provided with appropriate care or referred to a facility equipped to treat sick newborns.

- A significant proportion of mothers prefer to return home within a few hours after delivery, which means that homebased newborn care needs to be available even for such babies born in institutions to tide them over the first day and thereafter. Although this is not desirable and all efforts should be made to convince the mothers to stay in the institutions for the first 48 hours, existing evidence shows that while at an all India level nearly 45% % of mothers return home before 48hours. However in this percentage is very low in states Bihar (15.3%), Haryana (29.2%), Nagaland (21.1%) and Orissa (28.3%). (Coverage Evaluation Survey, 2009, UNICEF)
- Despite the impressive increases in institutional deliveries there is a persistence of home deliveries ranging from between 25 % to 50% across the states. For such deliveries, home based newborn care, is essential even on the first day. There is evidence that many home deliveries are not conducted by skilled birth attendants, particularly in underserved areas, and among the marginalized.
- The strategy of universal access to home based newborn care must necessarily complement the strategy of institutional delivery to achieve a significant reduction in postpartum and neonatal mortality and morbidity. HBNC also needs the ready access and backing from Sick Newborn Care Units (SNCU) and Newborn Stabilization Units (NBSU) that are well staffed, well equipped and are functioning effectively.

Who is the provider of HBNC?

This includes the AWW, the ANM and the Medical officers. However, the main vehicle to provide this is the ASHA. The reason for this includes:

1. She is resident and available in every village.
2. She is being equipped with the skills and support to provide such care.
3. The findings of a recent evaluations how that the ASHA is much more likely to visit the newborn and post-partum mother at home than the ANM or AWW, and is also more likely to be consulted for care of the sick child. The ASHA is emerging as the first port of call for sick newborns and children.
4. The ASHA is supported and guided by the health system which is directly responsible for newborn and child survival. This relationship with the health system is essential for facilitating referral.

Objectives of HBNC

The major objective of HBNC is to decrease neonatal mortality and morbidity through:

1. The provision of essential newborn care to all newborns and the prevention of complications.
2. Early detection and special care of preterm and low birth weight newborns.
3. Early identification of illness in the newborn and provision of appropriate care and referral
4. Support the family for adoption of healthy practices and build confidence and skills of the mother to safeguard her health and that of the newborn.

Key activities in HBNC

The key activities in HBNC constitute the provision of:

1. Care for every newborn through a series of home visits by a ASHA in the first six weeks of life. In most state contexts this health worker is the ASHA.
2. Information and skills to the mother and family of every newborn to ensure better health outcomes.

3. An examination of every newborn for prematurity and low birth weight. Extra home visits for preterm and low birth weight babies by the ASHA or ANM, and referred for appropriate care as defined in the protocols.
4. Early identification of illness in the newborn and provision of appropriate care at home or referral as defined in the protocols.
5. Follow up for sick newborns after they are discharged from facilities.
6. Counselling the mother on postpartum care, recognition of postpartum complications and enabling referral
7. Counseling the mother for adoption of an appropriate family planning method.

In case of those deliveries that occur on the way to the health institutions or at home out of choice, despite motivation for institutional delivery, the ASHA must be equipped with the skills and competencies required to provide appropriate newborn care.

This would exclude the states of Goa, Puducherry, Daman and Diu, and then on tribal areas of TamilNadu

Skills needed by the ASHA in the provision of HBNC

1. Mobilize all pregnant mothers and ensure that they receive the full package of antenatal care.
2. Undertake birth planning and birth preparedness with the mother and family to ensure access to safe delivery.
3. Provide newborn care through a series of home visit which include the skills for:
 - Weighing the newborn
 - Measuring newborn temperature
 - Ensuring warmth
 - Supporting exclusive breastfeeding through teaching the mother proper positioning and attachment for initiating and maintaining breastfeeding
 - Diagnosing and counseling in case of problems with breastfeeding
 - Promoting hand washing
 - Providing skin, cord and eyecare
 - Health Promotion and counseling mothers and families on key messages on newborn care which includes discouraging unhealthy practices such as early bathing, and bottle feeding
 - Ensuring identification and prompt referral of sepsis or other illnesses.
4. Assessing if the baby is high risk (preterm or low birth weight), through the use of protocols and managing such LBW or preterm babies through
 - a) Increasing the number of home visits
 - b) Monitoring weight gain
 - c) Supporting and counseling the mother and family to keep the baby warm and enabling frequent and exclusive breastfeeding
 - d) Teaching the mother to express breastmilk and feed baby using cup and spoon or paladai, if required.
5. Detect signs and symptoms of sepsis, provide first level care and refer the baby to an appropriate center, after counseling the mother to keep the baby warm. If the family is unable to go, the ASHA should ensure that the ANM visits the sick newborn on a priority basis.
6. Recognize postpartum complications in the mother and refer appropriately.
7. Counsel the couple to choose an appropriate family planning method.
8. Use the checklist for first Visit to the Newborn (Annexure1b) and Home visit form (Annexure1c) to

remind her to ask the key questions and ensure that she follows the steps of examination and counseling the mother.

9. Provide immediate newborn care, in case of those deliveries that are not occurring in the institutions (home deliveries/deliveries occurring on the way to the institution)

Support to the ASHA to ensure positive newborn health outcomes

For the ASHA to be effective in providing HBNC and to enable reductions in neonatal mortality, the following support needs to be provided:

Payments: Training in round one of Module 6 & 7 equips ASHAs with the skills required for Homebased newborn care such as hand washing, measuring temperature of newborn, weighing of new born, postnatal care, managing hypothermia etc. All ASHAs who have completed training of Round one of Module 6 & 7 are eligible to undertake the HBNC visits and are entitled for the HBNC incentive. The ASHA is to be paid Rs.250 for conducting home visits for the care of the newborn and postpartum mother. HBNC incentive is applicable per newborn, thus in cases of twins or triplets the incentive amount for ASHA would be two times of the regular HBNC incentive of Rs. 250 (i.e,Rs.500) or three times of Rs.250 (i.e,Rs.750) respectively.

The schedule of payment is as follows:

- Six visits in the case of institutional delivery (Days 3,7,14,21,28 and 42), and
- Seven visits in the case of home delivery (Day 1, 3, 7, 14, 21, 28, and 42).
- In cases of Caesarean section delivery, where the mother returns home after 5-6days, ASHAs are entitled to full incentive of Rs. 250 if she completes all five visits starting from Day 7 to Day 42.
- In cases when a newborn is discharged from SNCU, ASHAs are eligible to full incentive amount of Rs. 250 for completing the remaining visits. In addition, ASHAs are also eligible for an incentive of Rs. 50 for monthly follow up of low birth weight babies and newborns discharged from SNCU (as approved by MSG of the National Health Mission on December 6th , 2013). The low birth weights are followed up for two years and SNCU discharged babies for one year.
- In cases where the woman delivers at her maternal house and returns to her husband's house, two ASHAs undertake the HBNC visits i.e, one at maternal house immediately after delivery and another one at husband's house when the newborn returns home or vice versa. In such cases the HBNC incentive of Rs.250 can be divided into two parts in a way that each ASHA who completes 3 visits or more is entitled to Rs.125. This would be done only after ANM/ASHA Facilitator have visited the household and verified the home visits. In these instances, if an ASHA undertakes less than 3 visits she would not be entitled for the HBNC incentive. The other ASHA completing five or more visits in this case would get the whole amount of Rs.250.
- In order to claim the HBNC incentive, ASHAs are expected to fill and submit two forms—First examination of newborn form and Home Visit form for each newborn. The HBNC card (Annexure1a) can be used as a voucher for the purpose of payment and verification by ASHA facilitator/ANM.
- The amount is to be paid based on the completed home visit form and first examination of the newborn, forms, validated by the ASHA facilitator/ANM. The payments to the ASHA should be made on time and with dignity. The payments are made on the 45th day (using the state mechanism for JSY payment) subject to the following:
 - i. Enabling that birthweight is recorded in the Maternal and Child Protection (MCP) Card
 - ii. Ensuring that the newborn is immunized with :BCG, first doses of OPV and DPT/Pentavalent*, and entered into the MCP card

- iii. Enabling Birth Registration
- iv. Both mother and newborn are safe until the 42nd day of delivery

1. Ensuring field level support:

- The ASHA should be visited at least twice a month by the ASHA Facilitator to provide on the job mentoring, monitoring and support. Use of supervisory checklists by the facilitators is important to support the ASHA in providing HBNC.
- ANM should also mentor and support the ASHAs in tasks requiring technical skills such as HBNC. ANM should undertake joint home visits with ASHAs to at least 10% newborns in her Sub centre area. She should also review the HBNC forms filled by ASHAs.
- The platform of Village Health and Nutrition Day where newborn come for routine immunization should be used by ANM to review the coverage and quality of care provided by ASHAs to newborns. This activity of ANM should be monitored by MO and reviewed at highest level.
- Monthly review meetings at the level of the PHC are to be held for problem solving and building the linkages for referral support.
- Refresher trainings should be held at least once every three months to ensure knowledge and skill retention.
- The ASHA's kit should be replenished regularly and the equipment should be reviewed and refurbished as required. (Annexure 2 has a list of the drugs and equipment needed by the ASHA to provide HBNC).

2. Enabling Health Promotion by the ASHA:

The ASHA is expected to provide interpersonal one communication to the mother and health education to the family, and community to promote positive health practices for the care of the newborn and postpartum mother. The ASHA is expected to be equipped with a communication package to enable such health education.

3. Other forms of support:

At the village level the ASHA is to be supported by a functional Village Health, Sanitation and Nutrition Committee/Women's health committee. She also needs the encouragement and support from the ANM and the Medical officers particularly to ensure responsive referral which will add to her credibility and improve her performance. She is also to be provided with an ID card and there needs to be official acknowledgement of her contribution through the institution of awards, for specific outcomes eg. No newborn deaths in an entire year. Any grievances are to be addressed promptly through grievance redressal mechanisms.

* ASHA should submit the HBNC form for payment only after the child has received DPT/Pentavalent vaccination.

Monitoring

The progress of implementation of the HBNC programme will be closely monitored by the MoHFW on a quarterly basis. States would be expected to provide details of the status of ASHA training and equipment related to HBNC along with details of the HBNC visits and referrals made by ASHAs and the total expenditure on HBNC by the state. (Annexure 4 – HBNC Quarterly Progress Report)

The following indicators will be used to measure the programmatic outcomes.

Indicators		
Process Indicators	Output indicators	Outcomes
1. Percentage of ASHA trained in Round 1 of Module 6 & 7	1. Percentage of Newborns who were visited in the first two days of birth at home.	1. Percentage of Newborn received home visit for HBNC by ASHA against total estimated live birth
2. Percentage of ASHA trained in Round 2 of Module 6 & 7	2. Percentage of newborns who received full schedule of HBNC visits	2. Percentage of new borns who were breast fed in the first hour
3. Percentage of ASHA trained in Round 3 of Module 6 & 7	3. Percentage of newborns who were weighed at birth	3. Percentage of Low Birth Weight /Preterm (high risk) babies reported
4. Percentage of ASHA trained in Round 4 of Module 6 & 7	4. Percentage of low birth weight recorded	4. Percentage of sick newborns admitted at referral sites–(SNCU)
5. Percentage of ASHA with complete HBNC kit.	5. Percentage of sick newborns referred	5. No. of newborns deaths
	6. Percentage of SNCU discharged babies visited as per schedule	

Steps of monitoring–

1. ASHA's home visit forms can be used to assess the number and content of her visits. ASHAs have to fill the home visit form during every visit to the house hold with a newborn.
2. ASHA facilitator/ANM should verify and sign the home visit forms filled by ASHA during the monthly meeting with the ASHAs.
3. Based on the performance of the ASHAs, the ASHA facilitator/ANM should issue and submit assigned token/slip to the PHC staff (clerk/accountant)
4. The ANM should review the performance of all ASHA with respect to home visits for newborns in her subcenter area during the VHND/village visit.
5. Payment to ASHAs should be made by the PHC staff (clerk/accountant) after taking approval from the MO/PHC who will review the implementation during meetings.
6. At district level, the district nodal officer should monitor and follow up on the implementation on the programme. The CMOs would also review the progress during the CMO's meeting at district level.
7. The State nodal officer will monitor the implementation and effectiveness of the programme. State Mission Direct or would also review the progress of the programme in each district with district CMOs at the CMOs meeting held at state level.
8. At the National level, the scheme will be monitored by National Health System Resource Centre, under guidance and support from Child Health Division, Ministry of Health & Family Welfare, and Government of India.

EXERCISE FOR PARTICIPANTS

Q.1. Define Neonatal and Infant Deaths.

Q.2. What is rationale for home based new born care?

Q.3. What are the objectives and activities of HBNC?

Q.4. What are the skills needed by ASHA in provision of HBNC?

Q.5. What are the indicators to be used to measure programmatic outcomes of HBNC?

Q.6. What are the steps of monitoring HBNC?

21. FACILITY BASED NEWBORN CARE

A. Newborn Care at different Levels

In the overall planning of facility based care it is important to understand the level of care that can be provided at the various facility levels. Table 1 Summaries the required new born care facility at different levels.

Table 1: Newborn care facilities at different levels

Health Facility	All Newborns at Birth	Sick Newborns
Primary health centre (PHC) / Sub-centre (SC) identified as MCH Level I	Newborn care corner in labor rooms	Prompt referral
Community health centre (CHC) / First referral unit (FRU) identified as MCH Level II	Newborn care corner in labor rooms and in operation theatre (OT)	Newborn stabilization unit
District hospital identified as MCH Level III	Newborn care corner in labor room and in operation theater	Special newborn care unit (SNCU)

❖ Terminology (3-tier system of care)

• Newborn Care Corner (NBCC) -

NBCC is a space within the delivery room in any health facility where immediate care is provided to all newborns at birth. This area is Mandatory for all health facilities (identified as MCH Level 1(L1)) where deliveries are conducted

• Newborn Stabilization Units (NBSU)-

NBSU is a facility within or in close proximity of the maternity ward where sick and low birth weight newborns can be cared for during short periods. All FRUs/CHCs(identified as MCH Level 2(L2)) need to have a neonatal stabilization unit, in addition to the newborn care care corner.

• Special Newborn Care Units (SNCU)-

SNCU is a neonatal unit in the vicinity of the labor room which will provide special care (all care except assisted ventilation and major surgery) for sick newborns Any facility with more than 3000 deliveries per year should have an SNCU. Most district hospital and some sub-district hospitals (identified as MCH level 3 (L3)) health facilities to care for sick newborns (all types of care except assisted ventilation and major surgeries)

Table 2: Expected Services to be provided at newborn care facilities

Newborn Care Corner (NBCC)	Newborn Stabilization Units (NBSU)	Special Newborn Care Units (SNCU)
Care at birth		
• Prevention of infection • Provision of warmth • Resuscitation • Early initiation of breastfeeding	• Prevention of infection • Provision of warmth • Resuscitation • Early initiation of breastfeeding	• Prevention of infection • Provision of warmth • Resuscitation • Early initiation of breastfeeding

• Weighing the newborn	• Weighing the newborn	• Weighing the newborn
Care of normal newborn		
• Breastfeeding/feeding support	• Breastfeeding/feeding support	• Breastfeeding/feeding support
Care of sick newborn		
• Identification and prompt referral of 'at risk' and 'sick' newborn	• Management of low birth weight infants ≥ 1800 grams with no other complication • Phototherapy for newborns with hyper-bilirubinemia* • Management of newborn sepsis • Stabilization and referral of sick newborns and those with very low birth weight(rooming in) • Referral services	• Management of low birth weight infants ≥ 1800 grams g • Managing all sick newborns (except those requiring mechanical ventilation and major surgical interventions) • Follow-up of all babies discharged from the unit and high risk newborns • Immunization services • Referral services
• Immunization services	• Immunization services	• Immunization services

*Availability of Laboratory facilities to estimate levels is a prerequisite.

22. HOME BASED KANGAROO MOTHER CARE:

- **Introduction :**

What is KMC?

Kangaroo Mother care is an evidence based, low resource, low cost, yet with high skilled and of high quality impact, simple, natural method of care of newborns with added benefits to low birth weight and pre-term babies.

Kangaroo Mother Care (KMC) is an intervention for caring and improving the outcome of Low birth weight infants (LBWI) including pre-term (PT).

It is a method of holding the newborn-directly in skin to skin contact on mother's chest in between her breasts, without any layer of clothing in between, with slightly extended neck and body of the baby in as much vertical position as possible so that mother and baby can have eye to eye contact and both of them are covered together from above. This is better described as a loving body hug than mere superficial skin to skin touch.

- **WHO definition of KMC:**

KMC consists of- Early, prolonged and continuous skin to skin contact between the mother and her baby, with exclusive breast feeding whenever possible, early discharge with adequate follow up and support and initiation of practice in the facility and continuation at home.

Kangaroo Mother Care has three major components:

- **Kangaroo Position-**

-skin to skin contact between mother and her baby preferably in vertical position and eye to eyecontact

- **Kangaroo Nutrition-**

- Exclusive breast milk feeding as much as possible

- **Kangaroo Discharge and Follow Up-**

- Planned early discharge and regular scheduled follow up including neurodevelopment, neurobehaviour and sensory development

Which babies are eligible for HBKMC?

Recommendations:

- Generally, we can advise to start KMC (skin to skin contact/kangaroo position) at home for all the newborns in the community who are not having serious problems irrespective of weight or maturity.
- Special efforts must be made to ensure that no baby less than 2500g is left out without KMC (Includes all low birth weight infants including premature babies)
- Ideally, neonates having serious problems should be referred to big hospitals where better care can be given. But if that is not possible, even these babies with serious problems can be kept in Kangaroo position and feeding with expressed breast milk can be tried.

- **Who can provide KMC?**

Best person is mother.

She should be:

- Medically and physically fit, in good health, free from serious medical problems
- Willing and capable of holding the baby in KMC position continuously for at least one and half hour per session or even longer and have such frequent sessions in a day and carry on for many days as required.
- Should maintain basic standards of personal hygiene and cleanliness (Proper hand wash, daily bath, clipped fingernails, tied up hair, clean washed clothes)
- No skin infections especially on the mother's chest.
- It is recommended that jewellery including necklaces or chains, wrist watches, rings and sacred threads must be removed as they may be a barrier to maintain hygiene and might cause injury to the newborn.
- Due to cultural reasons some mothers may refuse to take out some mangal sutra chains or talisman in necklaces. In those cases, the metal lockets can be tied in a clean washed hand kerchief or cloth and preferably shifted to side or back of mother in such a way that it does not harm the baby or even mother while giving KMC.
- Mother should not be smoking or drink alcohol or any addictive drugs, or capable of deferring them at least during pregnancy and lactation period and especially during the time providing KMC.

- **Actual procedure of Kangaroo Position /KMC:**

- 1) The mother should sit or stand as per her preference, comfortably in a clean, warm, well ventilated place away from winds and direct draughts.
- 2) Her chest in between her breasts should be exposed by opening the buttons or hooks of the upper garment.
- 3) Washing the chest is not required. Simple bath is adequate.
- 4) The baby should be carefully lifted with a blanket or covering sheet on her back and the bare chest of the baby should be put in direct contact of mother's chest in between her breasts in such a way that the head of the baby lies just below the chin of the mother ,(at such level that mother can be able to kiss baby's head on the top easily) in as vertical position as possible and the head of the baby is turned to any one side so that baby's nose and mouth remain free and not compressed in mother's breasts or body fat.
- 5) Neck is slightly extended to make sure that the airway is open.
- 6) Head should be given support from the back of the neck in such a way that it is neither too much bent in front nor too much bent back.
- 7) The arms should be bent/flexed in such a way that they lie above the breasts on mother's chest and the two feet should be just below the breasts in bent/ flexed position. The hips should be bent/ flexed and stretched out/ abducted in a frog like position. Mother should support baby's bottom with one hand.
- 8) The baby's body should be in turned towards mother and held as much straight as possible, with as much maximum body contact as possible.
- 9) The head may be adjusted in such a way that mother and baby can have direct eye to eye contact.
- 10) Baby's chest and abdomen should be on mother's chest in between her breasts and the infant's abdomen should be at the level of mother's epigastrium (just below mother's the breast bone) Baby's abdomen should not be tightly bound so that easy breathing is possible for the baby.
- 11) Mother's breathing stimulates the infant, thus reducing the occurrence of apnoea (stoppage of breathing in between).

23. HOME BASED CARE FOR YOUNG CHILD (HBYC) PROGRAMME

Introduction:

There are many tasks that you as an ASHA are already undertaking to address the health and nutrition needs of newborns, infants, and children up to the age of five years. ASHA undertaking 6/7 home visits to provide Home Based Newborn Care (HBNC) up to 42 days after the birth. In case of low birth weight (LBW) babies, Special Newborn Care Unit (SNCU)/Newborn Stabilization Unit (NBSU) and Nutrition Rehabilitation Centre (NRC) discharged babies, day of discharge is counted as day 1 of home visit schedule and the six remaining home visits are completed as per HBNC visit schedule i.e. 3rd, 7th, 14th, 21st, 28th and 42nd day from the day of discharge. The HBNC visits enabled continuity of care and ensured survival of the new born.

To provide support for nutrition and early childhood development, the Home Based Care for Young Child (HBYC) has been launched as part of the National Health Mission and POSHAN Abhiyaan of the Ministry of Women and Child Development.

The Goals of POSHAN Abhiyaan are to:

- Prevent and reduce stunting and under nutrition amongst children in the age group of 0-6 years by 2% per year, respectively; and
- Reduce the prevalence of anaemia in children (6-59 months) by 3% per year.
- Reduce low birth weight by 2% per year.

Objectives:

- Reduce child deaths and illnesses;
- Improve nutritional status of young children; and
- Ensure proper growth and early childhood development of young children.

Service Delivery:

As part of HBYC initiative, ASHA will undertake five additional home visits after the 42nd day, in addition to the 6/7 visits for HBNC. You will visit the child on completion of 3 months, 6 months, 9 months, 12 months and 15 months. In addition, the quarterly home visits schedule for low birth weight babies, SNCU and NRC discharged children that you are already making will be included into this HBYC schedule.

Home visits will allow you to identify problems early and support families in taking the appropriate action, whether through improved home care practices or through visiting health facilities. The additional home visits will increase contacts with the child and parents/caregivers during the first fifteen months of life, providing opportunities for the following:

- Promote exclusive breastfeeding for the first 6 months of life.
- Emphasize timely, adequate, and appropriate complementary feeding for children on completion of six months and beyond.
- Build the capacity of mothers/caregivers through counselling and support to identify and manage problems related to nutrition and health in their child.
- Allow for early identification of delay in growth and development of children by using the MCP card.
- Enable prevention and management of common childhood illnesses.
- Ensure prompt referral of sick children to health facilities for management of complications.
- Follow-up for compliance to medication and care of sick children discharged from health facilities.

Roles and Responsibilities of ASHA in Home Based Care:

Role of ASHA under HBYC programme is linked to each of the four components- Nutrition, Health including family planning for the couple, Early Childhood Development and Water, Sanitation and Hygiene (WASH).

Key tasks at various ages of the child that will be performed by ASHA and AWW:

Home Visits	ASHA	AWW
At 3rd Month	• Support exclusive breastfeeding • Ensure recording/plotting of growth chart- weight-for-age and weight for- length/height by AWW; identify growth faltering • Check immunization status • Counsel for the following. • Exclusive breast feeding (birth to 6 months) b. Hand- washing practices c. Family planning d. Parenting-ensuring appropriate play and communication • If the child is sick, has development delay or danger signs, provide counselling, first contact care and refer if required.	• Weigh infants monthly • Record weight of the child and plotting on growth chart (weight-for-age) • Record length/height of the child and plotting on growth chart (weight-for length/ height) • Identify underweight and wasting in children and take appropriate action • Counsel regarding growth monitoring • Counsel mothers for exclusive breast feeding from birth to 6 months of age • Distribute 'Take Home Ration' to lactating mothers and counsel for nutrition • Check for developmental delays
At 6th, 9th, 12th and 15th Months	above activities PLUS- • Ensure that age-appropriate complementary food is given on completion of 6 months • Ensure measles vaccine and Vitamin A dose is given as per schedule • Counsel for age-appropriate complementary feeding on completion of 6 months • Provide Oral Rehydration Salt (ORS) packet at home; demonstrate how to prepare ORS and give to the child when required • Provide IFA syrup at home • Teach mother/caregiver regarding IFA syrup administration; ensure that IFA syrup is given to the child by the mother/caregiver on a bi-weekly basis • Provide first contact care and referral for illness	All above activities PLUS- • Distribute 'Take Home Ration' and provide nutrition-specific counselling to mothers/caregivers for their children • Provide supplementary food from Anganwadi Centre (AWC) • Counsel regarding age-appropriate complementary feeding on completion of 6 months of age • Counsel for deworming of children above 1 year of age

24. VITAMIN A SUPPLEMENTATION

Introduction:

Vitamin A deficiency has been recognized to be a major controllable public health and nutritional problem. An estimated 5.7% children in India suffer from eye signs of vitamin A deficiency. Recent evidence suggests that even mild vitamin A deficiency probably increases morbidity and mortality in children, emphasizing the public health importance of this disorder. National Prophylaxis Programme for Prevention of Blindness due to Vitamin A Deficiency, the prophylaxis Programme comprises a long term and a short term strategy. While the short term intervention focuses on administration of mega doses of vitamin A on periodic basis, dietary improvement is the long term ultimate solution to the problem of vitamin A deficiency.

Vitamin A supplementation is to be implemented through the Primary Health Centers and its sub centers. All health staff working with the Primary Health Centers are responsible for administering vitamin A concentrates to children under 5 years and for imparting nutrition education.

1. PREVENTION OF VITAMIN A DEFICIENCY

1. PROMOTING CONSUMPTION OF VITAMIN A RICH FOOD

1. Regular dietary intake of vitamin A rich foods by pregnant and lactating mothers and by children under 5 years of age is to be promoted.
2. The mothers attending antenatal clinics and immunization sessions as well as mothers and children enrolled in the ICDS Programme are to be made aware of the importance of preventing vitamin A deficiency.
3. Breastfeeding, including feeding of colostrums, is to be encouraged.
4. Feeding of locally available B-carotene (precursor of vitamin A) rich food and such as green leafy vegetables and yellow and orange vegetables and fruits like pumpkin, carrots, papaya, mango oranges along with cereal and pulse to a weaning child is to be promoted widely. In addition, whenever economically feasible, consumption of milk, cheese, paneer, dahi (yoghurt), ghee, eggs, liver etc. is to be promoted.
5. For increasing availability of vitamin A rich food, growing of vitamin A rich food, growing of vitamin A rich foods in home gardens and consumption of these must be promoted.

2. ADMINISTERING SUPPLEMENTAL DOSE OF VITAMIN A

1. Unlike most other micronutrients, vitamin A is stored in the body for prolonged periods and hence periodic administration of massive dose ensures adequate vitamin A.
1. Administration of supplemental dose of vitamin A to preschool children at periodic intervals is a simple, effective, and most direct intervention strategy. This is a short term strategy.
2. Under this strategy, every infant 6-11 months and children 1-5 years is to be administered vitamin A every 6 months. The recommended schedule is as follows:
6-11 months - one dose of 100,000 IU
1-5 years - 200,000 IU/6 months
1. A child must receive a total of 9 oral doses of vitamin A by its fifth birthday.

3. The contact with an infant during administration of measles vaccine between the age of 9-12 months is considered a practical time for administering the vitamin A supplement — 100000 IU for infants.
1. The Mother-Child Protection Card should be used to record and monitor the administration of vitamin A dose to children under two years.
2. In addition, records of under-fives maintained under the MCH Services and the ICDS Programme is recommended to be used for identifying as well as monitoring children for administration of a total of 9 oral doses of vitamin A per child.
3. Communication strategy for creating awareness about Vitamin A must be in place.

4. TREATMENT OF VITAMIN A DEFICIENT CHILDREN

1. Mild deficiency of vitamin A leads to night blindness and conjunctival lesions, while more severe deficiency results in corneal damage. The term 'Xerophthalmia' is used to indicate the various types of lesions that result from vitamin A deficiency.
2. Loss of luster, haziness and dryness are characteristics of corneal xerosis. This can be completely reversed with vitamin A therapy but in untreated cases it progresses rapidly to keratomalacia ("wasting" of cornea) and blindness.
3. Recurrent infections and parasitic infestations aggravate vitamin A deficiency, absorption, storage and utilization of vitamin A is adversely affected in such condition. Keratomalacia is often preceded by an episode of diarrhoea or respiratory infection. Measles is another important contributory cause of vitamin A deficiency and childhood blindness.
4. Night blindness and conjunctival changes (such as Bitot's spots) and corneal xerosis/ulceration are indication for immediate vitamin A Supplementation. Corneal damage due to vitamin A deficiency (changes in the normally clear central part of the eye) threatens sight and is a medical emergency.
5. All children with clinical signs of vitamin A deficiency must be treated as early as possible. Treatment schedule is to administer 200,000 IU of vitamin A immediately after diagnosis. This must be followed by another dose of 200,000 IU 1-4 weeks later.
6. Children with eye lesions must be treated immediately with vitamin A even if they are being referred for special care.
7. Infants and young children suffering from diarrhoea, measles or acute respiratory infection must be monitored closely and encouraged to consume vitamin A rich food. In case, early signs of vitamin A deficiency are observed, the above treatment schedule must be followed.

CONCENTRATED VITAMIN A SOLUTION IMPORTANT GUIDELINES

1. Vitamin A concentrate is available at primary health centers and sub health centers in the form of flavored syrup at a concentration of 100,000 IU/ml.
2. Vitamin A syrup should be administered using the 2 ml. Spoon/dispenser provided with each bottle of vitamin A. A marked level full 2 ml spoon of vitamin A contains 200,000 IU vitamin A.
3. Vitamin A solution must be kept away from direct sunlight. It should be stored in a cold dark room temperature is stable for a minimum of one year.
4. Vitamin A solution bottle once opened must be utilized within 6-8 weeks.

25. PREVENTION AND MANAGEMENT OF CHILDHOOD DIARRHOEA UNDER INTENSIFIED DIARRHOEA CONTROL FORTNIGHT (IDCF)

Introduction

Diarrhoea is considered if the stool has more water than faecal matter and are passed three or more stools in last 24 hours. The normally frequent or semi-solid stools of a breastfed baby is not diarrhoea. Childhood diarrhoea continues to be a major killer among under-five children, contributing to 10 percent of all under-five deaths i.e. around 1 lakhs deaths every year in the country. Diarrhoeal deaths are usually clustered in summer and monsoon months and the worst affected are children from poor socioeconomic situations. Lives of under-five children can be saved by preventing and treating dehydration, using ORS (Oral Rehydration Salts) and administration of Zinc tablets along with adequate nutritional intake by the child during diarrhoea. Since 2014 Intensified Diarrhoea Control Fortnight (IDCF) is being implemented before/during monsoon season each year.

Zinc deficiency is one of the primary reasons for this unacceptably high burden of diarrhoeal deaths.

Zinc Deficiency in Indian Children

Zinc is an essential trace element that is required for normal intestinal mucosal integrity, sodium and water transport and immune function. Zinc deficiency is common in India, for the following reasons:

- ☐ Poor intake: Zinc is found mainly in Non vegetarian foods. Since the diet eaten in India is Predominantly vegetarian, the intake of Zinc is poor
- ☐ Poor absorption of Zinc from the diet because of presence of phytates in cereals
- ☐ Loss of Zinc from the body during diarrhoea

Zinc deficiency in children results in:

- Increased risk of diarrhoea, pneumonia and malaria because Zinc deficiency affects the immunity of the body
- Increased severity of diarrhea – makes episodes of a diarrhoeal illness in a child more severe, last longer and increases the risk of dehydration and other complications
- Impaired growth

Benefits of giving Zinc in a child having diarrhea are:

- ☐ Are more playful during the illness
- ☐ Recover faster
- ☐ Have reduced amount of diarrhoeal stools.
- ☐ Have lesser chances of diarrhoea lasting for >7 days
- ☐ Have lesser chances of being hospitalized
- ☐ Are less frequently given unnecessary oral and injectable drugs; and cost of care is reduced
- ☐ Have lesser chances of getting diarrhea and pneumonia over the next 2–3 months
- ☐ Have substantially increased use of ORS when Zinc and ORS are promoted together, as compared to ORS alone.

Objectives

1. To ensure high coverage of ORS and Zinc use in under-five children with diarrhoea
2. Inculcating appropriate behaviour in parents and care givers for diarrhoea prevention and management
3. To ensure management of childhood diarrhoea cases at community and facility level as per standard treatment protocol

Strategies

- The various strategies include (a) improved availability and use of ORS and Zinc in households having under-five children, (b) facility level strengthening to manage cases of childhood diarrhoea with dehydration and (c) focus on advocacy and communication on prevention and control of diarrhoea during the pandemic.
- Special focus needs to be given to high priority areas like urban slums, flood prone areas, Sub-centres having no ANM, nomadic sites, brick kilns and vulnerable communities such as migrants and street children etc.
- Routine visits of the frontline health workers/ASHAs/ANMs may be utilized for prepositioning of the ORS
- The CHOs of the HWCs should be involved in the capacity building and monitoring of FLWs.

Activities to be Conducted

- Adequate stocking of ORS and Zinc with ASHA, AWW, ANM and health facility up to the sub health centre level
- Distribute one sachet of ORS and a strip of 14 tablets of Zinc
- Explain the process of use of ORS and Zinc
- If the child has diarrhoea, then assess the dehydration status.
 - If it is 'no dehydration' diarrhoea, then do home treatment with ORS and Zinc along with following advice:
 - ✓ Give extra fluid, children less than 6 months should be breastfed frequently and for longer period, and those more than 6 months to be given plenty of home available fluids (drinks made of lemon juice, yogurt, soups made of rice and pulses, green coconut water etc.) along with ORS.
 - ✓ Continue breastfeeding/and age appropriate feeding
 - ✓ Inform the caregiver to report if child becomes sicker (not able to drink/breastfeed, fever, irritability, blood in stool etc.).
 - If it is 'some dehydration' diarrhoea, then initiate treatment with ORS and Zinc and refer to ANM, also inform ANM over phone.
 - If it is 'severe dehydration' diarrhoea, then refer the child to a health facility with child receiving sips of ORS during referral travel.
- Counselling on hand washing and nutrition including infant and young child feeding practices and breastfeeding to be done by ASHAs and ANMs during home visits and to walk-in beneficiaries. Mother and Child Protection Card (MCPC) should be used for counselling on diarrhoea prevention and treatment.
- Tele-counselling services should be offered to those who are unable to visit facilities and who cannot be contacted through home visits.
- For facility level management of childhood diarrhoea cases with dehydration, the Standard treatment protocols should be followed.

- The standard treatment protocols should be made available at all levels of facilities including the health and wellness centres.
- The sensitisation of the CHOs of the HWCs should also be conducted in the overall programme implementation, facility level treatment protocols and activities related to monitoring and review.

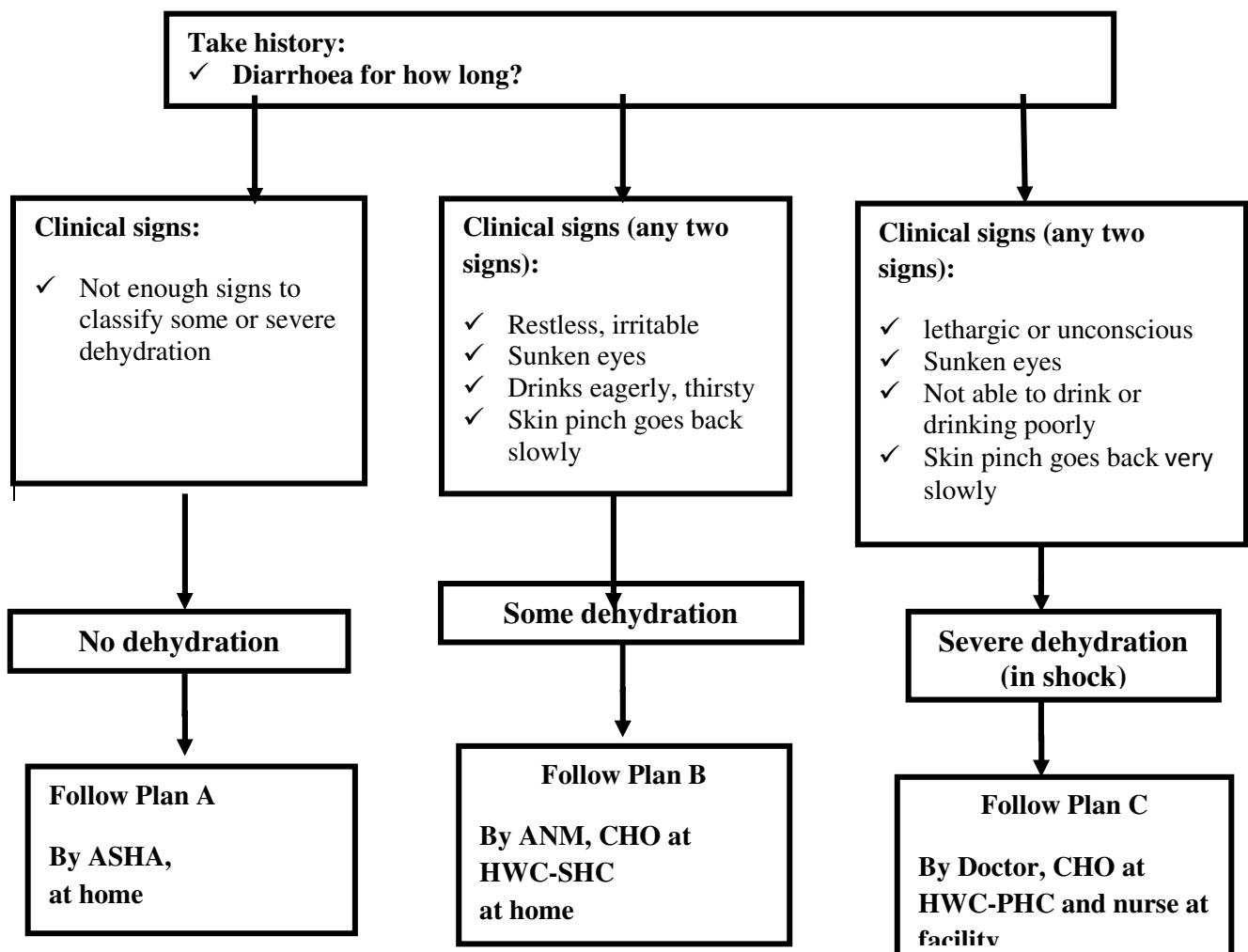
Awareness Generation

- Awareness generation using various means of communication as per population needs should be undertaken in local language. Television, Radio, Mobile vans, and Digital platforms (WhatsApp, Facebook, Twitter) should be utilized to increase reach of messaging. Social media handles of Chief Minister, Health Minister, and other important personalities may be utilized for this purpose. Encourage people within WhatsApp groups to share their photographs or videos pertaining to them getting ORS / Zinc or following hygienic practices.

Involvement of Development partners and private Health Sector

- Support of various Development Partners working with State governments and involvement of Women and Child Development (WCD), Social Welfare department, Panchayati Raj Institutions (PRIs), Urban Local Bodies (ULBs) and Self-Help Groups (SHGs) should be ensured for implementation and monitoring of the activities, In addition Private Health Sector involvement must be ensured through the professional bodies like IMA, IAP etc.

HOW TO CLASSIFY AND MANAGE CHILDREN WITH DIARRHOEA?



TREATMENT FOR DIARRHOEA WITH NO DEHYDRATION AT HOME (PLAN A)

1 GIVE EXTRA FLUID

If patient is less than 6 months age	If patient is more than 6 months age
Breastfeeding frequently and for longer + ORS	Give home fluids + ORS Yoghurt drink, milk, lemon drink, rice or pulses- based drink, vegetable soup, green coconut water or plain clean water. If child is breastfeeding then continue it.

Teach care-giver how to prepare and give ORS solution. Give 2 packets of ORS to use at home.

SHOW CARE-GIVER HOW MUCH ORS TO GIVE IN ADDITION TO THE USUAL FLUID INTAKE

Upto 2 months	2 months upto 2 years	2 to 10 years	> 10 years
 5 tea spoons after each loose stool	 1/4 glass to 1/2 glass (50 – 100 ml) after each loose stool.	 1/2 cup to 1 cup (100 – 200 ml) after each loose stool	As much as wanted upto 2 liter a day

Tell the care-giver to:

- Give frequent small sips from a cup.
- If the patient vomits, wait 10 minutes. Then continue, but more slowly.
- Continue giving extra fluid until the diarrhoea stops.

2 GIVE ZINC SUPPLEMENTS FOR 14 DAYS

Age	Dose	Teach the care-giver how to prepare Zinc supplements Give one dose of Zinc in front of the care-giver
2 – 6 months	10 mg (half tablet) in breast milk in spoon	
6 months – 5 years	20 mg (one tablet) in clean water in spoon	

3 ADVICE CONTINUE FEEDING, HAND WASHING AND TOILET USE

4 INFORM WHEN TO RETURN

- Child becomes sicker • Not able to drink or breastfeed • Drinking poorly • Blood in stool • Develops a fever

5 IF A CHILD HAS SEVERE ACUTE MALNUTRITION REFER FOR APPROPRIATE CARE AS PER STATE POLICY

TREATMENT FOR DIARRHOEA WITH SOME DEHYDRATION AT HEALTH FACILITY / ORS – ZINC CORNER (PLAN B)

Patient with some dehydration has at least 2 of the following signs:

- Restless, irritable
- Drinks eagerly, thirsty (do not assess in child less than 2 months age)
- Sunken eyes
- Skin pinch goes back slowly

1 GIVE ORS FOR 4 HOURS IN ORS-ZINC CORNER

AGE*	Upto 4 months	4 months – 1 year	1 - 2 years	2 - 5 years	5 - 14 years	> 15 years
Weight	< 5 Kg	5 - 8 Kg	8 – 11 Kg	11 – 16 Kg	16 – 30 Kg	> 30 Kg
Quantity of ORS	200 – 400 ml (1 – 2 glass)	400 – 600 ml (2 – 3 glass)	600 – 800 ml (3 – 4 glass)	800 – 1200 ml (4 – 6 glass)	1200 – 2200 ml (6 – 11 glass)	2200 – 4000 ml (11 – 20 glass)

* Use the child's age only when you do not know the weight. The approximate amount of ORS required (in ml) can also be calculated by multiplying the child's weight (in kg) times 75. 1 glass = 200 ml.

- If the child wants more ORS than shown, give more.
- For infants under 6 months who are not breastfed, also give 100-200 ml clean water during this period.

➤ SHOW THE MOTHER HOW TO GIVE ORS SOLUTION

- Give frequent small sips from a cup.
- If the child vomits, wait for 10 minutes. Then continue, but more slowly.
- Continue breastfeeding whenever the child wants.

2 AFTER 4 HOURS

- Reassess the patient and classify for dehydration.

If No dehydration	Then shift the child to Plan A, home based treatment
If Severe dehydration	Then refer the child for admission for Plan C, IV based treatment
	On the way, advice the mother to give frequent sips of ORS
	If child is less than 2 months age then the ANM should give first dose of intramuscular Ampicillin / oral Amoxicillin and Injection Gentamycin before referral.

TREATMENT FOR DIARRHOEA WITH SOME AND SEVERE DEHYDRATION AT HEALTH FACILITY / ORS – ZINC CORNER (PLAN B) FOR CHILDREN WITH SEVERE ACUTE MALNUTRITION

Patient with some dehydration has any of the two signs, which could be difficult to access in children with severe acute malnutrition

- Restless, irritable
- Sunken eyes
- Drinks eagerly, thirsty (do not assess in child less than 2 months age)
- Skin pinch goes back slowly

1 GIVE ORS FOR 4 HOURS IN ORS-ZINC CORNER

- 5 ml / kg / hour every 30 minutes for 2 hours and then 5 ml / kg / hour ORS and Starter diet alternate hours over 10 hours unless child is in shock

➤ SHOW THE MOTHER HOW TO GIVE ORS SOLUTION.

- Give frequent small sips from a cup.
- If the child vomits, wait for 10 minutes. Then continue, but more slowly.
- Continue breastfeeding whenever the child wants.

2 AFTER 4 HOURS

- Reassess the patient and classify for dehydration.

If No dehydration	Then shift the child to Plan A, home based treatment
If Severe dehydration	Then refer the child for admission for Plan C, IV based treatment
	On the way, advice the mother to give frequent sips of ORS
	If child is less than 2 months age then the ANM should give first dose of intramuscular Ampicillin / oral Amoxicillin and Injection Gentamycin before referral.

TREATMENT FOR DIARRHOEA WITH SEVERE DEHYDRATION IN WARD (PLAN C)

Patient with some dehydration has at least 2 of the following signs:

- Lethargic
- Sunken eyes
- Skin pinch goes back very slowly
- Not able to drink or drinking poorly

• START IV FLUID IMMEDIATELY

- A. If the patient can drink give ORS by mouth till the drip is being set up. **Give 100 ml / kg Ringer's Lactate Solution** (or, if not available, normal saline), divided as follows:

AGE	First give 30 ml / kg in	Then give 70 ml / kg in
Less than 1 year	1 hour*	5 hours
More than 1 year	30 minutes*	2 ½ hours

- B. Repeat once if radial pulse is still very weak and not detectable
- C. Reassess the child every 15-20 minutes till a strong radial pulse is detectable. Thereafter reassess the hydration status after every 1-2 hours. If hydration status is not improving, give IV drip more rapidly. Monitor number of stools, vomiting and urine output.
- **ALSO GIVE ORS (5ml/kg/hour)** as soon as the child can drink; usually after 3-4 hours (infant) or 1-2 hours (children)
 - **REASSESS** an infant after 6 hours and a child after 3 hours. Classify dehydration. Then choose the appropriate plan (A, B or C) to continue treatment.
 - **OBSERVE SIGNS OF OVER HYDRATION** (sudden increase in respiratory rate, chest retractions, heart rate appearance of crepitation in chest, increase in liver span) throughout IV rehydration.

WHEN TO SEND CHILD HOME?

- Hydration is maintained for 6 hours on ORS after rehydration.

WHEN SENDING HOME

- Teach the mother how to prepare solutions of ORS and Zinc
- Provide atleast 2 packets of ORS and Zinc tablets for 14 days course
- Administer a dose of Zinc as follows:
 - 2 – 6 months : 10 mg (1/2 tablet) in breast milk in spoon
 - 6 months to 5 years: 20 mg (one tablet) in clean water in spoon
- Counsel on continued feeding, handwashing and toilet use

26. ANEMIA MukT BHARAT (AMB)

Anemia is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet the body's physiological requirements, which vary by age, sex, altitude, smoking habits, and during Pregnancy.

The manifestations of anemia vary by its severity and range from fatigue, weakness, dizziness, and drowsiness to impaired cognitive development of children and increased morbidity. Anemia in pregnancy is associated with post-partum hemorrhage, neural tube defects, low birth weight, premature births, stillbirths, and maternal deaths. In malaria endemic regions, anemia is one of the most common preventable causes of maternal and child deaths. In its most severe form, anemia can also lead to death. There are many causes of anemia, out of which iron deficiency accounts for about 50 percent of anemia in school children and among women of reproductive age-group, and 80 percent in children 2–5 years of age (UNICEF and WHO Joint statement 2001).

Other nutritional deficiencies besides iron, such as vitamin B₁₂, folate and vitamin A, can cause anemia although the magnitude of their contribution is unclear. Infectious diseases – malaria, helminth infections, tuberculosis and haemoglobinopathies – are other important contributory causes to the high prevalence of anemia (WHO and UNICEF, 2004).

Anemia is defined as hemoglobin concentration below established cut-off levels in the blood. The hemoglobin cut-offs which are used for diagnosing anemia across ages are described in Table 1.

Table 1: Hemoglobin levels to diagnose anemia (g/dl)

Population	Anemia		
	Mild	Moderate	Severe
Children 6–59 months of age	10–10.9	7–9.9	<7
Children 5–11 years of age	11–11.4	8–10.9	<8
Children 12–14 years of age	11–11.9	8–10.9	<8
Non-pregnant women (15 years of age and above)	11–11.9	8–10.9	<8
Pregnant women	10–10.9	7–9.9	<7
			<8
<i>Source: WHO- Nutritional Anemia: Tools for Effective Prevention and Control, 2017</i>			

According to the National Family Health Survey 5 (NFHS-5) anemia prevalence across all ages is extremely high in India (Table No. 2)

Table 2: Prevalence of anemia in India

Age group	2015-16 (NFHS-4)	2019-20 (NFHS-5)
Children 6–59 months (Hemoglobin<11 g/dl), %	53.8	68.9
Adolescent girls 15–19 years (Hemoglobin<12 g/dl), %	49.7	57.2
Women of reproductive age (Hemoglobin<12 g/dl), %	48	54.2
Pregnant women (Hemoglobin<11 g/dl), %	49.3	45.7
Lactating women (Hemoglobin<12 g/dl), %	47.9	54.5
<i>Source: NFHS-4 (2015/16) and NFHS 5 (2019/20)</i>		

Objective:

Reduction of anemia is one of the important objectives of the POSHAN Abhiyaan launched in March 2018. Complying with the targets of POSHAN Abhiyaan and National Nutrition Strategy set by NITI Aayog, the Anemia Mukht Bharat strategy has been designed to reduce prevalence of anemia by 3 percentage points per year among children, adolescents, and women in the reproductive age group (15–49 years), between the year 2018 and 2022.

6x6x6 strategy:

6 Beneficiaries	• Children (6 to 59 months) • Children (5 to 9 Years) • Adolescent Girls & Boys (10 to 19 Years) • Pregnant Women • Lactating Mothers • Women of reproductive age (20 to 49 Years)
6 Interventions	• Prophylactic Iron and Folic Acid supplementation • Deworming • Intensified year-round Behavior Change Communication Campaign (Solid Body, Smart Mind) focusing on four key behaviors – (a) Improving compliance to Iron Folic Acid supplementation and deworming, (b) Appropriate infant and young child feeding practices, (c) Increase in intake of iron-rich food through diet diversity/quantity/frequency and/or fortified foods with focus on harnessing locally available resources and (d) Ensuring delayed cord clamping after delivery (by 3 minutes) in health facilities • Testing and treatment of anemia, using digital methods and point of care treatment, with special focus on pregnant women and school-going adolescents • Mandatory provision of Iron and Folic Acid fortified foods in government funded public health programmes

	• Intensifying awareness, screening and treatment of non-nutritional causes of anemia in endemic pockets, with special focus on malaria, haemoglobinopathies and fluorosis
6 Institutional Mechanism	• Intra-ministerial coordination • National Anemia Mukht Bharat Unit • National Centre of Excellence and Advanced Research on Anemia Control (NCEAR-A) • Convergence with other ministries • Strengthening supply chain and logistics • Anemia Mukht Bharat Dashboard and Digital Portal – one-stop shop for anemia

Service Delivery:

IFA Supplements:

Age Group	Dose Regime
Children 6–59 months of age	Biweekly, 1 ml Iron and Folic Acid syrup Each ml of Iron and Folic Acid syrup containing 20 mg elemental Iron + 100 mcg of Folic Acid Bottle (50ml) to have an ‘auto-dispenser’ and information leaflet as per MoHFW guidelines in the mono-carton (<i>See Note 1</i>)
Children 5–9 years of age	Weekly, 1 Iron and Folic Acid tablet Each tablet containing 45 mg elemental Iron + 400 mcg Folic Acid, sugar-coated, pink colour
School-going adolescent girls and boys, 10–19 years of age Out-of-school adolescent girls, 10–19 years of age	Weekly, 1 Iron and Folic Acid tablet Each tablet containing 60 mg elemental iron + 500 mcg Folic Acid, sugar-coated, blue colour (<i>See Note 2</i>)
Women of reproductive age (non-pregnant, nonlactating) 20–49 years	Weekly, 1 Iron and Folic Acid tablet Each tablet containing 60 mg elemental Iron + 500 mcg Folic Acid, sugar-coated, red colour (<i>See Note 2</i>)
Pregnant women and lactating mothers (of 0–6 months child)	Daily, 1 Iron and Folic Acid tablet starting from the fourth month of pregnancy (that is from the second trimester), continued throughout pregnancy (minimum 180 days during pregnancy) and to be continued for 180 days, post-partum Each tablet containing 60 mg elemental Iron + 500 mcg Folic Acid, sugar-coated, red colour

Deworming:

Age Group	Dose Regime
Children 12–59 months of age	Biannual dose of 400 mg albendazole (½ tablet to children 12–24 months and 1 tablet to children 24–59 months)
Children 5–9 years of age	Biannual dose of 400 mg albendazole (1 tablet)
School-going adolescent girls and boys 10–19 years of age Out-of-school adolescent girls 10–19 years of age	Biannual dose of 400 mg albendazole (1 tablet)
Women of reproductive age (non-pregnant, non-lactating) 20–49 years	Biannual dose of 400 mg albendazole (1 tablet)
Pregnant women	One dose of 400 mg albendazole (1 tablet), after the first trimester, preferably during the second trimester

27. SAANS INITIATIVE

- **Introduction :**

- ✓ Childhood Pneumonia continues to be the topmost infectious killer among under-five children, contributing to 14.3 percent of under five deaths in the country. Around 1.27 lakhs children die due to Pneumonia annually in the country. Mortality due to pneumonia is strongly linked to malnutrition, poverty and inadequate access to health care.

- **National Goals :**

The national goals for pneumonia to be achieved by 2025, under the Integrated India Action Plan for Pneumonia and Diarrhoea (IAPPD) are:

- ✓ Reduce mortality from pneumonia to < 3 per 1000 live births;
- ✓ Reduce the incidence of severe pneumonia by 75% as compared to 2010 levels

- **Causes of Under 5 Mortality in India**



- **Protect, Prevent and Treat Framework**

- ❖ **Protect**

- ✓ Protecting children by establishing and promoting good health practices;
- ✓ Exclusive breastfeeding for six months and continued breastfeeding with appropriate complementary feeding reduces the onset and severity of pneumonia
- ✓ High-dose vitamin A supplementation helps maintain strong immune systems and can reduce all cause mortality.

❖ **Prevent**

- ✓ Preventing children from becoming ill from pneumonia by ensuring universal coverage of immunization and healthy environments;
- ✓ Use of vaccines like Measles/MMR, Pentavalent vaccine, Pneumococcal vaccine substantially reduces the disease burden and deaths caused by the infectious agents.
- ✓ Hand-washing and promotion of key hygiene practices provide health, economic and social benefits.
- ✓ Reduction of household air pollution has been shown to reduce pneumonia incidence. According to WHO 45% of pneumonia deaths in children are attributable to household air pollution

❖ **Treat**

- ✓ Treating children who are ill from pneumonia with appropriate treatment;
- ✓ Identification and treatment of pneumonia in the community, at first-level health facilities and at referral hospitals using standardized guidelines, substantially reduces child deaths.

Pneumonia / Sepsis Management Level:

- ✓ Community Level
- ✓ Facility Level

Pneumonia / Sepsis Management as per age group:

Children under 5 years of age are managed in two age bands as clinical presentation, assessment and treatment differs in two age groups.

- ✓ Young Infant (0 to 59 days)
- ✓ Children (2 to 59 months)

Treatment Protocols





INPATIENT MANAGEMENT OF SEVERE PNEUMONIA IN CHILDREN (2-59 MONTHS)

Severe Pneumonia is defined as cough or difficulty in breathing in a child with at least one of the following conditions:

- > Central cyanosis or Oxygen saturation < 90%
- > Severe respiratory distress (Laboured or very fast breathing {Respiratory Rate >70 per minute} or severe lower chest indrawing or head nodding or stridor or grunting)
- > Signs of Pneumonia with general signs of danger (inability to breastfeed or drink, lethargy or reduced level of consciousness or convulsions)

Antibiotic	Each Dose	Frequency	Route	Duration
1a. Inj. Ampicillin or	50 mg/kg	6 hrly	IV, IM	7-10 days
1b. Inj. Benzyl penicillin	50,000 units/kg	6 hrly	IV, IM	7-10 days
2. Add Inj. Gentamicin	7.5 mg/kg	24 hrly	IV, IM	7-10 days

- > Give Cloxacillin or Amoxicillin + Clavulanic acid if Staphylococcal infection is suspected.
- > Give Ceftriaxone with Vancomycin in case of septic shock.

Oxygen therapy

- > Give oxygen to all children with oxygen saturation <90% (<94% if they also have other emergency signs like shock etc).
- > Use nasal prongs as the preferred method of oxygen delivery; if not available, a nasal or nasopharyngeal catheter may be used.
- > Use a pulse oximeter to guide oxygen therapy (keep oxygen saturation > 90%).

Supportive care

- > Provide IV maintenance fluids if the child cannot accept oral feeds. Stop IV fluids gradually when the child begins accepting oral feed satisfactorily
- > If child has a fever (38.5°C), then give Paracetamol.
- > If wheezing occurs, then give rapid acting bronchodilators.

In case where IPD is not possible, give pre-referral dose as per the table above



SBANS
सॉस
निमोनिया नहीं, तो बचपन सही

Paste in casualty, emergency, SNCUs & paediatric ward.



OUTPATIENT MANAGEMENT OF PNEUMONIA IN CHILDREN (2-59 MONTHS)

Antibiotic therapy

GIVE ORAL AMOXICILLIN FOR 5 DAYS

AGE or WEIGHT	Amount of Amoxicillin to be given orally as syrup (125 mg per 5 ml) twice a day x 5 days	Amount of Amoxicillin to be given orally as a dispersible tablet (250 mg) twice a day x 5 days
2 months up to 4 months (4 kg to < 6 kg)	5 ml	½
4 months up to 12 months (6 kg to < 10 kg)	10 ml	1
12 months up to 3 years (10 kg to < 14 kg)	15 ml	1 ½
3 years up to 5 years (14 kg to < 20 kg)	—	2

Home care for cough and cold

- An infant below 6 months who is exclusively breast fed should not be given any home remedy.
- Breastfeeding should be continued.
- Give the child a safe homemade soothing cough remedy if the child is older than 6 months of age, like honey, tulsi, ginger, herbal concoctions and other safe local home remedies. Avoid cough syrups.
- Keep the nose clean by putting in nasal drops (boiled and cooled water with salt mixed in it) and by cleaning the nose with a soft cotton cloth.
- The family should also be advised on how to administer medicines at home.

➤ Look for signs of illness when to return:

- **Child becomes sicker**
- **Not able to drink or breastfeed**
- **Fast breathing**
- **Difficulty breathing**
- **Develops a fever**

Follow up in 2 days

If any of these signs appear, the child should be immediately taken to ASHA or ANM or nearest health facility



Paste in casualty, emergency & paediatric ward.



COMMUNITY & OUTPATIENT MANAGEMENT OF YOUNG INFANTS (0-2 MONTHS) WITH PNEUMONIA/PSBI*

FLOW CHART

Step 1: ASSESS

- Not able to feed, or
- Convulsions, or
- Fast breathing (60 breaths per minute or more), or
- Severe chest indrawing, or
- Axillary temperature 37.5°C or above (or feels hot to the touch), or
- Axillary temperature less than 35.5°C (or feels cold to the touch), or
- Movement only when stimulated or no movement at all

Step 2: Classify

- If one or more features are present: Classify as Possible Serious Bacterial Infections (PSBI)

Step 3: Pre-referral dose & refer

ASHA (HOME BASED)

1. Counsel the mother/caregiver for urgent referral to a health facility.
2. Arrange transport facility using JSSK scheme.
3. Give pre-referral dose of Oral Amoxicillin.
4. Counsel the mother/caregiver for urgent referral to the health facility (By ANM; to the nearest health facility).
5. Arrange transport to the facility using JSSK scheme.
6. Fill up the Treatment Card and give counter slip to mother/caregiver to take with them to the health facility equipped with standard in-patient treatment.

ANM

1. Give pre-referral dose Inj. Gentamicin and Oral Amoxicillin.

REFERRAL TO THE HEALTH FACILITY

Step 4: Manage if referral not possible

ADMISSION/REFERRAL REFUSED OR NOT POSSIBLE

Medical officer/ANM to start Inj. Gentamicin and Oral Amoxicillin

1. ANM to inform Medical Officer/ Nurse at the health facility about the young infant's condition and the treatment.
2. Teach the mother how to give oral Amoxicillin at home for a total of 7 days.
3. Counsel the mother on how to keep young infant warm and breast feed frequently.
4. Fill up the Treatment Card
5. Inform the concerned ANM ASHA about the young infant's condition and the treatment, and plan for follow-up.

Step 5: Follow up

ANM (PHC/HSC/HSWC level)

1. Ensure daily administration of Inj. Gentamicin and oral Amoxicillin for a total of 7 days.
2. In case the young infant is unable to visit the health facility, the ANM should visit the home of the infant and administer Inj. Gentamicin.
3. Check young infant's condition and presence of danger signs.
4. ANM should inform the Medical Officer/Nurse at the nearest health facility about the progress.
5. In case the young infant's condition worsens or there is no improvement within 24-48 hours of starting treatment, refer immediately under the JSSK scheme to a facility where standard treatment is available.

*Possible Serious Bacterial Infection

**If the treatment is to be continued, same vial can be reused for 7 days, provided it is stored properly in a cold, dry & dark place and its colour does not change or have turbidity. In case of any doubt it is better to use a new vial.

***Teach the mother how to give Amoxicillin at home.

Young Infant's weight	Amount of Gentamicin to be given intramuscularly as Injection (vial* contains 80 mg in 2ml)	Amount of Amoxicillin Syrup to be given per-orally** (contains 125mg /5ml)	Amount of Amoxicillin to be given per-orally as tablet (contains 250mg.)
	Dosage 5 mg/kg /dose**once a day	Dosage 25 mg/dose*** twice a day	
Less than 1.5kg	To be referred to higher facility		
Above 1.5 kg up to 2.0 kg	0.2 ml	2 ml	¼
Above 2.0 kg up to 3.0 kg	0.3 ml	3.5 ml	½
Above 3.0 kg up to 4.0 kg	0.4 ml	3 ml	½
Above 4.0 kg up to 5.0 kg	0.5 ml	4 ml	½



Paste in OPD



INPATIENT MANAGEMENT OF YOUNG INFANTS (0-2 MONTHS) WITH PNEUMONIA/PSBI*

Admit young infant to hospital

Antibiotic therapy

Antibiotic	Each Dose (mg/kg/dose)	Frequency		Route	Duration (Days)
		Age <7 days	Age >7 days		
1. Inj. Ampicillin and	50	12 hrly	8 hrly	IV, IM	7-10
2a. Inj. Gentamicin or	5	24 hrly	24 hrly	IV, IM	7-10
2b. Inj. Amikacin	15	24 hrly	24 hrly	IV, IM	7-10

- > Inj. Ampicillin and Gentamicin is used as initial treatment.
- > Inj. Cefotaxime 50 mg/kg IV 8 hourly and Inj. Gentamicin is given for 2-3 weeks if meningitis suspected.
- > In case of suspected staphylococcal infection, Inj. Cloxacillin 50mg/kg every 8 hours is to be added to the regime.
- > Oxygen support should be provided where required (presence of cyanosis, grunting, severe respiratory distress i.e. RR > 70/bpm, SpO₂ < 90%).
- > The infant should be kept warm.
- > Breastfeeding should be continued to prevent hypoglycemia. If the infant is unable to suckle, he/she should be given expressed breast milk. Infants on oxygen should be given intravenous fluids until the infant is able to feed orally.



*Possible Serious Bacterial Infection

Paste in casualty, emergency, SNCUs & paediatric ward.

28. Child Death Review

“It is strategy to understand geographical variation in causes of child deaths & thereby initiation of child deaths intervention.”

Level of CDR -

A) CBCDR- Community based Child death Review

It takes place at Block level / Urban population at community.

B) FBCDR- Facility based Child death Review

It takes place at facility level at block level except PHC/ Urban facilities.

A) Community Level(CBCDR)-

1) Notification of Death -

- ASHA should inform child death to ANM & Taluka medical Officer/UPHC MO(Corporation) within 24 hrs by telephone or Text message.
- ASHA should fill Notification (Form no.1) within 48 hrs in 3 copies, One for Parents of deceased, one for ANM, One for Record at Sub centre.
- ASHA should be provided with incentive per death. Its should be given as per submitted Notification Forms.

2) Investigation of Child Deaths -

a) First Brief Investigation --

- It should be conducted by ANM within 2 weeks from Notification of Death & Report should be submitted to THO/UPHC MO (Corporation) within a month.
- First Brief investigation form should be filled for ALL child Deaths notified.
- First Brief Investigation (Form No.2) should be filled by ANM.
- It records basic information about child's overall health, narrated information of illness and treatment history.
- ANM will also **record Probable cause of Death.**
- All FBIR should be submitted at THO Office /UPHC (Corporation) as record.
- Key information regarding all child deaths will be compiled from FBIR in Block & **District Level Line list (Form 5a) every month.**
- Data will be transferred electronically to DHO Office/MOH (Corporation) to compile at District Level.

b) Detailed Investigation -

- It is done by performing Verbal Autopsy.
- Verbal Autopsy is an investigation of chain of events, circumstances, symptoms & sign of illness leading to death through an interview of the Family /relatives of deceased.
- Select 6 cases per block, but if there are less than 6 deaths at block level select all cases for investigation.
- Detailed investigation is to be done within 1-2 months of Notification of Death.
- Records of Verbal Autopsy (one copy) should be maintained at THO Office/UPHC & original should be sent to DHO/MOH (Corporation) Office within 1 week.

Formats for CDR -

- Verbal Autopsy form should be filled to record structured information & to determine cause of death as per age & sex.
- As per age 2 forms are prepared

- For Neonatal Deaths- Form No. 3a
- For Post Neonatal Deaths – Form .No 3b
- For All Deaths to be Investigated – Form .No. 3c (Social Autopsy)
- **Investigation Team-**
- It should comprise at least 2 members.
- **1 from Medical background-** May be PHC M.O., PHN,LHV,SN, Nursing Tutor.
- **1 from Non Medical background** – May be Block Supervisor, ASHA Facilitator , NGO Facilitator
- District/State can involve specialist from Medical College, civil society, PRI.
- Investigators should be **adequately trained.**
- THO will be responsible for detailed investigation.

B) Facility Level(FBCDR)-

1.Notification of Child Death

- All deaths occurring in hospital should be informed immediately to RMO.
- Duty M.O./ Specialist on duty will be Primary Informant.
- Will Fill Form no. 1 Notification of Child Death
- Will send it to RMO Office within 24 hrs.
- RMO will be Pediatrician/M.S./CHC In charge
- RMO Office will inform Death to DHO within 48 hrs.

2.Investigation of Child Deaths

- All child deaths occurring in hospital should be investigated.
- Child deaths occurred other than Pediatric department should also be noted and investigated.
- Neonatal Form -Form 4a & Post neonatal Form -4b should be filled by Duty M.O.
- Treating Doctor will assign medical cause of death
- Form 4a, 4b should be filled within 48 hrs of Death in duplicate.
- RMO will review FBCDR for completeness of Form.
- One copy will be sent to DHO within 1 month and 1 copy will be kept for FBCDR.

1) Child Death Review Committee at Facility level

- committee may include-
- Teaching Hospital-
- M.S/A.C.S/HOD of pediatric department/ Paedatresian/ Anesthesiologist/Nurse of Pediatric Ward
- District/Other Hospital-
- M.S/RMO/MO of Pediatric Ward/ Anesthesiologist/Nurse of Pediatric Ward
- RMO fixes meeting with **Hospital Superintendents** once in month
- It **reviews to check clinical protocols & line of treatment** followed
- FBCDR **Formats & Case summary** get discussed.
- Suggest **action to be taken at Facility level**
- Suggest suggestion should be taken at District & State level.
- Send Meeting Minutes to DHO WITH Case summary.

2) Child Death Review Committees at Community Level (DHO) DCDRC-

3) Child Death Review Committee at District level

Chief Executive Officer (CEO) Meeting –

- A sample of child deaths reviewed by DCDRC will be put for CEO Meeting
- 3 cases can be selected by DHO
- It includes member-
- Chief Executive Officer (CEO)
- DHO
- CS
- IAP Representative
- Parents/Relatives (Max.2 Person) will be invited to DM Meeting. & travelling allowances will be given to family as TA.
- M.O who attended child in Facility will also be invited.
- Parents/Relatives will narrate case history in front of DM.
- DM will try to ensure release of necessary resources & will provide environment to implement recommendation came from meeting.
- DM will be able to promote intersectoral co-ordination, bridges gap between Nutrition, Safe drinking water, Sanitation etc.

29. ADOLESCENT HEALTH PROGRAMME

RASHTRIYA KISHOR SWASTHYA KARYAKRAM (RKSK)(RKSK)

Adolescents (age 10-19 years) contribute over 23% of the population in Maharashtra. Adolescence is a phase of rapid physical growth, psychosocial development and sexual transformation. Information regarding such changes may not be available in schools & colleges. Because of wrong information there may be misunderstanding about preventive aspects. Therefore separate programme of Adolescent Reproductive and Sexual Health Programme (ARSH) is incorporated in Reproductive and Child Health Programme Phase II.

Program Started in 2014-15 in 9 District (Dhule, N'bar, Jalgaon, A'bad, Jalna, Hingoli, Beed, Nanded, Gadchiroli) . In 2017-18 RKSK implemented in Palghar districts.

In 2018-19 RKSK 4 new districts added (Thane, Nashik, A'nagar, and Yavatmal)

Aims & Objectives:-

- **Aims :-**

- Improve reproductive Health status of adolescent girls & boys
- Reduction in IMR, MMR and TFR
- Prevention of management of obstetric complications during pregnancy

- **Objectives :-**

- Providing counseling & awareness to adolescent boys & girls about their health
- Providing access to early & safe abortion services
- Creating sensitization & awareness about reproductive sexual health in adolescents.
- Improve knowledge / awareness about the adolescents health problems

Implementation Strategies:-

Facility-based Approach Adolescent Health Friendly Clinic (AFHC)



- AFHC's are located at PHC, WH, RH, SDH, DH, GMC & Corporation level.
- Total 734 AFHCs are functional in State out of it 605 AFHCs are in the 14 RKSK district & 129 AFHC in Non RKSK District.
- In AFH Clinics treatment, counseling & guidance is given to adolescents.
- Through clinics counseling and treatment is given on menstrual problems, RTI /STI Management, Skin Problem, Contraceptives (OCP, IUD, and ECP) is given.

- Adolescent Health Counselors arrange outreach activities in schools to give maximum services to adolescents of the district. In outreach activities essay competition, speech competition, debate etc. To create awareness among adolescents melavas are also arranged.

Suggested Working Hours for AFHCs

PHC	CHC	DH	Medical College
Weekly AFHCs from 2 to 4 p.m. by ANMs and MOs	Daily AFHCs from 9 a.m. to 4 p.m. Two-hour daily clinic from 2 pm to 4 p.m. by MOs, with support from staff nurses	Daily AFHCs from 9 a.m. to 4 p.m. Two-hour daily clinic from 2 to 4 p.m. by MOs, with support from ANMs Counselor to ensure linkages with specialist in hospital , in case medical care is needed by adolescent client	Specialty -AFHC with different specialties from 9 a.m. to 1 p.m. and counsellors from 9am to 4pm

Two way role of the Counselor placed at CHC onwards

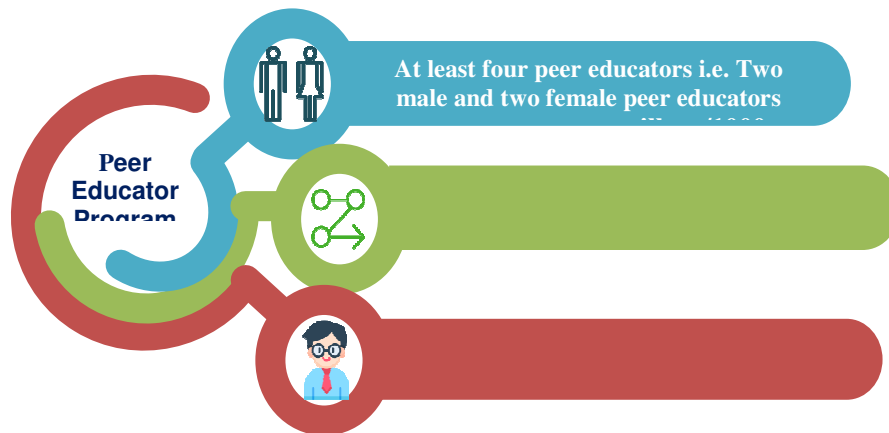
- ✓ to ensure on ground linkages with community through PE s
- ✓ and forward linkages with specialist in hospital , in case medical care is needed by adolescent client

Service package at AFHCs

Service package	Level: SC, PHC, CHC and DH
Counseling on Nutrition, Skin, Pre-marital Counseling, Sexual Problems, Contraceptive, Abortion, RTI/STI, Substance abuse, Learning problems, Stress, Depression, Suicidal Tendency, Violence, Sexual Abuse, Other Mental Health Issues	All levels (by ANM at SC)
Other adolescent specific health services including menstrual disorders, injuries (accidents & violence) and NCD like hypertension, stroke, cardio-vascular diseases and diabetes	PHC, CHC, DH
ANC for pregnant adolescents	All level
Treatment by specialists	CHC, DH
Referral	All levels

Peer Educator Programme

- The PE programme aims to ensure that adolescents between the ages of 10-19 years benefit from regular and sustained peer education covering all six areas of RKSK via selected Peer Educators or ‘Saathiya’
- It is envisaged that this approach would facilitate the coverage of BOTH out of school adolescents and the school going children & adolescents.
- The States/UTs may consider covering the districts with higher proportion of out-of-school adolescents through this intervention.



PE Trainings

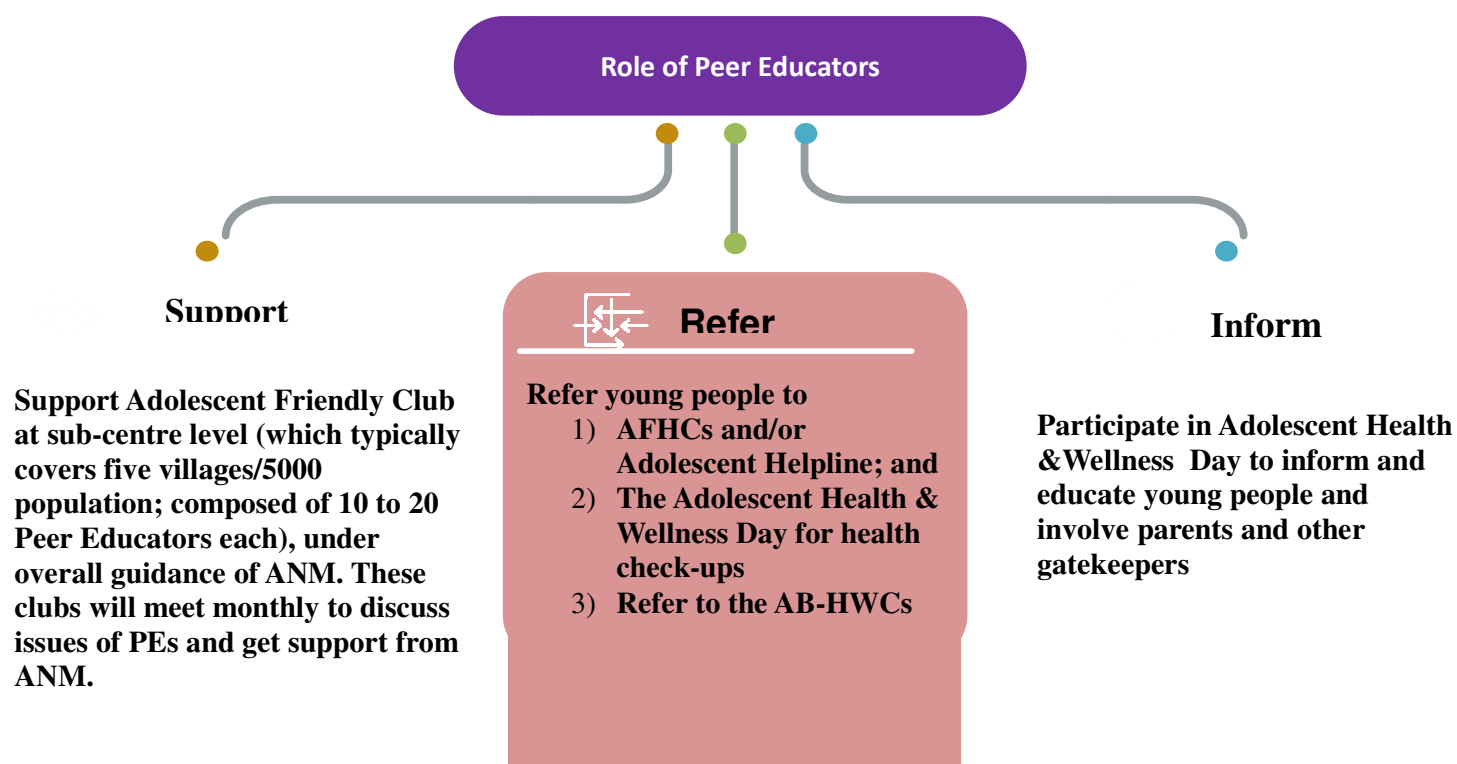
- Selected Peer Educators are trained on six thematic areas of RKSK. This is a 6- day training.
- Following the training, Peer Educators receive PE kit bag which includes the following:
 - » PE Diary
 - » Activity book
 - » Reference Manual
 - » KrantiBhranti game
 - » Other materials as desired by the State.
- Master Trainers for Peer Educators were trained by partners- CINI, MAMTA, CHETNA, HLF PPT and DESH in 2015. The Master trainers were providing trainings to MOs, ANMs who would in-turn train Peer Educators and the ASHAs in batches of 40 (32 PEs +8 ASHAs)*.

Options for Non Financial incentives for Peer Educators

Bags, Watches, Clocks, T-shirts, Caps, Aprons/Coats, Key chains/pens, Water Bottles, Exam Clip Board, Comics, Pen-stand, paper weight, Phone top up plan , Sanitiser/Masks, Flower pot, Set of posters/ certificates, Identity Cards, Calendars with quotes

What Does Peer Educator Do?

Each PE will form a group of 15-20 boys and girls respectively from their community and conduct weekly 1–2-hour participatory sessions using PE kits, which include books detailing a curriculum for PE sessions and games.



Adolescent Friendly Club Meetings

- Adolescent Friendly Club (AFC) meetings are also organized once a month at Health sub-centres level under the overall guidance of ANM.
- These typically cover 5 villages/5000 population composed of 10-20 Saathiya each.
- During meetings, Saathiya from different villages meet and clarify issues which they have encountered during their weekly sessions with the help of ANM.

Adolescent Health & Wellness Day (AHWDs)

- This is organized every quarter to increase awareness about adolescent health among the adolescents themselves and the various stakeholders and gatekeepers.
- It helps to provide information on health issues and address various myths and misconceptions around adolescence by talks/ discussions and infotainment activities like plays, skits, games, etc.
- AHWDs also help in sensitizing youth about various health services available for them at the nearby Adolescent Friendly Health Clinics and Health & Wellness Centers.

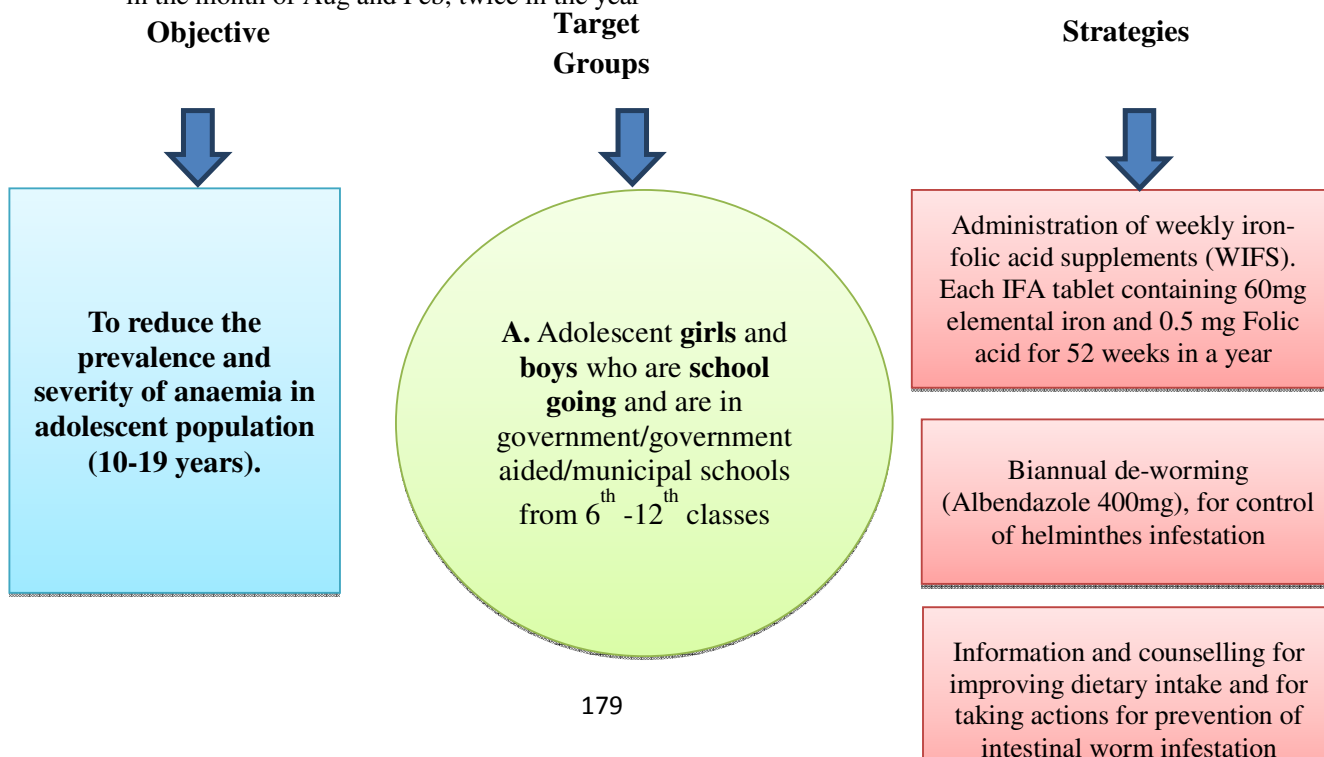
Role Clarity

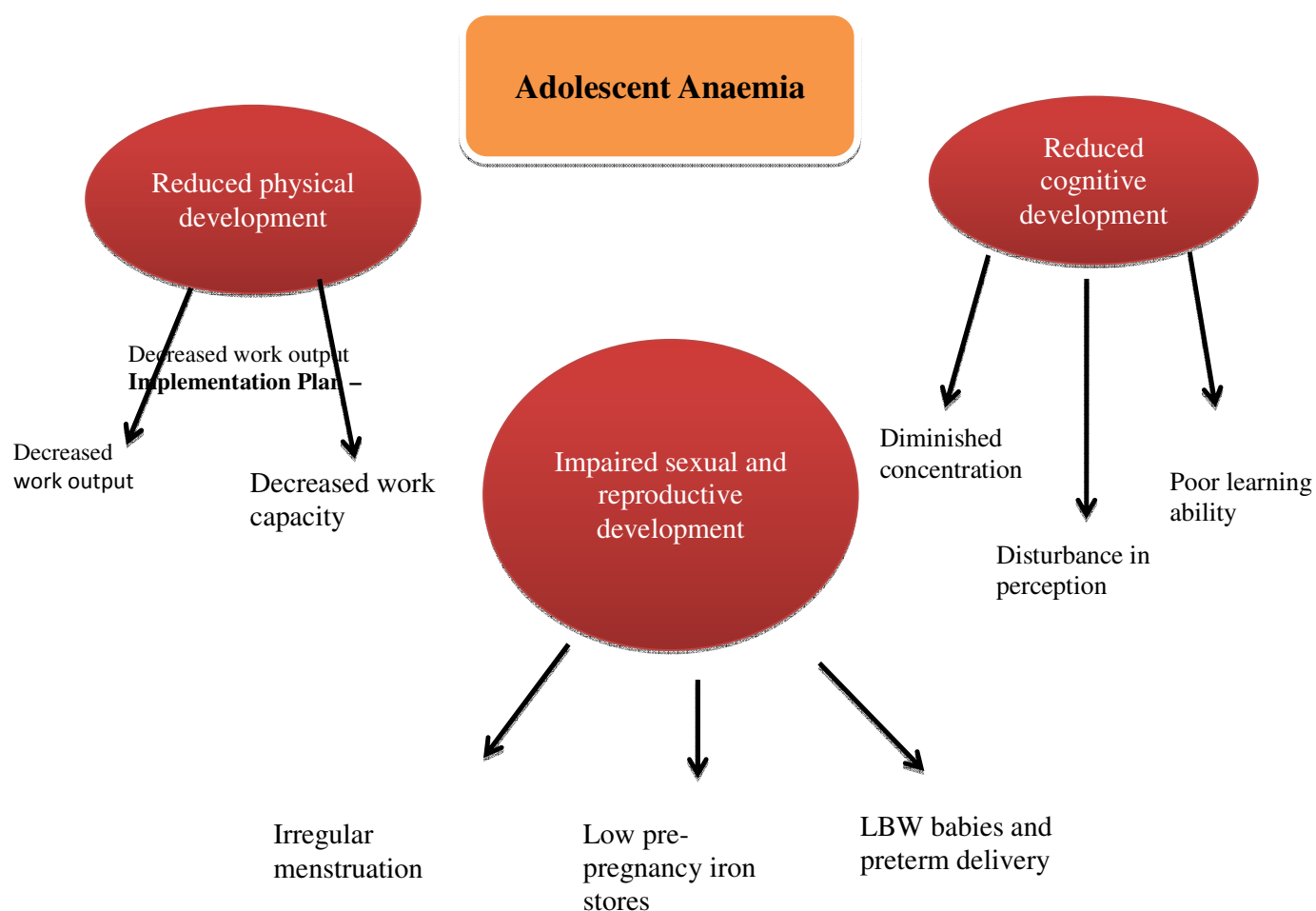
Sr .no	Role	Responsibility
1	Peer Educators	• Mobilize adolescents • Formation of adolescents clubs and holding meetings at weekly/ monthly frequency on designated themes • Provide clarifications/ information on specific issues. • Fill reporting formats and submit to ASHAs • Attend monthly meetings for planning, reporting and support • Refer adolescents to AFHCs and popularize

		helpline <i>Conscious that they have an additional responsibility to other adolescents and want to be effective</i>
2	Front Line Workers (ASHAs and ANMs)	• Selection of PEs and their training • Participate in training of PEs to be able to support them • Monthly meetings with PEs at the sub-center • Organize AHD along with ANM • Consolidate reports from PEs and submit to ANM
3	Counselors	• Counseling • Record keeping • Reporting • Outreach in schools and communities • Provide information to community during AHDs
4	Doctors	• Clinical services to AFHC clients
5	Facility heads, District officials	• Facilitate infrastructure, commodities • Ensure personnel • Review and monitor • Ensure financial resources

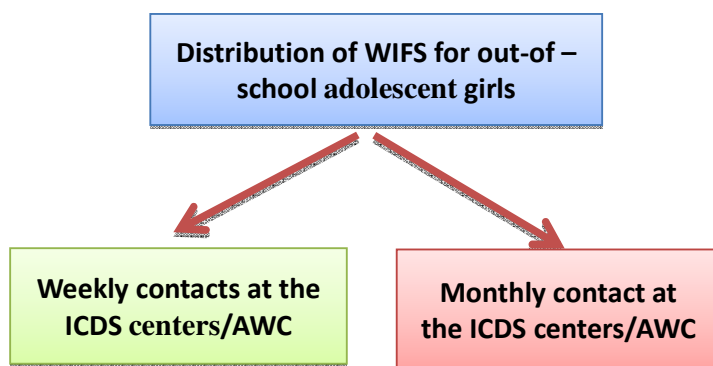
Weekly Iron Folic Acid Supplementation Scheme (WIFS)

- The main objective of the National Health Mission is to reduce MMR,IMR,TFR. In India 23 % of the population is adolescent.
- To improve mental and physical health of the adolescents, WIFS Scheme is implemented from the year 2012-13.
- The objective of the scheme is to reduce anaemia in adolescent boys & girls.
- Under WIFS programme, one IFA tab is given to School going boys & girls (Std 6th to 12th) through schools (Nodal teachers)and out of school girls once in the week (on Monday) for 52 weeks through AWC.
- In this programme there is convergence of Education Department, Women & Child Development Department & Public Health Department.
- Along with this distribution of WIFS tablets, Tab Albendazole is distributed to School going boys & Girls and Non School going Girls to reduce Worm Infestation. These tablets are given in the month of Aug and Feb, twice in the year





Implementation Plan – Non school going girls



Menstrual Hygiene Scheme

(PMHS)

- In adolescent girls physical, mental, emotional & social changes Occur. In this particular period menstrual cycle begins. This crucial stage starts from age group 10 to 16 years. Because of lack of knowledge about taking precautions in menstrual cycle, most of the adolescent girls face difficulties. According to guidelines of Govt. of India Promotion of Menstrual Hygiene Scheme is implemented in the State.
- This programme is for adolescent girl's age group of 10 to 19years. The programme was implemented in 8 districts (Dhule, Nandurbar, Akola, Buldhana, Amravati, Latur, Beed, and Satara) till 2015-16. Since 2018-19 scheme is being implemented in rural area of all districts of Maharashtra.
- In this programme health education is given to adolescent girls by ASHA and ANM. In Menstrual Hygiene Scheme sanitary napkins are distributed to adolescent girls by ASHA in rural area at Rs.6/- per sanitary napkin Pack, out of this Rs.5 is deposited in District Health Society A/c, and remaining Rs.1 is given to ASHA as incentive per Sanitary Napkin Pack distribution. In this scheme one sanitary napkin pack is distributed free to ASHA per month.

Objectives:-

The programme is being implemented in rural areas with the following objectives.

- To increase awareness among adolescent girls on Menstrual Hygiene, build self esteem, and empower girls for greater socialization.
- To increase access and use of high quality sanitary napkins to adolescent girls in rural areas through ASHA.
- To ensure safe disposal of Sanitary Napkin packs.

30. RASHTRIYA BAL SWASTHYA KARYAKRAM (RBSK)

Preamble:

Rashtriya BAL Swasthya Karyakram (RBSK) is a new initiative to protect and promote child health which seeks to put together a systematic approach to child health screening and early intervention

Aims & Objectives:

RBSK aims at early detection and management of the '4Ds' (Defects at Birth, Diseases in Children, Deficiency Conditions and Developmental Delays Including Disabilities) prevalent in children.

Implementation methods:

Rashtriya BAL Swasthya Karyakram aims to cover over 2 crores children of 0-18 years of age in Maharashtra. Biannual Regular health screening of pre-school children up to 6 years of age using Anganwadis as a platform is an essential component. Moreover, children from 6 to 18 years of age studying in Government and Government aided schools also receive regular health check-ups. All those children who diagnosed for illnesses receive follow-up referral support and treatment including surgical interventions at tertiary level free of cost under this program.

Service Providing Health Institutions:

The RBSK Teams are placed at block level at RH/SDH level under supervision and monitoring of Medical superintendant.

Manpower:

Under RBSK, in Maharashtra State total 1195 teams are approved in PIP 2021-22. 1109 teams have been functioning in Maharashtra in rural and corporation areas except for Gr. Mumbai where 55 teams are approved & 31 teams are approved for ashram schools screening in tribal districts.

Various activities implemented for screening of AWC & School:

State has implemented the Rashtriya Bal Swasthya Karyakram in all 34 Districts since 1st April 2013. Each RBSK team has been provided with designated Vehicle. Also each team is provided with 2 M.O., 1 Pharmacist, 1 ANM, Medicines, Equipments and Developmental Kit. The teams are working according to the advanced tour micro-plan which is made in co-ordination with Education and ICDS department.

DISTRICT EARLY INTERVENTION CENTER (DEIC)

District Early Intervention Centre (DEIC) is one of the crucial programs and it is for Intellectual, Psychological and Physical development and treatment of children between 0 to 18 age, referred from Anganwadi and schools. At present DEIC's are established in 29 districts. These DEIC's are under their respective civil surgeons supervision and all equipments to DEIC's are provided from district as well as state level. There is a staff of 14 employees in each DEIC centre which includes DEIC Manager, Pediatricians, Medical Officer, Dentist, Occupational Therapist/ Physiotherapist, Audiologist cum Speech Therapist, Psychologist, Ophthalmologist, MSW, Special Educator, Lab Technician, Dental Technician, Data Entry Operator and Staff Nurse. Referred children to these DEIC's, get treatment from required specialists by which their intellectual, Psychological and Physiological skills can be developed.

C. FAMILY PLANNING

31. IUCD/PPIUCD

At end of the session the participant will able to learn

1. Basic Information on IUCD
2. Mechanism of Action of IUCDs
3. Medical Eligibility Criteria for IUCD/PPIUCD
4. Steps for insertion of IUCD/PPIUCD
5. Pre and Post insertion counselling for IUCD/PPIUCD
6. Advantages/Limitations/side effects if IUCD/PPIUCD

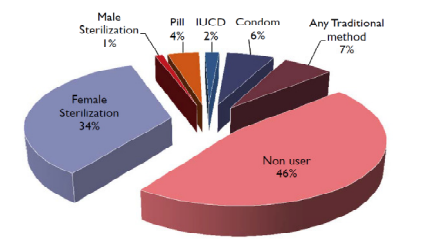
Intra-Uterine Contraceptive Devices (IUCD) provides very effective, safe, and long-term-yet reversible-protection from pregnancy. IUCD is one of the most cost-effective contraceptive methods because modern IUCDs can be used safely for many years (for 10 years for the Cu IUCD 380 A, and for 5 years for Cu IUCD 375). A woman can start using Cu IUCD anytime, when it is reasonably certain that she is not pregnant. Postpartum women who breastfeed their infants can also use Cu IUCD safely, as it does not interfere with breastfeeding. Postpartum IUCD can be inserted immediately after vaginal delivery, during caesarean section and up to 48 hours after birth, before women get discharged from the health facilities.

IUCD Use in National Family Planning Programme in India

IUCD in the form of Lippes Loop was introduced in the National Family Welfare Programme of the Government of India (GOI) in 1965. Based on the results of clinical trials conducted by the Indian Council of Medical Research (ICMR) in 1972, Copper T 200 B was introduced in the programme in 1975. In 1997, ICMR conducted a comparative study between IUCD 200 B and 380 A based on which Cu IUCD 380 A was introduced in 2002, replacing CuT 200B in the programme. In 2010, postpartum IUCD (PPIUCD) service was introduced in facilities with high case-load of deliveries. From 2010 till now, postpartum IUCD services are being scaled up in a phased manner throughout the country. In 2012, the Cu IUCD 375 was introduced so that women could choose between Cu IUCD 380 A with a lifetime of 10 years and Cu IUCD 375 with a lifetime of 5 years. In India only 2% of married women of reproductive age use IUCDs, though the last DLHS-4 survey (2012-13) has shown an increase in the contraceptive use to 54%. Despite the fact that the government offers IUCD services free of cost and IUCD is one of the most effective reversible and safe contraceptive methods, it still remains largely underutilized.

IUCD Usage in India versus other methods

Source: DLHS -3 (2007-2008), IIPS, Mumbai



Basic Information on IUCD

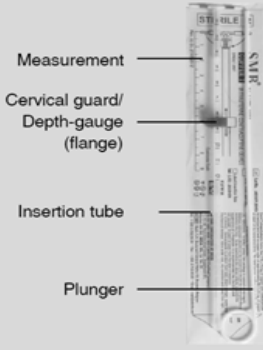
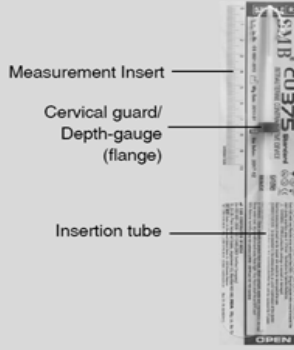
The copper bearing intrauterine contraceptive device (Cu IUCD) is a small, flexible plastic frame containing copper, which a specifically trained provider inserts into a woman's uterus. IUCD provides very effective, safe, and long-term, yet reversible protection from pregnancy.

Currently there are 2 types of Cu IUCDs available under the national programme—

1. Cu IUCD 380 A, which is effective up to 10 years

2. Cu IUCD 375, which is effective up to 5 years
Cu IUCD 380 A and Cu IUCD 375

Table: Comparative Features of Cu IUCD 380A and Cu IUCD 375

Feature	Cu IUCD 380 A	Cu IUCD 375
Cu IUCD inside a sterile packet		
Shape	T shaped device	Inverted U shaped flexible arm
Material	Polyethylene impregnated with barium sulfate	Polyethylene impregnated with barium sulfate
Dimensions	3.6 cm long and 3.2 cm wide	3.5 cm long and 1.8 cm wide and 5 stubs on each side on the "U"
Copper bands/Wire	Vertical stem and horizontal arms are wound with copper wire	Only vertical stem is wound with copper wire
Surface Area of Copper	380 sq. mm	375 sq. mm
Material of strings	Thin polyethylene strings	Monofilament nylon threads

Feature	Cu IUCD 380 A	Cu IUCD 375
Colour of string	White	Florescent Green
Effectiveness duration	10 years from the day of insertion	5 years from the day of insertion
Content in the sterile packet	1. Cu IUCD 380 A 2. Insertion tube – Clear tube to guide the loaded IUCD through the cervical os into the uterus 3. Cervical guard/depth gauge on insertion tube – To set the appropriate measurement of the insertion tube corresponding to the length of uterus and to ensure that the arms of the T unfold in the proper direction (horizontal plane) when they are released from the insertion tube. 4. Measurement insert - It is used to set the blue length gauge to the appropriate measurement, obtained by sounding the uterus. 5. Plunger rod – White rod, which is put inside the insertion tube containing loaded IUCD and the tip of the rod remains just below the IUCD. The rod is held stationary while the insertion tube is pulled back to release the IUCD into the uterus (withdrawal technique)	1. Cu IUCD 375 2. Insertion tube – Clear tube to guide the IUCD thorough the cervical os into the uterus 3. Cervical guard/depth gauge on insertion tube – To set the appropriate measurement of the insertion tube corresponding to the length of uterus and to ensure that the IUCD is inserted as high in the fundus as possible without perforating the uterine wall. 4. Measurement insert – It is used to set the blue length gauge to the appropriate measurement, obtained by sounding the uterus.

Mechanism of Action

Copper-bearing IUCDs (Cu IUCD 380 A and Cu IUCD 375) have same mechanism of action and they act primarily by:

- Preventing fertilization (Rivera et al. 1999) as the copper ions decrease sperm motility and function by altering the uterine and tubal fluid environment, thus preventing sperm from reaching the fallopian tubes and fertilizing the egg
- The device prevents implantation as it stimulates foreign body reaction in the endometrium that releases macrophages

MEC Categories for PPIUCD

Medical Eligibility Criteria for the PPIUCD services can be grouped as follows:

CATEGORY 1:

- Postplacental, postpartum<48 hours or during cesarean section
- >Six weeks postpartum

CATEGORY 2:

No conditions

CATEGORY 3:

- Between 48 hours and 6 weeks postpartum
- Chorioamnionitis
- Prolonged rupture of membranes (ROM) >18 hours

CATEGORY 4:

- Puerperal sepsis
- Unresolved postpartum hemorrhage

3.1 Postpartum Period

- The postpartum period has traditionally been understood as the first six weeks after the birth of a child, as by then, the woman's body has largely returned to its pre-pregnancy state. However there is a need to focus on the "extended postpartum period;" i.e., the first 12 months after birth.
- Programmatically it is convenient to further define the time periods as the interventions and issues vary during the period of first 6 weeks and beyond up to one year after childbirth.

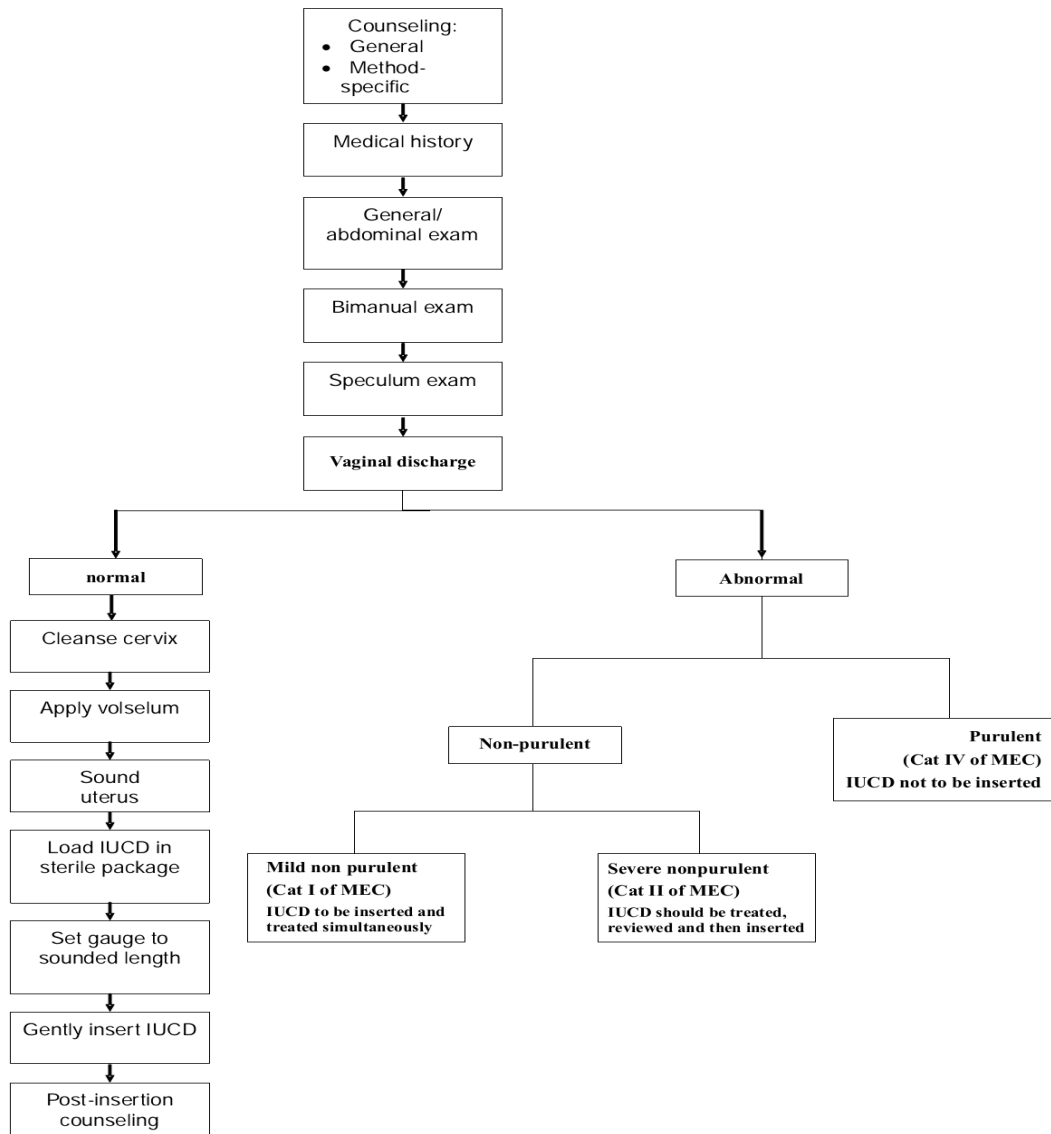
1. Immediate Postpartum -Postplacental and within 48 hours after delivery

- The immediate postpartum period is an ideal time to educate and counsel a woman on exclusive breastfeeding as a contraceptive method. Counselling on future fertility, birth spacing or limiting intentions, and provision of appropriate family planning methods like IUCD, sterilization should also be provided in this period.

2. Early Postpartum - up to 7days

- Postpartum Sterilization can be performed within this time period. Messages on Lactation Amenorrhea Method (LAM) should be reinforced.

Flowchart:- General steps involved in IUCD insertion



3. Extended Postpartum - 6 weeks to 1 year

Spacing methods like IUCD and other methods as per the Medical Eligibility Criteria (MEC) can be provided. Laparoscopic/minilap tubal ligation can also be performed during this period.

Rationale for Postpartum Family Planning

1) Ensuring healthy spacing between births

- A baby born after a short birth interval has increased chances of:
 - being born pre-term
 - being small for gestational age
 - death during newborn period or childhood
- A woman who becomes pregnant too quickly following a previous birth or spontaneous or induced abortion faces higher risks of:
 - Anaemia
 - Abortion
 - premature rupture of membranes
 - maternal mortality

- Approximately 61% of births in India occur within 36 months of previous births. This means the birth to pregnancy intervals in 61% of births are shorter than the recommended birth to pregnancy interval.
- 2) High unmet need for birth spacing
- In India, 65% of women in the first year postpartum have an unmet need for family planning, but only 26% of women are using any method of family planning during the first year postpartum.
- 3) Vulnerability to return of fertility
- Return to fertility after delivery and abortion is very unpredictable and may be different for different women.
 - A woman will ovulate before she begins regularly menstruating again. The chance of woman's fertility returning before menstruation resumes, increases as the postpartum period increases (Kennedy and Tussel, 2004)
 - Period with no risks of pregnancy is longer if exclusively breastfeeding.
 - If a woman or a couple does not practice family planning after delivery or an abortion, then they are at risk of unwanted pregnancy.
- 4) Receptivity to accept family planning method:- Women are highly motivated and receptive to accept family planning (FP) methods during the postpartum period. Demographic and Health Surveys show that 40% of women in the first year postpartum intend to use FP method but are not doing so (unmet need).

Timing of PPIUCD insertion

The correct timings of insertion are:

- Postpartum:
 - Postplacental: Insertion within 10 minutes after expulsion of the placenta following a vaginal delivery, on the same delivery table.
 - Intracesarean: Insertion that takes place during a cesarean delivery, after removal of the placenta and before closure of the uterine incision.
 - Within 48 hours after delivery: Insertion within 48 hours of delivery.
- Postabortion and post medical termination of pregnancy: Insertion following an abortion, if there is no infection, bleeding or any other contraindications.
- Extended Postpartum/Interval: Insertion any time after 6 weeks postpartum. Here the technique of insertion will be same as that of interval IUCD insertion

Steps for insertion of IUCD using placental forcep

1. Check woman's record to ensure that she is an appropriate client for IUCD and she has given her consent.
Using the Job-aid for immediate PPIUCD pre-insertion screening of client (Annexure G), rule out conditions which prevent insertion of IUCD like:
 - Rupture of membranes for more than 18 hours
 - Chorioamnionitis
 Unresolved postpartum hemorrhage
2. Confirm that HLD/sterile instruments, supplies and light source are available in the labor room as per annexure M for immediate postplacental insertion. Talk to the woman with kindness and respect. Confirm with the woman whether she still wants IUCD. Explain that you will insert the IUCD following delivery of the placenta. Answer any questions she might have.
3. Perform hand hygiene and put on HLD or sterile gloves.
4. Arrange instruments and supplies on sterile tray or draped area.
5. Inspect perineum, labia and vaginal walls for lacerations. If lacerations are not bleeding heavily, insert the IUCD and repair if needed.

6. Gently visualize cervix by inserting a Sims speculum in the vagina and depressing the posterior wall of the vagina.
7. Gently clean cervix with antiseptic solution two times using two separate cotton swabs with Povidone Iodine or Chlorhexidine. Wait for two minutes to allow the antiseptic to work.
8. Gently grasp the anterior lip of the cervix with the ring forceps upto the first lock. (The same ring forceps that was used to clean the cervix can be used).
9. Grasp IUCD with long placental forceps in the sterile package using a no-touch technique as noted in Figure. It should be held just on the edge of the placental forceps so that it can be easily released from the instrument when opened.
10. Apply gentle traction on the anterior lip of the cervix using the ring forceps and insert IUCD into lower uterine cavity. Avoid touching the walls of vagina. The provider passes the placental forceps with the IUCD carefully into the lower uterine cavity.
11. Once the placental forceps is in the lower uterine cavity, lower the ring forceps that is holding the anterior lip of the cervix. Move the left hand to the woman's abdomen and push the entire uterus superiorly (upward). This is to straighten out the angle between the vagina and the uterus, so that the instrument can easily move upward toward the uterine fundus. The ring forceps is removed as it is not required any more during the procedure.
12. Gently move placental forceps upward towards the fundus following the curve of the uterine cavity. The provider should take care not to apply excessive force. If the uterus is not pushed upward, the angle between the cervix and the uterus may not allow the instrument to advance smoothly. The provider should always keep the instrument closed so that the IUCD is not dropped accidentally in the mid-portion of the uterine cavity.
13. Confirm that the end of placental forceps has reached the fundus and tilt the forceps slightly inwards. When it reaches the uterine fundus, the provider will feel resistance and will also feel the thrust of the instrument at the fundus of the uterus with her left hand which is placed on the abdomen.
14. Open placental forceps and release the IUCD at the fundus.
Sweep placental forceps to side wall of the uterus.
Stabilize uterus (using base of hand against lower part of body of uterus).
Slowly remove placental forceps from uterine cavity, keeping it slightly open. Take particular care not to dislodge the IUCD as placental forceps are removed.
Stabilize the uterus until the placental forceps are completely out of the uterus.
To help prevent the IUCD being drawn downward in the uterus, the instrument is swept to the right to ensure that the instrument is away from the IUCD.
Then the instrument is slowly withdrawn, keeping it slightly open at all times. If the instrument closes and catches the strings of the IUCD, it can accidentally pull the IUCD down from its fundal position, increasing the risk of expulsion
Counter traction is applied to stabilize the uterus while the instrument is being withdrawn and until it is completely out of the uterus.
15. Examine the cervix to ensure there is no bleeding. If IUCD is seen protruding from cervix, remove and reinsert.
It is important to check that the IUCD is not visible at the cervical os. If it is visible, or if the strings appear to be very long, then the IUCD has not been adequately placed at the fundus and the chance of spontaneous expulsion is higher.
If it appears that the IUCD is not placed high enough, the provider can use the same forceps to remove the IUCD and repeat steps of insertion using aseptic procedures.
16. Remove all instruments used and place them in 0.5% chlorine solution for 10 minutes for decontamination.
17. Allow the woman to rest for few minutes. Support the initiation of routine postpartum care, including immediate breastfeeding.

The woman should rest on the table for few minutes following the insertion procedure. The provider should reassure her that the insertion was done smoothly and that she now has an effective, safe and reliable long term spacing method of contraception.

18. Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out and disposing of them. Perform hand hygiene.

All infection prevention steps should be followed as per standard infection prevention procedures and facility protocol for waste management.

19. Provide the woman with post insertion instructions.
 - Provide IUCD card showing type of IUCD and date of insertion.
 - Inform her about the IUCD side effects and normal postpartum symptoms.
 - Tell the woman when to return for IUCD follow-up/PNC/newborn checkup.
 - Emphasize that she should come back any time she has a concern or experiences warning signs.
 - Inform her about the warning signs regarding IUCD.
 - Explain how to check for expulsion and what to do in case of expulsion.
 - Assure the woman that the IUCD will not affect breastfeeding and breast milk.
 - Ensure that the woman understands the post-insertion instructions.
 - Give written post-insertion instructions.
 - These instructions should be reinforced again by the staff of the postpartum unit and repeated to the woman, and if possible with her family
20. Record information regarding the PPIUCD insertion in the woman's chart or record and in the Immediate PPIUCD register kept at the facility.

2.3. Contraceptive Effectiveness

The IUCD is effective as soon as it is inserted. The IUCD is one of the most effective and long lasting contraceptive methods. IUCD is comparable to female sterilization and male sterilization in contraceptive effectiveness.

The failure (pregnancy) rate associated with IUCD is:

- Less than 1% in the first year of use. This means less than 1 pregnancy per 100 women in the first year of use (6 to 8 pregnancies per 1000 women)
- A very small risk of pregnancy remains beyond the first year of use and continues as long as the woman is using the IUCD

Effective Lifespan

- The Cu IUCD 380A is effective for 10 years and Cu IUCD 375 is effective for 5 years of continuous use

Removal or Replacement

- The Cu IUCD should be replaced or removed no later than the full lifespan of IUCD (10 years in case of Cu IUCD 380 A and 5 years in case of Cu IUCD 375), from the date of insertion
- These can be removed any time when women want, before completion of the total duration

A word about shelf life

It is important to note that the expiry date on the IUCD package refers only to the shelf life of the sterility of the package and not to the contraceptive effectiveness of the IUCD itself. This means that even if an IUCD is inserted on the day before the expiry date (provided the package is not torn or damaged), it is still effective for the full lifespan of contraceptive efficacy – a full 10 years in case of Cu IUCD 380 A and a full 5 years in case of Cu IUCD 375. After the expiry date, the IUCD package should be discarded.

A word about tarnishing

Sometimes the copper on copper-bearing IUCDs tarnishes (i.e., the colour darkens), causing concern among providers about the safety and effectiveness of the affected IUCD. All available evidences suggest that tarnished IUCDs are safe and effective and can be inserted and used in the same way as untarnished IUCDs. Therefore, unless the IUCD package is torn or opened (or the shelf life has expired), a tarnished IUCD is still sterile, safe to use and effective.

Return to Fertility

A woman's fertility returns promptly after an IUCD is removed (Andersson et al. 1992; Belhadj et al. 1986). This message should be made very clear to clients having an IUCD removed i.e. they should have another IUCD inserted immediately after removal (if desired and appropriate) or immediately start another contraceptive method unless they want to get pregnant.

Advantages of Cu IUCD

- Offers long-term, highly effective reversible protection against pregnancy
- Is effective immediately after insertion
- Suitable for use by most women
- Can be used as an emergency contraceptive if inserted within five days of the first act of unprotected sexual intercourse
- It can be replaced, without any gap, as many times as she desires, during her reproductive life
- Does not require daily attention from the user or special attention before sexual intercourse.
- Insertion is one time procedure and is cost effective
- Can be used by lactating women
- Does not interact with any medicines the client may be taking
- Fertility returns promptly on removal

Limitations

- Pelvic examination before IUCD insertion is mandatory which is not so for other spacing methods
- Requires a skilled provider for insertion and removal of the device
- Does not protect against STIs/ HIV
- Cannot be inserted in women with active RTI/STI

Side Effects

Side effects of IUCD may be unpleasant but are not harmful and in most women these subside or resolve within a few months after insertion. Some women may experience the following:

- Menstrual changes: There may be increase in the duration/amount of menstrual bleeding or spotting or light bleeding during the first few days or months after insertion. These usually subside with symptomatic treatment
- Discomfort or cramps during insertion and for the next few days which subsides in due course

Potential Health Risks

Potential health risks which are uncommon or rare are:

- Spontaneous expulsion occurs in about 2-8 % clients (Trieman et al 1995) and is most likely to occur during the first three months after insertion, and during menstrual periods.
- If pregnancy occurs with the IUCD in situ, there is a risk of spontaneous abortion, sepsis and ectopic pregnancy; however, IUCD is not reported to be having any adverse effects on the fetus.
- Infection following insertion is less than 1%. This minimal risk is highest during the first 20 days after insertion, especially if aseptic precautions have not been taken, rather than due to the device itself. (Hatcher et al 2004)

- Uterine perforation during insertion is a rare complication which occurs in 0.5 - 1.5 per 1000 insertions and is associated with the level of provider's skill and experience (Trieman et al 1995). Most perforations are silent and may go undetected (Penny et al 2004)

Advantages PPIUCD

The specific advantages of an IUCD placed in the postpartum period include:

Advantages for the woman:

- Convenient; saves time and additional visit
- Safe because it is certain that she is not pregnant at the time of insertion
- High motivation (woman and family) for a reliable birth spacing method
- Has no risk of uterine perforation because of the thick wall of the uterus
- Reduced perception of initial side effects (bleeding and cramping) due to presence of normal puerperal changes
- Reduced chance of heavy bleeding, especially among lactational amenorrhea method (LAM) users, since they are experiencing amenorrhea
- No effect on amount or quality of breast milk

The IUCD should NOT be inserted from 48 hours to 6 weeks following delivery because there is an increased risk of infection and expulsion. Mode of action, effectiveness and side effects of PPIUCD are the same as that of interval IUCD.

The woman has an effective method for contraception before discharge from hospital. Advantages for the service provider or the service delivery site:

- Certainty that the woman is not pregnant
- Saves time as performed on the same delivery table for postplacental/ intracesarean insertions and additional evaluations and separate clinical procedure is not required
- Need for minimal additional instruments, supplies and equipment
- Convenience for clinical staff; helps relieve overcrowded outpatient facilities thus allowing more women to be served

Limitations PPIUCD

The specific limitations of an IUCD inserted in the postpartum period include:

- Relatively higher risk of spontaneous expulsion, as compared to interval IUCD. The skilled clinicians with right technique of insertion are associated with lower expulsion rates
- Perforation of the uterus while placing a PPIUCD immediately after delivery of placenta or during cesarean section or during the first 48 hours postpartum is unlikely because of the thickness of the uterine wall in the postpartum period. No such cases are reported in the literature
- The other limitations of the PPIUCD are the same as the interval IUCD

Counseling

Six Principles of Good Counseling

1. Treat each client well. All clients deserve respect, whatever their age, marital status, ethnic group, sex, or sexual and reproductive health behavior. Maintain privacy and confidentiality in one to one counseling.
2. Interact. Each client is a different person. Ask questions, listen, and respond to each client's own needs, concerns, and situation.
3. Give the right amount of information—enough for the client to make informed choices but not so much that the client is overloaded. An informed choice is a client's thoughtful decision based on accurate understanding of the full range of options and their possible results.
4. Tailor and personalize information. Give clients the specific information that they need and want, and help clients see what the information means to them.

5. Unless a valid medical reason prevents it, provide the family planning method that the client wants.
6. Help clients remember instructions

Steps in Family Planning Counseling: The GATHER Approach

The GATHER technique is used to organize the elements of the counseling process. This acronym is designed to help staff remember 6 basic steps for an effective family planning counseling session. Counseling should be tailored to the woman's individual needs and circumstances and thus a provider need to use the GATHER approach sensitively so that it is appropriate to each client's need.

GATHER means:

G - Greet the client respectfully

A - Ask them about their family planning needs

T - Tell them about different contraceptive options and methods

H - Help them to make decisions about choices of methods

E - Explain and demonstrate how to use the methods

R - Return/refer; schedule and carry out a return visit and follow up

Post Insertion Counseling

Following insertion of the IUCD, reinforce the key messages related to PPIUCD and inform the woman regarding follow-up visits. A follow up card providing all relevant instructions may be given to her on discharge from the facility.

- Points to be stressed are importance of exclusive breastfeeding and assurance that the IUCD does not affect breastfeeding
- To return after six weeks for IUCD/Postnatal Care (PNC)/newborn check-up
- To come back any time if she has any concern or experiences any warning sign or if the IUCD is expelled

Follow-Up Care and Counseling

Follow-up care of the PPIUCD acceptor is very important to ensure client satisfaction and continuation of the accepted method. A woman should come for check-up at 6 weeks and thereafter as and when necessary. If the woman lives far from the facility where the PPIUCD was inserted, telephonic follow-up or follow-up through ANM/ASHAs can be possible.

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Key Points to remember

1. Two types of female IUCD
2. Mechanism of IUCD is the copper ions decrease sperm motility and function by altering the uterine and tubal fluid environment, thus preventing sperm from reaching the fallopian tubes and fertilizing the egg and device prevents implantation as it stimulates foreign body reaction in the endometrium that releases macrophages
3. Selection of client and through medical examination and as per Medical eligibility criteria.
4. All Aseptic precautions should be strictly followed during IUCD insertion.
5. Post surgery counseling and advice regarding follow up is important.

EXERCISE FOR PARTICIPANTS:-

Q.1.Enumerate the types of female contraception have and differences between Cu-T 380 A and Cu-T 375.

Q.2.What is the mechanism of action of Cu-T?

Q.3.What is the advantages of PPIUCD insertion over regular IUCD insertion?

Q.4.What is advantages, Limitations of IUCD?

Q.5.What is the complications of Cu-T insertions?

Quote:-

Access to birth control; lets women write their own futures.

Birth control saves lives. A country cannot move forward without investing in women's health and right.

32. INJECTABLE CONTRACEPTIVE

The Injectable Contraceptives contain synthetic hormones resembling the natural female hormones. When administered (IM/SC) there is a slow release of hormone into the blood stream and it provides protection from pregnancy for a long duration of time to the client.

Types of Injectable Contraceptives

There are two main types of injectable contraceptives:

- 1) Progestogen-only Injectables (POI) containing only synthetic progesterone. They are of two types:
 - a) Depot MedroxyProgesterone Acetate (MPA) – 3 monthly Injection.
 - b) Norethisteroneenanthate (NET-EN) – 2 monthly Injection.
- 2) Combined Injectables Contraceptive (CIC): containing estrogen (usually ethinylestradiol) and progesterone - 1 monthly injection.

Depot MedroxyProgesterone Acetate (DMPA)

Injectable Contraceptive (MPA) is an aqueous suspension of microcrystal for depo injection of pregnane 17 alfa – hydroxyprogesterone – derivative progestine medroxyprogesterone acetate. DMPA is a Progestogen-only Injectable (POI) given deep intra-muscular every three months (one dose = one vial of 150 mg, aqueous suspension of MPA)

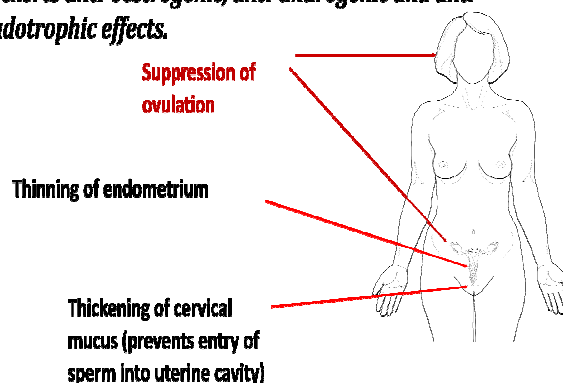
Routes of MPA Injectable Contraceptive

Depot Medroxy Progesterone Acetate can be given through intramuscular route (MPA IM) or subcutaneous route (MPA SC).

- 1) Intramuscular DMPA: One dose = one vial of 150 mg/1 ml. Available as,
 - a) Single dose vial with disposable syringe and needle&
 - b) Prefilled syringe with needle-Currently not available in Public Health System.
- 2) Subcutaneous DMPA: One dose = 104 mg/0.65 ml-Currently not available in Public Health System.

MPA - Mechanism of Action

MPA exerts anti-oestrogenic, anti-androgenic and anti-gonadotrophic effects.



3) Injectable Contraceptive MPA (Antara) in the National Family Planning Program
DMPA acts in the following way:

- Inhibiting ovulation - by suppressing mid cycle peaks of LH and FSH
- Thickening of cervical mucus - due to depletion of oestrogen. The thick mucus prevents sperm penetration into the upper reproductive tract.
- Thinning of endometrial lining - due to high progesterone and depleted oestrogen, making it unfavourable for implantation of fertilized ovum.

Safety and Effectiveness

DMPA is a safe contraceptive. Like other progestogen-only contraceptives women who want a highly effective contraceptive can use it, including women who are breastfeeding or who are not eligible to use estrogen-containing combined oral contraceptives. Studies by WHO on over 3 million women months of DMPA use give reassurance that DMPA presents no overall risks for cancer, congenital malformation or infertility. Also extensive research has found that DMPA use:

- Exerts a strong protective effect against endometrial cancer, no overall increased risk of breast, ovarian & cervical cancer similar to oral contraceptives.
- Does not cause any significant changes in blood pressure or on the coagulation of the fibrinolytic system affecting thrombosis.
- Keeps the fertility intact although it takes a woman 7-10 months (Average 4-6 months after 3 month effectivity of last injection is over) longer to become pregnant after discontinuing DMPA than after discontinuing COCs, IUDs or barrier methods.

Studies have found no differences in the health, growth, sexual development, aggression, physical activity or sex role identity of teenage children exposed in utero to DMPA as compared with no in-utero exposure.

Effectiveness of MPA

It is a highly effective contraceptive method. With a standard regimen the first year effectiveness is 99.7% when the drug is used correctly; however the effectiveness decreases in typical use. The perfect use failure rate of 0.3% is lower in comparison to 0.5% of female sterilization, 0.8% of IUCD and 3% of combined oral contraceptives (WHO: Family Planning: A Global Handbook for Providers).

***Note:-**Effectiveness depends on timing of first injection, taking injections regularly on time, the injection technique and post injection care.*

In case a pregnancy occurs during MPA use, there is no increased risk of congenital anomaly or effect on growth and development of fetus. MPA use to be discontinued. She can continue with pregnancy, if she wishes to

DMPA Benefits – Contraceptive & Non-Contraceptive

Contraceptive Benefits

- Safe, highly effective with long term contraceptive benefits.
- Convenient and easy to use (does not require daily routine or additional supplies).
- Acts for 3 months with a grace period of 4 weeks.
- Completely reversible: 7-10 months from date of last injection (average 4-6 months after 3 months effectivity of last injection is over).
- A private and confidential method.
- Does not interfere with sexual intercourse/pleasure.
- Pelvic examination not required prior to use.
- Suitable for women who are not eligible to use an oestrogen containing contraceptive.
- Suitable for breast feeding women (after 6 weeks postpartum) as it does not affect quantity, quality and composition of breast milk.
- Provides immediate postpartum (in non-breastfeeding women) and post-abortion contraception.
- May be used by women at any age(<18,>35) or parity if they are at risk of pregnancy

Non-contraceptive Benefits

- May decrease menstrual cramps and reduce pre-menstrual syndrome/tension.
- Improves anaemia by reducing menstrual blood loss due to menstrual changes such as amenorrhea.
- Reduces the symptoms of endometriosis.

- Decreases benign breast disease and ovarian cyst.
- Helps prevent uterine tumours (fibroids).
- Protect against endometrial cancer and possibly ovarian cancer.
- Protects against ectopic pregnancy (since ovulation does not occur).
- Minimal drug interactions – no demonstrable interaction has been found between DMPA and Antibiotics / enzyme-inducing drugs.

Limitations

- It does not protect against STI/RTI and HIV infection.
- Once taken its action cannot be stopped immediately.
- It causes changes in the menstrual cycle and bleeding due to its inevitable effect on a woman's body hormones.
- It has to be repeated every three months to achieve desired contraceptive effectiveness.
- Return of fertility takes 7-10 months from date of last injection (Average 4-6 months after 3 months effectivity of last injection is over).
- Cannot be given in few medical conditions/diseases

Return to Fertility

DMPA may cause a delay in the return of fertility. Since one injection is effective for 3-4 months, the return of fertility takes 7-10 months from date of last injection (average 4-6 months after 3 months effectivity of last injection is over).

Studies have also shown that ovulation/fertility return is not affected by duration of DMPA use or women's age.

When to Start DMPA Injection

Woman's situation

When to start

Less than 6 months postpartum	• Wait until 6 weeks postpartum and then start DMPA. • Can be started any time between 6 weeks and 6 months, if she is fully or nearly fully breastfeeding and her monthly bleeding has not returned. No need for a backup method. • Can be started at any time between 6 weeks and 6 months, if she is partially breastfeeding and her monthly bleeding has not returned and if it is reasonably certain that the woman is not pregnant. She will need a backup method (e.g. Condom) for the first 7 days after DMPA injection. • If her monthly bleeding has returned, she can start injectable as advised for women having menstrual cycles.
More than 6 months postpartum	• Can be started at any time, if her monthly bleeding has not returned and if it is reasonably certain that the woman is not pregnant. She will need a backup method (e.g. Condom) for the first 7 days after DMPA injection. • If her monthly bleeding has returned, she can start injectable as advised for women having menstrual cycles.

Post-Partum Women not breastfeeding

Less than 4 weeks after giving birth	• Can be started at any time. No need for a backup method.
More than 4 weeks after giving birth	• Can be started any time, if her monthly bleeding has not returned and woman is not pregnant. She will need a backup (e.g. Condom) method for the first 7 days after the injection. • If her monthly bleeding has returned, she can start injectable as advised for women having menstrual cycles.

Post-Partum Women not breastfeeding

Less than 4 weeks
after giving birth

- Can be started at any time. No need for a backup method.

More than 4 weeks
after giving birth

- Can be started any time, if her monthly bleeding has not returned and if it is reasonably certain that the woman is not pregnant. She will need a backup (e.g. Condom) method for the first 7 days after the injection.
- If her monthly bleeding has returned, she can start injectable as advised for women having menstrual cycles.

Other situations

No monthly bleeding
(not related to
childbirth or
breastfeeding)

- Can be started any time if it is reasonably certain that the woman is not pregnant. She will need a backup method (e.g. Condom) for the first 7 days after the injection.

After miscarriage or
abortion

- Can be started immediately after abortion or within 7 days of first or second-trimester miscarriage/abortion, with no need for a backup method.
- Can also be started after more than 7 days of first or second trimester miscarriage/abortion, any time, if it is reasonably certain that the woman is not pregnant. She will need a backup method (e.g. Condom) for the first 7 days after the injection.

After taking
Emergency
Contraceptive Pills
(ECPs)

- Can be started on the same day as the ECPs.
- Can also be started within 7 days of monthly bleeding, a backup method (e.g. Condom) will be required for next 7 days. She should be asked to return, if she has signs or symptoms of pregnancy other than amenorrhoea.

WHO can and cannot use DMPA?

You **can** use DMPA to prevent pregnancy if you:

- Are of any age, that is young or above 40 years
- Have or have not had children
- Had an abortion or miscarriage
- smoke
- Have anemia, irregular menstrual periods, benign breast disease, uterine fibroids, thyroid disease, or tuberculosis
- Are breastfeeding (as long as 6 weeks have passed after delivery)

You **cannot** use DMPA injections to prevent pregnancy if:

- You are pregnant or breastfeeding a child less than 6 weeks old
- You have very high blood pressure, diabetes for more than 20 years or with damage to arteries, kidneys,
- vision or nervous system, heart attack or serious heart disease, liver disease, jaundice, stroke, blood clots,
- unusual vaginal bleeding
- You had or are currently receiving treatment for cancer of the breast.

WHEN and HOW to use DMPA injections:

To **START** using DMPA, you can receive your first injection:

- If you are sure you are not pregnant.

- **Within the first 7 days**
 - After the first day of your menstrual bleeding.
 - after a miscarriage or abortion
- Within the first 4 weeks after childbirth, if you are NOT breastfeeding
- The **first day of the 7th week** after childbirth, if you are breast feeding.
- The **first day of the 7th month** after childbirth, if your menstrual periods have not yet returned and you are giving only your breast milk to your baby without water, teas, other liquids, and formula or food supplements for the first 6 months.

To CONTINUE to use DMPA get follow-up injections every 3 months.

- If you receive DMPA injection more than 4 weeks late, use condoms or spermicide in addition to DMPA injection to prevent pregnancy until you receive your injection.
- If you receive DMPA injection more than 4 weeks late and you have not been using an alternative contraceptive method, your next injection may be given only after confirming you are not pregnant.
- It is possible to get your injections 2 weeks early also

STOP taking DMPA injections whenever you want to become pregnant or change to another contraceptive method. Your fertility will return within 10 months after the last injection.

Common side effects with DMPA

Increase in bleeding or unexpected bleeding or spotting especially during the first 3 months of use; decrease, stopping, or infrequent bleeding; headaches, dizziness, abdominal pain, mood changes, diminished sex drive, and weight gain. A decrease or stopping of menstrual bleeding does not result in infertility, or cause early menopause or cancer. In fact, reduced or no menstrual bleeding reduces your risk of anemia.

EXERCISE FOR PARTICIPANTS:-

Q.1. What are injectable contraceptives and what are its types?

Q.2. Write short notes on DMPA

Q.3. What is mechanism of action of MPA?

Q.4. What are the contraceptive and non contraceptive benefits of DMPA?

Q.5. What are limitations of DMPS?

Q.6. When to start DMPS injections?

Q.7. Who can and can not use DMPS injections?

33. OTHER CONTRACEPTIVES

Male Condom

Condom is a simple but very effective method of contraception if used correctly and consistently. It holds a special place among the contraceptives due to the dual protection it provides both from unwanted pregnancy as well as sexually transmitted infections. It is one of the methods of contraception which ensures male involvement in preventing unwanted births. The higher failure rate of condoms is mostly due to its inappropriate use by the clients, which in turn is partly due to inadequate client instructions by the FP providers

Introduction

Condom is a sheath made to fit over a man's erect penis. Most condoms are made of latex rubber. Some condoms are coated with a lubricant or with spermicide. Condoms may be available in different size, shapes, colours and textures. Condoms help in preventing pregnancy as well as the spread of sexually transmitted infections. If used correctly, they prevent sperm and ST infections entering the vagina, or organisms from the vagina from entering the penis.

Effectiveness of condoms

- If the partners of 100 women start using condoms, with typical use there is likelihood of 14 of these women getting pregnant in the first year of use of condoms.
- With correct and consistent use every time, there are 3 pregnancies per 100 women in the first year of use.

Prevent transmission of sexually transmitted infections

During sex, condoms are the best protection against catching STIs or transmitting STIs to one's partner including HIV/AIDS, gonorrhoea, syphilis, Chlamydia, and trichomoniasis.

Studies show that condom users have about two-thirds as much risk of getting gonorrhoea, trichomoniasis or chlamydial infection as people who never use condoms and have less than half the risk of HIV infection

Advantages:

- Prevent STIs including HIV, as well as pregnancy, when used correctly and consistently with every act of sexual intercourse.
- Can be used soon after childbirth
- No hormonal side effects.
- Can be stopped at any time.
- Offer occasional contraception with no daily upkeep.
- Easy to keep at hand in case sex occurs unexpectedly.
- Can be used by men of any age.
- Can be used without seeing a healthcare provider first.
- Usually easy to obtain and sold at most places.

Disadvantages

- Latex condoms may cause itching for a few people who are allergic to latex. Also, some people may be allergic to the lubricant of condoms.
- The couple must take the time to put it on the erect penis before sex.
- Small possibility that condom might slip off or break during sexual intercourse.
- If not properly stored or if used with oil-based lubricants, condoms can go weak and break.

Providing condoms

1. Give each client a supply of 3 months of condoms, if possible. How often people have sex varies, therefore, ask the client how many condoms are needed and supply accordingly.
2. Also provide some spermicide, if available, in case the condom breaks.

Female Condom

The Female Condom (FC) is a viable option for women to protect themselves from pregnancy and STIs including HIV. Female condom is the only currently available method which woman can initiate and in some ways control, which provides dual protection from both unwanted pregnancy and STIs including HIV.

The female condom is a thin, soft, loose-fitting polyurethane plastic pouch-like device that lines the vagina. It has two flexible rings, an inner ring at the closed end, used to insert the device inside the vagina and hold it in place, and an outer ring which remains outside the vagina and covers the external genitalia. The device, being made of polyurethane, can be used with any type of lubricant without compromising its integrity.

Effectiveness of female condom

Pregnancies per 100 women in the first year of use as commonly used are 21. If used correctly and consistently there are 5 pregnancies per 100 women.

Advantages:

- Female-controlled
- No medical condition limits use.
- More comfortable to men, less decrease in sensation than male latex condoms. As a result, sensitivity of male partner is not substantially reduced. It also offers ease of use by men with erectile dysfunction.
- Offers greater protection as it covers both internal and external genitalia.
- Stronger (polyurethane is 40% more stronger than latex), and therefore there is less frequent breakage (1% compared to 4% for male condoms)
- Longer shelf-life even under unfavourable storage conditions.
- CSWs found that the female condom allowed them to continue their job without interruption during menstruation (study from Guatemala and Mexico).

Disadvantages:

- Some participants noted difficulties associated with insertion and removal of the female condom, discomfort, messiness and inconvenience associated with use and movement of device during use.
- More expensive than male condoms.

How to use

Some time before the sex, the woman places the closed end of the female condom high in her vagina. The closed end contains a flexible, removable ring to help with insertion. A large flexible ring around the open end of the condom stays outside covering external genitalia.

Disposal of female condoms

The proper removal and disposal of female condoms should be included with the packaging of FC as well in introductory training programmes:

FC does not need to be removed immediately after a man's ejaculation, like the male condom. But it should be taken out before the woman stands up to avoid the semen spilling out. The outer ring should be twisted to seal the condom so that no semen comes out. FC can be pulled out and wrapped in the package it came in and/or in tissue. FC should be disposed of in waste containers and not in the toilet.

Lactational Amenorrhoea Method (LAM)

Lactational Amenorrhoea Method (LAM) is the use of breastfeeding as a temporary family planning method. It provides natural protection against pregnancy and encourages the starting of another method at the proper time.

In addition to the prevention of pregnancy, LAM makes sure that the baby gets needed nutrients and protection from disease provided by breast milk.

Effectiveness of LAM

- LAM stops ovulation (release of eggs from ovaries) because breastfeeding changes the rate of release of natural hormones.
- Effective as commonly used: 2 pregnancies per 100 women in the first 6 months after childbirth.
- Very effective when used correctly and consistently: 0.5 pregnancies per 100 women in the first 6 months after childbirth.

Correct and consistent use of LAM

The following three conditions need to be met to ensure the correct use of this method:-

1. The baby gets at least 85% of his or her feeding as breast milk. And the mother breastfeeds often, both day and night
2. The mother's menstrual periods have not returned
3. The baby is less than 6 month old.

Advantages of LAM

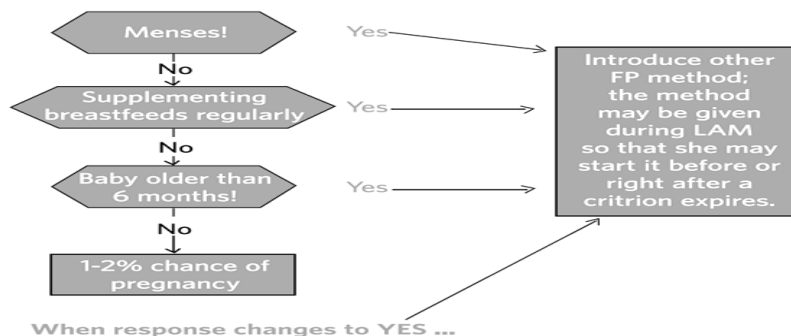
- Effectively prevents pregnancy at least 6 months and maybe longer if a woman keeps breastfeeding often, day and night.
- Encourages the best breastfeeding patterns.
- Can be used immediately after childbirth
- No need for any precaution at the time of sexual intercourse
- No direct cost for family planning or for feeding the baby.
- No supplies or procedure required to prevent pregnancy.
- No hormonal side effects.
- Counseling on LAM encourages starting a follow on method at the proper time.
- Breastfeeding practices required by LAM have other health benefits for mother and baby:
 - ✓ Provides the healthiest food for the baby
 - ✓ Protects the baby from life-threatening diarrhoea.
 - ✓ Helps protect the baby from diseases like measles and pneumonia by passing the mother's immunities to the baby.
 - ✓ Helps develop close bondage between mother and baby.

Disadvantages

- Effectiveness after 6 months is not certain
- Frequent breastfeeding may be inconvenient or difficult for some women, especially working mothers
- No protection against STIs including HIV
- If the mother has HIV, there is a small chance that breast milk will pass HIV to the baby.

The Lactational Amenorrhea Method (LAM)

The Lactational Amenorrhea Method (LAM) is presented as an algorithm, below.



A adapted from: Labbok M, Cooney K, Coly S. Guidelines: breastfeeding, family planning, and the Lactational Amenorrhea Method-- LAM. Washington, DC: Institute for Reproductive Health, 1994

In general most women can use LAM safely and effectively. LAM can be used in any circumstances by women who:

- Smoke
- Are young or old
- Are fat or thin

The only conditions that limit use of LAM are conditions that make breastfeeding difficult or that rule out breastfeeding.

Explaining how to use LAM

Give specific instructions:

1. Breastfeed often: An ideal pattern is at least 8-10 times a day including at least once at night. No daytime feedings regularly more than 4 hours apart and no night feedings regularly more than 6 hours apart.
2. Breastfeed properly: Counsel her on breastfeeding technique and diet.
3. Start other foods when the baby is 6 months old. Breastfeed before giving other food, if possible. If the baby's hunger is satisfied first by breast milk, this will help ensure good nutrition and will encourage breast milk production.
The babies may breastfeed less after starting to eat other foods. Therefore, LAM may no longer be as effective. An additional family planning method is recommended in such a situation.
4. Her menstrual period returns (bleeding in the first 56 days, or 8 weeks, after childbirth is not considered menstrual bleeding) OR
5. She stops fully or nearly fully breastfeeding. OR
6. Her baby is 6 months old (about the time when the baby starts sitting up) OR
7. She no longer wants to rely on LAM for family planning

Give her another method now that she can start later, when needed. For example, if she has no condition that would prevent using progestin-only oral contraceptives, she can be given these pills along with instructions for taking them.

LAM has three criteria:-

- Amenorrhea, defined as the absence of the menses. Menses return is defined as the first two sequential days of bleeding or spotting which may occur after two months postpartum.
- Fully or nearly fully breastfeeding, includes exclusive breastfeeding, almost exclusive breastfeeding, and nearly fully breastfeeding, day and night, on demand by the infant. Efficacy and duration of LAM are enhanced with more intense breastfeeding patterns, especially during the earlier weeks and months.
- Less than six months post partum.

Fertility Awareness- Based Methods: Standard Days Method (SDM)

"Fertility Awareness" means that a woman learns how to tell when the fertile time of her menstrual cycle starts and ends. The Standard Days Method involves identifying the fertile days during each menstrual cycle. Women with menstrual cycles ranging between 26 and 32 days can prevent pregnancy by avoiding unprotected sexual intercourse on days 8 to 19.

The Standard Days Method (SDM) is a natural family planning method for women with menstrual cycles ranging between 26 and 32 days. This method involves identifying the fertile days during each menstrual cycle. Women with menstrual cycles ranging between 26 and 32 days can prevent pregnancy by avoiding unprotected sexual intercourse on days 8 to 19.

Most women using the SDM use a device called **cycle beads** - a string of colour-coded beads that help women identify the days of their cycles when they can become pregnant and the days when pregnancy is very unlikely. The white beads, which represent the end of the cycle, indicate the time

when the woman has a high probability of becoming pregnant if she has unprotected sexual intercourse

How to use SDM

- On the day that your menstrual period starts, hold the Cycle Beads and move the rubber ring onto the first red bead.
- Each day, move the rubber ring onto the next bead, moving in the direction of the arrow.
- Avoid sexual intercourse or unprotected sexual intercourse on the days when the rubber ring is on any of the white beads.

Centchroman (Chhaya)

Introduction

Centchroman (Ormeloxifene) is a novel, nonsteroidal chemical that is marketed in India, where it was developed, as a once-a week contraceptive pill. Based on limited studies, Centchroman appears to be a highly effective, safe and easy to use oral contraceptive. Also, because it is free of the side effects commonly associated with contraceptives containing both estrogen and progestin, Centchroman could become an extremely important new oral contraceptive. Centchroman is white, tasteless, odourless, compound and the chromon derivative is pharmacologically inert, biologically not interfering with HPO axis and metabolically safe.

Mechanism of Action

In humans, Centchroman behaves as a potent antiestrogen but also has weak estrogenic and antiprogesterational actions. These effects are similar to those of the ovulation-inducing drug, clomiphene citrate. For example, it has been reported by Roy et al (1976) that Centchroman can induce ovulation when given chronically in daily doses of 15, 30 or 60 mg for 10 to 20 days to women who are not ovulating. When only a single dose (30-60 mg) is given weekly to healthy, ovulating women for contraception, however, Centchroman does not alter basal or peak gonadotropin (FSH/LH) secretion or production of estradiol and progesterone (Roy et al 1976). In addition, it does not block ovulation. At this dosage and frequency of administration the only remaining reproductive endocrine effects of the drug are:

- To slightly increase the transport of the zygote through the oviducts to accelerate blastocyst formation, and to suppress uterine endometrial proliferation and defective decidualization, by blocking mitosis of uterine epithelial tissue.
- Apparently, the combined effect of these actions is capable of creating sufficient asynchrony between the developing zygote and endometrial maturation to prevent implantation.

Effects of Centchroman

Reports from Phase III clinical trials suggest Pearl Index of 2.84 as a weekly regimen and on a twice weekly/weekly regimen.

Compared with typical use effectiveness for COC, effectiveness for Centchroman is encouraging. Delayed menstruation (bleeding interval more than 45 days) was only reported adverse effect.

When to Start and How to Use

- One pill (30 mg) is taken twice a week for first three months, followed by once a week thereafter
- Starting from fourth month, the pill is to be taken once a week on the first pill day and should be continued on the weekly schedule regardless of her menstrual cycle

For initiation: 1st pill is to be taken on 1st day of period (1st day of bleeding) and the 2nd pill 3 days later

If 1 st day of pill is	First 3 months	After 3 months
Sunday	Sun, Wed	Sun
Monday	Mon, Thu	Mon
Tuesday	Tue, Fri	Tue
Wednesday	Wed, Sat	Wed

Side Effects

Centchroman is free from side effects, commonly associated with steroidal oral contraceptive like nausea, vomiting, weight gain and dizziness

Conditions where Centchroman should be avoided:

- Polycystic ovarian disease
- Cervical hyperplasia
- Recent history of jaundice or liver disease
- Severe allergic state
- Chronic illness, like tuberculosis or renal disease

Failure rate of Centchroman in perfect use is: 1-2 pregnancy/100 women

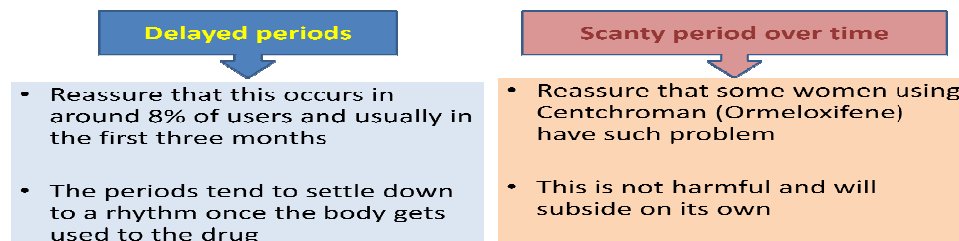
Major advantages of Centchroman includes that they:

- ✓ Are highly effective if taken correctly
- ✓ Can be given after childbirth. Safe in breastfeeding women
- ✓ Decreases the risk of ectopic pregnancy

Managing Missed Pills:

- **Take a pill as soon as possible after it is missed**
- **If pill is missed by lesser than 7 days**, take the missed pill ASAP and normal schedule to be continued; and a back-up method (condom) to be used till the next period starts
- **If pill is missed by more than 7 days**, client needs to start taking it all over again like a new user i.e. twice a week for 3 months and then once a week
- if periods are delayed by more than 15 days, pregnancy needs to be ruled out

Managing side effects- Centchroman (Chhaya)



EXERCISE FOR PARTICIPANTS:-

Q.1. Write short notes on a) Male condoms b) Female condoms
c) Centchroman (Chhaya)

Q.2. What are the Advantages and Disadvantages of Female condoms?

Q.3. What are the Advantages and Disadvantages of Male condoms?

34. MALE STERILIZATION

At end of the session the participant will able to learn

1. Vasectomy Techniques: Incisional and NSV
2. Eligibility Criteria for Vasectomy Clients and Providers
3. Informed Choice and Informed Consent
4. Clinical Assessment and Screening of Clients
5. NSV-Surgical Approach and Occlusion of Vas
6. Post-operative Care and Instructions
7. Post-operative complications & their management

Sterilization is currently the world's most widely used contraceptive method, in developing and developed countries alike and it is projected to remain so over the next two decades. Sterilization accounts for nearly half of all contraceptive use. Today, one out of four couples worldwide, choose sterilization as their family planning method.

The first recorded vasectomy was performed on a dog by Cooper in 1830. R. Harrison of London performed the first human vasectomy. During the Second World War, vasectomy was finally regarded as a method of contraception. The first vasectomy programme on a national scale was launched in 1954 in India. Vasectomy is safer, simpler, less expensive and just as effective as female sterilization. However, the number of female sterilization users exceeds the number of vasectomy users. Worldwide, approximately 253 million couples rely on sterilization. An estimated 43 million of these couples rely on vasectomy. Asia accounts for 77% of vasectomy users worldwide, with China and India alone representing more than 70% of the world's vasectomy users.

In India, the NSV technique was brought first time in 1991 after two surgeons, Dr. R.C. M. Kaza and Dr. Alok Banerjee got the skill training from Dr. Apichart Nirapathpongorn at Bangkok, Thailand, and subsequently they became the National Trainers for the NSV procedures. In March 1992, NSV was officially put into National Family Planning Programme of India. Subsequently with the initiatives of Government of India, nationwide promotion, skill training and advocacy on NSV procedure was done, which resulted in several State/District level trainers and NSV service providers in almost all the districts of the country

Vasectomy Techniques: Incisional and NSV

Vasectomy is one of the safest and most effective contraceptive method having very low complication and failure rates. Vasectomy is a very simple minor surgical procedure that takes about 10 to 15 minutes to perform, with minimal bleeding during the procedure. The acceptor can walk back home within 30 minutes after the procedure and recover much faster with almost negligible post procedure discomfort or complications. However, it demands correct pre and post procedure counselling to dispel the associated misconceptions, as well as to explain the time lag to become sterile after the procedure and to increase satisfaction and reduce chances of failure.

Currently, the two most common surgical techniques for approaching the vas during vasectomy are the Incisional method and the no-scalpel technique. Whereas the conventional Incisional technique involves the use of a scalpel to make one or two incisions (each 1 to 2 cm in length) to deliver the vas; the no-scalpel technique uses a sharp, pointed, forceps-like instrument to puncture the scrotum.

NSV neither requires any cut on the skin with a scalpel blade nor any skin stitch, after the procedure is completed. It is much less painful and faster procedure than conventional vasectomy. No-scalpel vasectomy is the recommended technique for reaching vas in the scrotum (vas deferens) that carries sperms to the penis. It is now becoming the standard technique of vasectomy around the world.

There are more similarities than differences between incisional vasectomy and NSV. For example, client counselling, pre-vasectomy assessment, vas occlusion, post-vasectomy care, and complications management are the same in both techniques

Differences between Incisional Vasectomy and NSV

Steps/method	Incisional Vasectomy	NSV
Instruments used for entry	Scalpel	Ringed clamp, Dissecting forceps
Anaesthetic method	Local injection, 2 or more	Peri-vasal block, special anaesthesia technique, needs only one needle puncture
Entry technique	1 or 2 scalpel incisions in the scrotum, blunt dissection	One small skin puncture
Dissection	Blunt and sharp dissection; multiple steps	Single step dissection
Skin closure	Sutures/ stitches required to close the skin	No closure needed

Advantages of NSV over Incisional Vasectomy

Step/Method	Advantages of NSV
Instruments	Vas fixation forceps secures the vas externally and assists in scrotal entry
Anaesthetic method	Perivascular block: Both vasa are anaesthetized from single site.
Entry technique	Single step puncture dissection technique reduces trauma, risk of bleeding and haematoma formation as compared to multiple steps of incisional procedure.
Skin closure	No need for closure
Pain	Less pain and bruising and quicker recovery
Duration of procedure	Procedure takes less time when skilled provider uses the no-scalpel approach
Chances of Complications	Less damage to the tissue Fewer surgical complications
Others (Post-operative)	Able to resume sexual activity earlier No need to come for suture removal

Counseling

General Counseling

General counseling should be done whenever a beneficiary has a doubt or is unable to take a decision regarding the type of contraceptive method to be used. They should be provided all the available options of contraception and help to choose the one which suits them the best. However, in all cases method-specific counseling on the chosen method must be given.

Method Specific Counseling

During pre-vasectomy counseling, use language the client can easily understand. Use of simplified schematic diagrams can be helpful. A man who has chosen a vasectomy needs to know what will happen during the procedure.

The following features of the vasectomy procedure should be explained:

- It is a permanent procedure for preventing future pregnancies.
- It is a surgical procedure that has a possibility of complications (including failure) requiring further management.
- It does not affect sexual pleasure, ability or performance
- It does not affect the client's strength or his ability to perform normal day-to-day functions.
- After vasectomy, it is necessary to use a back-up contraceptive method until azoospermia is achieved (usually this takes three months; some times more).
- It does not protect against RTIs, STIs, and HIV/AIDS.
- A reversal of this surgery can be possible but it involves a complex surgery and its success cannot be guaranteed.

Informed Choice and Informed Consent

The concepts of informed choice and informed consent are related but quite different in their intent. Informed consent means that a client understands the proposed medical procedure and the other options and then agrees to receive the proposed care. However, informed consent alone does not constitute informed choice. The purpose of informed choice is to ensure that all clients choose the best option/s for their health care needs after getting full information about all available options.

Informed Written Consent

- The provider must ensure that the client has made an informed and voluntary decision for vasectomy before signing the consent form.
- Clients must be encouraged to ask questions to clarify their doubts, if any.
- Clients must be told that they have the option of deciding against the procedure at any time without being denied their rights to other reproductive health services.

Documentation of Informed Consent

In India, the client's signature or putting his thumb impression on an informed consent form is the legal authorization for the vasectomy procedure to be performed. Though the consent of spouse is not a pre-requisite, ideally the spouse should also be counseled about the vasectomy procedure.

Clients must be told that a reversal of this surgery can be possible, but the reversal involves a complex surgery and its success cannot be guaranteed.

Clinical Assessment and Screening of Clients

Demographic Information

The following information is required: Name, age, marital status, occupation, religion, educational status, number of living children, and age of youngest child.

Medical History

- i. History of illness to screen out the diseases mentioned under the medical eligibility criteria and also to screen out acute febrile illness, uncontrolled diabetes, bleeding disorders, sexual problems and mental illness;
- ii. Current medications, if any;
- iii. Current use of contraception by the couple;
- iv. Last menstrual period (LMP) of the wife.

Physical Examination

Pulse and blood pressure, temperature, general condition, and local examination of penis, testicles, and scrotum. Further examinations as indicated by the client's medical history.

Laboratory Examination

Urine analysis for sugar and other laboratory examinations as indicated.

There are no absolute contraindications for performing vasectomy.

There are certain conditions that require caution, delay or referral to a specially equipped center.

The Medical Eligibility Criteria for Male Surgical Sterilization procedures outlined by WHO (2011) serves as guidelines for case selection based on the clinical findings of the client.

Timing of Surgical Procedure

Male sterilization can be done at any convenient time on healthy and eligible clients.

No Scalpel Vasectomy

No Scalpel Vasectomy is a refined approach for isolating and delivering the vas that uses vasal block anaesthesia; the technique requires unique surgical skills, including new ways to handle special instruments. Because of the novel features of NSV, it is essential that a doctor interested in learning the approach should receive hands-on training from a well-qualified and experienced trainer as manipulating the special NSV instruments requires manual skills and hand-eye coordination that are

different from those used in conventional/incisional vasectomy. The skills can be learned with hands-on, supervised training, but even then they take time and practice to master.

Isolation of Vas

Isolation of the vas can occasionally be challenging. The technique used to position the vas is the key to a successful NSV procedure. A **“three-finger technique”** for positioning the vas has been described in which the non-dominant hand is used to manipulate the vas into a subcutaneous position. Vas can be isolated by using the **“three-finger technique”**. The thumb of the non-dominant hand is placed anterior to the cord and scrotum, and the vas is trapped between the anterior thumb and the middle finger placed posteriorly (*Fig. 9.1*). The index finger is then used to retract the skin, yielding improved exposure of the vas.

With either technique, the cord is then maneuvered subcutaneously to the desired operative site, which is usually at the junction of the middle and upper one third of the midline scrotal raphe. A midline approach should be selected.

Local Anaesthesia in NSV

Premedication is not necessary in NSV. However, if the client is very anxious, and to assist in relaxing the scrotum, tablet diazepam 5-10 mg may be given. Good local anaesthetic technique is essential for a pain-free vasectomy. The technique of local anaesthesia as developed by Dr. Li (Dr. Li et al, 1992) creates a very effective vasal block. It also prevents multiple blind injections and injury to testicular vessels. The technique of LA as used in conventional vasectomy is less effective (Sokal et al, 1999) and makes fixation of vas and entry into skin more difficult because of a persistent skin wheal.

Prepare a 5 cc syringe with 1% or 2% lignocaine **without adrenaline**. This amount should be sufficient for skin wheal and vasal block anaesthesia in most clients. Attach a 1 inch, 24/26 gauge needle to the syringe.

Post-operative Instructions

The client should be provided with a discharge card indicating the name of the institution, the date and type of procedure, and the date and place of follow-up. Both verbal and written post-operative instructions should be given in the local language.

The client should be told to do the following after he is discharged:

- a) Return home and take adequate rest.
- b) Resume normal work after 48 hours and return to full activity, including cycling, after one week following surgery.
- c) Take analgesics and other medicines as advised by the doctor.
- d) Resume a normal diet as soon as possible.
- e) Keep the operated area clean and dry, and not disturb or open the dressing.
- f) The client may bathe after 24 hours, while keeping the operated part of the body protected. If the dressing becomes wet, it should be changed. In NSV, after 48 hours, the dressing may be taken off. In incisional vasectomy client should get the stitches removed on 7th day.
- g) The client should report to the doctor or the clinic, if there is excessive pain, fainting, fever, bleeding, increase in scrotal size, or pus discharge from the operated site.
- h) The client should report to the clinic for semen analysis after three months.
- i) If the client has any questions, he should contact the health personnel or doctor at any time.
- j) The client must be provided with instructions about where to go in case of complications (such as infection, swelling of the scrotum, fever, increase in pain, and bleeding from the wound).
- k) After vasectomy, clients can resume sexual activity as soon as it is comfortable for them. This usually takes at least two to three days after the procedure. Counsel clients that vasectomy does not work immediately and they can still get their partners pregnant.

Post vasectomy

Clients have to use condoms or their partners should use another family planning method consistently and correctly for at least for three months. After three months, client should return to the clinic for a semen analysis to make sure that the vasectomy was successful.

All vasectomy clients should be provided with instructions and practice on the correct use of condoms for use immediately after the vasectomy. It should be stressed that when used properly, condoms effectively prevent the transmission of RTIs/STIs including HIV, HBV and HCV and also make place for safe, tension-free and enjoyable sexual activity.

Post-Operative Complications & their Management

Early complications

a) Swelling of the scrotal tissue, bruising, and pain

These minor complications often disappear without treatment within 24 to 48 hours. Ice packs, scrotal support, and simple analgesics may provide relief.

b) Haematoma

If small, it can be treated by scrotal support, analgesics, and antibiotics. A large haematoma may need evacuation, antibiotics, and further treatment. If a haematoma is detected early, it is desirable to cut the stitches, remove the clots, and look for the bleeding or oozing points, which should be tied. In case of NSV, scrotum should be opened, clots removed and haemostasis achieved. The wound should be packed and left open. Referral should be considered, if needed.

c) Infection

- i. **Stitch abscess:** To be treated with removal of stitch, drainage, dressings and antibiotics.

ii. **Wound sepsis:** In case of severe sepsis, the wound should be opened and the pus drained. Further treatment should include application of dressings and administration of antibiotics and analgesics.

iii. **Orchitis:** Cases must be treated with antibiotics, analgesics, scrotal support, and bed rest. Severe orchitis may require hospitalization.

d) Tetanus

A rare complication. If tetanus is detected, the patient must be transferred immediately to a well-equipped centre for treatment.

Delayed complications

a) Sperm granuloma

This can occur either at the site of the vas occlusion or over the epididymis. The majority of these is symptomless, and responds to analgesics and anti-inflammatory drugs. Very occasionally a persistent and painful granuloma may necessitate surgical intervention.

b) Psychological problem

Uncommon. However, discussion of the problem, through counselling regarding male sterilization procedure and answering questions are important steps. Appropriate referral should be given if the problem persists.

c) Failure of vasectomy

Incidences of failure are quite low, but may occur because of technical deficiencies in the surgical procedure or as a result of spontaneous re-canalization. The client's partner should be offered MTP or should be medically supported throughout pregnancy. The client should be offered a repeat surgery, as indicated.

There is no association of prostatic or testicular cancer and cardiovascular disorder with vasectomy.

Key Points to remember

1. Two types of male sterilization among which NSV is widely acceptable and easy to perform
2. All Aseptic precautions should be strictly followed during surgery
3. Selection of client and thorough medical examination required
4. Post surgery counselling and advice regarding three months condom use are of prime importance.
5. Provide Written and verbal instruction to client in local language while discharge.

EXERCISE FOR PARTICIPANTS

Q.1. Enumerate the types of male surgery and their difference.

Q.2. What are the post operative complications of NSV?

Q.3. What are the points to be included in post operative counselling in NSV?

Quote:-

Vasectomy:- Preventing the sperm from becoming part of the ejaculated fluid

FEMALE STERILIZATION

At end of the session the participant will able to learn

1. Female Sterilization Techniques: Minilap and Laparoscopy
2. Eligibility Criteria for female sterilization Clients and Providers
3. Informed Choice and Informed Consent
4. Clinical Assessment and Screening of Clients
5. Laparoscopic Surgical Approach and Tubal Occlusion
6. Post-operative Care and Instructions
7. Post-operative complications & their management

Female Sterilization is one of the most popular and effective methods of contraception. In addition to being permanent, it is highly effective, safe and relatively free from side effects. In India female sterilization by tubectomy or tubal occlusion is the most commonly accepted methods among eligible couples. District Level House-hold Survey (DLHS III) shows that 34% of the ever married women accepted female sterilization as a contraceptive choice

Eligibility of Providers to Perform Sterilization Procedure

Sterilization Service		Basic Qualification Requirement of Service Provider	
Empanelled	Female	Minilap sterilization	DGO, MD/MS in ObGyn Specialists in other surgical fields MBBS } Trained in Minilap sterilization
		Laparoscopic sterilization	DGO, MD/MS in ObGyn Specialists in other surgical fields MBBS performing Minilap sterilization } Trained in laparoscopic sterilization
	Male	Conventional vasectomy	MBBS and above (trained in Conventional vasectomy)
		No-scalpel vasectomy (NSV)	MBBS and above (trained in No Scalpel vasectomy)

When to Perform Female Sterilization

Woman's situation	When to Perform
Having Menstrual Cycles	- Any time within 7 days after the start of her menstrual bleeding. - Any time of menstrual cycle, provided it is reasonably certain that she is not pregnant.
Switching from another method	- OCP: To be done any time but she can continue the pill until the pack is finished to maintain her regular cycle. - IUCD: To be done anytime, concurrently with removal of IUCD.
No monthly menstrual bleeding	Any time provided it is reasonably certain she is not pregnant.
After childbirth	- Within 7 days after giving birth (only Post-Partum Minilap tubectomy can be performed). - Any time 6 weeks or more after childbirth if it is reasonably certain she is not pregnant (Interval Sterilization).
After MTP	- Concurrently with surgical MTP or within 7 days post MTP . - In case of Medical Abortion the tubectomy should be done after next menstrual cycle. - Laparoscopic tubal occlusion procedure can be performed only in MTPs up to 12 weeks of gestation.
After miscarriage or abortion	Within 7 days, if no complications.
After using Emergency Contraceptive Pills (ECPs)	Within 7 days after the start of her next monthly bleeding or any other time if it is reasonably certain she is not pregnant.

Minilap Tubectomy

Types of Procedures

The procedure for accessing the fallopian tubes and the steps of the Minilap Tubectomy depend upon the size of the uterus; thus, the procedure is selected based on timing related to last delivery. Sterilization by Minilap Tubectomy can be interval sterilization using supra-pubic approach or post-partum sterilization using sub-umbilical approach.

Timing of the Surgical Procedure

- **Interval sterilization:** should be performed within 7 days of the beginning of menstrual period (in the follicular phase of the menstrual cycle) or anytime during the cycle if the woman and the provider are reasonably sure that she is not pregnant.
- **Post-partum sterilization:** should be done within 7 days of delivery.
- **Sterilization following spontaneous abortion:** can be performed concurrently or within seven days of abortion, after excluding infection.
- **Sterilization following MTP:** can be performed immediately after the procedure if the provider has ensured that the abortion is complete and there is no infection.
- **Medical Abortion:** In the next menstrual cycle, if client had undergone medical abortion.
- **Concurrent with other Surgery:** LSCS, Salpingectomy or Ovarian Cystectomy.

Advantages of Post-Partum Minilap Tubectomy

- Woman is already admitted in a facility and her current health status usually can be established from delivery and prenatal records.
- The uterus is high in the abdomen and a small incision (1.5-3.0 cm) just below the umbilicus is usually sufficient to access the tubes.
- Local anaesthesia with light sedation/analgesia is usually sufficient.
- Hospital stay beyond what is required for a normal delivery (often 48 hours) is not required after the procedure.
- The procedure is permanent and is effective immediately.
- After the procedure no further contraception is required.
- No long term side effects.

Laparoscopic Tubal Occlusion

Timing of Laparoscopic Tubal Occlusion

Laparoscopic tubal occlusion is usually performed in the 'interval' period (6 weeks after delivery or any time when the woman is not pregnant) or following first trimester abortion. For interval procedures, laparoscopy may be performed at any time in the menstrual cycle although it is preferable to do it at the end of the menstrual period or shortly thereafter to ensure that the client is not pregnant.

It is not recommended in the postpartum period or after 2nd trimester post-abortion because of the possibility of injury to the larger, more vascular postpartum uterus.

Advantages of Laparoscopic Tubal Occlusion

- Causes minimal discomfort.
- Requires little operating time (usually 5 to 15 minutes).
- Leaves a very small scar.
- Has a short post-operative recovery period.
- Is permanent and effective immediately.
- No further contraception is required.

Eligibility Criteria for Clients Undergoing Female Sterilization

(Self-declaration by the client will be the basis for compiling this information. No eligible client should be denied female sterilization service)

- Clients should be ever-married.
- Female clients should be above the age of 22 years and below the age of 49 years .
- The couple should have at least one child, whose age is above one year, unless the sterilization is medically indicated.
- Clients or their spouses/partners must not have undergone sterilization in the past (not applicable in cases of failure of previous sterilization).
- Clients must be in a sound state of mind, so as to understand the full implications of sterilization.
- Mentally ill clients must be certified by a psychiatrist and a statement should be given by the legal guardian/spouse regarding the soundness of the client's state of mind.
- A relevant medical history, physical examination and laboratory investigations need to be completed to ascertain eligibility for surgery.

Client assessment for eligibility to undergo female sterilization is a key factor in minimizing risk of complications and ensuring quality of service delivery. No medical conditions prevent a woman from undergoing female sterilization but may limit when, where or how the female sterilization procedure should be performed.

Category Explanation

Category	Explanation
Accept (A)	There is no medical reason to deny the method to a person with this condition or in this circumstance. The procedure can be performed in most clinical settings.
Caution (C)	The method is normally provided in a routine setting but with extra preparation and precautions as required.
Delay (D)	Provision of the method should be delayed or postponed. These conditions need to be evaluated, treated and resolved before female sterilization can be performed. Alternatively, temporary methods of contraception should be provided.
Special (S)	Certain women have conditions that make operation difficult or increase the risks. The procedure should be undertaken in a setting with an experienced surgeon and staff, equipment needed to provide general anaesthesia and other back-up medical support. The capacity to decide on the most appropriate procedure and anesthesia support is also needed. Alternatively, temporary methods of contraception should be provided if referral is required or there is otherwise any delay.

The following are the conditions included in Caution, Delay and Special categories:

CAUTION	DELAY	SPECIAL
• Previous abdominal or pelvic surgery	• Severe iron deficiency anaemia (Haemoglobin < 7 gm/dl)	• Conditions that increase chances of heart disease or stroke i.e. older age, smoking, high BP or diabetes
• Obesity	• Current pregnancy	• Blood Pressure > 160/100
• Controlled BP (140-159/ 90-99)	• 8 – 42 days postpartum	• Complicated heart disease
• Uncomplicated heart disease	• Pregnancy with severe pre-eclampsia or eclampsia	• Coagulation disorders
• History of ischemic heart disease	• Post partum or post abortion complications (infection, hemorrhage and trauma)	• Chronic lung diseases (asthma or emphysema)
• Stroke	• Current DVT/PE	• Endometriosis
• History of cerebro-vascular accident	• Major surgery with prolonged immobilization	• Pelvic tuberculosis
• History of deep vein thrombosis or pulmonary embolism	• Abdominal skin infections	• Fixed uterus due to previous surgery or infection
• Epilepsy	• Current ischemic heart disease	• Abdominal wall or umbilical hernia
• Depressive disorders	• Lung disease like pneumonia	• Post partum or post abortion uterine rupture or perforation
• Current breast cancer	• Systemic infection	• Diabetes of 20 years standing with organ damage
• Uterine fibroids	• Unexplained vaginal bleeding	• Hyperthyroidism
• PID without subsequent pregnancy	• Large collection of blood in uterus	• Severe cirrhosis of liver
• Uncomplicated diabetes	• Malignant trophoblastic disease	• AIDS
• Hypothyroidism	• Cancers of the genital tract	
• Mild cirrhosis	• Current PID	
• Liver tumors	• Current purulent cervicitis, Chlamydia, Gonorrhea	
• Kidney disease	• Current gall bladder disease	
• Thalassemia and Sickle Cell Disease	• Uncontrolled diabetes	
• HIV		

Offer the client another contraceptive method till the procedure can be performed.

Female Sterilization in Women with HIV/AIDS

- No woman should be denied female sterilization based on their HIV Status.
- Women who are living with HIV, have AIDS or are on antiretroviral (ARV) therapy can safely undergo female sterilization. The procedure is done as in other clients, ensuring universal precautions.
- Counsel these women to use condoms in addition to undergo female sterilization. Used consistently and correctly, condoms help prevent transmission of HIV and other STIs. (Dual Protection).
- No woman should be coerced or pressurized into having sterilization and that includes women with HIV.

Clinical Assessment of Clients and Steps prior to Sterilization Procedures

Clinical Assessment

Demographic Information

The ensuing information is required: Name of the client, spouse's name, age, address, marital status, occupation, religion, and educational status, number of living children and age of the youngest child. If possible, contact telephone number of client, ASHA/ANM (if available)

History

Specific information which should be obtained as part of the medical history includes:

- **Menstrual History** - date of last menstrual period (LMP); cycle details including length of cycle, duration and amount of flow, dysmenorrhoea, and regularity of periods.
- **Obstetric history** - number of pregnancies and living children and mode of delivery, date of last childbirth, number and date of abortion/MTP; current pregnancy status.
- **Contraceptive history** - when and what was the last contraceptive used. If discontinued, when and why.
- **Medical History**
 1. History of illness and other medical conditions in the past or at present to screen out the diseases as mentioned under the medical eligibility criteria. Rule out any febrile illness, coagulation disorder or diabetes.
 2. Immunization status for tetanus.
 3. Any known drug allergies especially to analgesics and other medications.
 4. Current medications and reason.

Physical Examination

This should include a general examination, examination of abdomen and pelvis and any other examination as indicated by the client's medical history or general physical examination.

General examination

- Pulse, blood pressure, respiratory rate, temperature
- Body weight, general condition, pallor and nutritional status
- Auscultation of heart and lungs
- Signs of anaemia: such as
 - pale skin or conjunctiva
 - rapid pulse (> 100/min)
 - systolic murmurs

Abdominal examination

- Suprapubic or pelvic tenderness
- Masses or gross abnormalities
- Surgical scars

Pelvic examination

Ensure that the client has passed urine before performing a pelvic examination

- Inspect external genitalia for abnormalities and lesions.
- Enlarged groin nodes

Speculum examination

- Check for abnormal vaginal discharge
- Check cervix for purulent cervicitis
- If indicated by history and physical findings and a microscope is available, obtain specimens of vaginal and cervical discharge for diagnostic studies.

Bimanual examination

- Check for cervical motion tenderness

- Determine size, shape, position and mobility of uterus
- Check for mass or tenderness of the adnexa, active PID, etc.
- Check for signs of pregnancy
- Check for uterine abnormalities
- Recto-vaginal examination is performed only if findings on bimanual examination are doubtful, for example, mass in cul de sac.
- Check pouch of Douglas for mass or tenderness

Investigations

Pregnancy test

This is usually not necessary except in cases where it is difficult to confirm or rule out pregnancy by pelvic examination (i.e. very early pregnancy less than 6 weeks from LMP) or the results of a pelvic examination are equivocal (e.g. the size and consistency of the uterus is difficult to determine due to obesity or a retroverted uterus). In these situations, a highly sensitive pregnancy test (positive within 10 days after conception) may be necessary. If pregnancy testing is not available, counsel the client to use a barrier method until her next menses to prevent pregnancy and plan the procedure for the next menstrual cycle.

One can be reasonably sure that the client is not pregnant, if she

- Has no signs or symptoms of pregnancy (e.g. breast tenderness or nausea) or
- Has not had intercourse since her last menses or
- Has been correctly and consistently using a reliable contraceptive method or
- Is within the first 7 days post-abortion or
- Is within the first 7 days after the start of her menses or
- Is within 4 weeks postpartum or
- Is fully breast feeding, is less than 6 months postpartum and has had no menstrual bleeding. If there is no sign or symptom of pregnancy, female sterilization can be provided to the client, if she has opted for the method and the Medical Eligibility Criteria has been met.

Other Lab Investigations

Routine investigations like haemoglobin (Haemoglobin should be ≥ 7 gm/dl) and urine examination for albumin and sugar are necessary. Extensive laboratory investigations are unnecessary for procedures under local anaesthesia. Other investigations may be conducted, if indicated.

Final Assessment

After reviewing the client's suitability for Female Sterilization the operating surgeon should conduct a final assessment prior to surgery at the facility where the procedure is to be performed.

The operating surgeon should ensure that the medical records are filled properly.

Pre-procedure Instructions for Clients

The client should:

- i. Preferably trim the pubic and perineal hair. Shaving of pubic hair, if warranted, should be done just prior to surgery.
- ii. Bathe and wear clean and loose clothes to the OT.
- iii. Not have a meal on the morning of the surgery (the client should not take anything orally, not even water, at least 4 hours prior to surgery and any solids, milk or tea at least 6 hours prior to surgery).
- iv. Empty her bowels on the morning of the surgery and empty her bladder before entering the OT.

- v. Should remove her glasses, contact lens, dentures, jewellery and lip stick if she is wearing any of these.
- vi. Have a responsible adult accompanying her to take her home after surgery.

Drugs for Preoperative and Intra-operative Sedation and Analgesia

Approximate Weight/Build of client	Name of the Drugs (Dose)	Route and time of administration	Repeat Dose if required on the table**	Route and time of administration**
Thin (< 40 kg)	Pethidine 25 mg + Promethazine 12.5 mg	IM: 30-45 min prior to surgery	Pethidine 10 mg	IV: 5 min prior to surgery
	OR			
	Pentazocine 15 mg + Promethazine 12.5 mg	IM: 30-45 min prior to surgery	Pentazocine 15 mg	IV: 5 min prior to surgery
Average (40-50 kg)	Pethidine 37.5 mg + Promethazine 12.5 mg	IM: 30-45 min prior to surgery	Pethidine 10 mg	IV: 5 min prior to surgery
	OR			
	Pentazocine 22.5 mg + Promethazine 12.5 mg	IM: 30-45 min prior to surgery	Pentazocine 15 mg	IV: 5 min prior to surgery
Well built (>50 kg)	Pethidine 50 mg + Promethazine 25 mg	IM: 30-45 min prior to surgery	Pethidine 10 mg	IV: 5 min prior to surgery
	OR			
	Pentazocine 30 mg + Promethazine 25 mg	IM: 30-45 min prior to surgery	Pentazocine 15 mg	IV: 5 min prior to surgery

Components of Infection Prevention (Standard Precautions) are:

1. Hand washing
2. Self- Protection of Health Care Providers.
3. Safe work practices (handling of sharp items).
4. Environmental cleanliness
5. Proper instrument processing
6. Waste management plan

Surgical Approaches

Minilap Tubectomy is performed by two approaches:

1 **Sub-umbilical approach** is appropriate in the immediate postpartum period and within 7 days of childbirth. (Post- Partum Sterilization).

2 **Supra pubic approach** is appropriate for Interval Minilap Tubectomy.

Steps for Laparoscopic Tubal Occlusion

Before starting the procedure, ensure that the client has:

- i. Given informed, voluntary consent for the procedure and signed the consent form.
- ii. Emptied her bladder (voided).
- iii. Been provided with a brief overview of the procedure to be performed under local anaesthesia.
- iv. Been counselled that she may feel a little pain/pressure, pulling or cramping during some of the steps of the procedure.
- v. Been asked to inform the doctor if she feels any discomfort at any time.

Effectiveness of Minilap Tubectomy and Laparoscopic Tubal Occlusion

Minilap tubectomy and laparoscopic tubal occlusion carry a small risk of failure.

- Less than 1 pregnancy per 100 women over the first year after having the sterilization procedure (5 per 1,000). This means that 995 of every 1,000 women relying on female sterilization will not become pregnant.
- A small risk of pregnancy remains
 - Over the 1 year of use and until the woman reaches menopause.
 - Over 10 years of use: About 2 pregnancies per 100 women (18 to 19 per 1,000 women).
- Effectiveness varies slightly depending on how the tubes are blocked but pregnancy rates are low with all techniques. One of the most effective techniques is cutting and tying the cut ends of the fallopian tubes after childbirth (postpartum tubal ligation).
- Failure, may be due to abnormalities of the fallopian tubes; procedural errors and reopening of the tube (recanalization) during the healing process.
- The failure may also be because of occlusion or ligature of tube, only on one side.

Post-operative Care

The client may be discharged when the following conditions are met:

- After at least 4 hours of procedure, when the vital signs are stable and the client is fully awake, has passed urine, and can walk, drink or talk.
- The client has been seen and evaluated by the doctor. Whenever necessary, the client should be kept overnight at the facility.
- The client must be accompanied by a responsible adult while going home.
- Analgesics, antibiotics, and other medicines may be provided and/or prescribed as required.

Post-operative and Follow-up Instructions

The client is to be provided with a discharge card indicating the name of the institution, the date and type of surgery, the method used, and the date and place of follow-up Both written and verbal post-operative instructions must be provided in the local language.

The client must be advised to:

- Return home and rest for the remainder of the day.
- Resume only light work after 48 hours and gradually return to full activity by two weeks following surgery.
- Use medicines as instructed.
- Resume normal diet as soon as possible.
- Keep the incision area clean and dry. Do not disturb or open the dressing.
- Bathe after 24 hours following the surgery. If the dressing becomes wet, it should be changed so that the incision area is kept dry until the stitches are removed.
- In the case of interval sterilization, the client may have intercourse one week after surgery, or whenever she feels comfortable. Sterilization procedures do not interfere with sexual pleasure, ability or performance.
- The client must report to the doctor or the clinic if there is excessive pain, fainting, fever, bleeding or pus discharge from the incision, or if the client has not passed urine, not passed flatus, and feels bloating of the abdomen.
- Follow-up contact with all tubectomy clients at home by the female health worker in a government health institution or reporting by the client to the clinic should be established within 48 hours of surgery.
- The second follow-up should be done on the seventh post-operative day for the removal of stitches and post-operative check-up. A pelvic examination may be done, if indicated.

- The third follow-up should be done after one month or after the client's first menstrual period, whichever is earlier.
- The client must return to the clinic if there is a missed period/suspected pregnancy within two weeks of the missed period. If she has missed her period or is experiencing any menstrual abnormality, she must be examined to rule out pregnancy.
- Instructions should be given on where to go for routine and emergency follow-up.
- If the client has any questions, she should contact the health personnel or doctor at any time.

Certificate of Sterilization

A certificate of sterilization should be issued after one month of the surgery or after the first menstrual period by the Medical Officer of the facility.

Complications of Female Sterilization and Their Management

Intra-operative complications

Nausea and vomiting: Ondansetron (4 mg) or Metoclopramide (10 mg) may be given IM or Iv.

Vasovagal attack: Raise the leg end and lower the head end and give oxygen.

Administer Atropine (0.6 mg) Iv if there is bradycardia. This can be repeated if the baseline pulse rate is not achieved within 1 to 2 minutes.

Respiratory depression: Keep the airway patent; assist breathing using manual resuscitation equipment with oxygen; assess the circulation by monitoring pulse, blood pressure, and respiration; give other supportive therapy as indicated.

Cardiorespiratory arrest: Details of the sequential management of cardiorespiratory arrest as per protocols

Uterine perforation due to introduction of uterine elevator from below: This needs to be repaired immediately if there is bleeding. Otherwise the patient needs to be placed under further hospital observation to ensure that she is stable.

Bleeding from the mesosalpinx: This can be treated through a laparoscope with a cautery or ring/clip application. Alternatively, the bleeding should be controlled immediately by laparotomy. Injury to the urinary bladder: Enclose in two layers and put self-retaining catheter in bladder for 7 days or as long as necessary.

Injury to intra-abdominal viscera (i.e. small or large bowel) and blood vessels:

This must be repaired immediately and the IV line maintained. If the operating surgeon is not confident of repairing, he/she must ask for help from a surgical colleague.

Convulsions and toxic reactions to local anaesthesia: The foremost priority is to maintain patency of airway and give 100% oxygen inhalation. If the convulsions persist, administer Injection Diazepam 5–10 mg Iv. Administration of IV fluid is not generally required but may be given if necessary. Surgery should be stopped and the patient allowed to recover. Further, surgery should be performed at a centre with the full range of services.

Post-operative complications

Wound sepsis: Small stitch abscess is to be treated with drainage and dressings. However, severe sepsis needs opening of the incision and drainage of pus. Further, treatment should be done with dressings, antibiotics, and analgesics.

Haematoma in the abdominal wall: A small non-expanding, non-infected haematoma will resolve with no therapy. A large one, particularly if infected, may need drainage and treatment with antibiotics.

Intestinal obstruction, paralytic ileus, and peritonitis: The client should be hospitalized if she is not already in hospital. Keep the patient on nothing by mouth, put nasogastric suction, give IV fluids, antibiotics, and analgesics as indicated, and refer to a higher centre, if required.

Tetanus: If tetanus is diagnosed, the patient must be transferred immediately to a proper centre for treatment.

Incisional hernia: A rare complication that needs surgical treatment.

Failure of operation leading to pregnancy

This may be due to either technical deficiency in the surgical procedure or spontaneous re-canalization. To detect failure leading to pregnancy at the earliest, the client should be advised to report to the facility immediately after missed periods. The client should be offered MTP and repeat sterilization surgery or should be medically supported throughout the pregnancy if she so wishes. Ectopic pregnancy must be ruled out as tubectomy predisposes to this condition. Each case of sterilization failure should be reported to the District Quality Assurance Committee. The District Quality Assurance Committee will conduct a preliminary investigation and report to the State Quality Assurance Committee.

All cases of failure and complications, major or minor, arising during surgery or post-surgery must be documented. The complications that required hospitalization and all cases of failure must be reported to the district quality assurance committee. The district quality assurance committee will in turn be responsible for communicating such information to the concerned insurance service providers for compensation.

Key Points to remember

1. Two types of female sterilization among which Laparoscopy is widely acceptable and easy to perform by trained surgeon.
2. All Aseptic precautions should be strictly followed during surgery.
3. Selection of client and through medical examination required and as per eligibility criteria.
4. Examination by operating surgeon and advice regarding preoperative medication is important.
5. Regular medical examination in post operative period by doctor and see if any complications.
6. Post surgery counseling and advice regarding follow up is important.
7. Provide Written and verbal instruction to client in local language while discharge.

EXERCISE FOR PARTICIPANTS

Q.1. Enumerate the types of female sterilization and their difference?

Q.2. What are the post operative complications of Minilap?

Q.3. What are the points to be included in post operative counseling in Minilap and Laparoscopic TL?

Q.4. What are advantages, Limitations of Minilap?

Quotes:-

Remind yourself that you have done sterilization for the better future of you, your family and your nation.

35. MEDICOLEGAL ASPECTS OF STERILIZATION DEATH

At the end of this session the participants will be able to learn

1. Family Planning Indeminty Scheme
2. Benefits under the Family Planning Indemnity Scheme
3. Monitoring of the FPIS
4. Reporting of Sterilization Deaths, Complications and Failures

1. Definition: Death of a sterilization case on the table to within 4 weeks of the operation is called as sterilization death. Tubectomy deaths are classified as

- T1-** Death of a case on the table
T2- Death within 24 hours of operation
T3- Death within 7 days of operation
T4- Death from more than 8 days to 4 weeks

2. Investigation of sterilization death

District level officers investigate sterilization death. MO PHC should immediately report death to DHO giving detail information of the case.

- Reporting of death : immediately to higher authority
- Preliminary investigation reports : Within 8 days.
- Detail report : Within 30 days.
- Quality assurance committee report : Within 60 days.

3. Assurance committee Quality

Quality assurance committee at regional level investigates all deaths following sterilization, IUD insertion and MTP occurring in the circle.

Every circle has the Quality Assurance Committee comprising of following members

Dy. Director of Health Services	Chairman
Civil Surgeon of concerned district	Member
Professor of Surgery	Member
Professor of Pathology	Member
Professor of OBGY	Member
Professor of Medicine	Member
Professor of Anesthesia	Member

DHO of concerned ZP where death/complication has occurred will be member of circle level Quality Assurance Committee.

3.1. Responsibilities of the committee

- To investigate all cases of complications/reaction or death due to sterilization, IUD insertion, MTP & other FW related interventions.
- Fixing responsibilities& recommending actions.
- Ensuring delivery of prompt services.
- Reporting of deficiencies & lapses observed & suggest for improvement.
- Submit its report to DHS within 2months from the date of occurrence of incidence.

4. Ex-gratia financial assistance in cases of fatality/ complications

5. PM in case of death due to sterilization

- After sterilization death postmortem is a must. PM should be performed by 2 MOs & one of them should be senior experienced officer. If gynecologist available it is preferable.

- Sterilization death should be considered as medico legal case & reported to police.
- Viscera should be preserved for chemical analysis & specimen should be sent for histopathological examination. (Especially tubes, ovaries & uterus). If there is problem with intestine, intestine should be sent for HP examination.

6. Record of tubectomy death & police department

- All record related to investigation of tubectomy death, report of Quality Assurance Committee is confidential.
- Prior permission of govt. has to be taken before giving record to police department.
- If police complaint is lodged against Medical Officer in case of sterilization death, prior permission of health department authority has to be taken before taking action against doctor.

FAMILY PLANNING INDEMNITY SCHEME

India was the first country to launch a National Family Planning Programme way back in 1952, emphasizing fertility regulation for reducing birth rates to the extent necessary to stabilize the population at a level consistent with the socio-economic development and environment protection. Since then the demographic and health profiles of India have steadily improved. Sterilization is still the most popular family planning method adopted by the clients to limit their family size.

Quality of services plays a major role in acceptance of any service. Poor quality of services leads to unsatisfied clients resulting in under-utilization of services. To build the confidence of clients it is necessary to provide them safeguards against adverse events. Family planning services are largely being provided through a network of public and private accredited facilities. However, persistent high unmet need for limiting methods and lack of trained providers at peripheral level leads to dependence on the camp approach. There has been growing concern about the quality of sterilization services being offered, particularly at the camp facilities.

There is a continuing concern about the number of adverse events following sterilization as well as litigations faced by the facilities /doctors against such cases.

To mitigate this, the Government of India introduced the National Family Planning Insurance Scheme which was later modified as Family Planning Indemnity Scheme “FPIS”, now operational through State NHM Program Implementation Plan instead of private sector insurance company.

Against the backdrop of the directions of the Hon’ble Supreme Court, the “NFPIS” was introduced from 29th Nov, 2005 so as to do away with the complicated process of payment of ex-gratia to the beneficiaries of sterilization for treatment of post-operative complications, failure of sterilization or death attributable to the procedure of sterilization. Since then, the scheme has witnessed changes in the insurers and modifications in limits and payment procedures. Initially the scheme was operated by The Oriental Insurance Company Limited from 29th Nov, 2005 and renewed w.e.f. 29-11-2006 with modification in the limits and payment procedures. Later, the scheme was operated by ICICI Lombard General Insurance company w.e.f. 01-01-08 up to 31-03-2013 with yearly renewals. The scheme thereafter has been modified as “Family Planning Indemnity Scheme” and is operational from 01.04.2013.

Family Planning Indemnity Scheme (FPIS)

Under the Family Planning Indemnity Scheme it has been decided that States/UTs would process and make payment of claims to beneficiaries of sterilization in the event of death/ failure/complication if the claim received within 90 days of occurrence of incident to the District Nodal Officer and indemnity cover to doctors/health facilities (Under NHM State Programme Implementation Plans (PIPs) w.e.f. 1st April 2013). It is envisaged that States/UTs would make suitable budget provisions for implementation of the scheme through their respective Program Implementation Plans (PIPs) in the

relevant head under the National Health Mission (NHM). The scheme is uniformly applicable for all States/UTs.

The available benefits under the Family Planning Indemnity Scheme are as under

Section	Coverage	Limits
SECTION I (A-D) : For Beneficiaries		
I A	Death following sterilization (inclusive of death during process of sterilization operation) in hospital or within 7 days from the date of discharge from the hospital	Rs. 2 lakh
I B	Death following sterilization within 8 - 30 days from the date of discharge from the hospital	Rs. 50,000/-
I C	Failure of sterilization	Rs 30,000/-
I D	Cost of treatment <i>in hospital and up to 60 days</i> arising out of complication following sterilization operation (inclusive of complication during process of sterilization operation) from the date of discharge	Actual not exceeding Rs. 25,000/-
SECTION II: Empanelled Doctors under Public and Accredited Private/NGO Sector and Health Facilities under Public and Accredited Private/NGO Sector		
II*	Indemnity coverage up to 4 cases of litigations per doctor and per health facility in a year	Upto Rs. 2 Lakh per case of litigation

As per Hon'ble Supreme Court's directives the same amount of benefit as given by Government of India through approved NHMPIPs, need to be given from the State Government Budget also. So the beneficiary of will get double benefit.

Quality Assurance Committee

Subsequent to the orders of the hon'ble Supreme Court of India in the Ramakant Rai vs. Union of India case dated 1.3.2005 regarding quality of sterilisation services in India, Quality Assurance Committees have been formed by all states at the State and District level to ensure that the standards for female and male sterilization as laid down by the GOI are followed in respect of pre-operative measures, operational facilities etc. The committee consisted of 10 members at the state level and 9 members at the district level.

District Indemnity Sub-Committee (DISC) will also be formed at district level. The subcommittee at district level would comprise of the following:

1. District Collector, (Chairperson)
2. Chief Medical Officer/District Health Officer (convener)
3. District Family Welfare Officer/RCHO/ equivalent (member secretary)
4. Empanelled gynaecologist (from public institutions)
5. Empanelled surgeon (from public institutions)

This 5 member "District Family Planning Indemnity Subcommittee" from within the DQAC would process claims received from the clients and complaints/ claims lodged against the surgeons and accredited facilities, as per procedures and time frame laid down in the FPIS manual. The "District Family Planning Indemnity Subcommittee" would **meet every three months** or sooner if warranted. At least three members would constitute the quorum of this sub-committee

At Facility level: Quality Circle (QC): (Suggestive)

Sterilization services are being provided to the people at various government and accredited private/NGO outlets. At each service delivery site, sterilization service needs to be monitored and reviewed periodically.

For institutions such as District/Civil/Sub-divisional/Referral/Rural Hospitals/CHCs/ BPHCs Quality Circles comprising of a team of medical, paramedical and other support staff should be constituted,

depending on the size of the institution being monitored, for reviewing the quality of services periodically.

The suggested composition of the Quality Circles is as follows: I/C Hospital/Medical Superintendent: Chairperson, I/C Operation Theatre/ I/C Anaesthesia, I/C Surgery, I/C Obstetrics and Gynaecology, I/C Nursing, I/C Ancillary Services (ward boys), I/C Transport, I/C Stores, I/C Records

Mechanism of Monitoring of the Scheme-

- District Quality Assurance Committee (DQAC) shall review quarterly the status of accredited facilities, empanelled providers, claim status, period of pendency of claims and advise the district officials to respond/comply with the deficiencies, if any. In case the numbers of pending claims are high, the committees can meet sooner if warranted. Moreover, SISC may intervene to fast track the claim disbursement process.
- In case of death attributable to sterilization DISC should audit every single case as per procedure laid in Quality Assurance Guidelines issued by Ministry of Health and Family Welfare, GOI in compliance with the Hon'ble Supreme Court directions
- The claims after due diligence by the DISC should be put up to the SISC who would be the final arbiter for the same.
- SQAC/DQAC shall ensure that each district and health facility is provided with FPIS Manual and mandatory documents required for claims. SISC/DISC shall ensure that District Officials are filing the FPIS Claims well within the stipulated period as per the scheme.
- Convener of SISC (Director Family Welfare or Equivalent) designated for this purpose at state level shall review all pending matters including pending claims on monthly basis. State shall organize review meetings on biannual basis to review all pending matters including pending claims under the chairmanship of Mission Director (NHM) with the designated district machinery. The MOHFW, GOI shall conduct annual review on all matters relating to FPIS.

Reporting of Sterilization Deaths, Complications and Failures

Report on Sterilization Deaths

- Sterilization deaths are to be reported in the Death Notification Form to the District CMO, i.e. the convener of the District QAC, within 24 hours of death by telephone, e-mail, or in person. The operating surgeon of the case should also be informed simultaneously of the occurrence of death so that he/she may fill up Death Notification Form within 7 days of intimation and send it to the District QAC. It is the responsibility of the Medical Officer at the institution where the death occurred to fill in Death Notification Form. A copy of the Death Notification Form must also be sent to the state-level convener.
- Following the immediate notification of death by the medical officer, the operating surgeon should review the records and complete on sterilization deaths and send it to the convener of the District QAC within 7 days. A copy of the records and the autopsy report and other pertinent information should be forwarded along with this report to officials as indicated earlier.
- The District QAC will review the report, discuss the findings, conduct a field investigation and make recommendations for corrective action. The District QAC will then complete the Death Audit Report.
- The Death Audit Report should be presented by the District QAC within 30 days to the state-level committee, which will then forward it to the Government of India.

Report on Sterilization Complications

The report on complications requiring hospitalization attributable to sterilization is to be filled in by the District QAC of the district where the client has reported.

The reportable complications are as follows:

- Any problem directly related to surgery and/or anaesthesia that occurs within 60 days of the operation and intervention or management beyond what is normally required and that necessitates hospitalization;
- Blood transfusion is required;
- Any problem arising out of additional unplanned surgery other than that of the fallopian tubes, mesosalpinx or vas deferens at the time of the sterilization procedure;
- Any subsequent operation/operations related to the original surgery.

The DQAC should conduct a field investigation/enquiry, review the case record, discuss the findings and make recommendations for corrective action.

Report on Sterilization Failures

Sterilization failure is defined as any pregnancy that occurs after certification of the sterilization operation. In case of suspected pregnancy after the sterilization procedure, investigations such as urine test for pregnancy, USG and semen examination (in the case of male clients) should be conducted.

The report on failure attributable to sterilization is to be filled in by the District QAC of the district where the client has reported within two weeks of reporting.. The District QAC will conduct a field investigation /enquiry, review the case record and report the findings to the state committee.

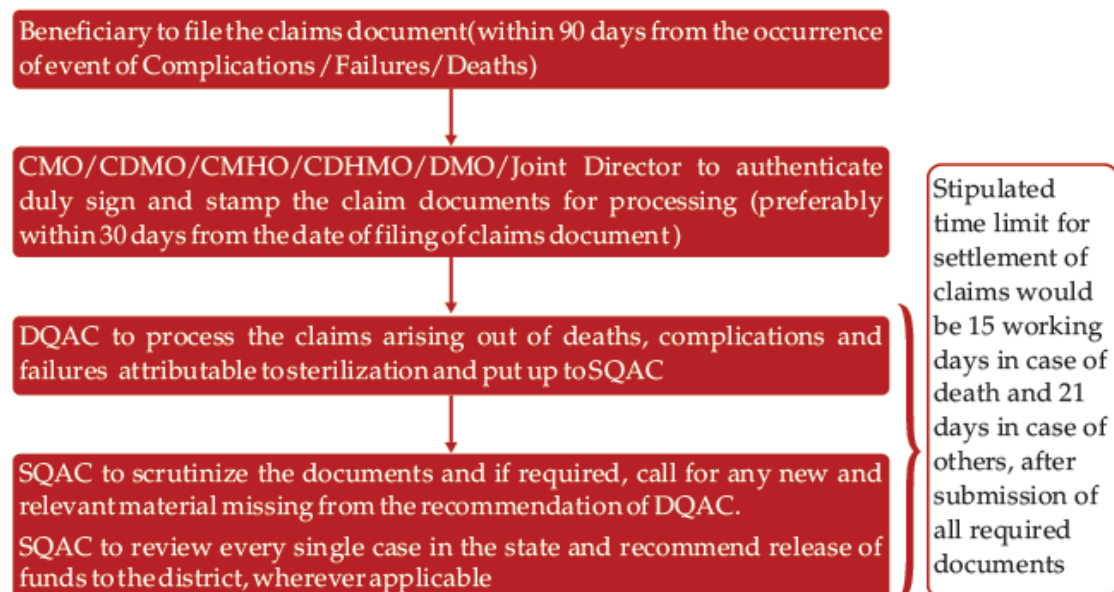
A final report of the audit is to be sent to all those who are involved in the audit process, including the Medical Superintendent /Officer In-Charge/Administrator and other appropriate persons concerned at the institution where the death has occurred. The recommendations are to be shared with the concerned staff.

The audit records should be kept for ten years for the purpose of comparison and for facilitating future audits. Copies are to be kept in a medical audit binder.

Claim procedure-

- In the event of death/failure/complication following sterilization, the beneficiary shall immediately fill up claim form.
- On receiving the claim papers, proper acknowledgement must be made by the DISC, for further processing and payment of the claims. Based on the submitted documents, claims shall be processed by the DISC under different sections of the scheme.
- Stipulated time limit for settlement of claims would be 15 working days in case of death and 21 days in case of others, after completion of processing.

Steps of the Claim Process



Checklist of FPIS claim documents -

Section IA-IB	Section IC	Section ID	Section II
Death	Failure	Complication	Indemnity cover for Doctor/Facility
Original & duly Completed" Claim Form Cum Medical certificate"	Original & duly Completed" Claim Form Cum Medical certificate"	Original & duly Completed" Claim Form Cum Medical certificate"	Intimation in writing
Copy of Consent Form & Medical record and Checklist	Copy of Consent Form & Medical record and Checklist	Copy of Consent Form & Medical record and Checklist Copy	Copy of Consent Form
Copy of Post-Operative Card/ Discharge certificate	Copy of Sterilization Certificate	Copy of Post-Operative Card/ Discharge Certificate	Copy of Sterilization Certificate
Copy of Death certificate issued by hospital/municipality or any other designated authority.	Copy of any of the diagnostic Report confirming failure of Sterilization	Original Bills/ Receipts/Cash Memos along with Original Prescription and Case Sheet	Certificate from the convener of DISC (CMO or equivalent) designated for this purpose at district level confirming that the Sterilization Operation was conducted by the doctor etc.
			Copy of Summon/FIR
Proforma for Conducting Audit of Death by DISC	Report on Failure following sterilization by DQAC	Report on Complication following sterilization by DQAC	Copy of the Award given by the court along with the original receipts for which payment is made to the lawyer

Note: All the documents should be duly attested by the Convener of DISC (CMO or equivalent) designated for this purpose at district level

EXERCISE FOR THE PARTICIPANTS ...

Q.1.What are the benefits under FPIS?

Q.2.How is the existing the reporting system in case of deaths/complications/failures in sterilization services?

Q.3.What did you know about quality assurance committees in sterilization services?

Famous relevant quotes about the topic...

- ✓ You cannot have maternal health without reproductive health. And reproductive health includes contraception and family planning and access to legal, safe abortion. – Hilary Clinton.

- ✓ Its long been accepted as fact that the availability of family planning services saves life. Where women have access to these services, children and families are healthier, and society at large benefits. – Martha Plimton.

D. NATIONAL HEALTH PROGRAMMES

36. NATIONAL LEPROSY ERADICATION PROGRAMME

At the end of the session the participants will be able to

- Diagnose the leprosy, demonstrate the correct method of examination of skin lesions and peripheral nerves and do classification and treatment of leprosy.
- Identify reactions and neuritis in initial stage and its management.
- Know the disabilities and deformities due to leprosy and its management.
- Know the job responsibilities of MO and other health care providers.

LEPROSY

Before the advent of Multi Drug Therapy (MDT), there was no reliable cure and the only available drug against leprosy was Dapsone which was to be consumed even life-long in several cases. Year 1981 was the turning point in the history of leprosy as MDT was officially incorporated in Anti-Leprosy Programmes in several countries world over. MDT provided a certain cure against leprosy, the case load of leprosy dramatically declined since 1981.

Leprosy should not be regarded only as skin disease since it also affects peripheral nerves and involves several organs including mucosa of respiratory tract.

Etiological agent

- Leprosy is caused by an acid and alcohol fast bacillus *Mycobacterium leprae*. There is no potent vaccine against leprosy yet. *Mycobacterium leprae* is an obligate intracellular and one of the slowest growing bacteria of medical importance.
- *Mycobacterium leprae* is the only bacillus that can invade nerves causing disabilities and deformities. It does not produce any toxins.
- *M. leprae* is an obligatory intra-cellular parasite. It is very slow growing. One bacillus takes 15 to 20 days to multiply. Extremely slow generation time results in :
 - a) Long incubation period
 - b) A very slow development of pathology, A slow and insidious clinical evolution
 - c) An unclear epidemiological pattern
 - d) Low infectivity

Epidemiology

Source of infection: - Untreated leprosy affected person is only known source of infection for *M. Leprae*

Portal of exit:- The major sites from which bacilli escape from the body of an infectious patient is respiratory tract especially nose and mouth. Only small proportion of those suffering from leprosy can transmit infection.

Transmission of infection:- Leprosy is transmitted from untreated leprosy affected person to a susceptible person through droplets ,mainly via the respiratory tract through coughing and sneezing.

Portal of entry:-Respiratory tract appears to be the most probable route of entry for the bacilli.

Incubation period: Incubation period for leprosy is variable from few weeks to even 20 years. The average incubation period for the disease is said to 5-7 years.

Leprosy is easily diagnosable, treatable and curable. Good prognosis if detected early treated promptly and managed correctly.

Mortality:-Leprosy is rarely an immediate and direct cause of death.

Diagnosis of Leprosy

A case of leprosy is diagnosed by eliciting cardinal signs (very important signs) of leprosy through systematic clinical examination. Following cardinal signs must be present for diagnosis of leprosy.

- A hypo pigmented patch (skin patch lighter in color than surrounding skin but not depigmented completely) or reddish skin lesion (s) with definite loss of sensation over patch and or
- Involvement of peripheral nerves as demonstrated by definite thickening of nerve with loss of sensation over patch and or

As per recent WHO guidelines it is not necessary to go for bacteriological examination for diagnosis of leprosy.

National Leprosy Eradication Programme

Programme Implementation

Prevalence of leprosy has been reduced drastically since introduction of MDT. Effective IEC activities, early case detection through voluntary reporting, prompt and regular treatment, disability prevention, and rehabilitation will improve situation further and ultimately lead to elimination of leprosy.

Steps to be followed for NLEP implementation are as follows—

Implement IEC activities to improve new case detection.

- MPW & HA should impart IEC to community regarding symptoms of leprosy and encourage patients with skin patches to come forward on their own for examination.
- Most important and effective means of communication is person-to-person communication. Always remember to talk few words about leprosy during home visits and group meetings.
- Always keep posters, stickers, etc about leprosy in Arogya Seva Satra, health exhibitions, Melas etc.

Identification of suspected leprosy case

ANY person with discoloration of skin and / or thickened and / or shiny and / or oily skin and /or nodules and /or inability to close eyes and / or ulcerations in hands and/or feet and/or clawing of fingers and/or foot drop and /or informs tingling or numbness in hands or feet and/or loss of sensations in palms or soles and/or inability to feel cold or hot objects and/or weakness in hands or feet for holding/grasping objects these all are the symptoms in suspect case of leprosy.

If MPW suspects that skin lesion is of leprosy, patient should be referred to MO PHC for diagnosis. Even if MPW is not sure about cause of skin lesion, still case should be referred to MO PHC.

Confirmation of diagnosis by MO PHC.

Medical officer may get referred cases of skin lesion from MPW/HA or patient may attend PHC voluntarily for treatment of skin lesion.

Leprosy is disease with stigma, so diagnosis of leprosy should be done cautiously and promptly. As per WHO guidelines, it is not necessary to carry out bacteriological examination of suspected leprosy patient to confirm diagnosis routinely. Cardinal signs are sufficient to diagnose a leprosy case. Diagnosis is mainly based on presence of clinical cardinal signs. If diagnosis cannot be confirmed, refer the patient to specialist.

Clinical examination for diagnosis of Leprosy. Clinical examination of leprosy includes careful interview of patient for detailed history (case history), skin examination and nerve examination. This should be followed by ascertaining presence of any deformities.

a) Case history

Collect case information on following points—

- Name, age, sex, address and occupation of patient.
- Presenting complaints and their duration – a patch of few days or since birth is unlikely to be leprosy.
- History of recurrence- lesion that "comes and goes" will not be due to leprosy.
- Any deformity, its time of onset, and nature of its progress.
- Treatment history- Which medicines and for how long patient has taken for treatment of present complaint. Specifically ask patient whether he has taken any MDT in past. Show a blister calendar pack (BCP) of MDT (MB and PB pack) to patient to ensure that he has understood question well.
- Any other associated illness (jaundice, cough, swelling of feet, etc)
- Any other person in family having similar disease or had disease and was treated. This will give a clue about family history of leprosy.

b) Skin examination

Remember cardinal signs while examination of skin. You are searching for hypo-pigmented or reddish skin lesion(s) with definite loss of sensation.

Principles of skin examination

- Patient should be examined in a room where sufficient natural light is available and where privacy can be ensured.
- Examine patient from head to foot completely (Leprosy patches situated on back and on gluteal region are usually missed, especially in case of female patients).
- Use same order of examination every time you examine patient with skin lesion so that you do not forget to examine any part of body.

Examination of skin lesion

Once it is sure that patch is not since birth or not very recent and does not come and go frequently then you must examine patch thoroughly. Following features must be noted when examining patch on skin.

- **Site-** Note site of lesion, this is useful for follow up. Any new lesion appearing on other sites will not be missed during follow up.
- **Number** – Number of lesions indicates severity of disease. This is also useful for classification and follows up.
- **Colour** – Colour of skin lesion may be hypo pigmented (lighter in colour than rest of skin) or erythematous (red). Lesions of leprosy are never de-pigmented. Erythematous lesions suggest disease activity or reaction, as active lesions or lesions in reaction are often red.
- **Sensory loss-** Loss of sensation is a cardinal sign of leprosy.
- **Tenderness on gentle tapping-** This is seen in reactional state.
- **Presence of infiltration-** This term refers to skin which is thickened, shiny and erythematous. All three features must be present in same area. This may be seen in severe form of leprosy.

How to test for sensation?

Next important step after examination of skin lesion is to test for sensations. It is very important for Medical Officer and PHC staff to acquire skill of eliciting sensory loss in skin patch, as this is the cardinal sign of leprosy.

Following steps should be carried out for testing sensation.

- Use a ball point pen for testing.
- Explain what exactly you are going to do and that it causes no harm to patient.

- Touch first normal area of skin with pen while patient's eyes are open and ask patient to count number of times sensations are felt. Do this exercise two or three times till patient has understood procedure.
- Now ask patient to close eyes and repeat procedure, first on normal skin. Once you are sure that patient is responding correctly to your stimulus, start testing sensation of skin patch. Go on alternatively touching normal skin and skin patch.
- If patient is not able to locate stimulus on patch, then loss of sensation is definitely present.

Examination of nerves

Once you are sure that skin lesion has definite loss of sensation, examine nerves of patient. Involvement of peripheral nerves is indicated by demonstration of definite thickening of nerve with loss of sensation and weakness of muscles of area supplied by involved nerve, e.g. hands, feet or face. Nerve examination involves two aspects, palpation of nerves and assessment of nerve function.

Palpation of nerves

Nerves to be palpated

Following nerves should be palpated in patients of leprosy, starting from nerve supplying to area of skin lesion.

- Ulnar nerve (At elbow joint)
- Radial nerve (lower half of upper arm)
- Median nerve
- Lateral popliteal nerve (At knee joint in popliteal fossa)
- Posterior tibial nerve (Ankle joint)
- Greater auricular (On side of neck)

Assessment of nerve function

Nerve function assessment includes testing for sensory loss in area supplied by nerve i.e. sensory Testing (ST) and involvement of muscles supplied by nerve i.e. Voluntary Muscle Testing (VMT). Both ST and VMT should be done for all patients with nerve thickening and all patients diagnosed as Multi Bacillary (MB) leprosy. Sensory testing is already described in skin lesion sensation testing. Procedure for VMT is described below.

Voluntary muscle testing (VMT)

Principles of VMT

VMT is done by first checking range of movement of muscles supplied by particular nerve to see whether movement is normal, reduced or absent due to paralysis. If movement is normal, a test for resistance is then done. Press gently in opposite direction while asking patient to maintain position, resisting pressure as long as possible. Then gradually press more firmly and judge whether resistance is normal, reduced or absent. Do grading of resistance as follows-

S-Strong : Able to perform movement against full resistance.

W- Weak : Able to perform movement but not against full resistance.

P-Paralysed : Not able to perform movement at all

Record grading of resistance for all commonly involved nerves,

Always compare side of examination with normal side.

ii. VMT for important and commonly involved nerves

Facial nerve :

- Ask patient to close eyes and keep them tightly closed.
- If there is visible gap between upper and lower eyelids, it is called lagophthalmos. Measure gap in millimeters and record.
- If there is no gap try to pull lower lid down and see whether patient can keep his eyes closed against resistance. Grade resistance as shown above. Always grade resistance as P when there is lagophthalmos.

Ulnar nerve

- Ask patient to spread palm and push his little finger outwards in same plane.
- Try to push little finger towards palm while patient tries to hold it in test position.
- Grade power as "S", "W" or "P" as described above.

Median nerve

- Ask patient to hold his thumb at 90° to palm vertically.
- Try to push thumb downwards while patient tries to hold it in testing position.
- Grade power as "S", "W" or "P" as described above.

Radial nerve

- Ask patient to hold hand parallel and facing towards floor.
- Hold wrist of patient firmly with your left hand and ask patient for extension from wrist joint.
- Try to resist movement with your right hand. Grade power as "S", "W" or "P" as described above.

Popliteal nerve

- Ask patient to pull up his foot fully at ankle joint.
- Try to push foot downwards while patient tries to hold it in test position.
- Grade power as "S", "W" or "P" as described above.

Examination of eye

Eye can be affected by nerve and muscle impairment that can result in inability to close eye (lagophthalmos) and loss of corneal sensation. Eyes can also be affected during reactions. All this can lead to damaged eyesight.

Examine eye for following conditions.

- Loss of eyebrows
- Unblinking stare.
- Lid gap when patient attempts to close eyes.
- Eyelids turned abnormally outwards or inwards.
- Eyelashes turned inwards and touching cornea.
- Redness around margins of cornea or white spots on cornea.
- Corneal sensation, there will be loss of sensation.
- Decrease in diameter and irregular shape of pupil.

If there is eye involvement, refer patient to ophthalmologist.

Classify diagnosed leprosy patients (grouping)

Once you diagnose leprosy by clinical examination, next step is to classify leprosy patient. Treatment of leprosy (MDT) depends upon type of leprosy, so it is essential to correctly classify patient.

Classification of leprosy has been simplified and there are two types depending upon number of patches and nerve involvement as indicated below.

- **Paucibacillary (PB)** : 1-5 Skin patches with definite sensory deficit and / or one definite thickened or tender peripheral nerve.
- **Multibacillary (MB)** : 6 and above skin patches with definite sensory deficit and / or more than one definite thickened and tender peripheral nerves.

Note – patient is no more diagnosed as suffering from single skin lesion (SSL) case. All such cases are diagnosed as PB cases and treated accordingly.

Registration of patient

- All new cases will be registered in patient treatment register and a proper serial number will be given (New serial number will start from 1st April)
- While this is to be followed for deletion of case from record, for practical purpose, a person will be considered defaulting even if he/she dose not collect MDT for one day. Action should be initiated to retrieve patient immediately and motivate him to continue the treatment. If during enquiry, it is learned that reason for defaulting is of permanent nature like death of patient or permanent shifting of residence, patient's name should be deleted from record.

A new case is defined as person with signs of leprosy who have never received treatment before. Also, under NLEP all previously treated cases needing further treatment are recorded as “other cases”. It has been decided that all migrant cases from another state reporting at any states Health Institution will also be grouped under this category.

- (i) Since “other cases” were once taken for measuring Prevalence Rate earlier, the same need not be counted again for calculating PR now. The reporting format is to be changed accordingly.
- (ii) However, since “other cases” play an important part in the programme, their recording in a separate register, specified category wise, should be made as below –

Other cases (recorded for PB and MB)

- (a) Relapse – To be diagnosed after adequate screening and be evidence based. Relapse is defined as the re-occurrence of the disease at any time after the completion of a full course of treatment.
- (b) Reentered for treatment - These are previously treated cases where patient admitted that full course was not taken and where clinical assessment shows requirement of further treatment.
- (c) Referred cases – for completion of treatment with remaining doses. These patient may be referred by tertiary or second level institutions after diagnosis and issue of first dose, or from another Health centre on patients request or migratory patient from another District/State. All referred cases should have a referral slip showing diagnosis and remaining doses to be given.
- (d) Change in classification – PB to MB, need full course of MB treatment.
- (e) Cases from outside the state & Temporary migration or cross border cases.

These information will be separately shown in the monthly progress reports.

- (iii) Before deciding a case to be recorded as from other state, the residential status at the place of diagnosis be carefully examined. A person who is residing for more than six month and is likely to stay till completion of treatment, be recorded as indigenous case and will not be categorized under “other cases”.
- (iv) It may be kept in view that some of the cases from another state will be “new cases”. As such, the information has epidemiological significance for the state of origin.

Therefore, all PHC / Hospital have to prepare a line list of cases recorded from other state showing Age, Sex, complete Address, Diagnosis (PB/MB) and Type (New case / old case). This list is to be sent by the Block PHC / Hospital to the District every month, which intern will compile and send to the state HQ.

It is the responsibility of the PHC/Hospital where the patient is recorded as “other cases” to provide complete treatment including use of A - MDT practice where needed

Treatment of Leprosy patient

Standard Adult Treatment

Table- Multi Drug Treatment for PB leprosy

Drug	Adult	Children 10-14 yrs	children below 10 years	Frequency
Rifampicin	600 mg	450 mg	Reduce doses appropriately as per weight of Child	Once a month
Dapsone	100 mg	50 mg		
Dapsone	100 mg	50 mg	Reduce doses appropriately as per weight of Child	Daily

Table- Multi Drug Treatment for MB leprosy

Drug	Adult	Children 10-14 yrs	children below 10 years	Frequency
Rifampicin	600 mg	450 mg	Reduce doses appropriately as per weight of Child (Refampicin : 10 mg /kg/ month)	Once a month
Dapsone	100 mg	50 mg		Daily
Clofazimine	300 mg	150 mg	Clofazimine : 6 mg /kg / month Dapsone 2mg/kg/day)	Daily
Dapsone	100 mg	50 mg		Daily
Clofazimine	50 mg Daily	50 mg Alternate day		Daily/Alternate day

a. Treatment schedule

Leprosy treatment has been simplified very much. Treatment is in the form of Multi Drug Therapy (MDT), which is combination of two or three drugs. It is highly effective, even one dose makes patient non infectious. Relapse rates are low and there is no reported resistance to MDT. Based on diagnosis, patient can be given any one of the standard MDT regimens mentioned below. Monthly calendar packs are available which makes it convenient for dispensing and consumption by patient.

b. Subsequent doses to patient

- Patient treatment card should be maintained at sub center by MPW(M)
- MPW (M) should indent one month requirement of MDT blister packs on the basis of number of patients in his sub center area and collect it during monthly MIS meeting.
- MPW should discharge patient after last dose is finished, sign card and keep card at sub center for future reference.

c. Treatment of defaulters (continuous absence for >3 months in PB and >6 months in MB)

- If patient does not turn to SC or PHC, MPW must visit patient's house and motivate him for taking regular treatment.
- All defaulter patients residing in jurisdiction of health facility will be registered but will not be given a serial number. They can continue treatment after thorough re-examination. In case patient resides in some other area but has reported for treatment in this health facility, then he may be given one dose of MDT drug and then advised to report to the his respective health facility for further treatment.

Table– Side effects of Anti Leprosy drugs

Common side effects	Signs and symptoms	What MO should do if side effect appear
DAPSONE		
Anemia	Paleness of lower eyelids, mouth and fingernails. Tiredness, edema of feet and breathlessness	Give anti-worm treatment and iron tablets. Continue Dapsone
Severe skin complication	Extensive scaling, itching, ulcers in mouth and eyes, jaundice, exfoliative dermatitis.	Stop Dapsone. Refer to hospital immediately. Never restart Dapsone.
Live damage	Jaundice, loss of appetite and vomiting.	Stop Dapsone. Refer to hospital after jaundice subsides.
RIFAMPICIN		
Reddish colored urine		Reassure patient
Hepatitis (liver damage)	Edema of face and feet. Reduced urine output.	Stop Rifampicin. Refer to hospital.
Flue like illness	Fever, malaise and body ache	Symptomatic treatment, Stop Rifampicin.
Allergy	Skin rash	Stop Rifampicin.
CLOFAZIMINE		
	Brownish red coloration of skin, urine and body fluids	Reassure patient, it will go after completion of treatment
Ichthyosis	Dryness and thickening of skin, itching	Apply oil to skin, reassure patient.

d. Reactions in Leprosy

Leprosy Reactions are acute inflammatory events occurring in course of disease. Reaction can occur at any time before, during or after treatment. It must be promptly diagnosed and treated to prevent any disability. Leprosy reactions are more likely to develop in case of patients with multiple lesions, lesions close to nerves, lesions on face and in pregnant patients.

There are two types of reactions, viz. Type I and Type II.

Type I Leprosy Reaction or Reversal Reaction occurs both in MB and PB patients.

Type II Leprosy Reaction or Erythema Nodosum Leprosum (ENL) occurs only in severe form of MB leprosy

i. Features of Leprosy Reaction (Type I & Type II)**Table : Leprosy Reactions**

Features	Type-I	Type-II
Skin	Existing lesions suddenly become red, swollen, warm and tender. New lesions may appear. When subsiding, may show scales on surface.	Red, painful, tender, subcutaneous, (deep) nodules (ENL) appear commonly on face, arms and legs.
Nerves	Nerves close to skin become enlarged, tender and painful with loss of nerve function.	Nerves may be affected but not as common as in Type-I reaction.
Other organs	Not common.	Fever, joint pains fatigue. bones, testis, kidney may be affected
General condition	Good. Occasionally mild fever	Poor. with fever and general malaise
Eye	Lagophthalmos and Corneal anesthesia due to neuritis.	Iritis / Iridocyclitis

ii. Treatment of Leprosy Reaction (Types I and Type II)

In addition to rest, analgesics and other symptomatic treatment, patients will need corticosteroids. Prednisolone is drug of choice. Its schedule is as follows :-

40 mg once a day for first 2 weeks, then 30mg once a day for weeks 3 and 4

20mg once a day for weeks 5 and 6 then 15mg once a day for weeks 6 and 8

10mg once a day for weeks 9 and 10 then 5mg once a day for weeks 11 and 12

Note – MDT should be continued during reaction as it has been shown that MDT reduces severity and frequency of reactions of both types. For a patient who has already completed his course of MDT, no further MDT is necessary.

Clofazimine is also effective for type 2 reaction but is less potent than corticosteroids and often takes 4-6 weeks to develop its full effect so it should never be started as the sole agent for the treatment of recurrent type 2 reaction. However clofazimine may be extremely useful for reducing or withdrawing corticosteroids in patients who have become dependent on them. The dose required in such cases is 300 mg daily (maximum of 1 month) which may be given in three divided daily doses to minimize the gastro intestinal side effects. It is tapered gradually to 100 mg daily. The total duration of clofazimine therapy should not exceed 12 months. Response will be seen after 2-4 weeks after starting the drug. often, Type 2 Reaction may recur due to precipitating causes like infection, stress or helminthic infestation. Leprosy reaction may subside faster or less likely to recur if precipitating factor is treated.

h. Is MDT safe during pregnancy and lactation? MDT should be continued during pregnancy and lactation. All evidence so far indicated that MDT is safe during pregnancy. Small quantities of anti leprosy drugs are excreted through breast milk but there is no evidence of adverse reaction except for mild discoloration of infant's skin caused by Clofazimine.

Prevention of disability WHO Grading of disability

Grading	Hands and feet	Eyes
Grade – I	Anesthesia present but no visible deformity.	Eye problem due to leprosy but vision not severely affected (Vision 6/60)
Grade – II	Visible deformity or damage.	Severe visual impairment (Vision worse than 6/60) lagophthalmos, iridocyclitis, corneal opacities.

EHF SCORE FOR DISABILITY

Examination of parts	WHO Disability Grades	Sensory Testing (ST)	Voluntary Muscle Testing (VMT)	
Hands and Feet	0	Sensation present	Muscle power normal (S)	
	1	Sensation absent	Muscle power normal (S)	
	2	Sensation absent	Muscle power weak or paralysed (W/P)	
Eye		Vision	Lid Gap	Blinking
	0		No lid gap	Present
	2	Can not count fingers at 6 meters	Gap present /red eye/corneal ulcer or opacity	Absent

b. Prevention of deformity

Educating patient about self care on following points for prevention of deformity.

- Inspects daily limbs with sensory and motor impairment for signs of injury and infection.
- Do not ignore injury, immediately start treatment of injuries.
- Soak limbs in water for 15 minutes and put oil to minimize drying of skin. Dry skin may crack and lead to infection and ulcer formation.
- Use of protective clothing, adapted tools, use of footwear for individual with sensory impairment of plantar surface of foot.
- Always protect eyes from foreign body, as due to loss of corneal sensation patient may not recognize foreign body and damage to eye may result.
- Think of surgical correction of deformities to improve function.

c. Disability Prevention and Medical rehabilitation (DPMR) Plan has been introduced in eleventh plan.

- All Health Workers will suspect cases of leprosy reaction, relapse, insensitive hands and feet and refer to PHC for diagnosis. They will also empower patients with self care procedure for prevention of deformity.
- All PHC Medical Officers will diagnose cases of reaction and treat them. Severe reaction cases will be referred to the District Hospital, if not responded well within 2 weeks of starting treatment.
- Service and care for impairment such as ulcers, cracks and wounds, septic hand or feet etc. will be available from all the Health Institutions routinely. Complicated ulcer cases will be referred to District Hospital.
- Microcellular Rubber (MCR) footwear are to be supplied to all needy patients by the District nucleus staff at the concerned Health institution.
- PHCs will provide follow up treatment to all patients referred back by the secondary and tertiary level units for reaction, complication or post surgery care.

d. Medical Rehabilitation Services for the Deformed-Re Constructive Surgery (RCS)

All patients with grade II disability diagnosed at the PHC will be referred to the District Hospital/ District nucleus for further assessment and care. Treatment with MDT for the required duration will however be continued in the PHC.

- Cases suitable for RCS will be referred by District Hospital to the tertiary level care hospital for further care.
- RCS operations are being carried out in Govt. and NGOs
- Aids and appliances for Medical Rehabilitation will be supplied to the patients.
- ✓ **Incentive to patient** :As an incentive and to offset the financial difficulties leprosy affected persons who are generally below Poverty Line (BPL) families, undergoing major reconstructive surgery at the identified institutions (Government Hospital or NGO Institutions), it is decided to pay an amount of Rs.8000/- (Rupees five thousand only) per major RCS in three instalments.
- After surgery before discharge – Rs. 5000/-
- 1st Follow up(4-6 weeks) – Rs. 1500/-
- 2nd follow up (after 3 months) - Rs. 1500/-

The reconstructive surgery is possible for:

Lag-ophthalmos, Foot-drop Ulnar/median paralysis (fingers and thumb) Collapsed nose

Leprosy treatment criteria

- Completed the scheduled course of MDT or at least for 6 months
- Free from reactions and symptomatic neuritis for at least 6 months.
- Should not have had lepra reaction during the past 6 months unless the surgery is for neuritis.
- No tenderness of any major nerve trunk in the limbs.

Conditions that require surgical intervention:

- (i) Irreversible claw hand: ulnar / median paralysis
- (ii) Foot drop: Lateral popliteal nerve
- (iii) Claw toes: Posterior tibial nerve
- (iv) Lag-ophthalmos Facial nerve. Irrespective of age Lid gap (>6mm)
- (v) Wrist drop: Radial nerve
- (vi) Recurrent wounds of hands and feet: sequestrum removal.

(vii) Chronic nerve pain and nerve abscesses:

(viii) Cataract – Cataract in one or both eyes with visual acuity < 6/60

List of RCS Centres

S.No	Government RCS center	NGO RCS Centers
1.	Acworth Municipal Hospital for Leprosy Wadala, Mumbai *	Sishu Prem Samaj, 101/C- Mountana Building, Road No- 2, Lokandwala Complex, Andheri West, Mumbai – 400053 (GLRA) Andheri West
2..	All India Institutes of Physical Medicine and Rehabilitation, Hazi Ali	Vimla Dermatological Centre, Yari Road, Varsova, Mumbai
3.	Grant Medical College hospitals, J.J. group of hospitals	N.K.P. Salve Institute of M.S. and Lata Mangeshkar Hospital, Nagpur
4.	Civil Hospital Parbhani	Kothara Leprosy Hospital, (TLM) P.O. Paratwada, Amravati District – 444805 (TLM)
5.	Medical College, Dhule	Richardson Leprosy Hospital, (TLM) Miraj, Sangli District – 416410, Maharashtra (TLM)
6.	Medical College, Aurangabad	The Leprosy Mission Hospital, Poladpur Raigad District – 402303, Maharashtra (TLM)
7	General Hospital Bhandara	F.J.F.M. Hospital Wadala mission, Ahemadnagar

1.Municipal Hospital,Kalwa Thane 2.Sassoon Hosp.Pune 3.Dr.Bandorwala Leprosy. Hospital,Kondwa,Pune

Important Indicators:

- **Prevalence Rate or PR**

$$\frac{\text{Total number of cases on record} \times 10,000}{\text{Total Population in given area.}}$$

- **Annual New Case Detection Rate**

$$\frac{\text{Total number of cases newly detected} \times 1,00,000}{\text{Total population in a given time in a given area.}}$$

- **Proportion of visible Deformity among New Cases Detected**

$$\frac{\text{Number of newly detected cases with deformity in year} \times 100}{\text{Total number of newly detected cases in same year}}$$

- **Proportion of child cases among New Cases Detected**

$$\frac{\text{Total number of 0-14 years new leprosy cases in year} \times 100}{\text{Total number of newly detected cases during same period}}$$

- **Proportion of MB case among New Cases Detected**

$$\frac{\text{Number of MB patients among new cases detected} \times 100}{\text{Total number of newly detected cases in same year}}$$

- **Proportion of Females among New Cases Detected**

$$\frac{\text{Total number of new female patients in year} \times 100}{\text{Total number of newly detected cases in same year}}$$

GROUP EXERCISE

Case Study 1:

Manoj Kumar, a 18 years old motor mechanic, reported to the medical officer with complaints of, pain in the right elbow, weakness in right hand and a persisting bend in the little finger, of two months duration.

On examination, the medical officer found thickened & tender right ulnar nerve, sensory impairment on ulnar side of right hand and clawing of right little finger. Apart from these signs, there were two big hypo pigmented patches with four satellite lesions on right arm. On asking again, Manoj said that he had first noticed the patches one and half year ago, but did not seek any treatment for them.

Discussion points:

- What is the complete diagnosis? Why?
- At what stage has the patient come?
- How can this be changed?
- What is the prognosis for the patient?
- What are occupational implications?
- What action should medical officer take to avoid delayed reporting?
- What counseling should the patient and his family, receive?
- What action you must take at the community level?

Answers:

- Diagnosis: PB Leprosy, Neuritis (Rt. Ulnar), Rt. Claw hand, Grade 2 deformity
- Late presentation
- Increased awareness – IEC
- Good prognosis, less than 6 months duration of neuritis, significant/total reversal can be expected
- Residual weakness will have implications – occupationally, sensory impairment
- Action at Community Level: Plan and implement intensified IEC activities

Case study 2 :

Mr. Haribhau Hatkar, 52-years old, had developed tingling sensation in the right leg about 6 months back. He went to a local practitioner, who assured him that it was not serious. He was prescribed some B complex. He became worried when a blister appeared on the underside of his right big toe and went to a reputed medical college hospital on advice of his son's friend, a soldier. He consulted the neurologist, subjected to various investigations, pronounced normal and prescribed injections of B. complex.

About 6 weeks later he found that his right foot was not holding on to the Chappal and it was slipping out of his feet easily. He met a friend who noticed multiple skin patches and brought him for advice to health centre.

Discussion points:

- Why did the slipping of chappals develop in this case?
- How can you confirm your diagnosis – investigation?
- What local complication may develop in the leg if he is left untreated?
- How would you manage trophic ulcer?
- What advice will you give him to prevent further occurrence of trophic ulcers?
- What steps can you take to prevent such delayed detection and treatment in your area?

Answers:

- **Cause of slipping of chappal:** Loss of foot dorsi-flexion / eversion rhythm due to weakness/paralysis of muscles supplied by common peroneal nerve
- **Confirm diagnosis:** Slit skin smear for AFB, skin biopsy from lesion(s) for histopathology, nerve biopsy for histopathology, tests for (incipient) foot drop
- **Complications:** Foot drop, plantar ulcer/injuries
- **Manage tropical ulcer:** Rest, dressings, foot-elevation, appropriate footwear, ...
- **Prevention of ulcer:** Wear appropriate footwear (with dynamic splint), self-care of feet, full course of MDT, cortico-steroids

37. NATIONAL TUBERCULOSIS ELIMINATION PROGRAMME (NTEP)

Introduction

The National Tuberculosis elimination Programme (NTEP) of India was initiated in 1962. A comprehensive review of the NTP in 1992 found that the NTP had not achieved its aims or targets. Based on the recommendations of the 1992 review, the Revised National Tuberculosis Control Programme (RNTCP), incorporating the components of the internationally recommended Directly Observed Treatment Short-course (DOTS) strategy for the control of TB, was developed. RNTCP has now been implemented in the country for more than two decades, and has been expanded geographically to achieve nation-wide coverage in March 2006. The spread of human immunodeficiency virus (HIV) during the last two decades, emergence of various forms of drug resistant TB and unorganized and unregulated vast private sector pose additional challenges in effective TB control.

Over a period of time, there are several landmark achievements including policy and system preparedness for Universal access to TB care including mandatory notification of TB cases, development of Standard for TB Care in India, Comprehensive Real time TB Information Management System – NIKSHAY, use of rapid molecular diagnostics, successful innovations in Private Sector engagement for TB care- Universal Access To TB Care (UATBC). A considerable progress in addressing Drug Resistant TB with focus on Drug Susceptibility Testing (DST) guided treatment including introduction of newer drugs (like bedaquiline, delamanid), TB and comorbidities, paediatric TB, nutritional support through Nikshay Poshan Yojana by DBT, active case finding, intensified case finding and urban TB control models has also been made and a major progress has been achieved in advocacy and communication areas.

The programme gives priority in detecting and treating microbiologically confirmed PTB, thereby aiming to cut the chain of transmission of infection. However, it needs to be remembered that under NTEP all types of TB cases are diagnosed and treated.

Magnitude of TB

India accounts for more than one fourth of the global TB burden i.e. 27 Lakh out of 1 crore new cases annually. In India, more than 40% of population is infected (prevalence of infection) with *Mycobacterium tuberculosis*. The table below shows the estimated figures for TB burden globally and for India provided by WHO for the year 2018.

Estimates of TB Burden (2018)	Global (Million)	India	% of Global
Incidence TB cases	10	2.69 Million	27%
Mortality of TB	1.2	440,000	31%
Incidence HIV TB	0.86	92,000	9%
Mortality of HIV-TB	0.25	9,700	4%
MDR-TB	0.5	130,000	24%
Children with TB	1.12	342,000	31%

The World Health Organisation (WHO) TB statistics for India for 2019 (the latest available) give an estimated incidence figure of 2.64 million cases. This is a rate of 193 per 100,000 population.

The TB incidence is the number of new cases of active TB disease during a certain time period (usually a year).

Estimates of TB Burden (WHO 2019)	Number	Rate per 100,000 Population
Incidence of TB cases (includes HIV + TB)	2.640 million	193
Incidence (HIV+TB only)	71,000	5.2
Incidence (MDR/RR-TB)	124,000	9.1
Mortality (deaths) (excludes HIV+TB)	436,000	32
Mortality (deaths) (HIV+TB only)	9,500	0.69
Proportion of TB cases with MDR/RR-TB, 2019 New Cases/ Previously Treated Cases	2.8%/14%	

Indian state TB statistics

State Name	Population (Lakhs) (100,000)	TB Patients Notified Public Sector (2020)	TB Patients Notified Private Sector (2020)	Paediatric Patients Notified Public Sector (2020)	Paediatric Patients Notified Private Sector (2020)	Notifications Public Sector 01/01/2021 to 02/03/2021	Notifications Private Sector 01/01/2021 to 02/03/2021
India Total	13576.6	1725920	678895	87869	63417	227512	102674
Maharashtra	1241.4	144120	83228	7625	6350	16925	11403

India has highest burden of both TB and MDR-TB and second highest of HIV associated TB based on estimates reported in Global TB report 2015.

Almost all patients with newly diagnosed tuberculosis can be cured if properly treated. Many will die (or develop resistance) if not properly treated. As a responsible doctor or health worker, therefore:

- DO NOT MISS TO DIAGNOSE TB
- DO THEN GIVE THE CORRECT TREATMENT FOR FULL PERIOD OF TIME

The Disease (Tuberculosis)

TB is caused by one of the microorganisms comprising the so-called M. tuberculosis Complex: M. tuberculosis, M. bovis, M. africanum, and M. Microti, M. Canetti. From a health care perspective, TB produced by M. tuberculosis is the most important aetiology of TB because it is by far the most common. Ninety percent of all people have the tubercle bacilli under control in a latent state throughout their lifetime, as a result of their immune defence system. Five percent develop progressive primary TB, while another 5% develop the disease in late stages of life (i.e., reactivation TB). This situation changes drastically in the case of patients with HIV infection, of whom 50% to 60% who are also infected with M. tuberculosis will develop active TB in the course of their lifetime.

Case finding:

All health care providers, including health staffs, must be (made) familiar with symptoms and signs of disease, and identify presumptive TB cases, and assist them in getting evaluated clinically and with appropriate diagnostic test. All effort needs to be made for bacteriological confirmation in the properly collected biological sample, wherever feasible.

Symptoms of tuberculosis

Pulmonary tuberculosis	Extra pulmonary tuberculosis
The most common symptom of PTB is a persistent cough of two weeks or more, with or without expectoration. It may be accompanied by one or more of the following symptoms:- Fever, night sweats, weight loss Chest pain, haemoptysis, shortness of breath, tiredness and loss of appetite	A person with extra-pulmonary TB may have symptoms related to the organs affected along with constitutional symptoms e.g. Fever, night sweats, weight loss, tiredness and loss of appetite Enlarged cervical lymph nodes with or without discharging sinuses (TB Lymphadenitis) Chest pain with or without dyspnoea in pleural TB Pain and swelling of the joints in bone tuberculosis (fever, backache, deformity in spinal TB) Signs of raised intra-cranial tension like irritability, headache, vomiting, fever, stiffness of the neck and mental confusion in TB meningitis Painless haematuria or sterile pyuria in renal tuberculosis and infertility in genito-urinary TB.

All health workers and community volunteers should be encouraged to identify and refer people with above symptoms of TB to DMCs for early diagnosis and treatment to prevent further spread of the infection. It must be emphasised to refer people with symptoms of TB and living in contact of smear positive Tuberculosis and/ or known to be HIV positive, or suffering with extra-pulmonary TB; irrespective of the duration of cough. Intensified TB case finding efforts need to be made at ICTCs, ART and Care and Support Centres (CSC) established under National AIDS Control Programme. All clients who have symptoms or signs of TB disease, irrespective of their HIV status, should also be referred to the nearest facility providing RNTCP diagnostic and treatment services. All health care workers must be motivated and supported to identify the people with symptoms of TB during home visits and other opportunities like immunization sessions/ VHSND.

Testing and screening for Pulmonary TB (as per STCI)**Testing**

Any person with symptoms and signs suggestive of TB including cough >2 weeks, fever >2 weeks, significant weight loss, haemoptysis etc. and any abnormality in chest radiograph must be evaluated for TB.

Children with persistent fever and/or cough >2 weeks, loss of weight /no weight gain, and/or contact with pulmonary TB cases must be evaluated for TB.

Screening:

People living with HIV (PLHIV), malnourished, diabetics, cancer patients, patients on immunosuppressant or maintenance steroid therapy, should be regularly screened for signs and symptoms suggestive of TB. Enhanced case finding should be undertaken in high risk populations such as health care workers, prisoners, slum dwellers, and certain occupational groups such as miners.

Diagnosis:**Microbiological confirmation on sputum:**

All patients (adults, adolescents, and children who are capable of producing sputum) with presumptive pulmonary TB should undergo quality-assured sputum test for rapid diagnosis of TB (with at least two samples, including one early morning sample for sputum smear for AFB) for microbiological confirmation.

Chest X-Ray as screening tool: Where available, chest X-Ray should be used as a screening tool to increase the sensitivity of the diagnostic algorithm.

Testing for Extra-Pulmonary TB

For all patients (adults, adolescents and children) with presumptive extra-pulmonary TB, appropriate specimens from the presumed sites of involvement must be obtained for microscopy/culture and drug sensitivity testing (DST)/CB-NAAT/molecular test/histopathological examination.

Diagnosis of Multi-Drug Resistant TB (MDR-TB):

Prompt and appropriate evaluation should be undertaken for patients with presumptive MDR-TB or Rifampicin (R) resistance in TB patients who have failed treatment with first line drugs, paediatric non-responders, TB patients who are contacts of MDR-TB (or R resistance), TB patients who are found positive on any follow-up sputum smear examination during treatment with first line drugs, diagnosed TB patients with prior history of anti-TB treatment, TB patients with HIV co-infection and all presumptive TB cases among PLHIV. All such patients must be tested for drug resistance with available technology, a rapid molecular DST (as the first choice) or liquid / solid culture-DST (at least for R and if possible for Isoniazid (H); Ofloxacin (O) and Kanamycin (K), if R-resistant/MDR).

RNTCP has revised diagnostic algorithms which are helpful in optimizing the utilization of available resources for managing individual patient effectively.

Revised definitions and follow up schedule:

Presumptive TB: A person with any of the symptoms and signs suggestive of TB including cough > 2 weeks, fever > 2 weeks, significant weight loss, haemoptysis, any abnormality in chest radiograph.

Pulmonary Tuberculosis: Any bacteriologically confirmed or clinically diagnosed case of TB involving the lung parenchyma or the tracheo- bronchial tree.

ExtraPulmonary Tuberculosis: Any bacteriologically confirmed or clinically diagnosed case of TB involving organs other than the lungs such as pleura, lymphnodes, intestine, genitor-urinary tract, joint and bones, meninges of the brain etc.

Bacteriological confirmed TB case (Definitive TB Case) refers to a presumptive TB patient from whom a biological specimen is positive for acid fast bacilli, or positive for Mycobacterium tuberculosis on culture, or positive for tuberculosis through Quality Assured Rapid Diagnostic molecular test.

A clinically diagnosed TB case (probable TB) refers to a presumptive TB patient who is not bacteriologically confirmed, but has been diagnosed with active TB by a clinician on the basis of X-ray abnormalities, histopathology or clinical signs with a decision to treat the patient with a full course of Anti-TB treatment.

Type of Patient:

- **NEW:** A TB patient who never received treatment for TB or received anti-TB treatment for less than one month.
- **Previously Treated:** A TB patient who received anti-TB treatment for 1 month or more in the past.
- **Recurrent TB:** A TB Patient previously declared as successfully treated (cured/treatment completed) and is subsequently found to be bacteriologically confirmed TB case is a recurrent TB case.
- **Treatment after Failure:** ATB patient whose anti-TB treatment failed at the end of the most recent course.
- **Treatment after lost to follow-up:** ATB patient previously treated for TB for 1 month or more and was declared lost to follow-up in their most recent course of treatment and subsequently found bacteriologically confirmed TB case.
- **Other previously treated patient:** A TB patient who has been previously treated for TB but whose outcome after their most recent course of treatment is unknown or undocumented.
- **Transferred in:** A TB patient who is received for treatment in a Tuberculosis Unit, after registered for treatment in another TB unit.

OUTCOMES:

- **Cured:** Bacteriologically confirmed TB patients at the beginning of treatment who was smear or culture negative at the end of the complete treatment.
- **Treatment completed:** A TB patient who completed treatment without evidence of failure but with no record to show that the smear or culture results of biological specimen in the last month of treatment was negative, either because test was not done or because result is unavailable.
- **Failure:** ATB patient whose biological specimen is positive by smear or culture at end of treatment.
- **Lost to follow up:** A TB patient whose treatment was interrupted for 1 consecutive month or more.
- **Treatment success:** The sum of cured and treatment completed.
- **Note valued:** A TB Patient for whom no treatment outcome is assigned, this includes former “transfer-out”.
- **Treatment regimen changed:** A TB patient who is on first line regimen and has been diagnosed as having DRTB and switched to drug resistant TB regimen prior to being declared as failed.
- **Died:** A patient who has died during the course of anti-TB treatment
- **Follow-up Schedule:** Response to therapy in patients with pulmonary tuberculosis, new as well as previously treated cases, should be monitored by follow-up microscopy (one specimen) at the time of completion of the intensive phase of treatment, and at the end of treatment.
- **Rule out DR-TB if any follow-up is positive.**
- **In patients with extra-pulmonary tuberculosis the treatment response is best assessed clinically. The help of radiological and other relevant investigations may also be taken.**
- **DRTB Case Definitions:**
- **Presumptive DR TB** refers to the patient who is eligible for Rifampicin resistant screening at the time of diagnosis or/and during the course of treatment for DS TB or H mono/poly. This includes following patients:

--All Notified TB patients (Public and private) - Follow-up positive on microscopy including treatment failures on standard first line treatment and all oral H mono/poly regimen; - Any clinical non-responder including paediatric (if specimen available)

- Mono-resistant TB (MR-TB). A TB patient, whose biological specimen is resistant to one first-line anti-TB drug only.
- Isoniazid-resistant TB (Hr-TB). A TB patient, in whose biological specimen resistance to isoniazid and susceptibility to rifampicin has been confirmed.
- Poly-drug resistant TB (PDR-TB). A TB patient, whose biological specimen is resistant to more than one first-line anti-TB drug, other than both H and R.
- Rifampicin resistant TB (RR-TB). A TB patient, whose biological specimen is resistant to R, detected using phenotypic or genotypic methods, with or without resistance to other anti-TB drugs. It includes any resistance to R, in the form of mono-resistance, poly-resistance, MDR or XDR.
- Multidrug-resistant TB (MDR-TB). A TB patient, whose biological specimen is resistant to both H and R with or without resistance to other first-line anti-TB drugs. MDR-TB patients may have additional resistance to any/all FQ or any other anti-TB drug.
- Pre-extensively drug resistant TB (Pre-XDR-TB). TB caused by *Mycobacterium tuberculosis* strains that fulfil the definition of MDR/RR-TB and are also resistant to any fluoroquinolone.
- Extensively drug resistant TB (XDR-TB). TB caused by *Mycobacterium tuberculosis* strains that fulfil the definition of MDR/RR-TB and are also resistant to any fluoroquinolone (levofloxacin or moxifloxacin) and at least one additional Group A drug (presently to either bedaquiline or linezolid [or both]).
- Presumptive Paediatric TB refers to children with persistent fever and/ or cough for 2 weeks or
More, loss of weight*/ no weight gain and/ or history of contact with infectious TB cases**.

• History of unexplained weight loss or no weight gain in past 3 months; loss of weight is defined as loss of more than 5% body weight as compared to highest weight recorded in last 3 months.

** In a symptomatic child, contact with a person with any form of active TB within last 2 years may be significant.

- Failure to respond: A case of paediatric TB who fails to have bacteriological conversion to negative status or fails to respond clinically / or deteriorates after 12 weeks of compliant intensive phase shall be deemed to have failed response provided alternative diagnosis/ reasons for non-response have been ruled out.
- Follow-up Schedule for MDR-TB:

A. Shorter oral Bedaquiline-containing MDR/RR-TB regimen

- Smear Microscopy - Monthly from 3rd month onwards till end of IP
- Culture - At the end of month 3, end of month 6 and/or end of treatment
- Long-term follow-up will be done with 6 monthly cultures among symptomatic patients till two years after completion of any DR-TB regimen i.e. months 6, 12, 18 and 24 post treatment.

B. Longer Oral M/XDR-TB Regimen

- Smear microscopy - With culture at C&DST lab. Conduct SM within 7 days, if any smear at 6 month or later is positive to rapidly ascertain bacteriological conversion/reversion.
- Culture - Monthly from month 3 onwards to end of 6 months or 7 or 8 if the previous month's culture is +ve

- Long-term follow-up will be done with 6 monthly cultures among symptomatic patients till two years after completion of any DR-TB regimen i.e. months 6, 12, 18 and 24 post treatment.

C. H mono/poly DR-TB regimen

- Smear microscopy- Monthly from month 3 onwards till the end of treatment
- Culture - At end of month 3, end of treatment (month 6 and/or 9 if applicable)
- Long-term follow-up will be done with 6 monthly cultures among symptomatic patients till two years after completion of any DR-TB regimen i.e. months 6, 12, 18 and 24 post treatment.

- **Tools of monitoring: Nikshay based monitoring system**

In order to ensure uniformity of data for the purpose of SME across all levels, it has been decided that only data from Nikshay shall be considered as final. All states / UTs need to establish the mechanism for real-time data entry in Nikshay preferably at the source of data generation. Delay in the data entry needs to be monitored at district level regularly at least weekly to avoid any backlog in Nikshay data entry. It has been decided to provide a fixed time period, allowing sufficient time for the user to make entry into the system and after which, the reports on Nikshay would be considered as final and frozen.

Treatment Card, if maintained and updated regularly, helps in monitoring the adherence and recording the events of adverse drug reactions, interruptions, gain in weight, and bacteriological improvement (from positive to negative).

Background:

- The Revised National Tuberculosis Control Programme (RNTCP) was launched in India in 1997 based on World Health Organization endorsed Directly Observed Treatment Short-Course (DOTS) strategy, employing the thrice weekly treatment regimen. However, considering the recommendations in WHO treatment guidelines (2010) and Standards for TB Care in India (2014) RNTCP is moving towards introducing daily regimen for drug sensitive tuberculosis in phased manner. The key components are
- Domiciliary treatment
- Short course chemotherapy
- Daily regimen
- Fixed Dose Combinations (FDC) of first – line anti- tuberculosis drugs in appropriate weight bands.
- Treatment under Direct Observation (DOT) / supervised doses through trained treatment supporter to ensure treatment adherence

Anti TB Drugs (1st line): Anti-TB drugs have the following three actions:

- Early bactericidal activity
- Sterilizing activity
- Ability to prevent emergence of drug resistance

Drugs	Early bactericidal	Sterilizing activity	Prevention of emergence of drug resistance
Isoniazid	+	+	+
Rifampicin	+	+	+
Streptomycin	+	-	+
Pyrazinamide	+	+	+
Ethambutol	+	-	+

It is established that in the treatment of tuberculosis it is of importance to achieve peak serum levels of all the drugs simultaneously, so that maximum bactericidal effect is obtained. This is achieved by administration of all the drugs at the same time.

Daily Regimen: for drug sensitive TB

Type of TB Case	Treatment regimen in IP	Treatment regimen CP*
New and previously treated cases (H and R Sensitive / unknown)	2 HRZE	4HRE

Type of TB case Treatment Regimen in IP Treatment regimen in CP

H: Isoniazid, R: Rifampicin, Z: Pyrazinamide, E: Ethambutol.

- Intensive phase (IP) consists of 8 weeks (56 doses) of isoniazid (H), rifampicin (R), pyrazinamide (Z) and ethambutol (E) given under direct observation in daily dosages as per weight band categories.
- Continuation phase (CP), consists of 16 weeks (112 doses) of isoniazid, rifampicin and ethambutol in daily dosages. Only pyrazinamide will be stopped in the continuation phase. The CP may be extended by 12-24 weeks in certain forms of TB like CNS TB, Skeletal TB, Disseminated TB etc. based on clinical decision of the treating physician on case to case basis. Extension beyond 12 weeks should only be on recommendation of specialists..

Fixed dose combination drugs for TB under daily regimen are packaged to cover 4 weeks of treatment, i.e. 28 days, and would be dispensed on a daily basis. Thus, the effective number of doses that the patient would be receiving in a month would be 28.

Daily Dosage Schedule for Adults

Weight category	Number of tablets to be consumed	
	Intensive phase	Continuation phase
	HR ZE	HR E
	75/150/400/275 mg per tab	75/150/275mg per Tab
25-34kg	2	2
35-49kg	3	3
50-64kg	4	4
65-75kg	5	5
>75kg	6	6

*During treatment if the weight of the patient increases by more than 5 kg and crosses the next

weight band category then patient should be given the next higher weight band.

*If the patient weighing >75kg does not tolerate 6 tablets, then the dose can be reduced to 5 tablets.

--Adults weighing less than 25 kg will be given loose drugs as per body weight.

Drug Dosage for Paediatric TB:

Key Product Information (for Paediatric)

1. Dispersible FDC, flavoured

Rifampicin 75 mg + Isoniazid 50 mg + Pyrazinamide 150 mg

Rifampicin 75 mg + Isoniazid 50 mg

2. Dispersible Loose drugs

Ethambutol 100 mg

Isoniazid 100 mg

Weight category	Number of tablets (dispersible FDCs)			
	Intensive phase		Continuation phase	
	HRZ	E	HR	E
	50/75/150	100	50/75	100
4-7 kg	1	1	1	1
8-11 kg	2	2	2	2
12-15 kg	3	3	3	3
16-24 kg	4	4	4	4
25-29 kg	3 + 1A*	3	3 + 1A*	3
30-39 kg	2 + 2A*	2	2 + 2A*	2

*A=Adult FDC (HRZE = 75/150/400/275; HRE = 75/150/275). It is added in higher weight band categories i.e. > 25 kg as these children may be able to swallow tablets.

- Change in weight bands to be effective upon crossing of weight bands irrespective of the quantum of weight gain/loss.
- Pyridoxine may be given at a dosage of 10 mg per day to all children receiving INH containing therapy irrespective of age group.

Dose of essential first line anti-TB Drugs under daily regimen (Adult)

Drugs	Adult	Children	Maximum in children
Isoniazid	5 mg/kg daily (4 to 6 mg/kg)	10 mg/kg daily (7-15 mg/kg)	300 mg
Rifampicin	10 mg/kg daily (8-12 mg/kg)	15 mg/kg daily (10-20 mg/kg)	600 mg
Pyrazinamide	25 mg/kg daily (20- 30 mg)	35 mg/kg daily (30-40 mg/kg)	2000 mg
Ethambutol**	15 mg/kg daily (12-18 mg/kg)	20 mg/kg daily (15-25 mg/kg)	1500 mg
Streptomycin*	15 mg/kg daily (15-20 mg/kg)	20 mg/kg daily (15-20 mg/kg)	1000 mg

*Streptomycin is administered only in certain situations, like TB meningitis or if any first line drug need to be replaced due to ADR as per weight of the patient

** Ethambutol is given separately for children to monitor ophthalmic ADR.

As the drugs under daily regimen are packaged to cover 4 weeks of treatment, i.e. 28 days, and would be dispensed on a daily basis, the effective number of doses that the patient would be receiving in a month would be 28, hence the total no. of doses would be as follows:

Doses in RNTCP Daily Regimen

Type of TB Case	Doses in IP	Doses in CP
Drug Sensitive TB	56 doses (8 weeks x 7 days/ week) or 28*2	112 doses (16 weeks x 7 days/week) or 28*4

Treatment under Direct Observation (DOT):

DOT is a supportive mechanism wherein a DOT Provider helps the patient in taking the treatment, thereby ensuring adherence. In situations where an institutional or community DOT provider is not accessible, a family member or other suitable person may act as a treatment supporter

Operational Guideline for Treatment Initiation:

Treatment should be initiated by a trained medical officer (MO).

Efforts should also be made to look for co-morbidities like diabetes, liver disease, renal disease, neurological disorders, substance abuse, especially tobacco (in any form) & alcoholism.

The TB patient should be counseled about

- Disease and its mode of spread
- Treatment (dosage schedule, duration, common side-effects),
- Importance of not missing the doses and follow up examination.
- Methods of preventing transmission of disease (cough etiquettes, proper disposal of sputum, spending more time in open if weather allows)
- To get all close contacts (especially household contacts) screened at the earliest.
- The MO needs to initiate a treatment card (in duplicate when required) for each patient at the time of initiation of treatment.
- Each patient must be given a TB Identity Card.
- The concerned health worker should register the treatment card in Nikshay immediately after initiation of treatment by the Medical Officer and note the Nikshay ID in the treatment card. Till paper-based registration of cases in TU level treatment register continues, STS should note the Nikshay ID in the TB register.
- Adherence to regular and complete treatment is the responsibility of health system. A patient-centred approach to administration of drug treatment should be adopted. It should be based on the patient's needs and mutual respect between patient and the provider. A good treatment support plan should be developed at the time of initiation of treatment.
- While all efforts must be put in to find a treatment supporter close to the patient's residence and acceptable to the patient, treatment should not be denied to any patient who is unable to undergo treatment from a DOT provider for any valid reason.
- In addition, other measures to promote treatment adherence among patients may be explored as per local needs. ICT modalities like frequent calls, SMS reminders, IVRS etc. may also be deployed to promote adherence.

A DOT provider or treatment supporter is one (including the family member) who is accessible, acceptable to patient and accountable to health system.

A medical officer and treatment supervisor should take time to train and demonstrate treatment supporter

- Drug administration (including injections if prescribed)
- Keeping medicines and empty strips safely
- Marking '√' in treatment card for each doses administered/ taken and '0' for missed one.
- Screening of all household contacts for symptoms like cough, fever, weight loss, night sweats and further evaluation if needed.
- Chemoprophylaxis with Isoniazid 10 mg /kg body weight/ day for 6 months for children(contact of pulmonary and extra pulmonary TB) less than 6 years.
- All HHC (House Hold Contacts) of pulmonary TB patients, regardless of age should be given TPT (TB Prevention Therapy) after ruling out TB

Follow up:

- Patients should be closely monitored for treatment progress and disease response. There are three components of follow up:
- Clinical follow-up : Patients will be clinically followed-up on a monthly basis at the nearest health facility. Additionally, the medical officer should also conduct the review when he visits the house of the patient. Improvement in symptoms, weight gain etc. may indicate good prognosis. Symptoms and signs of adverse reactions to drugs should be specifically looked for. Appropriate management of co-morbid conditions is essential for getting a better prognosis to TB treatment.

Laboratory investigations:

Necessary laboratory investigations need to be done to assess prognosis of the disease or to manage co-morbidities or adverse reaction. In case of pulmonary tuberculosis, sputum smear microscopy should be done at the end of IP and end of treatment. A negative sputum smear microscopy result at the end of IP may indicate good prognosis. However, in the presence of clinical deterioration, the medical officer needs to thoroughly review the patient, both clinically and with investigations including culture & DST or repeat sputum examination. Response to treatment in extra- pulmonary TB may be best assessed clinically. Help of radiological and other relevant investigations may be taken. Results of sputum smear examination and weight should be updated in Nikshay by the concerned health worker.

- Post Treatment: After completion of treatment, the patients should be followed up at the end of 6, 12, 18 & 24 months. In presence of any clinical symptoms and/or cough, sputum microscopy and/or culture should be considered. This is important in detecting recurrence of TB at the earliest.

Prevention & Management of Adverse Drug Reactions

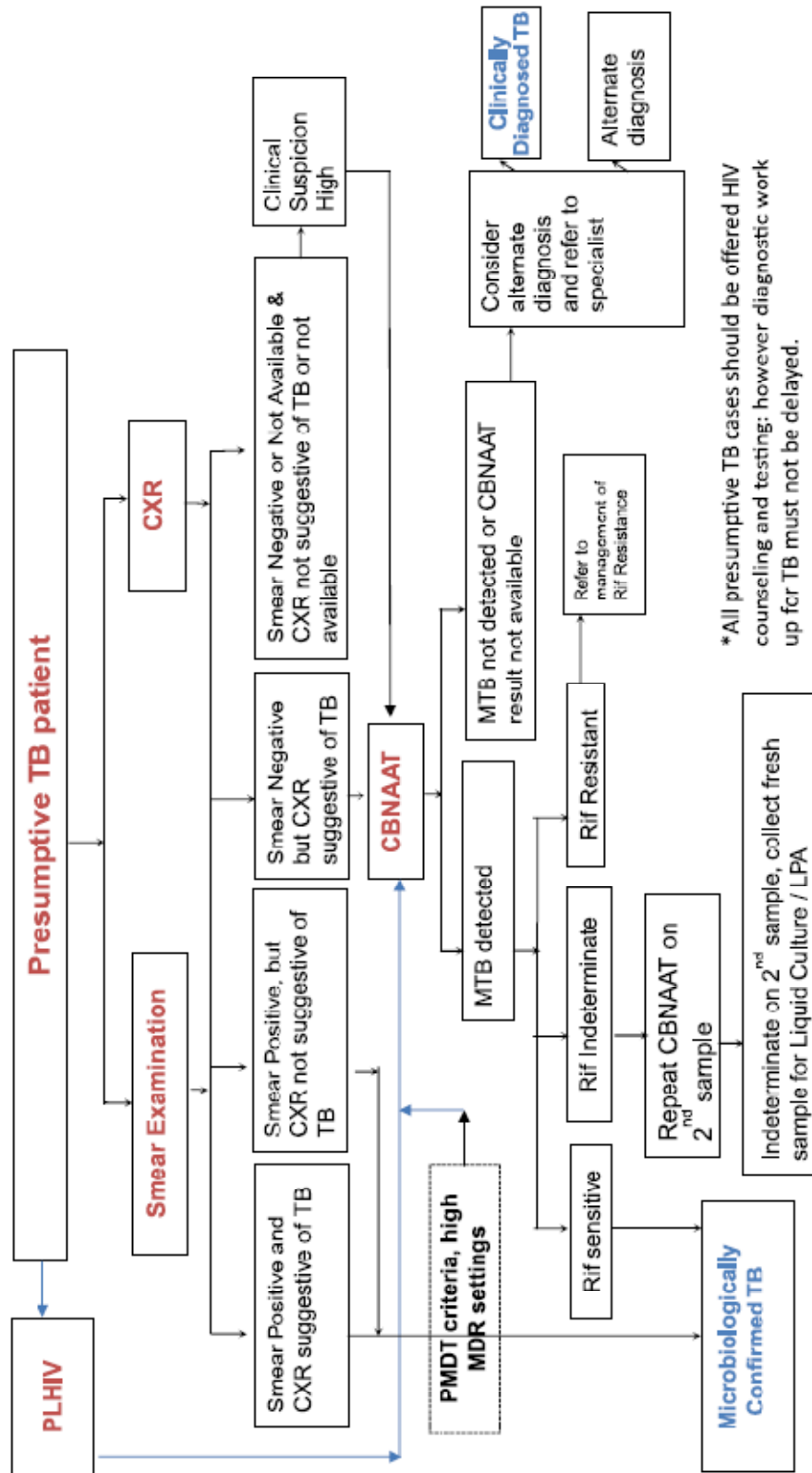
- Most TB patients complete their treatment without any significant adverse drug effects. Most of the adverse effects can be prevented by proper counselling of patients, and their impact minimized through early identification and management.
- A serious event or reaction is any untoward medical occurrence that, at any time during treatment, which:
 - Resulted in death
 - Drug induced hepatitis
 - Required in-patient hospitalization or prolongation of existing hospitalization
 - Resulted in persistent or significant disability/ incapacity
 - Resulted in termination of drugs due to ADR

- All such events of adverse reactions must be managed and be recorded in the treatment card and captured in the NIKSHAY-ADR reporting system and existing Pharmacovigilance practices.

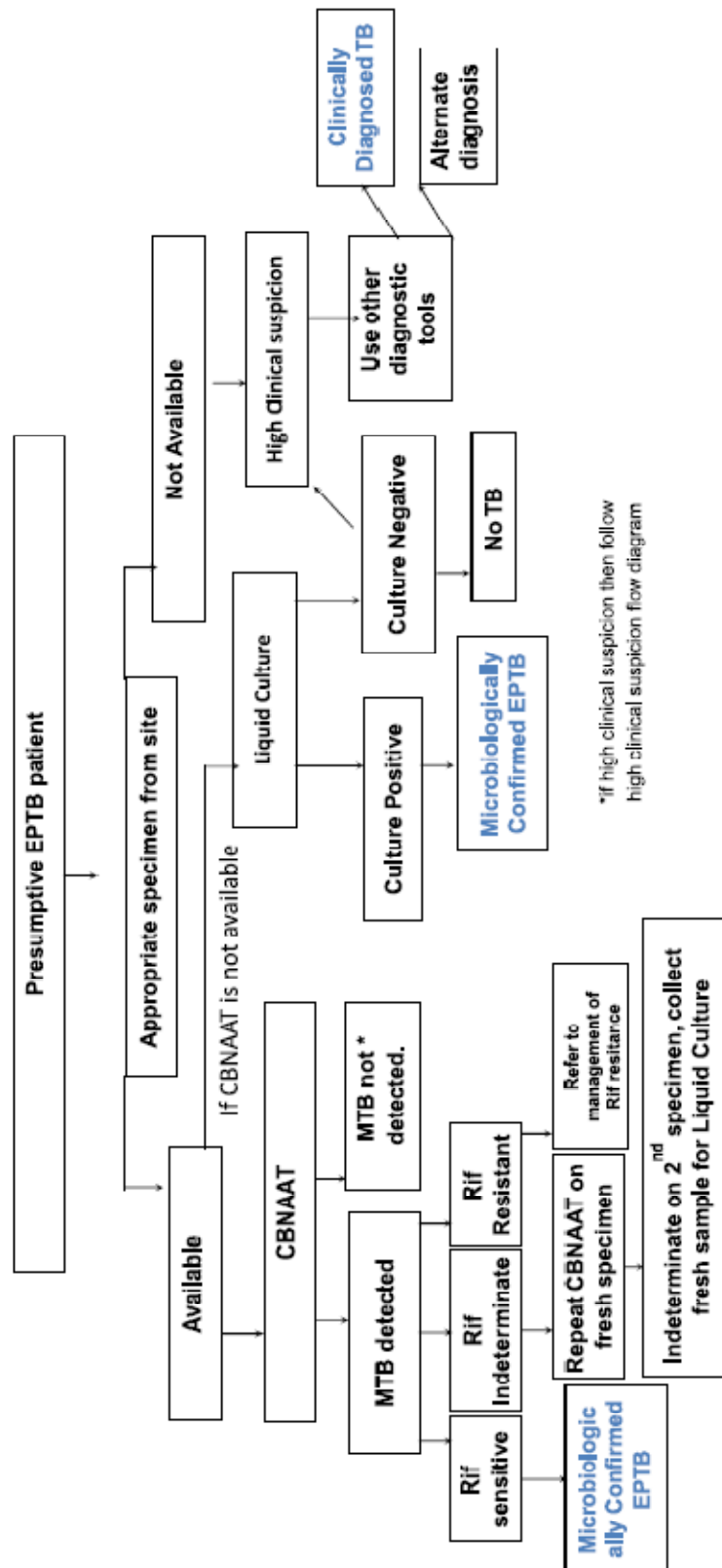
Public Health Responsibilities-

- Notification of TB cases
- TB is a notifiable disease in India as per the government order dated 7 May, 2012 and requires that all healthcare providers that have diagnosed a case of TB through microbiological testing or clinically diagnosed and/or treated for TB must be reported to the District Nodal Officer for Notification.
- Maintain records for all TB patients
- A written record of all medications given, bacteriologic response, adverse reactions and clinical outcome should be maintained for all patients.
- The Government of India through a gazette notification has made all anti-TB drugs under schedule H1. These drugs should not be dispensed without a valid prescription from a qualified practitioner. A copy of the prescription should be maintained and details of the patient to be recorded by the chemist and should be made available for verification by the responsible public health authorities.
- Contact investigation
- All care providers to patients with TB should ensure all household contacts and other persons who are in close contact with TB patients are screened for TB as per defined Diagnostic Standards.
- In case of paediatric TB patients, reverse contact tracing for search of any active TB case in the household of the child must be undertaken.
- The highest priority contacts for active screening are:
- Persons with symptoms suggestive of tuberculosis
- Children aged <six years
- Contacts with known or suspected immune-compromised patient, particularly HIV infection
- Contacts with Diabetes Mellitus
- Contacts with other higher risks including pregnancy, smokers and alcoholics etc.
- Contacts of patients with DR-TB. In case of contact with a DR-TB index case, close clinical monitoring should be provided, as there is no evidence that treatment of latent infection with available drugs is presently effective
- Isoniazid Prophylactic therapy
- Children <6 years of age who are close contacts of a TB patient, after excluding active TB, should be treated with isoniazid for a minimum period of six months and should be closely monitored for TB symptoms.
- Deaths audit among TB patients
- Death among TB patients should be audited by a competent authority.

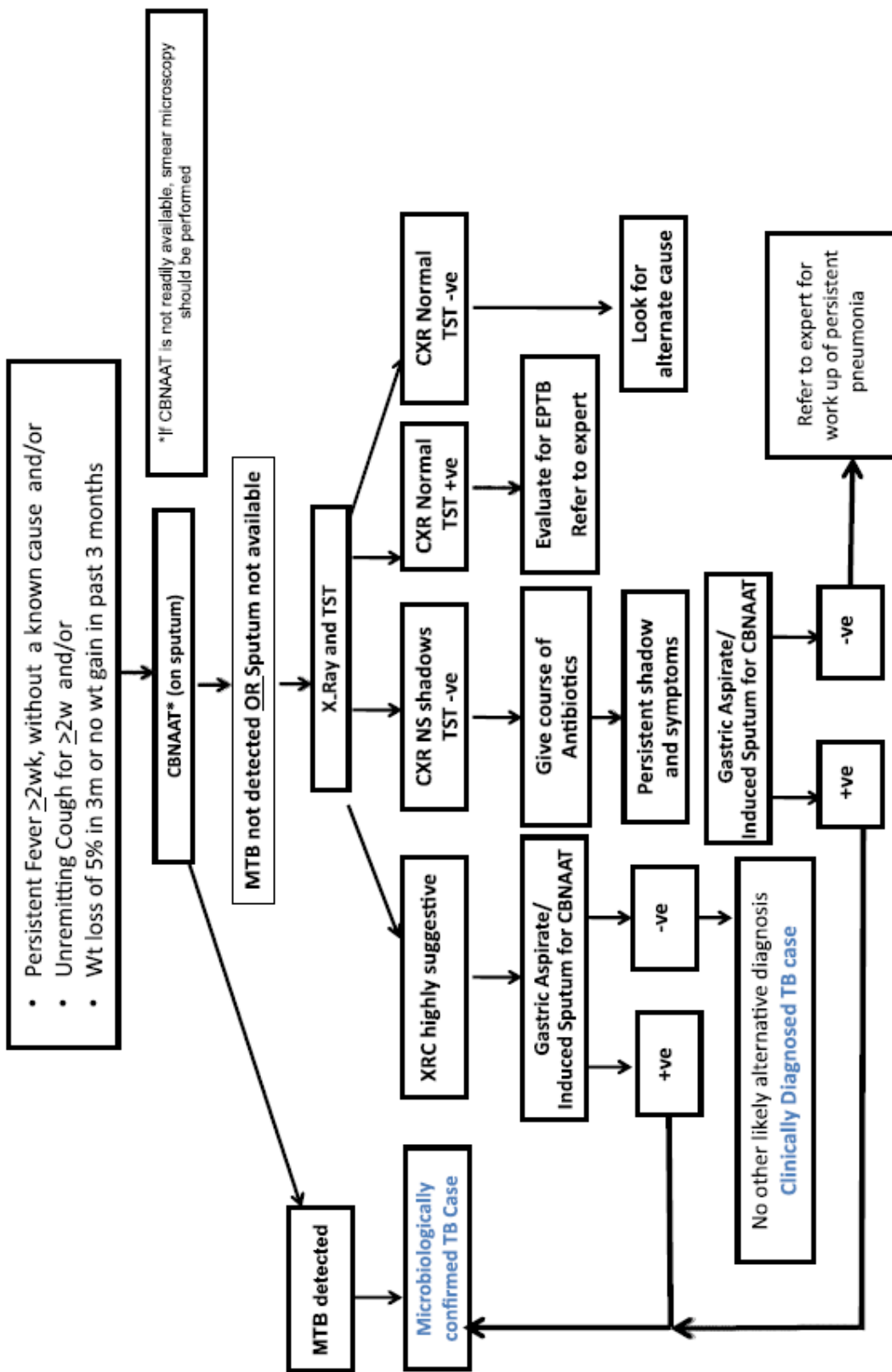
Diagnostic algorithm for pulmonary TB



Diagnostic Algorithm for Extra Pulmonary TB



Diagnostic algorithm for Pediatric Pulmonary TB



Drug Resistance TB

Diagnosis of Drug Resistance TB (DR-TB):

Patients can have drug resistance tuberculosis through transmission from a drug resistant index case (Primary transmission) or develop resistance while on treatment (Acquired Resistance). Emergence of Drug resistance is due to genetic mutation that makes a drug ineffective against the mutant bacilli. In clinical settings an inadequate or poorly administered treatment regimen allows drug-resistant mutants to become the dominant strain in a patient infected with TB. Preventing emergence of drug resistance is of paramount importance. To prevent drug resistance, the Medical Officer has to ensure that the programme is implemented as per Guidelines. All TB patients in his/her jurisdiction have to be diagnosed early, initiated promptly on treatment followed up correctly and supported well to complete the treatment successfully. MO should also help the Private health providers in his/her jurisdiction to diagnose, manage, and notify TB as per National guidelines. When resistance has already occurred, it is important to diagnose it early prevent further transmission by following the Air borne infection control measure as well as to treat and cure the patient at the earliest.

The first step for detection of DR-TB cases is to identify presumptive DR-TB cases at the earliest.

Presumptive DR-TB: It refers to the following patients in order of their risk:

TB patients found positive on any follow-up sputum smear examination during treatment with 1st line drugs including treatment failures;

paediatric TB non-responders;

TB patients who are contacts of DR-TB;

previously treated TB patients;

new TB patients with HIV co-infection;

all noticed new TB patients*.

** Under the Programme, all notified New Patients are offered CBNAAT to know if they are resistance to Rifampicin. This is termed as universal DST for Rifampicin. Efforts are to be made to collect specimen from all TB patients for CBNAAT at baseline.*

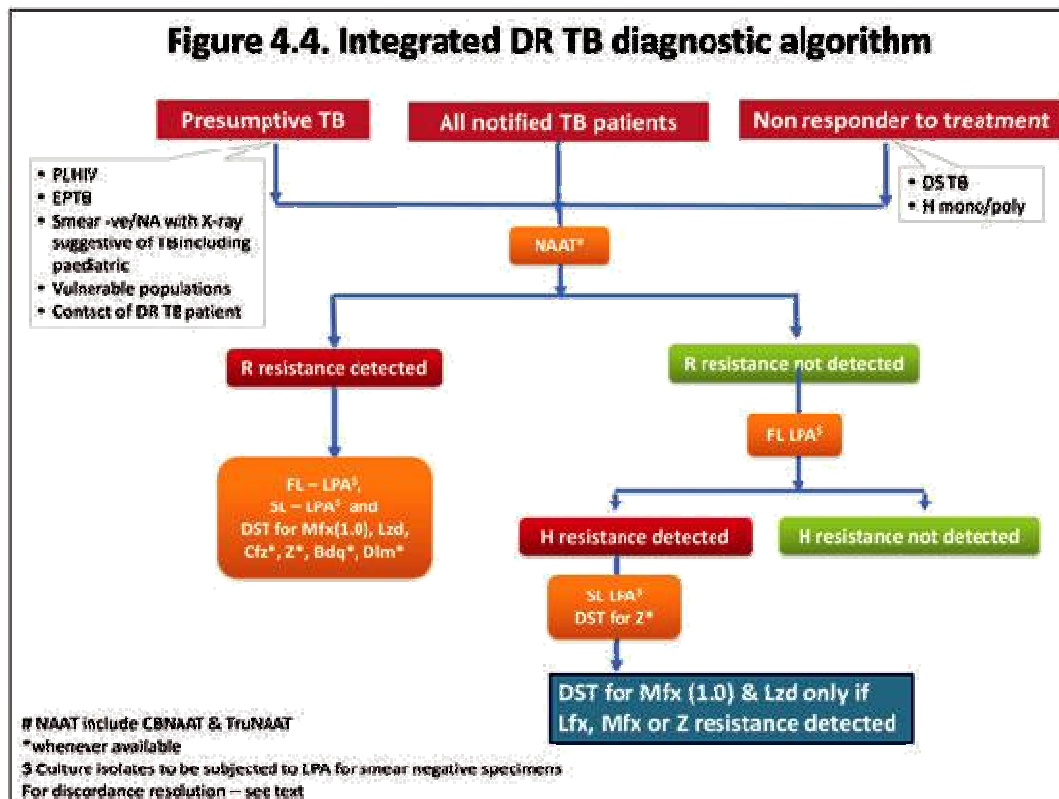
Integrated drug-resistant TB algorithm

The integrated DR TB algorithm clearly indicates the management strategies to be followed right from the day the result of NAAT test is available. The programme must strive to offer DST to all notified TB patients at diagnosis of TB or a maximum within 15 days of 1st line treatment initiation. The algorithm further offers FL LPA for the patients found R resistance not detected on NAAT. States must ensure availability of laboratory capacity to perform LPA (both SL and FL LPA) as per the estimated requirement including the patient noticed from the private sector. Within the 1st 2 months of treatment initiation, patients would receive their LC DST results, their clinical classification will be arrived at and they will be treated with appropriate regimen. .

As per the algorithm, the TB patients with R resistance not detected will be initiated on first line treatment regimen while awaiting the results of FL LPA and continued on 1st line treatment if H resistance is not detected. These patients will be monitored closely and in patients with signs of non-response to treatment during follow up, another NAAT test will be offered. All follow up positive, failures and clinical non-responders of DS-TB treatment are also eligible for repeat NAAT irrespective of NAAT offered at the time of initiation of DS TB treatment.

If resistance to H is detected, the patient will be initiated on all oral H mono-poly DR TB regimen at the PHI level while awaiting the results of SL LPA and the regimen would be appropriately modified at the N/DDR TBC if Lfx/Mfx(h) resistance is detected on SL LPA. The patients with RR TB will be considered for shorter MDR TB regimen at N/DDR TBC after ruling out the exclusion criteria for shorter MDR TB regimen. Decision to start shorter MDR TB regimen will be based on

Integrated DR TB Diagnostic Algorithm



The left path of the algorithm starts with persons presumed to have TB. From this group those belonging to the PLHIV, EP group or with a smear negative chest X-ray suggestive of TB (including children), vulnerable group as defined by TOG – 2016 and contact of DR TB patient will be offered NAAT test. By virtue of using NAAT as the TB diagnostic test, the R status is also available simultaneously along with TB detection.

The middle and right path begins with offer of NAAT to all notified TB patients & non respondent at different time place. Based on the result obtained on the NAAT, the patient would be classified as R resistant detected (RR TB) or R resistance not detected to guide decision of the appropriate treatment. As soon as the NAAT results are available, the reports must be immediately updated in Nikshay by the NAAT lab and communicated to the concerned district, DDR TBC, DTO, MO PHI and the patient.

For patients with NAAT result as M.tb detected (irrespective of R status), the second specimen will be re-exactly transported in cool chain from the NAAT lab to the C-DST lab. In rare circumstances when the second specimen is used at NAAT lab itself to repeat the test, a fresh specimen is to be collected from the patient and transported in cool chain to the concerned C-DST lab.

However, this may not be always possible for EP specimen. Reconfirmation of RR among the new TB patients will be carried out at C-DST lab by FL LPA with the second specimen sent from NAAT site.

Management of DR-TB

Guidelines for Programmatic Management of Drug resistant TB was released under NTEP in the year 2019. This document gives detailed guidelines about structures of DR-TB centres, integrated diagnostic algorithm for DR-TB and treatment regimen for various types of DR-TB patients. In this section of the module, only brief overview of pre-treatment evaluation and treatment regimens

are discussed. For detailed guidelines on DR-TB management, PMDT 2019 document may be referred to.

DR-TB management has to be preferably undertaken only at district DR-TB or nodal DR-TB centres where expertise and facilities are available for pre- treatment evaluation; initiation and monitoring of treatment are available.

Pre-treatment evaluation for DR TB patients

Pretreatment evaluation for any TB patient including DR TB patients should include, a thorough clinical evaluation by a physician including

History and physical examination,
height/weight,
random blood sugar (RBS),
urine pregnancy test (in women of reproductive age group),
chest X-ray and
HIV testing

No additional investigations are required for H mono/poly DR TB patients unless clinically indicated.

In majority of DR TB patients, pretreatment evaluation can be done on an outpatient basis. The DTO can arrange pretreatment evaluation at N/DDR TBC or at sub-district level health facility, wherever possible. The patient should be fast-tracked for pretreatment evaluation and for infection control purposes and a separate space for specimen and blood collection should be identified.

Non-DST and DST based exclusion criteria(refer PMDT guidelines 2019 for details). The patients excluded from shorter MDR TB regimen would be initiated on all oral longer MDR TB regimens at N/DDR TBC. In case of additional resistance on LC DST, the all oral longer MDR TB regimen would be appropriately modified.

A patient is confirmed to have drug resistant TB, only when the results are from a NTEP quality-assured Culture & DST Laboratory and by a NTEP-endorsed testing method. Such patients are classified according to the following definition.

Classification based on drug resistance

Mono-resistance (MR): A TB patient, whose biological specimen is resistant to one first-line anti-TB drug only.

Poly-Drug Resistance (PDR): A TB patient, whose biological specimen is resistant to more than one first-line anti-TB drug, other than both isoniazid (INH) and Rifampicin (R).

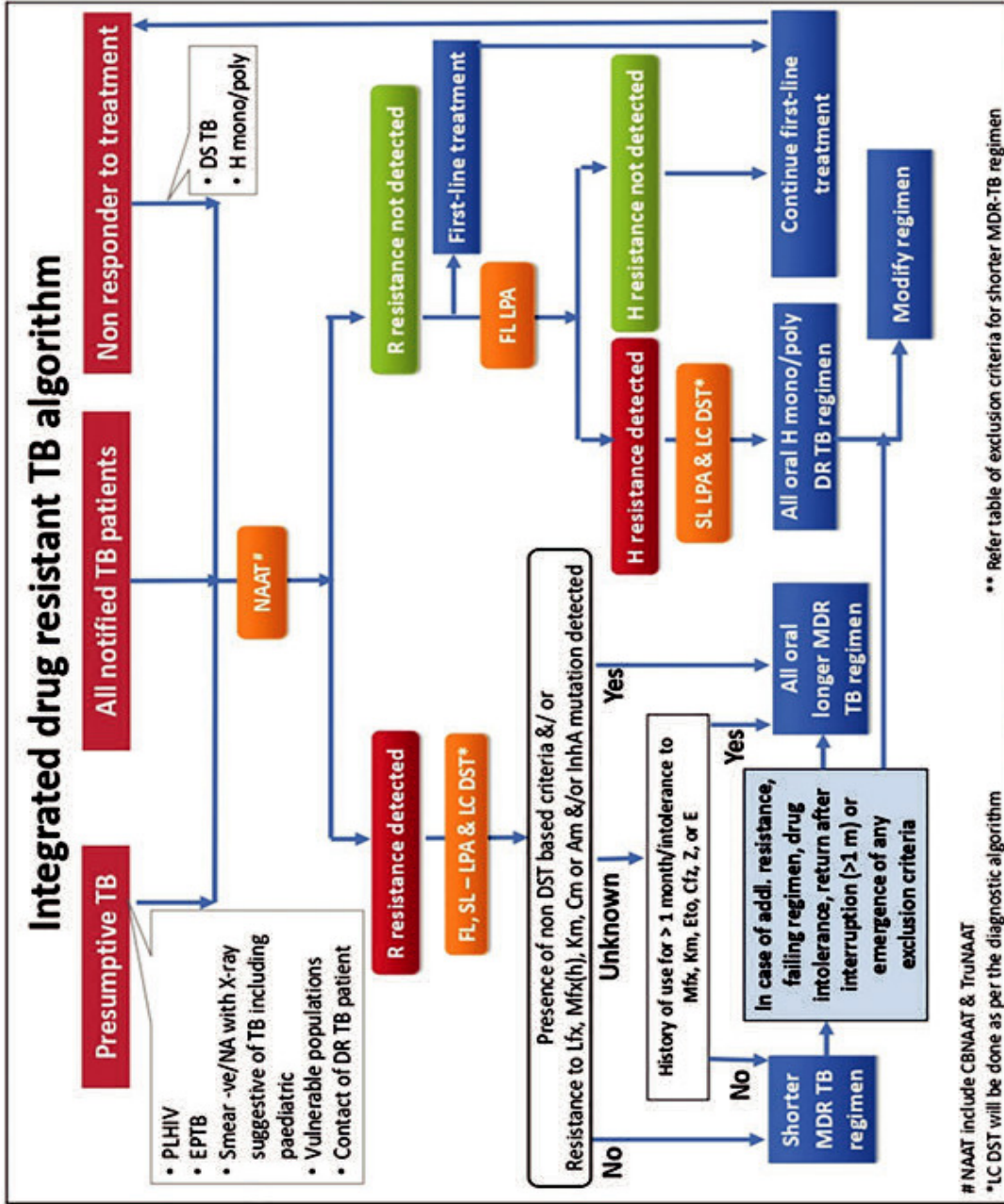
Multi Drug Resistance (MDR): A TB patient, whose biological specimen is resistant to both isoniazid and rifampicin, with or without resistance to other first line drugs, based on the results from a quality assured laboratory.

Rifampicin Resistance (RR): resistance to rifampicin detected using phenotypic or genotypic methods, with or without resistance to other anti-TB drugs excluding INH. Patients, who have any Rifampicin resistance, should also be managed as if they are an MDR TB case.

Extensive Drug Resistance (XDR): A MDR TB case whose biological specimen is additionally resistant to fluoroquinolone (ofloxacin, levofloxacin, or moxifloxacin) and a second-line injectable anti TB drug (kanamycin, amikacin, or capreomycin) from a quality assured laboratory.

Grouping of anti-TB drugs for longer MDR regimen (Table XXX)

GROUPS & STEPS	DRUG	
	Levofloxacin OR	Lfx
Group A	Moxifloxacin	Mfx
	Bedaquiline	Bdq
	Linezolid	Lzd
	Clofazimine	Cfz
Group B	Cycloserine OR	Cs
	Terizidone	Trd
	Ethambutol	E
	Delamanid	Dlm
	Pyrazinamide	Z
	Imipenem-cilastatin OR	Ipm-Cln
Group C	Meropenem	Mpm
	Amikacin	Am
	(OR Streptomycin)	(S)
	Ethionamide OR	Eto
	Prothionamide	Pto
	p-aminosalicylic acid	PAS



Standard DR TB regimen	Inclusion criteria	Exclusion criteria
All oral H mono/poly regimen	Isoniazid-resistant TB with confirmed result for Rifampicin-resistance not detected (RS)	No specific criteria except drug interaction/intolerability with any other drug used concomitantly
Shorter MDR TB regimen	Patient with Rifampicin-resistant pulmonary or extra pulmonary TB	Non-DST based criteria: • Pregnancy • Any extrapulmonary disease in PLHIV • Disseminated, meningeal or central nervous system TB • Intolerance to any drug in the shorter MDR TB regimen or risk of toxicity from a drug in the shorter regimen (e.g. drug-drug interactions) • If result for DST (FQ, SLI, Inh A mutation, Cfz* & Z*) is not available, history of use for > 1 month to Mfx(h), Km, Eto or Cfz DST based criteria: • If DST/DRT result for FQ or SLI is resistant or • presence of InhA mutation (for Eto) or • Resistance to Z (whenever available)
All oral longer regimen for MDR/ RR TB (with or without additional resistance)	Patients in whom shorter MDR TB regimen cannot be considered due to any reason	None

Standard regimen for initiating treatment of MDR/RR TB or H mono-poly DR TB

Regimen class	Intensive phase	Continuation phase
H mono/poly DR TB (R resistance not detected and H resistance)		
All oral H mono-poly DR TB regimen[@]	(6) Lfx R E Z	
MDR / RR TB		
Shorter MDR TB regimen[@]	(4-6) Mfx ^h Km/Am* EtoCfz Z H ^h E	(5) Mfx ^h Cfz Z E
All oral longer MDR TB regimen[@]	(18-20) Bdq(6) LfxLzd [#] Cfz Cs	

*If the intensive phase is prolonged, the injectable agent is only given three times a week in the extended intensive phase.

Reduce Lzd to 300 mg/day after 6 to 8 months.

Pyridoxin to be given to all DR TB patients as per weight band.

- All oral H mono/poly DR TB regimens is of 6 months with no separate IP/CP.
- Shorter MDR TB regimen is of 9-11 months with 4-6 months of IP containing injectables and 5 months of CP.
- If the IP is prolonged, the injectable is only given three times a week in the extended intensive phase.
- All oral longer MDR TB regimens are of 18-20 months with no separate IP/CP.
- Newer drugs like Bdq and Dlm would be given for 6 months duration while the dose of Lzd will be tapered to 300 mg after the initial 6-8 months of treatment.
- This regimen will also be used for treatment of XDR TB patients with 20 months duration.

38. NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME (NVBDGP)

- Malaria
- Filariasis
- Dengue
- Chikungunya
- J.E.
- Chandipura

OBJECTIVES OF NVBDGP

- Reduce malaria morbidity & mortality by 50% by 2012.
- ABER > 10%.
- API 1.3 or less.
- Reduction of mortality on account of Malaria, Dengue, Japanese Encephalitis (J.E.) by half by 2012 & efficient morbidity control.

Evolution of NVBDGP

- 1953 : National Malaria Control Programme
- 1958 : National Malaria Eradication Programme
- 1977 : Modified Plan of Operation
- 1979 : Multipurpose Worker Scheme
- 1995 : Implementation of Malaria Action Plan- 1995
- 1997: Implementation of Enhanced Malaria Control Project in tribal districts EMCP.
- 2000 : National Anti Malaria Programme
- 2004 : National Vector Borne Disease Control Programme
- 2005 : National Rural Health Mission

Disease Vector

Malaria: An. Culicifacies, An. Fluviatilis, An. Minimus, An. Sundaicus, An. Stephensi, An. Phillippinensis, An. Varuns, An. Dirus, An. Annularis (9)

Dengue, Chik, Zika Fever: Ae. aegypti

Filariasis: Cx. quinquefasciatus, Mansonia Annulifera (kerala)

Japanese Encephalitis: Cx. Vishnui, Cx. Tritaeniorhynchus.

Scrub Typhus: Trombiculid Mite (Chiggers)

Epidemic Typhus: Body louse

Endemic Typhus: Rat/Cat Flea

Chandipura Fever: Sandfly

MALARIA

- Name Malaria (Mal – Bad, aria – air) given in 18th century in Italy
- Known from antiquity
- Charaka & Susruta Samhita described malaria as king of diseases.
- Hippocrates (Greece) – in 5th century gave detail clinical picture and observed prevalence in certain places and seasons
- Relation with stagnant water and marshy land and control by effective drainage was practiced in Rome & Greece by 6th century

Epidemiology

- Malaria affects almost 40% population of the world. 3.2 billion at risk of malaria
- World wide 100 countries are considered malarious half of which are in Sub-Saharan Africa.
- There are 300-500 (50% Pf cases) million clinical cases and more than 1 million deaths every year
- 90 % of these are in Africa & mostly caused by *P. falciparum*.
- In India, approximately 1.8 million positive cases reported annually.

Funding Pattern

- ▶ National Anti Malaria Programme is 50% centrally sponsored Programme.
- ▶ Expenditure on operational Cost, Material & Equipment was borne by the Central & State Govt. on 50:50 basis upto 31.3.90.
- ▶ Since 1.4.90 the operational cost under plan scheme is classified as non-plan which is to be borne by the State. From 1.4.93 Central assistance is procured in kinds i.e. on Antimalarials, Insecticide and Larvicide.
- ▶ Expenditure on Material & Equipment is responsibility the of State Govt. Since 2006-07 central assistance in cash & kind grants are being released through NRHM to the State.

Bionomics Malaria Vector Species in MAHARASHTRA

Name of species	Resting	Breeding	Biting	Feeding	Flight Range
An. Culicifacies	Indoor , cattle shades & human dwellings cool places with low disturbances	Rain water pools irrigation channels, sluggish streams, barrow pits, rice fields	After dusk 10.30 PM to 12.30 AM	Mainly Zoophilic	Normally 1 to 3 km
An. Fluviatilis	Mainly human habits, in hills found, resting outdoors, irrigated tracks	Clean water, irrigation channels in grassy margins of slow moving in seepages	9 PM to 11 PM	Anthropophilic	1 Km
An. stephensi	Human dwelling & cattle shades out-door on well walls	In urban areas wells cisterns, fountains, ornamental tanks, artificial containers, overhead tanks	4 AM to 6 AM	On human or cattle depending on availability	1 Km

SURVEILLANCE FOR CONTROL OF MALARIA

Surveillance is defined as the ongoing systematic collection, collation, analysis and interpretation of data and dissemination of information to those who need to know in order that action be taken

Active Surveillance

- Fortnightly Surveillance Calendar of every health worker, Cover area of vacant MPW, Involvement ASHA, NIL Village monitoring, MBER/ABER monitoring.

High Risk Village

- Vacant MPW, API > 2, ABER < 10, Outbreak in last 3 years, Death due to malaria, Migrated population, Peri urban area, Developmental project

Passive Surveillance

- 15% of new OPD cases, All fever cases, Patient coming from endemic area, Pregnant women from endemic area, Patient from labour camps & development projects.

IMPORTANT REGISTERS

- M-1 : Report of Surveillance by ASHA/ MPW/ Health facility
- M-2 : Laboratory Request for Slide Examination
- M-3 : Record of slide Examination in PHC Laboratory
- M-4: Fortnightly Report of Cases From Subcentre/ PHC/ District/ State

Important Surveillance Indicators

1. ABER=
$$\frac{\text{No. of B.S. examined in a year} \times 100}{\text{Total population}}$$
2. API=
$$\frac{\text{Total No. of B.S. found positive in a year} \times 1000}{\text{Total Population}}$$
3. SPR =
$$\frac{\text{Total No. of B.S. found positive for Malaria} \times 100}{\text{Total No. of B.S. examined}}$$
4. SFR=
$$\frac{\text{Total No. of B.S. found positive for Pf} \times 100}{\text{Total No. of B.S. examined}}$$
5. Pf %=
$$\frac{\text{Total No. of B.S. found positive for Pf} \times 100}{\text{Total No. of B.S. found positive for Malaria}}$$

✓ API

- Depends upon the adequacy of ABER
- Areas with low ABER, the significance of API is lost

✓ ABER

- Should be 10%
- B.S. collection should not be <1% per month during the transmission period.
- Should be equal to fever rate in the locality.
- All localities should be covered, as per prescribed time schedule.

✓ SPR

- less dependent on ABER
- it is *more reliable than API*
- Whenever the case detection mechanism is inadequate, this is a dependable parameter
- Greater significance, if the ABER is low and gives better indication of parasite load.

✓ SFR

- less dependent on ABER
- Pinpoints areas of *P.falciparum* preponderance for prioritizing control measures.
- Relative proportion of *P.falciparum* infection and trends in relation to total case load.

✓ PF%

- Any rise also indicates breakdown of malaria control activities leading to high morbidity and high mortality.

Supervisory Protocol

Sub Centre	MPW (F); MPW(F)	Visit 1 ASHA per village during their visit & 2 patients treated by her in the last one month , Supervise IRS rounds.
PHC	HS (F); HS(M) MO	Visit all subcentres in the PHC, Try to visit remote villages and interview ASHA and 2 patients treated by ASHA in the last one month ,Supervise IRS rounds, Verify RTs.

Vector Surveillance

- To identify disease vectors in area, monitor density of vectors, detect disease agent in vectors, know vector dynamics , initiate appropriate vector control measures/action, know vector susceptibility

Sentinel surveillance

- Use data from few selected sites e.g. clinic, Accurate and complete data on the sentinel population
Passive surveillance

Purpose of surveillance

- Morbidity and mortality reporting
- Documenting distribution and spread of disease
- Establish long term trends in disease occurrence
- Detect epidemics
- Identify high risk areas
- Facilitating planning of control and prevention
- Evaluation of interventions
- Resource allocation
- Setting research priorities

USES OF SURVEILLANCE DATA

- Priority setting and planning
- Resource mobilization and allocation
- Prediction and early detection of epidemics
- Early and adequate detection and response
- Monitoring and evaluation
- Identify high risk groups
- Increase knowledge of vectors, dynamics of transmission
- Establish long-term trends and pattern in disease occurrence

COMPONENTS OF MALARIA SURVEILLANCE

- Epidemiological surveillance, Entomological surveillance, Environmental surveillance,
- Socioeconomic surveillance, Anti malaria drug resistance surveillance

Parameters of malaria surveillance

- Annual Blood Examination Rate (ABER); Annual Parasite Incidence (API); Annual Falciparum Incidence (AFI); Slide Positivity Rate (SPR); Slide Falciparum Rate (SFR)

Malaria Diagnosis

- Clinical Diagnosis
- Malaria Blood Smear
- Fluorescent Microscopy

- Antigen Detection
- Serology
- Polymerase Chain Reaction

Advantages of RDK over microscopy

- Test can be done at bed side and result is available within 15 mins.
- Simpler to perform and interpret.
- Sequestration of *P.falciparum* does not affect the RDTs.
- Can be done by health workers with minimal training

Advantages of microscopy over RDT

- Microscopy is still gold standard
 - Species identification is possible.
 - Can detect as low as 5-10 parasites/ μ l
 - Cost effective
 - Quantification is possible
- Gives information about platelets, RBCs or WBCs.(i.e blood picture)

Preparation of Thick and Thin Blood Smears.

- Both thick and thin films should be made on the same slide.
- Blood samples should be collected from the tip of ring finger of the left hand.
- In small children, samples should be either from the heel or the tip of the big toe of the foot taking all aseptic precautions using a sterile Needle or a lancet.
- Disinfect and prick finger tip with disposable sterile lancet.
- Allow blood drop to ooze out.
- Take a clean slide, Take 3 drops of blood (sufficient blood) 1cm from the edge of the glass slide.
- Take another drop of blood 1 cm from the first drop of blood.
- Take another clean slide with smooth edges & use it as a spreader. Make thick and thin smears, Allow it to dry. Put the slide number on thin smear with lead pencil.
- The slide used for spreading the blood films must be disinfected and should then be used for the next patients, another clean slide from the pack being used as a spreader.

Quality of Thick Smear.

- It is 10 mm away from the edge.
- It is round in shape with 10 mm diameter.
- Its thickness contains 10 layers of Red blood cell.
- 10 – 12 WBC should be visible in one oil immersion field of microscope.

Importance of Thin Smear.

- The thin smears are valuable for identification of the species of parasites and for studying their morphology.
- It is advisable that both thick and thin smears should be taken on the same slide. For label blood smears number i.e patient's identification numbers & name

Handling and Transportation

- Transport air-dried and / or fixed films at ambient temperature preferably within 24 hours of specimen collection.
- Do not dry the film by heating over a flame or other heat source and do not refrigerate.

RAPID DIAGNOSTIC TESTS

- Based on detection of antigens derived from malaria parasites in lysed blood
- Method used “Immunochromatographic methods”
- Test can be performed in 15 minutes

GENERAL TEST PROCEDURE

- Finger prick blood collected in micro capillary tubes
- Blood mixed with a buffer solution containing haemolysing compound along with a specific antibody labeled with visually detectable marker (e.g. Colloidal gold)
- The labeled antigen –antibody complex migrates up the test strip towards test specific reagents that have been pre-deposited
 - a line capture antibody specific for the antigen under investigation
 - a procedural control

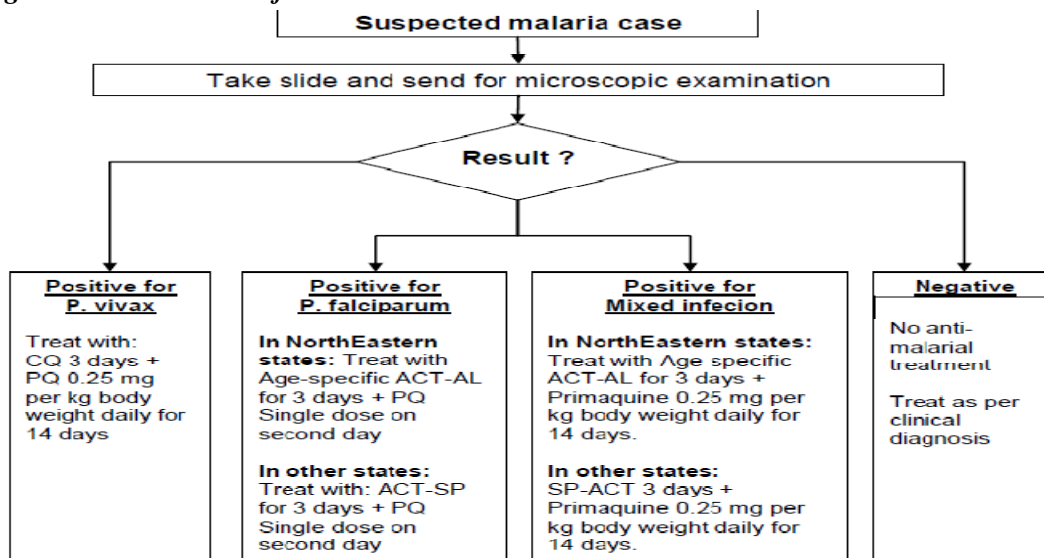
Clinical Presentation

- It is a febrile illness accompanied by other associated symptoms like headache, vomiting, loose motion, cough, muscular pain etc.
- These symptoms depend on the immunity of the host and level of transmission
- All these symptoms are non-specific and mimic many other febrile illness
- Initial symptoms are vague may precede fever by 1-2 days. Fever is accompanied by shaking chills and rigor classically described as cold stage
- This is followed by high fever lasting for 1-4 hours known as the *hot stage*
- This is followed by stage of sweating and prostration.
- These classical symptoms not always present.
- A subset of patients may present without any fever in high endemic areas or on chemoprophylaxis
- In our series 2.3% patients were afebrile before and after hospitalization.
- Falciparum malaria may present with complication without having any other symptoms

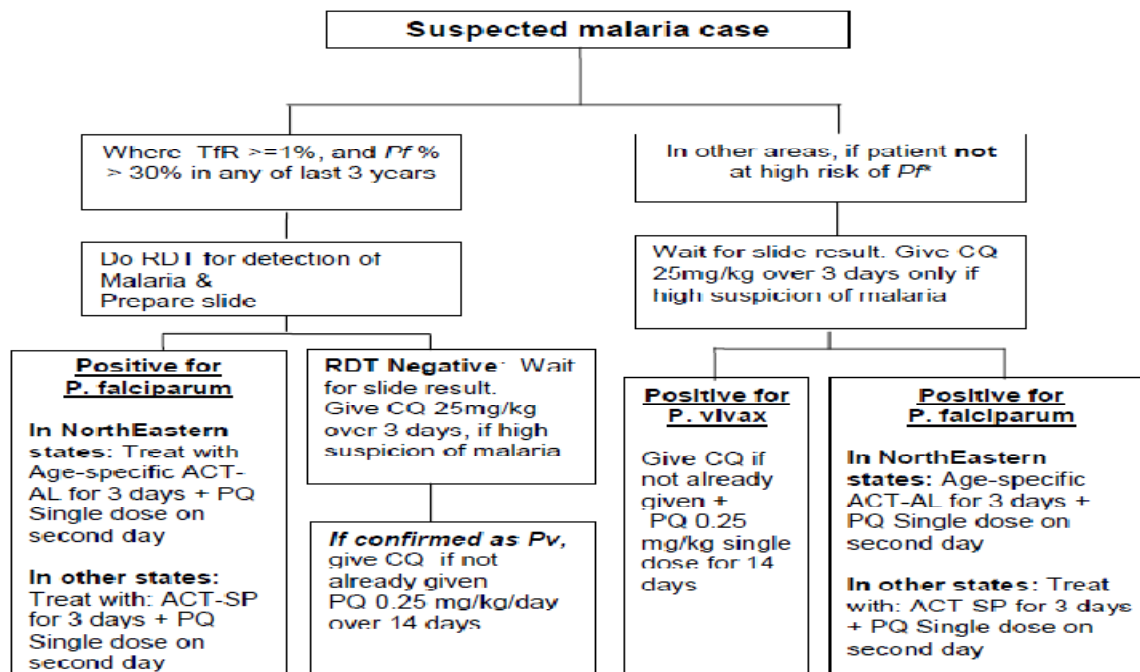
ATYPICAL PRESENTATIONS ARE SEEN IN FOLLOWING CIRCUMSTANCES

- Falciparum malaria, Very early infection, Partially treated cases, On chemoprophylaxis,
- Extremes of age, Pregnancy, Immunity of the patients
These signs are unusual
- Running nose, cough and other signs of respiratory infection, Diarrhoea/ Dysentery, Burning micturition and / or lower abdominal pain
- Skin rash/ infections, Abscess, Painful swelling of joints, Ear discharge

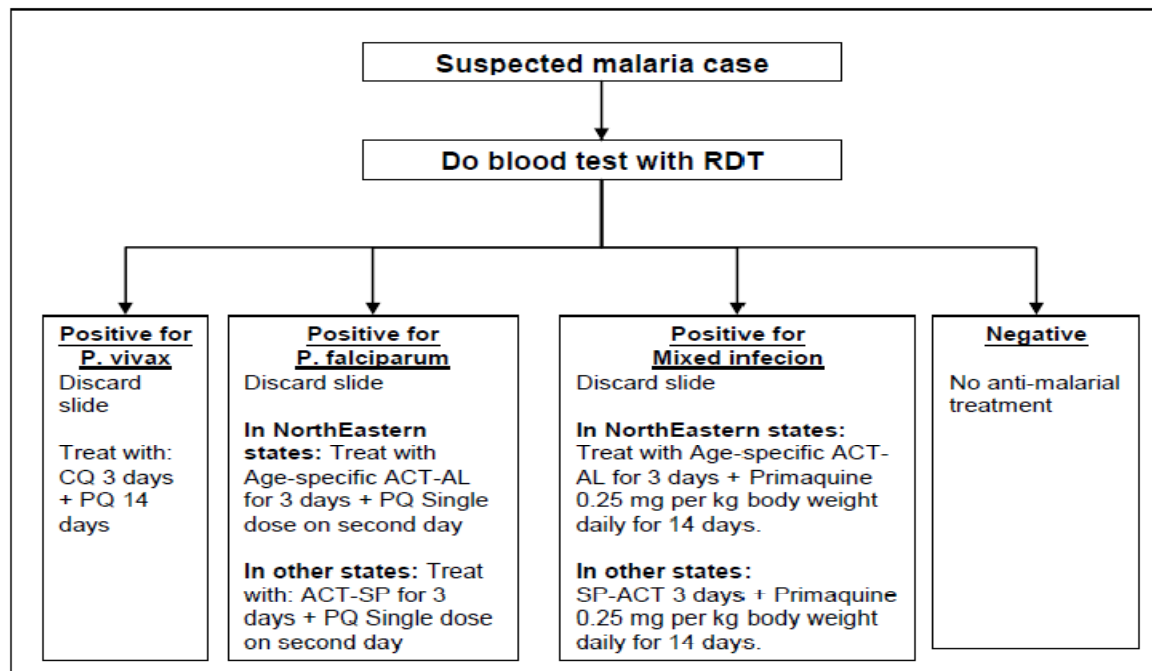
Diagnosis and Treatment for Malaria



WHERE MICROSCOPY RESULT IS NOT AVAILABLE WITHIN 24 HOURS AND MONOVALENT RDT



Where microscopy result is not available within 24 hours and Bivalent RDT is used



General recommendations for the management of uncomplicated malaria

- Avoid starting treatment on an empty stomach. The first dose should be given under observation. Dose should be repeated if vomiting occurs within 30 minutes.
- The patient should report back if there is no improvement after 48 hrs or if the situation deteriorates.
- The patient should also be examined for concomitant illnesses.

Why Artemisinin combination

- Reduce parasite biomass by ~ 104 per each asexual cycle
- Remaining parasites exposed to maximum concentration of the companion drug
- Eliminated very quickly (protection against parasites exposed to sub-therapeutic levels)
- Produce rapid clinical response and few adverse effects (↑ compliance)
- Active against immature gametocytes (↓ transmissibility)
- Primaquine is contraindicated in Infants and pregnant woman.
- Can cause severe haemolysis in G6PD deficiency, hence 14 days therapy is best given under medical supervision.
- In high G6PD deficient areas use with caution or test for G6PD
- Ask to stop Primaquine if has dark urine, jaundice, bluish lips, pain abdomen, nausea and vomiting

Severe manifestations of *P.falciparum* malaria

- Asexual parasitemia in peripheral smear with any of the following
- CEREBRAL MALARIA
- Renal impairment (ARF)
- Respiratory distress/ ARDS(Acidotic breathing)
- Severe Anemia
- Circulatory collapse
- Pulmonary edema (Radiological)
- Abnormal bleeding
- Jaundice

- Hemoglobinurea / Black Water Fever

Laboratory Findings.

- Severe anaemia Hb < 5G%
- Hypoglycemia Plasma Glucose <40mg/dl
- Acidosis pH < 7.2, HCO₃ <15
- Hyperparasitaemia > 5%
- Renal impairment Creatinine >3mg/dl

Parenteral Quinine therapy

Loading Dose: 20mg salt/Kg body weight diluted in dextrose saline infused IV in 4 hours

Maintenance dose: 10mg salt/Kg body weight in dextrose saline infused over 4 hours. The dose is repeated every 8 hrs in adults and 12 hrs in children till oral therapy can be resumed

Oral therapy: 10mg/Kg body weight repeated every 8 hrs to complete 7 days treatment

Quinine has a narrow therapeutic window.

- It can cause hypoglycemia and cinchonism. Acute over dosage may induce severe hypotension and cardiac conduction abnormalities

Following precautions should be taken during quinine infusion:

- Weigh the patient (visual weight in unconscious pts.)
- History of previous and present drug intake
- Constant rate infusion, preferably with infusion pump
- No bolus injection
- Constant follow up of pulse, BP.
- Quinine is one of the most effective antimalarial drug in severe and complicated malaria.
- Quinine is safe in pregnancy
- Initial quinine dose should not be reduced even in presence of renal and hepatic involvement..
- Quinine dose should be reduced to two-third after 48 hrs of therapy

Monitoring by MO PHC

- Early case detection and prompt treatment (EDPT)
- Appropriate corrective measures to restore services.
- ACD- By ASHA, MPW, ANM, from M1 form updating of population in Dec/Jan.
- Cross checking of family register data in field.
- Regular cross checking of sub-centre record monthly/quarterly.
- PCD – All fever cases from dispensaries, Hospitals to be reviewed for BSE.
- Quality of smear.
- Correctness of diagnosis.
- Prompt treatment.
- RT to all positive cases.
- Cross checking of tablets consumed with treated cases.

Salient Aspects Of Monitoring

- Time lag between BSE & receipt in laboratory.
- Time lag between receipt in lab and testing.
- Time lag between BSC & RT.
- Total period between BSC & RT.

Follow-Up Actions

- Corrective measures to remove bottle necks to ensure EDPT.
- Trend in pre, during and post transmission period.
- Sub centre wise fortnightly visits.
- Field verification of population coverage and BSE.
- Cross checking of M1 and M2 registers.
- Close monitoring of infants, Young children, Pregnant mother, and migratory population.

FILARIASIS

- Filariasis caused by nematodes that live in the human lymph system is called '*Lymphatic Filariasis*'
- These parasites are transmitted through vectors.
- *Adult worm of this parasite live in lymphatic system ,cutaneous tissue or body cavity*
- Causative organisms :*W. bancrofti*; *B. malayi*; *B. timori*
- *Wucheria bancrofti* is common in Maharashtra & mainland India.
- *W. bancrofti* transmitted by *Culex quinquefasciatus*. *C. quinquefasciatus* is the vector of *W. bancrofti*
- *C. quinquefasciatus* breeds in association with human habitations
- *Prefers polluted waters*, such as sewage and sullage water collections including cess pools, cess pits, drains and septic tanks, The eggs are laid in rafts containing 150-40 eggs each depending on quality and quantity of blood meal taken. At the optimum temperature of 25⁰C to 30⁰C, the eggs hatch within 24 to 48 hours.
- The entire cycle *from egg to emergence of adult is completed in 10-14 days*. Adult worms live in lymph vessels & LNs by making nest in the dilated lymphatics.
- Survival of Adult worm – 5-8 years (max -15 years).
- After mating F worm parturates millions of mf in blood circulation.
- Day – mf lives in lung arterioles, Night – peripheral circulation (*Nocturnally periodic*)
- Development of mf in mosquitoes takes 10-14 days to form infective larvae. (L3)
- Man is the natural host, All ages & genders are susceptible to infection.
- Youngest age recorded with filarial infection is 6 months.
- Disease manifestation appears in a small proportion of infected individuals, commonly over 10 years of age.

NATIONAL FILARIASIS CONTROL PROGRAMME (NFCP)

- Launched in 1955.
- Elimination of LF means LF ceases to be public health problem when mf rate is less than 1 % & the children borne after initiation of ELF are free from circulating antigenemia. WHA 50.29 in 1997 – ELF by 2020.
- National Health Policy (2002) – ELF by 2015.

National Filaria Control units : 16 (ADHS(M)7)

- Night blood surveillance in jurisdiction, Examination of blood slides, Treatment, Weekly Anti larval measures, Fogging, Morbidity management, Hydrocelctomy.

Survey Units: 6 (ADHS (M) 1)

Regional night blood surveillance, Entomological surveillance, Examination of blood slides Treatment

Night Clinics: 34 (ADHS (M) 15)

Night blood surveillance in jurisdiction, Examination of blood slides, Treatment, Weekly Anti larval measures, Morbidity management.

Mass Drug Administration (MDA)

- Interruption of transmission of filariasis by Annual MDA for 5 years or more to the population except: children below 2 years, pregnant women, seriously ill persons
- DEC + Albendazole, in selected districts
- 17 districts.
- 27.5 million population
- Clinical spectrum ranges from the initial phase of asymptomatic microfilaremia to the later stages of acute, chronic & occult clinical manifestations

ACUTE MANIFESTATIONS

1. ACUTE DERMATO ADENO LYMPHANGITIS (ADLA)

- Fever with chills
- Usually extremities are involved
- Extremely painful, tender, swollen, red
- Draining LNs in axilla, groin – swollen & tender.
- Cellulitis, abscess.
- Entry of bacteria thro' lesions of affected part are main reason.

2. Acute Filarial Lymphangitis (AFL)

- At the site of death of adult worm – small tender nodes are formed. (Scrotum/limbs)
- Inflamed lymphatics stand out as cords underneath the skin.
- No fever, 2 ndary inf.
- Due to death of worm by Anti filarial drugs / spontaneously.

3. Acute Epididymo orchitis & funiculitis

- Inflammation of structures in the scrotal sac.
- Severe pain, tenderness, swelling of scrotum with fever with rigor.
- Testes, Epididymis or spermatic cord – swollen & tender.
- Precipitated by secondary infections.

CHRONIC MANIFESTATIONS

Hydrocele

- Common in bancroftian filariasis.
- Accumulation of fluid in tunica vaginalis sac covering the testes.
- Swelling increases gradually.
- Long standing cases – scrotum size – enormous
- Skin of scrotum – may be covered with vesicles distended with lymph known as – LYMPH SCROTUM

Chronic disease limb involvement

Grading of Lymphodema of Limbs	
Grade I	Pitting odema, Reversible on elevation
Grade II	Non –pitting odema, non reversible on elevation.
Grade III	Gross increase in volume in Gr II lymphodema with dermatosclerosis & papillomatous lesions.
Advanced	Skin thickened & thrown in to folds, often with hypertrichosis, black pigmentation, nodules, warty growth & intertrigo in the webs of the toes or chronic non healing ulcers.

Smear examination

- Blood smears are collected between 8.30 pm and 12 midnight.

Treatment

- Dose 6mg/kg/day for 12 days
- no direct action on MF but modifies them in such a way that they are eliminated from host immune system
- No effect on chronic obstructive disease
- Dying worms may trigger acute lymphangitis, fever with chills, arthralgia due to release of antigens from dying worms
- *Treatment repeated every 6 months if symptomatic or MF in circulation*

Management of Acute Attacks (ADLA)

- Relieve pain, Cold compress, Rest (no exercise), Elevate leg, Fluids, Anti-pyretics
- Hygiene and care for entry lesions.
If you have lymphedema/ elephantiasis these are the simple things you should do:
- Wash your legs and skin folds with soap & water
- Dry it with clean cloth.
- Put anti bacterial or anti fungal ointment locally, if required.
- Keep your leg(s) in raised position while sitting or sleeping.
- Exercise anytime, anywhere convenient. Raise your toes up and down, rotate your foot from the ankle clockwise and anticlockwise.
- Walking is a good exercise.
- Please Note: Don't do the exercise if you have high fever and acute infection as it will be painful. If you are a heart patient consult your doctor before doing the exercise and elevating your feet.

Role of Medical Officer

- PHC Medical Officer will ensure that the spray operations are conducted as per schedule and in case of any delay, he will find out the reasons and reschedule the programme.
- He will solve any bottlenecks in spray operations in his area such as turnover of seasonal spray men (field workers), insecticide supplies, shifting of camps, etc.
- He will see that reports are sent in time.
- He will contact DMO immediately in case of delay/suspension of spray programme and solve the problems.
- He will, during field visits, inspect spray operations at least once a week.

Charts to be Maintained at PHC Level

- Area map showing jurisdiction and headquarters of sub-centres, passive agencies and indication villages.
- Subcentre-wise master chart based on epidemiological evaluation master register.
- Passive agency-wise, showing new cases, fever cases, blood slides collected & positives detected. Fever Treatment Depots collecting slides will be considered as passive agency. This information will be based on the report received from the passive agencies or the Fever Treatment Depots on malaria form (MF-10)
- Back-log of unexamined blood slides along with number of positives-ladder chart.
- Back-log of radical treatment along with positives-ladder chart.
- Stock register of anti-malarials and other material and equipment received from time to time.
- Stock register of the insecticides received from the district store.

Reports to be sent by PHC

- The PHC should post on every Saturday the Savingram to District Headquarters in MF-11 given at **Appendex-IV (L)** showing Weekly Epidemiological report.
- MF-4 : The age groups changed as 'below 1 year', '1-4', '5-14' and '15 and above' in the last column (17-24) are given in the revised MF-4, which is meant for the monthly report from the PHCs.
- MF-10: Besides submitting the report regularly, it may be ensured that FTDs and VLWs cover the entire population in high risk areas.
- The information in the proforma given at Appendix-I, II(A) and II(B) is to be submitted annually.

What Is an Outbreak?

- The occurrence in the community of cases of an illness clearly in excess of expected numbers.
- Outbreak is limited to a small focal area.
- An epidemic covers large geographic areas & has more than one focal point.
- Occurrence of 2/more epidemiologically linked cases of a disease of outbreak potential.

Levels of response to different triggers

Trigger	Significance	Levels of response
1	Suspected /limited outbreak	Local response by health worker and medical officer
2	Outbreak	Local and district response by district surveillance officer and rapid response team
3	Confirmed outbreak	Local, district and state
4	Wide spread epidemic	State level response
5	Disaster response	Local, district, state and centre

MALARIA

CASE DEFINATIONS....

- A case of fever which may be accompanied with any of the following:
- Headache, backache, chills, rigors, sweating, myalgia, nausea and vomiting, Splenomegaly and anemia, Generalized convulsions, coma, shock, spontaneous bleeding, pulmonary edema, renal failure and death (*untreated falciparum infection*)
- Any case of fever in an endemic area may be considered as malaria.*

Trigger I

- Even a single smear + ve case in an area where malaria was not present for minimum 3 months. SPR rise more than double over last 3 months. Single death from malaria. (Clinical/microscopically proven). Single PF case of indigenous origin in a PF free area.

Trigger II

- Two fold rise in the region over last 3 months. More than 5 cases of PF of indigenous origin.

KEY FACTORS TO BE MONITORED FOR PREDICTION AND EARLY DETECTION OF MALARIA OUTBREAKS

Change in parasite load

- No. of fever cases, No. of malaria positives, Species distribution.

Population Dynamics

- Influx of migrants from non-endemic to endemic areas and vice-versa, Tropical aggregation of labour in projects, Large labour movement to forest or for agriculture, Population migration during floods and drought

Vector Dynamics

- Increase in mosquitoes density, Vector density, Man mosquito contact
- Environmental / Climatic Conditions**
- Early and heavy rainfall in pre-transmission period, increased humidity, Natural disasters like – Floods, Drought causing river bed pools, Earth quake, etc.

Follow up Action

- Carry out mass survey or rapid fever survey
- Two follow-up surveys: first survey 21 days of remedial measures and the second survey 21 days after the first survey
- Strengthen the case detection mechanism
- Activate all FTDs and VLWs
- Investigate cause of Outbreak
- Epidemiological investigation to find out:
- Influx of migratory population which was not covered by routine control measures
- Breakdown of regular malaria control operations
- Unusual natural calamities such as floods, heavy rains, drought with opening up of relief camps etc.

Rapid Fever Survey – I

- Every village in the suspected zone is covered
- Only cases of fever and cases with history of fever are taken up.
- Area of survey - should be expanded centrifugally from the epicenter of the outbreak till areas with normal positivity rates are reached.
- Establish field laboratories by pooling laboratory technicians and staff from all sources.
- The survey should be over in 7 to 10 days.

Rapid Fever Survey – II

- RDT tests for *P. falciparum* should be done immediately and those found positive will be administered the first day dose of ACT; Therapy will be continued for 3 days.
- Blood smears taken should be examined within 24 hours
- All age groups should be covered, especially children, pregnant women and migrants
- All persons whose blood smear has been taken for microscopy should be given clinical treatment with 3 day course of chloroquine; appropriate,
- Complete treatment will be given to all those persons who test positive

Mass Survey

As an alternative, mass survey of the entire population shall be carried out irrespective of age, sex and fever status.

- **Duration of Epidemic Control Measures**
 - The entire exercise should be completed in a period of 7 to 10 days and in any case not exceeding a fortnight.
- **Space spray/Fogging**
 - Do not wait for completion of survey in the entire area. Space survey should be started as soon as survey results of a village are available.
 - Other villages are included as soon as their survey results are available.
 - Every house in the epidemic villages should be covered.
 - Indoor space spray should be carried out for 7 to 10 consecutive days or till the residual insecticidal spray in all house of the locality is completed.
 - Timing - Preferably early morning or late evening hours
 - Precaution - Close all doors and windows and other openings before space spray
- **Other Measures**
 - If the epidemic is due to predominance of vector breeding in water storage tanks or in peridomestic water collections, undertake *anti-larval measures* along with space spray and residual spray.
 - Detailed entomological investigation may be carried out later to ascertain the susceptibility status of the vector(s).

Tracking malaria deaths

- All deaths due to malaria and suspected malaria must be investigated by the MO-PHC.
- If the death due to malaria occurs in a hospital or dispensary, the DMO or MO-PHC should be informed within 48 hours by the treating physician.
- If the death in a village is detected by the ASHA/volunteer/MPHW, the same shall be informed immediately to MO-PHC.
- The MO-PHC shall investigate the death within a month after receipt of information.
- **Ref Lab Services To Linked Districts**
 - Sample testing for confirmation of outbreak (not for clinical cases).
 - Facility to receive OB samples on a holiday or after duty hours.
 - Provision of logistic support for transport of microbiological samples.
 - Guidance to microbiologist/lab technician for adequate sample collection & transport.

Commitments of Ref Lab

- Maintain –Adequate infrastructure, Equipments & Consumables to be functional at all times of OB investigation, Data sharing with DSU, SSU & CSU, Appointment of focal point to liaison with State Lab Coordinator.

Coordination with IDSP

- As before, health staff will monitor fever and suspected malaria cases to detect outbreaks early.
- Fever surveillance will be integrated with the weekly schedule of Integrated Disease Surveillance Project (IDSP).

DENGUE FEVER

CASE DEFINATIONS....

- An acute febrile illness of 2-7 days duration with **two or more of the following:**
- headache, retro-orbital pain, myalgia, arthralgia, rash, haemorrhagic manifestations, leucopenia, **and with one or more of the following:**
- ✓ Supportive serology, Epidemiologically linked with a confirmed case of dengue fever (occurrence at same location and time as other confirmed cases of dengue fever).

Trigger1

- ✓ Clustering of two similar cases of probable dengue fever. A single case of suspected Dengue Hemorrhagic Fever or shock syndrome.

Trigger II

- ✓ More than 4 cases of Dengue Fever in a village/geographical area of 1000 population

CHIKUNGUNYA

CASE DEFINATIONS....

- An acute illness characterized by –
- ✓ sudden onset of fever with any of the symptoms like headache, backache, photophobia, severe arthralgia, rash and positive serology (when single serum sample is obtained during acute phase or during the convalescence).

ACUTE ENCEPHALITIC SYNDROME

CASE DEFINATIONS....

- ✓ A person of any age with acute onset of fever and any of the following
- ✓ change in mental status (confusion, disorientation, coma, inability to talk)
- ✓ new onset of seizures (excluding simple febrile seizures).
- ✓ other early clinical findings like an increase in irritability, somnolence or
- ✓ abnormal behavior greater than that seen with usual febrile illness.
- ✓ **Japanese Encephalitis**

Trigger I

- ✓ Clustering of 2 or more similar cases from a locality in one week

Trigger II

- ✓ More than 4 cases of from a PHC (30,000 population) in one week.

Fever of Unknown Origin (PUO)

CASE DEFINATIONS....

- ✓ Fever of more than 101°F (38.3°C), either continuous or intermittent, for at least two weeks, **or**
- ✓ Fever above 101°F with no known cause even after extensive diagnostic testing

Control Measures carried out under NVBDCP

Parasite Control

- Surveillance, B.S. Exam,
- Presumptive treatment & RT

Vector Control

- Chemical Method :
- Rural – Indoor Residual Spraying (IRS)
- Use of Synthetic Pyrethroids in selected villages.
- Deltamethrine, Cyfluthrin, Alphacypermethrin, Lambda Cyhalothrin.
- Urban – Weekly Antilarval spraying.(Abate, Baytex, MLO)
- Fogging with Pyrethrum Extract – In outbreak situation

Japanese Encephalitis

- It is a viral disease. It is transmitted by infective bites of female mosquitoes mainly belonging to *Culex tritaeniorhynchus*, *Culex vishnui* and *Culex pseudovishnui* group. JE virus is primarily zoonotic in its natural cycle and man is an accidental host.
- JE virus is neurotropic and arbovirus and primarily affects central nervous system

Sign and symptoms

- JE virus infection presents classical symptoms similar to any other virus causing encephalitis
- JE virus infection may result in febrile illness of variable severity associated with neurological symptoms ranging from headache to meningitis or encephalitis. Symptoms can include headache, fever, meningeal signs, stupor, disorientation, coma, tremors, paralysis (generalized), hypertonia, loss of coordination, etc. Prodromal stage may be abrupt (1-6 hours), acute (6-24 hours) or more commonly subacute (2-5 days). In acute encephalitic stage, symptoms noted in prodromal phase convulsions, alteration of sensorium, behavioural changes, motor paralysis and involuntary movement supervene and focal neurological deficit is common. Usually lasts for a week but may prolong due to complications.
- Amongst patients who survive, some lead to full recovery through steady improvement and some suffer with stabilization of neurological deficit. Convalescent phase is prolonged and vary from a few weeks to several months.
- Clinically it is difficult to differentiate between JE and other viral encephalitis
- JE virus infection presents classical symptoms similar to any other virus causing encephalitis.
- Japanese encephalitis is a vector borne disease.
- Several species of mosquitoes are capable of transmitting JE virus.
- JE is a zoonotic infection. Natural hosts of JE virus include water birds of Ardeidae family (mainly pond herons and cattle egrets). Pigs play an important role in the natural cycle and serve as an amplifier host since they allow manifold virus multiplication without suffering from disease and maintain prolonged viraemia.
- Due to prolonged viraemia, mosquitoes get opportunity to pick up infection from pigs easily.
- Man is a dead end in transmission cycle due to low and short-lived viraemia. Mosquitoes do not get infection from JE patient.
- Japanese encephalitis virus isolation has been made from a variety of mosquito species.
- Culicine mosquitoes mainly *Culex vishnui* group (*Culex tritaeniorhynchus*, *Culex vishnui* and *Culex pseudovishnui*) are the chief vectors of JE in different parts of India
- Life cycle consists of egg, four instars of larvae, pupa and adult. The whole cycle takes more than a month; however, duration depends on temperature and other ecological conditions.
- *Culex vishnui* subgroup is very common, widespread and breeds in water with luxuriant vegetation mainly in paddy fields and the abundance is related to rice cultivation, shallow ditches and pools.

- These vectors are primarily outdoor resting in vegetation and other shaded places but in summer may also rest in indoors.
- They are in principally cattle feeders, though human and pig feeding are also recorded in some areas

How JE is diagnosed?

Clinical:

Clinically JE cases present signs and symptoms similar to encephalitis of viral origin and cannot be distinguished for confirmation. However, JE can be suspected as the cause of encephalitis as a febrile illness of variable severity associated with neurological symptoms ranging from headache to meningitis or encephalitis. Symptoms can include headache, fever, meningeal signs, stupor, disorientation, coma, tremors, paralysis (generalized), hypertonia, loss of coordination.

Laboratory:

- **Antibody detection:** Hemagglutination Inhibition Test (HI), Complement Fixation Test (CF), Enzyme Linked Immuno-Sorbent Assay (ELISA) for IgG (paired) and IgM (MAC) antibodies, etc.
- **Antigen Detection:** RPHA, IFA, Immunoperoxidase etc.
- Genome Detection - RTPCR
- Isolation - Tissue culture, Infant mice, etc
- In view of the limitations associated with various tests, IgM ELISA is the method of choice provided samples are collected 3-5 days after the infection.

Treatment

There is no specific anti-viral medicine available against JE virus. The cases are managed symptomatologically. Clinical management of JE is supportive and in the acute phase is directed at maintaining fluid and electrolyte balance and control of convulsions, if present. Maintenance of airway is crucial.

Vaccine for Japanese Encephalitis

- Central Research Institute, Kasuali, has developed Japanese encephalitis vaccine indigenously.
- It is a mouse brain killed vaccine and 3 doses are required to produce primary immunization. Two doses are administered sub-cutaneously within a gap of 7-14 days followed by third dose any time after one month and before one year of the second dose. A booster is required after 3 years.

Prevention and control

1. Reducing the vector density and in taking personal protection against mosquito bites using insecticide treated mosquito nets. The reduction in mosquito breeding requires eco-management, as the role of insecticides is limited.
2. Piggeries may be kept away (4-5 kms) from human dwellings.

DENGUE/DENGUE HAEMORRHAGIC FEVER

- Dengue is a viral disease
- It is transmitted by the infective bite of Aedes Aegypti mosquito
- Man develops disease after 5-6 days of being bitten by an infective mosquito
- It occurs in two forms: Dengue Fever and Dengue Haemorrhagic Fever (DHF)
- Dengue Fever is a severe, flu-like illness
- Dengue Haemorrhagic Fever (DHF) is a more severe form of disease, which may cause death
- Person suspected of having dengue fever or DHF must see a doctor at once

SIGNS & SYMPTOMS OF DENGUE FEVER

- Abrupt onset of high fever
- Severe frontal headache
- Pain behind the eyes which worsens with eye movement
- Muscle and joint pains
- Loss of sense of taste and appetite
- Measles-like rash over chest and upper limbs
- Nausea and vomiting

Signs & Symptoms Of Dengue Haemorrhagic Fever And Shock SYNDROME

- Symptoms similar to dengue fever
- Severe continuous stomach pains
- Skin becomes pale, cold or clammy
- Bleeding from nose, mouth & gums and skin rashes
- Frequent vomiting with or without blood
- Sleepiness and restlessness
- Patient feels thirsty and mouth becomes dry
- Rapid weak pulse
- Difficulty in breathing

VECTOR OF DENGUE/DENGUE HAEMORRHAGIC FEVER

- *Aedes aegypti* is the vector of dengue / dengue haemorrhagic fever.

TREATMENT OF DENGUE & DHF

- Prevention is better than cure
- No drug or vaccine is available for the treatment of Dengue/DHF
- The control of *Aedes Aegypti* mosquito is the only method of choice
- With early detection and proper case management and symptomatic treatment, mortality can be reduced substantially

VECTOR CONTROL MEASURES

1. **PERSONAL PROPHYLACTIC MEASURES** Use of mosquito repellent creams, liquids, coils, mats etc. Wearing of full sleeve shirts and full pants with socks. Use of bednets for sleeping infants and young children during day time to prevent mosquito bite
2. **BIOLOGICAL CONTROL** Use of larvivorous fishes in ornamental tanks, fountains, etc. Use of biocides
3. **CHEMICAL CONTROL** Use of chemical larvicides like abate in big breeding containers, Aerosol space spray during day time
4. **ENVIRONMENTAL MANAGEMENT & SOURCE REDUCTION METHODS** Detection & elimination of mosquito breeding sources. Management of roof tops, porticos and sunshades. Proper covering of stored water. Reliable water supply. Observation of weekly dry day
5. **HEALTH EDUCATION**
6. **COMMUNITY PARTICIPATION** Sensitizing and involving the community for detection of *Aedes* breeding places and their elimination

MANAGEMENT OF DENGUE CASE

- Early reporting of the suspected dengue fever. Management of dengue fever is symptomatic & supportive.
- In dengue shock syndrome, the following treatment is recommended:
 - Replacement of plasma losses

- Correction of electrolyte and metabolic disturbances
- Blood transfusion

Chikungunya

Chikungunya (also known as chikungunya virus disease or chikungunya fever) is a debilitating, but non-fatal, viral illness that is spread by the bite of infected mosquitoes. It resembles dengue fever. Chikungunya is caused by the chikungunya virus, which is classified in the family Togaviridae, genus Alphavirus.

How is chikungunya spread?

Chikungunya is spread by the bite of an Aedes mosquito, primarily Aedes aegypti. Humans are thought to be the major source, or reservoir, of chikungunya virus for mosquitoes. Therefore, the mosquito usually transmits the disease by biting an infected person and then biting someone else. An infected person cannot spread the infection directly to other persons (i.e. it is not a contagious disease). Aedes aegypti mosquitoes bite during the day time.

Symptoms of chikungunya?

Chikungunya usually starts suddenly with fever, chills, headache, nausea, vomiting, joint pain, and rash. In Swahili, "chikungunya" means "that which contorts or bends up". This refers to the contorted (or stooped) posture of patients who are afflicted with the severe joint pain (arthritis) which is the most common feature of the disease. Frequently, the infection causes no symptoms, especially in children. While recovery from chikungunya is the expected outcome, convalescence can be prolonged and persistent joint pain may require analgesic (pain medication) and long-term anti-inflammatory therapy. Infection appears to confer lasting immunity.

Diagnosis

Chikungunya is diagnosed by blood tests (ELISA). Since the clinical appearance of both chikungunya and dengue are similar, laboratory confirmation is important especially in areas where dengue is present. Such facilities are, at present, available at National Institute of Virology (NIV), Pune & National Institute of Communicable Diseases (NICD), Delhi.

Treatment

There is no specific treatment for chikungunya. Supportive therapy that helps ease symptoms, such as administration of non-steroidal anti-inflammatory drugs, and getting plenty of rest, may be beneficial. Infected persons should be isolated from mosquitoes in as much as possible in order to avoid transmission of infection to other people.

How can chikungunya be prevented?

There is neither chikungunya virus vaccine nor drugs are available to cure the infection. Prevention, therefore, centers on avoiding mosquito bites. Eliminating mosquito breeding sites is another key prevention measure. To prevent mosquito bites, do the following:

- Use mosquito repellents on skin and clothing
- When indoors, stay in well-screened areas. Use bed nets if sleeping in areas that are not screened or air-conditioned.
- When working outdoors during day times, wear long-sleeved shirts and long pants to avoid mosquito bite.

How can Aedes mosquito breeding be controlled?

(a) Source reduction Method

- By elimination of all potential vector breeding places near the domestic or peri-domestic areas.
- Not allowing the storage of water for more than a week. This could be achieved by emptying and drying the water containers once in a week.
- Straining of the stored water by using a clean cloth once a week to remove the mosquito larvae from the water and the water can be reused. The sieved cloth should be dried in the sun to kill immature stages of mosquitoes.

- (b) Use of larvicides
 - i. Temephos can be used once a week at a dose of 1 ppm (parts per million).
 - ii. Pyrethrum extract (0.1% ready-to-use emulsion) can be sprayed in rooms to kill the adult mosquitoes
- (c) Biological control Like introduction of larvivorous fish, namely Gambusia and Guppy in water tanks

EXCERSICE FOR PARTICIPANTS

Q.1.What are the objectives of NVBDCP?

Q.2.What are the servillance indicators for Malaria?

Q.3.Write in brief about clinical presentation and severe manifestations of P.fl malaria?

- Q.4. Write short notes on
- a) National falariasis control programme
 - b) Epidemiology of malaria
 - c) Quinine therapy

ZIKA VIRUS

Source :-World Health Organization

Key facts

- Zika virus disease is caused by a virus transmitted primarily by Aedes mosquitoes, which bite during the day.
- Symptoms are generally mild and include fever, rash, conjunctivitis, muscle and joint pain, malaise or headache. Symptoms typically last for 2–7 days. Most people with Zika virus infection do not develop symptoms.
- Zika virus infection during pregnancy can cause infants to be born with microcephaly and other congenital malformations, known as congenital Zika syndrome. Infection with Zika virus is also associated with other complications of pregnancy including preterm birth and miscarriage.
- An increased risk of neurologic complications is associated with Zika virus infection in adults and children, including Guillain-Barré syndrome, neuropathy and myelitis.

Zika virus is a mosquito-borne flavivirus that was first identified in Uganda in 1947 in monkeys. It was later identified in humans in 1952 in Uganda and the United Republic of Tanzania.

Outbreaks of Zika virus disease have been recorded in Africa, the Americas, Asia and the Pacific. From the 1960s to 1980s, rare sporadic cases of human infections were found across Africa and Asia, typically accompanied by mild illness.

The first recorded outbreak of Zika virus disease was reported from the Island of Yap (Federated States of Micronesia) in 2007. This was followed by a large outbreak of Zika virus infection in French Polynesia in 2013 and other countries and territories in the Pacific. In March 2015, Brazil reported a large outbreak of rash illness, soon identified as Zika virus infection, and in July 2015, found to be associated with Guillain-Barré syndrome.

In October 2015, Brazil reported an association between Zika virus infection and microcephaly. Outbreaks and evidence of transmission soon appeared throughout the Americas, Africa, and other regions of the world. To date, a total of 86 countries and territories have reported evidence of mosquito-transmitted Zika infection.

- [More on the history of Zika virus](#)

Signs and symptoms

The incubation period (the time from exposure to symptoms) of Zika virus disease is estimated to be 3–14 days. The majority of people infected with Zika virus do not develop symptoms. Symptoms are generally mild including fever, rash, conjunctivitis, muscle and joint pain, malaise, and headache, and usually last for 2–7 days.

Complications of Zika virus disease

Zika virus infection during pregnancy is a cause of microcephaly and other congenital abnormalities in the developing fetus and newborn. Zika infection in pregnancy also results in pregnancy complications such as fetal loss, stillbirth, and preterm birth.

Zika virus infection is also a trigger of Guillain-Barré syndrome, neuropathy and myelitis, particularly in adults and older children.

Research is ongoing to investigate the effects of Zika virus infection on pregnancy outcomes, strategies for prevention and control, and effects of infection on other neurological disorders in children and adults.

- Q&A: Zika virus and complication

Transmission

Zika virus is primarily transmitted by the bite of an infected mosquito from the *Aedes* genus, mainly *Aedes aegypti*, in tropical and subtropical regions. *Aedes* mosquitoes usually bite during the day, peaking during early morning and late afternoon/evening. This is the same mosquito that transmits dengue, chikungunya and yellow fever.

Zika virus is also transmitted from mother to fetus during pregnancy, through sexual contact, transfusion of blood and blood products, and organ transplantation.

Diagnosis

Infection with Zika virus may be suspected based on symptoms of persons living in or visiting areas with Zika virus transmission and/or *Aedes* mosquito vectors. A diagnosis of Zika virus infection can only be confirmed by laboratory tests of blood or other body fluids, such as urine or semen.

- Laboratory testing for Zika virus infection

Treatment

There is no treatment available for Zika virus infection or its associated diseases.

Symptoms of Zika virus infection are usually mild. People with symptoms such as fever, rash, or arthralgia should get plenty of rest, drink fluids, and treat pain and fever with common medicines. If symptoms worsen, they should seek medical care and advice.

Pregnant women living in areas with Zika transmission or who develop symptoms of Zika virus infection should seek medical attention for laboratory testing and other clinical care.

Prevention

Mosquito bites

Protection against mosquito bites during the day and early evening is a key measure to prevent Zika virus infection. Special attention should be given to prevention of mosquito bites among pregnant women, women of reproductive age, and young children.

Personal protection measures include wearing clothing (preferably light-coloured) that covers as much of the body as possible; using physical barriers such as window screens and closed doors and windows; and applying insect repellent to skin or clothing that contains DEET, IR3535 or icaridin according to the product label instructions.

Young children and pregnant women should sleep under mosquito nets if sleeping during the day or early evening. Travellers and those living in affected areas should take the same basic precautions described above to protect themselves from mosquito bites.

Aedes mosquitoes breed in small collections of water around homes, schools, and work sites. It is important to eliminate these mosquito breeding sites, including: covering water storage containers, removing standing water in flower pots, and cleaning up trash and used tires. Community initiatives are essential to support local government

and public health programs to reduce mosquito breeding sites. Health authorities may also advise use of larvicides and insecticides to reduce mosquito populations and disease spread.

- Vector control operations framework for Zika virus

No vaccine is yet available for the prevention or treatment of Zika virus infection. Development of a Zika vaccine remains an active area of research.

Transmission in pregnancy

Zika virus can be transmitted from mother to fetus during pregnancy, resulting in microcephaly (smaller than normal head size) and other congenital malformations in the infant, collectively referred to as congenital Zika syndrome.

Microcephaly is caused by underlying abnormal brain development or loss of brain tissue. Child outcomes vary according to the extent of the brain damage.

Congenital Zika syndrome includes other malformations including limb contractures, high muscle tone, eye abnormalities, and hearing loss. The risk of congenital malformations following infection in pregnancy remains unknown; an estimated 5–15% of infants born to women infected with Zika virus during pregnancy have evidence of Zika-related complications. Congenital malformations occur following both symptomatic and asymptomatic infection.

Sexual transmission

Zika virus can be transmitted through sexual intercourse. This is of concern due to an association between Zika virus infection and adverse pregnancy and fetal outcomes.

For regions with active transmission of Zika virus, all people with Zika virus infection and their sexual partners (particularly pregnant women) should receive information about the risks of sexual transmission of Zika virus.

WHO recommends that sexually active men and women be correctly counselled and offered a full range of contraceptive methods to be able to make an informed choice about whether and when to become pregnant in order to prevent possible adverse pregnancy and fetal outcomes.

Women who have had unprotected sex and do not wish to become pregnant due to concerns about Zika virus infection should have ready access to emergency contraceptive services and counselling. Pregnant women should practice safer sex (including correct and consistent use of condoms) or abstain from sexual activity for at least the entire duration of pregnancy.

For regions with no active transmission of Zika virus, WHO recommends practicing safer sex or abstinence for a period of six months for men and two months for women who are returning from areas of active Zika virus transmission to prevent infection of their sex partners. Sexual partners of pregnant women, living in or returning from areas where local transmission of Zika virus occurs, should practice safer sex or abstain from sexual activity throughout pregnancy.

- Prevention of sexual transmission of Zika virus

WHO response

WHO is supporting countries to control Zika virus disease by taking actions outlined in the *Zika Strategic Response Framework*:

- Advancing research in prevention, surveillance, and control of Zika virus infection and associated complications.
- Developing, strengthening and implementing integrated surveillance systems for Zika virus infection and associated complications.
- Strengthening the capacity of laboratories to test for Zika virus infection worldwide.
- Supporting global efforts to implement and monitor vector control strategies aimed at reducing *Aedes* mosquito populations.
- Strengthening care and support of affected children and families affected by complications of Zika infection.

39. NATIONAL MENTAL HEALTH PROGRAMME

What is mental Health

World health Organization (WHO) defines health as “a state of physical, mental, social and spiritual well-being and not merely the absence of disease or infirmity”. WHO defines mental health as mental well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community. In this positive sense, mental health is the foundation for individual well-being and the effective functioning of a community.

Attributes of Positive Mental healthy person

1. A mentally healthy person is free from internal conflict
2. He is well adjusted i.e he is able to get along well with others; he accepts criticism and is not easily upset.
3. He knows himself: his needs, problems and goals
4. He has good self control balances rationality and emotionally.
5. He faces problems and tries to solve them intelligently i.e coping with stress and anxiety.

NATIONAL MENTAL HEALTH PROGRAMME

MENTAL ILLNESSES

Psychiatric disorders amount for a large proportion of chronic health problems. During the last two decades, many epidemiological studies have been conducted in India, which show that the prevalence of major psychiatric disorder is about the same all over the world. The prevalence reported from these studies range from the population of 18 to 207 per 1000 with the median 65.4 per 1000. At any given time, about 2-3% of the population, suffer from seriously, incapacitating mental disorders like schizophrenia, bipolar disorder, organic psychosis, major depression or epilepsy. Mental State of individual greatly influences general health Status and ability to access needed health care services. It is essential for MO to recognize mental disorders and refer cases to appropriate specialists if required.

The Government of India has launched the National Mental Health Programme (NMHP) in 1982, keeping in view the heavy burden of mental illness in the community, and the absolute inadequacy of mental health care infrastructure in the country to deal with it.

The Mental Health Act, 2017 is promulgated to consolidate and amend the law relating to the treatment and care of mentally ill persons, to make better provisions with respect to their properly and affairs and for matters connected therewith or incidental thereto. As per the Act services are provided through three types system:-

- State Mental Health Cell.
- Regional Mental Hospital
- District Mental Health Centre at District Hospital (District Mental Health Programme)

There are 4 Regional Mental Hospitals in the state of Maharashtra:

Table 1

Sr.No.	Institution	No. of beds
1	Pune	2600
2	Thane	1880
3	Nagpur	940
4	Ratnagiri	365
Total		5785

1. How to recognize mental disorders:

i. There is disturbed daily routine of the patient.

- a. Personal cleanliness: toilet habits, bathing, clothing or tidiness changed.
- b. Food pattern: patients have either excessive eating, less eating or not eating at all.
- c. Sleep pattern: excessive sleep, sleeplessness, early morning away awakening or difficulty in falling asleep.
- d. Work pattern: patient may remain absent in work place or there is clumsiness or disorganized.

ii Disturbed behavior

- a. Talk: Patient may be talking excessively or talking less or remain mute.
- b. Patient shows violent or excited behavior.
- c. Patient may show suicidal behavior.
- d. Patient may show decreased motor activities, social withdrawal or depression.

iii. Special symptoms.

- a. Patient may talk irrelevantly or have circumstantial talk.
- b. Delusion: unshakable false belief not shared by same social group.
- c. Patient may have hallucinations i.e. perceptions without stimulus e.g. auditory hallucinations.
- d. There is change in emotional response: Incongruous elated or depressed.

Above symptoms in absence of physical illness and over a period of one to three months.

iv. Organic psychosis, Organic Brain disease presents with mental illness as one of the symptoms.

v. Addictions: Tobacco, cannabis, brown sugar etc.

2. Issues indicating the importance of mental health in PHC set up

Quality of life is largely determined by person's Mental health.

- Large proportions of people who need medical care have psychiatric disorders.
- Many physical disorders have an important mental component.
- As the life expectancy increases, risk of chronic impairment raises.

Two features of mental disorders are distinguishable from other nonfatal conditions. First, the care of mentally ill has long been a government responsibility. Except for leprosy, no other disease enjoys this status. Second unique feature of psychiatric disorders is that, personal interview is most important tool for diagnosis of these diseases.

3. Management of excited, violent patient

Your approach should be calm and quiet. Enquire with relatives, examine patient any obvious organic illness. For excited patient, recommended treatment is as below:

Inj. Haloperidol 10 mg. + Inj. Phenegan 50mg. IM stat. Dose can be repeated 8 hourly.

Wait for some time to get effect of medication. After the patient becomes relatively silent, refer to the psychiatrist.

4. Suicidal risk patients.

Attempted suicidal or deliberate self-harm like poisoning, hanging, burns after primary treatment should be referred to district hospital where psychiatric services are available

5. Follow up

Follow up of the psychiatric patient is very important. Psychiatric patients need close supervision. Once the patient is examined by psychiatrist and is on maintenance dose, such cases can be reviewed on OPD basis fortnightly or even once in a month and give medication accordingly for 15 days or a month at the time of review of case. Counseling of relative and patient is essential as treatment is long term. MO should know about side effects of medicine. Occupation therapy and rehabilitation of the patient are very important in follow up management. If relapse of illness occurs, refer the patient to specialist.

6. Admission to mental hospitals and discharge

Government mental hospitals are situated at Pune, Thane, Ratnagiri and Nagpur. Admission and discharge procedure at these hospitals is governed by Mental Health Act 1887.

- **Admission to mental hospital**

Admission to mental hospital is carried out by three methods.

- **As a voluntary boarder (VB):** In this method, patient gives his consent willingly to get admission in the mental hospital. Superintendent of mental hospital examines the patient and if he feels that, patient needs admission, patient can be admitted as voluntary boarder admission.
- **As a detention order (DO):** If the court feels a person is mentally ill and needs observation, court passes detention order initially for 10 days and can be extended to 30 days. This is a temporary order. If superintendent and psychiatrist after observation confirm that, the patient is mentally ill and requires admission, they inform the court about confirmation of mental illness and need to admit the patient and then court sends reception order.
- **As a reception order (RO):** Here person requires certificate from two doctors. One of them must be gazetted medical officer and second may be any medical graduate. After obtaining accommodation certificate from the superintendent, court passes order for admission to mental hospital. This is called reception order.

6.2. Discharge from mental Hospital is by following ways.

- VB discharge
- Leave of absence.
- Discharge through visitors committee.

6.3 Admission to district Hospital & discharge:

In 23 districts in Maharashtra 10 beds for psychiatric patients in District/civil Hospitals are available and psychiatric patient can be referred to civil Hospital for admission and treatment.

7. Role of PHC staff in mental health program.

Responsibility of MPW/ANM for mentally ill patients is as follows-

- Identify patients from history narrated by patient and relatives.
- Give primary treatment to psychiatric patient before referral.
- Guide patient/relatives who need admission to mental hospital.
- After improvement motivate the patient and relative for follow up treatment.
- Counseling, group therapy for improved patient. Help the patient for rehabilitation.
- Give health education in the community regarding mental illness and help to remove misbeliefs regarding psychiatric illness.
- Plan IEC activities to create awareness regarding mental health.

National Mental Health Programme (NMHP)

Background

It is estimated that 6-7 % of population suffers from mental disorders. The World Bank report (1993) revealed that the Disability Adjusted Life Year (DALY) loss due to neuropsychiatric disorder is much higher than diarrhea, malaria, worm infestations and tuberculosis if taken individually. Together these disorders account for 12% of the global burden of disease (GBD) and an analysis of trends indicates this will increase to 15% by 2020 (World Health Report, 2001). One in four families is likely to have at least one member with a behavioral or mental disorder (WHO 2001). These families not only provide physical and emotional support, but also bear the negative impact of stigma and discrimination. Most of them (>90%) remain un-treated. Poor awareness about symptoms of mental illness, myths & stigma related to it, lack of knowledge on the treatment availability & potential benefits of seeking treatment are important causes for the high treatment gap.

The Government of India has launched the National Mental Health Programme (NMHP) in 1982, with the following components and objectives

Components

1. Treatment of mentally ill
2. Rehabilitation
3. Prevention and promotion of positive mental health

Objectives of National Mental Health Programme

1. To ensure the availability and accessibility of minimum mental healthcare for all in the foreseeable future, particularly to the most vulnerable and underprivileged sections of the population;
2. To encourage the application of mental health knowledge in general healthcare and in social development; and
3. To promote community participation in the mental health service development and to stimulate efforts towards self-help in the community.

District Mental Health Programme

The District Mental Health Programme (DMHP) was initiated in 1996 during the Ninth Five Year Plan based on Bellary Model developed by the National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangaluru. During the plan period, 27 districts were covered under DMHP. At present DMHP is covering 123 districts in 30 States and Union Territories. In addition to early identification and treatment of mentally ill, District Mental Health Programme has now incorporated promotive and preventive activities for positive mental health which include School Mental Health Services, College Counselling Services, Work place Stress Management and Suicide Prevention Services. The issues of awareness regarding mental illness and availability of treatment are addressed through Information, Education and Communication (IEC) activities at District level by the DMHP- The components of District Mental Health Programme include- training programmes of all workers in the mental health team at the identified Nodal Institute in the State; public education in the mental health to increase awareness and reduce stigma; for early detection and treatment, the OPD and indoor services are provided ; providing valuable data and experience at the level of community to the state and Centre for future planning, improvement in service and research.

In Maharashtra, DMHP programme and Purna Prakash to address the farmer suicide is presently working in following districts: Akola, Washim, Buldhana, Yavatmal, Wardha, Aurangabad, Jalna, Beed, Hingoli, Parbhani, Nanded, Osmanabad, Latur, Amravati, Gadchiroli, Bhandara, Wardha, Satara, Jalgaon.

The state of Maharashtra has four Regional Mental Hospitals situated at Thane, Pune, Nagpur and Ratnagiri of varying bed capacity. The Regional Mental Hospitals are the tertiary care center, catering to various districts under their jurisdiction. The bed capacity of Nagpur mental hospital is 940 beds, Thane mental hospital has 1800 beds, mental hospital Pune has 1590 beds, and Ratnagiri has 250 beds. Most of these beds are occupied by long stay patients. Occupational therapy is one of the integral part of treatment apart from medicines and counseling which is carried out in mental hospital which helps in rehabilitation of patients.

Spreading awareness about the mental health is one of the activities carried out in mental hospitals, so following days are celebrated.

Mental Health Day

- World health day- 7TH APRIL
- Schizophrenia day- 24TH MAY
- De-addiction day- 26TH JUNE
- Suicide Prevention day- 10TH SEPTEMBER
- Mental Health day - 10TH OCT
- Alzheimer day – 21 SEP
- Epilepsy day - 26TH MAR

Mental Health Care act 2017

The Mental Health act 2017 seeks to provide for mental health care and services for persons with mental illness and to protect, promote and fulfil the rights of such persons during delivery of mental health care

The key features of the act are:

1. The Central and State Mental Health Authorities will continue as regulatory agencies.
2. All persons have the right to access mental health care and treatment from mental health services run or funded by the Government. Such services should be affordable, of good quality and available without discrimination.
3. Any person with or without mental illness can make an Advance Directive stating how he/she wishes to be treated for a future mental illness and also how he does not wish to be treated.
4. A person with mental illness has the right to live in, be part of and not segregated from society. The Government has an obligation to provide for halfway homes, community caring centres etc.
5. Provision for Mental Health Review Commission (MHRC). The MHRC is a quasi-judicial body to provide an independent oversight to the functioning of mental health facilities and protect the rights of persons with mental illness in these facilities.

EXERCISE FOR PARTICIPANTS

Q.1. What is mental Health and what are attributes of a positive mentally healthy person?

Q.2. Write in brief

- a) National Mental Health Programme
- b) District Mental Health Programme

Q.3. Write Short Note on

- a) Issues indicating importance of Mental Health in PHC setup
- b) Admission to Mental Hospitals and Discharge
- c) Role of PHC staff in Mental Health Programme
- d) Mental Health Care act 2017
- e) Mental Health Day

Q.4. How to recognize Mental Disorder?

40. EPIDEMIC MANAGEMENT

At the end of this session participants will know

- What is an Epidemic?
- Types of Epidemic
- Management of epidemic

Epidemic is public health emergency. When information of epidemic is received, PHC staff should rush to affected village. This is because delay by few hours may result into increase in the number of cases and possibly deaths that could have been prevented with quick action by PHC staff.

The data collected during outbreak must be utilized for improving programme activities and the surveillance system. This helps to strengthen the surveillance system by filling the gaps. The results should be documented in prescribed formats for Primary and final reporting.

Definition: It is an unusual occurrence of the disease or health related event in a community or region, clearly in excess of "Expected occurrence".

Outbreak: It is used for small usually localized epidemic.

The severity of epidemic depends on-

1. Environmental condition
2. Characteristics of host population
3. Socio-cultural behavior of people

Types of epidemics

1. **Common source epidemics**
 - Point source or single exposure
 - Continuous or multiple exposure
2. **Propagated epidemics**
 - Person to person
 - Arthropod vector
 - Animal vector
3. **Slow or modern epidemics**

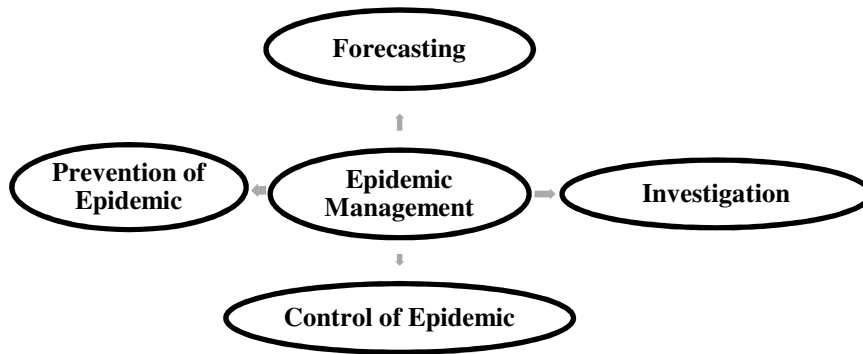
Management of epidemic

Two major areas of epidemic investigation and control

- Diagnosis, investigation and management of patients
- Epidemic investigation leading to identification of the cause and extent of epidemic and to start control measures on the basis of findings of investigations.

Activities related to both the areas should be carried out simultaneously and in coordination. MO should divide the PHC staff in two groups. First group will help MO in treatment of patients and collection of laboratory material for diagnosis by opening the isolation ward. Second group will assist medical officer in epidemic investigation and control measures. It involves step by step activities starting from forecasting to prevention for future occurrence.

Steps of epidemic management



A. FORECASTING OF EPIDEMIC

Forecasting is an early warning system to get prepared to meet the challenges of impending epidemics. It is more appropriate in cyclic and seasonal epidemics where the pattern has been studied from the past data. By forecasting one may not totally prevent the epidemic, but definitely control its severity and spread to other areas.

Methods of Forecasting:

For forecasting the epidemic the prerequisite are

- Study of incidence and prevalence rate.
- Disease specific morbidity and mortality rate.
- Age and Sex wise morbidity and mortality rates.

The various data are tabulated month wise and year wise for the last three years for comparison study of the pattern of disease. Then the collected data is plotted on graph for immediate detection and visual appreciation through trend analysis of the disease. Plotting of data on the map of local area helps in immediate assessment, whether the cases are grouped or clustered. In spite of accurate forecasting an epidemic cannot be aborted.

B. INVESTIGATION OF EPIDEMIC

• Objectives of Investigation

1. To define the magnitude of the epidemic in terms of time, place and person.
2. To determine particular conditions and factors responsible for the occurrence.
3. To identify the cause, source and mode of transmission.
4. To make recommendations to prevent recurrence.

• Steps In Investigation

1. Verification of diagnosis.
2. Confirmation of existence of epidemic.
3. Defining population at risk.
4. Rapid search for all cases in area.
5. Analysis of data.
6. Formulation of hypothesis.
7. Testing of hypothesis.
8. Evaluation of ecological factor.
9. Expand the search in other areas.
10. Writing the final report.

Information of epidemic

Information of outbreak is responsibility of local Gram Panchayat (RDD Gr. No 1096/1280/07 dated 28 November 1996). Early information of epidemic is very important and has many advantages -

- Patients will get treatment at early stage, due to which there will be less morbidity and mortality.
- Early starting of control measures will slow/stop progress of epidemic to adjacent areas leading to further reduction in morbidity and mortality.
- As epidemic is confined to small area in early stage, it is easier to investigate the epidemic and start control activities in small area.
- Medical officer is expected to do following activities for early information of epidemic:
- Whenever you are visiting the village, always remind the Sarpanch, Gramsevak and prominent leaders of village about informing either to PHC or to health worker, in case of increase in number of cases of outbreak prone diseases.
- Try to develop at least two to three informers from each village / wadi / pada to give immediate epidemic information to PHC. Give more attention to remote and small villages. Take the help of Anganwadi worker, ASHA, dai, teachers etc.
- Patient himself is most important and early source of epidemic information. When any patient of epidemic prone disease attends the OPD, always enquire whether there are more cases of similar symptoms in the village.
- Request private practitioners in area to inform PHC if they notice unusually more number of cases of similar symptoms attending their hospitals.
- During the sanitary survey of water supply scheme of village, inform Gram Panchayat in writing about its responsibility regarding information and control measures of natural calamity like epidemic.

1. Verification of Diagnosis

- The initial report may be spurious & arise from misinterpretation of the clinical features. It is therefore necessary to have the verification of diagnosis on the spot.
- A clinical examination of sample cases are sufficient, the first step should be to examine the cases and arrive at probable diagnosis with the help of Standard Case Definition.
- If it is known disease, examination of few cases will help in diagnosis. However for unknown disease, large number of cases may have to be examined to clearly understand the syndrome complex and actual disease.
- Take the help of laboratory facilities. For example, you can immediately examine PBS for malaria in fever outbreak. You should send the samples to District Laboratory for diagnosis of other diseases. Laboratory investigations are most useful to confirm the diagnosis.

2. Confirmation of existence of epidemic

- An epidemic is said to exist when the number of cases (observed frequency) is in excess of the expected frequency for that population, based on past experience. Once the diagnosis of patient is verified, confirmation of existence of epidemic is essential. Compare the number of reported cases of this disease with the normally expected cases for that village during the same period of year. Normal expectation is decided with the help of weekly disease surveillance record of the disease in same week of last five years or monthly cases for the same month of last five years.
- If this information is not available then following working definition should be used for confirmation of epidemic-
 - Single case of disease, which is eliminated from the state e.g. Guinea worm, Plague, etc.

- Single case of disease, which is not common in area, e.g. Japanese Encephalitis, Dengue Haemorrhagic Fever, Chikungunya, Chandipura etc.
- A single case of vaccine preventable disease, e.g. Polio, Diphtheria, Tetanus etc.
- For commonly occurring water-borne diseases, if number of cases are more than 5 per 1000 population within one incubation period time.
- Any single death due to any of the diseases under surveillance.

Reporting to DHO

Immediate report: after confirmation of epidemic immediate report has to be sent to the DHO by telegram, telephone, fax or by special messenger. Following information should be included in first report.

- Name of the village, population, PHC and Taluka.
- Name or symptom complex of disease (provisional diagnosis)
- Date and time of receiving the information of epidemic.
- Mode of information.
- Date and time of visit of Medical Officer to the village
- Cause of epidemic (if possible)
- Number of cases and deaths.
- Details of each death including name, age, sex, symptom complex, treatment history and cause of death.
- Control measures initiated
- Assistance required from District Health Officer.
 - Expert advice (Visit of RRT)
 - Medicines
 - Manpower

Daily report of epidemic

Daily report has to be sent from the day of first report. It should include number of attacks and deaths on the day of reporting and progressive attacks and deaths. If there is death then name of the death case and probable cause of death. Detailed death investigation report should be dispatched on the same day by post. The daily report should be sent by telegram, fax, telephone. or e-mail Continue to send the daily report till the epidemic is officially declared as over.

Primary report of epidemic

Primary report should be submitted to DHO within 3 days of starting of epidemic. There is prescribed form for the primary epidemic reporting (given in annex). It includes information regarding date of starting epidemic, date of report received, visit by MO after reporting, visits of district level officers during epidemic, details about previous visits by health staff and MO, information about water samples during last 3 months, laboratory samples taken and probable cause of epidemic.

Establishment of treatment facility

Early and correct treatment is important to save the life of patient. This will also help in controlling the epidemic by making the patient noninfectious and preventing transmission of disease. Following activities should be carried out for treatment facility:

Select suitable place to establish treatment center and isolation ward. Always admit all the cases with severe diarrhoea irrespective of their dehydration status and keep under observation as such cases may go into

severe dehydration any time. For diseases like Malaria, Viral hepatitis, Dengue/chikunguniya fever, AES etc. treat the patients on OPD basis; admit or refer to Sub-District hospital if any complications are noticed.

3. Defining Population at risk

- Obtain a local area map containing natural landmarks, roads and location of all dwellings.
- Counting the population by age and sex should be carried out.

4. Rapid search for all cases in area

Medical survey should be carried out in defined area to identify all cases. Epidemiological case sheet or Case Interview Form should be designed to collect relevant information. The information should be collected relevant to the disease under study.

House to house survey

Once the treatment facility is established, house-to-house survey of affected village and surrounding villages is essential. This will help to get correct idea of extent of epidemic. Health worker should identify patients during house-to-house survey and refer them to temporary treatment facility. Opportunity of house-to-house survey should be utilized to give important health education messages to community.

Planning of house-to-house survey is essential to carry out quick and useful survey. Call quick meeting of all health workers to brief on survey. Follow the steps given below to plan the survey during epidemic.

- Use suspect case definition for the survey. Discuss this definition with the health workers during briefing. Simple and objective criteria should be used in defining the case. Make sure that all the workers have understood the definition.
- Develop survey format. Make Copies of the format and give to the health workers. Following format can be used as guideline for the survey.
- List all the areas of the village including surrounding hamlets. Make map of village which should include all the areas mentioned in list.
- Allot the area among all workers selected for survey. One health worker can survey up to 500 population in one day. Survey should be finished within two days. Show the area of each health worker in the map. If the survey cannot be completed within two days through available PHC staff, request THO/DHO for additional staff.
- Make one HA responsible for collection of reports and immediate compilation daily in the evening.
- Prepare daily report of epidemic on the basis of survey findings and OPD. Cross check the patients, as there may be duplication. Send report to DHO.

5. Analysis of Data

- The data collected should be analyzed on ongoing basis under classical parameters- Time, Place and Person.
- The characteristic of time, place and person should be rearranged in Agent-Host-Environment model.
- Information collected during house-to-house survey should be utilized to know the extent and cause of epidemic, age and sex distribution. Analyze the data by age and sex distribution of cases. This indicates which age group or sex is maximum affected.

Develop epidemic curve

Following steps should be carried out to develop the epidemic curve.

- Tabulate the date wise distribution of cases according to the date of onset (and not the date of reporting). You will know the index case. Case first reported may not be the index case.
- On a graph paper, indicate days on x-axis and number of cases on y-axis. Plot the number of cases on each date by point at appropriate place on graph. Joining these points by line will give epidemic curve.
- Epidemic curve will give idea whether the epidemic is in rising trend or declining. It will also give idea about probable day(s) of contamination if we subtract one incubation period days from first case.

Prepare spot map of the epidemic

- Enquiry of village map should be first made with Gram Panchayat. If map is not available prepare the village map.
- To prepare village map, go to centre of village. Stand at the center facing towards north. First mark the place you are standing at center of paper, then roads starting from the place to all directions. Indicate temple, school, Anganwadi, Gram Panchayat etc. in relation to roads. Mark houses on map. If epidemic is waterborne, mark the water supply system (pipeline, wells, hand pumps) & if mosquito borne then breeding places on the graph.
- Put approximate M numbers/number of houses in each area on map.
- With the help of survey tables given above in which number of cases in each household along with M number is mentioned, put one dot per case on the houses shown in the map. Now the spot map is ready.
- Spot Map will indicate most affected area in the village. You should now concentrate on these areas to know the causes of epidemic.
- Prepare 5-6 serial spot maps showing situation of disease on each day, starting from first day of epidemic. Interval between two serial spot maps will depend on the incubation period of disease under investigation. It should be per day for diseases like gastroenteritis, cholera, measles, DF etc. and weekly or biweekly for diseases like hepatitis, enteric fever etc. These spot maps will indicate where the epidemic started and how it is spreading to other areas of village.
- Serial spot maps will indicate direction of spread of the epidemic.

6, 7. Formulation & Testing of Hypothesis

- On the basis of time, place and person distribution and agent-host-environment model formulate the hypothesis to explain the epidemics in terms of –
 - (a) possible source.
 - (b) causative agents
 - (c) possible modes of spread and
 - (d) the environmental factors.
- Testing of all reasonable hypothesis should be done with known facts.

Identify the cause of epidemic

- You have identified the time of introduction of disease in community with the help of epidemic curve and area first affected with the help of serial spot map. Concentrate on the indicated time period and area from where the epidemic has started as indicated in spot map for further investigation.

- If it is water borne epidemic, identify the place of contamination. (Details of how to identify area of contamination is given in water borne epidemic)
- For vector borne epidemics, search for breeding places. Breeding places are different for each type of mosquito. For example, anopheles mosquitoes breed in clean and large water sources like, wells, seepages from irrigation fields, canals, irrigation tanks, etc; Aedes mosquito breed in small artificial water collections like water collected in tyres, broken bottles, house hold water collections (barrels, earthen pots), etc.
- Detailed enquiry with the help of these tools will provide enough information about the nature, origin and cause of epidemic.

8. Evaluation of Ecological Factors

- Ecological factors which have made epidemic possible should be investigated such as sanitary status of eating establishments, water supply, movement of human population and atmospheric changes.
- One of the primary concern is to relate the disease to environmental factors to know the source, reservoir and modes of transmission.
- Additional relevant information like source of water supply, large movement of people like yatra, presence of Aedes larva in household water collection, flies in village, etc. should also be collected during the survey.

9. Further Investigation of Population at Risk

A study of population at risk should be done to obtain additional information. This may involve medical examination, screening test, examination of suspected food, feces or blood samples.

Laboratory investigations depend upon nature of disease, epidemiology and laboratory facilities available in the area. Laboratory samples are to be collected from active patients, carriers, vectors and zoonotic reservoirs.

Following are the general guidelines for Laboratory investigation:

- **Form A: SURVEY INFORMATION**
- **NAME OF VILLAGE**-----
- **DATE OF SURVEY**:-----
- **NAME OF HEALTH WORKER**:-----

M No.	Name of head of family	No. of family members								No. of patients in family
		0-5		6-15		16-55		56 +		
		M	F	M	F	M	F	M	F	

- **Form B: PATIENT INFORMATION**
- Line listing of cases should be made as below:
- Name of PHC:-----
- Name of Village :-----
- Date of line listing:-----
- Probable diagnosis:-----

Sr.No.	Name of Patient	Address	Age	Sex	Complaints	Date of onset	Date and place of treatment if taken	Present condition	Remarks

- Specimen should be collected before administration of specific treatment or antibiotics.
- All aseptic precautions should be taken while collecting blood sample, container should be sterile, and no contamination should occur when transporting specimen.
- Proper labeling of the sample, which includes name of the patient, age, sex, address is essential for sample identification.
- Samples collected should be sent to laboratory immediately.
- The samples collected should be in adequate quantity e.g. blood or serum sample should be minimum 5 ml and stool sample 8-10 grams or properly stained rectal swab in CB medium.
- In large outbreaks collecting samples from all patients and sending them to laboratory places puts unnecessary burden on laboratory facilities and it is also not necessary for management of cases and epidemic control. Except PBS for malaria, do not collect serum/stool or other samples from all patients during the epidemic. Samples from 5 - 10% of cases are sufficient to know cause of epidemic. However in case of small outbreak, send adequate number of samples to confirm the diagnosis (Not less than 10)
- Sometimes immunological studies are necessary to detect antibody titer in sera. In many cases, especially viral diseases, paired sera are required to study four folds rising antibody titer. Keep photocopy of first list of samples sent to laboratory. After about 10 days, collect second samples of these cases. Mention these samples as second samples in laboratory form.
- Control activities and treatment should not be delayed till the laboratory results are received. Action should be based on clinical, epidemiological and entomological findings.
- Always submit information of patient along with sample (laboratory form) to laboratory. This should include specimen number, name of patient, date of onset of symptoms, nature of symptoms, provisional diagnosis, date of sample collection and condition of patient at the time of sample collection. Forward this information along with the specimen to laboratory.
- Different types of samples (stool, blood, sputum etc.) are required to diagnose the diseases under investigation. Samples required to be collected for common diseases are given in the table below

Table - 3: Laboratory samples required for diagnosing particular causative agent

SN	Suspected disease	Specimen	How to transport	Where to send	Remarks
1	Cholera, Gastroenteritis	Stool for isolation/ culture	In CB media at room temperature	District Public health Laboratory(DPHL)	Collect in early stage.
2	Viral hepatitis	Stool for isolation	Plain bulb in cold chain (8-10gm)	National Institute of Virology (NIV), Pune	
3		5 ml blood for serum antibody titre	Plain bulb in cold chain at 4 ⁰ c	National Institute of Virology, Pune	
4	Enteric fever	5 ml. blood for culture	Enriched media at room temperature	District Public health Laboratory (DPHL)	Media available in DPHL

5	Dengue fever	5 ml. blood for antibody titre	Plain, sterile bulb. Maintain cold chain at 4 ⁰ c	NIV Pune.DH/RH laboratory for hematology tests and platelet count	Paired samples required
		Aedes mosquitoes	In test tube at room temperature	NIV Pune	Contact DMO
6	Meningococcal meningitis	5 ml. blood for culture. CSF for serology and microscopy	Sterile plain bulb at room temp./blood in blood culture broth	Nearest Medical College Hospital	Contact HOD of Microbiology department of Medical College
7	Plague	Bubo fluid. Blood for culture and serology. Sputum for staining/culture	Sterile container Plain bulb, plain sterile container		

Other epidemiological data

Additional relevant information like source of water supply, large movement of people like yatra, presence of Aedes larva in household water collection, flies in village, etc. should also be collected during the survey.

Declaration of epidemic as over

Surveillance activities should be continued for double the incubation period of the particular disease from occurrence of last case. If there is no case during that period then it is declared that the epidemic is over.

10. Writing Final Report

This is the detailed report of epidemic to be submitted by MO within 10 days after the epidemic is over. The final responsibility of the investigative team is to prepare a written report to document the investigation's findings and the recommendations. The written report should be submitted in a standardized format to the public health authorities including the ministry of health.

Final reporting should be in prescribed format. There are six separate formats of final report, which give detail information about following components –

- General information of epidemic.
- Date wise line listing of cases
- Details of water/stool/blood samples taken during epidemic period
- Water supply and chlorination
- Investigation of death if occurred during the epidemic
- Control measures

C. CONTROL OF EPIDEMIC

Medical Officer should immediately start control measures on the basis of information available through primary investigations and should not wait for confirmation of diagnosis. Inform the Gram Panchayat in writing about control measures to be taken. Medical Officer should personally meet the Sarpanch and other leaders and inform them about cause of epidemic and important actions necessary by Gram Panchayat and community. If the Gram Panchayat has not responded within 24 hours, inform BDO and DHO. Daily review the progress of measures taken by village till the epidemic is over.

- To control of an epidemic one must have information –
 1. Source / Causative organism.
 2. Dynamics of disease transmission.
 3. Mode of transmission.

- Three principles of dynamics of disease transmission is used to control the epidemic –
 1. Removal of source of infection.
 2. Prevention of Transmission.
 3. Vector control measures.

1. Removal of source of infection:

- Treatment of infected cases,
- Destruction of reservoir of infection
- Removal or correction of source of infection.

2. Prevention of transmission

- Isolation of infected cases.
- Hand washing and personal protective measures.
- Proper disposal of fomites.
- Improve environmental sanitation.
- Contact tracing. (Family, neighbor).
- Screening of suspected cases.
- Quarantine of migrated cases.
- Health education.
- Increase resistance of suspects through immunization and prophylactic drugs.

3. Vector Control Measures

- Prevention of breeding of mosquitoes, flies and fleas.
- Destruction of adult vector through insecticide, pesticide.
- Personal protection like use of mosquito net, use hot food and filtered water.
- Increase personal hygiene.
- Improve environmental sanitation.

D. PREVENTION OF EPIDEMIC

Appropriate measures at right time, right place in right quantity can prevent the severity of any epidemic.

Preventive measures

1. Improvement of the hygienic level of population.
2. Vaccination.
3. Prophylactic disinfection.
4. Registration and control of carriers.
5. Health education.
6. Environmental Measures.
 - Lighted and well ventilated houses.
 - Clean potable water supply
 - Proper disposal of waste.
 - Adequate sewerage system.

Epidemic Preparedness

- Identify a nodal officer at state/district level.
- Strengthen routine surveillance system.
- Constitute rapid response teams.
- Train medical & other health personnel.
- Prepare a list of laboratories.
- List the "high risk" pockets.
- Establish rapid communication network.
- Undertake IEC activities.
- Ensure availability of essential supplies
- Inter - sectoral coordination.
- The basic general lines of action during epidemics include – Preparedness and Interventions (investigations).
- Success in dealing with an epidemic depends largely on the state of preparedness achieved in advance of any action.

EXERCISE FOR PARTICIPANTS

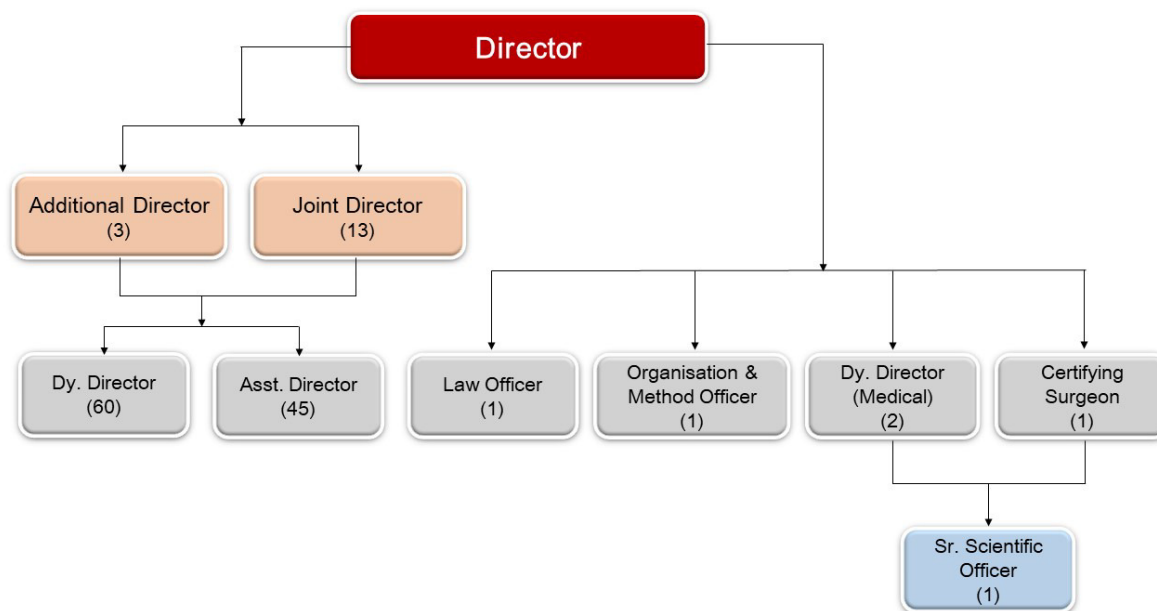
Q.1. Define epidemic. What are the steps in the management of epidemic?

Q. 2. Write in brief about the steps in investigation of an epidemic.

Q.3. Write short note on Preparedness of epidemic.

41. DISASTER MANAGEMENT

Organogram:-



The development of disaster management plan at the village level aims at building the capacity and resilience of the community to equip them with skills so that management of various hazards becomes a way of life for them. The framework of VDMP is built around the following four pillars.

1. Development of Village Disaster Management Plan by the local participants ensures ownership and reflects local conditions. The plan has to be prepared through a participatory approach on the basis of facilitation provided by external resource persons.

2. Disaster Management Committees and Teams have to be formed at the village level to facilitate the process of Community Based Disaster Preparedness. The disaster management committees can plan the process of disaster management in the village while teams may be constituted to carry out important tasks. like issuance of warning ,evacuation and response, first aid, damage assessment, water and sanitation, carcass disposal, shelter management, psychosocial counseling, relief management and rehabilitation

3. Mock Drills check the response of the community in a mock environment. They have to be conducted at regular intervals on the basis of plan prepared by the community. The mock drills will be a form of rehearsal in which the response of the community and the efficacy of the administration will be tested. The mock drill will also test the applicability of the village disaster management plan.

4. Awareness has to be generated amongst the community through various mediums like televisions, radio and print media. These campaigns are carried out through rallies, street plays, competitions in schools, distribution of IEC materials, wall paintings on do's and don'ts for various hazards. Meetings with key persons of a village such as the village head, health worker, school teachers, elected representatives and members of the youth clubs and women also motivate the villagers to carry forward these plans for a safer living.

The term disaster usually refers to the natural event (e.g. flood or earthquake) in combination with its damaging effects (e.g. loss of life and destruction of houses).

Following important points should be considered during disaster management.

- There is relationship between the type of disaster and its effect on health. For example, earthquake causes many injuries requiring medical care while floods and tidal waves cause relatively few.
- Actual and potential health risks of disaster do not occur at same time. Thus, casualties occur mainly at the time and place of impact and require immediate medical care, while risk of increased disease transmission takes longer to develop and are greatest where there is overcrowding and standards of sanitation have declined.
- Disaster affected people generally recover quickly from their immediate shock and spontaneously engage in search and rescue and transporting to health facility. They are most important as they extend help when it is maximally needed.
- Try to organize them and get their maximum help during disaster.

Table - 1: Short term effects of major disasters

Effect	Earthquake	High wind (without flood)	Flash floods	Landslides
Deaths	Many	Few	Many	Many
Severe injury requiring extensive treatment	Many	Moderate	Few	Few
Increased risk of communicable diseases	Yes	Yes	Yes	Yes
Damage to health facilities	Severe	Severe	Severe but localized	Severe but localized
Damage to water system	Severe	Light	Severe	Severe but localized
Food shortages	Rare	Rare	Common	Rare

Effective management of health services depends on anticipating and identifying problems as they arise and implementing specific measures wherever needed.

1. Health problem in natural disasters

Health problems common to all natural disasters

- **Injuries:** Injured persons require immediate medical care and referral. Proportion of injured depends upon type of disaster.
- **Communicable diseases:** Risk of communicable diseases is proportional to population density and displacement. These conditions increase the pressure on water and food supplies and risk of contamination. Initially there is risk of diarrheal diseases; afterwards vector borne diseases may appear in some areas particularly after floods.
- **Water supply and sanitation:** Drinking water supply and sewerage system are particularly vulnerable to natural disasters, and disruption that occur in them may lead to outbreak of water borne diseases.
- **Mental health:** Anxiety, neurosis and depression are not major, acute public health problems immediately following disasters. Help the community to support themselves through community structure. Indiscriminate use of sedatives and tranquilizers during emergency relief phase is discouraged.

2. Immediate health problems related to type of disaster

- **Earthquake:**
 - Usually because of dwelling destruction, earthquake may cause many deaths and injure large number of people. Toll depends mostly on three factors –
 - Housing type: Houses of adobe, stone, un-reinforced masonry cause more deaths whereas houses with wooden frame causes less deaths.
 - Time of earthquake: Earthquake at night causes more deaths.
 - Population density: Deaths and injuries are likely to be much higher in densely populated areas.
 - Most of demand of health services occurs within 24 hours of event. Injured persons may continue to show up to facility only during first three to five days. Afterwards health services have to concentrate on disease surveillance and outbreak prevention activities.
- **Destructive winds:** Unless they are complicated by secondary disasters such as folds or sea surges, destructive winds cause relatively few deaths and injuries.
- **Flash floods and sea surges:** Floods and sea surges can cause many deaths, but leave relatively few severely injuries in their wake. Deaths result mainly from drowning and are most common among weakest members of population.
- **Landslides:** Landslides have become increasingly common disaster in Maharashtra state. Intense deforestation, soil erosion and human settlements in landslide prone areas have resulted into catastrophic events in recent years. Landslides cause high mortality with few injuries.

3. Disaster preparedness

Objective of disaster preparedness is to ensure that appropriate systems, procedures and resources are in place to provide prompt, effective assistance to disaster victims, thus facilitating relief measures and rehabilitation of services.

Following points must be kept in mind for disaster preparedness –

- List probable events that may occur in the PHC area, e.g. floods, landslide, earthquake, etc.
- Plan for main features of administrative response, such as location of various officers, support agencies, hospitals, etc. who will be helpful at the time of disaster.
- Develop system of early information of any such incidences in your areas.
- Compile important information of area which includes population of each villages, transportation facilities, hospital facilities, water supply, etc.

4. Actions to be taken during disaster

In the event of disaster, health sector is responsible for treatment of casualties, epidemiological surveillance and disease control, basic sanitation, health care delivery at temporary settlements, logistic resources and support and health education measures.

Treatment of casualties

- When information of disaster is received, PHC staff should rush to the site. First aid treatment should be administered at the site. Injured are identified and tagged at disaster site and classified according to priority for treatment and /or transfer to hospital. If required, doctors and other staff from nearby PHC should be called for help.

- It is always better to inform hospital where the casualties are being sent about the disaster, pattern of injury and likely number of patients.
- If large numbers of casualties are likely or rescue operation needs to be done, take help of community volunteers.
- Inform revenue and panchayat department for further help in rescue and transportation of patients.

Epidemiological surveillance and disease control

Establish house to house survey system to all the areas of the PHC including new settlement if any. All the surveying health workers must come together daily and report about the cases registered during the day. Compile the information daily and carefully observe whether there is any increase in number of patients of particular symptoms in affected areas.

Water disinfection

Most common cause of epidemic in disaster affected areas is infected water source. Assign duty of chlorination of all the water sources in and around affected area to senior health assistant. In addition to this, prepare stock solution in sufficient quantity and chlorinate drinking water by house to house chlorination.

Laboratory services

Establish makeshift laboratory adjacent to camp health facility. This laboratory should have facility to examine blood smear for malaria and water field test.

Vaccination

WHO does not recommend cholera or typhoid vaccination in disaster situation. Do not start mass tetanus vaccination as increase in number of tetanus cases after disaster is never observed. However, injured persons can be vaccinated considering risk of contamination and previous tetanus vaccination.

Vector control

Control programs for vector-borne diseases should be intensified in the emergency and rehabilitation period, especially in areas where such diseases are known to be endemic. Of specific concern in emergency situation are: leptospirosis (rats), dengue fever (aedes mosquito) and Malaria (anopheles mosquito). In flooded areas, rats will escape their burrows in search for dry hiding places, often in dwellings. Similarly flood waters provide ample breeding opportunities for mosquitoes.

Following measures should be taken for vector control measures –

- Guide Gram Panchayat about safe disposal of waste
- Conduct public education campaign to eliminate vector breeding sites in and near houses and on measures to prevent infection, including personal hygiene.
- Survey camps and densely populated areas to identify potential mosquito, rodent and other vector breeding sites,
- Eliminate vector breeding sites by draining, filling and by releasing guppy fish
- Advise community to store food in closed and protected containers.
- Well organized vector control measures will drastically reduce the need of insecticide spraying.

EXERCISE FOR PARTICIPANTS

Q.1. Define disaster. What are the key points for management of a disaster?

Q.2. What are the health problems arising after disaster?

Q.3. write short notes on

a) Disaster preparedness

b) Actions to be taken during disaster

42. MANAGEMENT OF COMMON MEDICAL EMERGENCIES

1. SNAKE BITE

Epidemiology of Snake Bite in India

It is major public health problem in India. Its incidence ranges between 66-163/1 lakh population/year, morbidity is about 1.4 to 68 / 1 lakh population/year and mortality is about 1.1 to 2.4 / 1 lakh population/year. Case fatality rate is 1.7 to 20%. More than 2 Lakh reported snake bite cases are annually in India of which 35000 to 50000 people die of snakebite. It indicates highest snakebite mortality in world. Predominantly in rural and peri-urban areas, affecting poor people and more in Monsoon. There are total 236 species out of which 56 are venomous. There is urgent need to prevent death due to snakebite in India. Anti Snake Venom (ASV) and its rational use is the only definitive treatment.

Medically Important Snakes of India

15 species of poisonous snakes of medical importance in India; *only 4 are most important.*

1. Naja naja (common cobra)
2. B. caeruleus (common krait)
3. Daboia Russelli (Russell's viper)
4. Echis carinatus (Saw-scaled viper)

A) Elapidae family:

Common Cobra & Common Krait:

Neurotoxic: It causes neuromuscular paralysis. Ptosis, external ophthalmoplegia, dysphagia as early features of systemic envenomation. Flaccid quadriplegia, neck muscle weakness, Respiratory paralysis which becomes fatal.

- **Cobra:** Local swelling / necrosis at the site of bite,
- **Krait:** produces no local manifestation and may be painless

Elapids – neurotoxic

Cobra	Krait
Bites occur mostly during daytime	Bites occur mostly during night
Bite mark usually visible	Bite mark is usually not visible
Can cause local necrosis	Unlikely to cause local effects
(post- synaptic)	β -bungarotoxin (pre-synaptic)
Early onset of symptoms	Late onset of symptoms
Neostigmine is effective	Not effective
Lesser mortality	Higher mortality



Cobra



Krait

B) Viperidae: Russell's & Saw scaled:

Hemotoxic, Vasculotoxic:

- **Consumptioncoagulopathy** due to presence of procoagulant enzymes causing incoagulable blood.
- **Vasculopathy:** Haemorrhage that is present in viperidae venom produce endothelial damage of blood vessels resulting in spontaneous bleeding.
- **Acute renal failure:** Rhabdomyolysis, Myoglobinuria
- **Local swelling** due to presence of cytolytic or necrotic toxin.
- Some of the Russell's viper bite from south India has produced neuroparalysis.

Anti SnakeVenom (ASV)

- **Only definitive treatment** of snake bite. It acts by neutralizing, circulating venom in the blood and tissue fluid
- Immunoglobulin IgG purified from the serum or plasma of a **horse or sheep** that has been immunized with the venom of one or more species of snakes.
- **Monovalent** anti venom neutralizes the venom of one species of snake. **Polyvalent anti venom** neutralizes the venom of several different species of snakes
- In India only polyvalent anti snake venom is available

SNAKE BITE TREATMENT PROTOCOL.

“Do it R.I.G.H.T.”

Avoid

R: Reassure:	70% of all snakebites are from non venomous species
I: Immobilise	Use bandages or cloth to hold splints Do not apply any tight ligatures
G. H.	Get to Hospital
T: Tell the doctor	Symptoms that manifest on way

any

interference with the wound (incisions, rubbing, vigorous cleaning, massage, and application of herbs or chemicals) as infection, increase absorption of the venom and local bleeding.

Rapid clinical assessment & resuscitation

ABCDE approach

- **Airway**
- **Breathing** (respiratory movements)
- **Circulation** (arterial pulse)
- **Disability** of the nervous system (level of consciousness)

- Exposure and environmental control (protect from cold, risk of drowning etc.)

A crepe bandage AND an integralsplint

- Upper limb pressure – 40-70mmHg
- Lower limb – 55-70mmHg

On arrival

- Tetanus Toxoid
- Pain – Paracetamol: 500-1000mg, 4-6 hourly, Avoid NSAIDs Mild opioids (Tramadol)
- Tight tied tourniquets – AVOIDED
- Sudden removal – massive surge of venom (neurological paralysis, hypotension)
- Before removal test for the presence of a pulse distal to tourniquet apply blood pressure cuff to reduce the pressure slowly 2 ml of freshly sampled venous blood in heat cleaned, dry, glass vessel. Leave undisturbed for 20 minutes
- Tip the vessel once.
- Unclotted - hypofibrinogenaemia – induced consumption coagulopathy

Advantages	Disadvantages
• No need to waste time or effort at identifying the exact nature of venomous snake • Less expensive • Easy distribution to all parts of the country • Increased efficacy • Lower incidence of allergic reactions	• Decreased efficacy (?) • Increased incidence of allergic reactions • Identifying the exact nature of venomous snake mandatory • More expensive if all snakes need to be covered • Difficulties in distribution of exact anti snake venom required in various regions of India.

INDICATIONS FOR ANTIVENOM

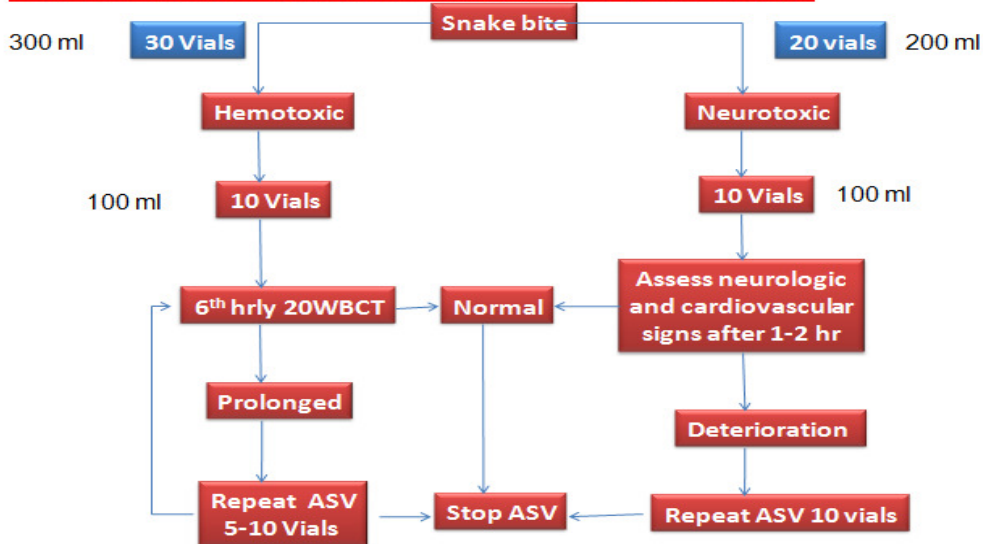
Suspected snake-bite develops one or more of the following signs:

- **Local envenoming**

Local swelling involving more than half of the bitten limb (in the absence of a tourniquet) within 48 hours of the bite. Rapid extension of swelling (for example, beyond the wrist or ankle within a few hours of bite on the hands or feet). Enlarged tender lymph node draining the bitten limb. Purely local swelling, from an apparently venomous snake, is not grounds for administering ASV only to patients in whom benefits exceed risks.

- **Neurotoxicity**
- **Hemotoxicity**

WHO has recommends that the initial dose of Indian polyvalent ASV is 100 ml which is effective in neutralizing major amount of venom injected.



Antivenom reactions

1. Early anaphylactic reactions: 10-180 minutes Bronchospasm, Hypotension
2. Pyrogenic (endotoxin) reactions: 1-2 hours Fever with rigors
3. Late (serum sickness type) reactions: 1-12 (mean 7) days: fever, nausea, vomiting, diarrhoea, itching, recurrent urticaria, arthralgia, myalgia, lymphadenopathy, periarticular swellings, mononeuritis multiplex, proteinuria with immune complex nephritis

Treatment of antivenom reactions

- Epinephrine (adrenaline) (0.1% solution, 1: 1,000) 0.5 mg
Early anaphylactic and pyrogenic antivenom reactions, f/b 5-10 mins
- Anti-H1 such as chlorphenamine maleate (10 mg,)
- IV hydrocortisone (100mg).

HIGH DOSE Vs LOW DOSE ASV

No universal consensus on the optimal dose and protocol of ASV administration

Why Low Dose ASV?

- Problems of Availability, Affordability, Accessibility of ASV
- Expensive
- Always Short in supply
- Snake bite is common in rural people, living in remote areas, poor, myths, traditional faith healers

Neurotoxic Envenomation

- 'Neostigmine test'
 - 1.5-2.0 mg neostigmine IM + 0.6 mg atropine IV
 - Monitor over 1 hr
 - Single breathcount
 - Mm of Iris uncovered
 - Maintenance of upward gaze
 - FEV 1 or FVC (If available)

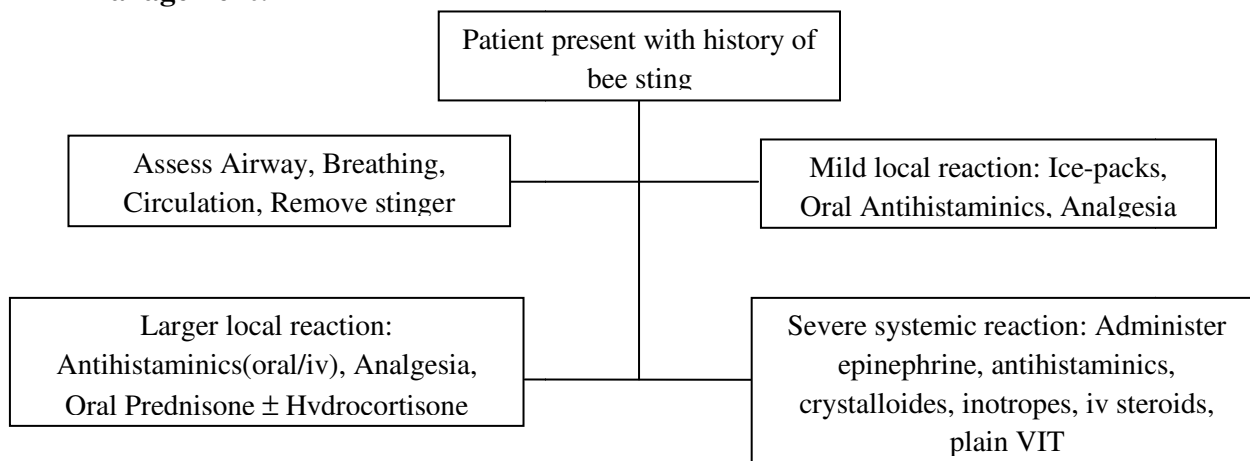
- If positive response
 - Continue 0.5mg of neostigmine IM q30min
 - With Atropine IV 0.6mg over 8hrs
- If no improvement in symptoms after 1 hr, stop Neostigmine

2. BEE STING

Allergic responses to stinging:

1. **Local cutaneous reaction:** Localized skin responses to biting insects are caused primarily by vasoactive or irritant materials derived from insect saliva and rarely occur from IgE – associated responses.
2. **Systemic anaphylaxis:** The majority of patients who experience systemic reactions after Hymenoptera sting have IgE – mediated sensitivity to antigenic substances in the venom.

Management:



3. ANAPHYLACTIC SHOCK

Severe life threatening, generalized or systemic hypersensitive reaction characterized by rapidly developing (within mins or hours) life threatening **airway** / breathing / circulatory problems with skin & mucosal changes.

Treatment:

- **Inj Adrenaline** 0.3-0.5 Mg (1: 1000 Solution) To Be Given IM in Lateral Thigh
- Injection **Diphenhydramine** 25-50 Mg IM/IV
- Injection: **Hydrocortisone**
- **Nebulisation:** Salbutamol / Albuterol To Relieve Bronchospasm
- **IV Fluids** In Case Of Hypotension



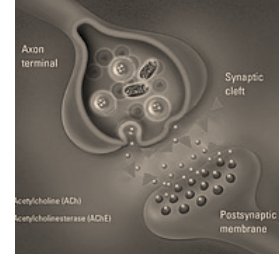
4. ORGANOPHOSPHATE POISONING

- **Organophosphate (insecticide):** Organophosphate poisoning accounts for nearly one third of hospital admissions from poisoning in INDIA.
- **Commonly used agents are as follows.**
Malathion, parathion, diazinon, fenthion, chlorpyrifos.

Action

inhibit acetylcholine esterase enzyme at nerve endings by phosphorylation

↓
acetylcholine at receptor sites



Clinical features

depends on route of entry

↓ ↓ ↓
ingestion inhalation eye contact

Ingestion

Muscarinic effects (post ganglionic parasympathetic nerve ending)

- Constricted pupil
- Bradycardia
- Bronchospasm (wheezing)
- Bronchorrhoea
- Altered consciousness
- Coma, Convulsions
- Hypotension
- Cardiac arrhythmia
- Diarrhoea, Vomiting
- Salivation
- Lacrimation

Nicotinic effects (neuro muscular junction)

- Muscle weakness
- Fasciculation
- Paralysis
- Muscle twitching

Management of organophosphate poisoning

1. Remove the contaminated clothes & wash the skin thoroughly with soap & water
2. Monitor Pulse, Respiration, Temperature, Pupil size arterial oxygen saturation, cardiac rhythms, BP,
3. Give **atropine** intravenously as soon as possible for symptomatic patients.

4. Perform gastric decontamination with **gastric lavage** within two hours of ingestion.
5. Give **activated charcoal** (50 g in 200 ml)
6. Give **pralidoxime**: 2gm in 500 ml ns over ½ hr followed by 0.5 gm/hr in iv drip till 12 gms
7. **ET intubation and ambu / mechanical ventilation** if respiratory paralysis occurs
8. Refer to ICU setup hospital

5. HEATSTROKE/ SUNSTROKE

Fever Vs Hyperthermia

- **Fever:** Hypothalamic set point is elevated (Pyrogens); responds to antipyretics
- **Hyperthermia:** Hypothalamic set point is unchanged; does not respond to antipyretics
- Uncontrolled increase in body temperature that exceeds the body's ability to lose heat

Heat Stroke

- Life-threatening medical emergency
- Core temperature >40 °C (105 °F) & CNS disturbances in patients with a history of heat exposure.
- Anhydrosis often present (but is no longer a criteria for diagnosis) Hot, dry Skin
- Altered mental State
- Often missed in physically inactive patients
- Life-threatening medical emergency which can cause unconsciousness within minutes
- It is the high fever which can cause permanent damage to internal organs, and can result in death if not treated immediately. Enzymes involved in cellular metabolism fail to function
- Recovery depends on heat duration and intensity.
- The goal of emergency treatment is to maintain circulation and lower body temperature as quickly as possible.

Classical Heat Stroke	Exertional Heat Stroke
Elderly	15-45 years
Previously ill	Healthy
Sedentary	Strenuous activity
Drug use ++	Drug use Absent
Sweating: Absent	Severe
Skin: Dry	May be moist
Rhabdomyolysis: Absent	Excessive Rhabdomyolysis
Resp Alkalosis	Resp Alkalosis Lactic Acidosis

Clinical Features:

3 cardinal signs are:

- CNS dysfunction
- Hyperpyrexia (core temperature >40° C)
- Anhidrosis: Hot dry skin.

Pink or ashen depending on circulatory state. However may be clammy and sweat

Complications of heat stroke

- MODS
- Acute renal failure,

- Dehydration, electrolyte disturbance
- Rhabdomyolysis,
- Liver failure,
- Disseminated intravascular coagulation(DIC), MODS
- Acute respiratory distress syndrome (ARDS),
- CNS: Altered Mental state, confusion, delirium, Cerebellar signs
- Seizure, decorticate posture
- Coma and
- Death

Adverse prognostic factors

- Mortality as high as 30% to 50% - where treatment is delayed Medical emergency
- Delayed presentation,
- Prolonged coma>2hours
- Hypotension,
- Hemodynamic instability,
- Persistently high serum enzymes LDH and transaminases,
- Increased levels of cytokines (TNF- α)
- Residual neurological disabilities

Treatment

- Rapid cooling to bring down core temperature < 39 Deg C
- Rehydration
- Care of comatosed patient

First Aid for Heatstroke or Sunstroke

- Remove victim to cooler location, Shade, out of sun
- Remove clothes
- Spray skin with water / wrap patient with sheet soaked in water
- Continue Fanning manually or with electric fan
- Vigorously massage skin to prevent cutaneous vasoconstriction during cooling
- Apply cold compresses: ice packs / mops soaked in cold water around neck, axilla, groin, head
- Immerse victim in very cool water if possible
- Seek medical attention immediately--continue first aid to lower temp. until medical help takes over
- **Do NOT give any medication to lower fever--it will not be effective and may cause further harm**
- Do NOT use an alcohol rub
- It is not advisable to give the victim anything by mouth (even water) until the condition has been stabilized.

Immersion Method of body cooling

Aggressive ice water immersion is gold standard for life threatening heat stroke

- **Advantages:** Cools patients faster; cooling rate of 0.20°C/min for iced water
- **Disadvantages**
 - May cause peripheral vasoconstriction (not clinically relevant in RCT)
 - Difficult in pts with reduced level of consciousness,
 - For alert - it is uncomfortable and often intolerable
 - Shivering leads to worsening

Other cooling methods

1. Placement of ice packs in the axillae, groin, and neck easy method slower cooling
2. Gastric, peritoneal, and bladder lavage with cold water used in resistant cases

Preventing heat-related illness

- Wear Loose, lightweight, light-coloured clothing. Light colours will reflect away some of the sun's energy.
- Wear hats or to use an umbrella. Apply sunscreen
- Drink plenty of water — Carry water or juice with you and drink continuously even if you do not feel thirsty.
- Avoid alcohol and caffeine, which dehydrate the body.
- Avoid foods that are high in protein, which increase metabolic heat.
- Stay indoors when possible. Acclimatise
- Take regular breaks when engaged in physical activity on warm days.
- Take time out to find a cool place.

6. ACUTE SEVERE ASTHMA

Introduction: A life threatening exacerbation of asthma symptoms.

Findings:

PEF (peak expiratory flow)	33-50% predicated (<200 l/min)
Respiratory rate	≥ 25/min
Heart rate	≥ 110/min
Arterial blood gas analysis	↓ Pa _{o2} (N: 75-105 mm Hg) and ↓ Pa _{co2} (N: 35-45 mm Hg)
Inability to complete sentences in 1 breath	

Life Threatening Features:

- PEF < 33% of best or predicted
 - SpO₂ < 92%
 - Silent Chest,
 - Cyanosis
 - Feeble respiratory effort,
 - Exhaustion, Altered consciousness
 - Arrhythmias, or hypotension
- Near Fatal Asthma: Raised PaCO₂, requiring Mech Vent.

Immediate treatment

- Oxygen to maintain SpO₂ 94-98%
 - Nebulised Salbutamol 5mg or Terbutaline 10mg x15-20min
 - Nebulised Ipratropium bromide 0.5 mg x 4-6hrly
 - IV Hydrocortisone 100mg, 6hrly or Prednisone 40-50 mg
 - No sedatives of any kind
 - Chest X-Ray if pneumothorax or pneumonia is suspected or requires Mechanical Ventilation
- LIFE Threatening Features:
- IV Magnesium Sulphate 1.2-2gm infusion over 20 mins
 - IV Salbutamol, IV Aminophylline

Mechanical Ventilation If Patient Not Improving

- Deteriorating PER, Worsening hypoxia, hypercapnea
- Exhaustion, Altered consciousness
- Poor respiratory effort or Respiratory Arrest

7. HEART FAILURE

Introduction

Heart failure (HF), often referred to as congestive heart failure (CHF), occurs when the heart is unable to pump sufficiently to maintain blood flow to meet the body's needs

Types of heart failure

The heart consists of two distinct parts; right and left receiving blood from different venous system and perfusing distinct parts of the body; the right heart perfusing Heart Failure is a condition where the heart is unable to perform its functions optimally; leading to decreased perfusion of the tissues supplied by the lungs for gaseous exchange and the left heart perfusing the systemic circulation. Hence there are two types of heart failure.

- Right heart failure.
- Left heart failure.

RIGHT HEART FAILURE

The right receives blood from the systemic veins and pumps blood into the pulmonary artery through the pulmonary valve. Hence the cause of Right heart failure would be; increased pressure in the pulmonary artery (Pulmonary Hypertension) or pulmonary valve stenosis.

Causes of Pulmonary Hypertension

- Chronic Obstructive Pulmonary Disease (COPD) seen commonly in smokers. Cor Pulmonale.
- Mitral valve stenosis seen in Rheumatic heart diseases.

Clinical features of Right heart failure

As the right heart receives blood from the systemic veins, the main clinical features involves features of congestion in the systemic venous system.

- Raised Jugular Venous Pressure with engorged superficial neck veins.
- Tender Hepatomegaly: Painful, soft liver palpable in the right hypochondrium.
- Dependent Oedema: Pitting oedema demonstrable on the shin of the tibia and ankles.

When to Suspect Right Heart Failure

Right heart failure should be suspected if the clinical features are present like swelling in the legs and engorged neck vein. ii. Also, once the features can be demonstrated on clinical examination, the underlying causes of right heart failure should be looked for; e.g. History of smoking and signs of COPD, or signs of Mitral Valve Disease.

Investigations for Right Heart Failure

The diagnosis of Right Heart failure is a clinical one. Investigations are basically to diagnose the underlying cause of right heart failure.

Treatment of Right Heart Failure

Right heart failure is not a medical emergency and does not cause immediate fatality. There is no direct treatment of Right Heart failure. This condition is alleviated by effective treatment of the cause of failure. Hence attempts should be made to manage COPD effectively, like:

- Antibiotics in acute exacerbation.
- Effective bronchodilation using inhalers and oral long acting Xanthines (Deriphyllin).
- Low flow oxygen inhalation which is the treatment of choice for Cor Pulmonale.
- Effective treatment of Mitral stenosis including Low salt diet, Diuretics, and Digoxin.

When to Refer a Case of Right Heart Failure to Higher Centre

A case of right heart failure needs to be referred for specialized treatment only for management of non-responsive chronic obstructive airway disease. In case, the cause of right heart failure is Mitral valve disease which is not amenable to medical management, such cases should be referred to a cardiac centre for definitive management of the condition.

LEFT HEART FAILURE: [PULMONARY OEDEMA]

The left heart receives blood from the pulmonary vein and pumps blood in the systemic circulation.

Causes of left heart failure

- Systemic Hypertension is the commonest cause for left ventricular failure
- Valvular heart diseases: Aortic stenosis, Aortic regurgitation and Mitral regurgitation are all causes of acute left heart failure.
- Myocardial infarction involving significant part of left ventricle can cause L.V. failure.

Clinical features

- Sudden onset breathlessness is the main symptom.
- There may be continuous cough with pink frothy sputum.
- The patient will be very anxious and restless.
- The patient will choose to be in the sitting position and unable to lie down.
- On auscultation of the chest, crepitation will be heard most prominently in the bases.
- General examination will reveal high blood pressure which is the commonest cause.
- Such patients are likely to present with cyanosis. (Bluish discoloration of tongue, lip, oral mucosa, fingers and toes).

Investigations

Left ventricular failure is a medical emergency and time should not be wasted in any investigation. However, after stabilizing the patient investigations may be carried out to find the underlying cause.

Treatment

Left heart failure or pulmonary oedema is a medical emergency and speed of administration of treatment is of paramount significance.

- The patient should be treated in the propped up position using a backrest or raised head end of the bed.
- High flow Oxygen inhalation should be given.

- Sedation preferably with Morphine 10 mg I.V or Pentazocin 30 mg is the management of choice. If these powerful narcotics are not available, any form of sedation will be of help.
- Intravenous Frusemide (Lasix) 60 mg I.V should be administered.
- Acute reduction of blood pressure must be done if the cause of left heart failure is Hypertension: I.V. infusion of Nitroglycerin (5 microgram/ kg) by BP monitoring, should be tried for the purpose.
- Anti-platelets, statins to be continued.

When to Refer the Patient

Treatment of left heart failure must be attempted at the peripheral level. Once stabilized the patient may be referred to higher centre for management of the underlying cause. Failure of the patient's breathlessness to resolve, may require, endotracheal intubation or non-invasive positive pressure ventilation and patient should be referred to such a centre if facilities for the same is not available.

8. TENSION PNEUMOTHORAX

Closed: Initial communication of lung and pleura closes

Open: Communication remains open

Tension: one way valve: allows air to enter pleura in inspiration, and closes during expiration, Usual Cause: mechanical ventilation or resuscitative efforts (CPR)

Medical Emergency: Hypoxia, hypotension, death unless treated

Symptoms and Signs

1. Chest pain
2. Breathlessness (Shortness of breath)
3. Tachypnea
4. Tachycardia
5. Hypoxia: Cyanosis
6. Hypercapnia
7. Confusion, Altered consciousness, and in very severe cases: coma
8. Pulsus paradoxus, hypotension, ↑ JVP in tension type

Treatment of Tension pneumothorax

A large-bore needle should be inserted into the pleural space through the 2nd anterior intercostal space. If large amounts of gas escape from the needle after insertion, the diagnosis is confirmed. The needle should be left in place until a thoracostomy tube can be inserted. Chest Tube drainage-with one-way valve/under water seal (with continuous suction)

9. SHOCK

Shock is a syndrome multisystem end-organ hypoperfusion due to a variety of etiologies. If left untreated Irreversible injury, Organ dysfunction and finally death.

- i. Hypovolemic Shock
- ii. Cardiogenic Shock
- iii. Septicemic Shock

Clinical Features

- Blood Pressure < 90 MmHg Systolic

- Cold Clammy Extremities
- Drowsiness / Altered Sensorium
- Oliguria (Urine Output < 20ml/Hour)
- Low Volume / Thready Pulse
- Tachycardia

Treatment

- Large IV bore lines with fluid resuscitation e.g. NS/ RL
- Vasopressors : DOPAMINE 4-20 microgm/kg/min
DOBUTAMINE 2-15 microgm/kg/min
NOREPINEPHRINE 2-20 microgm/min
- O2 Inhalation
- Treatment of primary cause : blood transfusion in patient with blood loss
- Refer to higher centre with ICU setup

10. HYPERTENSIVE EMERGENCIES

Hypertensive Emergency includes Systolic blood pressure >220 and diastolic /120mmHg. Patients with hypertension can be classified into 3 categories based upon their symptoms and the organ systems that are affected at the time of presentation:

1. **Hypertensive Emergency:** Also called hypertensive crisis, is severe hypertension with acute impairment of an organ system (e.g. central nervous system [CNS], cardiovascular, renal). In these conditions, the blood pressure (BP) should be lowered aggressively over minutes to hours. Presence of papilledema indicates **Malignant Hypertension**.
2. **Hypertensive Urgency:** The BP is potential risk but has not yet caused acute end-organ damage. These patients require BP control over several days to weeks.
3. **Accelerated Hypertension:** Recent significant increase over baseline blood pressure that is associated with target organ damage. This is usually vascular damage of fundoscopic examination, such as flame-shaped hemorrhages or soft exudates, but without papilledema.

INITIAL STEPS

- **Initial considerations:** Place patient who is not in distress in a quiet room and reevaluate after an initial interview. In one study 27% of patients with an initial DBP > 130 mm Hg had their DBP fall below critical levels after relaxation without specific treatment.
- Consider the context of the elevated BP (eg. Severe pain)
- Screen for end-organ damage- Patients with end-organ damage usually require admission and rapid lowering of BP using IV meds. Suggested meds depend on the end-organ system damaged.
- Patients without evidence of end-organ effects may be discharged with follow-up. It is a misconception that a patient should not be discharged from the ER with elevated BP. Giving oral meds such as nifedipine to rapidly lower BP may be dangerous as the BP may have been elevated for sometime and there may be organ hypoperfusion. Acute control has not improved long term mortality and morbidity rates.

Treatment

- Injection Nitroglycerine 5-100mcg/Min In 5% Dextrose Glass Bottle With Bp Monitoring

- Inj Nitroprusside 0.25-10mcg/Kg/Min
- Injection Enalaprilat 1.25 Mg IV And Can Be Repeated 6-8 Hourly.
- Tab Amlodipine 5 Mg Stat Orally

Rapid BP Reduction

- Acute myocardial ischemia: IV NTG, b-blockers, ACE inhibitors.
- CHF with pulmonary edema: IV NTG, furosemide, morphine
- Acute aortic dissection: IV nitroprusside+b-blockers or IV trimethaphan+b-blockers.
- Hypertensive encephalopathy or sub-arachnoid hemorrhage: IV nitroprusside, labetalol or nimodipine.
- MAO-tyramine interactions with acute hypertension: IV phentolamine.

Mechanical Ventilation

Indications

- Fall in oxygen saturation (<90%) / pao2 (<90) on abg
- Respiratory paralysis
- Post cpr
- Status epilepticus
- Pt should be intubated by 8-9 no. Et tube and oropharyngeal airway should be inserted.
- Frequent suctioning of et tube and airway
- Pt to be kept on assist control mode initially and then cpap mode when pt is to be weaned from the ventilator

11. ELECTRICAL INJURIES/ LIGHTENING INJURIES

- **Skin** : burns
- **Bone** : Fracture/ necrosis
- **Muscle** : ACS/ Rhabdomyolysis (+ AKI)
- **CNS** : LOC / Paralysis / Sense / Autonomic / Memory
- **Heart** : Arrhythmias / Myocardial affection
- **BVs** : Injury / Thrombosis / Aneurysm
- **Renal** : Heme pigment – induced AKI / Prerenal Failure
- **Respiratory** : Arrest (central/peripheral)
- **GIT** : Ileus / Ischemia / Ulcer
- **Eye** : Cataract / Hemorrhage / Optic n. affection
- **Ear** : Tympanic membrane / SNHL / Tinnitus / Vertigo

Lightening caused injuries fall into four main categories which depend on the actual path the electrical current of the lightening stroke takes as it flows through or over the victim on its way to ground.

Cardiopulmonary complications

- Transient hypertension
- Electrocardiographic changes
- Myocardial injury(infarction)
- Congestive heart failure
- Dysrhythmia
- Transient asystole
- Atrial fibrillation
- Ventricular fibrillation
- Frequent premature ventricular contractions
- Apnea
- Hypoxemia

Neurologic/ psychiatric complications

- Loss of consciousness
- Confusion
- Paraplegia, quadriplegia, Hemiplegia
- Retrograde amnesia
- Coma
- Seizures
- Intraventricular hemorrhage, Hematomas
- Depression, anxiety, aphasia
- Post traumatic stress disorder.
- Dementia
- Parkinsonism

Dermatologic complications –

Cutaneous burns

LICHTENBERG figures (arborescent, fern-like) pathognomonic (present in this case)

Ophthalmic complications

- Cataracts
- Corneal lesions
- Vitreous hemorrhage
- Retinal detachment
- Optic nerve injury

Otologic complications

- Ruptured tympanic membrane
- Temporary hearing loss

Vascular complications

- Vasomotor instability
- Arterial spasm
- Vasoconstriction, vasodilatation

Intra-abdominal complications

- Gastric perforation

43. ANIMAL BITES AND RABIES

At the end of the session the participants will be able to learn

- What is rabies
- Clinical picture of Rabies
- Categories of wound
- Primary wound care
- Diagnosis and Treatment
- Prevention of Rabies

This is primarily a disease of animals i.e. zoonotic and afflicting mammals. The disease is caused by a virus and is found in the saliva of rabid animals like dogs, cats, jackals, wolves, monkeys, horse, sheep, goat, mongoose, fox, hyena and bat. It is caused by the Neurotropic RNA virus which belong to Rhabdoviridae type I (Lussavirus type I) is Bullet shaped virus. Following a bite or scratch or lick on wounds or mucus membranes by a rabid animal the virus travels from the site of its entry through the nerves to the brain and other parts of the body and invariably results in death of the afflicted animal or man. The incubation period viz. time interval between bite and onset of clinical signs in man consists of viz. fear of water (hydrophobia), aerophobia (fear of air) and photophobia (fear of light) is usually about three weeks to three months and sometimes could be even longer. Till date there is no cure for rabies either in man or animals. It is only the preventive therapy in man and preventive vaccination in animals which are life saving.

India is endemic for rabies and only the islands of Andaman & Nicobar and Lakshadweep are historically rabies free.

Rabies though almost always fatal yet is preventable. Till now all efforts to find cure have failed but the available tools for prevention are practically 100% effective.

Exposure to rodents, rabbits and hares seldom, if requires specific anti-rabies treatment.

1. CLINICAL PICTURE

A. Prodromal symptoms: -such as headache, malaise, sore throat and fever lasting for 3-4 days. Pain and tingling at the site of bite.

B. Stage of excitation: - widespread excitation and stimulation of all parts of nervous system usually involving, in order, the sensory system, the motor system, sympathetic system and the mental system.

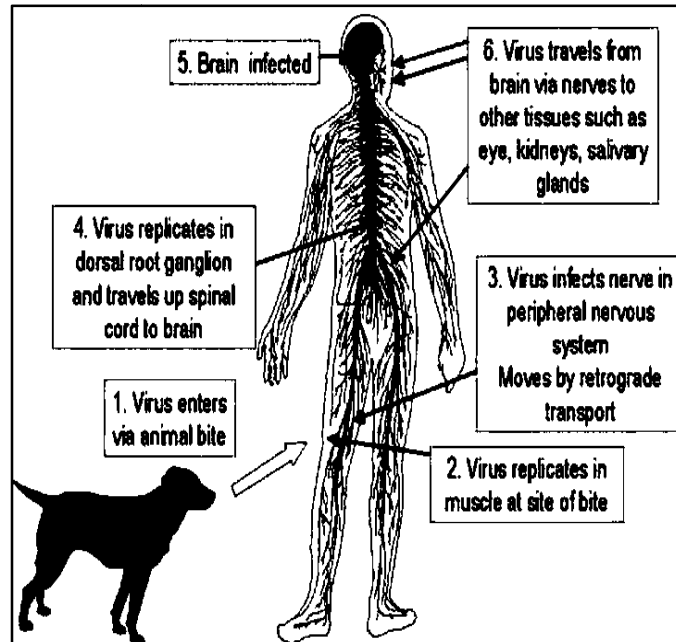
- **Sensory system involvement:**-Excitation of Nervous System. Patient is intolerant to noise, bright light or a cold draught of air.
- **Motor system involvement:** - Increase reflexes, muscle spasm.
- **Sympathetic involvement:** - Dilatation of pupils, increased perspiration, salivation and lacrimation.
- **Mental changes:** - Fear of death, anger, irritability and depression.

Aerophobia (fear of air): - may be present. It can be elicited by fanning a current of air across the face which causes violent spasm of the pharyngeal and neck muscles.

Hydrophobia (fear of water): -Sight or sound of water may produce spasm of muscles of deglutition. The duration of illness is 2-3 days, may be prolonged to 5-6 days. This is progressively aggravated and all attempts at swallowing liquid become unsuccessful. At later stage mere sight or sound of water may provoke spasm of muscles of deglutition. It is a pathognomic symptom of rabies.

C. Stage of paralysis and coma:- The last stage is that of paralysis and coma.

D. Death:- Convulsions may occur resulting in death.



2. INCUBATION PERIOD

Normally it is 3 – 8 weeks. May be shorter than 4 days or may be prolonged for years.

It depends on:

- Site of bite
- Severity of bite
- Number of wounds
- Amount of virus injected
- Species of biting animal
- Protection provided by clothing
- Treatment taken

3. DIAGNOSIS

1. History
2. Signs and symptoms
3. Clinical examination
4. Detection of antigen by taking skin biopsy using immunofluorescence
5. Virus isolation from saliva and other secretions
6. CSF analysis and CT scan
7. ELISA
8. RT-PCR
9. Direct Fluorescent Antibody Testing
10. Negri bodies

Clinical diagnosis can be by on the basis of history of bite by rabid animal and characteristic signs and symptoms. Confirmation by antibody detection using immunofluorescence of skin biopsy and virus isolation from saliva and other secretions.

DIFFERENTIAL DIAGNOSIS

- Other viral encephalitis
- Rabies hysteria
- Guillan – barre syndrome
- Poliomyelitis
- Allergic encephalomyelitis (Rabies vaccine)

4. TREATMENT

There is no specific treatment for rabies. A palliative approach may be appropriate for some patients.

- a) Patient should be isolated in quiet room protected from external stimuli like noise, light, cold draughts.
- b) Relieve the anxiety and pain by antianxiety drugs and sedatives. Morphine doses of 30-45 mg repeatedly.
- c) If spastic muscular contractions are present use drugs i.e. muscle relaxants with curare like action.
- d) Ensure hydration and diuresis.
- e) Intensive therapy in the form of respiratory and cardiac support.

5. PREVENTION OF RABIES

a) POST EXPOSURE PROPHYLAXIS

- To reduce viral load by elimination from the wound
- To neutralize the virus at site of entry
- To prevent nerve infection
- To induce systemic immunity

It includes: 1. Wound care

2. Observation of animal

3. Immunization

4. Patient education

Wound care:

Cleansing:- Immediate flushing and washing of the wound(s), scratches and the adjoining areas with plenty of soap and water, preferably under a running tap, for atleast 15 minutes is of paramount importance in the prevention of human rabies. If soap is not available, simple flushing of the wound with plenty of water should be done as first aid. Wound toilet must be done even if several hours or days have elapsed. Punctured wounds should be irrigated with the help of catheters

Chemical treatment:- Whatever residual virus remains in the wound after cleansing should be inactivated and irrigated with the virucidal agents like alcohol (400 – 700 ml/l) tincture or 0.01% aqueous solution of iodine or povidone iodine application. The application of irritants (like chilies, oil, turmeric, lime, salt etc.) is unnecessary and damaging.

Suturing:- Do not suture bite wounds immediately. If suturing is required, hold it for 24-48 hours, applying minimum number of stitches under the cover of anti-rabies immunoglobulin locally.

Antibiotics:-To prevent secondary bacterial infection.

Anti-tetanus measures: - when indicated can be given after local wound treatment.

Wound should not be dressed or bandaged

OBSERVATION OF ANIMAL

- To determine the risk of infection
- For 10 days
- Look for any abnormal behavior of animal
- If animal dies
- If possible do FRA test
- If animal is healthy and alive after 10 days – no treatment
- If animal cannot be observed – suspected to be rabid.

IMMUNIZATION

a) ACTIVE IMMUNIZATION

The WHO recommended classification of animal bite for post-exposure treatment should be followed. Every instance of human exposure to a suspected rabid or wild animal must be treated as a category III. The post-exposure treatment is a three-pronged approach. All three carry equal importance and should be done simultaneously. The aim of post-exposure prophylaxis is to neutralize the inoculated virus before it can enter the nervous system.

Table-1: Categories of contact & recommended post-exposure prophylaxis (PEP)

Categories of contact with suspect rabid animal		post-exposure prophylaxis
Category I	Touching or feeding animals, licks on the skin unbroken /intact	None
Category II	Nibbling of uncovered skin, minor scratches or abrasions without bleeding, licks on broken skin	Immediate vaccination and local treatment of wound
Category III	Single or multiple trans-dermal bites or scratches, contamination of mucous membrane with saliva from licks; exposure to bat bites or scratches	Immediate vaccination and administration of immunoglobulin; local treatment of wound
Exposure to rodents, rabbits and hares seldom, if ever, requires specific anti-rabies treatment. If an apparently healthy dog or cat in or from a low-risk area is placed under observation. The situation may warrant delaying initiation of treatment. This observation period applies only to dogs and cats. Except in the case of threatened or 'endangered species, other domestic and wild animals suspected as rabid should be killed humanely and their tissues examined using appropriate laboratory techniques		

Post exposure prophylaxis can be discontinued if the suspected animal is proved by appropriate laboratory examination to be free of rabies or, in case of domestic dogs, cats or ferrets, animal remains healthy even after 10 days

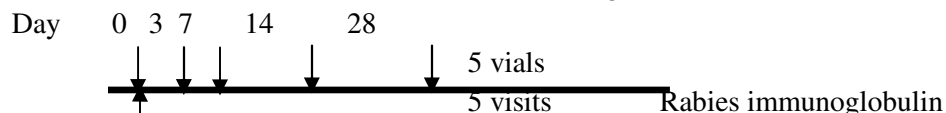
Post Exposure Prophylaxis –is indicated even if domestic animal is vaccinated against with rabies

INTRAMUSCULAR ADMINISTRATION OF POST-EXPOSURE PROPHYLAXIS

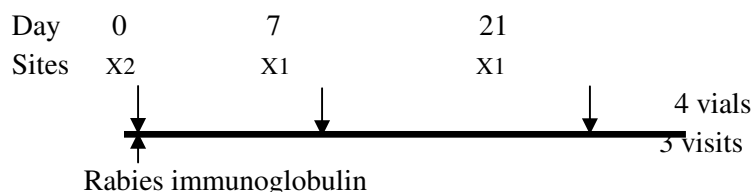
The post exposure vaccination schedule is based on injecting 1 ml or 0.5 ml (The volume depends on type of vaccine) into the deltoid muscle (anterolateral thigh in children aged < 2 years) of patient with category II and III exposures. The recommended regimen consists of either 5 doses or 4 dose schedule:

- i) **Essen Regimen:** the 5 dose regimen prescribes 1 dose on each of day 0,3,7,14 and 28.

Dose: 1 IM dose (1.0 or 0.5 ml) into deltoid (or thigh)

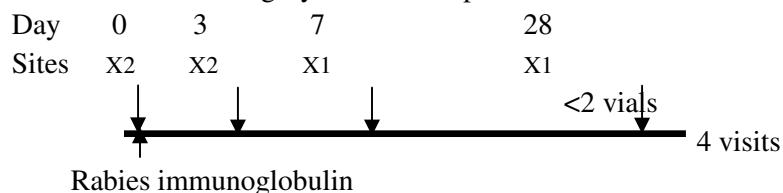


- ii) **Zareb Regimen:** 4 dose abbreviated multisite regimen prescribes 2 doses on day 0 (1 in each of the 2 deltoid or thigh sites) followed by 1 dose on each of days 7 and 21.



INTRADERMAL ADMINISTRATION OF POET-EXPOSURE PROPHYLAXIS

The 2 site regimen prescribes injection of 0.1 ml at 2 sites (deltoid or thigh) on days 0,3,7 and 28. The day 14 dose is missed. It can be used in category II and III exposures.



The intradermal route is preferred as it reduces cost but must not be used in case of immunocompromised patients, individuals receiving long-term corticosteroids or other immunosuppressive therapy or chloroquine. Antirabies vaccine should be kept and transported at a temperature range of +2°C to 8°C. The reconstituted vaccine should be used immediately or within 6-8 hours of reconstitution.

b) PASSIVE IMMUNIZATION WITH IMMUNOGLOBULIN

Rabies immunoglobulin for passive immunization is administered only once, preferably at, or as soon as possible after, the initiation of post exposure vaccination. Beyond seventh day after the first dose, rabies immunoglobulin is not indicated because an active antibody response to the CCEEV is presumed to have occurred. The dose of human rabies immunoglobulin is 20 IU/kg body weight; for equine immunoglobulin it is 40 IU/kg body weight.

Human rabies immunoglobulin (HRIG) 20 IU/kg (max 1500 IU), available in concentration of 150 IU/ml, it does not require any prior sensitivity testing. Should never be injected intravenously. The antirabies sera should always be brought to room temperature (20-25°C) before use.

Or

Equine antirabies serum (ERIG) 40 IU/kg (max 3000 IU), available in concentration of 300 IU/ml, given after prior skin sensitivity testing, single dose on day 0. Half the dose is infiltrated around the wound and the rest is given IM.

(Caution: A negative skin test must never reassure the physician that no anaphylactic reaction will occur. Avoid alcohol, glucocorticoids and chloroquine during vaccination; avoid multiple needle injections into the wound. Must not exceed the total recommended dose of IG as it may reduce the efficacy of the vaccine).

If the calculated dose of IG is insufficient to cover infiltration in all wounds, sterile saline can be used to dilute 2 or 3 fold to permit thorough infiltration.

RIG is not indicated beyond the seventh day after administration of the first dose of vaccine.

c) POST EXPOSURE PROPHYLAXIS OF PREVIOUSLY VACCINATED PERSON

For rabies –exposed patients who can document previous complete pre-exposure vaccination or complete post exposure prophylaxis with a CCEEV, 1 dose delivered intramuscularly or a CVV delivered intradermally on days 0 and 3 is sufficient. Rabies immunoglobulin is not indicated in such cases. This 1-site 2-day intradermal or intramuscular regimen also applies to people vaccinated against rabies who have demonstrated rabies –virus neutralizing antibody titers of ≥ 0.5 IU/ml. As an alternative to this regimen, The patient may be offered a single visit 4-site intradermal regimen consisting of 4-injection of 0.1ml equally distributed over left and right deltoid or thighs. Vaccination cards recording previous -immunization are invaluable for making correct decision.

- If antibody titer unknown or bite severe – 1 ml HDC vaccine on day 0, 3 and 7.
- If antibody titer > 0.5 IU/ml and bite not severe – vaccinate on day 0 and 3.
- Rabies immunoglobulin not to be administered
- If re-exposure within 1 year of PEP – no treatment is needed
- If re-exposure after 3 years- full schedule PEP

d) PRE-EXPOSURE PROPHYLAXIS

PrEP is recommended for anyone who is at continual, frequent or increase risk of exposure to the rabies virus either as a result their residence or occupation (For example, veterinarians, animal handlers and wildlife officers) Travelers with extensive outdoor exposure and children living in rural high risk areas are at particular risk.

PrEP schedule requires intramuscular doses of 1 ml or 0.5 ml, depending on the vaccine type, or intradermal administration of 0.1 ml volume per site (one site each day) given on day 0, 7 and 21 or 28. To lead to significant saving, intradermal PrEP session should involve enough individual to utilize all opened vials within 6-8 hour.

Booster doses of rabies vaccine are not require for individual living in or travelling to high risk areas who have received a complete primary series of pre-exposure or post-exposure prophylaxis with CCV, period booster injection are recommended as an extra precaution only for people whose occupation put them at continual or frequent risk of exposure. If available, antibody monitoring of personnel at risk is preferred to the administration of routine boosters. For people who are potentially at risk of laboratory exposure to high concentration of live rabies virus, antibody testing should be done every 6 months. Those professionals who are not continual risk of exposure through their activities, such as certain categories of veterinarians and animal health officers, should have serological monitoring every 2 years. Because vaccine –induced immunity persists in most cases for years, a booster would be recommended only if rabies virus neutralizing antibody titers fall to < 0.5 IU/ml.

Regiment of IG in patients who have received Resize vaccine periphery.

PATIENT EDUCATION

- Dog bite (category II and III) is an emergency and as a general rule rabies post-exposure treatment should not be delayed or deferred.
- Immediate washing/flushing with plenty of water and disinfecting with alcohol/iodine.
- Take correct and complete treatment
- Avoid steroids, spicy food, alcohol, smoking and strain during treatment period.

KEY POINTS TO REMEMBER

- Rabies is an infectious viral disease that is almost always fatal following the onset of clinical symptoms.
- In up to 99% of cases, domestic dogs are responsible for rabies virus transmission to humans.
- Rabies is a vaccine-preventable viral disease which occurs in more than 150 countries and territories.
- Dogs are the main source of human rabies deaths, contributing up to 99% of all rabies transmissions to humans.
- Globally, rabies deaths are rarely reported and children between the ages of 5–14 years are frequent victims.

EXERCISE FOR THE PARTICIPANTS

Q.1 Classify the wound as per WHO category of animal bite wound.

1. Patient having abrasions over left forearm after dog bite.
2. 18 years old boy having lacerated wound over calf region after monkey bite.

Q.2 Calculate the dose of immunoglobulin to be given to the man weighing 55 kg having monkey bite.

Q.3 Prepare the schedule for post exposure prophylaxis (Both intramuscular and intradermal vaccination) having category III animal bite.

44. NCD- NON COMMUNICABLE DISEASES-

NATIONAL MENTAL HEALTH PROGRAMME

INTRODUCTION

Health is wealth. All of us want to be healthy. However, mere absence of illness is not health. A healthy person has a sound body. Healthy individuals are happy and contented. They have the ability to face difficulties, losses and frustrations. They are capable of living in harmony with others. Not only they are happy but also are able to do their best to keep others happy. They see that others are not put into trouble because of them. They also have certain moral and spiritual values. Such persons who are physically, mentally, socially and spiritually well can be considered healthy.

People become physically ill due to many reasons. Under-nourishment, disease causing organisms invading the body, fluctuations in the environment, wear and tear of bodily organs, injury to the body, defective blood supply to specific organs of the body etc., can lead to illness. When an individual is ill, it is usual to consult the doctor and take treatment.

Like the body, the 'mind' too can become ill. The mentally ill person's sense of well being and emotional equilibrium are disturbed. Various mental functions like thinking, emotions, memory, intelligence, judgment etc., can get disturbed. Talk and behaviors can become abnormal. As a result, the ability to work satisfactorily, and coping with man age social and familial responsibilities can be impaired.

It is easy to share the experience of having difficulties due to damage or dysfunction to any part of the body. For e.g., all of us know that what it is to have high fever, blindness or broken leg. In general, most people sympathize with a person who is physically ill or disabled. However, most of us do not understand what it is to be mentally ill. We often fail to sympathize with a mentally disabled person. We often neglect such individuals. When a person becomes mentally ill, such a person is usually not taken to a hospital immediately for proper treatment because of super natural beliefs and misconceptions. To add to the problem, currently most of the mental health care facilities are available only in cities and towns.

Provision and Promotion of mental health care is one of the 8 components of Primary health care. Alma Ata Recommendation outlines this as follows:

"Education concerning prevailing problems, and the method of identifying, preventing and controlling them; promotion of food supply and proper nutrition and adequate supply of safe water and basic sanitation, maternal and child health care including family planning; control of locally endemic diseases; appropriate treatment of common disease and injuries; promotion of Mental Health (emphasis added) and provision of essential drugs."

Therefore, the medical officers, multipurpose workers and other health staff of primary health centres have the primary responsibility of delivering basic mental health care to the community along with general health care as the most important step for extending mental health care to the individuals in the community.

Burden of Mental Health

The World Health Organisation (WHO), defines mental health as an integral part of health, determined by a range of socio-economic, biological, and environmental factors and not just the mere absence of mental disorders. As per the WHO, one in every four persons are likely to develop a mental health condition at some point in their life.ⁱ

As per a study conducted by the Lancet, 14% of India's population lives with some form of mental illness. Similarly, the National Mental Health Survey (2016) estimated the prevalence of mental health conditions to be 13%, with a treatment gap of 72-91% for various mental health conditions. Between 1990 to 2017, mental health conditions contributed to an increase of 2.1% to the total disability adjusted life years (DALYs) in India, from 2.5% to 4.7%.

As per the National Crimes Record Bureau's (NCRB) annual report on Accidental Deaths & Suicide in India (ADSI), deaths by suicide saw a 10% increase in the year 2020, from 1,39,123 in 2019 to 1,53,052 in 2020.ⁱⁱ People between the ages of 18-30 years accounted for 34% of all suicide in 2020, while 24% of deaths by suicide were by daily wage workers and 10% by unemployed persons.ⁱⁱⁱ These increase in deaths by suicide in 2020 can be attribute to the Covid-19 pandemic and the subsequent nation-wide lockdowns that have followed since, leading to restrictions in movement, difficulties in accessing essential goods and services, unemployment and depleted financial security nets.

In 2007, India ratified the UN Convention of the Rights of Persons with Disabilities (CRPD), the first international legal instrument recognizing the rights of persons with disabilities. To meet international obligations, the Rights of Persons with Disabilities Act (RPDA) in 2016 replacing the Persons with Disabilities Act, 1995 and the Mental Healthcare Act, 2017 (MHCA), repealing the Mental Health Act, 1987 were brought into force.

Nationally, programmes to address mental health and make available mental healthcare treatment and services have been introduced and restructured to meet the objectives identified in the National Mental Health Policy, 2014. These include the National Mental Health Programme (NMHP) and the District Mental Health Programme (DMHP).

Mental Health Infrastructure Maharashtra

Regional Mental Hospitals	5
Total beds in Regional Mental Hospitals	5,745
Districts covered by DMHP	34
Day-care centres	11
Dementia – Alzheimer's memory clinic	33
De-addiction centres	2 (3 more proposed)
104 Toll free help line for Mental health counseling	104

Objectives of the Mental Health in Maharashtra

- Top provide sustainable basic mental health care services in the community by integrating mental health into general health care services in primary care settings.
- Early identification and treatment of persons with mental disorders in the community.
- To see that patient and their relatives do not have to travel long distances to go to the hospitals or nursing homes in the cities.
- To take pressure off the mental hospitals
- To reduce the stigma attached towards mental illness through change of attitude and public education.
- To treat and rehabilitate mental patients discharged from the mental hospital within the community
- **Components of DMHP.**
 1. Personnel
 2. Equipments, Vehicle and other infrastructure
 3. Medicines, POL and other contingencies etc.
 4. IEC components in print and electronic medias
 5. Health Melas
 6. Training programmes in identified institutions of various workers up to the grass root level Doctors, health workers, nurses, social workers, clinical psychologist, non professionals like panchayat leaders, ANM teachers and Anganawadi workers.

7. Development of training capsules for various workers

Highlights

- Mentally ill people were treated in mental hospital for centuries.
- Treating mentally ill person in the hospital is very expensive and reintegration of recovered persons becomes difficult.
- Treating mentally ill in the community is economical and reintegration becomes much easier.
- Mental Health care in India has been largely community based.
- Mental disorders are disabling and burden some. Their magnitude is high and it is considered a public health problem.
- Mental health care needs of the community can be met using public health approach.
- Public health approach to mental health care is economical, reduces treatment gap, disability and burden on the family
- Early intervention results in faster recovery, better quality of life for the person, reduction in stigma and discrimination and better integration in to the community

• Status of establishment of DMHP Units in Maharashtra.

Sr.No	Implementation Year	No. Of District	District Name
1	1997-98	1	Raigad
2	2004-2005	5	Amravati, Satara, Parbhani, Jalgaon, Buldhana
3	2013-14	10	Osmanabad, Nashik, Ahamadnagar, Bhandara, Wardha, Gadchilori, Gondiya, Dhule, Nnadurbar, Sindhudurg
4	2017-18	5	Ratnagiri, Thane, Pune, Nagpur, Chadrapur
5	2019-20	13	Aurangabad, Beed, Jalna, Hingoli, Nanded, Latur, Akola, Washim, Yavatmal, Palghar, Solapur, Sangali, Kolhapur
6	2020-21	2	Mumbai & Mumbai Suburban
Total		36	

Activities In Mental Health –DMHP

1) OPD – Out patients service

2) IPD – In patients services

3) Targeted Intervention –

- Targeted interventions are a resource-effective way to implement Mental Health Programme.
- Under Targeted Intervention DMHP Team Visiting to Schools, Elderly Home, Jail, Villages regularly and conduct sessions and Camps.
- In sessions Team Provides service to patients Like Screening, Counseling and helping to tackle mental health problems.

4) Memory Clinic

- The Memory clinics shall aim to help and support the person suffering from dementia and their care givers, right from the onset of symptoms to the advanced stages.
- In Maharashtra 33 Memory Clinic Established at District Hospitals.

5) “मनशक्ती क्लिनिक

- On the occasion of 75 yrs. Of Independence day- Amrut Mohatsav, public health department decided to start dedicated Mental Health outpatients service at primary health centers of 34 district of Maharashtra.
- The main objective of this is to provide mental health services to needy people at their nearest location. Under this basic mental health out patients services, referral services, follow up services are being provided through MBBS qualified PHC medical officers & health workers.
- Target is of 1814 PHCs to start Mental Health OPD, out of that till Jan 2022 in 580 PHCs mental health outpatients services started.

6) Toll free Help line no- 104

- Free advice/Counseling regarding Mental Health Issues provided by Counselor through 104 Toll free helpline No.

Role of Medical Officers in Mental Health

In India there are less no.of psychiatrist available. To tackle with this obstacles and to provide mental health service in community, Medical officers currently working in the primary health center are being trained on mental illness. And through them mental health services are being provided to the people through "Manashakti Clinic" in Maharashtra.

As mentioned –Main objective of this mission is to provide basic mental health services to needy people at their nearest location.

Role of PHC/SC staff in mental health program.

- Medical officers should complete the mental health training themselves and all their subordinates, ANMs, staff nurses and other officers and staff with the help of DMHP Team and District Psychiatrist.
- Responsibility of CHO/MPW/ANM for mentally ill patients is as follows-
- Identify patients from history narrated by patient and relatives.
- Give primary treatment to psychiatric patient before referral.
- Guide patient/relatives who need admission to mental hospital.
- After improvement motivate the patient and relative for follow up treatment.
- Counseling, group therapy for improved patient. Help the patient for rehabilitation.
- Give health education in the community regarding mental illness and help to remove misbeliefs regarding psychiatric illness.
- Plan IEC activities to create awareness regarding mental health.
- Identify patients from history narrated by patient and relatives.
- Give primary treatment to psychiatric patient before referral.
- Guide patient/relatives who need admission to mental hospital.
- After improvement motivate the patient and relative for follow up treatment.
- Counseling, group therapy for improved patient. Help the patient for rehabilitation.
- Give health education in the community regarding mental illness and help to remove misbeliefs regarding psychiatric illness.
- Plan IEC activities to create awareness regarding mental health.

- **Mental Health Day**
- World health day- 7TH APRIL
- Schizophrenia day- 24TH MAY
- De-addiction day- 26TH JUNE
- Suicide Prevention day- 10TH SEPTEMBER
- Mental Health day - 10TH OCT
- Alzheimer day – 21 SEP
- Epilepsy day - 26TH MAR

1. How to recognize mental disorders:

i. There is disturbed daily routine of the patient.

- e. Personal cleanliness: toilet habits, bathing, clothing or tidiness changed.
- f. Food pattern: patients have either excessive eating, less eating or not eating at all.
- g. Sleep pattern: excessive sleep, sleeplessness, early morning away awakening or difficulty in falling asleep.
- h. Work pattern: patient may remain absent in work place or there is clumsiness or disorganized.

ii Disturbed behavior

- e. Talk: Patient may be talking excessively or talking less or remain mute.
- f. Patient shows violent or excited behavior.
- g. Patient may show suicidal behavior.
- h. Patient may show decreased motor activities, social withdrawal or depression.

iii. Special symptoms.

- e. Patient may talk irrelevantly or have circumstantial talk.
- f. Delusion: unshakable false belief not shared by same social group.
- g. Patient may have hallucinations i.e. perceptions without stimulus e.g. auditory hallucinations.
- h. There is change in emotional response: Incongruous elated or depressed.

Above symptoms in absence of physical illness and over a period of one to three months.

iv. Organic psychosis, Organic Brain disease presents with mental illness as one of the symptoms.

v. Addictions: Tobacco, cannabis, brown sugar etc.

2. Issues indicating the importance of mental health in PHC set up

Quality of life is largely determined by person's Mental health.

- Large proportions of people who need medical care have psychiatric disorders.
- Many physical disorders have an important mental component.
- As the life expectancy increases, risk of chronic impairment raises.

Two features of mental disorders are distinguishable from other nonfatal conditions. First, the care of mentally ill has long been a government responsibility. Except for leprosy, no other disease enjoys this status. Second unique feature of psychiatric disorders is that, personal interview is most important tool for diagnosis of these diseases.

3. Management of excited, violent patient

Your approach should be calm and quiet. Enquire with relatives, examine patient any obvious organic illness. For excited patient, recommended treatment is as below:

Inj. Haloperidol 10 mg. + Inj. Phenergan 50mg. IM stat. Dose can be repeated 8 hourly.
Wait for some time to get effect of medication. After the patient becomes relatively silent, refer to the psychiatrist.

4. Suicidal risk patients.

Attempted suicidal or deliberate self-harm like poisoning, hanging, burns after primary treatment should be referred to district hospital where psychiatric services are available

5. Follow up

Follow up of the psychiatric patient is very important. Psychiatric patients need close supervision. Once the patient is examined by psychiatrist and is on maintenance dose, such cases can be reviewed on OPD basis fortnightly or even once in a month and give medication accordingly for 15 days or a month at the time of review of case. Counseling of relative and patient is essential as treatment is long term. MO should know about side effects of medicine Occupation therapy and rehabilitation of the patient are very important in follow up management. If relapse of illness occurs, refer the patient to specialist.

6 Admission to district Hospital & discharge:

In 34 districts in Maharashtra 10 beds for psychiatric patients in District/civil Hospitals are available and psychiatric patient can be referred to civil Hospital for admission and treatment

EXERCISE FOR PARTICIPANTS

Q.1. What is mental Health and what are attributes of Positive Mentaly healthy person?

Q.2. Write in brief

- a) National Mental Health Programme
- b) District Mental Health Programme

Q.3. Write Short Note on

- a) Issues indicating importance of Mental Health in PHC setup
- b) Admission to Mental Hospitals and Discharge
- c) Role of PHC staff in Mental Health Programme
- d) Mental Health Care act 2017
- e) Mental Health Day

Q.4. How to recongnize Mental Disorder?

National Programme for Control of Blindness and Visual Impairment

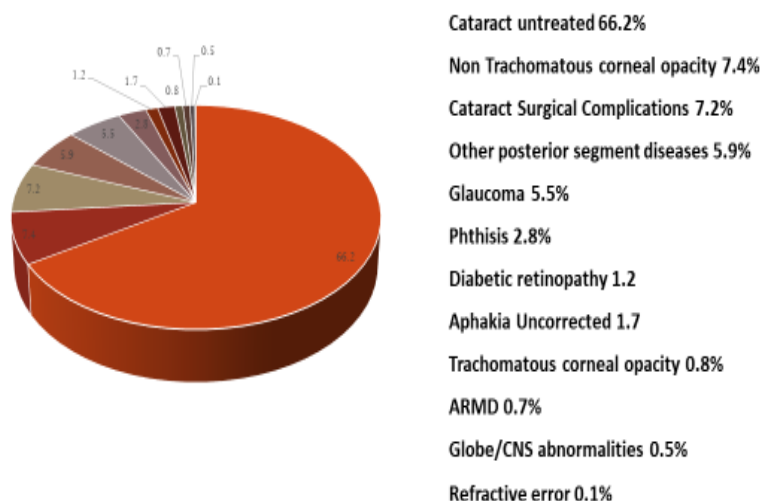
India was the first country in the world to launch the National Programme for Control of Blindness (NPCB) in 1976 as a 100% centrally sponsored scheme (now 60:40 in all states and 90:10 in North-East States) with the goal of reducing the prevalence of blindness to 0.3% by 2020. The programme has been renamed in the year 2017 as National Programme for Control of Blindness and Visual Impairment (NPCB&VI). Rapid Survey on Avoidable Blindness conducted under NPCB during 2015-19 showed reduction in the prevalence of blindness from 1% (2006-07) to 0.36%. Apart from cataract surgeries, now the focus of the programme is on treatment and management of other eye diseases like glaucoma, diabetic retinopathy, vitreoretinal diseases, corneal blindness, low vision and childhood blindness. The programme is now geared to take care of all categories of visual impairment.

In 1999, the World Health Organization (WHO) launched Vision 2020: The Right to Sight to eliminate avoidable blindness by 2020. In 2013, World Health Assembly adopted Universal Eye Health: Global Action Plan 2014-19 with an aim to reduce prevalence of avoidable visual impairment by 25% by 2019 compared to the baseline prevalence at 2010.

India has around 4.6 million blind people and 33.6 million people with visual impairment. The main causes of blindness in India are - Cataract (66.2%), Corneal Blindness (7.4%), Cataract surgical complication (7.2%), Glaucoma (5.5%), Posterior Segment Disorder (5.09%) and others. Refractive error and cataract are the most common causes of visual impairment in the country. Estimated National Prevalence of Childhood Blindness is about 0.80 per thousand. India has implemented a series of measures in its ongoing NPCB&VI to combat blindness and visual impairment in the country.

With the introduction of Ayushman Bharat, an expanded package of services has been introduced at the Ayushman Bharat-Health and Wellness Centres (AB-HWC), which includes eye care provision at the level of AB-HWCs as part of the Comprehensive Primary Health Care (CPHC).

Causes of Blindness (RAAB Survey 2015-19)



Examination of the Eye

Medical Officers can identify commonly preventable diseases by listening to the patient's symptoms and looking for common Eye signs by a simple Torch Examination

Common Eye Complaints

1. Diminution/Cloudiness of Vision --- may be sudden or Gradual, can be painless or Painful, for near or Distant objects
2. Redness of the eyes – can be sign of infection, allergy or a foreign body in the eye.
3. Watery and/or discharge from the Eye
4. Painless or painful on lids or around lids – Indicates infection of lids/Eyes.
5. Foreign body sensation/grittiness/itching in the eye
6. Headache/Glare/Photophobia/ seeing coloured Halos around light bulb
7. History of foreign body falling in eye/Chemicals, wood, splinters, metal etc
8. Diplopia (Double Vision) or Polyopia
9. Bulging (Proptosis) of eyes or obliqueness of eyes (Squint)
10. White reflex in the pupillary area.

History taking & General Examination

Proper history taking should be done before the examination of eye like duration and progression of symptoms, changes in vision (decreased vision), foreign body sensation in the eye, associated pain and photophobia, History of trauma (where-when-injuring object details), Eye discharge/ watering (degree, amount and nature), History of Systemic diseases (Diabetes, Hypertension etc.), history of recent eye surgery.

General Examination of Eye

The Medical Officer should use a well-focused torch light

1. Explain to the patient what you are going to do.
2. Check distance and near vision and record it.
3. Examine eyelids for drooping, swelling (in and around eyelids), injury, inflammation, Trichiasis (In turning of Eye Lashes), entropion/ ectropion, follicles etc
4. Check ocular movements in all directions and presence of squint.
5. Check for foreign bodies - if superficial remove. The upper lid should be everted to look for Foreign bodies, Follicles, Concretions etc
6. Check the Conjunctiva for any redness, discharge, hemorrhage etc.
7. Cornea examination - If it is clear, shiny and transparent or not. Any foreign body, Ulceration or dryness etc. Should be noted.
8. Anterior chamber depth (Shallow or deep) should be noted and presence of Hypopyon/ Hyphema and or Keratic Precipitates may be noted.
9. Pupils - whether round, equal in size, and reactive to light.
10. The Crystalline lens can be seen through the pupil. Any white, greyish white reflex denotes a Cataract or some posterior segment pathology
11. Do a regurgitation test for Patency of Lacrimal apparatus, especially in elderly patients (press on the medial side of inner canthus)
12. Intraocular pressure measurement
13. Any other relevant examination depending upon patient's presentation.

Service Delivery Framework

Medical Officers should provide leadership, supportive supervision and coordinate the activities of Community Health officers, Ophthalmic Assistant, ANMs, MPWs, VSHNC member and other stakeholder's in their area.

- Provide primary eye care to the patients coming with complaints directly or referred from the AB-HWC-SHCs,

- Refer complicated cases and cases requiring surgery to higher centres and follow-up the referred cases in the community.
- Screening of the population for refractive errors and common eye disorders including Vitamin A deficiency with help of ASHA, CHO, ANMs
- Coordinate with the Rashtriya Bal Swasthya Karyakram (RBSK) team and Ophthalmic Assistant for eye screening of school going children, correction of Refractive errors by the Ophthalmic assistant, primary treatment and referral and provision of spectacles.
- Conduct weekly/ monthly meetings with the team to communicate regularly
 - Build the capacity of all ASHA, ANM/MPW, CHOs for efficient and good quality eye care services provision,
 - Clear and non-overlapping work division,
 - Resolve issues among the team and other
 - Maintaining records properly and timely reporting.

Flow of patient – Continuum of care:

1. ASHA will be screening for Visual Impairment (of <6/18 in any eye). ASHA will also be screening population above 30 years of age and identify those with Presbyopia (Poor near vision related to ageing), symptomatic person with visual impairment, Known Diabetic patient and person with subnormal vision, red eye and any other eye complaint. Identification/mobilization of patient with identified eye disease (of known diabetic, identified patients) Follow up of post-operative cataract patients and distribution of spectacles to them.
2. At the AB-HWC-SHC, CHO will do the visual acuity, make a diagnosis, provide treatment or will refer the person to higher centre (AB-HWC-PHC or Vision centre).
3. At AB-HWC-PHC/ Vision centre, assessment will be done and treatment will be prescribed. Otherwise, the patient will be referred to appropriate higher centre for assessment and management.
4. After returning back to his/ her home after receiving treatment or having undergone surgery, the patient will be followed and tracked by the ASHA, ANM/MPW and CHO for continuation of treatment, follow-up care, monitoring of complication etc

Role of Medical Officer in Eye Care

1. Diagnosis and treatment of common acute eye conditions presenting to the facility and those referred from the AB-HWC-SHC.
2. Diagnosis for refractive errors and provision of free spectacles to patients diagnosed with presbyopia and school children with refractive errors.
3. Collaboration with RBSK team to provide spectacles to children with refractive errors.
4. Identification of patients with operable cataract and referral to higher center for surgery, follow up care for operated patients.
5. Screening for glaucoma and referral to higher center for surgery, follow up care for operated patients.
6. Screening for diabetic and hypertensive retinopathy and facilitating consultation with specialist at early stage. Annual screening of all diabetic patients must be done.
7. Refer cases of corneal blindness to Vision Centre and follow up care for patients.
8. Primary treatment for eye injuries and referral to higher center for further management, follow up care for patients.
9. Removal of superficial foreign body in eye and referral to Vision Centre for corneal/deep foreign bodies in eye.
10. Coordination with district team/RBSK team for eye screening camps and outreach services.
11. Carry out surveillance of trachoma cases and refer to Specialist when needed.
12. Coordinate health promotion activities related to eye health including counseling regarding eye hygiene, ensuring healthy diet, providing Vitamin A prophylaxis, awareness generation regarding available eye care services.
13. Nodal officer for Vision Centre operations, outreach activities (planning, monitor wellness clinics/community workers and co-ordination with district hospitals), quality assurance of ASHA and Ophthalmic Assistant (OA).
14. Ensure record maintenance as per NPCBVI guidelines and periodic review of progress
15. Medical fitness for cataract surgery, disability certification, initial reading of fundus images, outreach activities, quality assurance of ASHA and OA activities (**MO**).
16. Surveillance of trachoma and referral to eye specialist where needed (**MO**).
17. Providing follow up care for post-operative cases as recommended by the eye specialist (**MO**).
18. Supportive supervision of AB-HWC-PHC/UPHC team and AB-HWC-SHC teams in regular eye care activities.
19. Monitoring activities of your team in daily activities as well as in monthly meetings.
20. Maintenance of drugs and equipment and inventory control.

Annexure 3- Community Based Assessment Checklist (CBAC)

Date: DD/MM/YYYY

General Information	
Name of ASHA:	Village/Ward:
Name of MPW/ANM:	Sub Centre:
	PHC/UPHC:
Personal Details	
Name:	Any Identifier (Aadhar Card/ any other UID – Voter ID etc.):
Age:	State Health Insurance Schemes: Yes/No If yes, specify:
Sex:	Telephone No. (self/family member /other - <i>specify details</i>):
Address:	
Does this person have any of the following: visible defect /known disability/Bed ridden/ require support for Activities of Daily Living	If yes, Please specify

Part A: Risk Assessment				
Question	Range	Circle Any		Write Score
1. What is your age? (in complete years)	0 – 29 years	0		
	30 – 39 years	1		
	40 – 49 years	2		
	50 – 59 years	3		
	≥ 60 years	4		
2. Do you smoke or consume smokeless products such as gutka or khaini?	Never	0		
	Used to consume in the past/ Sometimes now	1		
	Daily	2		
3. Do you consume alcohol daily	No	0		
	Yes	1		
4. Measurement of waist (in cm)	Female	Male		
	80 cm or less	90 cm or less	0	
	81-90 cm	91-100 cm	1	
	More than 90 cm	More than 100 cm	2	
5. Do you undertake any physical activities for minimum of 150 minutes in a week? (Daily minimum 30 minutes per day – Five days a week)	At least 150 minutes in a week		0	
	Less than 150 minutes in a week		1	
6. Do you have a family history (any one of your	No		0	

parents or siblings) of high blood pressure, diabetes and heart disease?	Yes	2	
Total Score			
Every individual needs to be screened irrespective of their scores. A score above 4 indicates that the person may be at higher risk of NCDs and needs to be prioritized for attending the weekly screening day			

Part B: Early Detection: Ask if Patient has any of these Symptoms			
B1: Women and Men	Y/N		Y/N
Shortness of breath (<i>difficulty in breathing</i>)		History of fits	
Coughing more than 2 weeks*		Difficulty in opening mouth	
Blood in sputum*		Any ulcers in mouth that has not healed in two weeks	
Fever for > 2 weeks*		Any growth in mouth that has not healed in two weeks	
Loss of weight*		Any white or red patch in mouth that has not healed in two weeks	
Night Sweats*		Pain while chewing	
Are you currently taking anti-TB drugs**		Any change in the tone of your voice	
Anyone in family currently suffering from TB**		Any hypopigmented patch(es) or discolored lesion(s) with loss of sensation	
History of TB *		Any thickened skin	
Recurrent ulceration on palm or sole		Any nodules on skin	
Recurrent tingling on palm(s) or sole(s)		Recurrent numbness on palm(s) or sole(s)	
Cloudy or blurred vision		Clawing of fingers in hands and/or feet	
Difficulty in reading		Tingling and numbness in hands and/or feet	
Pain in eyes lasting for more than a week		Inability to close eyelid	
Redness in eyes lasting for more than a week		Difficulty in holding objects with hands/ fingers	
Difficulty in hearing		Weakness in feet that causes difficulty in walking	
B2: Women only	Y/N		Y/N
Lump in the breast		Bleeding after menopause	
Blood stained discharge from the nipple		Bleeding after intercourse	
Change in shape and size of breast		Foul smelling vaginal discharge	
Bleeding between periods			
B3: Elderly Specific (60 years and above)	Y/N		Y/N
Feeling unsteady while standing or walking		Needing help from others to perform everyday activities such as eating, getting dressed, grooming, bathing, walking, or using the toilet	
Suffering from any physical disability that restricts movement		Forgetting names of your near ones or your own home address	
In case of individual answers Yes to any one of the above-mentioned symptoms, refer the patient immediately to the nearest facility where a Medical Officer is available			
*If the response is Yes- action suggested: Sputum sample collection and transport to nearest TB testing center			
** If the answer is yes, tracing of all family members to be done by ANM/MPW			

Part C: Risk factors for COPD***Circle all that Apply***

Type of Fuel used for cooking – Firewood / Crop Residue / Cow dung cake / Coal / Kerosene / LPG

Occupational exposure – Crop residue burning/burning of garbage – leaves/working in industries with smoke, gas and dust exposure such as brick kilns and glass factories etc.

Part D: PHQ 2

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things?	0	+1	+2	+3
2. Feeling down, depressed or hopeless?	0	+1	+2	+3

Total Score

Anyone with total score greater than 3 should be referred to CHO/ MO (PHC/UPHC)

NATIONAL PROGRAMME FOR PREVENTION AND CONTROL OF DEAFNESS
(NPPCD)

✓ **OBJECTIVES OF THE PROGRAMME :-**

1. To prevent the avoidable hearing loss on account of disease or injury.
2. Early identification, diagnosis and treatment of ear problems responsible for hearing loss and deafness.
3. To medically rehabilitate persons of all age groups, suffering with deafness.
4. To strengthen the existing inter-sectoral linkages for continuity of the rehabilitation programme, for persons with deafness.
5. To develop institutional capacity for ear care services by providing support for equipment and material and training personnel.

Long term objective: To prevent and control major causes of hearing impairment and deafness, so as to reduce the total disease burden by 25% of the existing burden by the end of eleventh five year plan.

✓ **COMPONENTS OF THE PROGRAMME :-**

- 1) **Manpower training and development** – For prevention, early identification and management of hearing impaired and deafness cases, training would be provided from medical college level specialists (ENT and Audiology) to grass root level workers.
- 2) **Capacity building** – for the district hospital, community health centers and primary health center in respect of ENT/ Audiology infrastructure.
- 3) **Service provision** – Early detection of hearing impairment and deafness, management of hearing and speech impaired cases and rehabilitation (including provision of hearing aids), at different levels of health care delivery system.
- 4) **Awareness generation through IEC / BCC activities** – for early identification of hearing impaired, especially children so that timely management of such cases is possible and to remove the stigma attached to deafness.

✓ **STRATEGIES**

- To strengthen the service delivery for ear care.
- To develop human resource for ear care services.
- To promote public awareness through appropriate and effective IEC strategies with special emphasis on prevention of deafness.

- To develop institutional capacity of the district hospitals, community health centers and primary health centers, selected under the programme.

✓ **District Hospital-**

It is proposed to strengthen the ear care service at districts level by providing manpower support such as one ENT Surgeon, One Audiologist, One Audiometric Assistant and one Instructor for hearing impaired at each district on contractual basis.

SERVICE DELIVERY AND REFERRAL SYSTEM-

I. Primary level- CHCs/PHCs/SCs/ Primary School teacher/ Health workers/ Panchyat

Functions:

- Early Identification of cases of hearing impairment and their management in collaboration with NRHM (RBSK- Rashtriya Bal Swasthya Karyakram).
- Primary ear care.
- Promoting public awareness in respect of prevention of deafness.
- Sensitization training of health workers.
- Support to School Ear Care programme.

II. Secondary level- District Hospital

Functions:

- Management of cases referred from PHCs/ CHCS.
- Organization of Ear care screening camps in collaboration with NRHM and Ministry of Social Justice & Empowerment. (M/oSJ &E)
- Organization of School Ear care programme.
- Training of manpower – PHC doctors, nurses, Audiometric Assistants, health workers, school teachers.

III. Tertiary level – State Medical college.

In each state, one medical college has been identified to act as the center of Excellence and referral center for the districts covered under the programme in that state. Two ENT surgeons and one e Audiologist from the Medical College will be trained under the programme.

Functions:

- Training of Manpower i.e. Sensitization programmes and surgical training workshops.
- Management of referral cases, especially the difficult cases for diagnosis and management.

National Oral Health Program

History of NOHP

- ❖ In 1999, National Oral Health Care Programme (NOHCP) was launched on a pilot basis in collaboration with Department of Oral & Maxillofacial Surgery, AIIMS, New Delhi. Was piloted in 1 district each in 5 States – Delhi, Punjab, Maharashtra, Kerala and North Eastern India.
- ❖ In 2012, under the 12th Five Year Plan, allocation was made to set up a National Oral Health Cell
- ❖ In 2014, an expert group was formed for guiding the National Oral Health Programme under Chairmanship of DGHS
- ❖ Followed a three pronged strategy as below:

Oral Health Education	Preventive Programs	Curative Service Programs
• Training of the trainers • Oral health education chapters in school curriculum • Oral health education through mass media	• Promotion of fluoride tooth paste • Legislation against tobacco products • Manufacture of sugar free chewing gums • Sugar substitutes in medicinal syrups	• Oral healthcare setup • School dental health programs • Manpower requirement • Equipment requirement

Oral health

- 1) According to the World Health Organization (WHO), Oral health is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity.
- 2) To reduce morbidity from oral diseases by strengthening existing healthcare delivery system and ensure access to affordable, quality, patient centred care.
- 3) Oral diseases have also been linked to bacterial endocarditis, atherosclerosis, chronic obstructive lung diseases and preterm low birth weight. Periodontal health has direct links with diabetes.
- 4) As per recent data from Dental Council of India, there are about 1.5 lakh registered dentists for a population of about 1.3 billion, out of which 72% live in villages which remain deprived from dental care.
- 5) Oral Health care is very important aspect of Human health to implement the oral health care policy that government planned the National Oral Health Program. As Oral Health is related with almost maximum health problems or have an association with other diseases like Diabetes (periodontitis is a 6th complication of Diabetes), Oral Manifestation of HIV-AIDS, etc.
- 6) Being a general physician, Doctors come across with the multiple varieties of patients, in that patient having dental base for a disease should refer to Dental Surgeon. Some dental origin diseases go unnoticed until it affects the individual at its worst for example periodontitis. It is a

common condition and if the periodontitis get treated at its localized state or its initial stage then saving of a tooth/teeth prognosis will be good or else it will lead towards poor & even hopeless prognosis.

Objectives

- 1) Improvement in the determinants of oral health e.g. healthy diet, oral hygiene improvement etc and to reduce disparity in oral health accessibility in rural & urban population.
- 2) Reduce morbidity from oral diseases by strengthening oral health services at Sub district/district hospital to start with.
- 3) Integrate oral health promotion and preventive services with general health care system and other sectors that influence oral health; namely various National Health Programs.
- 4) Promotion of Public Private Partnerships (PPP) for achieving public health goals

Activities under NOHP

❖ **NHM component** – support to States to set up Dental Care Units at DHs or below. Support provided for:

- 1) Manpower support [Dentist, Dental Hygienist, Dental Assistant]
- 2) Equipment including Dental Chair, autoclave etc. – up to Rs. 7 Lakhs per center
- 3) Consumables for dental procedures – up to Rs. 5 Lakhs per year

❖ **Tertiary component** – Central level activities such as:

- 1) Designing IEC materials like Posters, TV, Radio Spots, Training Modules
- 2) Organizing national, regional nodal officers training program to enhance the program management skills, review the status of the program
- 3) Preparing State/District level Trainers by conducting national, regional workshops to train the paramedical health functionaries associated in health care delivery.

Strategies

- ❖ Strategy I: Infrastructure
- ❖ Strategy II : Generating awareness on oral health – IEC & BCC materials
- ❖ Strategy III : Training and capacity building
- ❖ Strategy IV : Integration
- ❖ Strategy V : Leveraging technology
- ❖ Strategy VI : Research & Policy

When to Refer?

- I. When the patient is having halitosis (Bad Breathe)
- II. When the patient is having Calculus/Tartar deposits around tooth structure
- III. When the patient is having initial demineralization of a tooth due to progressive caries
- IV. Patient is having swelling related with tooth/teeth caries or with salivary gland infection
- V. Any viral infection having adverse effect on Oral cavity e.g. Herpes simplex - 1 virus infection, HHV-4 infection (Epstein-Barr virus-infectious glandular fever mononucleosis)

- VI. Patient is having suspicious lesion on oral mucosa and on specialized mucosa
- VII. Any abnormal growth in oral cavity.
- VIII. Tobacco associated discolorations (pigmentation) of oral mucosa.
- IX. Any patient is having cervical lymphadenopathy with oral cavity lesion.

How to diagnose?

- I. Bad breath will be diagnosed by organoleptic methods.
- II. Demineralization of tooth/ teeth by caries can be diagnosed by getting a catch on tooth surface with the help of a probe.
- III. Periodontitis can be checked by finding tooth mobility mostly in association with calculus deposits on tooth surface.
- IV. Two forms of periodontitis acute and chronic acute is associated with the higher virulence of a bacteria *Aggregatibacter actinomycetemcomitans* that causes destructive effect on teeth attachment in acute phase.
- V. In chronic periodontitis the calculus bands loosen the teeth attachment this will take longer period of time.

National Tobacco control program

Government of India launched the National Tobacco Control Program (NTCP) in the year 2007-08 during the 11th Five-Year-Plan, with the aim to

- i. To Create awareness about the harmful effects of tobacco consumption,
- ii. To Reduce the production and supply of tobacco products,
- iii. To Ensure effective implementation of the provisions under “The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003” (COTPA)
- iv. To Help the people quit tobacco use, and
- v. To Facilitate implementation of strategies for prevention and control of tobacco advocated by WHO Framework Convention of Tobacco Control
- vi. In Maharashtra during F.Y. 2012-13 - program started initially in 3 districts namely Gadchiroli, Thane and Aurangabad.
- vii. In F.Y. 2016-17 implemented in 34 districts of Maharashtra

Prevalence of Tobacco use in Maharashtra

- From GATS 1 to GATS 2, there has been a **significant decrease** in the prevalence of Smoking by **2.8%** points and Smokeless tobacco use by **3.2%** points
- Decrease in any tobacco use by **4.8%** points (from 31.4% in GATS 1 to 26.6 in GATS 2)
- The mean age at initiation of tobacco use has decreased from 18.5 years in GATS 1 to 17.4 years in GATS 2.
- The prevalence of tobacco use among persons aged 15-17 has increased from 2.9% in GATS 1 to GATS 2.

NTCP Activities

- Trainings of health and social workers, NGOs, school teachers, and enforcement officers
- Information, education, and communication (IEC) activities;
- School awareness program;
- Monitoring of tobacco control laws;
- Coordination with Panchayati Raj Institutions for village level activities;
- Setting-up and strengthening of cessation facilities including provision of pharmacological treatment facilities at district level.

Cigarette and Other Tobacco Product Act, 2003 (COTPA)

Key Provisions

- **Section- 4 :** Prohibition on Public smoking
- **Section-5:** Prohibition on direct & indirect advertisement, promotion & sponsorship of cigarettes & other tobacco products
- **Section-6:** Prohibition on sale of tobacco products to and by a person below the age of 18 years (6a) and prohibition of sale of tobacco products within a radius of 100 yards of educational institutions (6b).
- **Section-7:** Pictorial health warnings on tobacco product packages

WHO's MPOWER – To Reduce Prevalence Policy Relationship

Policy		COTPA ACT 2003 Provisions
M	Monitoring Tobacco Use	
P	Protecting people from tobacco smoke	Section 4: Prohibition of Smoking in Public places
O	Offer help to quit	-
W	Warning about the dangers of tobacco	Section 7: Display of pictorial health warning on all tobacco products packets. Sections 8, 9 & 10: Manner, language & size in which warnings are to be made
E	Enforcing tobacco advertising, promotion and sponsorship ban	Section 5: Prohibition of direct or indirect advertisement, sponsorship and promotion of tobacco products
R	Raising taxes on tobacco	

FCTC Article 5.3

- Article 5.3 of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) aims to protect strong tobacco control policies from the harmful influence of the tobacco industry as per Guidelines by WHO to implement the FCTC 5.3 Article.
- Request to all participants to enforce the provisions in the respective districts strictly

Tobacco Control Activities in Maharashtra

1. **Capacity Building** – Sensitise key policy makers and senior officials – at state and district levels

- Various Notification and Government resolutions passed by Govt. of Maharashtra.



Ban on sale of Loose cigarettes

Ban on cigarettes, bidis is bold step to reduce tobacco consumption

nonfarmhouse living districts. The National Urban Indian Council estimates that 60% of men, 55% of women and 40% of children in the adult currently unemployed population are in the inner city. The Council is also concerned about the impact of the COVID-19 pandemic on the urban Indian community. The Council is currently raising funds to support the urban Indian community in the inner city. The Council is also working to provide information and resources to the urban Indian community. The Council is also working to provide information and resources to the urban Indian community.

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National Program for Prevention and Control of Fluorosis

Introduction

- Fluorosis a public health problem is caused by excess intake of fluorosis through drinking water/food products/industrial pollutants, over a long period. It results in major health disorders like dental fluorosis, skeletal fluorosis and non-skeletal fluorosis besides inducing ageing. These harmful effects, being permanent and irreversible in nature, are detrimental to the health of an individual and the community, which in turn, has an impact on growth, development, economy and human resource development of the country.

Sources of Fluoride

The main sources of fluoride intake are drinking water, food, drugs & industrial emissions. Permissible limit for fluoride, as per Bureau of Indian Standards (BIS), is 1.5 ppm in drinking water.

- Fluorine is abundant in nature, found in compound form like fluoride.
- Fluorine is essential for mineralization of bones & formation of dental enamels.
- Fluorine deficiency: Dental caries
- 96% of fluoride of body found in bones & teeth.
- Normally small amount of fluoride is required (0.5 to 0.8mg/lit) in drinking water prevalence

Fluoride endemicity has been reported in 196 districts of 19 states & UT's of the country. The affected population with fluorosis is about 66 million in the country. Based on excess level of fluoride content in number of districts, the States/UT's have been classified as mild, moderate and severe endemic States/UT's of Fluorosis which effects all ages. States/Uts like Andhra Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Gujrat, Haryana, Jharkhand, Karnataka, Kerela, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Uttar Pradesh, Tamil Nadu and West Bengal are affected from fluorosis. This includes 196 districts, in all these States; the drinking water has high fluoride content.

Fluorosis brings about changes in teeth and skeletal system which becomes irreversible in due course of time. Therefore, the focus of management of fluorosis is on prevention, health promotion, deformity correction and rehabilitation

Goal / Objectives

- To prevent and control Fluorosis cases in the country. The Objectives of the National Programme for Prevention & Control of Fluorosis are as follows:
 - 1) To collect, asses and use the baseline survey data of fluorosis contents in drinking water sources.
 - 2) Comprehensive management of fluorosis in the selected area.
 - 3) Capacity building for prevention, diagnosis and management of fluorosis cases.

Case Definition

- Suspected Cases of dental Fluorosis – any case residing in an endemic area along with one/both of the followings-
 - Chalky white teeth
 - Transverse yellow brown or dark brown bands
- Suspected Cases of Skeletal Fluorosis

Any case residing in an endemic area along with one/more of the followings-

- Severe pain & stiffness in the neck & back bone
- Severe pain & stiffness in joints

- Severe pain & regidity in pelvic girdle
- Knock knee/bow leg
- Inability to Squat
- Ugly gait & posture
- Increased girth, thickening and density of bone seen in X-Ray
- Suspected cases of Non-skeletal fluorosis

Any case residing in and endemic area along with one or more of the following

- Gastro intestinal problems: consistent abdominal pain, intermittent diarrhea/constipation, blood in stool.
- Neurological manifestations: nervousness and depression, tingling sensation in fingers and teeth, polydipsia, polyurea.
- Muscular manifestation: muscle weakness stiffness, pain in the muscle, loss of muscle power.

Implementation of NPPCF in the state of Maharashtra

- NPPCF programme started in Maharashtra state in phased manner from year 2009-2010

Old 6 Districts:

- Chandrapur, Nanded - Phase 2 august 2010
- Latur, Yavatmal, Nashik - Phase 3 July 2011
- Beed – Phase 4 May 2012

New 6 Districts:

- Jalna
- Jalgaon
- Nagpur
- Bhandara
- Parbhani
- Hingoli

Manpower support

Deputy Director of Oral Health, Health Services, and Mumbai is appointed as a State Nodal Officer to coordinate implementation of NPPCF.

District consultants are appointed for each district currently 3 district consultants are incharge, namely: Dr. Ishwar Rathod -chandrapur, Dr. Savai -Latur, Dr. Shirfule - Nanded.

Guidelines for comprehensive management of fluorosis cases

Analysis of urine samples

A. Sample collection

- 15ml spot urine sample in 25 ml plastic screw cap bottles.
- Put 1-2 drops of Toulene (AR Grade).
- Properly labeled.

B. Transportation of samples

- Urine Sample should be sent to district lab within a week time.
- Samples can be kept at room temperature.
- Report should be sent to State Nodal Officer.

C. Early Detection

Following criteria is used for confirming fluorosis cases

- i. Any suspect case with high level of fluoride in urine (>1mg/L)
- ii. Any suspect case with interosseous membrane calcification in the forearm confirmed by X-Ray

Prompt Intervention

- Health Education

Do's & Don'ts in relation to nutrition intervention in fluorosis

Do's	Don'ts
✓ Calcium rich food ✓ Milk ✓ Milk products ✓ Green leafy vegetables ✓ Vitamin C rich food ✓ Iron rich food ✓ Citrus fruits ✓ Banana, Guava, Brinjal	- x Black Tea - x Black/Rock salt - x Tobacco - x Supari - x Fluoridated toothpaste

Preventive Measures

- Closing contaminated water source.
- Arranging alternative safe water source.
- Flocculation, Sedimentation, coagulation (with lime & alum), filtration of drinking water before use.
- Health education, dietary counseling & nutrition.
- Dietary supplementation of calcium, vitamin C, D3 & iron.
- Enhanced surveillance, early detection, proper treatment & rehabilitation.
- Rain & surface water harvesting for agriculture & household.
- Supply of pipeline river water from water treatment plant.
- Water treatment gadgets in tube wells where surface water is not available.

Treatment

- Medical treatment: No specific treatment; treatment supplementation with vitamin C & D, antioxidants, calcium & correction of malnutrition
- Treatment of deformities: Orthoses, surgical shoes, physiotherapy, reconstructive surgery.

New 7 Districts under NPPCF for the year 2018-19 as given below:

- 1) Nagpur
- 2) Nanded
- 3) Chandrapur
- 4) Beed
- 5) Latur
- 6) Washim
- 7) Yavatmal.

- NPPCF is functional in seven districts namely – Latur, Nanded, Beed, Washim, Chandrapur, Nagpur and Yavatmal as approved by the Govt of India

- In the Financial Year 2019-20 state cell had conducted TOT (training of trainers) with the help of Dr Chakma senior scientific officer of Indian Council of Medical Research for District fluorosis consultants and designated staff (District fluorosis office working as dental surgeons) of 34 districts in the state of Maharashtra. Trainings of Medical and Paramedical staff at District level were then conducted to make them aware of the fluorosis program.

As per guidelines following are the focus areas in state for NPPCF.

- Community Diagnosis of Fluorosis village/block/cluster wise.
- Gap analysis in facilities and organization of physical and financial support for bridging the gaps, as per strategies listed above.
- Diagnosis of individual cases and providing MEDICAL management.
- Public health intervention on the basis of community diagnosis.
- Behavior change by IEC, making people aware about the fluorosis. The video film prepared by GOI in Marathi has been distributed in field. Standees, posters etc are prepared locally by districts and centrally also the same are being published for distribution
- Training of Medical and Paramedical staff to rope them in program

A) National Program for Prevention and Control of Cancer Diabetes Cardiovascular Diseases and Stroke

Introduction

Non-communicable Diseases (NCDs) are currently the leading cause of preventable deaths and disability in India. The four identified major NCDs are Cardiovascular Diseases (CVD) such as heart attacks and stroke, Diabetes, Chronic Respiratory Diseases (Chronic Obstructive Pulmonary Diseases and Asthma) and Cancer. They are the leading cause of death, accounting for over 60% of premature mortality, placing them ahead of Communicable diseases, Maternal, Prenatal, and Nutritional conditions (WHO 2014). Non-communicable Diseases are rightly called 'Silent' killer, as they may not cause any symptoms for many years before complications and mortality. The dilemma is that general public perception for diseases is related with appearance of symptoms and well-being with absence of symptoms

NCDs are one of the major challenges for public health in the 21st century, not only in terms of human suffering they cause but also the harm they inflict on the socioeconomic development of the country. NCDs kill approximately 41 million people (71% of global deaths) worldwide each year, including 14 million people who die too young between the ages of 30 and 70. The majority of premature NCD deaths are preventable. According to World Health Organization (WHO) projections, the total annual number of deaths from NCDs will increase to 55 million by 2030, if timely interventions are not done for prevention and control of NCDs. In India, nearly 5.8 million people (WHO report, 2015) die from NCDs (heart and lung diseases, stroke, cancer and diabetes) every year or in other words 1 in 4 Indians has a risk of dying from an NCD before they reach the age of 70.

Program details

The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) provides comprehensive services for early diagnosis, treatment, follow up and referral etc.

Table 1.1 Indicative burden for major Non-communicable diseases

Indicators		Rural			Urban			Data Sources
Assumption of Burden		Low	Medium	High	Low	Medium	High	Simplified from Report of the Working Group on Disease Burden for 12th Five Year Plan
Prevalence of Hypertension (%)		10	15	20	20	25	30	
Prevalence of Diabetes mellitus (%)		2	6	10	5	10	15	
Previous Chronic Obstructive Pulmonary Disease (%)		M-4 F-2	7 4	10 6	M-2 F-1	5 2	7 3	
Previous Chronic Kidney Disease (%)		1	2	2.5	0.5	1	1.5	
Prevalence of Coronary Artery Disease (%)		2	4	7	6	9	13	Compiled from multiple ad-hoc studies
Annual Incidence of Myocardial Infarction per 1000		2	4	6	4	6	8	
Annual Incidence of Stroke per 1000		1.0	1.5	2	1.0	1.5	2.0	
Annual Incidence of Cancer per 100000	Oral	5	11	25	1	4	9	Cancer Registry
	Cervical	15	20	25	5	10	20	
	Breast	7	23	31	11	33	40	

Note: Prevalence indicates all cases (both new and old) living at a given time in the population whereas incidence indicates "new" cases occurring in a given time period (annual in this example)

Objective of NPCDCS Program

- Health promotion through behaviour change with involvement of community, civil society, community based organizations, media etc.
- Population based screening and Opportunistic screening at all levels in the health care delivery system from sub-centre and above for early detection of diabetes, hypertension and common cancers.
- Outreach camps are also envisaged.
- To prevent and control chronic Non-Communicable Diseases, especially common Cancer, Diabetes and Hypertension.
- To build capacity at various levels of health care for prevention, early diagnosis, treatment, rehabilitation,
- IEC/BCC and operational research.
- To support for diagnosis and cost effective treatment at primary, secondary and tertiary levels of health care.
- To support for development of database of NCDs through Surveillance System and to monitor NCD morbidity, mortality, and risk factors.

Strategies

- Health promotion, awareness generation and promotion of healthy lifestyle
- Screening and early detection
Rationale for Population based Screening -Population based screening or active screening for diabetes mellitus; hypertension and the three common cancers will be done amongst all women and men aged 30 years and above. It would be included in the set of services being offered. The steps includes a)population enumeration of all families under the designated population, filling of CBAC form of all individuals above 30 yrs of age by ASHA b) this will be followed up by population based screening of 5 common NCDs at HW/ PHC/ RH/DH as part of comprehensive primary health care.

Types of NCD	Frequency of Screening	Role of MO/ CHO in case of suspects identification
HT	Once in a year	Confirmation of DM, CVD risk assessment#, treatment and management, in case of complications referral to CHC/DH, follow up & support.
DM	Once in a year	Confirmation of HT, CVD risk assessment#, treatment and management, in case of complications referral to CHC/DH, follow up & support.
Oral Cancer	Once in every 5 years	Referred through PHC MO to the higher facility equipped for confirmation and management of Oral Cancer.
Cervical Cancer	Once in every 5 years	Referred through PHC MO to the higher facility equipped for confirmation and management of Ca cervix
Breast Cancer	Once in every 5 years	Referred through PHC MO to the higher facility equipped for confirmation and management of Ca breast.

- Timely, affordable and accurate diagnosis
- Access to affordable treatment
- Rehabilitation

Package of Services

It is envisaged providing preventive, promotive, curative and supportive services (core and integrated services) in Cancer, Diabetes, Cardio-Vascular Diseases (CVD) & Stroke at various government health facilities.

The package of services at various levels are mentioned in Table 1

Health Facilities	Package of Services
Sub Centre	Health promotion for behaviour change and counselling. 'Population based Opportunistic' Screening of common NCDs including cancer. Awareness generation of early warning signals of common cancer & other risk factors of NCDs. Referral of suspected cases to PHC/CHC/ nearby health facility. Follow up of patient put on treatment
PHC	Health promotion for behaviour change and counselling. 'Population based/Opportunistic' Screening of Diabetes, hypertension and three common cancers (oral, breast, and cervical by VIA). Clinical diagnosis and treatment of common NCDs including Hypertension and Diabetes, referral of complicated cases of DM/HTN to CHC/DH. Identification of early warning signals of common cancer.

	Referral of suspected cases to CHC/DH and follow up of patient put on treatment.
CHC/RH	Prevention and health promotion including counselling. Early diagnosis through clinical and laboratory investigations. Diagnostics Facilities: Blood sugar, Total Cholesterol, Lipid Profile, Blood Urea, Creatinine, X-Ray, ECG,USG (To be outsourced, if not available) 'Opportunistic' Screening of common cancers (Oral, Breast and Cervix). Management of common NCDs Referral of complicated cases to District Hospital/higher health care facility
District Hospital/ SDH	Cancer (outpatient, inpatient and intensive Care) including emergency services particularly for Myocardial Infarction & Stroke. Lab. investigations and Diagnostics: Blood sugar, Lipid Profile, KFT, LFT, X-Ray ,ECG ,USG ECHO, CT Scan, MRI etc. (To be outsourced, if not available) Referral of complicated cases to higher health care facility. Health promotion for behaviour change and counselling. 'Opportunistic' Screening of NCDs including common cancers (Oral, Breast and Cervix). Follow up chemotherapy in cancer cases, Rehabilitation and physiotherapy services
Medical College	Mentoring of District Hospitals, Early diagnosis and management of Cancer, Diabetes, CVDs and other associated illnesses, Training of health personnel, Operational Research.
Tertiary Cancer Center	Mentoring of District Hospital and outreach activities, Comprehensive cancer care including prevention, early detection, diagnosis, treatment, palliative care and rehabilitation. Training of health personnel & Operational Research

Other subcomponents of NPCDCS Program

1) STEMI Project

The STEMI Project is implemented in 12 districts of Maharashtra with an aim to reduce mortality due to cardiovascular diseases complications especially ischemic heart diseases

The Objective of STEMI Project

- Reduce mortality in-patient with Acute Myocardial Infarction by catering to unmet needs of in the treatment of AMI
- Raise awareness among community regarding recognition of warning signs of acute myocardial infarction and availing emergency services in such episodes
- Develop replicable STEMI Management model for implementation in Maharashtra State.

2) IHCI (India Hypertension Control Initiative) – The IHCI project is a collaborative project in coordination with World Health organisation, Indian Council of Medical Research, Resolve to Save Lives , MOHFW and State Government ,that is implemented in 13 districts and 12 municipal corporations of Maharashtra to improve case management of Hypertension and Diabetes patient registered with the program . The strategies of IHCI Projects are a) Protocol bases treatment b) medicine availability c) patient centric approach d) task sharing and Team based care and e) information system which are based on WHO Global Hearts technical Package

Expected outcome of successful implementation of NPCDCS Program

- The programme and interventions would establish a comprehensive sustainable system for reducing the rapid rise of NCDs, disabilities & deaths due to NCDs. Broadly, following outcomes are expected.
- Reduction in exposure to risk factors, life style changes leading to reduction in NCDs
- Improved quality of life
- Early detection and timely treatment leading to increase in cure rate / control and survival
- Reduction in prevalence of physical disabilities including blindness and deafness

NPHCE

Introduction

- Population ageing is one of the most discussed global phenomena in the current century. India is currently enjoying the demographic dividend of large young population. The population over the age of 60 years has tripled in the last 50 years in India and will relentlessly increase in the near future thus emphasizing on the need of the elderly care.
- According to census 2001, older people were 7.7% of the total population, which increased to 8.14% in census 2011.
- The share of the population of the elderly was 8% in 2015 i.e., 106 million (10 crores plus) across the nation, making India the second-largest global population of elderly citizens. Further, it has been projected that by 2050 the elderly population will increase to 19%.
- As the elderly population continues to grow, the elderly dependency ratio will rise dramatically from 0.12 to 0.31.
- Gender disparity has also been reported with 50% of women aged 75 years and older report difficulty with at least one Activity of Daily Life (ADL) compared to only 24% of men, adding the focus towards female elderly care.
- The Longitudinal Ageing Study in India (LASI) Wave 1, 2017-18, launched under the aegis of Ministry of Health and Family Welfare has enabled better understanding of India's elderly health problems.
- Old age is a sensitive phase; elderly people need care and comfort to lead a healthy life without worries and anxiety. Lack of awareness regarding the changing behavioral patterns in elderly people at home leads to abuse of them by their kin.
- Elderly populations have varying and complex social and health-care needs. A multidisciplinary and multisectoral approach, comprising professionals and general staff from several relevant sectors, should be considered as the key mode of care delivery for the elderly populations.
- Non-communicable diseases (lifestyle-related and degenerative) are extremely common in older people irrespective of socio-economic status. Disabilities are very frequent which affect the functionality in old age compromising the ability to pursue the activities of daily living.
- The elderly suffers from multiple chronic diseases. They need long term and constant care. Their health problems also need specialist care from various disciplines e.g., ophthalmology, orthopedics, psychiatry, cardiovascular, dental, urology to name a few. Thus, a model of care providing comprehensive health services to the elderly at all levels of health care delivery is imperative to meet the growing health needs of the elderly.
- The Medical Officer would be responsible for ensuring that elderly care services are delivered through all SHC-HWCs in her/his area and through facility itself. This module would serve as a guide for Medical Officer in ensuring elderly care services.

National Program for Elderly (NPHCE)

The Ministry of Health & Family Welfare had launched the “National Programme for the Health Care of Elderly” (NPHCE) during 2010-11 to address various health related problems of elderly people. The Programme is State oriented and basic thrust of the Programme is to provide dedicated health care facilities to the senior citizens (>60 year of age) at various level of primary, secondary and tertiary health care.

Objectives

- To provide accessible, affordable, and high-quality long-term, comprehensive and dedicated care services to an Ageing population. ' Creating a new “architecture” for Ageing; to build a framework to create an enabling environment for “a Society for all Ages”
- To promote the concept of Active and Healthy Ageing.
- Convergence with National Rural Health Mission, AYUSH and other line departments like Ministry of Social Justice and Empowerment. Components of the Program
- National Health Mission (NHM) Component: Primary & Secondary care service delivery through District Hospitals (DH), Community Health Centres (CHC), Primary Health Centres (PHC), Sub-Centre/Health & Wellness Centres.
- Tertiary Component: Renamed as ‘RashtriyaVaristh Jan Swasthya Yojana’ in 2016-17. These services are being provided through Regional Geriatric Centres (RGCs)

Program Strategies

- Community based primary health care approach including domiciliary visits by trained health care workers.
- Dedicated services at PHC/CHC level including provision of machinery, equipment, training, additional human resources (CHC), IEC, etc.
- Dedicated facilities at District Hospital with 10 bedded wards, additional human resources, machinery & equipment, consumables & drugs, training and IEC.
- Strengthening of Regional Geriatric Centers to provide dedicated tertiary level medical facilities for the Elderly, introducing PG courses in Geriatric Medicine, and in-service training of health personnel at all levels.
- Information, Education & Communication (IEC) using mass media, folk media and other communication channels to reach out to the target community.
- Continuous monitoring and independent evaluation of the Programme and research in Geriatrics and implementation of NPHCE.

Service Delivery Package

Sub/HWC Centre:	• Health Education related to healthy ageing, environmental modifications, nutritional requirements, lifestyles and behavioral changes. • Special attention to home bound / bedridden elderly persons and provide training to the family health care providers in looking after the disabled elderly persons
Primary Health Centre	• A weekly geriatric clinic at PHC level by trained Medical Officer, Conducting Health assessment of the elderly persons and simple investigation including blood sugar, etc.
Community Health Centre	• Biweekly geriatric Clinic and Rehabilitation services to be arranged by trained staff and rehabilitation worker at CHCs. • Domiciliary visits by the rehabilitation worker will be undertaken for bed-ridden elderly and counseling to family members for care

	such patients.
District Hospitals	• Dedicated Geriatric OPD services, In-door admissions through 10 bedded geriatric ward, laboratory investigations and rehabilitation services. • Provide services for the elderly patients referred by the CHCs/PHCs etc. and refer severe cases to tertiary level hospitals
Regional Geriatric Centers	• Provide tertiary level services for complicated/serious Geriatric Cases referred from Medical Colleges, District Hospitals and below. • Conduct post graduate courses in Geriatric Medicine. Each RGC to produce 2 postgraduates (MD geriatrics) every year. • Providing training to the trainers of identified District hospitals and medical colleges • Developing/and updating Training modules, guidelines and IEC materials. • Research on specific elderly diseases • Specialized OPD care in various clinical disciplines. Special clinics like memory clinic, fall and syncope clinic, frail elderly clinic, aids and appliances clinic, implants and cosmetic clinic

Service Delivery Framework

- Elderly individuals have distinct physical, emotional, social and economic needs that demand greater attention and prefer to have services closer to their homes.
- Elderly needs empathetic, age-friendly and holistic primary health care services. In addition, through promotive and preventive care including screening, early detection, supportive and consistent follow up care the morbidly related to the chronic disease or the advance disease conditions can be minimized

At the community level	• ASHA, MPW(M/F) will identify elderly individuals in the community including mapping of elderly population under HWC in the category of bedbound, restricted and mobile elderly. • Undertake risk assessment of the elderly through CBAC form, provide counseling and support to the elderly for various health conditions, including basic nursing care, provide support to the caregivers. • Identify and report medical conditions suspected to be elderly abuse cases to the HWC, enable formation of support groups for the elderly and caregivers. • Identify medical conditions and refer to the CHO for further management and provide follow up care.
At the SHC-HWC level	• Carry out comprehensive geriatric assessment of elderly individuals, • Manage common geriatric ailments and/or refer to appropriate higher centres, • Arrange for suitable assistive devices from higher centres to the elderly /disabled persons to make them ambulatory, • Provide counselling and support to elderly and their caregivers.
At the PHC-HWC level	• Medical Officer will undertake an advanced comprehensive health care of the elderly referred from the SHC-HWC or coming directly

	to the PHC. • He/she will make diagnosis of diseases and disorders based on clinical examination and investigations and prescribe treatment. • Complicated cases will be referred to specialists at higher centres.
At the referral center level	• Diagnosis and treatment of complicated conditions, surgical care, rehabilitation and counselling will be provided for the elderly by Medical Officer or specialists.

Role & Responsibilities of Medical Officers in Elderly Care

1. Conduct weekly/ biweekly fixed day geriatric clinics
2. In-depth person-centered assessment of elderly; Undertake Advanced comprehensive geriatric assessment of the elderly.
3. Primary management of all common diseases of the elderly and basics of counselling and physiotherapy
4. Referral and linkages
5. Assure public awareness on promotional, preventive and rehabilitative aspects of geriatrics and village
6. Conduct home visit for bed bound elderly at-least on quarterly basis.
7. Facilitate provision of assistive devices for the needy elderly and also train them to use it
8. Enable skills and competencies of the caregivers

National Program for Palliative Care

Introduction

Palliative care is also known as supportive care, which is required in the terminal cases of Cancer, AIDS etc. and can be provided relatively simply and inexpensively. Effective palliative care requires a broad multidisciplinary approach that includes the family and makes use of available community resources. It can be provided in tertiary care facilities, in community health centres and even in patients' homes. It improves the quality of life of patients and families who face life-threatening illness, by providing pain and symptom relief, spiritual and psychosocial support from diagnosis to the end of life and bereavement. Less than 1% of India's 1.3 billion population have access to palliative care

Definition- Palliative care is an approach that improves the quality of life of patients and families who face life-threatening illness by providing pain and symptom relief, spiritual and psychosocial support from diagnosis to the end of life and bereavement.

i) Palliative care:

- (a) Provides relief from pain and other distressing symptoms;
- (b) Affirms life and regards dying as a normal process;
- (c) Intends neither to hasten or postpone death;
- (d) Integrates the psychological and spiritual aspects of patient care;
- (e) Offers a support system to help patient's live as actively as possible until death;
- (f) Offers a support system to help the family cope during the patients illness and in their own bereavement;
- (g) Uses a team approach to address the needs of patients and their families, including bereavement counselling, if indicated;
- (i) Will enhance quality of life, and may also positively influence the course of illness; and
- (j) Is applicable early in the course of illness, in conjunction with other therapies that are intended to prolong life, such as chemotherapy or radiation therapy, and includes those investigations needed to better understand and manage distressing clinical complications.

ii) Palliative care for children is the active total care of the child's body, mind and spirit, and involves giving support to the family.

- (a) It begins when illness is diagnosed, and continues regardless of whether or not a child receives treatment directed at the disease.³⁶³
- (b) Health providers must evaluate and alleviate a child's physical, psychological, and social distress.
- (c) Effective palliative care requires a broad multidisciplinary approach that includes the family and makes use of available community resources; it can be successfully implemented even if resources are limited.
- (d) It can be provided in tertiary care facilities, in community health centres and even in children's homes.

iii) Hospice Care is the end-of-life care provided by health professionals and volunteers. The goal of the care is to help people, who are dying, have peace, comfort and dignity. However, sometimes the hospice care is equated synonymously with palliative care.

NPPC Program details

Beneficiaries:

The terminal cases of Cancer, AIDS etc.

Goal: Availability and accessibility of rational, quality pain relief and palliative care to the needy, as an integral part of Health Care at all levels, in alignment with the community requirements.

Objectives:

- Improve the capacity to provide palliative care service delivery within government health programs such as the National Program for Prevention and Control of Cancer, Cardiovascular Disease, Diabetes, and Stroke; National Program for Health Care of the Elderly; the National AIDS Control Program; and the National Rural Health Mission.
- Refine the legal and regulatory systems and support implementation to ensure access and availability of Opioids for medical and scientific use while maintaining measure for preventing diversion and misuse
- Encourage attitudinal shifts amongst healthcare professionals by strengthening and incorporating principles of long-term care and palliative care into the educational curricula (of medical, nursing, pharmacy and social work courses).
- Promote behaviour change in the community through increasing public awareness and improved skills and knowledge regarding pain relief and palliative care leading to community owned initiatives supporting health care system.
- Develop national standards for palliative care services and continuously evolve the design and implementation of the National program to ensure progress towards the vision of the program

Program Component

- a) Service provision: Provision of basic palliative care services at district level.
- b) Capacity Building: Infrastructure development and manpower training in pain and palliative care.
- c) Awareness generation through IEC activities: for involvement of community including the caregivers in the delivery of palliative care.

NPPC Strategies

- a) Recruitment of Palliative Care team at district level
- b) Service Provision
 - i) Provision of basic palliative care services through OPD and IPD services at district hospital by qualified/trained palliative care professionals.³⁶³
 - ii) Provision of out-reach services at CHC/PHC by Palliative Care team at fixed interval for providing palliative care to the patients admitted at CHC/PHC.
- c) Training of palliative care team
- d) Community awareness
- e) Supervision and monitoring

Package of Services under NPPC

Palliative Care Provider	Component of essential service package
JAS/VHSNC/MAS/RWA	• Awareness for Palliative care and the importance of volunteers for Psycho-social economic-spiritual support • Help families with routine home care • Help in accessing various service as needed including mobilization of local resources • Bereavement support
ASHA	• Identifying patients/families for palliative care needs • Help families with routine home care • Help in accessing various service as needed • Networking to assure community support • Referral services • Encourage VHSNC/JAS/MAS/RWA to provide bereavement support
MPW/ANM	• Assessment of patient/families by home visits • Perform basic nursing procedures • Supporting – caregivers/ ASHA/Volunteers • Compassionate communication and Counselling • Provide basic medications as per instructions from Staff Nurse/MO • Referral services • Bereavement support
Staff Nurse/CHO (H&WC(SHC)/PHC/CHC)	• Detailed assessment of patient/families by home visits • Perform basic nursing procedures • Training of the caregivers/ ASHA/Volunteers/ ANM. • Dispense medication as per the prescription of MO to palliative care patients excluding Narcotic Drugs. • Conduct weekly outpatient clinics in H&WC or PHC/UPHC • Referral & Linkage services for complex cases • Data management for entire H&WC /PHC / CHC – rural and urban • IEC activities • Compassionate communication and Counselling
Staff Nurse	• Primary management of complex cases • Inpatient management of cases • Training of all sub-district level healthcare functionaries in palliative care. • Compassionate communication and Counselling
Medical Officer (PHC)	• Detailed assessment of patient/families by home visits or Outpatient basis • Perform basic procedures [Ryle's Tube Insertion, Urinary Catheter Insertion, Ascites Tapping, Complex wound dressing, Colostomy Care, Tracheostomy Care etc.] • Training of the caregivers/ ASHA/Volunteers/ ANM/ Staff Nurse. • Prescribe medication to palliative care patients including Essential Narcotic Drugs. • Conduct weekly outpatient clinics in HWC &/ or PHC/UPHC • Manage palliative care patients referred to PHC/UPHC • Referral & Linkage services for complex cases • Supervision of all palliative care activities under his/her unit.

	• Compassionate communication and Counselling
Medical Officer (Hospitals)	Management of complex cases • Inpatient management of cases • Training of all sub-district level healthcare functionaries in palliative care. • Compassionate communication and Counselling
Specialized Palliative Care Centres (Including Medical Colleges)	Specialized Palliative Care Services • Inpatient care • Research & Training • Policy & Advocacy

EXERCISE FOR PARTICIPANTS

Q.1.What is mental Health and what are attributes of Positive Mentaly healthy person?

Q.2.Write in brief

- a) National Mental Health Programme
- b) District Mental Health Programme

Q.3.Write Short Note on

- a) Issues indicating importance of Mental Health in PHC setup
- b) Admission to Mental Hospitals and Discharge
- c) Role of PHC staff in Mental Health Programme
- d)Mental Health Care act 2017
- e) Mental Health Day

Q.4.How to recongnize Mental Disorder?

National Health Programmes

Reproductive, Maternal, Neonatal, Child and Adolescent health

- Janani Shishu Suraksha Karyakaram (JSSK) (Refer Page No 75)
- Rashtriya Kishor Swasthya Karyakram(RKSK) (Refer Page No 173)
- Rashtriya Bal SwasthyaKaryakram (RBSK)(Refer Page No 180)
- Universal Immunisation Programme (Also Refer Page No 366)
- Mission Indradhanush / Intensified Misson Indradhanush
- Janani Suraksha Yojana (JSY) (Refer Page No 73)
- Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) (Refer Page No 77)
- NavjaatShishu Suraksha Karyakram (NSSK)
- National Programme for Family planning (Also Refer Page No 374)

National Nutritional Programmes

- National Iodine Deficiency Disorders Control Programme
- MAA (Mothers' Absolute Affection) Programme for Infant and Young Child Feeding (Also Refer Page No 111)
- National Programme for Prevention and Control of Fluorosis (NPPCF) (Refer Page No 350)
- National Iron Plus Initiative for Anaemia Control (Also Refer Page No 47)
- National Vitamin A prophylaxis Programe
- Integrated Child Development Services (ICDS) (Refer Page No 379)
- Mid-Day Meal Programme

Communicable diseases

- Integrated Disease Surveillance Programme (IDSP)
- National Tuberculosis Elimination Programme (Refer Page No 239)
- National Leprosy Eradication Programme (NLEP) (Refer Page No 226)
- National Centre for Vector Borne Diseases Control (Refer Page No 261)
- Programme for Prevention and Control of leptospirosis
- National AIDS Control Programme (NACP) (Also Refer Page No 562)
- Pulse Polio Programme
- National Viral Hepatitis Control Program
- National Rabies Control Programme (Also Refer Page No 384)
- National Programme on Containment of Anti-Microbial Resistance (AMR)

Non-communicable diseases

- [National Tobacco Control Programme\(NTCP\)](#)(Refer Page No 347)
- [National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke \(NPCDCS\)](#)(Refer Page No 350)
- [National Programme for Control Treatment of Occupational Diseases](#)
- [National Programme for Prevention and Control of Deafness \(NPPCD\)](#) (Refer Page No 343)
- [National Mental Health Programme](#) (Refer Page No 286)
- [National Programme for Control of Blindness& Visual Impairment](#) (Refer Page No 337)
- [Pradhan Mantri National Dialysis Programme](#)
- [National Programme for the Health Care for the Elderly \(NPHCE\)](#) (Refer Page No 357)
- [National Programme for Palliative Care \(NPPC\)](#) (Refer Page No 343)
- [National Programme for Prevention & Management of Burn Injuries \(NPPMBI\)](#)
- [National Oral Health programme](#) (Refer Page No 344)

Health system strengthening programs

- [Ayushman Bharat Yojana](#)
- [Pradhan Mantri Swasthya Suraksha Yojana \(PMSSY\)](#)
- [LaQshya' programme \(Labour Room Quality Improvement Initiative\)](#) (Also Refer Page No 80)
- [National Health Mission](#) (Also Refer Page No 408)
- [Ayushman Bharat Digital Mission \(ADHM\)](#)
- [PM Ayushman Bharat Health Infrastructure Mission](#)

State Health Programmes - Maharashtra

- [Rajiv Gandhi Jeevandayee Arogya Yojana](#)

Reproductive, Maternal, Neonatal, Child and Adolescent health

Universal Immunisation Programme

Universal Immunisation Programme

Immunization Programme in India was introduced in 1978 as 'Expanded Programme of Immunization' (EPI) by the Ministry of Health and Family Welfare, Government of India. In 1985, the programme was modified as 'Universal Immunization Programme' (UIP) to be implemented in phased manner to cover all districts in the country by 1989-90 with the one of largest health programme in the world.

Ministry of Health and Family Welfare, Government of India provides several vaccines to infants, children and pregnant women through the **Universal Immunisation Programme**.

About immunization

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines are substances that stimulate the body's own immune system to protect the person against subsequent infection or disease.

Vaccines provided under UIP:

BCG

- **About**-BCG stands for Bacillus Calmette-Guerin vaccine. It is given to infants to protect them from tubercular meningitis and disseminated TB.
- **When to give** – BCG vaccine is given at birth or as early as possible till 1 year of
- **Route and site**- BCG is given as intradermal injection in left upper arm.

OPV

- **About**-OPV stands for Oral Polio Vaccine. It protects children from poliomyelitis.
- **When to give**- OPV is given at birth called zero dose and three doses are given at 6, 10 and 14 weeks. A booster dose is given at 16-24 months of age.
- **Route and site** - OPV is given orally in the form of two drops.

Hepatitis B vaccine

- **About** – Hepatitis B vaccine protects from Hepatitis B virus infection.
- **When to give**- Hepatitis B vaccine is given at birth or as early as possible within 24 hours. Subsequently 3 dose are given at 6, 10 and 14 weeks in combination with DPT and Hib in the form of pentavalent vaccine.
- **Route and site**- Intramuscular injection is given at anterolateral side of mid thigh

Pentavalent Vaccine

- **About**-Pentavalent vaccine is a combined vaccine to protect children from five diseases Diphtheria, Tetanus, Pertusis, Haemophilis influenza type b infection and Hepatitis B.
- **When to give** - Three doses are given at 6, 10 and 14 weeks of age (can be given till one year of age).
- **Route and site**-Pentavalent vaccine is given intramuscularly on anterolateral side of mid thigh

Rotavirus Vaccine

- **About** -RVV stands for Rotavirus vaccine. It gives protection to infants and children against rotavirus diarrhoea. It is given in select states.
- **When to give** - Three doses of vaccine are given at 6, 10, 14 weeks of age (can be given at one year of age).
- **Route and site**-5 drops of liquid vaccine or 2.5 ml (lyophilized vaccine) are given orally.

PCV

- **About**- PCV stands for Pneumococcal Conjugate Vaccine. It protects infants and young children against disease caused by the bacterium Streptococcus pneumoniae.
- **When to give** - The vaccine is given as two primary doses at 6 & 14 weeks of age followed by a booster dose at 9-12 months of age
- **Route and site**- PCV is given as intramuscular (IM) injection in antero-lateral side of mid- thigh. It should be noted that pentavalent vaccine and PCV are given as two separate injections into opposite thighs.

fIPV

- **About**- fIPV stands for Fractional Inactivated Poliomyelitis Vaccine. It is used to boost the protection against poliomyelitis.
- **When to give**- Two fractional doses of IVP are given intradermally at 6 and 14 weeks of age.
- **Route and site**- It is given as intradermal injection at right upper arm.

Measles/ MR vaccine

- **About**-Measles vaccine is used to protect children from measles. In few states Measles and Rubella a combined vaccine is given to protect from Measles and Rubella infection.

- **When to give-**First dose of Measles or MR vaccine is given at 9 completed months to 12 months (vaccine can be given up to 5 years if not given at 9-12 months age) and second dose is given at 16-24 months.
- **Route and site –** Measles Vaccine is given as subcutaneous injection in right upper arm.

JE vaccine

- **About-** JE stands for Japanese encephalitis vaccine. It gives protection against Japanese Encephalitis disease. JE vaccine is given in select districts endemic for JE after the campaign.
- **When to given-** JE vaccine is given in two doses first dose is given at 9 completed months-12 months of age and second dose at 16-24 months of age.
- **Route and site-** Live attenuated vaccine is given as subcutaneous injection in left upper arm and killed vaccine is given as intramuscular injection in anterolateral aspect of mid- thigh.

DPT booster

- **About-**DPT is a combined vaccine; it protects children from Diphtheria, Tetanus and Pertussis.
- **When to give -**DPT vaccine is given at 16-24 months of age is called as DPT first booster and DPT 2nd booster is given at 5-6 years of age.
- **Route and site-** DPT first booster is given as intramuscular injection in antero-lateral side of mid-thigh in left leg. DPT second booster is given as intramuscular injection in left upper arm.

Tetanus and adult diphtheria (Td) vaccine:

- **About-**TT vaccine has been replaced with Td vaccine in UIP to limit the waning immunity against diphtheria in older age groups.
- **When to give-** Td vaccine is administered to adolescents at 10 and 16 years of age and to pregnant women.
- **Pregnant women-** Td-1 is given early in pregnancy as first dose and 4 weeks after Td1, second dose of Td as Td-2 is given. Td- Booster is given, if pregnant woman has received 2 TT/Td doses in a pregnancy within the last 3 years.* Intra-muscular Upper Arm
- **Route and site-** Td is given as intramuscular injection in upper arm.

National Immunization Schedule

Age	Vaccines given
Birth	Bacillus Calmette Guerin (BCG), Oral Polio Vaccine (OPV)-0 dose, Hepatitis B birth dose
6 Weeks	OPV-1, Pentavalent-1, Rotavirus Vaccine (RVV)-1, Fractional dose of Inactivated Polio Vaccine (fIPV)-1, Pneumococcal Conjugate Vaccine (PCV)-1*
10 weeks	OPV-2, Pentavalent-2, RVV-2
14 weeks	OPV-3, Pentavalent-3, fIPV-2, RVV-3, PCV-2*
9-12 months	Measles & Rubella (MR)-1, JE-1** , PCV-Booster*
16-24 months	MR-2, JE-2** , Diphtheria, Pertussis & Tetanus (DPT)-Booster-1, OPV – Booster
5-6 years	DPT-Booster-2
10 years	Tetanus & adult Diphtheria (Td)
16 years	Td
Pregnant Mother	Td-1, Td-2 or Td-Booster***

* PCV in selected states/districts: Bihar, Himachal Pradesh, Madhya Pradesh, Uttar Pradesh (selected districts) and Rajasthan; in Haryana as state initiative

** JE in endemic districts only

*** One dose if previously vaccinated within 3 years

National Immunization Schedule (NIS) for Infants, Children and Pregnant Women (Vaccine-wise)

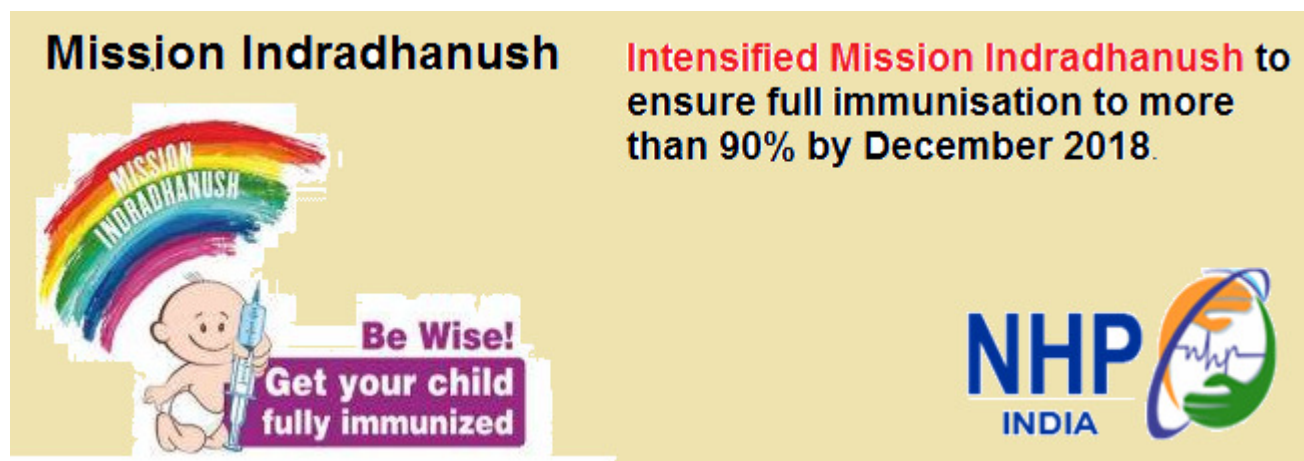
Vaccine	When to give	Dose	Route	Site
For Pregnant Women				
Tetanus & adult Diphtheria (Td)-1	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
Td-2	4 weeks after Td-1	0.5 ml	Intra-muscular	Upper Arm
Td- Booster	If received 2 TT/Td doses in a pregnancy within the last 3 years*	0.5 ml	Intra-muscular	Upper Arm
For Infants				
Bacillus Calmette Guerin (BCG)	At birth or as early as possible till one year of age	0.1ml (0.05ml until 1 month age)	Intra-dermal	Left Upper Arm
Hepatitis B - Birth dose	At birth or as early as possible within 24 hours	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Oral Polio Vaccine (OPV)-0	At birth or as early as possible within the first 15 days	2 drops	Oral	Oral
OPV 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks (OPV can be given till 5 years of age)	2 drops	Oral	Oral
Pentavalent 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks (can be given till one year of age)	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Pneumococcal Conjugate Vaccine(PCV)	Two primary doses at 6 and 14 weeks followed by Booster dose at 9-12 months	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Rotavirus (RVV)	At 6 weeks, 10 weeks & 14 weeks (can be given till one year of age)	5 drops (liquid vaccine) 2.5 ml (lyophilized vaccine)	Oral	Oral
Inactivated Polio Vaccine (IPV)	Two fractional dose at 6 and 14 weeks of age	0.1 ml	Intra dermal two fractional dose	Intra-dermal: Right upper arm
Measles Rubella (MR) 1st dose	9 completed months-12 months. (Measles can be given till 5 years of age)	0.5 ml	Sub-cutaneous	Right upper Arm

Vaccine	When to give	Dose	Route	Site
Japanese Encephalitis (JE) - 1	9 completed months-12 months.	0.5 ml	Sub-cutaneous (Live attenuated vaccine) Intramuscular(Killed vaccine)	Left upper Arm (Live attenuated vaccine) Anterolateral aspect of mid thigh (Killed vaccine)
Vitamin A (1st dose)	At 9 completed months with measles-Rubella	1 ml (1 lakh IU)	Oral	Oral
For Children				
Diphtheria, Pertussis & Tetanus (DPT) booster-1	16-24 months	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
MR 2nd dose	16-24 months	0.5 ml	Sub-cutaneous	Right upper Arm
OPV Booster	16-24 months	2 drops	Oral	Oral
JE-2	16-24 months	0.5 ml	Sub-cutaneous (Live attenuated vaccine) Intramuscular(Killed vaccine)	Left upper Arm (Live attenuated vaccine) Anterolateral aspect of mid thigh (Killed vaccine)
Vitamin A (2nd to 9th dose)	16-18 months. Then one dose every 6 months up to the age of 5 years.	2 ml (2 lakh IU)	Oral	Oral
DPT Booster-2	5-6 years	0.5 ml.	Intra-muscular	Upper Arm
Td	10 years & 16 years	0.5 ml	Intra-muscular	Upper Arm

*One dose if previously vaccinated within 3 years

Note:

- JE Vaccine is introduced in select endemic districts after the campaign.
- The 2nd to 9th doses of Vitamin A can be administered to children 1-5 years old during biannual rounds, in collaboration with ICDS.
- PCV in selected states/districts: Bihar, Himachal Pradesh, Madhya Pradesh, Rajasthan & Uttar Pradesh (selected districts), and in Haryana as state initiative



Mission Indradhanush and Intensified Mission Indradhanush (IMI): To boost the routine immunization coverage

- Introduction
- Mission Indradhanush
- Intensified Mission Indradhanush (IMI)
- Intensified Mission Indradhanush (IMI) 2.0

Introduction

Immunization Programme in India was introduced in 1978 as 'Expanded Programme of Immunization' (EPI) by the Ministry of Health and Family Welfare, Government of India. In 1985, the programme was modified as 'Universal Immunization Programme' (UIP) to be implemented in phased manner to cover all districts in the country by 1989-90 with the one of largest health programme in the world. Despite being operational for many years, UIP has been able to fully immunize only 65% children in the first year of their life.

Through UIP, Government of India is providing vaccination free of cost against vaccine preventable diseases include diphtheria, pertussis, tetanus, polio, measles, severe form of childhood tuberculosis, hepatitis B, meningitis and pneumonia (Hemophilus influenza type B infections), Japanese encephalitis (JE) in JE endemic districts with introduction of newer vaccines such as rotavirus vaccine, IPV, adult JE vaccine, pneumococcal conjugate vaccine (PCV) and measles-rubella (MR) vaccine in UIP/national immunization programme.

Mission Indradhanush

To strengthen and re-energize the programme and achieve full immunization coverage for all children and pregnant women at a rapid pace, the Government of India launched "Mission Indradhanush" in December 2014.

Goal of Mission Indradhanush:

The ultimate goal of Mission Indradhanush is to ensure full immunization with all available vaccines for children up to two years of age and pregnant women. The Government has identified 201 high focus districts across 28 states in the country that have the highest number of partially immunized and unimmunized children.

Earlier the increase in full immunization coverage was 1% per year which has increased to 6.7% per year through the first two phases of Mission Indradhanush. Four phases of Mission Indradhanush have been conducted till August 2017 and more than 2.53 crore children and 68 lakh pregnant women have been vaccinated.

Intensified Mission Indradhanush (IMI)

To further intensify the immunization programme, Prime Minister Shri Narendra Modi launched the **Intensified Mission Indradhanush (IMI)** on October 8, 2017. Through this programme, Government of India aims to reach each and every child up to two years of age and all those pregnant women who have been left uncovered under the routine immunisation programme/UIP. The focus of special drive was to improve immunisation coverage in select districts and cities to ensure full immunisation to more than 90% by December 2018.

Under IMI, four consecutive immunization rounds were conducted for 7 days in 173 districts (121 districts and 17 cities in 16 states and 52 districts in 8 northeastern states) every month between October 2017 and January 2018. Intensified Mission Indradhanush has covered low performing areas in the selected districts (high priority districts) and urban areas. Special attention was given to unserved/low coverage pockets in sub-centre and urban slums with migratory population. The focus was also on the urban settlements and cities identified under National Urban Health Mission (NUHM).

Intensified Mission Indradhanush (IMI) 2.0

To boost the routine immunization coverage in the country, Government of India has introduced Intensified Mission Indradhanush 2.0 to ensure reaching the unreached with all available vaccines and accelerate the coverage of children and pregnant women in the identified districts and blocks from December 2019-March 2020.

The IMI 2.0 aims to achieve targets of full immunization coverage in 272 districts in 27 States and at block level (652 blocks) in Uttar Pradesh and Bihar among hard-to-reach and tribal populations.

With the launch of Intensified Mission Indradhanush 2.0, India has the opportunity to achieve further reductions in deaths among children under five years of age, and achieve the Sustainable Development Goal of ending preventable child deaths by 2030.

Several ministries, including the Ministry of Women and Child Development, Panchayati Raj, Ministry of Urban Development, Ministry of Youth Affairs and others have come together to make the mission a resounding success and support the central government in ensuring the benefits of vaccines reach the last mile.

The salient features of IMI 2.0 are:

- Conduction of four rounds of immunization activity over 7 working days excluding the RI days, Sundays and holidays.
- Enhanced immunization session with flexible timing, mobile session and mobilization by other departments.
- Enhanced focus on left outs, dropouts, and resistant families and hard to reach areas.
- Focus on urban, underserved population and tribal areas.
- Inter-ministerial and inter-departmental coordination.
- Enhance political, administrative and financial commitment, through advocacy.
- IMI 2.0 drive is being conducted in the selected districts and urban cities between Dec 2019 – March 2020

A portal named Intensified Mission Indradhanush 2.0(<https://imi2.nhp.gov.in/AboutUs>) has been designed to manage the data reporting by different ministries/ departments, and to capture pre-campaign activities, activities during immunization rounds and post campaign indicators on immunization coverage.

Navjaat Shishu Suraksha Karyakram (NSSK)

NSSK is a programme aimed to train health personnel in basic newborn care and resuscitation, has been launched to address care at birth issues i.e. Prevention of Hypothermia, Prevention of Infection, Early initiation of Breast feeding and Basic Newborn Resuscitation.

Newborn care and resuscitation are important starting-point for any neonatal program and is required to ensure the best possible start in life.

Objective is to have a trained health personal in basic newborn care and resuscitation at every delivery point. The training is for 2 days and is expected to reduce neonatal mortality significantly in the country.

National Programme for Family Planning

India was the first country in the world to have launched a National Programme for Family Planning in 1952. Over the decades, the programme has undergone transformation in terms of policy and actual programme implementation and currently being repositioned to not only achieve **population stabilization** goals but also promote **reproductive health** and reduce **maternal, infant & child mortality and morbidity**. Under the programme public health sector provides various family planning services at various levels of health system.

“Mission Pariwar Vikas”

For improved access to contraceptives and family planning services in high fertility districts spreading over seven high focus states, the Ministry of Health and Family Welfare launched “**Mission Pariwar Vikas**” in 2016. Special focus has been given to 146 high fertility Districts of *Bihar, Uttar Pradesh, Assam, Chhattisgarh, Madhya Pradesh, Rajasthan & Jharkhand*, with an aim to ensure availability of contraceptive methods at all the levels of Health Systems.

Goal - Its overall goal is to reduce India's overall fertility rate to 2.1 by the year 2025

Objective -The key strategic focus of this initiative is on improving access to contraceptives through delivering assured services, ensuring commodity security and accelerating access to high quality family planning services.

Key strategies include –

- Providing more choices through newly introduced contraceptives: Injectable Contraceptive, MPA (Medroxyprogesterone acetate) under Antara program and Chaya (earlier marketed as Saheli) will be made freely available to all government hospitals.
- Emphasis on Spacing methods like IUCD
- Revitalizing Postpartum Family Planning including PPIUCD in order to capitalize on the opportunity provided by increased institutional deliveries. Appointment of counsellors at high institutional delivery facilities is a key activity.
- Strengthening community-based distribution of contraceptives by involving ASHAs and Focused IEC/ BCC efforts for enhancing demand and creating awareness on family planning
- Availability of **Fixed Day** Static Services at all facilities.
- Emphasis on minilap tubectomy services because of its logistical simplicity and requirement of only MBBS doctors and not post graduate gynecologists/ surgeons.
- A rational human resource development plan for IUCD, minilap and NSV be chalked up to empower the facilities (DH, CHC, PHC, SHC) with at least one provider each for each of the services and Sub Center's with ANMs trained in IUD insertion

- Ensuring quality care in Family Planning services by establishing Quality Assurance Committees at state and district levels Plan for accreditation of more private/ NGO facilities to increase the provider base for family planning services under PPP.
- Increasing male participation and promoting Non-scalpel vasectomy.
- Demand generation activities in the form of display of posters, billboards and other audio and video materials in the various facilities be planned and budgeted.
- Strong Political Will and Advocacy at the highest level, especially in states with high fertility rates.

HumDo

The National Family Planning Programme, through **Hum Do** ([/humdo.nhp.gov.in/](http://humdo.nhp.gov.in/)) aims to provide eligible couples with information and guidance on family planning methods and services available, to ensure individuals and couples lead a healthy, happy and prosperous life.

National Nutritional Programmes

National Iodine Deficiency Disorders Control Programmes

Iodine is required for the synthesis of the thyroid hormones, thyroxine (T4) and triiodothyronine (T3) and essential for the normal growth and development and well being of all humans. It is a micronutrient and normally required around 100-150 microgram for normal growth and development. Deficiency of iodine may cause following disorders:

- Goiter
- Subnormal intelligence
- Neuromuscular weakness
- Endemic cretinism
- Still birth
- Hypothyroidism
- Defect in vision, hearing, and speech
- Spasticity
- Intrauterine death
- Mental retardation

In 1992, the National Goiter Control Programme (NGCP) was renamed as National Iodine Deficiency Disorder Control Programme (NIDDCP).

Objectives:

The important objectives and components of National Iodine Deficiency Disorders Control Iodine Deficiency Disorders Control Programme (NIDDCP) are as follows:-

- Surveys to assess the magnitude of the Iodine Deficiency Disorders.
- Supply of iodated salt in place of common salt.

- Resurvey after every 5 years to assess the extent of Iodine Deficiency Disorders and the impact of iodated salt.
- Laboratory monitoring of iodated salt and urinary iodine excretion.
- Health education and Publicity.

MAA (Mothers' Absolute Affection) Programme for Infant and Young Child Feeding

- MAA - "Mother's Absolute Affection" is a nationwide programme of the Ministry of Health and Family Welfare in an attempt to bring undiluted focus on promotion of breastfeeding and provision of counselling services for supporting breastfeeding through health systems. The programme has been named 'MAA' to signify the support a lactating mother requires from family members and at health facilities to breastfeed successfully.
- **Goal** –The 'MAA' Programme is to revitalize efforts towards promotion, protection and support of breastfeeding practices through health systems to achieve higher breastfeeding rates.
- **Objective** –
 - Build an enabling environment for breastfeeding through awareness generation activities, targeting pregnant and lactating mothers, family members and society in order to promote optimal breastfeeding practices. Breastfeeding to be positioned as an important intervention for child survival and development.
 - Reinforce lactation support services at public health facilities through trained healthcare providers and through skilled community health workers.
 - To incentivize and recognize those health facilities that show high rates of breastfeeding along with processes in place for lactation management.
- **Key components of the programme are** –
 - Communication for enhanced awareness and demand generation through mass media and mid media;
 - Training and capacity enhancement of nurses at government institutions, and all ANMs and ASHAs. They will provide information and counselling support to mothers for breastfeeding;
 - Community engagement by ASHAs for breastfeeding promotion, who will conduct mothers' meetings. Breastfeeding mothers requiring more support will be referred to a health facility or the ANM sub-centre or the Village Health and Nutrition Day (VHND) organized every month at the village level;
 - Monitoring and impact assessment is an integral part of MAA programme. Progress will be measured against key indicators, such as availability of skilled persons at delivery points for counselling, improvement in breastfeeding practices and number of accredited health facilities; and
 - Recognition and team awards will be given to facilities showing good performance, based on evaluation against pre-decided criteria.
- **Key messages** –
 - Early initiation of breastfeeding; immediately after birth, preferably within one hour.
 - Breast-milk alone is the best food and drink for an infant for the first six months of life. No other food or drink, not even water, is usually needed during this period. But allow infant to receive ORS, drops, syrups of vitamins, minerals and medicines when required for medical reasons.
 - After 6 months of age, babies should be introduced to semi-solid, soft food (complementary feeding) but breastfeeding should continue for up to two years and beyond, because it is an important source of nutrition, energy and protection from illness.
 - From the age of 6–8 months a child needs to eat two to three times per day and thereafter, three to four times per day starting at 9 months – in addition to breastfeeding. Depending on the child's appetite, one or two nutritious snacks, such as fruit, home-made energy dense food, may

be needed between meals. The baby should be fed small amounts of food that steadily increase in variety and quantity as he or she grows.

- During an illness, children need additional fluids and encouragement to eat regular meals, and breastfeeding infants need to breastfeed more often. After an illness, children need to be offered more food than usual, to replenish the energy and nourishment lost due to the illness.

National Iron Plus Initiative for Anemia Control

National Iron Plus Initiative for Anemia Control –

Anemia is a serious public health challenge in India with more than 50% prevalence among the vulnerable groups such as pregnant women, infants, young children and adolescents. Iron deficiency being the most common form nutritional anemia, National Iron+ Initiative was launched by the Adolescent Division of the Ministry of Health and Family Welfare (MoHFW), Government of India.

Aim - To reach the following age groups for supplementation of Iron & Folic Acid

Age group	Intervention/ Dose	Regime	Service delivery
6–60 months	1ml of IFA syrup containing 20 mg of elemental iron and 100 mcg of folic acid	Biweekly throughout the period 6–60 months of age and de-worming for children 12 months and above.	Inclusion in MCP card Through ASHA/ ANM
5–10 years	Tablets of 45 mg elemental iron and 400 mcg of folic acid	Weekly throughout the period 5–10 years of age and biannual de-worming	In school through teachers and for out-of-school children through Anganwadi centre (AWC)
10–19 years	100 mg elemental iron and 500 mcg of folic acid	Weekly throughout the period 10–19 years of age and biannual de-worming	In school through teachers and for those out-of-school through AWC
Pregnant and lactating women	100 mg elemental iron and 500 mcg of folic acid	1 tablet daily for 100 days, starting after the first trimester, at 14–16 weeks of gestation. To be repeated for 100 days post-partum.	ANC/ ANM /ASHA Inclusion in MCP card
Women in reproductive age (WRA) group	100 mg elemental iron and 500 mcg of folic acid	Weekly throughout the reproductive period	Through FHW during house visit for contraceptive distribution

National Vitamin A prophylaxis program

National Vitamin A prophylaxis program –

Vitamin A is an important micronutrient for maintaining normal growth, regulating cellular proliferation and differentiation, controlling development, and maintaining visual and reproductive functions. Diet surveys have shown that the intake of Vitamin A is significantly lower than the recommended daily allowance in young children, adolescent girls and pregnant women. Prevalence of clinical and sub clinical vitamin A deficiency in India is among the highest in the world.

In the fifties and sixties many of the states reported that blindness due to Vitamin A deficiency was one of the major causes of blindness in children below five years. A five-year long field trial conducted by NIN showed that if massive dose Vitamin A (200,000 units) was administered once in six months to children between one and three years of age, the incidence of corneal xerophthalmia is reduced by about 80 per cent. In view of the serious nature of the problem of blindness due to Vitamin A deficiency, it was felt that urgent remedial measures in the form of massive dose Vitamin A supplementation covering the entire population of susceptible children should be undertaken. In 1970, the *National Prophylaxis Programme Against Nutritional Blindness* was initiated as a centrally sponsored scheme. Under this scheme, all children between ages of one and three years were to be administered 200,000 IU of Vitamin A orally once in six months.

In an attempt to improve the coverage, especially of the first two doses, it was decided to link Vitamin A administration to the ongoing immunization programme during the Eighth Plan period.

Finally, in the 2006, the age group of eligible children was broadened to include children between 6 months and 5 years after reconsidering recommendations of the WHO, UNICEF and Ministry of Women and Child Development. from all as 9 months to 5 yr. of age (oral prophylactic dose)

Aim: to decrease the prevalence of Vitamin A deficiency

Objective:

1. Prevention of vitamin A deficiency

- i. *Promoting consumption of Vitamin A rich food* –promotion of regular dietary intake of Vitamin A rich foods by all pregnant and lactating women and by children under 5 years of age by increasing local production and consumption of green leafy vegetables and other plant foods those are rich sources of carotenoids.
- ii. *Creating awareness about the importance of preventing Vitamin A deficiency*– among the women's attending Antenatal clinics, immunization session, as well as women and children registered under ICDS programme.
- iii. **Prophylactic Vitamin A as per the following dosage schedule:**

100000 IU at 9 months with measles immunization

200000 IU at 16-18 months, with DPT booster

200000 IU every 6 months, up to the age of 5 years.

Thus, a total of 9 mega doses are to be given from 9 months of age up to 5 years.

2. Treatment of Vitamin A deficient children

- i. All children with xerophthalmia are to be treated at health facilities.

- ii. All children having measles, to be given 1 dose of Vitamin A if they have not received it in the previous month.
- iii. All cases of severe malnutrition to be given one additional dose of Vitamin A.

Integrated Child Development Services (ICDS)

Integrated Child Development Service (ICDS) scheme was launched on 2nd October, 1975 (5th Five year Plan) in pursuance of the National Policy for Children in 33 experimental blocks. Now the goal is to universalization of ICDS throughout the country. The primary responsibility for the implementation of the programme is with the Department of Women and Child Development, Ministry of Human Resources Development at the Centre and the nodal departments at the state which may be Social Welfare, Rural Development, Tribal Welfare, Health and Family Welfare or Women and Child Development.

Beneficiaries:

- Children below 6 years
- Pregnant and lactating women
- Women in the age group of 15-44 years
- Adolescent girls in selected blocks

Objectives:

1. Improve the nutrition and health status of children in the age group of 0-6 years
2. Lay the foundation for proper psychological, physical and social development of the child
3. Effective coordination and implementation of policy among the various departments
4. Enhance the capability of the mother to look after the normal health and nutrition needs through proper nutrition and health education.

Mid-Day Meal Programme

Tamil Nadu was the first to initiate a massive noon meal programme to children. Neither a child that is hungry, nor a child that is ill can be expected to learn. Realizing this need the Mid-Day Meal (MDM) Scheme was launched in primary schools during 1962-63. Mid-Day Meal improves three areas: 1. School attendance 2. Reduced dropouts 3. A beneficial impact on children's nutrition.

The Central Government supplies the full requirement of food grains for the programme free of cost. For its implementation in rural areas, Panchayats and Nagarpalikas are also involved or setting up of necessary infrastructure for preparing cooked food. For this purpose NGOs, women's group and parent-teacher councils can be utilized. The total charges for cooking, supervision and kitchen are eligible for assistance under Poverty Alleviation Programme. In several states, supplementary feeding was assisted by food supplies from Cooperation for American Relief Everywhere (CARE) and World Food Programme (WFP). There are problems of administration and quality of food that have affected the programme outcomes.

Objectives:

The objectives of the mid day meal scheme are:

1. Improving the nutritional status of children in classes I – VIII in Government, Local Body and Government aided schools, and EGS and AIE centres
2. Encouraging poor children, belonging to disadvantaged sections, to attend school more regularly and help them concentrate on classroom activities.
3. Providing nutritional support to children of primary stage in drought-affected areas

Communicable diseases**Integrated Disease Surveillance Program (IDSP)**

The Integrated Disease Surveillance Program (IDSP) was initiated in assistance with World bank, in the year 2004. The Programme continues during 12th Plan (2012–17) under National Health Mission with a budget of Rs. 64.04 Crore from domestic budget only. The scheme aimed to strengthen disease surveillance for infectious diseases to detect and respond to outbreaks immediately. The Central Surveillance Unit (CSU) at the National Centre for Disease Control (NCDC), receives disease outbreak reports from the States/UTs on weekly basis. Even NIL weekly reporting is mandated and compilation of disease outbreaks/alerts is done on weekly basis.

The surveillance data is collected on three specified reporting formats, namely “S” (suspected cases), “P” (presumptive cases) and “L” (laboratory confirmed cases) filled by Health Workers, Clinicians and Laboratory staff respectively. State/District Surveillance Units analyses this data weekly, to interpret the disease trends and seasonality of diseases.

Objective:

To strengthen/maintain decentralized laboratory-based IT enabled disease surveillance system for epidemic-prone diseases to monitor disease trends and to detect and respond to outbreaks in early rising phase through trained Rapid Response Team (RRTs).

Programme Components:

- Integration and decentralization of surveillance activities through the establishment of surveillance units at Centre, State and District level.
- Human Resource Development – Training of State Surveillance Officers, District Surveillance Officers, Rapid Response Team and other Medical and Paramedical staff on principles of disease surveillance.
- Use of Information Communication Technology for collection, collation, compilation, analysis and dissemination of data.
- Strengthening of public health laboratories.
- Inter sectoral Co-ordination for zoonotic disease

IDSP Segment of Integrated Health Information Platform:

IDSP is integrated with Integrated Health Information Platform (IHIP). The IHIP is a web-enabled near-real-time electronic information system that is embedded with all applicable Government of India's e-Governance standards, information technology (IT), data & metadata standards to provide state-of-the-art single operating picture with geospatial information for managing disease outbreaks and related resources.

In the first phase, Integrated Disease Surveillance Programme (IDSP) module of Integrated Health Information Platform (IHIP) was soft launched in selected districts of 7 States (Karnataka, Andhra Pradesh, Himachal Pradesh, Odisha, Uttar Pradesh, Telangana & Kerala in 2018.

PPCL

Programme for Prevention and Control of leptospirosis

Leptospirosis is a zoonotic disease caused by *Leptospira* bacteria found in urine of rodents, cattle, pigs etc. It is a major health problem in India in some states Kerala, Gujarat, Tamilnadu, Maharashtra and Karnataka. Early detection and timely treatment of the disease can reduce morbidity and mortality in the population. In view of the rising burden of the disease, Govt. of India, launched the **Programme for Prevention and Control of leptospirosis** (PPCL) in 12th Five year plan in the endemic states viz. Gujarat, Kerala, Tamil Nadu, Maharashtra, Karnataka and UT of Andaman & Nicobar Islands under National Centre for Disease Control (NCDC) as nodal agency for implementation of the programme .

Objective of the Programme is to reduce the morbidity and mortality due to leptospirosis in Humans.

The strategies of the Programme:

1. Developing trained manpower
2. Robust surveillance of disease in humans
3. Strengthening of diagnostic labs in programme states
4. Strengthening of patient management facilities in programme states
5. Create awareness among people
6. Reinforcing inter-sectoral coordination among states for detection, prevention and control of leptospirosis.

Impact of the programme

Even after being in its growing stage, the programme has been strongly recognized by the states. The surveillance of the disease is being done through the Integrated Diseases Surveillance Programme Portal.

National AIDS Control Programme

HIV infection in India is a major challenge with no State free from the virus. [HIV/AIDS](#) continues to show itself to be one of India's most complex epidemics - a challenge that goes beyond public health, raising fundamental issues of human rights and threatening development achievements in many areas. The need to prevent the progression of the epidemic and provide care and support for those infected or affected is calling for an unprecedented response from all sections of society. The National AIDS Control Organization, Ministry of Health and Family Welfare has launched the National AIDS Control Programme- II, from December, 1999. The new national programme in implementation sees the country on the threshold of a new approach - marked by focusing on encouraging and enabling the States themselves to take on the responsibility of responding to the epidemic. It is also leading to growing partnerships between government, NGOs and civil society.

Objectives:

1. To reduce spread of HIV infection in India
2. Strengthen India's capacity to respond to HIV/AIDS on a long term basis.

Reflecting the extreme urgency with which HIV prevention and control need to be pursued in India, the AIDS - II project of the National AIDS Control Programme is across all States and Union Territories and

a Centrally Sponsored Scheme with 100% financial assistance from Government of India direct to State AIDS Control Societies and selected Municipal Corporations/AIDS Control Societies.

Pulse Polio Programme

Introduction

With the global initiative of eradication of **polio** in 1988 following World Health Assembly resolution in 1988, Pulse Polio Immunization programme was launched in India in 1995. Children in the age group of 0-5 years administered polio drops during National and Sub-national immunization rounds (in high risk areas) every year. About 172 million children are immunized during each National Immunization Day (NID).

The last polio case in the country was reported from Howrah district of West Bengal with date of onset 13th January 2011. Thereafter no polio case has been reported in the country (25th May 2012).

WHO on 24th February 2012 removed India from the list of countries with active endemic wild polio virus transmission.

Objective :

The Pulse Polio Initiative was started with an objective of achieving hundred per cent coverage under Oral Polio Vaccine. It aimed to immunize children through improved social mobilization, plan mop-up operations in areas where poliovirus has almost disappeared and maintain high level of morale among the public.

National Viral Hepatitis Control Program (NVHCP)

National Viral Hepatitis Control Program (NVHCP)

The National Viral Hepatitis Control Program has been launched by Ministry of Health and Family Welfare, Government of India on the occasion of the World Hepatitis Day, 28th July 2018. It is an integrated initiative for the prevention and control of viral hepatitis in India to achieve Sustainable Development Goal (SDG) 3.3 which aims to ending viral hepatitis by 2030. This is a comprehensive plan covering the entire gamut from Hepatitis A, B, C, D & E, and the whole range from prevention, detection and treatment to mapping treatment outcomes. Operational Guidelines for National Viral Hepatitis Control Program, National Laboratory Guidelines for Viral Hepatitis Testing and National Guidelines for Diagnosis and Management of Viral Hepatitis were also released.

Aim:

1. Combat hepatitis and achieve country wide elimination of Hepatitis C by 2030;
2. Achieve significant reduction in the infected population, morbidity and mortality associated with Hepatitis B and C viz. Cirrhosis and Hepato-cellular carcinoma (liver cancer);
3. Reduce the risk, morbidity and mortality due to Hepatitis A and E.

Key Objectives:

1. Enhance community awareness on hepatitis and lay stress on preventive measures among general population especially high-risk groups and in hotspots.
2. Provide early diagnosis and management of viral hepatitis at all levels of healthcare
3. Develop standard diagnostic and treatment protocols for management of viral hepatitis and its complications.

4. Strengthen the existing infrastructure facilities, build capacities of existing human resources and raise additional human resources, where required, for providing comprehensive services for management of viral hepatitis and its complications in all districts of the country.
5. Develop linkages with the existing National programs towards awareness, prevention, diagnosis and treatment for viral hepatitis.
6. Develop a web-based “Viral Hepatitis Information and Management System” to maintain a registry of persons affected with viral hepatitis and its sequelae.

Components:

1. Preventive component: This is the cornerstone of the NVHCP. It includes

- a. Awareness generation & behaviour change communication
- b. Immunization of Hepatitis B (birth dose, high risk groups, health care workers)
- c. Safety of blood and blood products
- d. Injection safety, safe socio-cultural practices
- e. Safe drinking water, hygiene and sanitary toilets

2. Diagnosis and Treatment:

- a. Screening of pregnant women for HBsAg to be done in areas where institutional deliveries are < 80% to ensure their referral for institutional delivery for birth dose Hepatitis B vaccination.
- b. Free screening, diagnosis and treatment for both hepatitis B and C would be made available at all levels of health care in a phased manner.
- c. Provision of linkages, including with private sector and not for profit institutions, for diagnosis and treatment.
- d. Engagement with community/peer support to enhance and ensure adherence to treatment and demand generation.

3. Monitoring and Evaluation, Surveillance and Research

Effective linkages to the surveillance system would be established and operational research would be undertaken through Department of Health Research (DHR). Standardized monitoring & evaluation framework would be developed and an online web based system is established.

4. Training and Capacity Building:

This will be a continuous process and will be supported by NCDC (National Centre for Disease Control), ILBS (Institute of Liver and Biliary Sciences) and state tertiary care institutes and coordinated by NVHCP. The hepatitis induction and update programs for all level of health care workers would be made available using both, the traditional cascade model of training through master trainers and various platforms available for enabling electronic, e-learning and e-courses.

National Viral Hepatitis Control Management Unit

The NVHCP will be coordinated by the units at the centre and the states.

- a. National Viral Hepatitis Management Unit (NVHMU): The NVHMU is established at the centre with in the NHM (National Health Mission) and will be responsible for implementation of

program in the country. The NVHMU will be headed by a Joint Secretary who will report to the Mission Director (NHM).

- b. State Viral Hepatitis Management Unit (SVHMU)- The State Health Society with nodal officer and required essential manpower will coordinate the program at state level.
- c. District Viral Hepatitis Management Unit (DVHMU)- A program officer at the district level from available manpower would act as the nodal person to supervise the program and facilitate the logistics, supply chain, outreach, training at district level.

National Rabies Control Programme

Rabies is an acute viral disease that causes fatal encephalomyelitis in virtually all the warm-blooded animals including human. The virus is found in wild and some domestic animals, and is transmitted to other animals and to humans through their saliva (following bites, scratches, licks on broken skin and mucous membrane). In India, dogs are responsible for about 97% of human rabies, followed by cats (2%), and others (1%). The disease is invariably fatal and perhaps the most painful and dreadful of all communicable diseases in which the sick person is tormented at the same time with thirst and fear of water (hydrophobia). Fortunately, development of rabies can be prevented to a large extent if animal bites are managed appropriately and in time. In this regard the post-exposure treatment of animal bite cases are of prime importance. National Centre for Disease Control (formerly National Institute of Communicable Diseases), Delhi, WHO Collaborating Centre for Rabies Epidemiology, organized an expert consultation in 2002 to formulate national guidelines for rabies prophylaxis to bring out uniformity in post-exposure prophylaxis practices. Due to new interventions in this field, it has been further revised over the years.

Under the 12 five-year plan, National Rabies Control Programme (NRCP) has been approved. The NRCP has both human and animal health components.

Human Component- which is being implemented in all the states & UTs. National Centre for the Diseases control is the nodal agency for the Human Component of the program. The strategies for the human component are:

- Training of health professionals
- Implementing use of intra-dermal route of inoculation of cell culture vaccines
- Strengthening surveillance of human rabies
- Information Education & Communication
- Laboratory strengthening

Animal Component- which is being pilot tested in the Haryana & Chennai. The Animal Welfare Board of India, Ministry of Environment & Forests is the Nodal agency for the Animal Component of the program. The strategies for the animal component are:

- Population survey of dogs
- Mass vaccination of dogs
- Dog population management

Strengthening surveillance

National Programme on Containment of Anti-Microbial Resistance (AMR)

Antimicrobial resistance in pathogens causing important communicable diseases has become a matter of great public health concern globally including our country. Resistance has emerged even to newer & more potent antimicrobial agents like Carbapenems.

The rapid spread of multi-resistant bacteria and the lack of new antibiotics to treat infections caused by these organisms pose a rapidly increasing threat to public and animal health and needs to be tackled if we are to contain the problem and prevent untreatable illness becoming a reality.

India has given due cognizance to the problem of Antimicrobial resistance (AMR) and to tackle this issue, Government of India has launched a “National Programme on Containment of Antimicrobial Resistance” under the 12th five-year plan (2012-2017).

The main objectives of this programme are:

- To establish a laboratory-based AMR surveillance system of 30 network labs in the country and to generate quality data on antimicrobial resistance for pathogens of public health importance.
- To strengthen infection control guidelines and practices and promote rationale use of antibiotics.
- To generate awareness among healthcare providers and in the community about rationale use of antibiotics.

Activities to be carried out under the programme

- Surveillance for Containment of Antimicrobial Resistance in various geographical regions.
- Rational use of antibiotics.
- Development & implementation of national infection control guidelines.
- Training and capacity building of professionals in relevant sectors.
- IEC for dissemination of information about rational use of antibiotics.
- Development of National Repository of Bacterial strains / cultures.

Non-communicable diseases

National Programme for Control and Treatment of Occupational Disease

Burden of Occupational Disease in Injuries

Major occupational diseases can be divided in following categories:

1. Occupational injuries
2. Occupational lung diseases
3. Occupational cancers
4. Occupational dermatoses
5. Occupational Infections
6. Occupation toxicology
7. Occupational mental disorders
8. Others

Occupational health was one of the components of the National Health Policy 1983 and also included in National Health Policy 2002 but very little attention has been paid to mitigate the effect of occupational disease through proper programme. Ministry of Health and Family Welfare, Govt. of India has launched a scheme entitled “National Programme for Control and Treatment of Occupational Diseases” in 1998-99. The National Institute of Occupational Health, Ahmadabad (ICMR) has been identified as the nodal agency for the same

Pradhan Mantri National Dialysis Programme

End Stage Renal Disease continues to be a result of existing and emerging burden of non-communicable disease. Providing for renal transplant facilities for ESRD patients depends upon availability of infrastructure and robust organ donation system coupled with adequate availability of trained qualified manpower. Within the limited choices, dialysis practically remains the first and in majority of cases, the only choice for ESRD patients.

Every year about 2.2 Lakh new patients of End Stage Renal Disease (ESRD) get added in India resulting in additional demand for 3.4 Crore dialysis every year. With approximately 4950 dialysis centres, largely in the private sector in India, the demand is less than half met with existing infrastructure. Since every Dialysis has an additional expenditure tag of about Rs.2000, it results in a monthly expenditure for patients to the tune of Rs.3-4 Lakhs annually. Besides, most families have to undertake frequent trips, and often over long distances to access dialysis services incurring heavy travel costs and loss of wages for the patient and family members accompanying the patient.

Keeping this in mind, strengthening of District Hospitals by providing affordable multispecialty care including dialysis services in district hospitals would be an important step in this direction.

To gain from available capacity of private sector existing in dialysis care segment and their capability to install and operate dialysis care system in quick time, and compliment the emerging strengths of public sector such as availability of drugs and diagnostics, it has been proposed that Dialysis program be undertaken in Public Private Partnership.

Solution Strategy:

There are two main types of dialysis, which are hemodialysis and peritoneal dialysis.

1. **Hemodialysis** (HD, commonly known as blood dialysis): In HD, the blood is filtered through a machine that acts like an artificial kidney and is returned back into the body. HD needs to be performed in a designated dialysis centre. It is usually needed about 3 times per week, with each episode taking about 3-4 hours.
2. **Peritoneal dialysis** (PD, commonly known as water dialysis): In PD, the blood is cleaned without being removed from the body. The abdomen sac (lining) acts as a natural filter. A solution (mainly made up of salts and sugars) is injected into the abdomen that encourages filtration such that the waste is transferred from the blood to the solution. There are 2 types of PD - continuous ambulatory peritoneal dialysis (CAPD) and automated peritoneal dialysis (APD). CAPD needs to be done 3 to 5 times every day, but does not require a machine. APD uses an automated cyclor machine to perform 3 to 5 exchanges during the night while the patient is asleep.

Close medical supervision is not required for most PD cases, thus making it a feasible option for patients who may want to undergo dialysis in the home setting. Each treatment option has its advantages and disadvantages, which vary with the condition of the patient and presence of underlying diseases. It is therefore important for every patient with ESRD to discuss various treatment options in detail with his doctor before starting treatment.

Public Private Partnership for Hemodialysis services:

Based on consultation with experts and discussion with some of the states implementing the Dialysis program in the PPP mode, the following was considered as the ideal and cost -effective approach.

- a. It is desirable to roll out dialysis services in the states, beginning with the District Hospitals in a PPP mode. Direct provisioning by the state governments would be time consuming and likely to be costly and risky.
- b. Service Provider should provide medical human resource, dialysis machine along with RO water plant infrastructure, dialyzer and consumables.
- c. Payer Government should provide space in District Hospitals, Drugs, Power and water supply and pay for the cost of dialysis for the poor patients.

National Programme for Prevention and Management of Burn Injuries

National Programme for Prevention & Management of Burn Injuries (NPPMBI)

“Burn” is a major Public Health Problem all over the world. As per WHO report 2014, in India, over 1,000,000 people are moderately or severely burnt every year. As per the data extrapolated from the information received from 3 major Govt. Hospitals in Delhi, approx. 1.4 lakh people die of burn injuries annually. This comes to one death every 4 minutes due to burns. Moreover, unlike other injuries, Burn Injury is accompanied by trauma, scars and disfigurement, which takes years to heal both physically and psychologically. Many of the burn injury patients require psychological counseling as well as physiotherapeutic rehabilitation and repeated plastic surgeries for many years, thus, augmenting their financial hardship.

However, the death and disability due to burn injury are preventable to a great extent if timely and appropriate treatment is provided by trained personnel. Unfortunately, most of the burn victims belongs to vulnerable group of the society, who fail to receive appropriate treatment as, in most part of India, there is no availability of treatment facilities which provide specific treatment for burn injuries.

Under such circumstances, and keeping in view the rising number of deaths due to burn injuries, a project was initiated during the 11th Five Year Plan by the Directorate General of Health Services, Ministry of Health & Family Welfare, for development of burn units in identified Medical Colleges and District Hospitals. The project is now being continued as a full-fledged National Programme in the name of “***National Programme for Prevention & Management of Burn Injuries (NPPMBI)***” during the 12th Five Year Plan.

Objectives of the programme

- To reduce incidence, mortality, morbidity and disability due to Burn Injuries.
- To improve the awareness among the general masses and vulnerable groups especially the women, children, industrial and hazardous occupational workers.
- To establish adequate network of infrastructural facilities along with trained personnel for burn management and rehabilitation.
- To carry out research for assessing behavioral, social and other determinants of Burn Injuries in our country for effective need based program planning for Burn Injuries, monitoring and subsequent evaluation.

Health system strengthening programs

Ayushman Bharat Yojana

Ayushman Bharat or “Healthy India” is a national initiative launched by Prime Minister Narendra Modi as the part of National Health Policy 2017, in order to achieve the vision of Universal Health Coverage (UHC). This initiative has been designed on the lines as to meet SDG and its underlining commitment, which is “leave no one behind”.

Ayushman Bharat is an attempt to move from sectoral and segmented approach of health service delivery to a comprehensive need-based health care service. Ayushman Bharat aims to undertake path breaking interventions to holistically address health (covering prevention, promotion and ambulatory care), at primary, secondary and tertiary level.

Ayushman Bharat adopts a continuum of care approach, comprising of two inter-related components, which are -

Establishment of Health and Wellness Centres

Pradhan Mantri Jan Arogya Yojana (PM-JAY)

1. **Establishment of Health and Wellness Centres**—The first component, pertains to creation of 1,50,000 Health and Wellness Centres which will bring health care closer to the homes of the people. These centres will provide Comprehensive Primary Health Care (CPHC), covering both maternal and child health services and non-communicable diseases, including free essential drugs and diagnostic services.
2. **Pradhan Mantri Jan Arogya Yojana (PM-JAY)** –PM-JAY is one significant step towards achievement of Universal Health Coverage (UHC) and Sustainable Development Goal - 3 (SDG3). It aims to provide health protection cover to poor and vulnerable families against financial risk arising out of catastrophic health episodes.

Pradhan Mantri Jan Arogya Yojana (PM-JAY) will provide financial protection (Swasthya Suraksha) to 10.74 crore poor, deprived rural families and identified occupational categories of urban workers' families as per the latest Socio-Economic Caste Census (SECC) data (approx. 50 crore beneficiaries). It will have offered a benefit cover of Rs. 500,000 per family per year (on a family floater basis).

PM-JAY will cover medical and hospitalization expenses for almost all secondary care and most of tertiary care procedures. PM-JAY has defined 1,350 medical packages covering surgery, medical and day care treatments including medicines, diagnostics and transport.

To ensure that nobody is left out (especially girl child, women, children and elderly), there will be no cap on family size and age in the Mission. The scheme will be cashless & paperless at public hospitals and empaneled private hospitals. The beneficiaries will not be required to pay any charges for the hospitalization expenses. The benefit also includes pre and post-hospitalization expenses. The scheme is an entitlement based; the beneficiary is decided on the basis of family being figured in SECC database. When fully implemented, the PM-JAY will become the world's largest government funded health protection mission.

Benefits of PM-JAY

Beneficiary Level -

- Government provides health insurance cover of up to Rs. 5,00,000 per family per year.
- More than 10.74 crore poor and vulnerable families (approximately 50 crore beneficiaries) covered across the country.
- All families listed in the SECC database as per defined criteria will be covered. No cap on family size and age of members.
- Priority to girl child, women and senior citizens.
- Free treatment available at all public and empanelled private hospitals in times of need.
- Covers secondary and tertiary care hospitalization.
- 1,350 medical packages covering surgery, medical and day care treatments cost of medicines and diagnostics.
- All pre-existing diseases covered. Hospitals cannot deny treatment.
- Cashless and paperless access to quality health care services.
- Hospitals will not be allowed to charge any additional money from beneficiaries for the treatment.
- Eligible beneficiaries can avail services across India, offering benefit of national portability. Can reach out for information, assistance, complaints and grievances to a 24X7 helpline number - 14555

Health System –

- Help India progressively achieve Universal Health Coverage (UHC) and Sustainable Development Goals (SDG).
- Ensure improved access and affordability, of quality secondary and tertiary care services through a combination of public hospitals and well measured strategic purchasing of services in health care deficit areas, from private care providers, especially the not-for profit providers.
- Significantly reduce out of pocket expenditure for hospitalization. Mitigate financial risk arising out of catastrophic health episodes and consequent impoverishment for poor and vulnerable families.
- Acting as a steward, align the growth of private sector with public health goals.
- Enhanced use of evidence-based health care and cost control for improved health outcomes.
- Strengthen public health care systems through infusion of insurance revenues.
- Enable creation of new health infrastructure in rural, remote and under-served areas.
- Increase health expenditure by Government as a percentage of GDP.
- Enhanced patient satisfaction.
- Improved health outcomes.
- Improvement in population-level productivity and efficiency
- Improved quality of life for the population

Pradhan Mantri Swasthya Suraksha Yojana (PMSSY)

The Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) aims at correcting the imbalances in the availability of affordable healthcare facilities in the different parts of the country in general, and augmenting facilities for quality medical education in the under-served States in particular. The scheme was approved in March 2006.

The first phase in the PMSSY has two components - setting up of six institutions in the line of AIIMS; and upgradation of 13 existing Government medical college institutions.

It has been decided to set up 6 AIIMS-like institutions, one each in the States of Bihar (Patna), Chattisgarh (Raipur), Madhya Pradesh (Bhopal), Orissa (Bhubaneswar), Rajasthan (Jodhpur) and Uttaranchal (Rishikesh) at an estimated cost of Rs 840 crores per institution. These States have been identified on the basis of various socio-economic indicators like human development index, literacy rate, population below poverty line and per capital income and health indicators like population to bed ratio, prevalence rate of serious communicable diseases, infant mortality rate etc. Each institution will have a 960 bedded hospital (500 beds for the medical college hospital; 300 beds for Speciality/Super Speciality; 100 beds for ICU/Accident trauma; 30 beds for Physical Medicine & Rehabilitation and 30 beds for Ayush) intended to provide healthcare facilities in 42 Speciality/Super-Speciality disciplines. Medical College will have 100 UG intake besides facilities for imparting PG/doctoral courses in various disciplines, largely based on Medical Council of India (MCI) norms and also nursing college conforming to Nursing Council norms.

In addition to this, 13 existing medical institutions spread over 10 States will also be upgraded, with an outlay of Rs. 120 crores (Rs. 100 crores from Central Government and Rs. 20 crores from State Government) for each institution. These institutions are Government Medical College, Jammu, Jammu & Kashmir Government Medical College, Srinagar, Jammu & Kashmir, Kolkatta Medical College, Kolkatta, West Bengal, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, Uttar Pradesh, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh, Nizam Institute of Medical Sciences, Hyderabad, Andhra Pradesh, Sri Venkateshwara Institute of Medical Sciences, Tirupati, Andhra Pradesh, Government Medical College, Salem, Tamil Nadu, B.J. Medical College, Ahmedabad, Gujarat, Bangalore Medical College, Bangalore, Karnataka, Government Medical College, Thiruvananthapuram, Kerala, Rajendra Institute of Medical Sciences (RIMS), Ranchi and Grants Medical College & Sir J.J. Group of Hospitals, Mumbai, Maharashtra.

In the second phase of PMSSY, the Government has approved the setting up of two more AIIMS-like institutions, one each in the States of West Bengal and Uttar Pradesh and upgradation of six medical college institutions namely Government Medical College, Amritsar, Punjab; Government Medical College, Tanda, Himachal Pradesh; Government Medical College, Madurai, Tamil Nadu; Government Medical College, Nagpur, Maharashtra, Jawaharlal Nehru Medical College of Aligarh Muslim University, Aligarh and Pt. B.D. Sharma Postgraduate Institute of Medical Sciences, Rohtak. The estimated cost for each AIIMS-like institution is Rs. 823 crore. For upgradation of medical college institutions, Central Government will contribute Rs. 125 crore each.

In the third phase of PMSSY, it is proposed to upgrade the following existing medical college institutions namely Government Medical College, Jhansi, Uttar Pradesh; Government Medical College, Rewa, Madhya Pradesh; Government Medical College, Gorakhpur, Uttar Pradesh; Government Medical College, Dharbanga, Bihar; Government Medical College, Kozhikode, Kerala; Vijaynagar Institute of Medical Sciences, Bellary, Karnataka and Government Medical College, Muzaffarpur, Bihar.

The project cost for upgradation of each medical college institution has been estimated at Rs. 150 crores per institution, out of which Central Government will contribute Rs. 125 crores and the remaining Rs. 25 crore will be borne by the respective State Governments.

It is hoped that consequent to the successful implementation of PMSSY, better and affordable healthcare facilities will be easily accessible to one and all in the country.

‘LaQshya’ programme (Labour Room Quality Improvement Initiative)

After launch of the National Health Mission (NHM), there has been substantial increase in the number of institutional deliveries. However, this increase in the numbers has not resulted into commensurate improvements in the key maternal and new-born health indicators. It is estimated that approximately 46% maternal deaths, over 40% stillbirths and 40% newborn deaths take place on the day of the delivery. A transformational change in the processes related to the care during the delivery, which essentially relates to intrapartum and immediate postpartum care, is required to achieve tangible results within short period of time. Prerequisite of such approach would also hinge upon the health system’s preparedness for prompt identification and management of maternal and newborn complications.

‘LaQshya’ programme of the Ministry of Health and Family Welfare aims at improving quality of care in labour room and maternity Operation Theatre (OT).

Goal - To reduce preventable maternal and newborn mortality, morbidity and stillbirths associated with the care around delivery in Labour room and Maternity OT and ensure respectful maternity care.

Objectives -

1. To reduce maternal and newborn mortality & morbidity due to APH, PPH, retained placenta, preterm, preeclampsia & eclampsia, obstructed labour, puerperal sepsis, newborn asphyxia, and sepsis, etc.
2. To improve Quality of care during the delivery and immediate post-partum care, stabilization of complications and ensure timely referrals, and enable an effective two-way follow-up system.
3. To enhance satisfaction of beneficiaries visiting the health facilities and provide Respectful Maternity Care (RMC) to all pregnant women attending the public health facility.

Strategies –

1. Reorganizing/aligning Labour room & Maternity Operation Theatre layout and workflow as per ‘Labour Room Standardization Guidelines’ and ‘Maternal & Newborn Health Toolkit’ issued by the Ministry of Health & Family Welfare, Government of India.
2. Ensuring that at least all government medical college hospitals and high case-load district hospitals have dedicated obstetric HDUs (High Dependency Units) as per GoI MOHFW Guidelines, for managing complicated pregnancies that require life-saving critical care.
3. Ensuring strict adherence to clinical protocols for management and stabilization of the complications before referral to higher centres.

National Health mission

National Health Mission (NHM) was launched by the government of India in 2013 subsuming the National Rural Health Mission and National Urban Health Mission. It was further extended in March 2018, to continue till March 2020.

The main programmatic components include Health System Strengthening in rural and urban areas for - Reproductive-Maternal- Neonatal-Child and Adolescent Health (RMNCH+A), and Communicable and Non-Communicable Diseases. The NHM envisages achievement of universal access to equitable, affordable & quality health care services that are accountable and responsive to people's needs.

The National Health Mission seeks to ensure the achievement of the following indicators: -

- Reduce MMR to 1/1000 live births
- Reduce IMR to 25/1000 live births
- Reduce TFR to 2.1

- Prevention and reduction of anemia in women aged 15–49 years
- Prevent and reduce mortality & morbidity from communicable, non- communicable; injuries and emerging diseases
- Reduce household out-of-pocket expenditure on total health care expenditure
- Reduce annual incidence and mortality from Tuberculosis by half
- Reduce prevalence of Leprosy to <1/10000 population and incidence to zero in all districts
- Annual Malaria Incidence to be <1/1000
- Less than 1 per cent microfilaria prevalence in all districts
- Kala-azar Elimination by 2015, <1 case per 10000 population in all blocks

Ayushman Bharat Digital Mission (ABDM)

- **Introduction**
- **Vision**
- **Guiding principles**
- **ABDM components**
- **Opportunities**
- **Benefits**

Introduction

The Ministry of Health and Family Welfare, Government of India has formulated the Ayushman Bharat Digital Mission with the aim to provide the necessary support for the integration of digital health infrastructure in the country. This visionary initiative, stemming from the National Health Policy, 2017 intends to digitize healthcare in India.

National Health Authority (NHA) has been entrusted with the role of designing strategy, building technological infrastructure and implementation of Ayushman Bharat Digital Mission. NHA is also apex body for implementation of Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana” (AB-PMJAY). The ABDM is a collaborative initiative between many ministries/departments.

Vision

Its vision is to create a national digital health ecosystem that supports universal health coverage in an efficient, accessible, inclusive, affordable, timely and safe manner and a seamless online platform through the provision of a wide range of data, information and infrastructure services, duly leveraging open, interoperable, standards-based digital systems, and ensures the security, confidentiality and privacy of health-related personal information.

Guiding principles

The ABDM has been designed, developed, deployed, operated and maintained by the Government following the guiding principles as laid out in National Digital Health Blueprint (NDHB).

ABDM Components

Health ID:

It is important to standardize the process of identification of an individual across healthcare providers. Health ID will be used to uniquely identify persons, authenticate them, and threading their health records (only with the informed consent of the patient) across multiple systems and stakeholders.

Health ID is created by using basic details and mobile number or Aadhaar number and it will be unique to a person. Health ID can be obtained with the support of healthcare provider who is in the national health infrastructure registry or it can be obtained by self-registration from a mobile or a web application. [Create Health ID](#)

Healthcare Professionals Registry (HPR)

Healthcare Professionals Registry is a comprehensive repository of all healthcare professionals involved in delivery of healthcare services across both modern and traditional systems of medicine. Enrolling in the Healthcare Professionals Registry will enable them to get connected to India's digital health ecosystem. [Register for HPR](#)

Health Facility Registry (HFR):

It is a comprehensive repository of health facilities of the country across different systems of medicine. It includes both public and private health facilities including hospitals, clinics, diagnostic laboratories and imaging centers, pharmacies, etc. Enrolling in the Health Facility Registry will enable them to get connected to India's digital health ecosystem. [Register for HFR](#)

Personal Health Records (PHR):

A personal health record, or PHR, is an electronic application through which patients can maintain and manage their health information (and that of others for whom they are authorized) in a private, secure, and confidential environment. The citizens can get a longitudinal view of the personal health record by creating and linking the health ID with the visited health care facilities. ABDM Health Records (PHR) mobile application -Key features:

- Option to create a unique Health ID to manage the health records.
- Option to link the health ID with various health care facilities including Hospital, Clinic and Labs.
- Option to request the health data from the linked health care facilities on to the phone and have a longitudinal view of the health data at the finger tips.
- Option to deny or grant permission, if any doctors, labs or clinics request to view the health data. [Download App](#)

Opportunities

- The current strong public digital infrastructure provides opportunities to streamline healthcare information through digital management.
- The experience of AB-PMJAY can be leveraged to expand the reach of digital health to all residents and develop an open and inter-operable health management system that empowers residents, healthcare providers, the Government and researchers.
- Emerging technologies such as artificial intelligence, the internet of things (IoT), blockchain and cloud computing provide additional opportunities for facilitating a more holistic digital health ecosystem, that can increase the equitable access to health services, improve health outcomes and reduce costs.

Benefits

- The implementation of ABDM is expected to significantly improve the efficiency, effectiveness, and transparency of health service delivery overall. Patients will be able to securely store and access their medical records (such as prescriptions, diagnostic reports and discharge summaries), and share them with health care providers to ensure appropriate treatment and follow-up.
- People will also have access to more accurate information on health facilities and service providers. Further, they will have the option to access health services remotely through tele-consultation and e-pharmacy.
- ABDM will provide choice to individuals to access both public and private health services, facilitate compliance with laid down guidelines and protocols, and ensure transparency in the pricing of services and accountability for the health services being rendered.
- Similarly, health care professionals across disciplines will have better access to the patient's medical history (with the necessary informed consent) for prescribing more appropriate and effective health interventions.
- The integrated ecosystem will also enable a better continuum of care. ABDM will help digitize the claims process and enable faster reimbursement.
- At the same time, policy-makers and programme managers will have better access to data, enabling more informed decision making by the Government.
- Better quality of macro and micro-level data will enable advanced analytics, usage of health-biomarkers and better preventive healthcare. It will also enable geography and demography-based monitoring and appropriate decision making to form design and strengthen implementation of health programmes and policies.
- Finally, researchers will greatly benefit from the availability of such aggregated information as they will be able to study and evaluate the effectiveness of various programmes and interventions. ABDM would facilitate a comprehensive feedback loop between researchers, policymakers, and providers.

By establishing a comprehensive, nationwide integrated digital health ecosystem, ABDM will contribute significantly to achieving the goals of National Health Policy 2017 and the SDGs related to health. ABDM will mark a new beginning for the Indian digital healthcare ecosystem, enabling more effective delivery of healthcare services and moving towards health to all.

PM Ayushman Bharat Health Infrastructure Mission

The PM Ayushman Bharat Health Infrastructure Mission is one of the largest Pan-India health schemes for strengthening healthcare infrastructure. It was launched on 25 October 2021 to accomplish the vision of comprehensive healthcare across the country. The PM Ayushman Bharat Health Infrastructure Mission was announced in the Budget 2021-22 with an outlay of ₹64,180 crore.

Objective: To fill the critical gaps in public health infrastructure, especially in critical care facilities and primary care in both the urban and rural areas.

There are 3 major aspects:

1. The first aspect is to strengthen grass root public health institutions to deliver universal comprehensive primary health care and critical care services related to the creation of elaborate facilities for diagnostics and treatment.
2. The second aspect of the scheme is to expand and build an IT enabled disease surveillance system by developing a network of surveillance laboratories at block, district, regional and national levels, Points of Entry and in Metropolitan areas, for effectively detecting, investigating, preventing and combating Public Health Emergencies and Disease Outbreaks.
3. The third aspect is the expansion of research on COVID-19 and other infectious diseases and to develop the core capacity to deliver the One Health Approach to prevent, detect, and respond to infectious disease outbreaks in animals and humans.

Components:

The PM Ayushman Bharat Health Infrastructure Mission consists of Centrally Sponsored Scheme Components and some Central Sector Components. These are:

Centrally Sponsored Scheme (CSS) Components: (2021-22 to 2025-26) over five years)

- A. **Ayushman Bharat - Health & Wellness Centres (AB-HWCs) in rural areas:** Support for infrastructure development for 17788 Sub-Health Centres is proposed in 7 High Focus States (Bihar, Jharkhand, Odisha, Punjab, Rajasthan, Uttar Pradesh and West Bengal) and 3 North Eastern States (Assam, Manipur and Meghalaya).
- B. **Ayushman Bharat - Health & Wellness Centres (AB-HWCs) in Urban areas:** Support for 11044 Urban Health & Wellness Centres across the country is proposed under this component.
- C. **Block Public Health Units (BPHUs):** Support for 3382 BPHUs in 11 High Focus States/ UTs (Assam, Bihar, Chhattisgarh, Himachal Pradesh, UT - Jammu and Kashmir, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand), is proposed under this component
- D. **Integrated District Public Health Laboratories** in all districts.
- E. **Critical Care Hospital Blocks** in all districts with a population more than 5 lakhs, in State Government Medical Colleges / District Hospitals.

Central Sector (CS) Components:

- A. **Critical Care Hospital Blocks** in 12 Central Institutions.
- B. **Strengthening Surveillance of Infectious Diseases and Outbreak Response:** Support for 20 Metropolitan Surveillance Units, 5 new Regional NCDCs and implementation of Integrated Health Information Platform (IHIP) in all states.
- C. **Strengthening Surveillance Capacities at Points of Entry:** Support for 17 new Points of Entry Health Units and Strengthening of 33 existing Units.
- D. **Strengthening Disaster and Epidemic Preparedness:** Support for 15 Health Emergency Operation Centres & 2 Container based mobile hospitals.

- E. **Bio-security Preparedness and Strengthening Pandemic Research, National Institutions and Platforms for One Health:** Support for setting up of a National Institution for One Health, a Regional Research Platform for WHO South-East Asia Region, 9 Bio-Safety Level III Laboratories and 4 new Regional National Institutes of Virology (NIV).

Implementation Mechanism:

The PM Ayushman Bharat Health Infrastructure Mission is being implemented with Centrally Sponsored Scheme (CSS) and few Central Sector Components.

- a. **The CSS components** will be implemented by following the existing framework, institutions and mechanisms of the National Health Mission. This mission would leverage the existing structure of the National Health Mission (NHM) available at central and state levels for appraisal, approval, and implementation and monitoring. This will avoid duplication of funds especially with reference to the Fifteenth Finance Commission (FC-XV) Health Grants Support and NHM Support for the similar activities.

State Health Society and District Health Society established under National Health Mission (NHM) will be the implementing agency at the state and district level respectively.

The National Health Systems Resource Centre (NHSRC) would provide technical support including for capacity building, on CSS components of the scheme.

- b. **The Central Sector components** will be implemented by the central agencies/ subordinate offices/ autonomous bodies under the Department of Health & Family Welfare and the Department of Health Research, by following the existing procedure.

State Health Programmes - Maharashtra

- **Rajiv Gandhi Jeevandayee Arogya Yojana**
- The State Government of Maharashtra has launched Rajiv Gandhi Jeevandayee Arogya Yojana (RGJAY) in order to improve medical access facility for both Below Poverty Line (BPL - Yellow card holders) and Above Poverty Line (APL- orange card holders) families. This in turn will enhance the quality of medical care to BPL and APL families

E. ADMINISTRATION & MANAGEMENT

46. MEDICAL OFFICERS AS A TEAM LEADER

Leadership as a personal quality and as an organizational function consists of different entities. As a personal characteristic it enables an individual to assume leadership. Certain qualities and characteristics that some individuals have, which may be either inborn or achieved, make them leaders of men. In the latter case, leadership in an organization is to be considered as a positional characteristic wherein the distribution of decision-making process and patterns of authority make an individual a leader of men. The process of leadership involves influencing the behavior of an individual or a group. It is the art of getting other people to follow you and to willingly do things that you want them to do." Leadership is the ability to influence the activities of an individual or a group, inspire and motivate them, develop confidence in them, support to achieve goals and finally raise performance.

Leadership is defined as "the process whereby one individual influences other group members towards the attainment of defined group or organizational goals."

This process is essential in an organization for achieving the organizational objectives. It is possible to identify leaders in organizations by the results which they produce and which can be appreciated. They may be associated with a high output and good performance in both quantitative and qualitative terms of the team, which they lead. The morale of the team led is of a high level with a commitment to achievement of goals, both personal and organizational, which correspond, and a high level of motivation. The team works in a spirit of co-operation and conflict may occur because of difference of opinion regarding the best way to further the achievements. Some people are born leaders and possess forceful personalities, are dominant in-groups, enthrall others and are able to persuade others into accepting their suggestions. But the interest is in knowing if it is possible by purposeful attempts to cultivate habits, develop behavioural patterns and learn to be leaders. The technical skills and the human relation skills can be developed by purposeful effort. Some learn it by trial and error and become proficient with experience. They try to cultivate and develop their potential capabilities to maximum advantage by a conscious effort. A study of profiles of leaders, dominant personality traits and ways of achieving leadership becomes an interesting exercise. Numerous studies of the common traits of leaders with reference to physical, social and intellectual characteristics have brought out interesting results. They indicate that leaders are brighter, better adjusted psychologically, have better judgement and like to have more social interactions. They have ability to command and to listen. They have strong desire to achieve a sense of mission, self-confidence and belief in their capacity to lead. They are enthusiastic, emotionally stable and energetic. Finally it has also to be conceded that there are examples of excellent leaders who lack in many of these traits and yet have been effective.

The leadership is a function of three factors:

- The leader himself
- The group members, and
- The situations or conditions

Leader's Power: The leader's influence over his or her followers is derived from various sources of power. The important sources of power of the leader, power

Enhancer, include:

- **Reward Power (Objective reward system):** Reward power refers to offering monetary or non-monetary rewards by the leader to his followers. This reward should always be based on objective evaluation with an impartial intention. The rewards may include salary hike, promotions, transfers, providing fringe benefit or even praise, recognition, freedom, empowerment, genuine autonomy etc.
- **Coercive Power (Rules and procedures):** Coercive power is the ability or the capacity of the leader to coerce or punish his/her followers for carrying out the assigned tasks. This coercive power includes deferring promotion, salary reduction, demotion, transfer or retrenchment etc.

- Legitimate Power (Task clarity and satisfaction, feedback system, organizational structure, strong and self-governing team): The job of the leader gives right to the leader regarding issuing orders, work assignment, delegation of authority and responsibility to his/her subordinates in order to get the work done.
- Expert Power (Competence building): The subordinates expect the leader as a source of knowledge and skills in carrying-out their duties. They also expect timely and continuous support from their leader in the form of offering expertise that they do not have.
- Referent Power (Professionalism, spatial distance): The leader should be resourceful in terms of knowledge and skills. He/she should be capable of identifying who should be rewarded and discriminate the followers who avoid work and use his coercive power. Subordinate should like his/her extraordinary characters, abilities, qualities and skills in the leader and see him/her as their role model.

Leadership Style:

- Autocratic Style (Dictatorial Leadership): Authoritarian in attitude/gets the work done through fear. Expects subordinate to do what they are asked to do without asking any question, leads through domination and drive. Followers have no say in decision making or in implementation.
- Laissez-faire style (Free-rein Leadership): These leaders mostly avoid authority and responsibility and delegates all power and responsibilities.
- Democratic Style (Participative Style): Decentralize authority and encourage subordinates to take part in the process of decision making, implementation and usually takes decision in consultation with the subordinate, takes their suggestions.

Styles of effective leadership may be quite different. Some are authoritarian and do issuing direct orders do things. They are likely to have problems of morale and do not promote initiative. Some are democratic and involve followers in decision-making. But this process requisite time. It also assumes that followers have the requisite knowledge and skill to participate in decision-making. This may not be always true. Some leaders project themselves in a low profile, present what is, to be accomplished and leave it to the followers to find ways of achieving objectives. This style is suitable for professionals and intellectuals but may produce chaos if followers are not capable.

Obviously there cannot be only one or ideal style of leadership. A lot would depend upon the characteristics of the followers as well as the situation. What is effective in one set of circumstances may not be effective or appropriate in another set. A professor of public health who with his mild manners is able to talk to a group of health officers and sway their opinions, making them agree to his line of thinking may be totally ineffective as a leader of health inspectors or workers. People in the lower category of hierarchy may be better led by one who issues clear-cut, unambiguous and direct orders. Leaders of thinkers may not be able to impress and be effective as leaders of "doers". The style of leadership will have to be suitable to the leader's personality also. It is difficult to put on airs and lead continuously. The basic style of behaviour will invariably be manifested.

How to be a good leader

There cannot be an infallible success formula for developing as a leader. However, some practical observations may be helpful. A sincere desire to understand people who work with him, sympathy for them and honest desire to help them is helpful. Taking care of their welfare and fair, impartial and consistent treatment is appreciated. A leader must be predictable and consistent. A good leader must also be a good follower. A medical officer of a primary health centre may be a team leader and learn to do a good job of leading but he must also be a good follower of his own leader. Respect is mutual; if one respects others, upholds their dignity and does not hurt their ego, it will be reciprocated. How an individual talks of and talks to his boss will also influence his subordinate's opinion of himself. Being loyal to followers and being loyal to one's superior win loyalty. A free and frank approach and communication is necessary. It is a good policy to admit mistakes and ignorance, for it is a sign of strength to admit not knowing all answers. A leader lets others take credit when it is their due. He is not vain or selfish. In the long run the subordinates will develop respect for qualities. The courage, ability and decisiveness will impress others. It may be necessary to make demands firmly but they can be made quietly and with decorum. It is possible to develop the state of morale in the organization in which one

does not have to shout to be heard and obeyed. A leader does not necessarily have to be popular. A superior may be friendly and popular but he may not necessarily inspire confidence and respect for himself or be a leader. A leader does not make false promises for he knows that he cannot fool all the people for all the time. Loss of credibility is loss of leadership.

Formal training in leadership

In the last two decades, training programmes for managerial development, including leadership training, have become quite fashionable and popular. The beneficial effects of training for leadership, however, seem to be doubtful. Evaluation of training programmes for leadership training, by comparing the performance of those who have undergone such training with those who have not undergone any training, has been done. Such studies have not revealed any superior performance of those who were trained. Although some of these studies attract certain methodological criticism, thereby casting a doubt on validity of results, well-planned studies have also given similar results. An awareness of the concepts of leadership, of what should or should not be done and a self-motivation to give a better performance in this regard, is expected to have some desirable benefit. Even if it is accepted that formal leadership training courses have not produced measurable changes, subjective experience indicates that an individual motivated to learn the skills of management does show a better awareness of the principles and practices them in his life.

Leadership Skills (Qualities of Leadership):

- **Personal Skills:** Developing self-awareness, determining values and priorities, decisiveness (ability to make decision), unerring judgment, identifying cognitive style
- **Responsibility:** Using the rational and creative approach, fostering innovation in others, readiness to admit his/her limitations and errors
- **Emotional stability:** Managing stress, coping with stressors
- **Obtain desired results:** Assessing attitude towards changes, managing time, delegating, solving problems creatively
- **Motivational skill:** Diagnosing poor performance, inspiring, lifting a man's vision, ability to energise his/her group, ability to guide, conduct, direct his/her team, creating a motivating environment, rewarding accomplishments
- **Conflict management:** Knowledge of human relation, diagnosing the conflicts, finding causes, developing and selecting the best strategies, resolving the confrontations
- **Communication skill:** Good listener, informing and listening, coaching and counseling
- **Technical competence:** Gaining power, exercise influence, empowering others, self-confidence etc.
- **Interpersonal skills:** Giving due respect to subordinates, clarity of vision, participative management skill
- **Good public relation**
- **Media Management**

JOB RESPONSIBILITIES OF MEDICAL OFFICER

Duties of Medical Officer

If there is more than one Medical Officer, the senior most will be in charge of the PHC and will be fully responsible for the administration. The area of the Centre should be divided amongst themselves on a sub-center / geographical basis, and each will be responsible for all the activities under the national and local health and family welfare programmes, and health development.

1) Medical or Curative Work-

1. To organize and manage the dispensary, outpatient clinic, indoor beds, and allot duties to other staff to ensure smooth running of the PHC in all its functions and purposes.

2. To arrange suitably for distribution of work in the treatment of emergency cases which come outside the usual hours of the O.P.D.
3. To organize and develop laboratory services for diagnostic and follow-up purposes.
4. To organize and arrange out-reach services for treatment of minor ailments and injuries at community level in the villages and hamlets, sub-centres and PHC through the Community Health Officer, Health Workers, Health Assistants, and others.
5. To attend to the cases referred by paramedical and auxiliary staff of the PHC, and the HGs/CHWs, dais, teachers, etc.
6. To examine and screen patients who need specialized medical or surgical attention, including dental and nursing care, and refer them in time to appropriate hospital / institution.
7. To train and guide all his staff, health guides, community health workers, dais, school teachers, etc., in the treatment of minor ailments and injuries, and first-aid.
8. To co-operate and co-ordinate with other institutions and organizations, private practitioners etc., who provide medical and health care services in his area.
9. To visit each sub-centre in his area. Frequency of Medical Officer's visits at the subcentre: Every subcentre to be visited at least once every month. If two Medical Officers are posted, the subcentres should be divided amongst the two. If only one Medical Officer is posted, he should visit the subcenter in the afternoon. PHC vehicle or public transport is used for the visit. A board indicating the day and time of the visit to be displayed at the subcentre. Subcentre staff are expected to stay at the headquarters on the day of the Medical Officer's visit.

The following activities are to be performed during the visit:

1. Meeting the Sarpanch, members of the village panchayat and functionaries of the other departments.
2. Conducting OPD.
3. Examination and IEC activities in the Ashram schools.
4. Supervision
5. Examination of TB and Leprosy patients.
6. Motivating resistant couples for Family Planning
7. Visit to the Village Panchayat for assessing the registration of vital events.
8. Visit to the anganwadi for guidance and examination of children with Grade I and Grade II malnutrition.
9. Examination of high risk mothers and children.
10. Problem solving

A note in triplicate on the work done during the visits be prepared; one copy to the DHO, one to the concerned ANM and one for filing in the office.

2) Preventive and Promotive Work-

He has to train, guide and ensure that all the members of his staff are fully conversant and clear about the objectives and all activities of various national and local health and family welfare programmes. They should also know their area and all the programme activities. He has to prepare operational plans, calendar and fixed and other programme of work for all his staff with a view to ensure that different health programmes are effectively and efficiently implemented. He has to keep close liaison with the Block Development Officer and his staff, community leaders, voluntary and non-Governmental agencies, school teachers, etc. to actively involve them in the promotion of various health and development programmes in the area and to seek community participation.

He has to conduct field investigations to identify local health needs and problems, to find out local determinants and possible solutions, to study epidemics and other unusual happenings with a view to control and prevent them, and to generate data and information that will assist better delivery and/or planning health and family welfare services.

1. National Family Welfare Programme -

- a. To be responsible for effective implementation, including education and training, motivation, delivery of the services, and follow-up.
- b. To provide immediate and sustained attention to any complication or adverse effect occurring due to acceptance of any of the family planning methods.
- c. To motivate and encourage motivational advice to all the eligible persons / couples.
- d. To get trained and acquire proficiency in tubectomy and vasectomy operations, IUD insertions, M.T.P. and M.R. (Menstrual Regulation), organization of tubectomy and vasectomy camps, etc. To undertake this work at his PHC.
- e. To seek help from other agencies, centres and experts for sterilization operations, M.T.P, IUD insertions.
- f. To learn communication techniques, to improve leadership capabilities, to co-operate and maintain functional relationship with other organizations and local leaders so as to promote family welfare movement and acceptance of small family norm,
- g. To encourage and assist local private medical (of all systems) practitioners in implementation and promotion of the Family Welfare Programme.

2. Maternal and Child Health -

- a. To direct and provide services such as antenatal, natal and postnatal care to women; and infant and child care through O.P.D and special clinics regularly conducted at the PHC and sub-centers. It is desirable to conduct such clinics in remote and inaccessible villages, say once in two months at least.
- b. To ensure detection and special care as may be indicated to high-risk mothers, infants and children.
- c. To ensure successful implementation of National Programmes for Prevention of Nutritional Anaemia and of Prevention of Blindness through administration of the iron and folic acid tablets, and vitamin A doses, respectively, in adequate quantities and period to all the needy women and children.
- d. To treat all maternal and child cases, complicated or otherwise, referred by the Health Workers, Health Assistants, Dais etc.
- e. To maintain a tidy and clean delivery room, properly furnished, equipped, lighted, and readily available.
- f. To examine and screen cases that need specialist care, and to refer them in time to appropriate hospital or specialist.

3. Universal Immunization Programme -

- a. To plan and implement the programme according to the latest directive and guidelines, and ensure full protection of the target population of the women, infants and children.
- b. To procure and ensure adequate and timely supply of various vaccines and other items required, at places of immunization sessions.
- c. To ensure maintenance of the Cold Chain to ensure that potency of the vaccines is retained till administered.
- d. To treat promptly the cases of complications and adverse reactions following immunization.

4. National Malaria Eradication Programme -

- a. To be responsible for all administrative and technical activities for effective implementation of NMEP

- b. To get acquainted with all difficulties and problems regarding insecticide spray and surveillance operations in the PHC area, and to take necessary corrective measures immediately.
 - c. To train and guide the field and other concerned staff on all treatment schedules such as for presumptive treatment of fever cases, and radical treatment for the cases which are blood-smear positive. To learn management and treatment of cerebral malaria, and to treat cases of cerebral malaria as and when they come.
 - d. To investigate all outbreaks of malaria, i.e. more than two cases in a day at one place /village.
 - e. To check laboratory work for diagnosis, and ensure that the prescribed percentage of slides are sent to the designated laboratory / authority for cross - check.
 - f. To supervise maintenance of accounts of the microscopy slides, antimalarial drugs, etc.
 - g. To ensure follow-up of treatment of malaria positive cases.
- 5. Control of Communicable Diseases -**
- a. To ensure that strict surveillance is maintained for the control of common communicable disease.
 - b. To promote improvement of sanitary condition and proper maintenance of sanitary facilities in villages.
 - c. To investigate and act promptly in case of any outbreak of an epidemic in his area.
 - d. To maintain accurate and up-dated data on mortality and morbidity data on the common communicable diseases in his area.
- 6. National Leprosy Eradication Programme -**
- a. To be responsible for effective implementation of NLEP in the PHC area.
 - b. To provide facilities for early detection of cases, confirmation of diagnosis, and treatment, c. To ensure regular procurement and supplies of drugs, d. To ensure follow-up of all cases for regular and complete treatment.
 - c. To examine and screen cases who require physio-therapy, reconstructive surgery or rehabilitation, and to refer them to an appropriate centre / hospital or specialist.
- 7. National Tuberculosis Control Programme -**
- a. To be responsible for all activities for effective implementation for the national programme.
 - b. To provide facilities and ensure early detection, confirmation of diagnosis, and treatment.
 - c. To ensure follow-up of all cases to ensure that they take treatment regularly and completely till declared as cured.
- 8. Control of Sexually Transmitted Diseases and AIDS -**
- a. To provide facilities and ensure that all cases of STD are diagnosed and treated properly.
 - b. To provide facilities or referral for confirmation of diagnosis and / or screening. It is necessary that VDRL test is done in all antenatal cases.
 - c. To know the nearest laboratory where testing for AIDS is possible. Such a testing is important before blood transfusion.
- 9. School Health -**
- a. To organize health inspection of the schools in the area.
 - b. To arrange for medical check-up of school children, immunization, detection of physical and other defects and treatment, and follow-up and referral support.
- 10. National Programme for Prevention of Visual Impairment and Control of Blindness -**
- a. To arrange for testing of vision, refraction and provision of spectacles.
 - b. To ensure prompt treatment of eye ailments.
 - c. To examine and refer suitable cases for specialist care to appropriate hospital expert.

11. National Diarrhoea! Diseases Control Programme -

- a. To organize and provide facilities for early detection of cases of watery diarrhoea, dysentery, etc.
- b. To promote use of oral rehydration solution, etc., by way of education and training of health staff and mothers,
- c. To examine and treat cases which come or are referred to sub-centres or PHC, or refer for specialized care to a hospital or an expert.

12. Control of Acute Respiratory Infections -

- a. To organize and ensure early detection of pneumonia in young children by the field staff and parents by way of educating and training them.
- b. To organize and facilitate home treatment of cold and cough, and mild pneumonias. This could be only supportive care or use of an antibiotic.
- c. To examine and treat cases of severe pneumonia that come or are referred to PHC with antibiotic treatment, and to refer them for specialized care to a hospital or an expert.

3) Training and Continuing Education -

- a. To organize and conduct staff meetings every month on a fixed day and time and review the work and progress made by each member of the staff, to understand and solve difficulties of the staff, to identify and solve problems, and to plan the next programme for action. To use the monthly review meetings for specific guidance. Generally, the weaknesses and gaps in the knowledge and skills are revealed in the course of such meetings. Correction of these provides a useful learning opportunity to the staff.
- b. To organize periodical training programmes with the help of the senior staff and District level staff. Updating and new programmes may be covered.
- c. To organize training programmes and inform the local leaders, dais, health guides and volunteers so that they can serve as effective communications to the people. They will be best agents for change, d. To select and periodically send staff for training at the Health and Family Welfare Training Centre, or other places

4) Administrative Work -

- a. To provide leadership to his team of staff and the people.
- b. To supervise and direct the work of all the staff working under him.
- c. To ensure good house-keeping and general cleanliness inside and outside the premises of PHC and sub-centres; and proper maintenance of all equipments and materials under his charge.
- d. To maintain up-to-date inventory and stock registers of all the stores, equipments and supplies provided / procured. To be responsible for correct accounting of all these items.
- e. To procure and ensure adequate, regular and timely supplies of equipments, drugs, contraceptives, educative materials, and other supplies required for efficient delivery of the services.
- f. To prepare indents for supply of drugs, instruments, linen, vaccines, contraceptives, chemicals, petty and miscellaneous supplies etc., sufficiently in advance, and submit to appropriate higher authority.
- g. To maintain the transport jeep, etc., in his charge.
- h. To plan and periodically scrutinize the working of his staff and suggest changes, if necessary, to improve performance and suit the priorities of work.
- i. To get prepared and display maps and charts in his office room to exhibit clearly the geographical area of the PHC, locations and areas of the sub-centres, morbidity and mortality rates for last two

years and the current year, other health and demographic information, and performance under various health and family welfare programmes.

- j. To conduct monthly staff meeting with a view to review and evaluate the progress of work, and taking steps to further improve coverage, quality and effectiveness.
- k. To ensure regular and timely supplies of medicines and honorarium etc., to Health Guides and Dais.
- l. To properly constitute village and block level Health Committees and ensure that they are functional.
- m. To ensure maintenance of the prescribed registers and records at the PHC and the sub-centres. These should be made accurate, up-to-date and reliable by thorough checks, cross-checks and utilization.
- n. To ensure that he gets reports of the work done and happenings in the PHC area from all his staff regularly and in time, get these reports compiled, and send to the District Health Authorities on time. Such monthly reports should be studied by him and used for better management of the PHC work.
- o. To maintain personal diary of his visits and work. Relevant information should be included in monthly report of the PHC.
- p. To discharge all the financial duties entrusted to him.
- q. To discharge all the day-to-day administrative functions pertaining to the PHC and the people

47. NATIONAL HEALTH POLICY 2017

The National Health Policy of 1983 and the National Health Policy of 2002 have served well in guiding the approach for the health sector in the Five-Year Plans. The current context has however changed in four major ways. First, the health priorities are changing. Although maternal and child mortality have rapidly declined, there is growing burden on account of non-communicable diseases and some infectious diseases. The second important change is the emergence of a robust health care industry estimated to be growing at double digit. The third change is the growing incidences of catastrophic expenditure due to health care costs, which are presently estimated to be one of the major contributors to poverty. Fourth, a rising economic growth enables enhanced fiscal capacity. Therefore, a new health policy responsive to these contextual changes is required.

The National Health Policy, 2017 (NHP, 2017) seeks to reach everyone in a comprehensive integrated way to move towards wellness. It aims at achieving universal health coverage and delivering quality health care services to all at affordable cost.

Goal

The policy envisages as its goal the attainment of the highest possible level of health and well-being for all at all ages, through a preventive and promotive health care orientation in all developmental policies, and universal access to good quality health care services without anyone having to face financial hardship as a consequence. This would be achieved through increasing access, improving quality and lowering the cost of healthcare delivery.

Objectives

Improve health status through concerted policy action in all sectors and expand preventive, promotive, curative, palliative and rehabilitative services provided through the public health sector with focus on quality.

Specific Quantitative Goals and Objectives

Health Status and Programme Impact

1. Life Expectancy and healthy life

- Increase Life Expectancy at birth from 67.5 to 70 by 2025.
- Establish regular tracking of Disability Adjusted Life Years (DALY) Index as a measure of burden of disease and its trends by major categories by 2022.
- Reduction of TFR to 2.1 at national and sub-national level by 2025.

2. Mortality by Age and/ or cause

- Reduce Under Five Mortality to 23 by 2025 and MMR from current levels to 100 by 2020.
- Reduce infant mortality rate to 28 by 2019.
- Reduce neo-natal mortality to 16 and still birth rate to “single digit” by 2025.

3. Reduction of disease prevalence/ incidence

- Achieve global target of 2020 which is also termed as target of 90:90:90, for HIV/AIDS i.e., - 90% of all people living with HIV know their HIV status, - 90% of all people diagnosed with HIV infection receive sustained antiretroviral therapy and 90% of all people receiving antiretroviral therapy will have viral suppression.
- Achieve and maintain elimination status of Leprosy by 2018, Kala-Azar by 2017 and Lymphatic Filariasis in endemic pockets by 2017.
- To achieve and maintain a cure rate of >85% in new sputum positive patients for TB and reduce incidence of new cases, to reach elimination status by 2025.

- To reduce the prevalence of blindness to 0.25/ 1000 by 2025 and disease burden by one third from current levels.
- To reduce premature mortality from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases by 25% by 2025.

Health Systems Performance

1. Coverage of Health Services

- Increase utilization of public health facilities by 50% from current levels by 2025.
- Antenatal care coverage to be sustained above 90% and skilled attendance at birth above 90% by 2025.
- More than 90% of the newborn are fully immunized by one year of age by 2025.
- Meet need of family planning above 90% at national and sub national level by 2025.
- 80% of known hypertensive and diabetic individuals at household level maintain "controlled disease status" by 2025.

2. Cross Sectoral goals related to health

- Relative reduction in prevalence of current tobacco use by 15% by 2020 and 30% by 2025.
- Reduction of 40% in prevalence of stunting of under-five children by 2025.
- Access to safe water and sanitation to all by 2020 (Swachh Bharat Mission).
- Reduction of occupational injury by half from current levels of 334 per lakh agricultural workers by 2020.
- National/ State level tracking of selected health behaviour.

Health Systems strengthening

1. Health finance

- Increase health expenditure by Government as a percentage of GDP from the existing 1.15 % to 2.5 % by 2025.
- Increase State sector health spending to > 8% of their budget by 2020.
- Decrease in proportion of households facing catastrophic health expenditure from the current levels by 25%, by 2025.

2. Health Infrastructure and Human Resource

- Ensure availability of paramedics and doctors as per Indian Public Health Standard (IPHS) norm in high priority districts by 2020.
- Increase community health volunteers to population ratio as per IPHS norm, in high priority districts by 2025.
- Establish primary and secondary care facility as per norms in high priority districts (population as well as time to reach norms) by 2025.

3. Health Management Information

- Ensure district - level electronic database of information on health system components by 2020.
- Strengthen the health surveillance system and establish registries for diseases of public health importance by 2020.
- Establish federated integrated health information architecture, Health Information Exchanges and National Health Information Network by 2025.

Policy thrust

- 1. Ensuring Adequate Investment** - The policy proposes a potentially achievable target of raising public health expenditure to 2.5% of the GDP in a time bound manner.
- 2. Preventive and Promotive Health** - The policy identifies coordinated action on seven priority areas for improving the environment for health:
 - The Swachh Bharat Abhiyan

- Balanced, healthy diets and regular exercises.
 - Addressing tobacco, alcohol and substance abuse
 - Yatri Suraksha – preventing deaths due to rail and road traffic accidents
 - Nirbhaya Nari – action against gender violence
 - Reduced stress and improved safety in the work place
 - Reducing indoor and outdoor air pollution
3. **Organization of Public Health Care Delivery** - The policy proposes seven key policy shifts in organizing health care services.

SDG



What are the Sustainable Development Goals?

The Sustainable Development Goals (SDGs), otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity.

These 17 Goals build on the successes of the MDGs, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another.

The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations. They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They tackle the root causes of poverty and unite us together to make a positive change for both people and planet. “Poverty eradication is at the heart of the 2030 Agenda, and so is the commitment to leave no-one behind,” UNDP Administrator Achim Steiner said. “The Agenda offers a unique opportunity to put the whole world on a more prosperous and sustainable development path. In many ways, it reflects what UNDP was created for.”

What is UNDP's role?

The SDGs came into effect in January 2016, and they will continue guide UNDP policy and funding for the next 15 years. As the lead UN development agency, UNDP is uniquely placed to help implement the Goals through our work in some 170 countries and territories.

Our strategic plan focuses on key areas including poverty alleviation, democratic governance and peacebuilding, climate change and disaster risk, and economic inequality. UNDP provides support to governments to integrate the SDGs into their national development plans and policies. This work is already underway, as we support many countries in accelerating progress already achieved under the Millennium Development Goals.

Our track record working across multiple goals provides us with a valuable experience and proven policy expertise to ensure we all reach the targets set out in the SDGs by 2030. But we cannot do this alone.

Achieving the SDGs requires the partnership of governments, private sector, civil society and citizens alike to make sure we leave a better planet for future generations.

48. NHM

A) National Rural Health Mission (NRHM)

The National Rural Health Mission (NRHM): Launched on April 12, 2005 seeks to provide effective health care to the entire rural population in the country with special focus on 18 states, which have weak public health indicators.

Introduction of National Rural Health Mission:

Recognizing the importance of Health in the process of economic and social development and improving the quality of life of our citizens, the Government of India has launched the National Rural Health Mission to carry out necessary architectural correction in the basic health care delivery system. The Mission adopts a synergistic approach by relating health to determinants of good health viz. segments of nutrition, sanitation, hygiene and safe drinking water. It also aims at mainstreaming the Indian Systems of Medicine (ISM) to facilitate health care. The Plan of Action includes increasing public expenditure on health, reducing regional imbalance in health infrastructure, pooling resources, integration of organizational structures, optimization of health manpower, decentralization and district management of health programmes, community participation and ownership of assets, induction of management and financial personnel into district health system, and operationalizing Community Health Centres (CHC i.e. Sub-District Hospital & Rural Hospitals) into functional hospitals meeting Indian Public Health Standards (IPHS) in each Block of the Country. The Goal of the Mission is to improve the availability of and access to quality health care by people, especially for those residing in rural areas, the poor, women and children.

State of Public Health:

- Public health expenditure in India has declined from 1.3% of GDP in 1990 to 0.9% of GDP in 1999. The Union Budgetary allocation for health is 1.3% while the State's Budgetary allocation is 5.5%.
- Union Government contribution to public health expenditure is 15% while States contribution about 85%
- Vertical Health and Family Welfare Programmes have limited synergisation at operational levels.
- Lack of community ownership of public health programmes impacts levels of efficiency, accountability and effectiveness.
- Lack of integration of sanitation, hygiene, nutrition and drinking water issues.
- There are striking regional inequalities.
- Population Stabilization is still a challenge, especially in States with weak demographic indicators.
- Curative services favour the non-poor.
- Only 10% Indians have some form of health insurance, mostly inadequate one hospitalized Indian spends on an average 58% of their total annual expenditure.
- Over 40% of hospitalized Indians borrow heavily or sell assets to cover expenses.
- Over 25% of hospitalized Indians fall below poverty line because of hospital expenses.

Vision of NRHM:

- The Union government on April 12, 2005 launched NRHM. The NRHM seeks to provide effective health care to the entire rural population in the country with special focus on 18 states, which have weak public health indicators.
- The Mission is an articulation of the commitment of the Government in National Health Policy to rise public spending on Health from 0.9% of GDP to 2-3% of GDP, over the next 5 years.
- It aims to undertake architectural correction of the health system to enable it to effectively handle increased allocations as promised under the National Common Minimum Program.
- It has as its key components provision of a health activist in each village; a village health plan prepared through a local team headed by the Panchayat representative; strengthening of the rural

hospital for effective curative care through Indian Public Health Standards and accountable to the community; integration of vertical Health & Family Welfare Programmes and optimal utilization of funds and infrastructure and strengthening delivery of primary healthcare.

- It aims at effective integration of health concerns with determinants of health like sanitation & hygiene, nutrition, and safe drinking water through a District Health Action Plan (DHAP).
- It seeks decentralization of the program for district management of health.
- It seeks to address the inter-State and inter-district disparities, especially among the 18 high focus States, including unmet needs for public health infrastructure.
- It aims to promote policies that strengthen public health management and services.
- It shall define time-bound goals and report publicly on their progress.
- Above all, it seeks to improve access of rural people, especially poor women and children, to equitable, affordable, accountable and effective primary healthcare.

Goals of NRHM:

1. Reduction of Infant Mortality Rate (IMR).
2. Reduction of Maternal Mortality Ratio (MMR).
3. Universalize access to public health services, such as women's health, child health, sanitation, immunization, nutrition etc.
4. To prevent and control both communicable and non-communicable diseases with increased emphasis on locally endemic diseases.
5. Provide for integrated comprehensive primary health care.
6. Assuring population stabilization, gender and demographic balance.
7. Promotion of healthy life styles.

Objectives:

1. Provision for a trained and supported Accredited Social Health Activists (ASHA) as village health activist especially in under-served areas as per need.
2. Emphasis on Community Participation by involving panchayats in formulating local health plans.
3. Strengthening Sub-Centres (SCs), Primary Health Centres (PHCs) and Community Health Centres by developing Indian Public Health Standards.
4. District level Management of Health to be institutionalized and strengthened. Increase utilization of First Referral Units (FRUs) from less than 20% to more than 75%.
5. Strengthening sound local health traditions and local resource based health practices related to primary health care and public health.

Targets:

- 1) To reduce IMR to 28/1000 live births.
- 2) To reduce MMR to 130/1,00,000 live births.
- 3) To reduce Total Fertility Rate (TFR) to 2.2..
- 4) To reduce Malaria mortality rate by 50%, additional 10%.
- 5) 100% Reduction of Kala Azar mortality & sustain elimination until.
- 6) Filaria/Microfilaria reduction 70%, 80% & elimination.
- 7) Dengue mortality to reduce to 50% and sustaining at that level.
- 8) Japanese Encephalitis mortality reduction rate: 50 per cent and sustaining at that level.
- 9) Cataract Operation: increasing to 46 lac.
- 10) Leprosy prevalence rate to reduce from 1.8/10,000 to less than 1/10,000 thereafter.
- 11) Tuberculosis DOTS services: Maintain 85 per cent cure rate through entire Mission period.
- 12) Upgrading Community Health Centers to Indian Public Health Standards.
- 13) Increase utilization of First Referral Units from less than 20% to 75%.
- 14) Engaging female Accredited Social Health Activists in tribal/rural areas.

Strategies:**Core Strategies:**

- i. Train and enhance capacity Panchayati Raj Institutions (PRIs) to plan, control and manage public health services;
- ii. Promote access to healthcare to household through the female health activists.
- iii. Every village to have Health plan prepared through Village Health Committee of the Panchayat;
- iv. Strengthening sub-center, Primary Health Centres and Rural Hospitals for improved curative care as per Indian Public Health Standards through a set of define personnel, equipment and management.
- v. Preparation and implementation of an inter-sectoral District Health Plan including drinking water, sanitation & hygiene and nutrition by the District Health Mission,
- vi. Integrating vertical Health and Family Welfare programmes at National, State, District and Block levels;
- vii. Technical support to National, State and District Health Missions, for Public Health Management;
- viii. Strengthening capacities for data collection, assessment, review for evidence based planning, monitoring and supervision;
- ix. Formulation of transparent policies for deployment and career development of Human Resources for health;
- x. Developing capacities for preventive and promoting health care at all levels for promoting healthy life styles;
- xi. Reduction in consumption of tobacco and alcohol etc.
- xii. Promoting non-profit sector particularly in under-served areas;
- xiii. Communication strategy to encourage health seeking behavior.

Supplementary Strategies:-

- (1) Regulation of private sector,
- (2) Promotion of public-private partnerships,
- (3) Mainstream AYUSH (Ayurveda, Yoga, & naturopathy, Unani, Siddha, Homeopathy),
- (4) Reorient medical education, and
- (5) Effective and viable risk pooling and social health insurance.

Plan of Action:**Component 1: Accredited Social Health Activists (ASHA):**

- Every village/large habitat (1000 population) will have a female community health activist chosen by and accountable to the panchayat and act as the interface between the community and the public healthcare system.
- ASHA must be primarily as women resident of the village; married / Widow / Divorced and preferable in the age group of 25-45 years. She should have had formal education up to class 8th. States to choose state specific models.
- ASHA would act as a bridge or catalyst between the ANM and the village.
- ASHA will be an honorary volunteer, receiving performance-based incentives for promoting construction of household toilets, universal immunization, and other healthcare delivery programmes.
- She will facilitate preparation and implementation of the Village Health Plan along with Anganwadi worker, ANM, functionaries of other Departments, and Self Help Group members, under the leadership of the Village Health Committee of the Panchayat.

- She will be trained on pedagogy of public health developed and mentored through a Standing Mentoring Group at National level incorporating best practices and implemented through active involvement of community health resource organizations.
- She will be given a Drug Kit containing generic AYUSH and allopathic formulations for common ailments. The drug kit would be replenished from time to time.

Component 2: Strengthening Sub-Centers:

- Each sub-center will have an untied fund for local action up to Rs.10,000 per annum. This fund will be held in joint account of ANM and CHO for HWC sub centers and for non HWC sub centers ANM and Panchayat Sarpanch operated by the ANM, in consultation with the Village Health Committee.
- Supply of essential drugs (allopathic and AYUSH) to the Sub centers.

Component 3: Strengthening Primary Health Centers:

- Strengthening PHC for quality preventive, primitive, curative, supervisory and outreach services.
- Adequate and regular supply of essential quality drugs and equipment.
- Provision of 24 hour service in 50 per cent PHCs by addressing shortage of doctors, especially in high focus States, through mainstreaming AYUSH manpower.
- Observance of standard treatment guideline & protocols.

Component 4: Strengthening CHCs (SDH & RH) for First Referral Care:

- Operationalizing existing Community Health Centers (30 /50/100 beds) as 24 Hour First Referral Units, including posting of anesthetists.
- Promotion of Stakeholders' Committees (Rugna Kalyan Samitis) for hospital management.
- Codification of new Indian Public Health Standards, setting norms for infrastructure, staff, equipment, management etc for CHCs.
- Developing standards of services and costs in hospital care.
- Display and ensure compliance to Citizen's Charter at CHC/PHC level.

Component 5: District Health Action Plan (DHAP):

- District is the core unit of planning, budgeting and implementation.
- District Health Plan would be a mix of field responses through Village Health Plans, State priorities for Health, Water Supply, Sanitation and Nutrition.
- Centrally Sponsored Schemes could be rationalized/modified accordingly in consultation with States.
- Concept of "funneling" funds to district for effective integration of programmes
- All vertical Health and Family Welfare Programmes at district and state level merge into one common "District Health Mission" at the district level and the "State Health Mission" at the state level.
- Provision of Project Management Unit for all districts, through contractual engagement of MBA, Accountant and Data Entry Operator, for improved programme management

Component 6: Converging Sanitation and Hygiene under NRHM:

- The Total Sanitation Campaign (TSC) is proposed to cover all districts. Components of TSC include IEC activities, rural sanitary marts, individual household toilets, women sanitary complex, and School Sanitation Programme.
- The District Health Mission would therefore guide activities of sanitation at district level, and promote joint IEC for public health, sanitation and hygiene, through Village Health & Sanitation

Committee, and promote household toilets and School Sanitation Programme. ASHA would be given incentives for promoting household toilets by the Mission.

Component 7: Strengthening Disease Control Programs:

- Strengthening ongoing National Disease Control Programs for Malaria, TB, Kala Azar, Filariasis, Blindness & Iodine Deficiency etc shall be horizontally integrated under the Mission, for improved programme delivery.
- Supply of generic drugs (both Allopathic & AYUSH) for common ailments at village, SC, PHC, CHC level.

Component 8: Public-Private Partnership (PPP) for public health goals, including Regulation of Private Sector:

- Guidelines to be formulated for Public Private Partnership in the health sector.
- Since 75% of health services are being currently provided by the private sector, there is a need to refine transparent and accountable regulation.
- Reform of regulatory bodies/creation where necessary.
- District Institutional Mechanism for Mission must have representation of private sector.

Component 9: New Health Financing Mechanism:

- Task Force to examine new health financing mechanisms.
- Standardization of services: outpatient, inpatient, laboratory, surgical interventions and costs will be done periodically by a committee of experts.
- A National Expert Group to monitor these standards and give suitable advice and guidance on protocols and cost comparisons.
- A district health accounting system to be created to monitor the District Health Fund Management, and take corrective action.
- Community Based Health Insurance (CBHI) Schemes are to be launched, they will be encouraged as part of the Mission.
- The Central government will provide subsidies to cover a part of the premiums for the poor, and monitor the schemes.

Component 10: Reorienting Medical Education to support Rural Health issues:

- While district and tertiary hospitals are necessarily located in urban centres, they form an integral part of the referral care chain serving the needs of the rural people.
- Medical and paramedical education facilities need to be created in states, based on need assessment.

Institutional Mechanism:

Formation of following institutions for implementation:

- (1) Village Health, Nutrition, Water Supply & Sanitation Committee (at village level) consisting of Panchayat Representatives, ANM/MPW, Anganwadi worker, teachers, ASHA, community health volunteers.
- (2) Rugna Kalyan Samiti for community management of public hospitals.
- (3) District Health Mission under the leadership of Zilla Parishad with District Health Head as Convener and all relevant departments, NGOs, private professionals etc represented on it.
- (4) State Health Mission, Chaired by Chief Minister and co-chaired by Health Minister and with the State Health Secretary as Convener, representation of related departments, NGOs, private professionals etc.

- (5) Integration of Departments of Health and Family Welfare, at National and State level and development of National Mission Steering Group consisting Planning Commission. Ministry of Panchayat Raj, Rural Development and Human Resource Development.

National Urban Health Mission

Rationale:

As per Census 2001 currently 28.6 crores people lived in urban areas. It is estimated that the urban population of country will increase to 43.2 crores by 2021. The urban growth has also led to increase in number of urban poor population, especially those living in slums. Despite the supposed proximity of the urban poor to urban health facilities their access to them is severely restricted. This is on account of their being “crowded out” because of the inadequacy of the urban public health delivery system. In order to effectively address the health concerns of the urban poor population, the Ministry proposes to launch a National Urban Health Mission (NUHM). The duration of the Mission would be the remaining period of 11th Five Year Plan (2008-2012). The NUHM would cover all Cities (430 in total) with population above 1 lakh and state capitals during phase I. District Head Quarter towns with population less than one lakh would be covered under Phase II of the Mission.

The NUHM would have high focus on:

- Urban Poor Population living in listed and unlisted slums
- All other vulnerable population such as homeless, rag-pickers, street children, rickshaw pullers, construction and brick and lime kiln workers, sex workers, any other temporary migrants.

The National Urban Health Mission therefore aims to address the health concerns of the urban poor through facilitating equitable access to available health facilities by rationalizing and strengthening of the existing capacity of health delivery for improving the health status of the urban poor.

Goal:

The National Urban Health Mission would aim to improve the health status of the urban poor particularly the slum dwellers and other disadvantaged sections, by facilitating equitable access to quality health care through a revamped public health system, partnerships, community based risk pooling and insurance mechanism with the active involvement of the urban local bodies.

Core Strategies:

- 1) Improving the efficiency of public health system in the cities by strengthening, revamping and rationalizing urban primary health structure.
- 2) Partnership with non-government providers for filling up of the health delivery gaps.
- 3) Promotion of access to improved health care at household level through community based groups: Mahila Arogya Samittees
- 4) Strengthening public health through preventive and promotive action
- 5) Increased access to health care through risk pooling and community health insurance models
- 6) IT enabled services (ITES) and e- governance for improving access improved surveillance and monitoring
- 7) Capacity building of stakeholders
- 8) Prioritizing the most vulnerable amongst the poor
- 9) Ensuring quality health care services

Outcomes:

The NUHM would strive to put in place a sustainable urban health delivery system for addressing the health concerns of the urban poor. Since NUHM would complement the efforts of NRHM, the expected health outcomes of the NRHM would also be applicable for NUHM.

The NUHM would therefore be expected to achieve the following targets in urban areas:

- IMR reduced to 28/1000 live births.
- Maternal Mortality reduced to 100/100,000 live births.
- TFR reduced to 2.2.
- Reduction in Malaria Mortality by 50%.
- 25 % reduction in malaria morbidity and mortality up to 2010, additional 20%.
- Kala Azar Mortality Reduction Rate - 100% by 2010 and sustaining elimination.
- Filariasis/Microfilaria Reduction Rate - 70% by 2010, 80% by 2012 and elimination.
- Filariasis: Coverage of more than 80% under MDA
- Reduction in case fatality rate and reduction in number of outbreaks of dengue
- Dengue Mortality Reduction Rate - 50% and sustaining at that level.
- Chikungunya: Reduction in number of outbreaks and morbidity due to Chikungunya by prevention and control strategy
- Leprosy Prevalence Rate –reduced from 1.8 per 10,000 to less than 1 per 10,000 thereafter.
- Tuberculosis DOTS series - maintain 85% cure rate through the entire Mission Period and also sustain planned case detection rate.
- Reduce the prevalence of deafness by 25% (from existing levels)

Urban Social Health Activist (USHA):

Each slum/community would have a well defined grass root level area covering about 1000-2,500 beneficiaries, between 200-500 households based on spatial consideration, preferably co-located at the Anganwadi Centre functional at the slum level, for delivery of services at the door steps. One frontline community worker called USHA on the lines of ASHA under NRHM would remain in charge of each area and serve as an effective and demand–generating link between the health facility (Primary Urban Health Centre) and the urban slum populations. The USHA on the lines of ASHA, would preferably be a woman resident of the slum– married/widowed/ divorced, preferably in the age group of 25 to 45 years. She should also be a literate woman with formal education up to class eight which may be relaxed only if no suitable person with this qualification is available.

The essential services to be rendered by the USHA may be as follows:

- 1) Active promoter of good health practices and enjoying community support
- 2) Facilitate awareness on essential RCH services, sexuality, and gender equality age at marriage/pregnancy, motivation on contraception adoption, medical termination of pregnancy, sterilization, spacing methods.
- 3) Facilitate access to health related services available at the Anganwadi/Primary Urban Health Centres
- 4) Formation and promotion of Mahila Arogya Samittees in her community.
- 5) Carrying out preventive and promotive health activities with AWW/ Mahila Arogya Samiti.
- 6) Provision for a minimum package of curative care empowered with minimum knowledge for timely referrals equipped with an ASHA like drug kit.

In return for the services rendered, she would receive a performance-based incentive. For this purpose a revolving fund would be kept with the ANM at the PUHC, which would be replenished from time to time.

Mahila Arogya Samiti (MAS):

Will act as community based peer education group, involved in community monitoring and referral. The MAS may consist of 20-100 households (HH) with an elected Chairperson and a Treasurer, supported by an USHA. This group would focus on preventive and promotive care, facilitating access to identified facilities, risk pooling fund and health insurance.

NATIONAL AYUSH MISSION

Introduction:

In India, the traditional systems of medicine are well accepted in the communities and widely used for the treatment of common ailments. Among ancient medical systems Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy have impressive record of safety and efficacy to promote positive health. Now-a-days, practice of Yoga has become a part of everyday life in preventing and mitigating diseases and it has proved to prevent psychosomatic disorders and improves the ability to endure stressful situation of the individual. So Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) have been integrated into the national health delivery system with a network of registered practitioners, research institutions and licensed pharmacies.

Now, Ministry of Ayush launched the Centrally Sponsored Scheme of National AYUSH Mission (NAM) on 15.09.2014 for implementing through States/UTs. The National AYUSH Mission (NAM) was approved for its further continuation till March, 2020 by Cabinet in 2017. As per the Department of Expenditure's O.M. dated 10th January, 2020, the ongoing Schemes were approved for interim extension upto 31.03.2021. Union Cabinet also approved operationalization of 12,500 AYUSH Health and Wellness Centres (AHWCs) component under AYUSHMAN BHARAT for implementation through National AYUSH Mission with a financial outlay of Rs. 3399.35 Crores for a period of 5 years upto 2023-24. Union Cabinet on 14.07.2021 approved the continuation of National AYUSH Mission (NAM) with financial implication of Rs. 4607.30 crores (Rs. 3000.00 Crore as Central Share and Rs. 1607.30 crores as State Share) with effect from 01.04.2021 to 31.03.2026 excluding AYUSH Health and Wellness Centres (AHWCs) component.

2. Vision:

- a. To provide cost effective and equitable AYUSH health care throughout the country by improving access to the services.
- b. To strengthen preventive and promotive aspects in primary health care.
- c. To provide services of a holistic wellness model based on AYUSH principles and practices.
- d. To improve AYUSH educational institutions for imparting quality education.

3. Objectives:

- a. To provide AYUSH health care services throughout the country by strengthening and improving AYUSH health care services.

- b. To establish a holistic wellness model through AYUSH Health and Wellness Centres focusing on preventive and promotive health care based on AYUSH principles and practices, to reduce the disease burden and out of pocket expenditure.
- c. To provide informed choice to the needy public through co-location of AYUSH facilities at PHCs, CHCs and DHs resulting in medical pluralism.
- d. To emphasize the role of AYUSH in Public Health as per NHP 2017.
- e. To enhance and strengthen the infrastructure of AYUSH educational institutions

Components of the Mission:

- a. AYUSH Services
- b. AYUSH Educational Institutions
- C. Quality Control of ASU & H Drugs
- d. Medicinal plants
- e. Flexible Components

a) AYUSH Services:

Objective

The main objective of AYUSH services is to enhance coverage of health care system through cost effective AYUSH Services by focusing on core competency areas of AYUSH through upgrading AYUSH Hospitals and Dispensaries, co-location of AYUSH facilities at Primary Health Centres (PHCs), Community Health Centres (CHCs), District Hospitals (DHs) and Setting up of upto 50 bedded Integrated AYUSH Hospitals.

Components of the AYUSH Services under National AYUSH Mission:

- Co-location of AYUSH facilities at PHCs, CHCs and DHs.
- Upgradation of exclusive / standalone Government AYUSH Hospitals (other than PHCs / CHCs/ DHs)
- Upgradation of Government / Panchayat / Government aided AYUSH Dispensaries
- Setting up of upto 50 bedded integrated AYUSH Hospitals
- Supply of essential drugs to AYUSH Hospitals and Dispensaries
- Public Health Outreach activity
- Behaviour Change Communication (BCC)
- Mobility support
- AYUSH Gram
- School Health Programme through AYUSH

AYUSH Health and Wellness Centre(AHWC):

Services

- Preventive and promotive measures for Self care through healthy lifestyle, food, Yoga and medicinal plants
- Management of common ailments under 12 service delivery framework
- Care in Pregnancy and Child-birth

- Neonatal and Infant Health Care Services
- Childhood and Adolescent Health Care Services
- Reproductive Health Care Services
- Management of Communicable Diseases: National Health Programmes
- General Out-patient Care for Acute, Simple and Minor Ailments
- Screening, Prevention, Control and Management of Non-communicable Diseases
- Care for Common Ophthalmic and ENT Problems
- Basic Oral Health Care
- Elderly and Palliative Health Care Services
- Emergency Medical Services including Burns and Trauma
- Screening and Basic Management of Mental Health Ailments

b) Educational Institutions:

Objectives:-

- To upgrade Government/Government Aided AYUSH UG Educational Institutions
- To upgrade Government/Government Aided AYUSH PG Educational Institutions
- To provide financial assistance to the states for setting up of new AYUSH educational Institutions in the States where it is not available in Government sector.
- Components of the AYUSH Educational Institutions under National AYUSH Mission:
- Infrastructural development of AYUSH Under-Graduate Institutions
- Infrastructural development of AYUSH Post-Graduate Institutions / add on PG Pharmacy / Para-Medical Courses
- Setting up of new AYUSH Educational Institutions in the States where it is not available in Government sector.

c) Quality Control of ASU & H Drugs:

Objective

- To strengthen State Govt. ASU&H Pharmacies and Drug Testing Laboratories.
- Strengthening of ASU&H regulatory framework.
- To improve the Quality of ASU&H Drugs to enable their export in International Markets.
- Components of the Quality Control of ASU & H Drugs under National AYUSH Mission:
- Grant in aid to State/Govt. ASU&H Pharmacies/ State Govt. ASU&H Cooperatives, State Govt. ASU&H PSU's.
- Grant in aid to State Drug Testing Laboratories of Ayurveda, Siddha, Unani and Homoeopathy (ASU&H) Drugs.
- Grant-in-aid for strengthening of ASU&H Drug Control Framework.
- Grant in aid to State Licensing Authority of ASU&H Drugs for documentation publication and dissemination of quality control material for States.

d) MEDICINAL PLANTS

OBJECTIVES

- Support cultivation of medicinal plants which is the key to integrity, quality, efficacy and safety of the AYUSH systems of medicines by integrating medicinal plants in the farming systems, offer an option of crop diversification and enhance incomes of farmers.
- Cultivation following the Good Agricultural and Collection Practices (GACPs) to promote standardization and quality assurance and thereby enhance acceptability of the AYUSH systems

globally and increase exports of value added items like herbal extracts, phyto-chemicals, dietary supplements, cosmeceuticals and AYUSH products.

- Support setting up processing clusters through convergence of cultivation, warehousing, value addition and marketing and development of infrastructure for entrepreneurs to set up units in such clusters.
- Implement and support certification mechanism for quality standards, Good Agriculture Practices (GAP), Good Collection Practices (GCP), and Good Storage Practices (GSP).
- Promote partnership, convergence and synergy among stake holders involved in R&D, processing and marketing in the public as well as private sector at national, regional, state and sub state level.

e) Flexible Components:-

- AYUSH Wellness Centres including Yoga & Naturopathy
- Tele-medicine
- Sports Medicine through AYUSH
- Innovations on mainstreaming of AYUSH including PPP
- Reimbursement of Testing charges
- IEC activities
- Research & Development in areas related to Medicinal Plants
- Voluntary certification scheme: Project based.
- Market Promotion, Market intelligence & buy back interventions
- Crop Insurance for Medicinal Plants

MAHARASHTRA EMERGENCY MEDICAL SERVICES

MEMS

“Emergency Medical Service on Call”

Introduction -

Maharashtra Emergency Medical Services (MEMS) project under National Health Mission provides pre-hospital health services to patients through life support ambulance to nearby hospitals for further treatment. This includes patients suffering from Road accidents, all critical diseases, critical pregnant women, Neonates related diseases, Patients suffering from an epidemic, Natural calamities and Manmade Hazards, Critical heart patients, snake bite, all accidents, food poisoning, respiratory diseases, brain diseases etc.

- Financial provision for the project is being made under ‘National Health Mission’ and ‘Government of Maharashtra’.
- **Toll free number 108** has been assigned for provision under Maharashtra Emergency Medical Services (MEMS).
- Strategy based on **“Golden Hour Theory”** – Patient to be shifted within first hour to nearest hospital is being applied through a dedicated toll free number 108. These services are available **24 X 7** in a year and offered **‘free of cost’** to the patient.

- Integrated approach to provide emergency response services which includes Computer technology integration, voice logger system, **GIS** (Geographic Information System), **GPS** (Geographic Position System) **AVLT** (Automatic Vehicle Location System) & Mobile Communication System (**MCS**).
- Ambulances procured in the scheme includes well equipped Advance Life Support Ambulances (**ALS**) and Basic Life Support Ambulances(**BLS**).
- The service provider has procured medical equipments for both ALS & BLS ambulances as per list and specifications given in the Tender Document.
- Medical Equipments include Ambulance cot, Scoop Stretcher, Bi-Phasic Defibrillator cum Cardiac Monitor with Recorder (For ALS only), Transport Ventilator (For ALS only), Pulse Oximeter (For BLS only), Suction Pump (Manual & Electronic), Oxygen Cylinder Etc.
- Ambulances are being operated through **trained drivers** & trained EMSO's (Emergency Medical Service Officers) who are **Doctors**.

Goals & Objectives –

1. To provide First aid to preserve life, prevent further injury & promote recovery.
2. To provide comprehensive 24X7 hours emergency response services by direct calling 108 Toll free number from any network in Maharashtra.
3. System to leverage all the stake holders to offer comprehensive range of services in emergencies.
4. Expected 20% reduction in mortality & reduce morbidity.

Deployment of Ambulances-

Under Maharashtra Emergency Medical Services (MEMS) project total 937 ambulances are provided phase wise across the State.

Call Centre –

- Central Control Room/Emergency Response Centre (ERC) is established at Chest Hospital, Aundh, Pune.
- Real time location of ambulances using GPS-GPRS technology is being monitored from call center.
- 24X7 trained Call takers & call dispatchers are available for emergency response.
- Daily, weekly & monthly MIS reports can be generated from call center.
- There are about 60 call assistants deployed per shift at ERC, Pune.

Training –

- Comprehensive training for all Doctors has been provided.
- Training for ambulance driver is also provided for emergency response service.
- Training provided to call taker, call dispatcher for operationalization of EMS.

Doctor

- Qualification: B.A.M.S & B.U.M.S
- Training given: ALS (Advance Life Support)
BLS (Basic Life Support)
Disaster Management etc.
- Training program : 18 DAYS /BATCH+5 days work at hospital Casualty.

- Total doctors = **2616 (Approximately)**

Driver

- Qualification: As per Gov. rule for driving of heavy vehicle
- Training given: Vehicular Safety Checks, Ambulance Driving Techniques, Accident Avoidance & Crash Procedures, Basic Life Support & Disaster Management Protocols
- Driver Training: 7DAYS/BATCH
- Total drivers: **2456 (Approximately)**

CALL ASSISTANT

- **Qualification: ANY graduate**
- **Training given:**
Communication Officer- Priority Dispatch System & Telecommunication Essentials.
Protocol Instruction and Practice & Roles of the Communication Officer - Operations, Legal issues, Dispatch Stress & Quality Improvement
Dispatch Officer - The science of prioritized dispatch & Ethical and Medical Legal issue, Dispatch Life Support.
- CALL ASSISTANCE TRAINING = 3 DAYS /BATCH
- Total call assistants = 180 (**Approximately**)
- **ALSO training given to Ambulance Control Officer, Emergency Physicians Online Medical Control, Supervisors & other Administrative Staff**

Current Status:

As on today, all 937 ambulances are operational, out of which 704 are BLS ambulances and 233 are ALS ambulances.

District wise deployment of ambulances is as follows:

District Wise Ambulance Count				
Sr.No.	District	ALS	BLS	Total
1	Ahmednagar	9	31	40
2	Akola	4	11	16
3	Amravati	6	21	29
4	Aurangabad	8	23	31
5	Beed	5	14	19
6	Bhandara	3	8	11
7	Buldhana	5	18	23
8	Chandrapur	5	16	23

9	Dhule	4	13	18
10	Gadchiroli	2	8	10
11	Gondia	3	10	15
12	Hingoli	3	9	12
13	Jalgaon	9	25	35
14	Jalna	4	11	15
15	Kolhapur	8	28	36
16	Latur	5	15	20
17	Mumbai	26	73	93
18	Nagpur	11	31	40
19	Nanded	6	19	25
20	Nandurbar	3	10	14
21	Nashik	11	35	46
22	Osmanabad	4	11	15
23	Palghar	6	23	29
24	Parbhani	4	9	13
25	Pune	24	60	82
26	Raigad	4	18	22
27	Ratnagiri	4	13	17
28	Sangli	5	19	24
29	Satara	6	26	32
30	Sindhudurga	3	9	12
31	Solapur	10	24	35
32	Thane	12	29	40
33	Wardha	3	8	11
34	Washim	3	8	11
35	Yavatmal	5	18	23
Total		233	704	937

COMPREHENSIVE PRIMARY HEALTH CARE THROUGH HEALTH & WELLNESS CENTRES

Government of India has launched Ayushman Bharat campaign to address critical issue of access to health care. Comprehensive Primary Health Care (CPHC) is essential to avert disease and promote well-being, ensure continuity of care, and enable gate-keeping, so as to reduce the burden on secondary and tertiary level facilities, thus saving costs to system and the individual.

Idea of Health & Wellness Centre:

India has adopted a three tiered system of health care delivery and Sub Health Centre is the peripheral outpost that caters to a population of 5000 in plane areas and 3000 populations in tribal, hilly and desert areas. Currently, the package of services that a sub-centre provides largely relates to outreach RCH care. Owing to the changes in disease profile, with non-communicable diseases and communicable diseases contributing a major part of the disease burden there is a conscious shift in focus from select primary care to comprehensive primary care beyond RCH services and select communicable diseases and inclusive of Preventive and Promotive care. For provision of comprehensive primary care, the strategy is to re-define the role of the sub-centre and its staffing pattern and strengthen the sub centres into Health and Wellness Centres (HWC).

The HWCs provide preventive, promotive, rehabilitative and curative care for a package of 13 services as below-

1. Care in Pregnancy and Child-birth.
2. Neonatal and Infant Health Care Services
3. Childhood and Adolescent Health Care Services.
4. Family Planning, Contraceptive Services and other Reproductive Health Care Services
5. Management of Communicable Diseases: National Health Programmes
6. General Out-patient Care for Acute Simple Illnesses and Minor Ailments
7. ***Screening, Prevention, Control and Management of Chronic & Non-communicable Communicable Diseases including-TB, Leprosy)***
8. Care for Common Ophthalmic and ENT Problems
9. Basic Oral Health Care
10. Elderly and Palliative Health Care Services
11. Emergency Medical Services including Burns and Trauma
12. Screening and Basic Management of Mental Health Ailments
13. Yoga & Ayush

HWC deliver, these set of comprehensive services through team based approach. A primary health care team trained and equipped in a set of skills and redesigned work processes to ensure a continuum of care that places emphasis on preventive and promotive health.

HWCs not only to expand the service package, but also to create a perception in the community, that the facility close to them, offers a platform for preventive and promotive action. Apart from service provision, key interventions envisaged under HWC include Population Enumeration, Creation of Family folders and use of IT platform and to assure continuity of care, through diagnostic services, regular refills of drugs for chronic diseases, and access to Tele-Consultation Services.

The SC-HWCs are to be headed by a Community Health Officer with a primary health care team including ANMs, MPW (M) and ASHAs of the sub center area.

HWC Implementation in Maharashtra State:

To provide CPHC near to the community, State is moving forward with strengthening of all the SCs, PHCs & UPHCs as HWCs along with additional provision of health promotion & wellness activities viz. Yoga. State is committed to transform all 10673 SCs, 1839 PHCs & 651 UPHCs in to Health and Wellness Centers in phase wise manner by Dec' 2022. **State has operationalized total 10398 facilities which includes 8052 SCs, 1831 PHCs and 515 UPHCs as Health & Wellness Centres till date (as per AB-HWC Portal)**

FINANCIAL GUIDELINES, CASH FLOW AND AUDITS

RugnakalyanSamiti

- In Maharashtra, vide GR dated 30th December 2005 RKS was established in DH/RH/SDH/WH and RKS was established in PHCs vide GR dated 31st January 2007
- RKS is a registered body under Charity Commission Act
- Delegated powers to RKS & District Health Societies to plan and implement activities as per their needs.
- Planning and monitoring process of RKS should be through Governing body & Executive committee decisions
- RKS can raise money through User Fees, Donations & Bank Interest
- RKS is expected to facilitate better service delivery in the institutions
- Any change in the membership of Governing and Executive Committee members could be done only with the prior approval of Charity Commissioner 's Office.

Activities of RKS :-

1. Undertake all activities to improve and expand patient related quality services and welfare activities.
2. The Executive Committee will guide and control the activities as per the policy formulated by RKS Governing Body.
3. Acquiring equipment, furniture, emergency medicines for efficient running of the hospitals as per existing rules and regulations.
4. To ensure subsidized food, medicines and quality drinking water to the patients and their relatives.

5. Improve boarding and lodging arrangements (Kitchen/Dharmashala) for patients and their attendant.
6. To provide Referral services to patients.
7. Cloths to patients/ newborn for delivery patients

RugnaKalyanSamiti

Governing & Executive Committee Chairperson & Member Secretary

Sr. No	Level of Committee	Committee Members	Government Body	Executive Committee
1.	District Hospital Committee	Chairperson	District Collector	Civil Surgeon
		Co- Chairperson	Chief Executive Officers, ZillaParishad	Nil
		Member Secretary	Civil Surgeon /Hospital in-charge	Senior Medical Officer/ RMO (Clinical)
2.	Sub- District Hospital & Rural Hospitals	Chairperson	Civil Surgeon	Office in-charge of the hospital/ medical supdt.
		Co- Chairperson	SDO, Revenue Sub division	Residential Medical Officer (Outreach)
		Member Secretary	Medical superintendent of the hospital	Medical officer of the hospital nominated by officer
3.	Primary Health Center	Chairperson	Z.P. Members for Jurisdiction of PHC	Block Health officer
		Member Secretary	In-charge Medical officer of the PHC	Medical Officer of the PHC
4.	Primary Health Center (JAS)	Chairperson	Z.P. Members for Jurisdiction of PHC	
		Co-Chairperson	Block Health officer (THO)	
		Member Secretary	Medical officer (AB-HWC)	
5.	Sub Center JAS	Chairperson	Local PRI Member/ Gram PanchyatSarpanch	
		Member Secretary	Community Health officer (CHO)	
6.	VHNSC	Chairperson	Local PRI Member/ Gram PanchyatSarpanch	
		Member Secretary	ASHA Workers	

RKS Meeting Norms -

Structure	Meetings	Particular
Governing Committee:	One year two Meetings should be taken-	1st GB Meeting on last week of Monday in June. 2nd meeting on last week of Monday in January.
Executive Committee:	Six Meetings per year.	One Meeting in two months.
JAS Meeting	Per Month	1 meeting per Month (As per GOI Guideline)

Institutes have given funds as following- (As per norms) :-

Sr. No.	Institutes	No. of Institutes	RKS	AMG	UF
1.	District Hospital	23	10,00,000/-	0	0
2.	General Hospital	6	2,00,000/-	2,00,000/-	1,00,000/-
3.	Regional Referral Hospital	2	10,00,000/-	0	0
4.	Tuberculosis Hospital	4	5,00,000/-	0	0
5.	Leprosy Hospital	3	5,00,000/-	0	0
6.	Mental Hospital	4	5,00,000/-	0	0

7.	Orthopedic Hospital	1	5,00,000/-	0	0
8.	Sub-District Hospital (100 & Above Bed)	93	2,00,000/-	2,00,000/-	1,00,000/-
9.	Sub-District Hospital (50 to 60 Bed)		1,00,000/-	1,00,000/-	50,000/-
10.	Women Hospital (100& Above Bed)	14	2,00,000/-	2,00,000/-	1,00,000/-
11.	Women Hospitals (50 to 60 Bed)		1,00,000/-	1,00,000/-	50,000/-
12.	Rural Hospital	365	1,00,000/-	1,00,000/-	50,000/-
13.	Primary Health Center (JAS)	1858	1,00,000/-	50,000/-	25,000/-
14.	Primary Health Unit	777	0	20,000/-	25,000/-
15.	AB-HWC Sub- Center	6885	0	0	50,000/-
16.	Sub center (Non HWC)	3753	0	10,000/-	10,000/-

Program Related GR/ Circular:-

1. Constitution of RugnaKalyanSamiti- (Hospital Management Committee) GRNo. NRHM 2005/ 744/ CR -426/ PH-6 Date- 30th December, 2005
2. Corrigendum No. NRHM 2008/ 744/ CR-426/PH-6 Date- 4th May 2006
3. Government addendum No. NRHM 2005/ 744/ CR-426 / PH6, Date- 9th January 2007
4. Constitution of RugnaKalyanSamiti- (Hospital Management Committee) In Primary Health Centers GR No. NRHM 2005/ 744/ CR -426/ PH-6 Date- 31st January, 2007
5. RKS Involvement in MLA/ MLS Letter No.राग्राआ २००८/ प्रक्र ९०/ आरोग्य- ७ अ, दि. १ जुलै, २००८
6. RKS Chairperson in GB Block Development Officer- Corrigendum No. NRHM 2007/ CR NO. 44/ PH7A, Date - 28 July 2009.
7. RKS Revised Structure GB (Hospital Management Committee) शासन निर्णय क्र. एनएचएम ११२०/ प्र.क्र ७८/ आरोग्य- ७, दि. २६ ऑगस्ट, २०२०
8. User Charges deposit to RKS Account in Institute level शासन निर्णय क्र. एनएचएम ११२०/ प्र.क्र ८३/ आरोग्य- ७, दि. २८ जुलै, २०२१

Uses of RKS, AMG, and UF Fund are as Follows:-

RKS Fund is utilized for:-

- Purchase of medicine to poor patients
- Laboratory tests outside hospital
- Transportation of patient (Referral Services)
- Cloths to patients/ newborn for delivery patients
- Drinking water facility to patients
- Sitting arrangement for patients
- Solar power heater for patients
- Kitchen /Dharmashala – Construction/ maintenance
- Food facility for patients
- Other innovative schemes.
- purchase of essential equipment not available in the Hospital

AMG Fund is utilized for :-

- Repairs & maintenance of hospital building & quarters
- Repairs & maintenance of water supply & drainage
- Repairs of instruments/equipment/ delivery table etc.
- Repairs of furniture / doors/ windows (Furniture works)

- Payment for cleaning of Sub Centre / hospital building & premises
- Water supply during scarcity
- Maintenance of computers & other office equipment & other maintenance expenses

UF Fund is utilized for :-

- Purchase of medicine which is urgently required & not available
- Purchase of lab material
- Purchase of instrument/ equipment
- Purchase of furniture/ curtains/ mattresses
- Purchase of dressing material(bandage/ cotton)
- Transport of emergency patients
- Transport of women in labor
- Transporting of samples in epidemics
- Innovative schemes for workimprovement
- Minor Civil works
- Stationary, registers, papers etc.

VILLAGE HEALTH NUTRITION WATER SUPPLY & SANITATION COMMITTEE

Village Health Nutrition Sanitation Committee

Objective of the VHNSC

1. To provide an institutional mechanism of the community to be unformatted of health programmers and government initiatives and to participate in the planning and implementation of these programmers, leading to better outcomes.
2. To provide platform for convergent action on social determinants and all public service direct to indirect related to health
3. To provide an institutional mechanism for the community to voice health needs
4. To empower panchayats with the with the understanding and mechanisms required for them to play their role.
5. To provide support and facilitation to the community health workers.

Composition of the VHNSC

1. **Number of Members-** VHNSC Should have a minimum of 15 members, it may have more members.
2. **Key Principals Governing the Composition of the VHNSC.**
 - Elected members, especially women of panchyati resident in the village should be enabled to lead
 - All those working for health or health related services should be able to participant
 - The voices of services users of health services- especially of mother should find place.
 - There should be representation from all community sub groups, especially from poor and more vulnerable sections.
 - All habitations/ hamlets should have representation
3. **Constitution of the VHNSC**
 - **Elected Gram Panchayat Members** (Sarpanch/ MahiaSarpanch)
 - **Asha Workers**
 - **Frontline staff of government health related services-** ANM, Anganwadi Workers, School teacher, Volunteers/ Village level workers, Hand pump Mechanical, Field coordinator of MNREGA
 - **Community based Organizations-** CBOs, SHG Groups, Forest Managemnt Committees, Youth Committees
 - **Pre Existing Committees-** Village level separate commitees, water, sanitation or Nutrition.
 - **Service Users-** pregnant women, lactating mother,

Joint Bank Account of VHNSC- Chairperson and ASHA Workers (Member Secretary)

Activities and Out Come of VHSNC

- Monthly Meeting
- Accounting for the untied village fund
- Management of untied village Health fund
- Record Maintenance
- Monitoring and facilitating access to essential public services
- Organizing local collective action for health promotion
- Facilitating service delivery in the village
- Community of Health care facilities
- Village Health Planning

Action Points

- Decentralize Funds. Should be used at Institutional level only.
- Centralized purchasing from district level is banned.
- 1st installment to be released to all the institutions as per time line given.
- Subsequent installments to be given after receiving the SOE of the available amount.
- Amount allocated in the PIP is to be released in III or IV installments to the institutes.
- Conducting 1st GB within 2months of the beginning of the financial year.
- GB to approve plan for entire allocation of funds sanctioned to the institution in the PIP.
- Distribution of funds should be done according to the given timelines.

VHNSC Fund is utilized for:-

- Preparation of Village Health Plan
- Organization of Village Health & Nutrition Day
- Gram-Sabha organized for health issues
- Purchases for Organizing Village health day
- Nutritional schemes for malnourished children
- Transporting pregnant women for delivery if not available for government vehicle
- Transporting other patients for treatment
- Organization of Health Awareness activities
- Purchase of TCL for safe water supply (in Kilo)
- Repairs of water supply scheme

SCHEMES UNDER NHM

1.JananiSuraksha Yojana

Janani Suraksha Yojana (JSY) under the overall umbrella of National Rural Health Mission (NRHM) is being proposed by way of modifying the existing National Maternity Benefit Scheme (NMBS). While NMBS is linked to provision of better diet for pregnant women from BPL families, JSY integrates the cash assistance with antenatal care during the pregnancy period, institutional care during delivery and immediate post-partum period in a health centre by establishing a system of coordinated care by field level health worker. The JSY would be a 100 per cent centrally sponsored scheme.

Vision:

- To reduce overall Maternal Mortality Ratio and Infant Mortality Rate.
- To increase institutional deliveries.

Target Group:

All pregnant women belonging to the below poverty line (BPL) and SC/ST households and

- Of the age of 19 years or above
- Up to two live births.

Strategy:

- Early registration of the beneficiaries with the help of health worker.
- Early identification of complicated cases.
- Providing at least 3 ANC & post delivery visits.
- Provide referral transport to mother.
- Convergence with ICDS worker by way of involving Anganwadi worker.
- Operationalization of 24/7 delivery services at PHC level.
- Operationalization of FRUs to provide emergency obstetric care.
- Building partnerships through a process of recognition/accreditation with doctors, hospitals/nursing homes/clinics from the private sector especially in the rural areas to provide obstetric services to the JSY beneficiaries.

Features:

- Cash Assistance: The benefit under the scheme would be linked to availing of antenatal check ups, delivery in health centre/ hospital.
- The scheme focuses on the poor pregnant woman with special dispensation for states having low institutional delivery rates namely the states of Uttar Pradesh, Uttaranchal, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Assam, Rajasthan, Orissa and Jammu and Kashmir. While these states have been named as Low Performing States (LPS), the remaining states have been named as High performing States (HPS).
- Tracking Each Pregnancy: Each beneficiary registered under this Yojana should have a JSY card along with a MCH card. ASHA/AWW/ any other identified link worker under the overall supervision of the ANM and the MO, PHC should mandatorily prepare a micro-birth plan

Cash assistance provided under JSY:

Package to mother:

- Rs. 700/- for rural and Rs.600/- for urban institutional delivery and Rs. 500/- for home delivery.

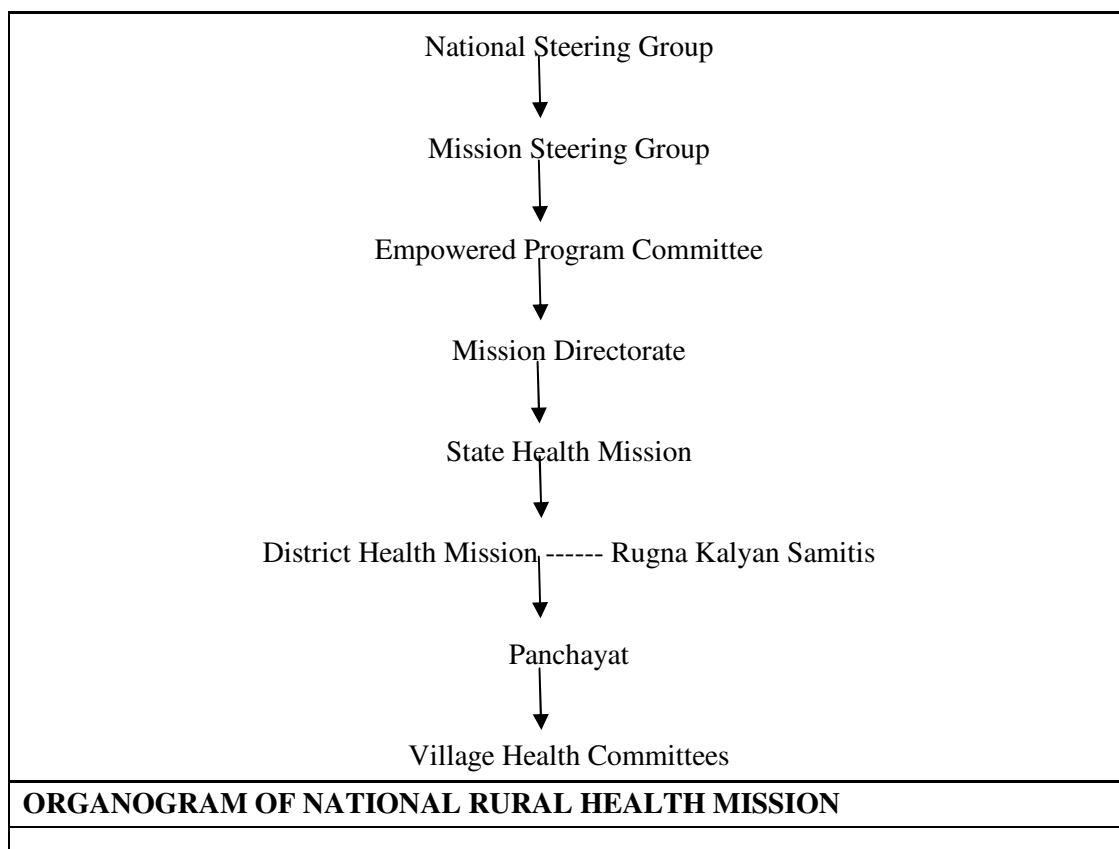
The package for ASHA:

- She will be paid Rs. 300/- as incentive for escorting and staying with a pregnant woman for delivery to the hospital. The amount will be disbursed after post delivery visit to mother and child and after the baby receives BCG vaccination but within seven days of delivery.
- ASHA will be paid Rs.150/- while escorting a delivery case to compensate her expenditure on food and stay.

Assistance for Caesarean Section: FRUs/CHCs would provide emergency obstetric services. Where Government specialists are not available in a health institution, assistance up to Rs. 1500/- per case will be provided for hiring services of private experts to carry out the surgery either in a Government medical facility or in accredited Private hospital, nursing home etc.

Convergence under NRHM:

- Convergence with all departments that influence outcomes of wider determinants of health is necessary for improved health indicators.
- District level Zilla Parishad framework allows convergent action of all departments under one umbrella.
- State and National level should allow more flexibility and more financial resources to districts for them to forge solidarity of various departments.
- Bringing development functionaries under the control of the district facilitates greater co-ordination in deployment and integration. Need to develop district specific cadres of functionaries.
- Women & Child development, Education and Literacy Department, Panchayati Raj and Rural Development, Water and Sanitation Department, other institutions in health care like HIV/AIDS, AYUSH etc need to be better integrated with interventions for health care.
- Programmatic integration and convergence is easier to effect at district, sub district and block levels.



2. JANANI SHISHU SURAKSHA KARYAKRAM (JSSK)

It has been observed that most of the times due to delay in reaching health care facility like FRU, 24x7 PHCs, Secondary or Tertiary centers, mothers and neonates are deprived of emergency care resulting in maternal morbidity and mortality, still birth and neonatal deaths. To prevent all these complications, it is important that mothers and children should be provided quality care free of cost including diet and transport facility on time. Maharashtra is progressive state and is progressing towards achievement of NRHM goals. Present status of NRHM goals of Maharashtra is as follows:

Sr. Indicator NRHM Goal Status of Maharashtra Source

In order to reduce the maternal and neonatal deaths, the Govt. of India has announced the Janani Shishu Suraksha Karyakram. As per Govt. of Maharashtra Resolution dated 26th Sept. 2011 Janani Shishu Suraksha Karyakram has been launched from 7th Oct. 2011 in all districts of Maharashtra. The important components of the program are as follows:

Entitlement of Pregnant Women:

- Free & zero expense Delivery & Caesarian section.
- Free drugs & consumables.
- Free essential diagnostics (blood, urine tests & ultra Sonography etc.)
- Free diet during stay in the health institutions (up to 3 days for normal delivery & 7 days for caesarian section)
- Free provision of blood.
- Free transport from Home to Health Institutions, between facilities in case of referral & dropback from institutions to home.
- Exemption from all kinds of user charges.

Entitlement for Sick Neonates till 30 days after birth:

- Free & zero expense treatment.
- Free drugs & consumables.
- Free essential diagnostics
- Free provision of blood.
- Free transport from Home to Health Institutions, between facilities in case of referral & dropback from institutions to home.
- Exemption from all kinds of user charges.

Above services are provided through the network of 1816 PHCs, 447 RH-SDH, 23 DH, 9 WH and 4 GH under public health department and 15 Govt. Medical Colleges, Hospital.

REFERRAL TRANSPORT (TOLL FREE CALL CENTER 102)

It has been observed that most of the times due to delay in reaching health care facility like FRU, 24x7 PHCs, Secondary or Tertiary centers, mothers are deprived of emergency obstetric care resulting in maternal morbidity and mortality, still birth and neonatal deaths. To prevent all these complications, it is important that mothers should be referred to the health care facility on time.

Considering this, under Janani Shishu Suraksha Karyakram, free transport services are provided to pregnant/delivered mothers and sick neonates up to the age of 30 days. These services include free transport from home to institutions, from institution to institution (in case of 2nd referral) and drop back home.

Presently all the health facilities at the level of PHC and above are provided with ambulances. However, patients do not have contact numbers to call these ambulances. Considering this, one call center has been established at each district. One person is always available round the clock in this call center. Once the call is made by patient/relative, it is the responsibility of call center to arrange the nearest ambulance for free transport of mother or child to nearest appropriate health facility.

Each District Call Center is provided separate telephone number and 102 Toll free number as emergency number, which has been given wide publicity so that both Common Man and Health Care Providers can access.

On the receipt of the information by Call Center, first the driver of the PHC of respective area is contacted and informed to attend to caller. In case PHC vehicle is not available due to administrative / technical reasons, Ambulance of nearby PHC/RH/SDH is to be contacted. If no government ambulance is

contactable then Block Level Contractual Ambulance driver is to be informed to attend the call. It is expected that contractual ambulance will be available 24x7 as stand by arrangement.

For establishment and functioning of Referral Transport, following activities must be carried out:

A. Background of Referral Transport Scheme.

This scheme is basically established for providing free transport in time to pregnant women in labor and to sick neonates up to 30 days. Therefore, pregnant women in labour and sick neonates (up to 30 days) are to be provided services free of cost. However, Call Centers may receive call of other emergencies also such as Snake Bite, Accidents, etc. First the Call should be properly verified for its genuine medical/surgical emergency and after due verification the ambulance should be immediately sent without loss of time. However, payment of such calls to ambulance should be made as per prevailing government guidelines. The Calls which are not for serious emergencies should not be entertained,

It is also important to inform all the drivers and Call Center Assistants that this free facility of transporting patients is only to transport to Govt. Health Institute or Hospitals and not for Private Hospitals. Therefore providing ambulances services for transporting the patients from home to Private Health Facility should not be allowed. Exception to these guidelines will be life threatening conditions which require immediate treatment that is available only in nearby Private Hospital, but on payment basis only with prior permission of Concerned Medical Officers.

B. Establishment of Control Room

Place of Control Room: Control Room should be at such place where it would be functional 24*7. Control room should be located at one corner of Casualty/Blood Bank /Laboratory of the District Hospital. In districts where there is no District Hospital, the Control Room should be established in Women Hospital. District wise recommended places of Control Room are attached in Annex-A. Since all the 33 Districts have already operationalized their Control Rooms we now not have any new control room or should not try to refurnish them. It is once again reiterated that once the centralized computerized call centre is functional the District Call Centre have to be immediately made disfunctional. Districts are requested not to change place of control room without information to State Health Society.

Duty of Call Attendants: Five call attendants are sanctioned to provide 24 hours duty. As mentioned above, one of the call attendants will be i/c of the Call Center. Duty of other Call Attendants should be on rotation. Daily three persons should be given duty preferably 8AM to 3 PM, 3 PM to 10 PM and 10 PM to 8 AM. Previous person should not leave the cabin till next person resumes the duty. Call Center staff will get only public holidays and one weekly off. This should also be adjusted in such a way that Call Center will remain functional 24X7 hours. I/c of Call center will do minimum 3 duties (of any shift) in one week. Call attendant reporting to Janani Shishu Suraksha Karyakram Cell, Pune and reporting data time consider 8am to 8am.

Provision of Ambulance services

- 1. Ambulances to PHC/Hospitals:** All the PHCs and Hospitals are provided ambulances as per bed strength. DHOs and Civil Surgeon to ensure that all the PHC ambulances are on road and repaired. For ambulance repairs, state budget provided should first be utilized. If state budget is not sufficient then NRHM Mobility Support budget should be utilized for this purpose. District can also purchase tires and batteries from Mobility Support budget besides repairs. However do not use NRHM budget for painting and cushions of the ambulance. The history sheet of ambulance should clearly mention the source of fund utilized for repairs. Concerned MO should record a certificate about non-availability of state funds while utilizing the NRHM funds for repairs.

2. **Additional POL to Ambulances:** Ambulances are provided regular POL grant, FW cases grant, Pulse Polio and other similar program grant and also substantial grant under Mobility Support under Mission Flexi pool. In addition to this, yearly grant is provided to each Ambulance for POL to transport the pregnant women for delivery and sick neonates. All these grants should be used to keep the ambulance on road. Distribute the grant to health facilities only after establishment of Call Center in your district.

3. **Mobile charges for drivers under referral transport:** Each driver included in the scheme will be paid Rs. 200/- month as mobile charges. Drivers of DHO/CS and other supervisory officials are not included in this scheme. It is mandatory that driver should keep his mobile always on ringing mode and should pick up the call when contacted. Separate register should be made in Call Center for mobiles which are out of coverage area and not picked up. Regular review of such cases should be done.
 - Instructions for all the drivers and other staff of the referral transport: JSSK is free (Cashless) service and the strict action will be taken on the drivers and other staff of referral transport if charged from beneficiary.

4. **Special provision for Tribal blocks of Maharashtra for Referral Transport :**

Central Government has sanctioned special budget for 70 Tribal blocks for purchase of 140 Ambulances. This will ensure quick referral service to Tribal population for pregnant women and sick neonates. Considering the special need in tribal areas on call basis, NRHM has decided to procure of 140 Ambulances for 70 Tribal blocks in this year. Procedures of procurement, salary of drivers for these ambulances will be operated from State Health Society, The expenditure of POL for this ambulances will be operated from operating district health society, It is proposed all drivers are appointed centralized the recruited agency till that the time present practices of hired driver to continued. All this two vehicle per tribal block are kept under the supervision of RH/SDH in that block POL is distributed Medical Superintendent of that RH/SDH.

5. **Empanelment of private vehicles/ Ambulances :**

In the remaining 283 blocks of Maharashtra State there is provision to hire private ambulances at block level & as per circular Women/District hospital(46 vehicles for drop back)(283 Blocks X 1.20 Per Year/ Per Block)

It is possible occasionally that Call Operator may not get any government ambulance. At such time, the operator should call private designated vehicles from that block and arrange for payment of bills as per procedure.

One advertisement should be published for all the blocks. Panel of vehicles will be separate for each block. Payment for use of empanelled private vehicles/ambulance follow as per school health programme empanelment vehicle/ambulance rate till tender procedure. Rates should be same for vehicles/ambulances in same block. Committee under Chairmanship of Chairman Executive Committee District Health Society will select the eligible private ambulance operator (s). A representative of the local RTO should be part of the committee. The specification of private empanelled Vehicles/Ambulances for drop back & pick up will be in accordance with the circular dated 20.12.2011 SHS/EMS/RT/48394-464/2011 and 24.1.2012 of this office No SHS/EMS/RT/58483-553/2012 Each of the vehicle/ambulance to be included in panel must have good seating arrangement for pregnant women (pre delivery and after delivery),

The vehicle/ambulance should be paid the charges within one month by cheque from District Call Center. Owner of Private Vehicle/Ambulance should be asked to open one bank account at suitable bank so that amount can be deposited at district level.

6. DHO should give instruction to all ASHA worker under his area to

- a) Up to date information of Pregnant Woman and Sick Neonates should be kept with them their assigned area or villages.
 - b) Every Asha should collect information of likely delivery calls for Pregnant Women and should arrange to give a pick up call soon after Labour Pains are seen or reported. The matter should also be reported to their controlling PHC/Medical Officer.
7. After Drop Back of patients this information should be informed by the Head of Concern Health facility to JSSK Call Center and Call Center should keep separate record.
8. For the purpose of drop-back the Concerned Medical Officer should give his PHC Ambulance and only if it is not available Private empanelled Ambulance vehicle should be offered. In case of non-availability of both then only he should call vehicles from other nearby PHC where the patient is going for drop-back.

Monitoring of project

Responsible Persons

Responsible persons for monitoring of project will be as follows:

In District Level.

Controlling Authority – Civil Surgeon

Implementing Officer in field – M&E Officer, Team Leader In charge Superintendent of Health Institutions.

Record keeping

Following registers will be maintained by the Referral Transport Cell

1. **Duty Register** – Two parts – First part is planned duties and second part is actual duty of the person.
2. **Call entry register** – Call Assistant will enter the call details immediately after receiving the call. This include name of the caller, telephone number, date and time of call, action taken by the Call Attendant.
3. **No response register** – Sometimes Call Assistant may not get the response from driver or health facility head. In such case, this should be entered in call register with date and time. This should be informed to DHO/CS on next day for disciplinary action.
4. **Register with driver** – One register will be kept with driver of each ambulance. Driver will enter the call receive time, response to call and he will also get signature of doctor/nurse after admission to health facility. This register is maintained by drop back vehicles drivers allotted at DH & WH on monthly basis.

AYUSH, IPHS and PRIs

Mainstreaming AYUSH under NRHM:

Introduction:

In India, the traditional systems of medicine are well accepted in the communities and widely used for the treatment of common ailments. Among ancient medical systems Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy have impressive record of safety and efficacy to promote positive health. Now-a-days, practice of Yoga has become a part of everyday life in preventing and mitigating diseases and it has proved to prevent psychosomatic disorders and improves the ability to endure stressful situation of the individual. So Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) have been integrated into the national health delivery system with a network of registered practitioners, research institutions and licensed pharmacies.

The NRHM seeks to revitalize local health traditions and mainstream AYUSH (including manpower and drugs); to strengthen the Public Health System at all levels. Under NRHM, AYUSH medications shall be included in the drug kit of ASHA. The additional supply of generic drugs for common ailments at SC/PHC/CHC levels under the Mission shall also include AYUSH formulations. At the CHC level two rooms shall be provided for AYUSH practitioner and pharmacist under the Indian Public Health Standards (IPHS) model. At the same time, single Doctor PHCs shall be upgraded to two Doctor PHCs by inducting AYUSH practitioner at that level.

Strategies:

- Integrate and mainstream ISM &H in health care delivery system including National Programs.
- Encourage and facilitate in setting up of specialty centres and ISM clinics.
- Facilitate and Strengthen Quality Control Laboratory.
- Strengthening the Drug Standardization and Research Activities on AYUSH
- Develop Advocacy for AYUSH.
- Establish Sectoral linkages for AYUSH activities.

Activities for Mainstreaming AYUSH:

- For mainstreaming of AYUSH in NRHM, the personnel of AYUSH may work under the same roof of the Health Infrastructure, i.e., PHC, CHC, however, separate space should be allocated exclusively for them in the same building.
- Provision of at least one specialist doctor of any of the AYUSH systems as per the local acceptability assisted by a Pharmacist.
- Supply of appropriate medicines pertaining of AYUSH systems.
- The already existing AYUSH infrastructure should be mobilized. AYUSH dispensaries that are not functioning well should be merged with the PHC or CHC barring which, displacement of AYUSH clinic is not advised.
- Cross referral between allopathic and AYUSH streams should be encouraged based on the need for the same.
- Improving the availability of AYUSH treatment facilities and integrating it with the existing Health Care Service Delivery System.
- Integration of AYUSH services in CHC/Block PHC with appointment of contractual AYUSH Doctors.
- Appointment of paramedics where AYUSH Doctors shall be posted.
- Appointment of a Data Assistant to support the ISM&H Directorate.

- Strengthening of AYUSH dispensaries with provision of storage equipments.
- The specific choice of AYUSH system that should be set up in each state should be decided by the State depending on the local preference.
- AYUSH doctors shall be involved in IEC, health promotion and also supervisory activities.
- The IPHS pertaining to AYUSH and also the detailed manpower and other requirements and financial projections for the same will be provided by the Department of AYUSH for further consideration.
- AYUSH doctors to be involved in all National Health Programmes, especially in the priority areas like IMR, MMR, JSY, Control of vector Borne Diseases and other communicable diseases etc.
- Training of AYUSH doctors for Primary Health Care and National Diseases Control Programmes.

Integration of AYUSH with ASHA:

- Training module for ASHA/ANMs has to incorporate information of AYUSH.
- Training & capacity building to be undertaken and necessary training material for the purpose to be modified and provided accordingly.
- Drug kit provided to ASHA will contain one AYUSH preparations.

Drug Management:

- Priority will be given to manufacture drugs in Government Sector Pharmacies.
- Provision of Rs. 25,000/- to supply drugs per AYUSH dispensary.
- Provisions of medicines for District AYUSH wings and Specialty Therapy Centres proposed to be operated in the State.

Special Initiatives for Mainstreaming and Strengthening of AYUSH:

- The drug regulatory mechanism to be strengthened at the state level to improve the quality of drugs used in AYUSH and ensures proper standardization.

Development of Herbariums and crude drug museums:

- Herbarium may be developed in collaboration with the Forest Department in selected Districts of the State.
- The existing Herbal gardens will be strengthened.
- Plant extraction centres in selected areas may be developed for extraction and preservation of the plants for medicinal use.

Strengthening of the State and District Management System of AYUSH:

- It is proposed to create necessary managerial post in the State and District level for effective supervision and implementation of different activities.
- Joint monitoring visits to health centres to be undertaken by both AYUSH and Health Care Officials at the District/State level.

INDIAN PUBLIC HEALTH STANDARDS (IPHS)

Introduction:

The healthcare system in India has expanded considerably over the last few decades; but due to non-availability of manpower, problems of access, acceptability, lack of community involvement, the quality of services is not up to the mark. Hence, standards are being introduced in order to improve the quality of public health level. The Bureau of Indian Standards already prescribed standards for healthcare facilities, but at present these standards are not achievable as they are very resource-intensive. As India has a developing health system with limited resources, hence a less resource intensive standard is suited to the requirements of the system.

The NRHM aims at strengthening hospital care for rural areas. As a first step, requirements for a Minimum Functional Grade of a Community Health Centre, Primary Health Centre and Sub Centre are being prescribed. IPHS are a set of standards envisaged to improve the quality of healthcare delivery in the country. IPHS defining personnel, equipment and management standards, its decentralized administration by a hospital management committee and the provision of adequate funds and powers to enable these committees to reach desired levels.

The main objectives of IPHS are:

- To provide optimal support and comprehensive primary health care.
- To achieve and maintain an acceptable standards of quality of care.
- To make the services sensitive to the needs of the community.

Indian Public Health Standards for CHC (Sub-District/Rural Hospitals):

The secondary level of healthcare essentially includes SDH/RH constituting the First Referral Units and the district hospitals. The CHCs were designed to provide referral healthcare for cases from the primary level and for cases in need of specialist care approaching the centre directly. With the help of these standards it is possible to grade centre and take up remedial action accordingly.

- Availability of specialist services by ensuring the availability of all the sanctioned specialists in the CHCs. Under NRHM, additional post of Anesthetist and Public Health Manager is also envisaged.
- Strengthening support staffs like Public Health Nurse and an ANM in all the centres, in addition to the existing staff.
- Norms for infrastructure, equipment, laboratory, blood storage facilities, and drugs have been formulated.
- Guidelines for management of routine and emergency cases under National Health Programs are being provided to all CHCs, to maintain uniformity, and also optimum standardized treatment.

The assured services in CHCs:

- Care of routine and emergency cases in medicine and surgery.
- 24 hours normal & assisted delivery services including newborn care.
- All types of Family Planning services and safe abortion services.
- Essential lab services; referral services and other management including nasal packing, tracheostomy, foreign body removal etc.
- All National Health Programs should be delivered through CHC.

Additional facilities required at CHC:

- ECG should be made available in the CHC with appropriate training to nursing staff.

- All necessary reagents, glassware and facilities for collecting and transport of samples should be made available.
- The service related to Integrated Disease Surveillance Project (IDSP), laboratory services for diagnosis of Malaria, TB, Typhoid and test for detection of faecal contamination of water and chlorination level.

The CHC will be equipped:

The CHCs must be well equipped with the following equipment & drugs:

- **Equipment:** Microscope slides, pricking needles, cotton, stairs, staining jar, filter papers, glass marking, pencil, lint cloth and 4 glass wares for preparation of stains and storage.
- **Drugs:** Chloroquine, primaquine, sulphadoxin, pyremethamine, oombination, artemisinin derivatives quinine infection, quinine tablets and 5% dextrose saline and DEC tablets.

Consumables required in each FRU in blood banks/storage control:

1. Blood bag refrigerators having a storage capacity of 50 units of blood.
2. Deep freezers for freezing ice packs required for transportation.
3. Insulated carrier boxes with ice packs for maintaining the cold chain during transportation of blood bags.
4. Microscope and centrifuge: Since these are an integral part of any existing laboratory, these would already be available at the FRUs.

Activities of IPHS, CHC for Revised National Tuberculosis Control Programme:

All Medical Officers should be trained in RNTCP.

- A microscopy centre (MC) is established for 1 lakh population (in hilly region for 50, 000 population) either at PHC, CHC or district hospital.
- DOTS centre: All SC, PHC, CHC, District hospital work as DOT centers. In addition to them DOT providers are also trained to deliver DOT. Drugs in patient wise boxes and loose drug are provided at DOT centers through district TB centre.

The activities at CHC level under HIV/AIDS:

- RTI/STI management services.
- Voluntary Counseling & Training Centre (VCTC) & youth information centre.
- Training & Behavior Change Communication (BCC).
- Condom promotion.
- Blood safety measures.
- Management Information System (MIS) & Operationalization.

The activities at CHC level under National Program for Control of Blindness:

The following facilities should be available at CHC for NPCB

1. IOL Surgery,
2. Primary Eye Care & Vision Testing,
3. Eye Ointments/Ophthalmic Drops/Injection,
4. Surgical Accessories,
5. Human Resources: Eye surgeon (trained in IOL surgery) & Ophthalmic Assistant.

The activities at CHC level under Vector Borne Diseases Control Programme:

Malaria	1. Early diagnosis and prompt treatment, 2. Integrated vector control for source reduction using larvivorous fishes, impregnated bed nets and Indoor Residual Spray (IRS), 3. Early detection of malaria outbreak, 4. Information, Education and Communication (IEC) for personal protection and

	community involvement for malaria control, 5. Training and Capacity Building of Medical and Para-medical workers, 6. Monitoring and evaluation of efficient MIS.
Dengue	1. Epidemiological surveillance of Dengue cases, 2. Entomological surveillance of Aedes Eedypti mosquitoes, 3. Clinical management of reported cases, 4. Integrated Vector Management including source reduction, use of larvivorous fishes, and selective fogging with Pyrethrum, 5. Behaviour Change Communication for personal protection & source reduction.
Kala-azar	1. Early diagnosis & complete treatment, 2. Interruption of transmission through vector control by undertaking residual insecticide spraying in affected areas, 3. Health education and community participation.
Japanese Encephalitis	1. Vector control by insecticide spraying with appropriate insecticide for outbreak containment, 2. Early diagnosis and prompt clinical management to reduce fatality, 3. Health education and training of medical personnel and professionals.
Filariases	1. Annual Mass Drug Administration (MDA) with single dose of DEC to all eligible population at risk, 2. Home-based management of Lymphodema cases and Hydrocaelectomy.

Indian Public Health Standards for Primary Health Centres (PHCs):

In order to provide optimal level of quality health care, a set of standards are being recommended for PHC. The standards prescribed in this document are for a PHC covering 20,000 to 30,000 populations with 6 beds.

Assured Services at the PHCs:

Assured services cover all the essential elements of preventive, promotive, curative and rehabilitative primary healthcare. This implies a wide range of services that include:

- **Medical care:**
 - OPD services,
 - 24 hours emergency services,
 - Referral services,
 - In-patient services (6 beds).
- **MCH Care & FP:**
 - a. Antenatal care & Intra-natal care:**
 - Early registration of all pregnancies ideally in the first trimester,
 - Minimum 3 ANC checkups,
 - Minimum laboratory investigations like hemoglobin, urine albumin, and sugar, RPR test for syphilis,
 - Nutrition and health counseling,
 - Identification and referral of high-risk pregnancies/ appropriate management,
 - Chemoprophylaxis for malaria in high malaria endemic areas as per NVBDCP guidelines,
 - Promotion of safe institutional deliveries,
 - Management of Pregnancy Induced hypertension,
 - Pre-referral management (Obstetric first-aid) in obstetric emergencies that need expert assistance.(Training of staff for emergency management to be ensured).

b. Postnatal Care:

- A minimum of 2 postpartum home visits, first within 48 hours of delivery, 2nd within 7 days through sub-centre staff,
- Initiation of early breast-feeding within half-hour of birth,
- Education on nutrition, hygiene, contraception, essential new born care,
- Others: Provision of facilities under JSY.

c. New Born care:

- Facilities and care for neonatal resuscitation,
- Management of neonatal hypothermia / jaundice.

d. Care of the child:

- Emergency care of children including Integrated Management of Neonatal and Childhood Illnesses (IMNCI) and control of routine childhood illness,
- Promotion of exclusive breast-feeding for 6 months,
- Full immunization of all children against vaccine preventable diseases,
- Vitamin A prophylaxis to the children.

e. Family Planning:

- Education, motivation and counseling to adopt appropriate FP methods,
- Provision of contraceptives,
- Follow up services to the eligible couples adopting permanent methods,
- Counseling and appropriate referral for safe abortion services (MTP) and for couples having infertility.

f. Management of RTIs/STIs:

- Treatment and health education for prevention of RTI/ STIs,

g. Nutrition Services (coordinated with ICDS):

- Diagnosis, management and nutritional advice to malnourished children, pregnant women and others,
- Coordination with ICDS.

h. School Health:

- Regular checkups, appropriate treatment including de-worming, referral and follow-ups.

i. Adolescent Health Care:

- Life style education, counseling, appropriate treatment.

j. Promotion of Safe Drinking Water and Basic Sanitation

- Disease Surveillance and Control of Epidemics & Prevention and control of locally endemic diseases:
- Alertness to detect unusual health events and take appropriate remedial measures.

Sanitation and Water Quality:

- Disinfections of water sources,
- Testing of water quality using H₂S- Strip Test,
- Promotion of sanitation including use of toilets and appropriate garbage disposal.

k. Collection and reporting of vital events.**l. Behavioural Change Communication.****m. Referral Services:**

- Appropriate and prompt referral of cases needing specialist care including pre-referral management.

n. Basic Laboratory Services:

- Routine urine, stool and blood tests

- Diagnosis of RTI/ STDs with wet mounting, grams stain, etc
- Sputum testing for tuberculosis
- Blood smear examination for malaria parasite\
- RPR test for Syphilis/YAWS surveillance
- Rapid diagnostic tests for Typhoid (Typhi Dot)
- Rapid test kit for fecal contamination of water
- Estimation of chlorine level of water using ortho-toludine reagent.

o.National Health Programmes:

- **RNTCP:** All PHCs to function as DOTS centres and treatment of common complications of TB and side effects of drugs, record and report on RNTCP activities.
- **IDSP:** Collect and analyze data from sub-centres and will report information to district surveillance unit. Appropriate preparedness and first level action in out-break situations.
- **NPCB:** Basic services:
 - Diagnosis and treatment of common eye disease,
 - Refraction Services,
 - Detection of cataract cases and referral for cataract surgery.
- **NVBDCP:**
 - Diagnosis of Malaria cases, microscopic confirmation and treatment
 - Cases of suspected JE and Dengue to be provided symptomatic treatment, hospitalization and case management as per the protocols
 - Complete treatment to Kala-Azar cases in endemic areas
 - Complete treatment of microfilaria positive cases with DEC and participation and arrangement of Mass Drug Administration (MDA) along with management of side reactions, if any. Morbidity management of Lymphedema cases
- **National AIDS Control Program:**
 - IEC activities to enhance awareness and preventive measures about STIs and HIV/AIDS,
 - Prevention of Parents to Child Transmission (PPTCT) services,
 - Screening of persons practicing high-risk behaviour with one rapid test and development of referral linkages with the nearest VCTC at the district hospital level for confirmation of HIV status of those found positive at one test stage in the high prevalence states,
 - Risk screening of antenatal mothers with one rapid test for HIV and to establish referral linkages with CHC or District Hospital for PPTCT services,
 - Linkage with Microscopy Centre for HIV-TB coordination,
 - Condom Promotion & distribution of condoms to the high-risk groups,
 - Help and guide patients with HIV/AIDS receiving ART with focus on adherence.

p.Training:

- Health workers and traditional birth attendants,
- Initial and periodic Training of paramedics in treatment of minor ailments,
- Training of ASHAs,
- Periodic training of doctors through Continuing Medical Education, conferences, skill development training, etc. on emergency obstetric care,
- Training of ANM and LHV in antenatal care and skilled birth attendance.

q.Monitoring and Supervision:

- Monitoring and supervision of activities of sub-centre,
- Monitoring of all National Health Programs,
- Monitoring activities of ASHAs.

r.Mainstreaming of AYUSH is the responsibility of PHC:

s.Rehabilitation:

- Disability prevention, early detection, intervention and referral,

t.Operation Theatre / Labour Room (Optional):

- To facilitate conducting selected surgical procedures (e.g. vasectomy, tubectomy, hydrocelectomy, Cataract surgery camps) and it should have sterilized operating area.

u.Essential Infrastructure:

- The PHC should have a building of its own. The surroundings should be clean. The details are as follows:
- PHC Building in an easily accessible area with all the basic facilities (registration and record room, drug dispensing room, and waiting area with booklets / leaflets and drinking water supply for patients) with ventilated rooms. The walls should carry the posters imparting health education. Toilets with adequate water supply separate for males and females should be available. A locked complaint / suggestion box should be provided
- Outpatient Department with separate areas for consultation and examination for privacy

In PHCs with AYUSH doctors, necessary infrastructure such as consultation room for AYUSH Doctor and AYUSH Drug dispensing should be made available.

Indian Public Health Standards for Sub Centres:

In the public health sector, a sub-centre is the most peripheral and first contact point between the primary health care system and the community. A sub-centre provides all the primary healthcare services such as immunization, antenatal, natal and postnatal care, prevention of malnutrition and common childhood diseases, family planning services and counseling. They also provide elementary drugs for minor ailments such as ARI, diarrhoea, fever, worm infestation etc and carryout community needs assessment and national health and family welfare programs through frontline healthcare workers.

In order to provide Quality Care in these sub centres, IPHS are being prescribed to provide basic primary health care services to the community and achieve and maintain an acceptable standard of quality of care. These standards would help monitor and improve functioning of the sub-centre.

Currently the IPHS for sub-centres has been prepared keeping in view the resources available with respect to functional requirement for sub-centres with minimum standards, such as building, manpower, instruments and equipments, drugs and other facilities etc.

Assured Services to be provided in a Sub-centre:

Sub-centres are expected to provide promotive, preventive and few curative primary health care services as below:

- Maternal and Child Health:
 - Antenatal, intra-natal and postnatal care, Child Health, Family Planning and Contraception, Provision of facilities under Janani Suraksha Yojana (JSY).
- Adolescent health care, School Health Services,
- Control of endemic/epidemics, disease surveillance, Water Quality Monitoring, Promotion of sanitation,
- Curative Services,
- Training & Coordination,
- National Health Programmes:
 - National AIDS Control Program (NACP), National Vector Borne Disease Control Program (NVBDCP), National Leprosy Eradication Program (NLEP), Integrated Disease Surveillance Projects (IDSP), Revised National Tuberculosis Control Program (RNTCP),

National Blindness Control Program (NBCP), Non-communicable Disease (NCD) and Cancer Control Programs

- Record of Vital Events,
- Physical Infrastructure:
 - A sub-centre should have its own building, road communication, public transport, telephone, boards showing visiting schedule of ANM in local language, suggestion/complaint boxes, waiting area, waste disposal facility, adequate furniture and equipment for conducting safe deliveries, immunization, and contraceptive services like IUD insertion etc.
- Supporting Services:
 - Laboratory services (hemoglobin and urine test), electricity, potable water for patients and staff,
- Supporting Services:
 - Laboratory services (hemoglobin and urine test), electricity, potable water Monitoring mechanism:
- Monitoring may be made possible by internal mechanisms, supportive supervision and record checking at periodic intervals or by external mechanism i.e. village health and sanitation committee, by an independent external agency, client satisfaction survey etc.

Panchayati Raj Institutions and NRHM

Introduction:

In spite of the progress made, a high proportion of the population, especially in rural areas, continues to suffer from preventable diseases, pregnancy and childbirth related complications as well as malnutrition. In addition to old unresolved problems, the health system in the country is facing emerging threats and challenges. The rural public health care system in many states and regions is in an unsatisfactory state. Even though the Panchayats have historically been an integral part of rural India, the Constitution (73rd Amendment) Act, 1992 has institutionalized the Panchayati Raj Institutions at the Village, Intermediate and the District levels, as the third tier of governance. The aim was to strengthen local government organizations with clear areas of jurisdiction, adequate power, authority and funds commensurate with responsibilities and with an emphasis on reservations for deprived classes of the population in Panchayats including of the leadership positions.

Panchayats have been assigned 29 rural development activities, which are related to health and population stabilization. The XI schedule includes Family Welfare, Health and Sanitation, (including hospitals, primary health centers, and dispensaries,) and the XII schedule includes Public Health. Thus the possible realm of influence of the Panchayats extends over a significant proportion of public health issues. The Gram Sabha, where empowered has the potential to act as a community level accountability mechanism to ensure that the functions of the village Panchayat in the area of public health and family welfare, actually respond to people's needs.

The NRHM has been launched with a view to bringing about dramatic improvement in the health system and the health status of the people, especially those who live in the rural areas of the country. The Mission seeks to provide universal access to equitable, affordable and quality health care which is accountable at the same time responsive to the needs of the people, reduction of child and maternal deaths as well as population stabilization, gender and demographic balance.

The core strategies of the Mission include train and enhance capacity of Panchayati Raj Institutions (PRIs) to own, control and manage public health services and strengthening of existing sub-centre through better human resource development, PHCs, CHC under Indian Public Health Standards. PRIs are specific public bodies with adequate funds, functions and functionaries that involve all the governing bodies as stakeholders. PRIs act in a decentralized manner for planning and specific need based interventions. PRIs help to convergent action and community monitoring at all levels.

Increasingly it is being realized that strategies for achieving low infant, under five and maternal mortality depend on a functioning continuum of high quality services from community to secondary and sometimes higher levels of care. In addition community support for such services comes through behavior change to increase utilization as well as demand high quality services. In the RCH 2 implementation document, specific mention is made of plans to support PRI (and urban counterparts) in design, implementation, monitoring of RCH related interventions. This is also seen as a potential to address the social determinants of health through engagement with communities and PRI rather than a biomedical approach. It is also expected that PRI involvement will increase community understanding of issues of accountability for quality and reliability of health care services.

Critical Role of Panchayati Raj Institutions in NRHM:

The NRHM, designed to integrate health and family welfare related interventions and address health from a holistic preventive, promotive and curative viewpoint takes a much more significant view of PRI engagement. The fulcrum of the NRHM program is a social activist (ASHA) at the village level, who will work with the village level resource team in providing preventive and promotive health care services. It is expected that she will be supervised and supported by the panchayats.

Thus there is opportunity for PRI involvement to address the non technical components of health care seeking, provided all PRI representatives are exposed to a perspective building exercise on health within the framework of gender and equity.

Linkage from the village to Gram Panchayat to Block and District:

- **At the village and Gram Panchayat level:**

The Village Health Committee (VHC) will form the link between the Gram Panchayat and the community. The VHC would be responsible for working with the Gram Panchayat to ensure that the health plan is in harmony with the overall local plan. It is anticipated that this committee will prepare a Village Health Plan and maintain village level data, supervised by the Gram Panchayat. Engaging the Gram Sabha and other groups in planning and monitoring the Village Health Plan will presumably enforce transparency and accountability.

Under the NRHM, untied funds of Rs. 10,000 are placed with the ANM to meet unanticipated expenditures and to ensure that lack of drugs and other consumables is not an issue. An account has been opened with the Sarpanch for operationalization of the activities planned. At the sub-centre level, planning and use of these funds will be supported by the appropriate tier of the panchayat.

- **Block Level:**

At the block level a Block Co-ordination Committee with the Block Nodal Officer /Block Panchayat President as Chairperson and the involvement of PRIs and civil society will be formed for effective functioning and convergence. This will be linked to the Meeting of the Block level Committees under the Pradhan.

- **District level:**

At the District level the District Health Mission will coordinate NRHM functions and are under the Zila Pramukh.

- **ASHA and the PRIs:**

The selection of ASHA is the responsibility of the Gram Panchayat where it will be finalized in a meeting of the Gram Sabha. The success of ASHA scheme will depend on how well the scheme is implemented and monitored. It will also depend crucially on the motivational level of various functionaries and the quality of all the processes involved in implementing the scheme.

- a. At the village level ASHA will receive support from the women's committees (like self help groups or women's health committees), Village Health & Sanitation Committee of the Gram Panchayat, peripheral health workers especially ANMs and Anganwadi workers, the trainers of ASHA and mainly the Panchayat members.
- b. At the block level, ASHA scheme will have a Block Co-ordination Committee with the Block Nodal Officer /Block Panchayat President as Chairperson and the involvement of PRIs and civil society.
- c. The Gram Panchayat would lead the ASHA initiative in selection of ASHA, providing regular support in undertaking many health related tasks through its statutory health committee, developing the village health plan and in the compensation incentive. All ASHAs will be in this Village Health & Sanitation Committee of the Panchayat either as members or as special invitees.

Importance of PRIs:

PRIs can take part in planning, implementation and monitoring of health services to improve the health care delivery by solving the following issues:

- Reaching the health facilities or programs to every household has become a tedious work.
- Poor access of health care and public services.
- Lack of knowledge regarding the health care services.
- Resident, skilled, development workers with high motivation.

- Accountability to Local Governments.
- Crafting Credible Public Systems.

Functions (Critical Role) of PRIs in the success of the NRHM:

- PRIs are seen as critical to the planning, implementation, and monitoring of the NRHM. Implementation of the NRHM in achieving its outcomes is significantly dependent on well functioning gram, block and district level panchayats. At the District level a District Health Mission will coordinate NRHM functions.
 - Key to NRHM success are:
 - Inter-sectoral convergence,
 - Community ownership steered through village level health committees at the level of the Gram Panchayat, and
 - A well functioning public sector health system with support from the private sector.
- ASHA, selected by the Gram Panchayat or the Village Health Committee to strengthen village level service delivery. She will be supported in her work by the AWW, school teacher, community based organizations, such as SHGs, and the VHC. She will be reimbursed by the panchayat on a performance based remuneration plan.

Empowerment of Panchayats through and the assured availability of adequate funds, clear articulation of functions, and transfer of requisite functionaries to carry out such functions:

PRIs are mandated to carry out health activities; the necessary policy/legal framework, authority or fiscal commitments do not back them. Many centrally sponsored schemes and others are implemented outside the purview of the panchayats, thus keeping them out of the loop and undermining their credibility. Issues of political patronage hamper functioning.

- Funds transfer to PRI for effective functioning of health services:** Transfer of funds to PRI is a critical must before they can be expected to play a meaningful role in HFW activities. With financial devolution other processes such as fiscal management, systems training and appropriate checks and balances will need to be introduced.
- Clear articulation of functions of PRI at various levels:** In areas where little devolution of power or funds has taken place, PRI representatives and particularly women lack clarity on their roles in development functions, including health. Line department staffs have to recognize that PRI carry the mandate of the people.
- Transfer of functionaries with commensurate authority and accountability guidelines:** PRIs are expected to undertake monitoring of functionaries, particularly of line departments such as health and family welfare for increased accountability and improved functioning, without any authority over them. Transfer of functionaries is critical to ensure adequate functioning, monitoring, and accountability. Safeguards must be in place to protect against intimidation, wrongful harassment, and corruption.

Enlisting NGO support in building capacity among PRI members to effectively handle development related functions:

- Capacity building of PRI is required in thematic areas and leadership skills, negotiating, monitoring, ability to withstand patronage and political interference. Capacity building processes need to be tailored to literacy levels, sex and circumstances of PRI members.
- Joint orientation and sensitization meetings between PRI and health and medical professionals could help to bridge the gap in education and social strata. Developing Citizen Charter of Rights and Codes of conduct also lay down guidelines for boundaries of operation and accountability.

- c. NGOs could be involved in PRI strengthening in a variety of ways, including: consciousness raising, provision of technical advice, support in participatory planning, capacity building and facilitating monitoring processes, such as community and social audits to improve accountability.

Repealing penalties and disincentives such as the two child norm, which violate individual rights and discriminate against women's participation in panchayats:

- a. Several states include disincentives in their population policies. The most draconian is that which bars people who have more than two children from holding office. Such policies are anti-women, threaten to undo the good of a decade's work in enabling women to participate in political processes and violate women's freedom and individual rights. They feed son preference actions such as sex selective abortions, pushing down an already unfavorable sex ratio. There are cases of women being abandoned, the third child given away or disowned, and consequent denial of the child's rights.
- b. Policies and laws such as this need to be repealed or they might have serious negative consequences for women and society at large. Population stabilization is a function of women's empowerment, access to high quality RH services and equal participation of men. PRIs should be encouraged to support these interventions to further promote improved health.

FINANCIAL GUIDELINES, CASH FLOW AND AUDITS

Rugna kalyan Samiti

- In Maharashtra, vide GR dated 30th December 2005 RKS was established in DH/RH/SDH/WH and RKS was established in PHCs vide GR dated 31st January 2007
- RKS is a registered body under Charity Commission Act
- Delegated powers to RKS & District Health Societies to plan and implement activities as per their needs.
- Planning and monitoring process of RKS should be through Governing body & Executive committee decisions
- RKS can raise money through User Fees, Donations & Bank Interest
- RKS is expected to facilitate better service delivery in the institutions
- Any change in the membership of Governing and Executive Committee members could be done only with the prior approval of Charity Commissioner 's Office.

Activities of RKS :-

8. Undertake all activities to improve and expand patient related quality services and welfare activities.
9. The Executive Committee will guide and control the activities as per the policy formulated by RKS Governing Body.
10. Acquiring equipment, furniture, emergency medicines for efficient running of the hospitals as per existing rules and regulations.
11. To ensure subsidized food, medicines and quality drinking water to the patients and their relatives.
12. Improve boarding and lodging arrangements (Kitchen/Dharmashala) for patients and their attendant.
13. To provide Referral services to patients.
14. Cloths to patients/ newborn for delivery patients

Rugna Kalyan Samiti

Governing & Executive Committee Chairperson & Member Secretary

SR. NO.	Health Institutes	Designation	Governing Body	Executive Body
1	District Hospital	Chairperson	District Collector	Civil Surgeon
		Member secretary	Civil Surgeon	Residential Medical Officer (Clinical)
2	Sub – District Hospital / Rural Hospital	Chairperson	Block Development Officer,(Panchayat Samiti)	Medical Superintendent of the hospital
		Member secretary	Medical Superintendent of the hospital	Senior Medical Officer of the Rural Hospital/SDH nominated by the CS
3	Regional referral centre	Chairperson	Divisional Commissioner	Medical Superintendent of the RRC
		Member secretary	Medical Superintendent of the RRC	Officer on Special Duty or Senior Medical Officer of the RRC
4	Tuberculosis Hospital	Chairperson	District Collector	District TB Officer
		Member secretary	Medical Superintendent of the TB Hospital	District TB Officer
5	Leprosy hospital	Chairperson	District Collector	Medical Superintendent of the LH / Additional Director (LH)
		Member secretary	Medical Superintendent of the LH	Additional Director (Leprosy Hospital)

6	Mental Hospital	Chairperson	District Collector	Medical Superintendent of the MH
		Member secretary	Medical Superintendent of the MH Hospital	Senior Medical Officer of the MH
7	Orthopedic Hospital	Chairperson	District Collector	Medical Superintendent of the Ortho Hospital
		Member secretary	Medical Superintendent of the Ortho Hospital	Senior Medical Officer of the Ortho Hospital
8	Malvani Malad General Hospital	Chairperson	District Collector	Medical Superintendent of the Hospital
		Member secretary	Medical Superintendent of the MH Hospital	Senior Medical Officer of the
9	Primary Health Centre	Chairperson	Z.P. member who represents for the Jurisdiction of the PHC	Block Health Officer
		Member secretary	Medical Officer of the PHC	Medical Officer of the PHC

Annual Maintenance Grant

- In Maharashtra, vide GR dated 17th January 2007 AMG is distributed in SDH,RH,WH,PHC and SC .
- Annual Maintenance Grants are distributed for maintenance of physical infrastructure of health institutions.
- GOI has directed to use the Annual Maintenance grants for regular maintenance of physical structure of health institutions including provision of water, toilets and other maintenance.
- Major part of the Annual Maintenance grant should be spent to do minor repairs and strengthening of the building and then for doing cleanliness activities.

Activities of AMG:-

- To ensure/ undertake regular repairs and maintenance of the physical facilities.
- To ensure/undertake cleaning, bio-medical waste management, and other services of the hospital.
- To provide improved facilities in various departments including contract services of technical/other personnel.
- To ensure proper use by timely maintenance and repair of hospital equipment and machinery.
- Repairs and Maintenance of water supply and drainage.
- Payment of Electricity bills and Telephone bills.
- Maintenance of Computers and other office equipments.
- Any other maintenance expenditure.

2. Untied Fund

- In Maharashtra, UF is distributed vide GR dated 17th January 2007
- Untied funds have been provided to the institutions up to Village health nutrition sanitation & water supply Committees, Sub Centers, PHCs, CHCs, and PHU to promote local health action.
- Necessity of Untied Fund has been felt mainly due to unavailability of funds for undertaking any innovative need –based activity
- Untied Funds will be used only for the common good & not for individual needs,
- Expenditure in the case of referral & transport in emergency situations.
- Untied Funds should not duplicate what can be taken up under other programs
- The Untied grant is to be used for household surveys, health camps, sanitation drives, revolving fund etc.
- Untied Funds shall not be used for any salaries, vehicle purchase & recurring expenditure.

Activities of UF:-

- This fund is mainly provided for implementation of innovative schemes.
- Expenditure can be made under untied fund to fill up temporary gaps created in response to short supply of logistics or unexpected change in demand pattern.
- This fund can be used for the purchase of Lab materials, Instruments/Equipments, Furniture, Curtains, Mattresses etc.
- Transfer of samples during epidemics.
- Transport of emergencies to appropriate referral center.
- Untied fund shall not be used for vehicle purchase, payment of monthly salaries. But can be used to make payments for services rendered.
- Untied fund should not be used for recurring expenditures.
- This fund can also be used for minor purchases like Stationery, Registers, Papers etc.

VILLAGE HEALTH NUTRITION WATER SUPPLY & SANITATION COMMITTEE

- Formation of Village Health, Nutrition, Water Supply and Sanitation Committees was sanctioned via GR dated 6th December 2006
- Total 39872 VHNSC established in Revenue Villages
- Chairperson (Sarpanch) & Member secretary (ASHA) holds the Joint Account of VHNSC
- The VHNSC will be the key agency for developing Village Health Plan and the entire planning of Village Panchayat for NRHM
- VHNSC Committee comprises of Panchayat Representatives, ANM, Anganwadi Workers, Teachers, Community Health Volunteers & Asha
- VHNSC is provided Untied Fund which is made available for IEC household survey, Preparation of Health Registered, Organization of Meetings at Village Level, Village Health Plan, Health awareness activities, Safe Water Supply etc.

VHNSC Fund is utilized for

- Preparation of Village Health Plan
- Organization of Village Health & Nutrition Day
- Gram-Sabha organized for health issues
- Purchases for Organizing Village health day
- Nutritional schemes for malnourished children
- Transporting pregnant women for delivery
- Transporting other patients for treatment
- No. of breeding places destroyed
- Organization of Health Awareness activities
- Repairs of water supply scheme
- Repairs/Civil Works in Anganwadi
- Cleanliness of Common Toilets

Action Points

- Decentralize Funds. Should be used at Institutional level only.
- Centralized purchasing from district level is banned.
- 1st installment to be released to all the institutions as per time line given.
- Subsequent installments to be given after receiving the SOE of the available amount.

- Amount allocated in the PIP is to be released in III or IV installments to the institutes.
- Conducting 1st GB within 2months of the beginning of the financial year.
- GB to approve plan for entire allocation of funds sanctioned to the institution in the PIP.
- Distribution of funds should be done according to the given timelines.

Presentation of good practices under RKS & VHNSC

Utilization of RKS Fund

RKS Fund is utilized for

- Purchase of medicine to poor patients
- Laboratory tests outside hospital
- Transportation of patient (Referral Services)
- Cloths to patients/ newborn for delivery patients
- Drinking water facility to patients
- Sitting arrangement for patients
- Solar power heater for patients
- Kitchen / Dharmashala – Construction/ maintenance
- Food facility for patients
- Other innovative schemes
- purchase of essential medicine not available in Hospital
- purchase of essential equipments not available in the Hospital

AMG Fund is utilized for

- Repairs & maintenance of hospital building & quarters
- Repairs & maintenance of water supply & drainage
- Repairs of instruments/equipments/ delivery table etc
- Repairs of furniture / doors/ windows (carpenter works)
- Payment of cleaning of Sub Centre / hospital building & premises
- Water supply during scarcity
- Electricity bills
- Telephone bills
- Maintenance of computers & other office equipment
- Other maintenance expenses

UF Fund is utilized for

- Purchase of Sub Centre medicine which is urgently require & not available
- Purchase of lab material
- Purchase of instrument/ equipment
- Purchase of furniture/ curtains/ mattresses
- Purchase of dressing material(bandage/ cotton)
- Transport of emergency patients
- Transport of women in labour
- Transporting of samples in epidemics
- Mobile charges to ANMs (regular/Contractual)
- Innovative schemes for SC work improvement
- Civil works

- Stationary, registers, papers etc.
- charges to ANMs (regular/Contractual)
- Innovative schemes for SC work improvement
- Civil works

राष्ट्रीय आरोग्य अभियान
राज्य आरोग्य सोसायटी महाराष्ट्र
४९. वित्तीय व्यवस्थापन विषयक मार्गदर्शक पुस्तिका

दफ्तरी ठेवावयाची लेखा पुस्तके

- राष्ट्रीय आरोग्य अभियान अंतर्गत ठेवण्यात येणारे लेखे डबल एन्ट्री बुककिपिंग पद्धतीने ठेवण्यात यावेत.
- केंद्र शासनाच्या मार्गदर्शक सूचनांस अनुसरून राज्यभरात सर्वस्तरावर लेख्यांमध्ये साम्यता येण्याच्या दृष्टीकोनातून, संगणकीकृत टॅली ईआरपी ९ या कस्टमाईज्ड प्रणालीचा वापर करणे बंधनकारक आहे.
- संगणकीकृत टॅली ईआरपी ९ ही कस्टमाईज्ड प्रणाली जरी वापरात असली तरी हस्तलिखित कॅशबुक अद्यावत स्थितीत दफ्तरी असणे बंधनकारक आहे.
- हस्तलिखित स्वरूपात दफ्तरी अभिप्रेत असलेली लेखा पुस्तके खालील प्रमाणे आहेत:-

Books of Accounts / Other Records	Block	CHC/ PHC	RKS***	Sub Centres	VHSNC
Cash Book	✓	✓	✓		
Bank Register	✓	✓	✓	✓	✓
Ledger	✓	✓	✓	✓ *	
Journal Register	✓	✓	✓		
Cheque Issue Register / PFMS	✓	✓	✓		
Advance Register	✓	✓	✓		
Salary Register / File	✓	✓	✓	✓	
Fixed Asset Register	✓	✓	✓	✓	
Stock Book	✓	✓	✓	✓	
Fund Received Register	✓	✓			
Disbursement Register	✓	✓			
Bank Pass Book / Bank Statement	✓	✓	✓	✓	✓
Bank Reconciliation Statement	✓	✓	✓	✓	✓
Minutes / Proceedings Register	✓	✓	✓	✓	✓
JSY Register**		✓		✓	

*Not mandatory but units currently maintaining ledgers may continue maintaining it as a good practice.

**In addition to units specifically mention above, JSY Register also needs to be maintained wherever JSY disbursements are made.

***RKS includes District Hospitals, Sub Districts/ Rural Hospitals / Medical Collage and or any other government hospitals at district and lower levels.

लेखा पुस्तकांबाबत संक्षिप्त विवरण

इतर रजिस्टर्स

- आवकरजिस्टर
- जावकरजिस्टर
- अटेंडन्सरजिस्टर
- ई एम डी/बैंक ड्राफ्ट रजिस्टर
- पीएफएमएस रजिस्टर

कॅशबुक

राष्ट्रीय आरोग्य अभियान अंतर्गत ठेवण्यात येणारे लेखे डबल एन्ट्रीबुक किपिंग पद्धतीने ठेवावयाचे असून सर्व स्तरावर लेख्यांमध्ये साम्यता येण्याच्या दृष्टीकोनातून संगणकीकृत टॅली ईआरपी९ या कस्टमाईज्ड प्रणालीचा वापर होणे बंधनकारक आहे. टॅली ईआरपी९ या प्रणाली व्यतिरिक्त नवीन पद्धत अवलंबावयाची झाल्यास तशा सुचना निर्गमित करण्यात येतील. संगणकीकृत टॅली ईआरपी९ ही कस्टमाईज्ड प्रणाली जरी वापरात असली तरी हस्तलिखित कॅशबुक अदयावत स्थितीत दप्तरी असणे बंधनकारक आहे. कॅशबुक मधील नोंदी रोजच्या रोज अदयावत करण्यात याव्यात तसेच प्रत्येक पानावर अधिकृत अधिका-यांची स्वाक्षरी वशिक्का घेऊन प्रमाणित करण्यात यावे. कॅशबुकमध्ये सुरुवातीची शिल्लक, चालु आर्थिक वर्षात घटकनिहाय प्राप्त निधी, दिलेले अग्रीम आणि खर्चाच्या नोंदी तसेच शेवटची शिल्लक या बाबींच्या नोंदी दररोज करणे बंधनकारक आहे. सोबत हस्तलिखित कॅशबुकचा नमुना पृष्ठ क्र.१८ वर जोडला आहे.

बैंक रजिस्टर

बैंक रजिस्टरमध्ये बँकेच्या खाती ईप्रणालीद्वारे प्राप्त झालेल्या निधी रक्कमांच्या नोंदी तारीखनिहाय करण्यात यावी जेणेकरून वर्षाखेरीस वित्तीय विवरणपत्रांना अंतिम स्वरूप देतेवेळी प्राप्त निधी रक्कमेचा ताळमेळ करणे शक्य होईल.

लेजरबुक

कॅशबुक आणि जरनल मधील नोंदीच्या द्वितीय प्रतिनोंदी (लेजर पोस्टिंग) लेजरबुकमध्ये घेण्यात येतात जेणेकरून वर्षाखेरीस घटकनिहाय किती खर्च झाला, कोणास किती अग्रीम देण्यात आले आहे तसेच किती अग्रीमाचे समायोजन बाकी आहे हे समजते आणि त्या वरून वर्षाखेरीस वित्तीय विवरणपत्रामध्ये घटकनिहाय तसेच वस्तुनिहाय आणि व्यक्तिनिहाय रक्कम येणे अथवा देय बाबतची माहिती मिळणेसहज शक्य होते. नमुना पृष्ठ क्र.१९वर जोडला आहे.

जर्नलबुक

निम्न स्तरावरून संस्थेने पाठविलेल्या एसओईची नोंद थेट कॅशबुकमध्ये न करता जर्नल रजिस्टर द्वारे नोंद करावी. आपल्या अखत्यारितील क्षेत्रिय संस्थांना वितरित केलेल्या अग्रीम रकमेतून त्यांनी सादर केलेल्या खर्चाच्या नोंदी या जरनल बुकमध्ये करण्यात येतात. जेणेकरून जरनल बुकमधील द्वितीय प्रतिनोंदी लेजरबुकमध्ये केल्यानंतर संबंधित संस्थेस किती अग्रीम वितरित झाले आहे आणि खर्च वजा जाता संस्थेकडे किती अग्रीम शिल्लक आहेही माहिती लेजरबुकमधून साध्य होते. नमुना पृष्ठ क्र.२०वर जोडला आहे.

चेक्सइशुरजिस्ट्रर/ पीएफएमएसरजिस्ट्रर

या रजिस्ट्ररमध्ये वेळोवेळी काढण्यात आलेल्या धनोदशांच्या नोंदी करणे बंधनकारक आहे. यामध्ये किती तारखेस धनादेश काढला आहे, कोणाच्या नावे काढला आहे, किती रकमेचा काढला आहे, कोणत्या कारणास्तव काढला आहे तसेच धनोदश कोणी लिहिला आहे व त्यावर स्वाक्षरी कोणत्या अधिका-यांनी केल्या आहेत याचा उल्लेख असतो. या रजिस्ट्ररमध्ये चेकबुकच्या अनुक्रमांकनिहाय नोंदी असल्याकारणाने गाहाळ झालेल्या चेकची माहिती सहज मिळते व परिणामी भाविण्यात होणा-या अपहारास आळा बसतो. नमुना पृष्ठ क्र.२२वर जोडला आहे. सदर स्थितीत राष्ट्रीयआरोग्य अभियानांतर्गत पीएफएमएस प्रणालीद्वारे सर्व अदायगी बंधनकारक असल्या कारणाने पीएफएमएस रजिस्ट्रर दप्तरी ठेवणे अधिक उचित ठरेल. जेणेकरून भविष्यात पीएफएमएस द्वारे अदा केलेल्या नोंदीची माहिती एकाच ठिकाणी राहील तसेच लेखापरिक्षण वेळी लेखापरिक्षकांना सहज सादर करणे शक्य होईल.

ॲडव्हान्सरजिस्ट्रर (कर्मचारी / क्षेत्रीय संस्था)

ॲडव्हान्स रजिस्ट्ररमध्ये संस्था / व्यक्तीनिहाय दिलेल्या अग्रीमाच्या नोंदी होणे आवश्यक आहे. जेणेकरून संबंधित संस्था / व्यक्तीकडे किती दिवसापासुन अग्रीमाचे समायोजन प्रलंबित आहे याचा बोध होतो. (Age of advance)व्यक्तीगतरित्या एखाद्या कामानिमित्त अधिकारी / कर्मचा-यास अग्रीम दिल्यास त्याचे समायोजन अग्रीम दिलेल्या तारखेपासुन ३० दिवसात होणे बंधनकारक आहे तसेच संस्थेस दिलेल्या अग्रीमाचे समायोजन देखील ३ महिन्यांच्या आत होणे बंधनकारक आहे. नमुना पृष्ठ क्र.२१ वर जोडला आहे. अग्रिम रजिस्ट्रर मध्ये नोंदविलेल्या अग्रिमांचे समायोजन न होण्याचा कालावधी पडताळावा व त्या नुसार संबंधित संस्था किंवा व्यक्ती यांना खर्च किंवा खर्चाचे समायोजन न केल्या प्रित्यर्थ विचारणा व्हावी व त्वरित खर्चाचे समायोजन करून घेण्यात यावे. कोणत्याही परिस्थितीत संस्था किंवा व्यक्तीस दिलेले अग्रीम हे खर्चाचे समायोजन होण्यापूर्वी लेख्यांमध्ये खर्ची टाकण्यात येऊ नये.

सेलरी रजिस्ट्रर / फाईल

दरमहा संस्था स्तरावरून कर्मचा-यांना अदा केलेल्या मानधनाचे तक्ते तथा प्रशासकीय मान्यतेच्या प्रती या नस्तीमध्ये दप्तरी जतन करून ठेवाव्यात. जेणेकरून लेखापरिक्षण वेळी लेखापरिक्षकांना सहज सादर करणे शक्य होईल.

स्टॉकबुक / फिक्सॲसेट्सरजिस्ट्रर

दप्तरी खरेदी करण्यात आलेल्या औषधे, वैद्यकीय साहित्य उपकरणे तथा इतर वस्तुंच्या नोंदी स्टॉकबुक मध्ये करणे आवश्यक आहे. जेणेकरून अभियानाच्या सुरुवातीपासुन अदयापर्यंत वर्षनिहाय किती वस्तुची खरेदी करण्यात आली व आजरोजी त्यातील किती वस्तु निष्काशित करण्यात आल्या आहेत व किती कार्यरत आहेत याची माहिती सहज उपलब्ध होते. तसेच, भविष्यात कार्यालयातुन एखादी वस्तु चोरी गेल्यास या रजिस्ट्ररमधील नोंदीचा वापर आवश्यक त्या कार्यवाहीवेळी करणे सहज शक्य होते. यास्तव, वेळोवेळी खरेदी करण्यात आलेल्या वस्तुंच्या नोंदी सदर साठानोंद वहीमध्ये आणि जंगम मालमत्तेच्या नोंदी फिक्सॲसेट्स रजिस्ट्रर वेळचेवेळी करणे अत्यावश्यक आहे.या रजिस्ट्ररमध्ये वस्तुनिहाय खाते प्रत्येक पानवर घ्यावयाचे असून त्यामध्ये वस्तुचा खरेदी दिनांक, पुरवठा केलेले नग, किंमत, पुरवठादाराचे नावइ. बावींच्या नोंदी करण्याप्रित्यर्थचे मार्गदर्शनबाबतचा नमुना पृष्ठ क्र.२३ व २४वर जोडला आहे.

प्रकल्पांतर्गत प्राप्त होणा-या निधीवर नफा कमविणे हा उद्देश नसल्याने खरेदी केलेल्या फिक्स ॲसेटवर घसारा रक्कम (Depreciation) काढण्यात येऊ नये.

जंगम मालमत्ता (फिक्स ॲसेट्स) खरेदी केल्यानंतर त्यावर अनुक्रमांक व खरेदीचे वर्ष ऑईल पेंटने नमुद करणे आवश्यक आहे.

वित्तीय वर्ष अखेरपूर्वी तसेच चालू आर्थिक वर्षात खरेदी केलेल्या जंगम मालमत्तेचे सुस्थितीत कार्यरत असल्याबाबत व ज्यांच्याकडे त्या वस्तु आहेत त्यांच्या स्वाक्षरीचे प्रमाणपत्र दप्तरी ठेवण्यात यावे.

Fund Received Register :

या रजिस्टरमध्ये वरिष्ठ कार्यालयाकडून घटकनिहाय प्राप्त झालेल्या निधीच्या नोंदी करणे आवश्यक आहे. जेणेकरून वर्षअखेरीस प्रत्येक घटकनिहाय किती निधी प्राप्त झाला याची एकत्रितरित्या माहिती मिळणे सुलभ होते आणि वर्षाअखेरच्या वित्तीय विवरण पत्रांमध्ये नोंदी घेण्यास देखील सहज शक्य होते.

Fund Disbursement Register:

या रजिस्टरमध्ये आपल्या कार्यालयाकडून क्षेत्रीय संस्थांना घटकनिहाय वितरीत केलेल्या निधीच्या नोंदी करणे आवश्यक आहे. जेणेकरून वर्षअखेरीस प्रत्येक घटकनिहाय किती निधी प्राप्त कोणास वितरीत केला या अन्वये संबंधित संस्था निहाय एकुण अग्रिम रक्कमेची एकत्रितरित्या माहिती मिळणे सुलभ होते आणि वर्षाअखेरच्या वित्तीय विवरण पत्रांमध्ये नोंदी घेण्यास देखील सहज शक्य होते.

बँक पासबुक / बँक स्टेटमेंट

प्रत्येक संस्थेस होणारी निधी प्राप्ती ही बँकेच्या खाती जमा होते. तसेच प्राप्त निधीतुन झालेल्या विनियोजनाच्या नोंदी देखील सदर खाती खर्ची पडलेल्या असतात. दप्तरी उपलब्ध असलेल्या कॅश बुक मधील नोंदी तसेच महिना अखेरची शिल्लक याचा ताळमेळ करण्यासाठी बँकेचे पासबुक किंवा स्टेटमेंट वेळवेळी प्राप्त करून घेणे आवश्यक आहे. अर्थात बँकेकडून प्राप्त असलेल्या स्टेटमेंट वर बँकेचा शिक्का असणे बंधनकारक आहे. अन्यथा विना बँकेचा शिक्का असलेले स्टेटमेंट लेखापरिक्षण वेळी ग्राह्य धरले जात नाही.

बँक रिकन्सिलिएशन स्टेटमेंट

कॅशबुकमधील महिना अखेरची शिल्लक आणि बँक पासबुक किंवा स्टेटमेंट मधील शिल्लक यामधील तफावत शोधून काढण्यास तसेच आपल्या अपरोक्ष बँकेकडून एखादी चुकीची रक्कम खर्ची टाकण्यात आल्यास किंवा एखादी अपहार / अनियमिततेची घटना घडल्यास अशा नोंदी पडताळण्यासाठी बँक रिकन्सिलिएशन स्टेटमेंट दरमहा बनविणे बंधनकारक आहे. साधारणतः बँकेने परस्पर वजावट केलेले बँक चार्जस तसेच बँकेकडून जमा झालेली व्याज रक्कम अशा रक्कमांची तफावत आढळून येते. परिणामी, बँक रिकन्सिलिएशन बनविल्यानंतर त्यातील नमुद फरकाच्या नोंदी कॅश बुकमध्ये घेणे आवश्यक आहे. संस्थेकडे दप्तरी उपलब्ध असलेली जेवढी बँक खाती अस्तित्वात आहेत तेवढ्या बँकांची रिकन्सिलिएशन स्टेटमेंट बनविणे बंधनकारक आहे.

मिनिट्स बुक / प्रोसिडींग रजिस्टर

जिल्हा / उपजिल्हा / ग्रामीण / स्त्री रुग्णालये तसेच प्राथमिक आरोग्य केंद्र इत्यादी स्तरावर स्थापित रुग्ण कल्याण समित्यांच्या माध्यमातुन होणा-या खर्चाबाबत समिती सदस्यांच्या कार्यकारी तसेच नियामक मंडळाच्या बैठकीमध्ये मान्यता घेणे बंधनकारक असते. सदर बैठकीतील घेण्यात आलेल्या ठरावाच्या मिनिट्स बुक / प्रोसिडींग रजिस्टरमध्ये नोंदी घेऊन त्याखाली उपस्थित सदस्यांच्या स्वाक्ष-या घेऊन दप्तरी ठेवणे बंधनकारक आहे. जेणेकरून मंजूर ठरावानुसार रुग्ण कल्याण समिती अंतर्गत झालेल्या खर्चास सर्व सदस्यांची मिळून एकत्रितरित्या संयुक्त मान्यता असल्याने तसेच सर्व समिती सदस्यांना पारदर्शकरित्या आर्थिक व्यवहाराची माहिती होत असल्याने निधीतुन होणा-या विनियोजनामध्ये अपहार तथा अनियमिततेच्या बाबींना आळा बसण्यास मदत होते.

जेएसवाय रजिस्टर

जननी सुरक्षा योजने अंतर्गत ग्रामीण शहरी आणि महानगरपालिका कार्यक्षेत्रात गरोदर मातेस लाभ देण्यात येतो. ग्रामीण भागातील पात्र जेएसवाय लाभार्थींना रु.७००/-, शहरी भागातील पात्र जेएसवाय लाभार्थींना रु. ६००/-, होम डिलीव्हरी जेएसवाय लाभार्थींस रु.५००/- तसेच जेएसवाय कार्यक्रमांतर्गत मार्गदर्शक सुचनांस अनुसरून सिझेरियन असल्यास रु.१५००/- अशा देय लाभांच्या नोंदी जेएसवाय रजिस्टर मध्ये करणे बंधनकारक आहे. जेणेकरून एकुण लाभार्थींची संख्या आणि या योजने अंतर्गत झालेल्या खर्चाचा भौतिक साध्यतेशी ताळमेळ करणे शक्य होते. अशाच प्रकारे प्रकल्पांतर्गत विविध योजनानिहाय लाभार्थींना अदा केलेल्या रक्कमप्रित्यर्थ रजिस्टर्स दप्तरी ठेवण्यात यावे.

दप्तरी अभिप्रेत असलेल्या फाईल्स

- कॅशव्हाउचरफाईल
- संबंधित खर्चाच्या प्रशासकिय मान्यतेच्या फाईल्स
- सक्क्युलर्सफाईल
- एफएमआर/एस ओ इ फाईल
- महालेखाकार (सी अॅण्ड एजी) ऑडीट फाईल
- वैधानिक (Statutory) लेखापरिक्षण फाईल
- समवर्ती लेखापरिक्षण (Concurrent) फाईल
- रुग्ण कल्याण समिती लेखापरिक्षण फाईल (आरकेएस ऑडीट)
- जनरल/ सादील खर्चाच्या फाईल्स
- बॅंकरिकन्सलेशन स्टेटमेंट फाईल
- मिनिट्स बुक
- टीडीएस/आयकरचलन्स/रिटर्न फाईल
- इतर फाईल्स उदा. टीए/डीए, टेलीफोन, इलेक्ट्रीसिटी, कॉन्टीजन्सीफाईल्स इत्यादी.

सर्व साधारण सुचना

- सर्वत्र लेखापुस्तकांमध्ये एकसुत्रता रहावी या दृष्टीकोनातून जिल्हा स्तरावरून विहित नमुन्यातील लेखा पुस्तकांची छपाई करून दिल्यास अधिक सुलभ होईल.
- लेखा पुस्तके वित्तिय वर्ष निहाय ठेवण्यात यावी.
- कॅश व्हाउचर्स फाईल मधील सर्व व्हाउचर्स अनुक्रमांक निहाय फाईल करण्यात यावे.
- PFMS रजिस्टर सुरक्षित ठिकाणी ठेवण्यात यावे. तसेच केवळ अधिकृत अधिकारी/कर्मचा-यांनी हाताळावेत.
- अभियानांतर्गत होणा-या सर्व अदायगी केवळ PFMS प्रणाली द्वारेच करण्यात यावी.
- दरमहा कॅशबुक मधील शिल्लक व बँकेतील शिल्लक या रक्कमेचा ताळमेळ होण्यासाठी बँक रिकन्सलेशन स्टेटमेंट बनविण्यात यावे. सोबत नमुना पृष्ठ क्र.२६ वर जोडला आहे.

- देयकांवर व्हाऊचर क्रमांक नमुद असावा. तसेच देयकांवर प्रदानार्थ मंजूरीस्तव अधिकृत अधिका-यांची सही व शिक्का "Passed वित Payment" असावा. सोबत नमुना पृष्ठ क्र.२७ वर जोडला आहे.
- देयकाची अदायगी झाल्यानंतर देयकावर "Paid&Cancelled" असा शिक्का मारावा.सोबत नमुना पृष्ठ क्र.२७ वर जोडला आहे.
- अदायगी झालेल्या व्हाऊचर्स सोबत संबंधित देयके तथा इतर दस्तावेज असणे बंधनकारक आहे.
- देयकांतील दिनांक तथा रकमेमध्ये बदल करण्यात येऊ नये.
- प्राप्त देयके ही संस्थेच्या नावे असावीत.
- वेळोवेळी अभियानांतर्गत देण्यात आलेल्या मार्गदर्शक सूचनास अनुसरून आर्थिक व्यवहारांमध्ये संयुक्तरित्या अधिकृत स्वाक्ष-या असणे बंधनकारक आहे.
- कॅशबुक मधील नोंदीमध्ये बदल केल्यास अधिकृत अधिका-याची स्वाक्षरी करून सदर नोंदीस प्रमाणित करावे.
- अधिकृत अधिका-यांनी वेळोवेळी आकस्मिक रित्या तपासणी करावी.
- आपल्या अंतर्गत आरोग्य संस्थांना वितरित झालेल्या अग्रिम रक्कमांच्या समायोजनासाठी सतत पाठपुरावा करावा.
- संस्थानिहाय वितरित होणारा निधी व त्यातून झालेला खर्च याबाबीं आर्थिक वर्षाच्या मंजूर पीआयपीच्या मर्यादेबाहेर जाणार नाही याची दक्षता घ्यावी.
- एसओई/विनियोजन प्रमाणपत्र (Utilization Certificate) हे निर्देशित केलेल्या विहित नमुन्यात असणे बंधनकारक असून विहित वेळेत वरिष्ठ कार्यालयास सादर होणे बंधनकारक आहे.
- राज्य आरोग्य सोसायटी मार्फत देण्यात आलेल्या मार्गदर्शन सूचनांस अनुसरून केवळ एकच बँकेचे खाते ठेवण्यात यावे. अनावश्यक बँकेची खाती ठेवण्यात येऊ नये किंबहुना विना वापर असणा-या खात्यांमध्ये निधी शिल्लक ठेवू नये. तसेच कोणतेही बँक खाते परस्पर न उघडता वरिष्ठ कार्यालयाची मान्यता बंधनकारक आहे.
- पल्स पोलिओ तथा लसिकरणासाठी वितरीत केलेल्या निधी पोटी झालेल्या खर्चाचे अहवाल २१ दिवसाच्या आत कार्यालयास प्राप्त करून घ्यावेत व खर्चाच्या नोंदी अद्ययावत कराव्यात.
- राज्य आरोग्य सोसायटीकडून निधी प्राप्त होताच पुढील ७ दिवसात आपल्या कार्य क्षेत्रातील आरोग्य संस्थांना निधी वितरण होणे बंधनकारक आहे.
- सार्वजनिक बांधकाम विभागस आरोग्य संस्थांच्या बांधकामासाठी वितरीत केलेला निधी विनियोजनेबाबत तसेच कामाच्या पूर्णत्वाबाबत पाठपुरावा करावा. सार्वजनिक बांधकाम विभागस बांधकामासाठी वितरित केलेला निधी हा काम पुर्ण झाल्याचा दाखला प्राप्त होईपर्यंत लेख्यांमध्ये अग्रिम दर्शवावा व काम पुर्णत्वाचा दाखला प्राप्त झाल्यानंतरच खर्ची टाळण्यात यावा.तसेच काम पुर्ण झाल्यानंतर वितरित निधीमधुन खर्च वजा जाता उर्वरित शिल्लक रक्कमेच्या परतीसाठी बांधकाम विभागाकडे पाठपुरावा करून रक्कम परत संस्थेच्या बँकेच्या खाती जमा करावी.
- ग्राम आरोग्य पोषक पाणीपुरावठा व स्वच्छता समिती तसेच उपकेंद्र स्तरावरील खर्चाची विवरण पत्रे (SOE), वार्षिक विनियोजन प्रमाणपत्रे (UC)तसेच घटकनिहाय खर्चाचे व्हाऊचर्स संबंधित आरोग्य संस्थेच्या अखत्यारित ठेवावेत.
- संगणिकृत लेखा प्रणालीचा Backup सुरक्षित राहण्याच्या दृष्टीनेकार्यालयीन इमारती शिवाय दुसऱ्या सुरक्षित ठिकाणी ठेवण्यात यावा. इमारतीस दुर्घटना/आग लागल्यास Backupसुरक्षित राहण्याच्या दृष्टीने कार्यवाही करण्यात यावी.

- अशासकिय स्वयंसेवी संस्थांना वितरीत झालेला निधी हा संबंधित संस्थेकडून खर्चाची प्रमाणीत वित्तीय विवरण पत्रे व विनीयोजन प्रमाणपत्रे (SOC & UC)प्राप्त होईपर्यंत वितरीत निधी हा अग्रीम समजावा.
- आपल्या स्तरावर स्थायी लेखा परिक्षण समितीची स्थापना करुन त्रैमासिक पध्दतीने आपल्या कार्यालयातील तसेच आपल्या कार्यक्षेत्रातील सर्व आरोग्य संस्थांच्या लेखा परिक्षणातील नमुद त्रुटी व त्यांच्या अनुपालन अहवालावर चर्चा करण्यात येवून त्यानुसार आवश्यक ती प्रशासकीय कार्यवाही / वसुलीची कार्यवाही तसेच मार्गदर्शनपर सुचना देण्यात याव्यात.
- राज्य आरोग्य सोसायटी मार्फत नियुक्त केलेल्या समवर्ती लेखा परिक्षकांकडून आपल्या व कार्यक्षेत्रातील सर्व आरोग्य संस्थांचे १०० टक्के समवर्ती लेखा परिक्षण त्रैमासिक पध्दतीने करुन घ्यावे व नमुद त्रुटींचा पुर्तता अहवाल तात्काळ लेखा परिक्षकांस सादर करुन लेखापरिच्छेदांचा निपटारा करुन घ्यावा व त्यांची प्रत या कार्यालयास सादर करावी.
- समवर्ती लेखा परिक्षणापूर्वी तिमाही अखेरची वित्तीय विवरणपत्रे, संगणिकृत लेखे, **Cashbook**, बँकेचे ताळमेळ पत्रक तथा इतर आवश्यक त्या सर्व बाबी अदयावत करुन ठेवाव्यात जेणे करुन लेखा परिक्षक लेखा परिक्षणासाठी हजर राहिल्या नंतर वेळेचा अपव्यय होणार नाही तसेच त्रुटींचे प्रमाण कमी होण्यास मदत होईल.
- समवर्ती तसेच वैधानिक लेखा परिक्षणासाठी संबंधित लेखा परिक्षकांशी सविस्तर चर्चा करुन आपल्या कार्यक्षेत्रातील आरोग्य संस्थांच्या लेखा परिक्षणाबाबतचा दिनांक व संस्थानिहाय कृती आराखडा तयार करुन सर्व आरोग्य संस्थांना आगावु स्वरुपात कळवावा जेणे करुन सर्व संस्थांना लेखा परिक्षणासाठी अदयावत माहिती विहित वेळेत तयार करणे शक्य होईल.
- समवर्ती लेखा परिक्षकांकडून कर विषयक बाबींच्या अडचणी सोडवून घ्याव्यात व विहित वेळेत **Returns** भरण्यात याव्यात.
- आपल्या कार्यक्षेत्रातील सर्व आरोग्य संस्थांचे समवर्ती व वैधानिक लेखा परिक्षण झाले आहे किंवा नाही याची शहानिशा करुन घ्यावी व लेखा परिक्षणासाठी हजर न राहणाऱ्या संस्थेबाबत स्थायी लेखा परिक्षण समिती सदस्यांसमक्ष चर्चा करुन ही बाबत निर्दशनास आणून दयावीत त्यांच्या विरुद्ध योग्य ती कार्यवाही करावी.
- जिल्हा शल्य चिकित्सकांच्या अखत्यारितील ग्रामीण रुग्णालये, उपजिल्हा रुग्णालये, स्त्री रुग्णालये व मनोरुग्णालये इत्यादी स्तरवरील रुग्ण कल्याण समित्यांच्या लेखा व्यवस्थापनात सुसूत्रता येण्याच्या दृष्टीकोनातुन तसेच या स्तरावरील लेखा व्यवस्थापन बळकट करण्याच्या दृष्टीकोनातुन व या स्तरावरील लेखे हाताळणाऱ्या संबंधित कर्म यांना लेखा व्यवस्थापन विषयक बाबींवर आवश्यक ते मार्गदर्शन करण्यासाठी व लेखे अदयावत करण्यासाठी संबंधित वित्तीय अधिकाऱ्याने आपल्या कार्यक्षेत्रातील जिल्हा शल्य चिकित्सकांच्या अखत्यारित येणाऱ्या आरोग्य संस्थांना आठवडयातून किमान ०१ दिवस भेट देणे बंधनकारक राहिल व या भेटी दरम्यान केलेल्या कार्यवाहीचा अहवाल जिल्हा शल्य चिकित्सक व जिल्हा लेखा व्यवस्थापकयांस पुढील कार्यवाहीस्तव दरमहा न चुकता सादर करावा.
- संबंधित ग्रामीण रुग्णालये, उपजिल्हा रुग्णालये, स्त्री रुग्णालये व मनोरुग्णालये इत्यादी स्तरवरील संस्थांना वित्तीय अधिकाऱ्यांनी भेटी दिल्या वैद्यकिय अधिकक्ष, सहा.अधिकक्ष ता अभियानंतर्गत निधीचे लेखे हाताळणाऱ्या संबंधित अधिकारी / कर्मचाऱ्यांनी त्यांना अभिलेखे पडताळणी करीता लेखे उपलब्ध करुन दयावेत व लेखा व्यवस्थापन कक्षा विषयक बाबींशी निगडीत अडचणीवर मार्गदर्शन घेवुन आपले लेखे अदयावत ठेवावेत.
- तालुकास्तरीय लेखापालांनी आपल्या कार्यक्षेत्रातील प्राथमिक आरोग्य केंद्रे व उपकेंद्रांना दर आठवडयास भेटी देणेबंधनकारक असून त्यांनी संबंधित आरोग्य संस्थांना दिलेल्या भेटीचा अहवाल पुढील कार्यवाहीस्तव जिल्हा लेखा व्यवस्थापक व जिल्हा आरोग्य अधिकारी यांचेकडे सादर करावा.
- उपसंचालक स्तरीय विभागीय कार्यक्रम प्रमुखांनी आपल्या कार्यक्षेत्रातील सर्व आरोग्यसंस्थांच्या लेखा परिक्षण अहवालातील तसेच महालेखाकार कार्यालयाकडून होणाऱ्या लेखापरिक्षणातील नमुद त्रुटींच्या

पुर्ततेबाबत सतत पाठपुरावा करावा व केलेल्या कार्यवाहीचा अहवाल दरमहा न चुकता राज्य आरोग्य सोसायटीस सादर करावा.

- महालेखापाल मुंबई व नागपुर यांचे कडील प्रलंबित परिच्छेदाचा निपटारा तात्काळ करणे आवश्यक आहे. जिल्ह्यांच्या स्थायी लेखापरिक्षण समितीच्या बैठकीमध्ये प्रलंबित लेखा परिच्छेदांचा आढावा आपल्यास्तरावरून घेण्यात यावा. महालेखापालांना पाठविण्यात आलेले अनुपालनानुसार परिच्छेद मान्य होण्याच्या दृष्टीने प्रयत्न करावे. महालेखापालांच्या परिच्छेदांचे अनुपालन सादर केले नाही तर सदरचे परिच्छेद भारताचे नियंत्रक व महालेखा परिक्षक यांच्या नागरी अहवालांमध्ये समाविष्ट होण्याची शक्यता असते. त्यामुळे याबाबीस प्राधान्य देण्यात यावे.
- विज देयके व दुरध्वनी देयके वेळेत अदा करावीत जेणे करून त्यावर विलंब आकार लागणार नाही.
- खरेदी तथा बांधकाम विषयक बाबींमध्ये आवश्यक त्या ठिकाणी अनामत रक्कम (Earnest Money Deposit) व सुरक्षा ठेव रक्कम (Security Deposit) संबंधीत पूरवठादारांकडून घेणे बंधनकारक आहे. याबाबत नियमानुसार कार्यवाही करण्यात यावी.
- वैधानिक लेखापरिक्षण केंद्र शासनाच्या मार्गदर्शक सुचनांस अनुसरून विहित वेळेत पूर्ण होण्याच्या दृष्टीकोणातून सर्व आरोग्य संस्थांतील वित्तीय विवरण पत्रे केंद्र शासनाच्या विहित नमुन्यात ३० एप्रिल पूर्वी तयार होणे आवश्यक आहे.

खरेदी विषयक मार्गदर्शक सुचना

- वेळोवेळी निर्देशित केलेल्या मार्गदर्शक सुचनांस अनुसरून विहित खरेदी पध्दतीचा अवलंब करावा.
 - खरेदी करण्यापूर्वी संबंधित कक्षाकडून वस्तूंची मागणी असणे आवश्यक आहे.
 - वस्तूंच्या मागणीस अनुसरून एकूण किती नगाची आवश्यकता आहे याचा उल्लेख करून एकूण अंदाजीत रकमेस तसेच खरेदी प्रक्रिया पध्दतीस टिपणी द्वारे मान्यता घेण्यात यावी.
 - प्रशासकिय मान्यतेस्तव सादर केलेल्या टिपणी मध्ये मागणी केलेल्या वस्तूचे नाव, नग, अंदाजे रक्कम, अवलंब करावयाची खरेदी प्रक्रिया, उपलब्ध अनुदान व खर्चाचे लेखा शिर्षक/योजनेचे नांव इ. सर्व बाबींचा स्पष्ट उल्लेख असावा.
 - शासन निर्णय क्र.भांखस- २०१४/ प्रक्र.८२/भाग -III / उदयोग - ४ दि.०१.१२.२०१६ अन्वये प्रसिध्द झालेल्या खरेदी नियम पुस्तिकेनुसार रुपये ५ हजार पर्यंतच्या किमतीच्या वस्तु निविदा / दरपत्रके न मागविता थेट जागेवर खरेदी करण्याची मुभा देण्यात आली आहे. परंतु अशा वस्तूंची एकूण खरेदी त्या त्या आर्थिक वर्षात रुपये ५०,०००/- पेक्षा जास्त नसावी.
 - नियम पुस्तिकेमध्ये पुर्वी नमुद केल्यानुसार खरेदीची किंमत रुपये ५,०००/- ते रुपये ३,००,०००/- पर्यंत असेल तेव्हा दरपत्रके मागवून खरेदी करण्याची मुभा देण्यात आली होती. दरपत्रके नोटीस संकेतस्थळावर प्रसिध्द करणे बंधनकारक राहिल. तथापि एका आर्थिक वर्षात एकाच वस्तुच्या दरपत्रकाच्या माध्यमातून करण्यात आलेल्या खरेदीचे एकुण मुल्य रु.३,००,०००/- पेक्षा जास्त नसावे. (संदर्भ खरेदी नियमपुस्तिकेचा मुद्दा क्र.९ - परिच्छेद ३.२.३) तसेच नियम पुस्तिकेत नमुद केल्यानुसार निविदा प्रक्रिया ही खरेदी किंमत रुपये तीन लाख (३,००,०००/-) पेक्षा अधिक असेल, तेव्हा ई-निविदा प्रणालीचा वापर करणे बंधनकारक करण्यात आले आहे असे नमुद करण्यात आले होते. यामध्ये शासन निर्णय क्र.भांखस २०२१/प्र.क्र.८/उदयोग-४ दि.०७.०५.२०२१ अन्वये बदल करण्यात आला असून ही मर्यादा रु.३.०० लक्ष वरून रु.१०.०० लक्ष करण्यात आली आहे. त्यानुसार विहित खरेदी प्रक्रियेचा अवलंब करण्यात यावा.
 - रुपये १० लाख ते रु. १.०० कोटीपर्यंत खरेदीची किंमत असलेल्या ब्रॅंडेड वस्तूंची खरेदी DGS&D कडील दर करारावर करता येईल. ब्रॅंडेड वस्तूंची यादी www.ipindia.nic.in या संकेत स्थळावर उपलब्ध आहे.

- नियम पुस्तिकेच्या नमुद केल्यानुसार निवीदा प्रक्रियेत खरेदी किंमत रुपये दहा लाख (१०,००,०००/-) पेक्षा अधिक असेल, तेव्हा ई-निवीदा प्रणालीचा वापर करणे बंधनकारक करण्यात आले आहे.
- दरपत्रक पध्दतीसाठी पूरवठादारांना वित्तीय दर सादर करण्यासाठी किमान ७ दिवसांचा कालावधी देणे बंधनकारक आहे तसेच निविदा पध्दतीसाठी पूरवठादारांनी निविदा सादर करण्यासाठी नियम पुस्तिकेच्या मुद्दा क्र. ४.४.३ अन्वये किमान निविदा कालावधी देण्यात यावा.
- विहित खरेदी प्रक्रियेस प्रशासकीय मान्यता मिळाल्यानंतर सर्व अटी व शर्तीचा उल्लेख करून पूरवठादारास खरेदी आदेश देण्यात यावे. उदा. दिनांक, जावक क्रमांक, पूरवठा दाराचे नाव, पत्ता, मंजूर दरपत्रक/ दरकराराचा संदर्भ, मंजूर दर (करा सहित/ करा व्यतिरीक्त), आवश्यक नग, माल पूरवठा करावयाची ठिकाणे, पूरवठा करावयाचा मर्यादित कालावधी, विलंब आकार, करकपात इ. सर्व बाबींचा स्पष्ट उल्लेख असावा.
- माल पूरवठा झाल्यानंतर माल प्राप्तीच्या चलनावर माल स्वीकारणा-याची स्वाक्षरी, शिक्का तसेच मालाची साठा नोंद वहीत घेतलेल्या नोंदीचे अधिकतम अधिका-यांच्या स्वाक्षरीने प्रमाणीकरण करण्यात यावे.
- देयकाच्या अदायगीसाठी टिपणीद्वारे मान्यता घेण्यात यावी व देयकावर प्रदानार्थ मंजूरीस्तव अधिकृत अधिकाऱ्यांनी स्वाक्षरी व शिक्का मारल्यानंतरच पीएफएमएसद्वारे संबंधित पूरवठादारास अदायगी करावी.
- राष्ट्रीय आरोग्य अभियान निधीवर बँकेने दिलेल्या व्याज हे त्या वर्षाचे अनुदान (Grant-in-Aid) समजण्यात यावे. वार्षिक खर्चाची विवरणपत्रे, उपयोगिता प्रमाणपत्रे, आय व व्ययपत्रक, जमाव खर्चपत्रक, ताळेबंद व त्यासंबंधित असणारी विवरणपत्रे सनदी लेखापरिक्षकांकडून प्रमाणित करून वरिष्ठ कार्यालयास सादर करणे आवश्यक आहे.
- कार्यक्रमासाठी वापरण्यात येणा-या वाहनाचे स्वतंत्र लॉगबुक ठेवणे आवश्यक आहे. तसेच लेखा परिक्षकांनी पडताळणीसाठी मागितल्यास लॉगबुक उपलब्ध करणे आवश्यक आहे.
- कर्मचा-यांच्या वेतनामधून / पूरवठादारांच्या देयकांमधून कपात करण्यात आलेला व्यवसायकर / TDSची रक्कम संबंधित कर विभागास विहित कालावधीत भरणा करणे तसेच भरण्यात आलेली चलने कार्यालयात जतन करून ठेवणे आवश्यक आहे.
- संस्थेने वेळोवेळी घेतलेल्या बैठकांचे इतिवृत्त तसेच झालेले ठराव दफ्तरी उपलब्ध असणे आवश्यक आहे. तसेच आवश्यकतेनुसार लेखा परिक्षणासाठी उपलब्ध करून द्यावयाचे आहेत.
- दर तिमाहीस समवर्ती लेखापरिक्षण, वित्तीय वर्षा अखेर अभियानाचे वार्षिक वैधानिक लेखापरिक्षण आणि रुग्ण कल्याण समीतीचे वार्षिक वैधानिक लेखा परिक्षण राज्य आरोग्य सोसायटीच्या मार्गदर्शक सूचनांस अनुसरून विहित वेळेत करून घ्यावे.

अभियानांतर्गत लेखापरिक्षण पध्दती

प्रकल्पांतर्गत प्राप्त निधीतुन होणा-या विनियोजनावर सनियंत्रण राहण्याच्या तसेच अंतर्गत वित्तीय व्यवस्थापन बळकटिकरण करण्याच्या दृष्टीकोनातुन केंद्र शासनाच्यामार्गदर्शक सुचनानुसार वेळोवेळी लेखापरिक्षण होत असते.

लेखापरिक्षणाचे प्रकार

१. दर तिमाहीस समवर्ती लेखापरिक्षण
२. अभियानांतर्गत वार्षिक वैधानिक लेखापरिक्षण
३. रुग्ण कल्याण समित्यांचे वार्षिक वैधानिक लेखापरिक्षण
४. महालेखाकार लेखापरिक्षण पथकाकडून वेळोवेळी होणारे लेखापरिक्षण

समवर्ती लेखापरिक्षण

समवर्ती लेखापरिक्षण हे अभियानांतर्गत वित्तीय व्यवस्थापन बळकटिकरणाचे माध्यम आहे. लेखापरिक्षणांच्या माध्यमातून लेखे कसे ठेवण्यात यावेत, लेख्यांमध्ये / वित्तीय विवरणपत्रांमध्ये कोणत्या चुका आहेत, कोणत्या खर्चावेळी विहित प्रक्रियेचा अवलंब झालेला नाही इ. बाबी वेळीच निदर्शनास येतात व त्यामध्ये आवश्यकता सुधारणा करून भाविण्यात अपहार टाळण्यास मदत होते तसेच, लेखा हाताळणा-या मनुष्याबद्दल लेखा विषयक बाबींचे प्राथमिक मार्गदर्शन देखील मिळते. यास्तव, समवर्ती लेखापरिक्षणाचे कर्करेज जास्तीत जास्त आहे. यासाठी दर तिमाहीस लेखा परिक्षक लेखापरिक्षणासाठी हजार राहण्यापूर्वी सर्व लेखे अदयावत असणे बंधनकारक आहे. समवर्ती लेखापरिक्षण अहवालातील लेखा परिच्छेदांची उत्तरे वेळीच न दिल्यास किंवा निकाली न निघाल्यास त्याची पुनरावृत्ती वैधानिक लेखापरिक्षण अहवालामध्ये होण्याची शक्यता असते. त्यामुळे अहवालातील नमुद त्रुटींचा अनुपालन अहवाल पुढील तिमाहीच्या लेखापरिक्षणवेळी लेखापरिक्षकांना दाखवण्यात येवून नमुद लेखा आक्षेप निकाली काढण्यात यावे. जेणे करून प्रलंबित लेखा परिच्छेदांचे प्रमाण वाढणार नाही.

अभियानांतर्गत वार्षिक वैधानिक लेखापरिक्षण

केंद्र शासनाच्या मार्गदर्शक सुचनांस अनुसरून वार्षिक वैधानिक लेखापरिक्षण करून संपूर्ण राज्याचा एकत्रित वैधानिक लेखापरिक्षण अहवाल केंद्र शासनास सादर करणे बंधनकारक असते. संपूर्ण राज्याकरिता एकाच वैधानिक लेखापरिक्षकांची नियुक्ती होत असल्याकारणाने या लेखापरिक्षणाचे कर्करेज केवळ ४० टक्के असते त्यामुळे, राज्यभरातील प्रत्येक संस्थेन समवर्ती लेखापरिक्षणावेळी लेखा तपासणी करून घेणे बंधनकारक करण्यात आलेले आहे. संपूर्ण राज्याचा एकत्रित लेखापरिक्षण अहवाल केंद्र शासनास पाठवावयाचा अंतिम दिनांक ३० जुलै असल्याकारणाने राज्यभरातील प्रत्येक तालुके / जिल्हा शल्य चिकित्सक कार्यालयाची वर्षाअखेरीची वित्तीय विवरणपत्रे ३० एप्रिल पुर्वी पूर्ण होवून जिल्हास्तरावर सादर होणे अपेक्षित आहे. जेणेकरून संपूर्ण जिल्ह्याचा एकत्रित अहवाल २० मे पूर्वी राज्य कार्यालयास प्राप्त होईल आणि राज्यस्तरावरून जिल्हानिहाय वित्तीय विवरणपत्रांचा ताळमेळ करून ३० जून पुर्वी संपूर्ण राज्याची एकत्रित वित्तीय विवरणपत्रे तयार करून वैधानिक लेखापरिक्षकांना तपासणीस्तव सादर करणे शक्य होईल आणि वैधानिक लेखापरिक्षकांची तपासणी होवून प्रमाणित वित्तीय विवरणपत्रांचा संच केंद्र शासनास ३० जुलै पुर्वी सादर करणे राज्य कार्यालयास शक्य होईल. यासाठी प्रत्येक संस्था स्तरावरून विहित वेळेच्या मर्यादा पाळणे बंधनकारक आहे.

वैधानिक लेखापरिक्षण अहवालातील नमुद त्रुटींचा अनुपालन अहवालत्वरीत लेखापरिक्षकांना सादर करून हे आक्षेप निकाली काढणे देखील तितकेच महत्वाचे आहे. अन्यथा या अहवालातील प्रलंबित लेखा परिच्छेदांची पुनरावृत्ती महालेखाकार लेखापरिक्षण पथकांच्या अहवालामध्ये होण्याची शक्यता असते. यास्तव, वैधानिक लेखापरिक्षण अहवालातील नमुद त्रुटींचा अनुपालन अहवाल त्वरीत सादर करणे व ते निकाली काढून घेणे अनिवार्य आहे.

रुग्ण कल्याण समित्यांचे वार्षिक वैधानिक लेखापरिक्षण

रुग्ण कल्याण समित्यांची स्थापना ही धर्मादाय अधिनियमांतर्गत होत असल्याने रुग्ण कल्याण समितीस आर्थिक वर्षात प्राप्त झालेला निधी व त्यातून केलेल्या विनियोजनाची वर्ष अखेरीची वित्तीय विवरणपत्रे सनदी लेखा परिक्षकांकडून प्रमाणित करून घेवून संबंधित जिल्हास्तरीय धर्मादाय आयुक्त कार्यालयास सादर करणे बंधनकारक असते. यासाठी वेळचेवेळी सर्व लेखे व वित्तीय विवरणपत्रे अदयावत करून ठेवणे बंधनकारक आहे. जेणेकरून लेखा परिक्षण वेळी त्वरीत उपलब्ध करून देणे सहज शक्य होते. लेखा परिक्षण झाल्यानंतर प्रमाणित अहवालाची प्रत जिल्हास्तरीय धर्मादाय आयुक्त कार्यालयास सादर करावा

तसेच अहवालातील नमुद त्रुटींचा अनुपालन अहवाल संबंधित लेखा परिक्षकांस सादर करुन आक्षेप निकाली काढून घेण्यात यावेत .

महालेखाकार लेखापरिक्षण पथकाकडून वेळोवेळी होणारे लेखापरिक्षण

प्रकल्पासाठी प्राप्त होणारा निधी हा शासन निधी असल्याकारणाने त्यावर शासनाचे सनियंत्रण राहणे क्रमप्राप्त आहे त्यामुळे केंद्र शासनाकडून **C&AG** पथकामार्फत तसेच राज्य शासनाकडून **AG** पथकामार्फत वेळोवेळी लेखा तपासणी केली जाते. सदरच्या महालेखाकार लेखापरिक्षण पथकाकडून लेखापरिक्षण वेळी उपस्थित केलेल्या **Half Margin** ची उत्तरे त्याच वेळी तात्काळ स्वरूपात देणे बंधनकारक असते. तसेच, पथकाने दिलेल्या **Full Margin** ची उत्तरे पुढील १० ते १५ दिवसात आवश्यक त्या कागदापत्रांसह सादर करणे बंधनकारक असते. जेणेकरुन महालेखाकार पथकाकडून सदरचे आक्षेप वेळीच निकाली काढणे सोईचे होते. लेखापरिच्छेदांची उत्तरे वेळेत व आवश्यक त्या कागदपत्रांसह सादर न झाल्यास असे लेखा आक्षेप राज्याच्या लोक लेखा समिती (Public Accounts Committee) पुढे सादर केले जातात. सदर प्रकरणाचे गांभीर्य लक्षात घेवून प्रत्येक संस्थास्तरावरून महालेखाकार लेखापरिक्षण पथकाकडून उपस्थित केलेल्या लेखापरिच्छेदांची उत्तरे त्वरीत सादर करुन संबंधित लेखापरिक्षकांकडून मान्य करुन / निकाली काढण्यात यावेत .

विविध नमुने

1. Cash Book

Dr.

Cr.

Date	Particulars	Ledger Folio	Cash	Bank		Date	Particulars	Ledger Folio	Cash	Bank
	Opening balance B/f.						Account Head (Brief narration like – being amt. paid to towards vide DD/ Cheq. No. or through ECS against bill no. dtd..... or advance or grant.)			
	Receipt						Expenditure			
							Balance C/f.			
	Grant total						Grant total			

2. Ledger:

Dr.

Cr.

Date	Particulars	L/f	Amount		Date	Particulars	L/f	Amount
	Opening balance B/f.							
	To, Cash/Bank					By, Cash/Bank		

3. Journal Book

Date	Particulars	L/f	Debit	Credit
	Expenditure account head Dr.			
	To Advance account Cr.			
	(Being details of expenditure incurred by PHC/ SC/SDH/RH/DH/WH or Staff & the amt. of expenditure recouped against given advance as per SOE & UC submitted.)			

4. Advance Tracking Register (Staff, Periphery)

Date	To whom given	Particulars of advance	Cheque no. & date / Cash	Amount	Adjustment details		Advance still outstanding
					Date of adjustment	Amount adjustment	
I st Advance (on-----)							
II nd Advance (on-----)							
III rd Advance (on-----)							
IV th Advance (on-----)							

Note: The above format should be depicted in two pages for the sake of facility. One or two pages should be left for functionaries.

5. Cheques Issue Register:

Name of the Bank & Branch _____

Account No. _____

Sr. No.	Date	Cheque no.	Amount	Name of payee	For the purpose of (details of payment, Bill No.,dt.....)	Chq. Signatory authority

6. Stock Book (Consumable/Non Consumables)\$

Name of Item / Goods _____

Opening stock	Name of the Supplier	Bill No. & dt.	Purchased Qty. (in nos.)	Total Qty.	Utilized Qty.	Closing stock

*Seprate Stock Book Should be maintained for Consumable/Non Consumables

7. Fixed Assets Register

Name of Asset.....

Opening stock	Purchased or Received in kind/ donation	Name of the Supplier	Bill No. & dt.	Purchased Qty. (in nos.)	Location of Asset	Total Qty.	Sold/ scrapped Asset	Closing stock	Signature of the receiver

Note: At the end of each financial year verification of assets is to be done & the certificate in this respect to be kept at record duly signed by authorized official.

अपेक्षितमासिक खर्चाचा अहवाल

Progressive Expenditure Report UPTO.....

Name of unit - _____

FMR Code	Activity proposed	No of units	Schemes	Sanctioned Budget	Opening Balance of Last year	Grant Distribution	Other receipts	Total Grant	Expenditure	Refund	Closing Balance
					1	2	3	4 = (1+2+3)	5	6	7 = (4-5-6)
			UF								
			RKS								
			AMG								
Total											

Authorised Signatory

Format for BRS

Balance as per Cash Book

Add:

(i) Cheque issued but not cashed

(ii) Credit entries made in the bank
but not shown in the cash book

Total

Less:

(i) Amount deposited to Bank but not
credited in Bank Account

(ii) Bank charges debited in the bank account
but not accounted for in the cash book

Total

Balance as per Pass Book/Bank Statement

Bill verified and found correct

And Passed for Payment for Rupees.....

Authorized Signatory

PAID & CANCELLED

Seal format for Pass for Payment.

कार्यलयीन टिपणी सादर केल्यानंतर
वस्तू घेण्यासाठी निविदा मागविण्यासाठी पत्र व्यवहारांचा नमुना

आरोग्य सेवा

क्र./जा.क्र./प्राआकें/ग्रा.रुग्ण...../निविदा/ /२०२२
कार्यालय,प्राआकेंद्र/ग्रा.रुग्ण

दिनांक

प्रति,

मेसर्स.....

.....

.....

विषय: प्राआकेंद्र/ग्रा.रुग्ण..... यांना खालील प्रमाणे सुचीतील वस्तूंचा पुरवठा करण्यासाठी दरपत्रके सीलबंद लिफाफ्यात मुदतीत सादर करण्याबाबत.

संदर्भ: रुग्ण कल्याण समिती/जन आरोग्य समितीची सभा दिनांक ठराव क्र.
नुसार रुग्णांच्या सेवेकरीता लागणाऱ्या वस्तूंचा पुरवठा

आपणांस कळविण्यात येते कि. प्राआकेंद्र/ग्रा.रुग्ण करिता खालील प्रमाणे सुचीनुसार वस्तू रुग्णांच्या सेवेकरीता खरेदी करावयाची आहे. आपण आपले दरपत्रक दिलेल्या सूची नुसार बंद लिफाफ्यात, हे पत्र मिळताच ७ दिवसांचे आत कार्यालयीन वेळेत मिळतील या बेताने सादर करावे. मुदतीनंतर व कार्यालयीन वेळेत आलेले निविदांचे बंद लिफाफे स्विकारले जाणार नाहीत. दरपत्रक सादर करतांना वस्तूंच्या गुणवत्तेचा उल्लेख करावा. लिफाफ्यात सील मारावा. निविदा पत्रावर कार्यालयाचा/दुकानाचा/फर्मचा शिक्का /सील आवश्यक आहे.

सही
वैद्यकीय अधिकारी/अधिकारी
प्राआकेंद्र/ग्रा. रुग्ण

१) निविदा असलेले सिलबंद लिफाफे कार्यालयात आल्यानंतर करावयाची कार्यवाही

- ए) जे निविदांचे सिलबंद लिफाफे येतात त्यांच्यावर आवक नंबर आवक रजिस्टर वर नोंद केल्यावर घालावा व तारीख आणि वेळ घालावी.
- ब) मुदतीनंतर व कार्यालयीन वेळेत आलेले निविदा लिफाफे स्वीकारू नये.
- क) निविदांचे बंद लिफाफे कार्यालयीन कार्यवाहीसाठी सुरक्षित ठिकाणी ठेवावे.

२) निविदा उघडण्याची करावयाची कार्यवाही:

- ए) कार्यालयातील वैद्यकीय अधिकारी यांचे अध्यक्षते खाली एक निविदा समिती गहन करावी. त्यात कमीत कमी ३ सदस्य असावे. (लिपीक, दुसरे वैद्यकीय अधिकारी, आरोग्य सहाय्यक)

- प) निवीदा उघडण्याच्या तारखे विषयी व वेळेबाबत संबंधित समिती सदस्य व पुरवठा दर यांना उपस्थित राहण्याबाबत पत्राने कळवावे.
- पप)सभेच्या दिवशी सर्व उपस्थित "निविदा समितीच्या सदस्यांचर) स्वाक्षरी घेऊन तारीख घालावी. त्यानंतर सर्व समक्ष बंद निवीदा लिफाफा वरुन फाडून उघडावा.
- पट)सर्व निवीदा उघडयानंतर त्यांच्यावर सर्व सभासदांस्च्या सहया घ्यावा नंतर त्यातील दारांचा तुलनात्मक तक्ता वस्तूनुसार तयार करावा. ज्या पुरवठादारांचे दर कमी असतील त्या पुरवठादाराची निवड करुन त्याला वस्तू पुरवठा करण्याबाबतचे पत्र दयावे. पत्र देतांना त्यात मुदतीत पुरवठा करण्याबाबत व उत्तम गुणवत्तेबाबतचा उल्लेख करावा.
- ट) ज्या निवीदा अस्विकृत केल्या जातात. त्यावर लाल पेनाने "अस्विकृत" असा शेरा भरुन सर्व सदस्यांची सही घेऊन तारीख लिहावी. तसेच स्वीकृत निवेदावरही स्वीकृत असा शेरा लिहून सर्व सदस्यांच्या सहया घ्याव्यात. सर्व निविदा लिफाफयासहीत नस्थीबध्द करुन लेखा परिक्षणाकरीता सुरक्षित ठेवावे.

निविदा स्विकारल्या नंतर पुरवठादाराला वस्तू पुरवठा करण्याकरीता दयावयाच्या आदेशाची प्रत.

आरोग्य सेवा

कार्यालयीन आदेश

क्र./जा.क्र./प्राआकें/ग्रा.रुग्ण...../निविदा/ /२०
कार्यालय,.....,नागपर
दिनांक

विषय: प्राआकेंद्र/ग्रा.रुग्ण..... यांना दिलेल्या सुचीनुसार वस्तूंचा पुरवठा करण्याबाबत.

संदर्भ: या कार्यालयातील निवीदा समितीच्या दिनांक रोजी च्या सभेत ठरल्यानुसार

आपणांस या व्दारे कळविण्यात येते की, दिनांक..... रोजी प्राआकेंद्र/ग्रा.रुग्णा येथे "निविदा समितीची सभा" घेण्यात आली. त्यात आपले दरपत्रक सर्व सम्मतीने स्वीकृत करण्यात आलेले आहे. आपण हे

आदेश मिळताच व रुग्णालयाची निकड लक्ष्यात घेता. दिवसाचे आत सुची नुसार मालाचा पुरवठा करावा. वस्तूंची गुणवत्ता ही नियमांनुसार उत्कृष्ट असावी.

वस्तू सुस्थितीत या कार्यालयास प्राप्त झाल्यावर आपणास बिलाची रक्कम चेक/ ड्राफ्ट व्दारा १५ दिवसात अदा करण्यात येईल. रक्कम जमा झाल्यावर पैसे मिळल्याची पावती कार्यालयास देणे बंधनकारक राहिल.

गुणवत्ता चांगली नसल्यास किंवा वस्तू सुस्थितीत तुरलेल्या नसल्यास रक्कम अदा केली जाणार नाही याची नोंद घ्यावी.

प्रति,
मेसर्स.....
.....
.....

सही
वैद्यकीय अधिकारी/अधिकारी
प्रा.आर्केड/ग्रा. रुग्ण

प्रत्येक बिलावर मारावयाचे शिक्के

प्रत्येक वस्तूंचे (खरेदी केलेले अथवा मंजूरीचे बिल) हे स्वतंत्र पानावर व्यवस्थित चिरकवून त्यावर खालील शिक्के मारुन संबंधित अधिकाऱ्याने स्वाक्षरी करावी

१)

PAID BY ME

MO/MS
PHC/RH -----

२)

प्रमाणपत्र

प्रमाणित करण्यात येते कि, सदरचा खर्च हा..... या लेखा शिर्षकातुन करण्यात आला व ते बाजारभावा नुसार रास्त आहे. सदर वस्तूची नोंद रजिस्ट्रर वर पाने क्र. व घेण्यात आली

MO/MS
PHC/RH -----

३)

PASS FOR PAYMENT Rs. (In Words) MO/MS PHC/RH -----

४)

PAID & CANCELLED MO/MS PHC/RH -----

50. PREPARATION OF PIP AND DISTRICT HEALTH ACTION PLAN

At the end of this Session Participant will be able to learn

- 1) Planning process in NHM
- 2) Levels of planning
- 3) Framework for Dist Health Action plan (DHAP)
- 4) Back ground work required for PIP

DISTRICT HEALTH ACTION PLAN

Planning: It is the orderly process of defining community health problems, identifying unmet needs and surveying the resources to meet them. It is necessary for economic utilization of material, manpower and financial resources. Purpose of health planning is to improve the health services. It is the continuous process of gathering data, data analysis, making decisions and forming strategic activities for future action all aimed at achieving programme goals.

It focus on

- Effective utilization of resources to achieve desired objectives & goal
- Minimum resources – Maximum output
- Blue print for taking action
- To deliver the comprehensive health services to the community.
- Planning is for tomorrow and Management is for today

Planning Process Identify goals and objectives of the organization

- Formulates strategies to achieve them
- Arrangement of resources
- Identifies SWOT
- Integrating SWOT in strategic interventions
- Implementation, direction, monitoring and evaluation

Planning helps to know: Where we are, where we are going, where we want to go and how we will go.

Resources: It implies manpower, money, materials, skills, knowledge, technologies and time needed or available for the performance or support of action directed towards specified objectives.

Objective: An important element of planning is the setting of clear-cut objectives, targets and goals. It is either achieved or not achieved. Objectives should be

- Precise end result of planning
- Concerned directly with the problem
- Timebound
- Measurable (OVI)
- May or may not be achieved
- Measured by Evaluation of program
- Objectives are the lifeblood of organization
- Give direction to organization

Objectives should be: SMART

S - Specific

M - Measurable

A – Achievable

R – Realistic

T – Timebound

Targets: refers to the discrete activity which meets the concept of degree of achievement. Targets are thus concerned with the factors involved in a problem, whereas objectives are concerned directly with the problem itself. It is the tool for monitoring the process/activities

Goal: Ultimate desired state to which objectives & resources are directed.

Programme

- Sequence of activities to achieve defined objectives

Policy

- Guiding Principles, direction, fixing the goal & broad objectives, allocation of funds

STEPS TO PREPARE DISTRICT ACTION PLAN

Step 1: Analysis of the health situation

The first step is analysis of health situation. It involves collection, assessment and interpretation of information in such a way as to provide a clear picture of the health situation. Baseline data needed for preparing of health plan contains

- Demographic profile
- Population structure – age, sex, urban/rural, sex ratio, growth rate, Literacy rate etc.
- Morbidity & mortality statistics- CBR, CDR, Disease specific Mortality ratio, MMR, IMR
- Epidemiology of different diseases --Geographic, population, seasonal distribution (place , person & time)
- Health Care Facilities... Public & private Hospitals, PHCs, SC, Anganwadi.
- Other sectors- PRIs, educational facilities
- Manpower – Technical & other Training status, training centers
- Socio-cultural: Socioeconomic status, customs & taboos , beliefs & practices

This data can be obtained from census results, births, deaths & marriage register, MIS, hospital records, model registration scheme, NFHS, special surveys and epidemiological studies.

Step 2: Identifying the health problems

- This can be done by tabulation and Analysis of the data, Interpretation of data like rates ,ratios, incidence , prevalence, disease specific mortality rate, Infrastructure , adequacy of manpower,
- Compare with national , state , other districts

- Identify health problems which have more impact on overall health of community

Step 3: Establishing objectives

Objectives and goal are needed to guide the efforts. Objectives must be established at all the levels. In setting these objectives, time and resources are important factors. These are not only a guide to action, but also a yard stick to measure work after it is done. Objectives must be

- Related to the identified health problem
- Main objective
- Sub-objectives if any
- When will be achieved

Step 4: Assessment of resources

Resources implies the manpower, money, materials, skills, knowledge and techniques needed or available for the implementation of the plan. Even if shortage, try to make plan with available resources. Prepare plan to make available the deficit resources.

Step 5: SWOT Analysis

SWOT denotes Strength, Weakness, Opportunities and Threats. Strengths indicate attributes of person or organization or factors that are helpful in achieving the objectives. Weaknesses are the attributes of person or organization or factors that are harmful in achieving the objectives. Opportunities are external conditions, circumstances or situations; those are helpful in achieving the objectives and are conducive to organization's flourishing and growing further. Threats are external conditions which could do damage to the objectives and which may hinder the growth and development of organization.

The analysis involves internal factors like, human resources, their level of dedication, motivation, training etc; availability of material and financial resources; partnership and alliances with other organizations; public image; etc. External factors include the social or cultural environment of operation, attitude towards issues involved, etc.

Step 6: Fixing Priorities

Priorities are fixed in order of gravity of health problems. In fixing priorities attention is given to risk of mortality, magnitude, morbidity, Severity of complication, residual damage, Social stigma, risk of epidemics. In respect to resources available, political & community interests.

Step 7: Alternate Plan

Alternate plan should always be prepared. It should be cost effective. It is useful in case the resources not provided in time. Consider that current available resources will not be available in future; like Manpower: long Leaves, transfers retirement etc. Material: cost may increase in future.

Step 8: Write up formulated plan

Plan must be complete in all respects for the execution of project. Write up Detailed strategies. Enumerate Various activities. i.e. Who will perform particular activity?, Where the activity will be performed, Who will supervise? Materials required, When it will be completed?, Cost of that activity, How much (target) will be achieved?

Step 9: Programming & Implementation

Once the health plan has been approved by the policy making authorities, programming and implementation are begun. It includes appropriate selection of manpower, training, fixing the job responsibilities, defining roles & tasks, fixing the area, organising extra activities in sensitive, uncovered, underserved areas, unmet needs. Ensure regular supply of materials and enhance efficiency by Motivation, supervision, Communication.

Step 10: Monitoring

It is day today follow-up of activities during their implementation to ensure that they are proceeding as planned and are on schedule.. It is continuous process of, recording, reporting & observing (MIS) weekly, monthly as per the case. Define various indicators for monitoring the activities. Observe whether activities proceeding as per plan & schedule, targets being achieved or not. If excessive deviation found, identify the factors & take corrective measures immediately. Apply managerial skills.

Step 11: Evaluation

Evaluation is an important component of planning. It is assessment of the achievement of objectives at appropriate intervals. It is needed to see whether programme is accepted by the community, whether it is cost effective. Evaluation should preferably be done by third party to eliminate Bias. Corrective actions are suggested based on findings in evaluation and suggestions are incorporated. It helps in Re-planning.

Key Strategy or Instrument: District Health Plan Decentralized Action through District Plans

A. The Planning Process in NRHM

- District Health Plans are to be prepared by an aggregation and consolidation of Village Health Plans. Block Plans will be the basis for the District Plan.
- This requires setting up of planning teams and committees at various levels – Habitation/Village, Gram Panchayat (SHC), PHC (Cluster level), CHC/Block level, District level. At Village, PHC and Block levels, broadly representative committees would perform both planning and ongoing monitoring functions. A similar committee at District level would be involved in reviewing plans, based on drafting by the specialized district planning team. The monitoring and planning committee at State level would be supported by a State health planning cell as similar cell being required at the State and National level to provide support as needed.
- Besides large scale consultations, planning teams have to conduct household surveys, help select ASHAs, organize training for community groups and health functionaries. NGOs have a role in the entire planning process.
- Orientation of planning team and contractual engagement of professionals as per need has to be the starting point for the planning process.
- Village Health Plans are likely to take time and therefore District, Block and Cluster level consultation may have to form the basis for initial District Plans. The initial plans could be ad hoc and for a year. The perspective plans must be on the basis of Village Health Plan. Even then, Block will be the key level for development of decentralized plans.

B. Levels of planning and the key functionaries

- Village level Health and Sanitation Committee will be responsible for the Village Health Plans. ASHA, the Aanganwadi Sevika, the Panchayat representative, the SHG leader, the PTA/MTA Secretary and local CBO representative will be key persons responsible for the household survey, the Village Health Register and the Village Health Plan.
- The Gram Panchayat Level Health Plans, comprising a group of villages in many states and a single village in a few, will be worked on at the Sub Health Centre Level. The Gram Panchayat Pradhan, the ANM, the MPW, a few Village Health & Sanitation Committee representatives will be responsible for the Gram Panchayat Health Plan. They will also be responsible for over view and support for the household survey, preparation of Village Health Registers and preparation of Village Health Plans- the Gram Panchayat /SHC level would also organize activities like health camps to facilitate the planning process.
- The Cluster level will be led by the PHC/Additional PHC. Ordinarily there will be 1-4 Clusters in a Block. The PHC Health monitoring and planning committee will facilitate planning inputs of Panchayat representatives, along with other inputs from the community to formulate a broad plan. In this context the Medical Officer in charge of PHC will work in close coordination with the Pradhan/s

of the Gram Panchayat/s covered in that Cluster. The Cluster level would be responsible for overseeing the work of Gram Panchayat/s and for organizing surveys and activities through the SHCs.

- The Block/CHC level monitoring and planning committee will review the Block Health Plan. The Adhyaksha of the Block Panchayat Samiti, the Block Medical Officer, the Block Development Officer, NGO/CBO representative, head of the CHC level Rogi Kalyan Samiti will be key members of this team. Additional social mobilization professionals and planning resource persons will also be contracted at the Block level to develop a good Resource team at that level. The Block level Health Mission Team will finalize the Block Health Plans. The Block Health Teams would also supervise household and health facility surveys. They would also organize public hearings and health camps in order to make the planning process activity intensive.
- The District Level Health Mission will have a Health monitoring and planning committee responsible of providing overall guidance and support to the planning process. A draft plan will be formulated by the District Health Team, and presented for discussion to the broader committee. After relevant discussion and modifications in the committee, the district plan will be finally streamlined by the District health team, which, besides a few existing government functionaries, the District Health Teams will also have NGO representatives and a few professionals specially recruited to meet planning and implementation needs. The District Planning team will be responsible for household Surveys and Health facility surveys. They would also facilitate organization of health camps and public hearings in order to make the planning process activity intensive. The Zila Parishad Adhyaksha, the District Medical Officer, the District Magistrate will be key functionaries of the District Team. Every district health society would be assisted by a technical support agency, which they can choose from a number of options.
- The State Level Health Mission will have a State Health monitoring and planning committee to give overall guidance to the planning process. The State Resource Centre/Planning Cell will propose the draft plans to the Committee. After relevant discussion, the State Resource Centre / Planning Cell will finally streamline the plans as part of its resource support. The Resource Centre/Planning Cell will have to supervise the work of all the District Health Missions by scrutinizing and providing feedback on the plans so that adequate quality of plans and processes are ensured. The State Resource Center will also finalize survey formats and formats for preparation of plans at various levels. It will also finalize with guidance and directives from the ministry, the criteria for prioritization and indication of resources likely to be available for each Block and convey these to the district these details as also help develop the financial norms in conformity with these guidelines and on the basis of inputs from Blocks and Districts.

C. The basis for Annual Work Plans and Perspective Plans

- The Annual Plan will be based on resource availability and a prioritization exercise.
- As far as possible, States should let districts know by October of the resources likely to be available in the coming financial year.
- The District should disaggregate likely budget availability on the basis of needs at village/cluster/block levels by November. The Village, Gram Panchayat, Cluster & Block Plans should come to district based on a prioritization exercise.
- The District Health Mission Society will recommend the Annual Work Plan and Budgets and the Perspective Plan to the State level Health Mission under the Chief Minister.

D. Essential requirements for preparation for Village, Block, and District Health Plans

- Constitution of planning team and committees with clearly demarcated responsibility at each level.
- Engagement of professionals on contract at State, District and Block level urgently to meet planning needs.
- Broad norms for planning activities. Some idea on what is to be taken up and the space for diversity and innovations.
- Preparation of training modules for planning teams, and finalization of survey format for household survey, Family Health Cards, Village Health Register, mapping of non-governmental providers, and Health facility surveys.
- Survey of non-governmental health providers to assess their possible role in the District Health Plan.

- Organization of large scale activities like health camps, Public hearings to make the planning process activity intensive.
- Involvement of Women's groups and Community based organizations in planning activity.
- Release of untied grants to SHCs/ Gram Panchayats to facilitate activities.
- Recruitment and relevant training of ASHAs/ANMs.
- Orientation of existing health department functionaries on new ways of working.
- Convergent local action along with other departments.

The format for household and facility surveys may be seen at Annex- III. As will be evident, these surveys are planning and monitoring instruments and not for any national reporting system. The intention is to use the household and facility surveys to construct a base line and to make annual plan for each health facility with a clear assessment of financial and human resources and clear commitments of service guarantees.

FRAMEWORK FOR DISTRICT ACTION PLANNING

The following framework for assessing the present situation is proposed:

- **Resources** – Including Health humanpower, logistics and supplies; Community resources and Financial resources, Voluntary sector health resources
- **Access to services** – including public and private services and informal health care services; also look at levels of integration of services within Public health system
- **Utilisation of services** – including outcomes, continuity of care; factors responsible for possible low utilization of public health system
- **Quality of Care** – including technical competence, interpersonal communication, client satisfaction, client participation in management, accountability and redressal mechanisms
- **Community needs, perceptions** and economic capacities, PRI involvement in health, existing community organizations and modes of involvement in health
- **Socio-epidemiological situation:** Local morbidity profile, major communicable diseases and transmission patterns, health needs of special social groups (e.g. adivasis, migrants, very remote hamlets)

Broad outline of Planning process

- District health planning is viewed as an iterative and two-way process, where District planning teams provide overall planning framework and financial parameters, along with arranging training inputs for the Block and Village planning teams. The Village teams would need to develop draft plans to be collated and approved at the Block level. Similarly Block plans would be collated and approved at the District level.
- It is desirable as the ongoing model of planning, for such a process to build upwards as Village health plans _ Block health plans _ District health plan. However, this would not be possible in a full fledged manner in the first year, since formation and orientation of planning capable bodies at Village and Block levels will take time.

Background work required for PIP

The starting point of PIP would be the RoP/approvals for current year PIP [Main and supplementary (if any) and progress both physical and financial against the approvals (State as well as district wise). State level Programme Divisions as well as districts should be asked to reassess the approvals for current year PIP and list down the changes required in next year PIP. States along with their districts should assess the progress, both physical and financial, made till November every year against the approvals given in current year and fill up the required annexures in the excel sheets and upload as part of the PIP in the relevant sections. PIP would be a consolidated PIP of districts and the State. The District Health Action Plans (DHAPs) would have to be prepared and uploaded by the districts. The approved DHAPs would be consolidated at the state level and sent to MoHFW. The process of forwarding PIPs to the next level has been explained in the User manual for the PIP

software.

PIP

PIP would consist of two types of activities:

A. Continued /Existing Activities

Based on the feedback of the Programme Divisions and the districts, State may propose the same budget and activities as approved in current year, or propose changes which would fall in three categories: Discontinuation of an activity: no budget required

1. Increase in budget: change would be either be in number of units or cost per unit
2. Decrease in budget: changes are likely to be in number of units and in some cases cost per unit. The changes required are to be clearly mentioned in the budget sheet and its explanation is to be provided in the remarks column.

B. New Activities

For all new activities the norms laid down in manual of PIP of current year would apply. The State should clearly mention 'new activity' in the comments column and upload the justification sheet in the software. The State should provide a brief description, rationale, data/ background information required to appraise the proposal and budget breakup for each new activity (as shown in exhibit). New activities should also address the priorities set for next year (see below).

JUSTIFICATION SHEET: NEW ACTIVITY

- a. FMR code:
- b. Activity Proposed:
- c. Name of the Activity:
- d. Justification:
- e. Deliverables:
- f. Funding Proposed:

No of Units*	Cost per unit	Total Cost

Note* - Attach separate sheet for the detail components and tentative cost of each component e.g. if Labour Rooms are to be created - unit cost of the LR should be indicated, however if different components of LR are to be strengthened, then their tentative cost should be annexed.

Priorities of next year

It is expected that next year PIP would apply health systems approach to all activities proposed and ensure both effectiveness and efficiency. The PIP should address the following key priorities such as:

1. Strengthening of District Hospital by addition of specialities including dialysis as per IPHS and training facilities etc for nursing and allied health professionals, particularly neo natal nursing diploma, midwifery training diploma etc
2. Roll out of NHM Free Drugs Service Initiative including strengthening of basic lab, drug warehouses, IT systems for drug logistics and supply chain
3. Roll out of NHM Free Diagnostics Service Initiative including PPPs for tele radiology, hub and spoke model model, CT Scan etc
4. Operationalization of FRUs including Blood banks (Blood storage units)
5. Quality Assurance Systems
6. Kayakalp
7. Group/Team based incentives at Sub-Centre/PHC (for primary care)
8. Comprehensive primary care including UHC pilots

9. Grievance Redressal mechanism
10. Haemoglobinopathies
11. Operationalization of DEICs
12. State level Innovation

Innovation

Upto a maximum of 10% of the health systems strengthening budget (Mission Flexipool and NUHM) may be proposed for innovations. Please note that this is part of the overall budget envelope.

The budget for innovation is to be proposed under B.14 for Mission Flexipool and budget head 7 for NUHM. Any activity already budgeted/approved under innovation would continue to be budgeted under these FMR codes and would be included in calculation of 10% innovation funds.

It is expected that the States would use the flexibility and budget to come up with innovative and sustainable solutions for state specific /local needs. The innovations/projects should ideally have a baseline and must be independently evaluated after 1 ½ - 2 years' of implementation.

The innovations budget **cannot** be utilized for:

1. Purchase of vehicles
2. Support/4th grade staff. Any HR required (service delivery/ Programme management) is to be budgeted under A.8 and A.10 respectively of NRHM & RMNCH+A Flexipool, and under appropriate budget heads of NUHM.
3. Any cost already budgeted /covered under some other budget head in NHM (No double budgeting)
4. Any activity already disapproved
5. Infrastructure exceeding 33% of budget under NHM State must ensure that the activities are budgeted under correct budget heads and F.M.R codes. In case there is more than one F.M.R code with similar activity, a logical decision must be taken to budget the activity under the broad budget head which is closest to it and reflects the actual nature of the activity. Guidance may also be sought from the Director/Deputy or PIP process.

PIP Summary

States must provide a write up (not exceeding 5 pages) summing up the major problems in health (based on evidence with source) and the ways in which the PIP intends to tackle them in coming year. A part of the write-up should also explain how the State is planning to leverage the existing structures, systems and programs to establish new programmes and additional services. The State PIPs are expected to be contextual and tailor made for the particular state.

Timelines for PIP process

PIP orientation for MoHFW officials and consultants: 1st December

PIP Guidelines to be issued by 9 December.

PIP orientation workshops in states 15th-25th Dec

Last date of submission of PIP- 31st December.

Letter from Secretary Health for continued activities by 31st Jan. PIP appraisal and iterations (if any) by MoHFW divisions- 1st Jan-15th February

Key points to remember

- 1) Planning process
- 2) Constitution of village, block and dist. Level planning team and committees
- 3) PIP consist two types of activities- continued / existing and new activities
- 4) 10% of mission flexipool may be proposed for new activities

5) Time line for PIP

EXERCISE FOR PARTICIPANTS

Q.1.What are different levels of planning (DHAP)

Q.2. Write in brief about steps of preparing DHAP

Q. 3. What are essential requirements for preparation of PIP

Q.3.What background work is required for PIP

51. VITAL STATISTICS

While working in Health Department it is necessary to know the information regarding various VITAL statistics and DEMOGRAPHIC indicators. These indicators are useful for monitoring, supervising various health programmes.

Demography:

- **Demography** is the “scientific study of human population in which includes study of changes in population size, composition and its distribution.”
- **“Demo”** means “the people” and **“graphy”** means “measurement.”
(Demos=population, Graphy=picture)

Demographic characteristic of a county provide an overview of its

- Population size,
- Composition territorial distribution,
- Changes therein and
- The components of changes such as
 - Nativity
 - Mortality,
 - Social mobility.

This section on demographic indicators has been subdivided into two Parts.

1. Population Statistics
2. Vital Statistics

Population Statistics include indicators that measure the

1. Population size
2. Sex ratio
3. Density and
4. Dependency ratio.

While Vital Statistics include indicators such as

1. Birth rate
2. Death rate
3. Natural growth rate
4. Life expectancy at birth
5. Mortality
6. Fertility rates.

These indicators for the country as well as states help in identifying areas that need

- Policy and programmed interventions,
- Setting near far-term goals,
- Deciding priorities.

Importance of Demographic data

- Health status of a community depends upon the dynamic relationship between number of people, their composition and distribution.
- Planning of health services can be guided by demographic variables, for example:
 - i) How many health units do we need?
 - ii) How to distribute them in the community in order to be accessible to the target population?
 - iii) What type of manpower is needed?

Source of demography

- Population censuses
- National Sample Surveys Registration
- Vital Events

Vital Statistics

Definition: Vital statistics are conventionally numerical records of marriage, births, sickness and death by which the health and growth of community may be studied.

Or

It is a branch of biometry deals with data and law of human mortality, morbidity and demography.

Vital Events

Vital events plays very important role in Health Statistic

This includes

- Births
- Deaths
- Marriage
- Divorce

Source of Vital Statistics

- **Civil Registration System:**

It is defined as the continuous permanent and compulsory recording of the occurrence of vital events like live births, deaths, fetal deaths, marriages, divorces, as well as annulments, judicial separation, adoption. Civil registration is performed under a law and regulation so as to provide legal basis to the records and certificate made from system.

- **National Sample Survey:**

The data collected from the census are not very reliable and available only once in years. In absence of reliable data from the civil registration system (SRS), the need for reliable statistics at national and state levels is being met through sample surveys launched from time to time.

- **Sample Registration System:**

In this system, there is continuous enumeration of births and deaths in sample of villages/urban areas by a resident part time enumerator and then an independent six monthly retrospective survey by a full time supervisor.

- **Survey of Cause of Death :**

The scheme was previously known as Model Registration Scheme.

This scheme is ruled in only one selected village of every PHC in Maharashtra with the help of MPW (M/F). Monthly report is send to District HQ and State. An independent six monthly retrospective survey is carried out by MPW (M/F) & Supervisor. Another source is MIS which was started in 1981. Now various softwares are developed for data. eg. DHIS II, RCH web portal, CRS software, Training software, Niramay, e-Aaushadhi, etc.

- **Health Surveys :**

A few important sources for demographic data have emerged. These are **National Family Health Surveys(NFHS)** and the **District Levels Household Surveys (DLHS)** conducted for evaluation of reproductive and child health programmes.

NFHS provide estimates of fertility, child mortality and a no. of fertility, child mortality and a no. of health parameters relating to infants and children at state level.

The **DLHS** provide information at the district level on a no. of indicators relating to child health, reproductive health problems and quality of services availability to them.

Purpose:

1. **Community Health:** To describe the level of community health, to diagnose community illness & to discover solutions to health problems.
2. **Administrative Purpose:** It provides clues for administrative action to create administrative standards of health activities.
3. **Health Programmed Organization:** To determine success or failure of specific health programmed or undertake overall evaluation of public health work.
4. **Legislation Purpose:** To promote health legislation at local, state & national level.
5. **Government Purpose:** To develop, policies, procedure at state and central level.

- **Uses :**

1. To evaluate the impact of various National Health Programmes.
2. To plan for better future measures of disease control.
3. To explain the hereditary nature of the disease.
4. To plan and evaluate economic and social development.
5. It is a primary tool in research activities.
6. To determine the health status of individual.
7. To compare the health status of individual one nation with others.

- **Population Projection :**

We know the accurate population of a particular region during the census conducted by GOI. The census is carried out once in a decade (10 years). If we require a population between two censuses, we have to project it. There are various tools for projection of population for a particular point of time. One of them is Arithmetic method of projection. In this method we estimate the Mid Year Estimated Population (MYEP) or Mid Year Population (MYP).

- **Mid Year Population (MYP) :**

It is nothing but the population as on 1st July for calendar year of a particular year.e.g. Mid Year Population of 2017 means the population as on 1st July 2017.MYP is calculated by number of methods, few are as follows-

- A. MYP by arithmetic increase method

The formula is

$$P = P_2 + \frac{(P_2 - P_1)}{N} \times (D + 1/3)$$

Where, P is Mid Year Population.

P₂ is Population of recent census.

P₁ is Population of previous census.

D is Difference in years between the year for which we want to calculate MYP & recent census year.

N is number of months between census periods

Ex. Population of Ramgaon according to the 2001 census was 4000 and it was 6000 by 2011 census. Calculate the Mid Year Population for 2018 census? (Ans.7466)

A. FERTILITY INDICATORS**1. AGE SPECIFIC FERTILITY RATE (ASFR):**

This rate expresses number of live births given by 1000 women of the specific age group.

$$\text{ASFR} = \frac{\text{Total No. of Births given by Particular age gr. of female} \times 1000}{\text{Midyear Female population of same age group}}$$

Generally ASFR is calculated for 7 age groups.

These are 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, & 45-49.

Ex.1. Considering following information Calculate ASFR for different age groups.

Age Group	No. of Births	No. of Women	ASFR
15-19	115	2888	39.8
20-24	697	3494	199.5
25-29	531	3109	170.8
30-34	181	2571	70.4
35-39	95	2623	36.2
40-44	0	2257	0
45-49	0	2234	0
Total	1919	19176	516.7

ASFR(15-19)= (115/2888) x 1000 = 39.8 and so on.

Observation:

ASFR for the age group is 39.8 i.e. approximately 40. This means on average women in the age group 15-19, gives birth to 40 children. From the above table it is also observed that the age group 20-24 ASFR is maximum. From this rate we can identify the more fertile age group and decide for which age group family planning measures are to be needed, with more priority.

2. GENERAL FERTILITY RATE (GFR) :

This rate gives number of births per 1000 women of child bearing ages.

$$\text{GFR} = \frac{\text{Total No. of Births} \times 1000}{\text{No. of women in child bearing age}}$$

Ex. In Kondha village of Nagpur district, No. of births is 1619, No. of women in child bearing age is 19176. Calculate GFR. (Ans. 84.4)

Inference

In this Example GFR is 84.4 means 1000 women in this specific population gives birth to 84 children in their child bearing age group period. Here child bearing age group is taken as 15-49 years.

3. TOTAL FERTILITY RATE (TFR) :

Under specific fertility pattern a woman can have number of births in child bearing period. This is a hypothetical measure.

$$\text{TFR} = \frac{5 \times \text{Sum of all A.S.F.R.}}{1000}$$

Ex. Calculate Total Fertility Rate in above example no. 1.
(Ans. 2.58)

• GROSS REPRODUCTION RATE (GRR) :

GRR is an average no. of daughters that would be born to woman if she experiences the current fertility pattern through her reproductive span (15-49 yrs.).

$$\text{GRR} = \frac{5 \times \text{Sum of all A.S.F.R. for females}}{1000}$$

Ex.1. Considering following information Calculate ASFR, GRR for Raigad District.

Age Group	No. of female Births	No. of Women	ASFR(Female)
15-19	1	1445	
20-24	98	1275	
25-29	76	1282	
30-34	24	1066	
35-39	5	1093	
40-44	1	912	
45-49	0	890	
Total	205	7963	

What indicates GRR for Raigad District?

• Crude Birth Rate (CBR) :

It is the simplest measure of fertility, expressing number of births per 1000 persons in the population during the given year for the given region.

$$\text{CBR} = \frac{\text{Total No. of Births}}{\text{Mid Year Population}} \times 1000$$

Ex. Mid Year population is 78011 and No. of live births is 1619. Calculate CBR. (Ans. 20.7)

CBR gives number of births occurred in 1000 population. This rate is useful to estimate no. of births in specific area.

• Still Birth Rate (SBR):

Still Birth is number of still births per one thousand live births in a year.

$$\text{SBR} = \frac{\text{Total No. of Still Births} \times 1000}{(\text{Total live Births} + \text{Still Births})}$$

(Based on the WHO definition of third-trimester stillbirth used for international comparability, i.e. dead fetus of 1000 g or more at birth, or after 28 completed weeks of gestation, or attainment of at least 35 cm crown-heel length.)

Ex. In the year 2004 in Raigad district there are 435 live births and 6 still births as per SCD data. Calculate SBR. (Ans.14.49)

Note: SBR gives us how many still births have occurred per 1000 births. This rate is used to plan to improve services to pregnant and at the pregnancy and at the time of delivery.

B. MORTALITY INDICATORS:

1. Crude Death Rate (CDR) :

$$\text{Crude Death Rate} = \frac{\text{Total No. of Deaths}}{\text{Mid Year Population}} \times 1000$$

Ex. Mid Year population is 26987 and No. of Deaths is 184. Calculate CDR. (Ans.6.8)

Note: For survey study we can use surveyed population instead of MYP

CDR gives number of deaths occurred in 1000 population. This rate is useful to estimate no. of deaths in specific area.

2. Infant Mortality Rate (IMR):

Infant Mortality Rate is no. of deaths of children in one year of age per thousand live births in that year.

$$\text{Infant Mortality Rate} = \frac{\text{Total No. of Infant Deaths (0-1 Yr.)}}{\text{Total No. of Live Births}} \times 1000$$

Ex. In Parbhani district during the year 2003 is 25 children died under one year age and No. of live births in the year were 451, Calculate IMR. (Ans.55.4)

IMR gives number of children who could not enjoy their first birthday & this gives the picture of RCH services. It means we must concentrate on RCH services.

3. CHILD MORTALITY RATE (CMR) :

$$\text{Child Mortality Rate} = \frac{\text{Total No. of Child Deaths (0-5 Yr.)} \times 1000}{\text{Total No. of 0-5 years children}}$$

4. AGE SPECIFIC MORTALITY RATE (ASFR) :

Number of deaths in specific age group per 1000 population in that specific age group in a given year.

$$\text{ASMR} = \frac{\text{No. of Deaths in a particular age group} \times 1000}{\text{Population of the same age group}}$$

Ex. In the age group 35-39 year number of deaths is 906 and the population of the same age group is 82397 in Gadchiroli District. Calculate ASMR for age group 35-39. (Ans.10.99)

5. MORTALITY RATES OF UNDER ONE YEAR OF AGE

5a) Peri-Natal Mortality Rate (PNMR):

For this rate still births and deaths at the age less than one week are taken in numerator, While the still births and live are taken in the denominator, multiplied by 1000.

$$\text{PNMR} = \frac{\text{No. of Still Births} + \text{No. of deaths} < 7 \text{ days i.e. 1 wks.} \times 1000}{\text{No. of live Births} + \text{No. of Still Births}}$$

This rate is useful to identify how much is the mortality of children under 1 week. By knowing this a medical person can plan to avoid these deaths.

In spite of this there are various rate regarding mortality of children under 1 year. Their formulae are as follows -

5b) Early Neonatal Mortality Rate :

$$\text{ENMR} = \frac{\text{No. of ID less than 7 days during the yr.} \times 1000}{\text{No. live Births during the year}}$$

5c) Late Neonatal Mortality Rate :

$$\text{LNMR} = \frac{\text{No. of ID between 8-28 days during the yr.} \times 1000}{\text{No. live Births during the year}}$$

5d) Neonatal Mortality Rate :

$$\text{NMR} = \frac{\text{No. of ID upto 28 days during the yr.} \times 1000}{\text{No. live Births during the year}}$$

5e) Post Neonatal Mortality Rate :

$$\text{PNM} = \frac{\text{No. of ID from 29 days to 1yr. during the yr.} \times 1000}{\text{No. live Births during the year}}$$

6. MATERNAL MORTALITY RATE (MMR) :

This is a very important and sensitive indicator, because we can judge the services received by pregnant women given by medical personnel.

$$\text{MMR} = \frac{\text{Total No. of Maternal Deaths} \times 1000}{\text{Total No. of live Births during the year}}$$

Total No. of live Births

Note – Maternal deaths is the female deaths due to complications of pregnancy, child birth or within 42 days of delivery due to “puerperal causes”

7. Couple Protection Rate (CPR) :

$$\text{CPR} = \frac{\text{Couples using various methods of FP} \times 1000}{\text{Total No. of Eligible couple}}$$

8. Hospital Rates :

Some of the hospital utilization rates are given below:

$$\text{Bed occupancy Rate (B.O.R.)} = \frac{\sum \text{Daily census of month}}{\text{No. of sanctioned beds} \times \text{No. of days in a month}} \times 100$$

Note - Where daily census refers to per day remaining admitted patients in the hospital

$$\text{Bed Turnover Rate (B.T.R.)} = \frac{\text{Total no. of discharge Pt.+Deaths in a month}}{\text{Number of sanctioned beds}}$$

$$\text{Average length of stay (ALOS.)} = \frac{\sum \text{daily census of month}}{\text{No. discharge} + \text{No. of Deaths in a month}}$$

$$\text{Out patient for inpatient} = \frac{\text{Total number of OPD (Old + New)}}{\sum \text{daily census}}$$

$$\text{Major Surgery Rate} = \frac{\text{No. of Surgery} \times 100}{\text{Total No. of Admissions}}$$

$$\text{LSCS Rate} = \frac{\text{Total No. of LSCS} \times 100}{\text{Total No. of Deliveries (Normal +LSCS)}}$$

$$\text{Incidence Rate} = \frac{\text{No. of new cases of disease during specified period}}{\text{Total Population during the same period for that place}} \times 1000$$

It is calculated where high incidence occur. eg. Cholera, Measles, Diphtheria etc.

$$\text{Prevalance Rate} = \frac{\text{No. of (O+N) cases of disease during specified period}}{\text{MYP of that area during specified period}} \times 1000$$

HEALTH OUTCOME GOALS ESTABLISHED IN THE 12TH FIVE YEAR PLAN

(OBJECTIVIES)

- Reduction of Infant Mortality Rate (IMR) to 25 per 1,000 live births by 2017.
- Reduction in Maternal Mortality Ratio (MMR) to 100 per 100,000 live births by 2017.
- Reduction in Total Fertility Rate (TFR) to 2.1 by 2017.
- Providing clean drinking water for all by 2009 and ensuring no slip- backs. Reducing malnutrition among children of age group 0-3 years to half its present level.
- Reducing anemia among women and girls by 50%.
- Raising the sex ratio for age group 0-6 to 935 by 2011-12 and 950 by 2016-17.

Comparision of Current Health Status of Maharashtra & India

Particulars	Estimated Rate 2016						Source
	Maharashtra			India			
	Total	Rural	Urban	Total	Rural	Urban	
Birth Rate	15.9	16.3	15.5	20.4	22.1	17	SRS Bulletin SEPT 2017
Death Rate	5.9	6.9	4.6	6.4	6.9	5.4	
IMR	19	24	13	34	38	23	
MMR	68 (2011-13)			167 (2011-13)			Niti Aayog 2017
TFR	1.8			2.3			SRS Bulletin SEPT 2017
Natural Growth Rate	10.1	9.4	10.9	14	15.2	11.7	
Sex Ratio	929			943			Census 2011
Child Sex Ratio	894			919			

SOFTWARES USED IN PUBLIC HEALTH

RCHपोर्टल

कुटुंब कल्याण मंत्रालय, भारत सरकारने MCTSही संगणकीय प्रणाली विकसित केली होती.

उद्देश

- १) गरोदर माता व बालके यांना दिलेल्या सेवांचे ट्रॅकींग करणे
- २) लाभार्थी गर्भवती महिला व बालके यांना योग्य वेळी आरोग्य सेवा मिळणे
- ३) आरोग्य सेवा बळकटीकरण
- ४) आरोग्य सेवांची व्याप्ती वाढवीणे, जास्तीत जास्त लाभार्थ्यांपर्यंत सेवा पोहचविणे
- ५) उपकेन्द्र स्तरापासून ते राज्य स्तरापर्यंत पर्यवेक्षण करणे

उपलब्ध घटक

लोकसंख्या नोंदणी, पात्रजननक्षम जोडपी, गरोदर माता यांचा पाठपुरावा, गरोदरपणची निष्पत्ती, अर्भक तपशील, प्रसुतीनंतरची काळजी, बालक नोंदणी

कार्यक्षेत्र - ग्रामीण व शहरी भाग

डाटा एन्ट्री - लाभार्थी निहाय ,गाव निहाय

डाटा एन्ट्रीस्तर - उपकेन्द्रस्तर/प्रा.आ.केन्द्र ,ग्रामीण/उपजिल्हा/जिल्हा रुग्णालये

डाटा एन्ट्री करणे - आठवडी

MCTS मध्ये सर्व राज्यांचे अहवाल सादर केले जात होते. मात्र योग्य जोडप्यांची आकडेवारी व त्याबाबतचा पाठपुरावा याचा MCTS मध्ये अंतर्भाव नसल्यामुळे केन्द्र सरकारने नविन RCH पोर्टल विकसित केलेले आहे ज्यामध्ये योग्य जोडपी, गर्भवती महिला आणि बालके यांचे त्यांना देण्यात येणाऱ्या आरोग्य सेवांबाबत पर्यवेक्षण करण्यात येते. त्यामुळे राज्यातसुद्धा MCTS ऐवजी आता RCHपोर्टल वापरण्यात येत आहे.

RCHपोर्टलमुळे आरोग्य सेवा बळकटीकरण, जास्तीत जास्त लाभार्थ्यांपर्यंत सेवा पोहचविणे व सर्व स्तरांवर देण्यात येणाऱ्या सेवांबाबत पर्यवेक्षण करणे हे शक्य झाले आहे. यावरील माहिती व अहवालांचा उपयोग वेळीच जोखमीच्या माता ओळखून प्रतिबंधात्मक उपाय करणे, तसेच वर्कप्लॅनद्वारे योग्य वेळी सेवा पुरवून मातामृत्यु व बालमृत्युच्या प्रमाणात घट घडवून आणणे याकरीता होत आहे.

योग्य अहवाल प्राप्त होण्याकरीता अचूक डेटाएन्ट्री होणे आवश्यक आहे. त्यामुळे उपकेन्द्र स्तरावरून योग्य डेटाएन्ट्री करण्याकरीता तसेच वर्कप्लॅननुसार सेवा देण्यास्तव आरोग्य सेवक यांना सदर पोर्टल वापरता येणे आवश्यक आहे.

सदर पोर्टल करता Google Chromeचा वेब ब्राऊझरवर जाऊन www.rch.nhm.gov.inहा URL टाईप करावा. त्यानंतर विंडो येईल.

- १) यानंतर माहिती भरण्याकरीता  या बटनावर क्लिक करावे. पुढील विंडो येईल. यात स्टेट महाराष्ट्र सिलेक्ट करून आपल्या उपकेन्द्र त्या प्रा.आ.केन्द्रामध्ये येते त्या प्रा.

आ.केन्द्राचे युजर नेम व पासवर्ड टाकून आणि त्यानंतर तेथे देण्यात आलेला **इमेज कोट** टाकून Loginबटनवर क्लीक करावे.

- २) लॉग इन केल्यानंतर खालील विंडो येईल. यामध्ये उजवीकडे वरच्या टोकाला ज्यांचे लॉग इन असेल त्या प्रा.आ.केन्द्राचे नाव व राज्याचे नाव दिसेल.
- ३) यानंतर सेट लोकेशन या बटनावर क्लीक करावे. पूढील विंडो आल्यानंतर डेटा एन्ट्री करावयाचे सब सेंटर व गावाचे नाव सिलेक्ट करावे आणि Set बटनावर क्लीक करावे.
- ४) लोकेशन सेट केल्यानंतर डेटा एन्ट्री बटनावर क्लीक करावे. यानंतर स्क्रीनवर खालील प्रमाणे आयकॉन्स दिसतील. त्यानुसार डेटा एन्ट्री करण्याकरीता आवश्यक आयकॉनवर क्लीक करावे.

अ) Profile Entry मध्ये सेवा पुरविणाऱ्या ए.एन.एम., आशा व अंगणवाडी कार्यकर्तीचे नाव व मोबाईल नंबर, गावाची लोकसंख्या, एकूण योग्य जोडप्यांची संख्या इत्यादी तसेच जवळचे २४x७ प्रा.आ.के., FRUचा पत्ता व संपर्क क्रमांक आणि रुग्णवाहीकेचा संपर्क क्र.इत्यादी बाबी आहेत.

ब) सेवा पुरविणाऱ्या एएनएम व आशा यांचा प्रोफाईल Health Provider/ASHA Entryया बटनावर क्लीक करून करावी.

योग्य जोडपी, गर्भवती महिला व बालके यांची डाटा एन्ट्री योग्य त्या बटनावर क्लीक करून करण्यात यावी. गर्भवती महिलेची प्रसूति झाल्यानंतर पुन्हा तीची योग्य जोडपे म्हणून नोंद करण्याकरीता डाटा एन्ट्री EC Reregistration या बटनावर क्लीक करून करावी.

वर्कप्लॅनमधून लाभार्थींना दिलेल्या व उर्वरित आरोग्य सेवांची माहिती घेता येते.

वेबसाईट www.rch.nhm.gov.in

HMISपोर्टल

HMIS (हेल्थ मॅनेजमेन्ट इन्फॉर्मेशन सिस्टीम) हे वेब पोर्टल कुटुंब कल्याण मंत्रालय, भारत सरकारद्वारा २१ ऑक्टोबर, २००८ साली ग्रामीण तथा शहरी भागातील शासकीय तसेच खाजगी आरोग्य संस्थांमधील सार्वजनिक आरोग्याशी संबंधित माहिती तसेच अहवाल प्राप्त होण्याकरीता कार्यान्वीत करण्यात आले. हे पोर्टल सार्वजनिक आरोग्याबाबत सर्व माहिती एका ठिकाणी उपलब्ध होण्यास्तव एक खिडकी (single window) आहे.

उद्देश: आरोग्य संस्था निहाय आकडेवारी गोळा करणे, उद्दिष्ट व साध्य बाबत माहिती घेणे.

उपलब्ध घटक: माता व बाल संगोपन निर्देशांक, लॅब टेस्ट, लसीकरण, कुटूंब कल्याण कार्यक्रम, आंतर व बाह्य रुग्ण, माता मृत्यू बाल मृत्यू व इतर मृत्यू बाबत माहिती व हिवताप, क्षयरोग कार्यक्रम, व्हॅक्सीन, औषध साठा उपलब्धता

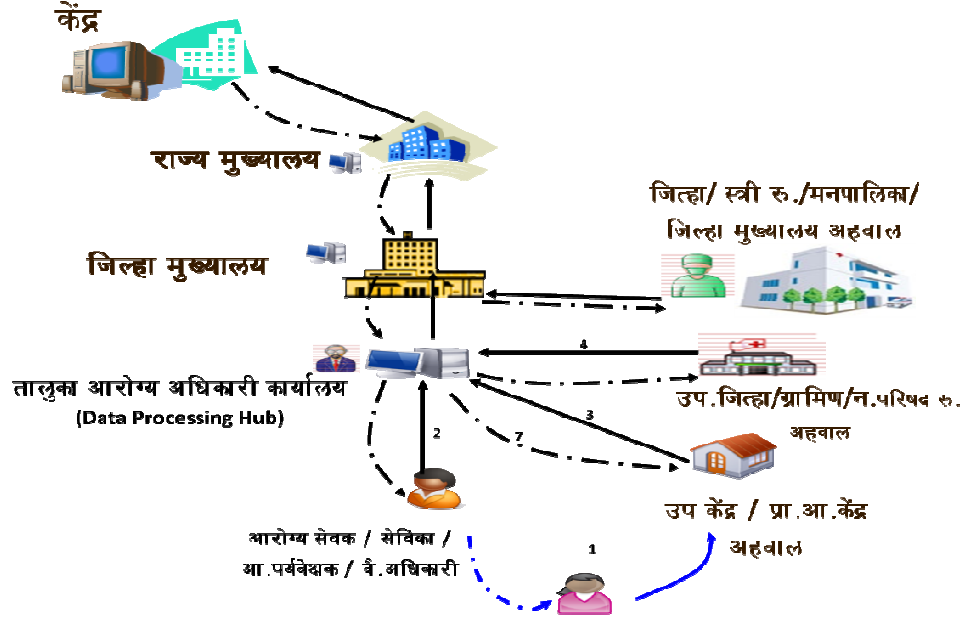
कार्यक्षेत्र-ग्रामीण व शहरी भाग (फक्त कार्यक्षेत्रामध्ये दिलेल्या/घडलेल्या सेवांची नोंदी) व खाजगी दवाखाने

डाटा एन्ट्रीस्तर -उपकेन्द्रस्तर/प्रा.आ.केन्द्र, ग्रामीण/उपजिल्हा/जिल्हा रुग्णालये

डाटा एन्ट्री करणे -मासिक व वार्षिक

या पोर्टलवर उपकेन्द्र स्तरावरूनसुद्धा डाटा एन्ट्री केल्या जाते ज्याची जबाबदारी ब.आ.सेवकांवर देण्यात आलेली आहे.

डाटा एन्ट्री ही ऑनलाईन व ऑफलाईन या दोन्ही प्रकारे करण्याची सोय या पोर्टलमध्ये देण्यात आलेली आहे.



आकृती : उपकेन्द्र स्तर ते केंद्र स्तरापर्यंत माहिती व अहवालाची देवाणघेवाण

ऑनलाईन मोडमध्ये इंटरनेटशी जोडलेले असतांना पोर्टलवर लॉग इन करून माहिती भरून सेव करता येते. ज्या भागात इंटरनेट नाही तेथे ऑफलाईन डाटा एन्ट्री करता येते. त्याकरीता पोर्टलवरून डाऊनलोड केलेल्या विशिष्ट फॉर्मेटमध्ये ऑफलाईन डाटा एन्ट्री करून सदर फॉर्मेट्स इंटरनेट उपलब्ध असतांना अपलोड करता येतात.

उपकेन्द्र, प्राथमिक आरोग्य केंद्र स्तरावरून प्रत्येक महिन्याच्या ५ तारखेपर्यंत डाटा एन्ट्री करावयाची आहे. त्यानंतर सदर रिपोर्ट तालुका स्तरावर पाठविण्यात येतात.

या पोर्टलवर करावयाची डाटा एन्ट्री व इतर आवश्यक बाबी यांची अधिक माहिती सोबत देण्यात आलेल्या सी.डी. मध्ये फोल्डरमध्ये आहे.

वेबसाईट www.nrhm-mis.nic.in

DHIS – 2पोर्टल (New version)

- DHIS-2 Softwareहे राज्य शासनाचे साफ्टवेअर आहे.
- उद्देश- जे निर्देशांक केंद्र शासनाचे साफ्टवेअरमध्ये नाही ति आरोग्य संस्था निहाय आकडेवारी गोळा करणे, उद्दिष्ट व साध्य या साफ्टवेअरमध्ये आहे
- उपलब्ध घटक -माता व बाल संगोपन, जननी सुरक्षा योजना, जननी शिशु सुरक्षा कार्यक्रम, साथरोग, अंससर्गजन्य आजार, National Programme on Prevention and control of Cancer, Diabetes, CVDs & Stroke (NPCDCS), पाणी गुणवत्ता नियंत्रण
- कार्यक्षेत्र-ग्रामीण व शहरी भाग (फक्त कार्यक्षेत्रामध्ये दिलेल्या/घडलेल्या सेवांची नोंदी) व खाजगी दवाखाने
- डाटा एन्ट्रीस्तर - उपकेन्द्रस्तर/प्रा.आ.केंद्र, ग्रामीण/उपजिल्हा/जिल्हा रुग्णालये

- डाटा एन्ट्री करणे - मासिक

वेबसाईट - www.nrhm-mis.nic.in

e-AUSHADHI

Aushadhi is a web based application which deals with the management of stock of various drugs, sutures and surgical items required by various District Drug warehouse, CHC, PHC & DDC of Maharashtra state.

"e-Aushadhi" helps in determining the needs of various Sub-stores such that all the required drugs are constantly issued by DDW to its Sub-store, to Patient by DDC without delay.

Features of e-Aushadhi -

- Role Based Access.
- Supplier Interface & Lab Interface.
- Supplier Payment Process.
- Budgeting, Stock Ledger & Drill-Down Reports.
- Various kinds of Analysis like ABC, VED, FSN.
- Customizable Alert Management & Reports.
- Categorization of Drugs as per CIMS guidelines.
- Provision of maintaining expiry date / shelf life for an item wherever applicable

e-Aushadhi Process

S.No	Module	Forms	Users
E-Aushadhi Services			
1	Demand	Transfer Demand Request(Short) Transfer Request(Excess) Indent Generation Demand Generation Purchase	• DDW's • Sub Stores
2	Receive	Challan Process	DDW's
		Acknowledge Desk Transfer Acknowledge Desk	DDW's, Sub stores
4.	Return	Offline Return	DDW's
5.		Sample Receiving At Hq	QC
6.	Order Mgmt	Purchase Order Generation Desk (Local PO) Purchase Order Approval	DDW's.
7.	Modification & Backlog	Drug Inventory	DDW, Sub stores.
E-Aushadhi Reports			
7.1	Inventory Management	Inward / Challan Register Return Details Sale / Issue Register Stock On Hand Record Expiry Details Pending Sample For DDW Sample Issue/Receive Detail To Quality Dept Stock Ledger	Headquarters, DDW
7.2	Order Mgmt	PO Register Rate Contract Detail Report	Headquarter
7.3	Financial Mgmt	Material Inward Register Report Material Outward Register Report	Headquarter, DDW
7.4	Quality Control Mgmt	Drug Quality Status Report Pending Sample Detail Sample Issue Detail To Lab Inventory Management Summary List Of Samples	QC headquarter

Benefits of Software based Inventory Management System:-

- Better Planning, executing and controlling.
- Online Tracking of Drug Inventory.
- Streamlining of Inter-Drug warehouse Transfer.
- Efficient control of Inventory.
- Multi user, Multi location storage.
- Comprehensive Help.
- Customizable Reports

Display screen

- The main screen will be displayed to the user as soon as he/she will run the executable file.
- Default System Date will be visible in Current Date Textbox. If the user finds system Date incorrect, h/she can change the same. The selected date should be accurate. Error in date selection may create problem while uploading files.
- If the required files will not be found on place i.e. 'user.xml', there will be a message asking to browse the file and the checkbox will be checked by default.
- Successful upload and accurate credentials will allow the user to login.
- As soon as the user will login, there will be a screen called 'Display Screen'.
- Here you can see a list of sub-menus under 3 main menus: Services, Setup & Reports.
- Before starting any transaction, it is mandatory to upload the stock file.

Upload Stock File Screen

- There are 2 modes available for a stock update: Offline Mode and Online Mode (by default).
- Online Mode is for stores where web connection is available and offline mode is for stores with no internet connection.
- In Online mode, click on Sync Stock to first-time upload stock into the desktop application from the main e-Aushadhi application using internet connection.
- After button click, a popup will appear informing that stock has been uploaded successfully.
- If the user is going for offline mode, above screen will be visible.
- The user can browse the stock file and upload the same to load current stock into a desktop application.

Current Inventory

1. The user will reach to Current Inventory Screen which will display the current stock with the following details:
 - a. Item Name
 - b. Batch No.
 - c. Available Quantity
 - d. Expiry Date
2. The user can search the stock based on an Item name or Batch No.
3. Back button will navigate the user to Issue to Patient Screen.

Diagnosis Configuration

1. There are 2 modes available for a stock update: Offline Mode and Online Mode (by default).
2. Online Mode is for stores where web connection is available and offline mode is for stores with no internet connection.
3. In Online mode, click on Sync Data to sync master data (information about department, diagnosis and doctor) into the desktop application from the main e-Aushadhi application using internet connection.

Issue to Patient Screen

1. If the stock file will be uploaded successfully, the user will view a screen i.e. 'Issue to Patient'.
2. Drug finder has been modified to a search box, with the help of which the user can issue drugs by typing the name of the drug.
3. Successful entry for required data will save the details and a voucher will be generated with respect to the medicines issued.

Issue Voucher Screen

1. Issue Voucher will be generated as soon as the user will save the details.
2. The user can print the same and hand it over to the patient.

Patient List Screen

1. The screen will display the list of Patients with their details.
2. View button will display the voucher with all the details related to the selected patient.
3. Cancel button will cancel the issue and will update the current stock.

Upload Stock File (Sync Stock)

1. After Issuing drugs, Go to Upload Stock Screen.
2. Click on Sync Stock for online sync of stock with main application.
3. Successful Stock sync will result into 'data sync successful' popup.

Website: <http://>

NIKSHAY SOFTWARE

This is the web based application software for different level of users for the monitoring of tuberculosis under RNTCP.

There are four levels of users in the software:

1. National Level Users
2. State Level Users
3. District Level Users
4. Tuberculosis Level Users

1. National Level Users:

There will be 2 National level users viz. rntcp-helpdesk and rntcp-national. Rntcp-helpdesk will be used to solve the problems of the users at any level where rntcp-national will be used by Central TB Division for the purpose of reports.

2. State Level Users

35 State level users have been created with structure as sto-xx where xx is 2 character RNTCP state code. In case, any state level user faces password related problem, then user need to contact rntcp-helpdesk for resetting of password.

3. District level Users

District level users have been created on the pattern dto-ssddd where ss is RNTCP State Code and ddd is RNTCP District level RNTCP code. In case, any district level user faces password related problem, then user need to contact concerned STO or rntcp-helpdesk for resetting of password.

4. Tuberculosis Unit Level Users

Tuberculosis Unit level users have been created on the pattern tbu-ssdddtu where ss is RNTCP State Code and ddd is RNTCP District level RNTCP code and tu is RNTCP TB Unit level code. In case, any Tuberculosis level user faces password related problem, then user need to contact concerned DTO or STO or rntcp-helpdesk for resetting of password.

For login operations, following need to be taken care of:

- User must have valid Username and Password.
- Software will display error in case username or password is not correct.
- In case of any exceptional error, it will display “Please contact Administrator”. In this case, user needs to send mail to the Administrator.
- Users will get the menu based on the role in which she/he has logged in.

Website: <http://nikshay.gov.in>

NIKUSHTH

This is the web based application for monitoring of National Leprosy Eradication Programme (NLEP).

Objectives:

- To design and develop a system for systematic data management of Leprosy patients to achieve the objectives of National Leprosy Eradication programme (NLEP)
- To enable ASHAs/ field executives in the field and doctors/ paramedical staff at Health Centres to deliver services in real-time, thereby reducing efforts, human errors and increasing efficiency and performance.
- To enable Health officials in monitoring and assessing the performance of users.
- To cater to the need of data collection, recording, reporting and indicators for analysis.

OPERATIONS

1. Suspect Record Management
2. Patient Record Management
3. Patient Treatment Record Management
4. Disability Prevention and Medical Rehabilitation
5. Patient Follow-up
6. Patient Relocation
7. Drug Stock Register
8. Queries and Indicators
9. Reports Contacts Tracing
10. Feedback/ Suggestions

11. Informative Content

12. Trail Log

COMPONENTS

➤ Web based application

- User: Sub Centres, Primary Health Centres (PHCs), Block, District, State & Centre
- Store, view data (online)
- Suspect & Patient Record
- Patient Treatment Record
- Drug Stock Register
- Queries, indicators and reports
- Updates and Reminders
- Contacts Tracing
- GIS Location Indicator

➤ Android Based Application:

- User: ASHAs/ field workers
- Suspect Record
- Patient Record View (offline).
- Pulse Date Reminders

➤ Server side services

- Synchronization between Android and web based application.
- Reminder messages to field executives and Patients.

Types of reports

Sl. No.	Type of Report
1	Pending Suspect as on selected date Report
2	District-wise yearly Report
3	Block Monthly Report-I
4	District Monthly Report-I
5	State Quarterly Report
6	Block Yearly Report
7	Urban Locality wise Yearly Report
8	Block Monthly Report-II
9	District Monthly Report-II

Indicators

Sl. No.	INDICATOR
1	% Grade II Disability
2	% cases developing grade II disability during the course of treatment
3	% child disability
4	Treatment Completion Rate for PB cases
5	Treatment Completion Rate for MB cases
Indicators for analysis of IEC	
6	% patients who are aware about symptoms of leprosy
7	% patients who are aware about symptoms of leprosy

Website: www.leprosy.gov.in (In Mozilla Firefox and not in Google window)

ASHA SOFT

What is ASHA Soft?

- It is a web-based software for online payment to their bank account and monitoring the performance.
- It will capture beneficiary wise details of services given by ASHA to the community.
- It will generate various reports to monitor the progress of the program.
- ASHA Soft is integrated with PCTS for name based reporting and verification of beneficiary

Why ASHA Soft?

- To ensure timely and transparent online payment to ASHAs
- To improve the system for effective monitoring their performance on all the parameters.

ASHA Soft REQUIRES

- Circular authorizing ASHA Soft
- ASHA claim forms for ASHAs
- ASHA Soft Program (NIC)
- ASHA Soft Manual for guidance
- Mechanism for data entry and verification
- Digital Signature Certificates for release of payments
- SMS Gateway
- Payment arrangements with Bank
- Reliable PCTS/MCTS database

Strengths of ASHA Soft

- No capital investment in any manner and at any level (Existing PC is used)
- Existing information Assistants/Computer operators used –No new HR hired
- Existing SMS Gateway is used...better used
- Existing banker can be made partner
- Utility of PCTS/MCTS, which in turn strengthens entry regime
- No need to compile information manually
- Informed decisions are encouraged

What information has been collected and fed in the default?

- Name
- Location/posting details
- Qualification
- Training status
- Mobile number
- Bank account details

National Teleconsultation Service:

National Teleconsultation Service of Ministry of Health and Family Welfare is first of its kind online OPD service offered by a country government to its citizens. National Teleconsultation Service aims to provide healthcare services to patients in their homes. Safe & structured video based clinical consultations between a doctor in a hospital and a patient in the confines of his home are being enabled.

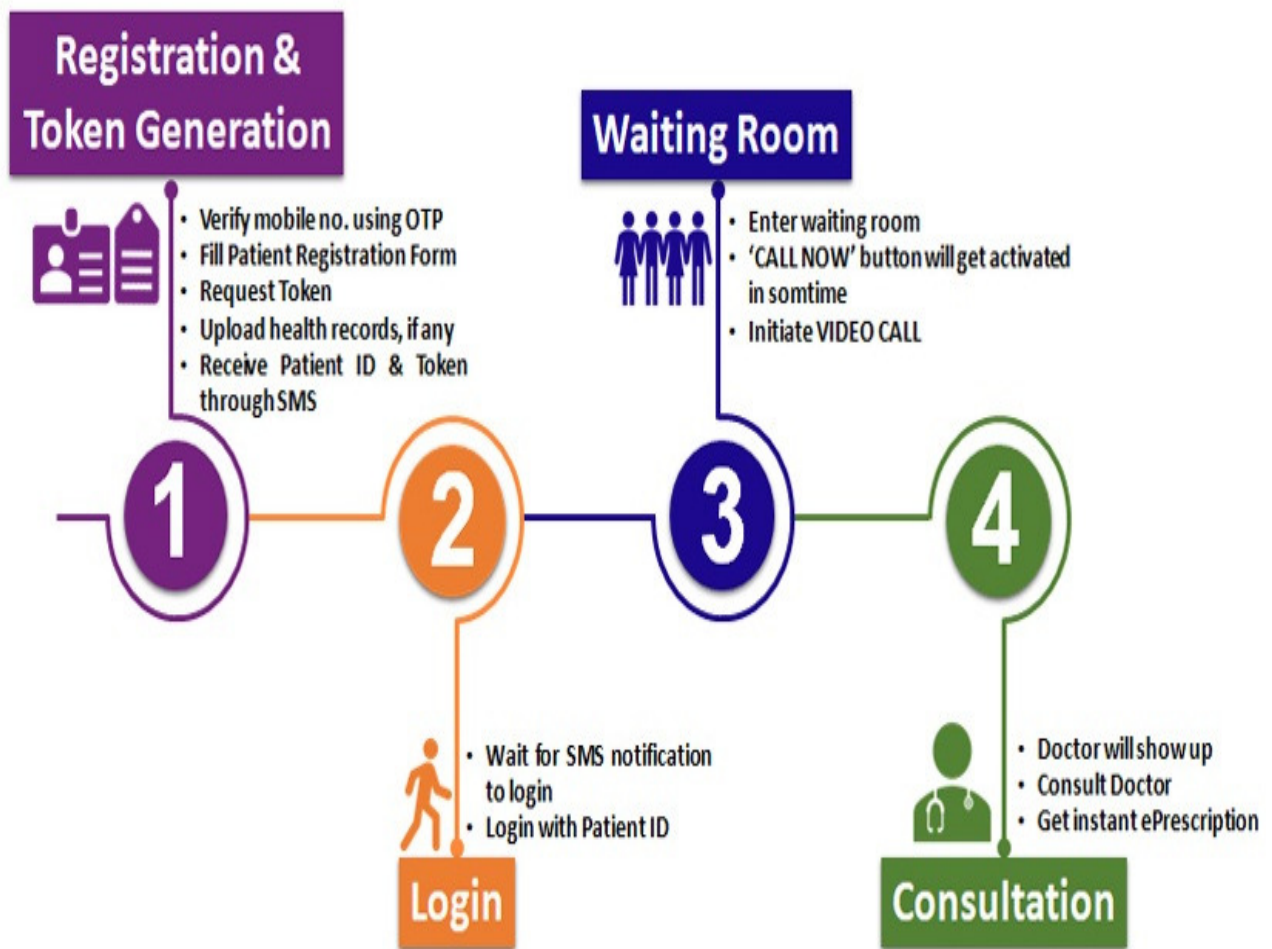
e Sanjeevani OPD:

eSanjeevani OPD – Stay Home OPD has been developed by Centre for Development of Advanced Computing (C-DAC) in Mohali. Salient features of this citizen friendly web-based National Teleconsultation Service (eSanjeevani OPD) are:

1. Patient registration
2. Token Generation
3. Queue Management
4. Audio-Video Consultation with a Doctor
5. ePrescription
6. SMS/Email Notifications
7. Serviced by State's Doctors
8. Free Service
9. Fully configurable (no. of daily slots, no. of doctors/clinics, waiting room slots, consultation time limit etc).

eSanjeevani OPD is based on eSanjeevani - Government of India's flagship telemedicine technology developed by Centre for Development of Advanced Computing (Mohali). eSanjeevani - a doctor to doctor telemedicine system is being deployed nationally for the Ministry of Health & Family Welfare at 155,000 Health and Wellness Centres under Ayushman Bharat Scheme of Government of India.





FAMILY PLANNING LOGISTICS MANAGEMENT INFORMATION SYSTEM

BACKGROUND

Universal access to family planning services with emphasis on healthy timing and spacing of pregnancies is linked with maternal and child health outcomes. The Ministry of Health and Family Welfare (MoHFW), Government of India (GoI) aims to ensure that family planning commodities supplies move uninterrupted from national to community levels and are available to end users. It has taken steps to achieve this goal - empowering frontline health workers ASHAs to distribute family planning commodities to families, and launching the innovative userfriendly FPLMIS application are two ambitious, synergistic programs that can bring family planning services to the doorstep of every citizen of the country.

Linking up stores/warehouses, health facilities, and frontline workers with the National FPLMIS software through a systematic process of capacity building and follow-up to ensure smooth flow of family planning commodities

Launched in 2017 FPLMIS is a Web Based, Mobile and SMS application designed to monitor and manage Family Planning commodities at all levels. The software developed by CDAC is available online at www.fplmismohfw.in. FPLMIS unifies a centralized contraceptive procurement system managed by the

MoHFW at the national level with a nationwide distribution network that links national, state, district, block and community (Frontline workers). It provides a common platform for effective supply chain management including forecasting and demand-based supply and overcomes challenges of the decades-old manual system for logistics management. GoI instructions for operationalizing FPLMIS include standardized training manuals, method and tools. However, the transition to a fully digitalized system demanded additional inputs, especially in states/areas facing infrastructural challenges. USAID along with development partners have been supporting the GoI to operationalize FPLMIS in the states since 2018.

HWC Portal Entry Login: Ayushman Bharat (AB) provides Comprehensive Primary Health Care that is free for below the poverty line people of the society. It focuses on wellness and delivery with an inclusive of additional services to the deserved communities.

The Major services of this program are comprised of preventive, promotive, and palliative care. In addition, Pradhan Mantri Jan Arogya Yojana (PM-JAY) provides health insurance that will cover a population of 10 crore and vulnerable families who need attention to secondary and tertiary care. Under this Yojana, the Central Govt does provide a health insurance cover of five lakhs per family across Indian.

As a part of the promotional activities, the government is creating 1,50,000 health & Wellness Care Centres. HWC shall deliver an expanded range of services that include non-communicable diseases, palliative, rehabilitative care, oral care, eye care, ENT care, mental health, and provision of free essential drugs and diagnostic services.

Ayushman Bharat AB HWC Portal Entry Login Process:

1st Step: First, beneficiaries must visit the AB HWC Official website i.e. <https://ab-hwc.nhp.gov.in/>.

2nd Step: Once you Open the AB HWC web Portal, beneficiaries should click on the Login button.

3rd Step: Next, you need to enter the login details such as user name and password in the appropriate boxes.

2nd Step: Before clicking the logins, enter the security code that is available in the Captcha. And then, click the login button.

3rd Step: The beneficiary can enter the portal and get access to the desired information.

Integrated Health Information Platform

Strengthen the disease surveillance in the country by establishing a decentralized State based surveillance system for epidemic prone diseases to detect the early warning signals, so that timely and effective public health actions can be initiated in response to health challenges in the country at the Districts, State and National level.

CPHC NCD Solution NCD Application for ANM

Introduction to the application for ANMs: Currently under the National Programmed for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke (NPCDCS), it envisaged that the paper health records maintained by the Auxiliary Nurse Midwives (ANMs) and Accredited Social Health Activists (ASHAs) be digitalized for all the population based screening conducted for women and men aged 30 years and above in the community or in the health facility nearby for smoother and effective treatment and referral. By using this application you will be creating every individual's electronic health record, similar to a paper file/ record. Every time the patient/individual visits the facility for screening or treatment the relevant data is entered and new information is added. This information can be viewed by the health officials for measuring the disease burden, update in program planning and evaluate the performance of health workers. Note the individual's health information collected is highly confidential and the department aims at maintaining them securely and use it only for treatment and nothing else.

Role of ANM All the information collected by the ASHA must be entered by you later in the tablet. As this would enable proper follow up by the medical officer at the PHC level or at a higher level of facility. Your task is also to support the ASHA through the field visits in completing the enumeration. Note, you will cross verify at least 10% population and also you will undertake enumeration in some areas where ASHA's position is vacant. You will also ensure all ASHAs complete the CBAC of all individuals 30 years and above and also make available with registration and CBAC forms, measuring tapes, and other tools that may be necessary for the ASHAs to conduct screening.

Description:

1. App Version:1.00: Note the version you are working on. Wherever there is an update, you will find a link to the next version and you can update by clicking on that link when there is internet connectivity.
2. Choose Language from the dropdown: This application is being built to work on many language. As of now, we have options of 10 languages.
3. Name of State: Choose the state you belong to.
4. ANM ID: Every ANM is given a unique ID by the state, which will remain constant.
5. For First Time login Users: You will enter the username and password. By Default the password will be the registered mobile number.
6. On successful authentication, ANM will be sent an OTP on her registered mobile number.
7. ANM has to enter the OTP along with the new password to be set.
8. On successful OTP validation & password update, ANM has to set a 4 digit authentication pin for 2nd level authentication. Once done, Sync will start to download the initial metadata.
9. For Subsequent login: ANM has to enter password followed by a 4 digit pin.
9. If you reinstall the App or clear data: ANM has to enter the username and the last used password.
10. Security Code: Every time you try to login, you will find some numbers struck out on the screen, you will need to enter them in the text box next to the number.
11. Now click the long blue rectangular "LOGIN" button.
12. To Reset password/ Reset pin:
You will need to enter a 6 digit One Time Password (OTP) to confirm it is you. Once done, enter the new password in the Password field and re-enter the same in the Confirm Password field.

13. For 1st time login: The Terms and Conditions pop up will appear on the screen as shown in the screenshot below:
14. Click Agree.
15. Then click the Reset Password/Reset Pin button. Note: If you are logging in for the first time, it will direct you to complete the subcentre profile. But you will also have the option to make any changes to these details in the future.

५२. वाहन व्यवस्थापन

प्रस्तावना

आरोग्य विभागात खेडोपाडी, डोंगराळ, अतिदुर्गम भागात राहत असलेल्या गोरगरीब लोकांपर्यंत आरोग्य विषयक योजना पोहचविणे, त्यांना समजावून सांगणे. यासाठी अधिकाऱ्यांना दळणवळणासाठी वाहनाची आवश्यकता असते. रुग्णालयात रुग्णवाहीकेचे अनन्यसाधारण महत्त्व आहे. सभोवतालच्या परीसरात राहत असलेल्या गोरगरीबांना आजारपणात तातडीने रुग्णालयात आनने. गरोदर महीलांना प्रसुतीसाठी रुग्णालयात आनने आणि प्रसुतीनंतर घरी पोहचविणे-आणणे रुग्णालयात रुग्णावर उपचार होऊ शकत नसेल तर, नजीकच्या मोठ्या शासकीय रुग्णालयात घेऊ जाणे. रुग्णावर उपचार चालू असतांना काही गुंतागुंत (Complication) झाले तर, मोठ्या शासकीय रुग्णालयात पाठविणे. शस्त्रक्रियेपूर्वी रुग्णाच्या काही चाचण्या रुग्णालयात उपलब्ध होत नाहीत अथवा संबंधित उपकरण नादुरुस्त आहे. अशाप्रसंगी बाहेरून करून घेण्यासाठी रुग्णाला घेऊन जाणे इत्यादी. अशा सर्व प्रसंगी रुग्णवाहीका मौलाचे काम करीत असते.

सर्व आरोग्य संस्थात कार्यालय प्रमुख म्हणून डॉक्टर काम करीत असतात. अशावेळेस त्यांना रुग्णालयातील सर्व बाबींवर लक्ष ठेवावे लागते. यात रुग्णवाहीका अत्यंत महत्वाचे रोलकरीत असते. ही नेहमीकरीता सुस्थितीत राहून रुग्णसेवेला उपयोगी राहण्याच्या दृष्टीने डॉक्टरांनी संस्था प्रमुख म्हणून रुग्णवाहीका /वाहनेबाबत विशेष लक्ष ठेवणे आवश्यक आहे. वाहनात इंजिन आईल बदली सारखी छोटीशी दुरुस्ती विहीत कालावधीत करून घेण्यात आली नाही, तर इंजिनमध्ये मोठी दुरुस्ती निघते. वाहन नादुरुस्त झाल्याने रुग्णसेवेसाठी उपलब्ध होऊ शकत नाही. तसेच वाहन दुरुस्तीवर मोठ्या प्रमाणात खर्च येतो.

वाहन/रुग्णवाहीकेचे कागदपत्र ठेवणेबाबत-

नविन वाहन/रुग्णवाहीका रुग्णालयात प्राप्त झाल्यावर ठेवावयाची कागदपत्रे

- १) कंपनीचे सेल लेटर/ व्हाचरची प्रत.
- २) वाहनांची नोंदणी परीवहन कार्यालयात (RTO) मध्ये करणे. प्राप्त होणारे RCTC पुस्तक व्यवस्थित ठेवणे.
- ३) वाहन जर व्यावसायिक वापरासाठी (ट्रान्सपोर्ट वाहन) म्हणून नोंदणी झालेली असेल तर त्याचे फिटनेस प्रमाणपत्र
- ४) वाहनाचे PUC प्रमाणपत्र
- ५) प्रत्येक वाहनाची स्वतंत्र नस्ती ठेवण्यात यावी.
- ६) वाहनाची नोंद कार्यालयातील जडसंग्रह वस्तु नोंदवहीमध्ये नोंदविणे बंधनकारक राहिल.
- ७) वाहनाचे लॉगबुक, इतिहासपुस्तिका ठेवण्यात यावी तसेच वेळोवेळी अद्यावत करण्यात यावी.
- ८) वाहनासंबंधीचा तांत्रिक पत्र व्यवहारासाठी स्वतंत्र नस्ती ठेवण्यात यावी.
- ९) वाहनाचा अपघात झाल्यास त्वरीत वरीष्ठांना आणि नजिकच्या पोलीस स्टेशनला कळविण्यात यावे.
- १०) संस्थेत नेमलेल्या वाहनचालकाशिवाय ईतर कोणालाही वाहन चालविण्यास देऊ नये. यास संपूर्णपणे वाहनधारक जबाबदार राहतो.

लॉगबुकचे महत्व :-

- १) लॉगबुक हे अत्यंत महत्वाचे घटक आहे. वाहन वापराबाबतची संपूर्ण माहिती यावरून समजते. वाहन कोणत्या तारखेला, किती वाजता, कोठून कोठे गेले, त्याची सुरुवातीची धाव संख्या आणि शेवटची धाव संख्या किती आहे. एकूण किती किलोमीटर वापरल्या गेले. त्यावर असलेल्या वाहन चालकाचे नाव, प्रवासाचा हेतू, वाहनात इंधन भरले असल्यास त्याची नोंद आणि अधिकाऱ्याची स्वाक्षरी इत्यादी माहिती समजते.
- २) महिन्या अखेरीस वाहन वापराचा गोपवारा काढणे आणि महिन्याच्या शेवटच्या पानावर नोंदविणे आवश्यक आहे.
- ३) महिन्याभरात किती इंधन लागले, प्रतीलीटर सरासरी धाव (Average) किती आली इत्यादी माहिती काढली जाते आणि नोंदविली जाते.
- ४) कार्यालयात होणाऱ्या लेखापरीक्षणामध्ये लॉगबुकची तपासणी होत असते. यात वाहन आर्थिक वर्षात किती किलोमीटर धावले. इंधनावर किती खर्च झाला. इत्यादी माहिती तपासली जाते.
- ५) लॉगबुक वेळच्यावेळी भरणे बंधनकारक आहे व त्यावर अधिकाऱ्याची स्वाक्षरी असणे बंधनकारक आहे.

इतिहास पुस्तिका (History Book) -

वाहनाचा वापर होत असतांना वाहन उत्पादक कंपनीने नमुद केलेल्या विहित कालावधीत वाहनाची प्रतिबंधात्मक देखभाल, नियमित दुरुस्ती करणे, वाहनात छोटी, मध्यम, मोठी दुरुस्ती करण्यासाठी जो खर्च होतो. त्याची इतिहास पुस्तिकेत नोंद घेणे आवश्यक असते.

इतिहास पुस्तिकेची आवश्यकता-

- १) आर्थिक वर्षात होणारा वाहन देखभाल दुरुस्तीचा संपूर्ण खर्च देयकाच्या तपशीलासह यावर नोंदविला जाणे बंधनकारक आहे.
- २) कार्यालयात मोटारवाहन या शिर्षाखाली वाहन दुरुस्तीस अनुदान प्राप्त होत असते. यातून वाहन दुरुस्तीचा खर्च प्रामुख्याने होत असतो. रुग्णावाहीकेसाठी राष्ट्रीय आरोग्य अभियान अंतर्गत अनुदानातून दुरुस्ती झाली असल्यास त्याचीही नोंद इतिहास पुस्तिकेत घेणे बंधनकारक आहे.
- ३) प्रत्येक वाहनासाठी स्वतंत्र इतिहास पुस्तिका ठेवणे अनिवार्य आहे.
- ४) आर्थिक वर्षाअखेर वाहन दुरुस्तीवर झालेल्या एकूण खर्चाची बेरीज इतिहास पुस्तिकेत केली जाते.
- ५) लेखापरीक्षणात परीक्षक वाहनावर झालेल्या खर्चाचा हिशोब इतिहास पुस्तिकेवरून देयकनिहाय तपासत असतो. यासाठी इतिहास पुस्तिका आणि त्यातील अद्यावत नोंदी ठेवणे आवश्यक आहे.
- ६) वाहन अंतिमरीत्या निर्लेखित करतांना वाहनाच्या एकूण वापरात वाहनावर किती खर्च झाला हे नमुद करणे आवश्यक असते. ते इतिहास पुस्तिकेमुळे सहज शक्य होते.

वाहनधारकाने वाहनचालकाबाबत पुढील बाबी लक्षात घेणे आवश्यक आहे.-

- १) वाहन/ रुग्णवाहीका हे अधिकृतरीत्या नेमणुक झालेल्या वाहन चालकाशिवाय ईतर कोणालाही चालविण्यासाठी देऊ नये. यामुळे मोठा अपघात होण्याची शक्यता आहे. वाहन सुरक्षित, व्यवस्थित न चालविल्यास वाहन लवकर खराब होऊन त्यात मोठी दुरुस्ती निघण्याची शक्यता राहते.
- २) संस्थेत कार्यरत प्रत्येक वाहनावर एक याप्रमाणे नियमित वाहनचालक उपलब्ध असणे आवश्यक आहे.
- ३) बहुतांश रुग्णालयात नियमित वाहनचालक उपलब्ध नसल्याने, कंत्राटी पध्दतीने वाहन चालकाची नेमणुक होत असते.
- ४) जिल्हास्तरावरून कंत्राटी पध्दतीने वाहनचालकाची नेमणुक रुग्णालयात केली जाते. कंत्राटधारामार्फत पुरविलेल्या कंत्राटी वाहनचालक अथवा रुजू झाल्यावर त्याचे गाडी चालविण्याचा परवाना वैध असल्याचे खात्री करण्यात यावी. तसेच नियमित तपासणी करण्यात यावी. काही रुग्णालयात

वाहनचालक उपलब्ध नसतांना थेट स्थानीक स्तरवरचा वाहनचालक रोजदारीवर घेऊन रुग्णावाहीका वापरली जाते. हे योग्य नाही यात रुग्णावाहीकाचा अपघात झाल्यास वाहनधारक जबाबदार धरल्या जातो. तसेच रोजदारीवरील वाहनचालकाकडून वाहनाचे नुकसान होण्याची शक्यता असते. यासही वाहनधारकाची जबाबदारी असते.

- ५) नेमणुक दिलेल्या कंत्राटी वाहनचालकाशिवाय ईतर दुसऱ्या व्यक्तीस वाहन चालविण्यास देऊ नये.
- ६) कंत्राटी वाहनचालकास वाहन/रुग्णावाहीका व्यवस्थीत चालविता येत नसल्यास आपल्या वरिष्ठाच्या निर्देशनास त्वरीत आणून देण्यात यावे आणि त्याच्या सेवा समाप्त करण्याबाबत सुचित करण्यात यावे.
- ७) वाहनचालकाचे वागणे व्यवस्थीत असल्याबाबत वेळोवेळी खात्री करण्यात यावी. उद्धटपणा, बेजबाबदारपणा आढळल्यास त्वरीत कार्यवाही करण्यात यावी.
- ८) वाहनचालकाला मादक पदार्थाचे वेसन नसल्याची खात्री करण्यात यावी. तसेच मादक पदार्थ सेवन करून वाहन चालविणार नाही. याबाबत त्याला बजावण्यात यावे.
- ९) रुग्णावाहीकेत नाजूक स्थितीत असलेल्या गरोदर महिला, अत्यवस्थ रुग्ण जात असतो. यांना धक्के बसणार नाही याअनुषंगाने वाहन चालकाने रुग्णावाहीका चालवावी.
- १०) रुग्णावाहीकेत अत्यवस्थ रुग्ण असतांना, रुग्णावाहीका गर्दीतून भरधावरीत्या मार्ग काढत असते. वाहनचालक अनुभवी नसल्यास सुरक्षित आणि व्यवस्थीत वाहन चालवू शकणार नाही.

वाहनचालकाची जबाबदारी आणि कर्तव्ये:-

- १) आरोग्य सेवा अत्यावश्यक सेवेत येते. त्यामुळे वाहन आणि मुख्यत्वे रुग्णावाहीका नेहमीकरीता सुस्थितीत राहतील. याची संपूर्ण जबाबदारी वाहनचालकाची राहते
- २) रुग्णावाहीकेत गरोदर माता आणि अत्यवस्थ रुग्ण असतात. त्यामुळे वाहनचालकाने कमीत कमी धक्के लागतील अशा पद्धतीने रुग्णावाहीका चालविली पाहिजे.
- ३) रुग्णावाहीका स्वच्छ राहिल. प्रामुख्याने एका रुग्णाला सोडले की स्वच्छता होणे आवश्यक आहे जेणे करून दुसऱ्या रुग्णाला लागण होणार नाही.
- ४) वाहन चालकाने वाहन/रुग्णावाहीका नेहमी करिता सुस्थितीत राहतील. तसेच मार्गस्थ बिघाड होणार नाहीत यासाठी विशेष काळजी घ्यावी.
- ५) वाहन चालकाने दररोज वाहन सुरु करण्यापुर्वी वाहनात इंजिन ऑईल पातळी व्यवस्थीत आहे. रेडीएटरमध्ये कुंलट आहे, इंधन पुरेसे आहे, टायरमध्ये व्यवस्थीत हवा आहे हे तपासावे.
- ६) वाहनचालकाने आठवड्यात किमान एकदा वाहनातील गिअरबॉक्स, डिफरेंशियल, ब्रेक, यामध्ये ऑईलची पातळी योग्य असल्याची खात्री करावी. वाहनाची आतून आणि बाहेरून संपूर्ण तपासणी करावी. नटबोल्ट लुज आढळल्यास ते टाईट करावेत. गाडी चालवितांना काही आवाज असल्यास तो ही तपासावा. वाहनाची बॉडी कुठे खराब झाली आणि रंग गेला का याबाबत खात्री करावी.
- ७) बॅटरीवर टर्मीनलवर पांढर वलय (सल्फेशन), बेल्ट योग्य असल्याची खात्री करावी. वायर मोकळी राहून कुठे शॉटसर्कीट होणार नाही याबाबत तपासणी करावी.
- ८) वाहन चालु करतांना डॅशबोर्डवरील सर्व लाईट्स सुरु आहेत. बॅटरी चार्जिंग व्यवस्थीत होत आहे. ऑईल पंप, वॉटर पंप काम करीत असल्याची खात्री करावी.
- ९) वाहनाचे सर्व लाईट्स, वायपर सुरु असल्याची खात्री करावी.
- १०) वाहन चालकाने वाहन उत्पादक कंपनीने वाहन पुस्तीकेत नमुद केल्याप्रमाणे विहीत कालावधीत/ विहीत किलोमीटरला वाहनाची प्रतिबंधात्मक देखभाल करून घेणे अंत्यत आवश्यक आहे.
- ११) उदा. सुमो वाहनाचे इंजिन ऑईल दर १०,००० कि.मी.ला बदली झालेच पाहिजे. यात ऑईल फिल्टर, डिझेल फिल्टर पण बदली केलेच पाहिजे.
- १२) गिअर बॉक्स डिफरेंशियल ऑईल २०,००० कि.मी. ला बदली करून घेतले पाहिजे.

- १३) टाटा सुमो, वाहनात इंजिनमध्ये टायमिंग बेल्ट दिलेला असतो. तर टेम्पो ट्रॅव्हर वाहनात टायमिंग चेन दिलेली आहे. विहीत कालावधीत हे बदली नाही केले तर ते तुटून इंजिन दुरुस्ती सारखे मोठे काम निघते व खर्चही वाढतो. यासाठी वेळीच खबरदारी घेण्यात यावी.
- १४) ब्रेकमधील डिस्क ब्रेकचे पॅड्स वेळीच न बदली केले गेल्यास डिस्क खराब होते आणि खर्च वाढतो. तरी पॅड्स वेळीच बदली करण्यात यावे.
- १५) दररोज वाहन सुरु करण्यापुर्वी स्वच्छ पुसून घ्यावे इंजिन ऑईल लेव्हल कुलंट योग्य असण्याची खात्री करावी.
- १६) टायर्समध्ये कंपनीने नमुद केले प्रमाणे हवा भरण्यात यावी. वाहन थंड असताना टायर्समधील हवेचा दाब पपासण्यात यावा.
- १७) टायर्समध्ये योग्य हवेचा दाब असावा. जास्त हवा भरली तर टायर्सच्या मधला ट्रेड (नक्षी) चालवताना सतत उडत असते.
- १८) टायर्समध्ये हवा कमी भरली तर दोनही साईड ट्रेड वॉल नाही. लवकर मोजतात. तसेच प्रति लिटर सरासरी धाव (Average) कमी येते.
- १९) मद्यसेवन करून वाहन चालवू नये.
- २०) अपघात प्रसंगी यांनी रुग्णाला प्रथम दुसऱ्या वाहनाने रुग्णालयात पोहोचविण्याची खबरदारी घ्यावी. पोलिसांना कळवावे. आपले कार्यालयाला कळवावे.
- २१) अपघातात जखमी झालेले असल्यास त्यांनाही दुसऱ्या वाहनाने रुग्णालयात पाठविण्यासाठी मदत करावी.
- २२) पोलीस पंचनामा झाल्याशिवाय वाहन स्थळावरून हलवू नये.
- २३) वाहनचालकाने रुग्ण अथवा त्याचे नातेवाईक यांचेशी सौजन्यपुर्वक राहावे. रुग्णाला रुग्णवाहिकेत चढण्यासाठी अथवा उतरण्यासाठी मदत करावी स्ट्रेचर उतरविने चढविने हळुवार करावे.
- २४) वाहन चालविण्याचा परवाना वाहनाचे कागदपत्र व्यवस्थित सुरक्षित वाहनात ठेवावे. पोलिस अथवा आर.टि.ओ. अथवा तत्सम Authority ने मागणी केल्यास दाखवावे.
- २५) वाहनाची नियमीत दुरुस्तीसुध्दा वेळीच होण्यासाठी नियोजन करावे. यामुळे वाहनात मोठी दुरुस्ती निघणार नाही आणि खर्चात बचत होईल. तसेच मार्गस्थ बिघाड होणार नाही. पर्यायाने रुग्णसेवेला बाधा पोहचणार नाही.
- २६) वाहनाची देखभाल दुरुस्ती करण्यासाठी जिल्हास्तरावर जिल्हा कार्यशाळा आहेत. त्याचे प्रमुख सेवा अभियंता कार्यरत आहेत. विभागीय स्तरावर विभागीय कार्यशाळा आहेत याचे प्रमुख सेवा व्यवस्थापक कार्यरत आहेत. याची माहिती वाहनचालकाला असावी.
- २७) आरोग्य परीवहन विभागाचे राज्यस्तरीय कार्यालय पुणे येथे असून उपसंचालक, आरोग्य सेवा (परीवहन) हे प्रमुख आहेत.
- २८) वाहनात किरकोळ दोष आढळल्यास वाहन धारकाच्या नजरेस आणून द्यावे. तसेच जिल्हा कार्यशाळा प्रमुखाशी संपर्क साधावा. किरकोळ दोष वेळीच काढला जाईल याची काळजी घ्यावी.
- २९) वाहनचालकाने जिल्हा मुख्यालयी वाहन काही कामासाठी नेले तर महिन्यातून किमान एकदा जिल्हा कार्यशाळेत दाखवून त्या वाहनाची तपासणी करून घ्यावी. वाहन चालवितांना काही दोष आढळत असल्यास जिल्हा कार्यशाळा तांत्रिक अधिकाऱ्याला दर्शवावा.
- ३०) वाहनाची स्पिडोमीटर केवळ तुटली आणि वाहनाची झालेली धाव डॅशबोर्डवर दिसत नसल्यास त्वरीत त्याची दुरुस्ती करण्यात यावी.

वाहनाच्या इंधन आणि दुरुस्तीसाठी आवश्यक अनुदान उपलब्ध असणेबाबत.

- १) संस्थेचे वर्षाचे बजेट वनविताना संस्थेत कार्यरत सर्व वाहनांसाठी आवश्यक इंधन, वंगन आणि दुरुस्तीसाठी अंदाजे खर्चाचे अनुदानाची स्वयंस्पष्ट मागणी करण्यात यावी.
- २) इंधन, वगणाची मागणी करताना मागील २ वर्षात लॉगबुक प्रमाणे झालेली एकुल धाव, खरेदी करण्यात आलेले इंधन आणि ते खरेदीसाठी झालेला एकुल खर्च विचारात घेण्यात यावा.
- ३) वाहन दुरुस्तीसाठी मोटार वाहन या बाबी खाली अनुदानाची मागणी करताना वाहनाची सद्यास्थिती विचारात घ्यावी. त्यात काही दुरुस्त्या आहेत का ते तपासून घ्यावे. त्यावर अंदाजे अपेक्षित खर्च विचारात घ्यावा. तसेच दुरुस्ती पुढील वर्षात प्रतिबंधात्मक देखभाल, नियमित दुरुस्तीवर होणारा अंदाजित खर्च विचारात घेण्यात यावा.

उदाहरणादाखल- टाटा सुमो, रुग्णवाहीकेची दरमहा सरासरी मासिक २००० कि.मी. धाव आणि त्याच्या अनुषंगाने प्रतिबंधात्मक देखभाल, नियमित दुरुस्ती इ. विचारात घेता प्रति किलोमीटर किमान रु.३/- एवढा खर्च (इंधना व्यतिरिक्त) विचारात घेऊन रु.७२०००/- प्रति वाहन प्रति वर्ष खर्च अपेक्षित आहे. वाहनाचे झालेले आर्युमान सुद्धा दुरुस्तीच्या खर्चात मोठी भुमिका बजावते. याबाबी विचारात घेऊन वाहन दुरुस्तीसाठी अनुदान मागण्यात यावे.

- ४) वाहन चालविण्याचा परवाना वाहनाचे कागदपत्र व्यवस्थित सुरक्षित वाहनात ठेवावे. पोलिस अथवा आर. टि.ओ. अथवा तत्सम Authority ने मागणी केल्यास दाखवावे.
 - ५) वाहनाची नियत धावसंख्येला करावयाची देखभाल दुरुस्तीसाठी वाहनधारकाकडे पाठपुरावा करावा.
- वाहन/ रुग्णवाही दुरुस्तीबाबतचे प्रशासकीय मान्यतेचे अधिकार-वित्त विभागाच्या शासन निर्णय १७ एप्रिल २०१५ मध्ये वाहन दुरुस्तीचे प्रशासकीय अधिकार नमुद आहेत. त्यानुसार एका वर्षात वाहन दुरुस्तीसाठी विविध स्तरावर असलेले प्रशासकीय मंजूरीचे अधिकार पुढीलप्रमाणे,

अ.क्र.	प्रकार	कार्यालय प्रमुख	प्र.का.र	प्रशासनिक विभाग
१	पेट्रोल	१५०००	५००००	पूर्ण
२	डिझेल	१३५००	६००००	पूर्ण

यात दरवर्षी ५ टक्के एवढी वाढ धरण्यात यावी.

वाहनधारकाने आरोग्य परिवहन विभागाची तांत्रिक मंजूरी न घेता कोणतेही वाहन परस्पर दुरुस्त करू नये.

वाहन निर्लेखन

राज्य शासनाच्या शा.नि. अन्वये वाहन निर्लेखन करण्यासाठी वाहनाची धाव २,४०,००० कि.मी. आणि १० वर्ष आर्युमान (यापैकी जे उशीरा येईल ते) अशा अटी नमुद आहेत. वाहन निर्लेखित करतांना आरोग्य परीवहन विभागाच्या मान्यतेनंतरच वाहनधारकाला वाहन निर्लेखित करता येईल.

एखादे वाहन निर्लेखणाच्या अटी पूर्ण करत नसेल तथापी त्याचे निर्लेखन करणे आवश्यक झाल्यास (वाहन अपघात, एकदम मोठी दुरुस्ती, इत्यादी) जलसंपदा विभागातील कार्यकारी अभियंता यांच्याकडून हे वाहन दुरुस्तीकरणे किफायतीशीर राहणार नाही. असे तांत्रिक प्रमाणपत्र प्राप्त झाल्यानंतरच निर्लेखणाची कार्यवाही करता येईल.

F.MEDICO LEGAL ASPECTS

53. MEDICO LEGAL AUTOPSY

1. MEDICO-LEGAL WORK AT PHC

Medical Officer is concerned with medico-legal work along with clinical & administrative jobs at PHC. MO should apply medical knowledge to certain branches of law. MO needs to depose in court as an expert witness. Therefore MO should carefully note all the facts observed & learn to draw conclusions correctly & logically.

1. Medico legal cases

Cases sent by police only do not constitute whole quota of medico legal work. Cases at the time of admission may be purely medical or surgical; however they may assume medico legal importance later on due to changed circumstances. Following cases should be considered as medico-legal cases and recorded in detail, even if they are not sent by police.

- All accident cases
- Burns, poisoning, snake bite, scorpion bite, human bites, tetanus etc.
- Un-natural or suspicious death e.g. sudden death due to unknown cause, suicide, homicide, death in anesthesia or on operation table, death of a convict in jail, police custody etc.
- Death of a patient within 24 hours of admission.
- Patient brought unconscious or already dead to PHC/ hospital.
- Complaint of rape.
- Person under influence of alcohol.
- Any doubtful case or death for which cause cannot be certified.
- Injury after hospital admission e.g. falls from cot.

2. Identification marks

It is advisable to write one or two identification marks of the party examined. Whenever MO is called in a court of law to give evidence, he/she is asked whether he/she remembers to have examined the party. Identification marks have legal significance as actual verification can be done in court. Signature or left thumb impression of patient would also be very useful for subsequent examination.

3. Summons

It is issued by the court in writing, in duplicate & signed by presiding officer of the court. It is served on witness by police officer or officer of the court. MO should know following important aspects of summons -

- MO should sign first copy & return back to police and should retain second copy
- When summons is served, MO must attend court and give evidence.
- Attendance can be excused if MO is ill or is rendering a genuine emergency service for which no other doctor is available.
- Criminal courts get precedence over civil courts.
- It is necessary to maintain a summons register, indicating name of MO called, name of the court, date & time of hearing, name & register number of case.

4. Recording of evidence

- Examination in chief: Witness is first examined by the side, which has called him. In government set up, this is commenced by public prosecutor.
- Cross-examination: By opposite counsel.

- Re-examination: After cross-examination, witness maybe re examined by counsel who has called him.
- Court question: Judge may ask questions to witness to clear doubtful points.

5. Medico legal reports

Medico-legal report consists of three parts -

- Introduction, date, place & time of examination including identification marks.
- Facts observed on examination.
- Opinion or inference drawn from the fact.

Report should be written at the time of examination or immediately afterwards. Copy of report should be preserved in same form as original. Examples: Injury report, PM report.

6. Dying declaration

- Accepted in court as legal evidence after death of a person who made the declaration.
- This is the statement verbal or written made by a person narrating circumstances leading to death. No oath is required.
- It is admissible in all cases where cause of death is under inquiry.
- As a rule, Magistrate should be present for dying declaration. Attending doctor should arrange for a magistrate to record dying declaration. However in exceptional cases MO can him/herself take dying declaration if dictated by circumstances.
- If the patient's condition is grave, medical attendant should record statement him/herself.
- MO should certify that, patient is in sound mental condition to make declaration.
- There should not be police officer nearby, no extraneous person around & no prompting to the person making declaration.
- Declaration may be oral, but MO should write it down in presence of two disinterested/ unrelated witnesses. Preferably witness should be female. It should be recorded in words of declarant in the form of questions put to him & answers. If patient is unable to speak, then it should be recorded in the form of signs.
- Declaration when concluded should be read over to the patient & signature or left thumb impression should be recorded.
- Doctor & 2 witnesses should sign it.
- Investigating officer should not be present while recording.
- It should be forwarded to concerned Magistrate in sealed cover.
- If the victim survives it ceases to have legal value, but is still useful as a supporting statement in case that person is examined.

7. Doctor in Witness Box

7.1. General aspects

- When summons is served, MO must attend court & produce document.
- Dress properly. Take MLC register, OPD/IPD case papers, etc. with you.
- Master the facts, refresh memory & carefully study related recent literature.

7.2. Giving evidence

- Address the judges as “Sir” or “Your Honour”.
- Answers should be brief & precise. Give evidence slowly in a loud clear voice. Use simple words, avoid technical words. Avoid indiscriminate talk.
- If you do not know the answer of any question, clearly say so. Never give opinion without knowledge.
- Never lose temper. Always appear cool & dignified.
- Sometimes council quotes a passage from text book & asks you as a witness whether you agree with it. Request the council to show textbook to you before replying, note the date of publication, read the paragraph contents and then state whether you agree or not.
- When evidence is concluded, this should be read, signed by MO after getting corrections.
- Do not leave court till permission is granted.

8. Preservation of medico legal record

All medico legal record should be preserved for 30 years where evidence has been recorded under 1 or 2 subsections of the section 512 of code of criminal procedures. Other medico legal record may be destroyed after 5 years from final date of case.

In ML cases where no court proceedings are taken, record may be destroyed after 5 years from initial date of case in consultation with police authorities.

Similar rule is applied for X ray plates i.e. if under section 512 (subsection 1 or 2) preserve for 30 years & all other for 5 years.

9. OPD and IPD case papers

- These case papers must have the stamp ‘MLC’. In addition to this, any correspondence related to any MLC must bear MLC stamp.
- Outdoor & indoor register has to be separately maintained for MLC cases. Each case should have separate MLC number in addition to usual register number.
- After thorough examination, case paper should have detailed notes of findings along with laboratory, X-ray, other investigations, operation notes, treatment given etc.
- Case paper should not be handed over to patient.
- MLC Record (case papers, registers) should be kept by MO in his/her custody under lock & key. Indoor case papers should be kept by ward sister under lock & key until patient is discharged & thereafter it should be with MO.
- Record including indoor, outdoor case papers should be maintained in duplicate as some times original record may be required to be handed over to the court.
- Case papers & correspondence should be maintained month & year wise.

10. X-ray plates & laboratory report

It is often necessary to refer medico legal cases for X-ray or laboratory examination. X-ray plates are positive proof & accepted as evidence in court of law. X-ray plates should be carefully marked with name of patient.

Detailed X-ray & laboratory report should be properly recorded on case paper immediately on receipt.

Time & date of receipt should be written on paper.

11. Medico legal register

Every institute dealing with medico legal work must maintain “medico legal register” which is also called as “police register” or “Emergency police register (EPR)”.

- Enter all the information recorded on case paper in MLC register, which includes Sr. no., date & time of attendance, buckle number of police constable, findings, treatment given, medico legal case paper number etc.
- In remarks column, enter information regarding dispatch of letters and replies received.

12. Medico legal report

- MLC report should be issued promptly to police without waiting for demand letter.
- Information recorded on case paper, MLC register and report should be same.
- Report should be complete in all respects. Keep O/C of report in lock along with case papers. If case papers are in ward then keep them locked in ward.
- Sometimes patient has to be investigated further or is kept under observation, in such cases provisional report has to be given & this has to be mentioned in covering letter as well as in remarks column of report.
- If patient is referred to higher center for advanced treatment, concerned authority will give final report. In any case never give backdated report.
- Each MLC report must have outward number of PHC.
- If patient demands MLC certificate-
 - Patient has to give request letter demanding certificate.
 - MO can issue a copy of certificate to patient on his demand. However MO should ensure that certificate is handed over to police before giving it to patient.
 - Signature of patient should be taken after issuing certificate.

MEDICO LEGAL AUTOPSY OR POST MORTEM EXAMINATION

1. OBJECTIVES OF MEDICO LEGAL AUTOPSY

- To determine identity of a person when not known.
- To determine cause of death, manner of death.
- Ascertain time since death.
- In case of newborns, to determine live birth & viability of child.
- To collect evidentiary material.

2. RULES

PM examination should be considered as an urgent work taking into account psychology of relatives waiting for the body to be handed over. In addition, decomposition changes advance rapidly in our country due to weather condition, which may affect findings on PM examination.

Following rules should be observed for PM examination.

- PM examination should not be undertaken unless there is written order (authorization) from a police officer or magistrate.
- Once written order (authorization) is obtained, there should be no delay in holding PM examination. It should be performed as early as possible.
- MO should carefully read the police report about appearance of body, when it was first found & cause of death.
- Examination should be conducted in daylight. Government of Maharashtra has directed that, PM maybe done at night if adequate quantity & quality of light can be assured so as to have correct interpretation.
- Examination should be thorough & complete.
- Some MOs refuse to accept dead body on ground that it is from outside their jurisdiction. This is not correct. MO should perform PM examination in first instance & make representation in the matter if necessary later on.

3. CARRYING OUT POST MORTEM

3.1. Check following record

Ask the accompanying police officer for following records while accepting body.

- Dead body challan
- Inquest report / panchanama
- In case of admitted patient summary of hospital record.

a) **Dead body challan** - It is a requisition submitted by investigating police officer to MO while handing over body for PM. It contains general information like name, age, sex, religion etc. It also contains place from where body has come, distance, name of person accompanying, identification, time since dispatch and suspected cause of death. MO has to fill time of arrival & time of PM examination in the same challan.

b) **Inquest report** - This includes description of the incidence, circumstances under which body was found, opinion of witnesses & police officer regarding injuries, cause of death etc.

3.2. Verify record and findings on body examination

Verification of injuries noticed & recorded by investigating police officer is important. After identification of body, verify injuries recorded in panchanama. If MO fails to find injuries recorded by police officer, this should be clearly mentioned in report. If there are major discrepancies in observations by police officer & MO, it is preferable to ask for second panchanama by Magistrate.

3.3. Conducting post mortem

Even if cause of death is obvious from examination of a particular part of body; all parts must be systematically examined.

1) External Examination

- Body should be identified by police constable who brought it & also by relatives present on the spot before starting postmortem.
- In case of unknown body, general appearance of body describing age, sex, race, stature, features, scars, colour, hair, tattoo marks etc should be noted for purpose of identification. Body should be photographed & finger prints taken.
- If there are clothes on body, they should be examined for stains of blood, saliva, semen, vomit, faecal matter etc. & preserved for chemical analysis.
- In case of firearm deaths, residues/used bullets if any, be preserved & handed over to investigating authority.
- Approximate age should be given from presence of teeth other appearances.
- Time since death should be noted from rectal temperature, post mortem lividity, rigor mortis, putrefaction, maggots etc.
- Natural orifices should be examined for injuries, foreign bodies, discharges like blood, pus etc.
- Careful search for presence of injuries from head to foot on the front & back should be made.
- In case of burns, position, extent & degree should be noted.

2) Time since death

Estimation of exact time since death is difficult but approximation is possible. Following table gives guidelines to decide time since death.

Table - 1: Guidelines to decide time since death

Time since death	Condition of body
Less than 1 hour	Body warm.
3 hours	Patch of post mortem lividity.
6-8 hours	Lividity fully developed & fixed.
12 hours	Rigor present all over. Green patch on skin/ over caecum
24-36hrs	Rigor receding or absent. Green discolouration over whole body, abdomen distended with gases. Ova of flies seen.
48 hrs	Trunk bloated. Face discoloured & swollen. Blisters present. Moving maggots seen.
72 hrs	Whole body grossly swollen & disfigured. Hair & nail loose. Tissues soft & discoloured.
1 week	Soft viscera putrefied.
2 weeks	Only more resistant viscera distinguishable.
1-3 months	Body skeletonised.

Important points to remember

- In tropical country like India, average heat loss is roughly 0.50 to 0.70°C per hour & body attains environmental temperature in about 16-20 hours after death.
- Post Mortem lividity is fully developed & fixed in about 6-8 hours.
- Rigor mortis usually commences in 2-3 hours after death, takes 12 hours to develop from head to foot, persists for another 12 hours and takes 12 hours to pass off.
- In 12-18 hours, gases collect in intestines & distend the abdomen. In 18-36/48 hours after death gas formation is abundant.
- Flies are attracted to putrefying body & lay their eggs in open wounds & moist natural orifices. Eggs hatch into maggots or larvae in about 12-24 hours and in course of 4-5 days maggots develop into pupae. In another 4-5 days pupae into adult flies.
- State of digestion of food contents help to fix time interval between food consumption and death. If at autopsy stomach is full, it would suggest that victim died within 2 hours of taking last meal. Food becomes indistinguishable in less than 4 hours and stomach is emptied in 4-6 hours.

3) Internal examination

If there is fatal wound leading to one of the cavities, that cavity should be opened first. Otherwise head should be opened first, then thorax and finally abdomen. Every organ from the cavities must be examined but spinal cord need not be ordinarily examined unless suspicion of injury to vertebral column.

4) Preservation of viscera & other material

In fatal cases of suspected poisoning, viscera and other material should be preserved for chemical analysis. Clean, wide mouthed, white glass bottles fitted with glass stopper with one liter capacity should be used to preserve viscera. Such bottles are available in the office of the chemical examiner.

a. Guidelines for preserving & sending viscera

- Preserving viscera & sending for analysis are two separate acts.
- Only in genuine cases with direct or indirect evidence of poisoning, vomit, viscera etc. should be submitted for analysis.
- MO should preserve viscera in following cases:
 - Drowning, burns, hanging, strangulation, suspected poisoning.
 - Where cause of death cannot be ascertained.
 - In all other cases MO should preserve viscera & explain to the police in writing why viscera is preserved & only if analysis is absolutely necessary it should be sent.
 - In all cases of drowning viscera has to be preserved but not dispatched unless police desires so preservation & dispatch of viscera is not substitute for careful PM examination.

b. Viscera & its quantity

Following viscera/material should be preserved and handed over to investigating authority:

- Whole stomach & its contents about 300 ml or all if less.
- Small intestine - 3 feet in adults, 5 feet in children & whole in infants. 100ml small intestine contents or whole if less.
- Liver- 400-500 gm; whole in infants. Preferably portion containing gall bladder.
- Spleen - Half in adult, whole in children.
- Kidneys - Half of each kidney in adults & both whole kidneys in children.
- Blood- 10 ml or more.
- Urine - 100 -200 ml. If less available, whole quantity.
- Piece of long bone or plucked hair in case arsenic or lead poisoning is suspected.

- Examination of blood & urine is useful in suspected poisoning cases. Collect blood and urine directly from heart & bladder respectively.

c. How to preserve viscera

i. Number of bottles

- Preserve stomach, its contents and small intestine in one bottle.
- Preserve pieces of liver, spleen & kidney in one bottle.
- Urine sample should be preserved in separate bottle.

ii. Preservative to be used

In all poisoning cases (including alcohol poisoning) except by acid, saturated solution of common salt should be used as preservative.

- For all acid poisoning cases rectified spirit should be used as preservative.
- Formaline & denatured spirit should never be used as preservative in any poisoning case. Pieces of viscera should be cut into small pieces to ensure penetration of preservative.
- All material should be submerged in preservative otherwise decomposition will take place & gases formed may cause lid spilling or even break the bottle.
- Stoppers should be treated with grease or vaseline to prevent sticking & should be securely tied in position by tape or string.

iii. Labeling, sealing & sending bottles

- Bottles should be labelled & sealed.
- A forwarding letter along with post mortem report, full history of patient in case of poisoning along with name of suspected poison if known is essential. Name of victim, nature of exhibit & case number given in forwarding letter should tally with labels on bottle.
- Copy of seal should be sent with forwarding letter.
- Bottles to be sent to chemical analysis should be sealed by concerned MO & sent to the officer I/C of near by police station (under intimation to the office at whose instance examination was conducted) for sealing & safe custody until order of magistrate or superintendent of police.

d. Fingertips & bones

Whenever bodies are not identified, MO should preserve fingertips. Dissecting terminal phalanx can do this. Occasionally bones require special examination & bones are sent to the Professor of Anatomy for such examination.

4. VISIT TO PLACE OF CRIME

Medical Officer can visit place of crime if he/she feels necessary to arrive at cause of death. PM should be performed on spot in circumstances where body is severely decomposed or vital evidence may be lost during transportation.

In case of on the spot PM examination MO should note following

- Place & nature of soil where body is found, its position, state of clothes.
- In case of death from violence, position of body in reference to surrounding objects such as sharp stones & like, contact with which may produce injury, whether blood stains are visible on such objects or anywhere near the corpse, whether any weapon lying near it.
- In case of suspected poisoning any vomited matter in neighbourhood.

5. OUTSIDERS DURING PM EXAMINATION

Unauthorized persons should not be allowed to be present during examination except medical students undergoing training. Police officer accompanying corpse for PM examination should not be allowed to be present in PM room at the time of autopsy.

6. WRITING CAUSE OF DEATH & AUTOPSY REPORT

Following important points should be kept in mind when writing PM report -

- Report should be written on printed form.
- No.5: Do not write 'as per inquest report', but write summary of the important facts & mention injuries as given in panchanama & confirmed by you.
- No.9: Do not write 'nil', as it is improbable not to find any identification mark.
- No.11: Rigor mortis should be described in detail i.e. whether present on whole body or part of body.
- No.17: Enter details about injuries e.g. their exact site from fixed bony points, length, breadth, depth & character. It is advisable to attach diagram of injuries.
- Injuries should be measured individually though numerous in number. Age and cause of each injury must also be mentioned.
- If blood is present in any of body cavities, always mention approximate quantity.
- After complete PM examination, MO should form opinion about cause & manner of death or probable cause of death & probable time since death based on finding of examination. He/she should immediately give abstract of opinion to the police constable accompanying body for communication to investigating officer.
- A certificate should be given to police constable in charge of body immediately after PM examination is over in following form

"This is to certify that, PM examination has been held on the body of the deceased.....today between to The cause of death / probable cause of death as derived from PM examination is as follows"

Signature of MO performing PM exam.

- Write detailed PM report in triplicate. One copy is sent to investigating police officer within 24 hours by hand of police constable who brought body for examination & another to the superintendent of police/magistrate. Third copy is retained as office copy for future reference.
- At the time of performance of PM examination, MO should complete original PM report in his/her own handwriting in PM room itself. Other copies can be typed. MO should keep original with him/herself.
- When cause of death requires further examination, opinion about cause of death should be reserved pending such examination.

7. PM REPORT TO PRIVATE PARTIES

Sometimes, private parties request for PM examination report. However this report is confidential document & cannot be given to private parties. Private party may be asked to approach police authorities or concerned magistrate.

8. PM ROOM

- Light should be adequate.
- Colour of walls, floor & ceiling should be natural white, off white or gray.
- Each PM room should have at least two light sources situated on opposite sides so that there are minimum shadows & total power being not less than 160W & not more than 200W.

9. RECORD IN PM ROOM

Following registers should be kept in PM room -

- Dead stock registers of equipment & supplies.
- Incoming & outgoing dead body register giving time & date of dead body arrival, identification, time of handing over body, signature of person receiving dead body & his relationship with dead body.
- Register for consent in case of non-medico legal PM examination.

10. EXHUMATION

It is lawful disinterment or digging out of a buried body from the grave, which is sometimes necessary for purpose of identification & to determine cause of death when foul play is suspected.

Guidelines to be followed for exhumation are -

- Police officer cannot order for exhumation, only magistrate can order it.
- Exhumation is carried out under supervision of MO & in the presence of police officer.
- About 500 grams sample of earth is collected from above, below & sides of the body.
- PM should be conducted as per regular procedure.

EXERCISE FOR PARTICIPANTS

Q.1. Write in brief about PM examination.

Q.2. Write in brief about Preservation of Viscera.

Q.3. Write short notes on

- a) Dying declaration
- b) Preservation of Medicolegal records
- c) Guidelines to decide time since death.

54. INJURIES

An injury or a wound is disruption of anatomical continuity of any of the tissues of the body. Injuries caused by application of physical violence to body are mechanical injuries. Under section 44 IPC an injury is defined as - any harm, whatever illegally caused to any person in body, mind, reputation or property.

1. CLASSIFICATION OF INJURIES

Injuries are classified depending upon their nature as follows:

- Abrasions
- Bruises (Contusions)
- Lacerations (Tear)
- Incised wounds (Cuts)
- Stab wounds (Punctures)
- Firearm injuries

1.1. Abrasion

- It is injury involving only superficial layer of skin.
- Caused by friction or pressure between skin & some rough object.
- Bleeds very slightly, heals rapidly in few days and leaves no scar.

Abrasions are caused by pin, thorn, fingernail, as a result of road accidents, fall on ground & by ligature mark in hanging / strangulation etc.

1.2. Bruise (Contusion)

Bruise is an infiltration of blood into tissues following rupture of capillaries. It is the result of application of blunt force e.g. stick, stone, fist, whips etc.

- Bruises are subcutaneous & there is no disruption in the continuity of skin.
- They vary in size, from small pinhead to a large collection of blood (hematoma).
- Bruise may not always be present at the site of impact as blood may gravitate & appear at any different area.
- A superficial bruise usually appears red & swelling may come on almost at once.
- A deep bruise may take one or two days to appear. Therefore such person should have a second examination after 1-2 days.
- Bruising is more marked on parts overlying bones e.g. over tibia. It occurs easily in lax tissues around eyes, face etc. than firmly tacked tissues like scalp.
- Sub conjunctival hemorrhages do not show usual colour changes. It is red first, then yellow & finally disappears.

1.3. Laceration

Wounds in which skin & underlying tissues are torn as a result of blunt force. If underlying tissue is rigid structure e.g. skull beneath the scalp lacerations occur readily & may simulate incised wound. Characteristic features of laceration are -

- Margins are commonly abraded.
- Edges are ragged, irregular & frequently bruised.
- Deeper tissues are unevenly divided.
- Majority of lacerated wounds are caused due to blows from blunt instruments such as sticks, iron bars & stones, falls on rough objects, fist blows & kicks.

- Lacerated wounds caused by stones, bricks, bottles, earthen pots, fall on rocks etc contain foreign matter in the wound, which is of value for investigation. Some times external evidence of injury may be minimal or absent but there can be massive internal injuries.

1.4. Incised wound

Incised wound is caused by a weapon with sharp cutting edge when it is drawn across the skin e.g. by knives, pieces of broken glass etc.

- Injury is usually straight but maybe irregular. Tissues are divided more deeply at the commencement of the cuts, than at its termination.
- Length of injury is greater than its breadth.
- Margins are clean cut and no bruising of wound edges.
- Tissues are clearly divided and as blood vessels are cut across, bleeding is profuse.
- These wounds tend to gape due to retraction of skin.

1.5. Stab wound (Punctured wound)

Injury caused by more or less pointed weapon when it is driven in through the skin.

Weapons include knife, dagger, needle, arrow, scissors, bitchva, ice pick etc.

- When weapon enters body cavity such as thorax or abdomen, injury is called as penetrating injury.
- When weapon after penetrating comes out from other side making an exit wound injury is called as perforating injury.
- Description of stab wound should include entry, depth, direction and exit of wound.
- Wound of entry is generally bigger than wound of exit. Clothes may be pushed into the wound of entry.
- Shape of wound may correspond to the weapon used. However skin aperture is smaller than breadth of weapon due to elasticity of skin.
- Margins at entry are clean cut & inverted. Margins at exit are everted.
- External examination gives no indication of depth, direction or extent of stab injury. Depth of a stab wound is greater than its length & breadth. Direction can be ascertained by drawing line joining wound of entry & exit.
- Stab wounds should not be probed.

2. NATURE OF INJURY

2.1. Simple injury

Injury which is neither extensive nor serious & which heals rapidly without leaving any permanent deformity or disfigurement is known as simple injury.

2.2. Grievous injury

Following injuries are grievous

- Emasculation (cutting penis, castration or loss of erection due to spinal injury)
- Permanent loss of sight of either eye.
- Permanent loss of hearing of either ear.
- Privation of any part, organ, limb or joint.
- Destruction or permanent impairing of the power of any member or joint.
- Permanent disfigurement of head or face.
- Fracture or dislocation of bone or tooth.

- Any hurt which endangers life or which causes the sufferer during the period of 20 days, severe bodily pain or unable to follow daily routine.

2.3. Dangerous injury

It is type of grievous injury, which poses immediate danger to life. It is either extensive or serious in relation to the organ or part wounded e.g. gun shot injuries, compound fracture of skull, trauma to a large or important blood vessel, rupture of internal organ.

3. MEDICO LEGAL ASPECTS OF WOUNDS

3.1. Examination of injured person

Details of the examination of injured person must be entered in accident register, which is confidential record (both out patient cases & indoor cases).

3.2. Entry of following points has to be made in accident register

- Place, date, time of examination.
 - Name, age, sex, occupation, address of injured person.
 - Identification marks.
 - Consent for examination.
 - Name & address of accompanying person.
 - Name & number of police constable, police station.
 - Brief summary of how injury was caused as told by injured person.
 - Detailed description of injuries.
 - Opinion & signature of MO.
- No erasers should be made & if any alterations are made they must be initialized.

3.3. Nature of injuries

- Nature & number of injuries, character of their edges, size (length, breadth, depth), direction, and situation.
- Presence of any extraneous material in the wound should be noted.
- Measurement – Exact measures in cm. with measuring tape should be noted without any guess about measurement.
- When mentioning situation, reference to some body prominence or anatomical landmark should be made. Whether injury is simple, grievous or dangerous need to be mentioned.

3.4. Age of injury

Important for 2 reasons

- Signifies time of occurrence of crime.
- All injuries may not have been inflicted by the same assailant or at the same time.

It is not easy to give, exact time of infliction of any injury, but approximate time can be given. Therefore it is necessary to mention “about” when giving period of an injury.

3.4.1. Age of abrasions

- Bright red in colour.
- Bright red scab in 12-24 hours.
- Scab becomes reddish brown in 2-3 days.
- Heals from periphery in about 4- 7 days & by that time scab falls off.
- Healing is completed by 10 days.

3.4.2. Age of the bruise (From colour changes)

- Fresh bruise is red.
- From red to blue in one day.
- Bluish black to brown in 2-4 days.
- Green in 5- 7 days.
- Yellow in about 7 -10 days.
- Normal skin colour in 14-15 days.

1.4.3. Aseptic incised wound

- Edges are red & swollen after 12 hrs.
- Appreciable healing begins with formation of crust or scab in 24 to 36 hours.
- Divided surfaces are in opposition & are covered with lymph in 36 hrs.
- Edges join together in 3 days.
- Healing with red, tender linear scar by 7th day.
- Such wound on vascular part like face heals in about 3-5 days.

1.4.4. Wound, which is not aseptic & is gaping due to loss of tissue

- Edges are bound together by blood & lymph during first 12 hours. Margins are red & swollen.
- Pus may appear in about 36 to 48 hrs & granulation tissue within a week.
- Does not heal for days or even weeks.

1.4.5. Fracture of bone

- S/o inflammation, hematoma in soft parts 1-3 day.
- Soft provisional callus 3-14th day.
- Starts ossifying 14th day -5th week.
- 6-8 weeks for complete callus absorption, bone formation.

1.4.6. Tooth has been knocked out

- Bleeding from socket stops in 24 hrs, sometimes in 2-3 days & clot is formed.
- Clot is obliterated by fibrous tissue in about 14 days.
- Socket is completely filled with gradual new bone in about a year.

Management of Mass Casualties

Sometimes large number of casualties(e.g. accident) have to be managed by MO. In such case following points should be kept in mind:

- In case of accident with very large number of casualties, MO should visit accident place.
- Screening of patients according to severity has to be made.
- Gasping patients need immediate referral. For such cases noting all medico legal aspects may be difficult.
- Names of referred cases, vital parameters, nature of treatment given and identification marks should be noted.
- Police should be informed immediately.
- When patient is kept under observation for sometime before referral or treated by MO, then whole medico legal procedure should be completed as per rules.
- In case of referral to higher center, MO has to mention that, details have not been noted & are to be noted at hospital where patient is referred.

4. THERMAL INJURIES - BURNS

Burns are injuries produced by application of dry heat such as flame, radiant heat or some heated solid substance like metal or glass to body surface. Scalds are moist heat injuries produced by liquid at or near its boiling point or in its gaseous form such as steam.

Burns may constitute grievous injuries involving loss of sight or permanent disfigurement from unsightly scars on head or face.

1. Classification

Dupuytren surgically divided burns into six degrees of severity. Wilson has modified this into 3 degrees as follows:

1.1. Epidermal

These burns are very painful but repair is complete.

- Affected part is red.
- There may be acute inflammation & formation of blister.
- No scar results, as only superficial layer of epithelium is destroyed. Some slight staining of the skin may subsequently remain.

1.2. Dermo-epidermal

- Whole thickness of skin is destroyed.
- Affected part appears shriveled, depressed area of coagulated tissue surrounded by hyperemic blistered skin.
- Necrosed tissue separates within about a week leaving ulcer, which heals with scar formation.
- Scar may contract causing disfigurement.
- They may or may not be associated with pain.

1.3. Deep burns

- Affected area is completely charred.
- Gross destruction of skin, subcutaneous tissue, muscles & bone.
- Nerve endings are destroyed. Therefore burns are relatively painless.

2. Estimation of surface area of burns - Rule of nine.

Entire head & neck	9%
Both arms (9% each)	18%
Both legs (18% each)	36%
Front of trunk	18%
Back of trunk	18%
Perineum	1 %
Total	100%

There is marked fluid loss resulting in shock when 20% body is affected & burns over 50% are usually fatal.

3. Nature of burns in the absence of death

- Burns of epidermal type are mostly classified as simple injury.
- Burns are grievous, if they cause scars causing permanent disfigurement of head or face, permanent loss of sight of either eye or a permanent impairment of a joint due to formation of cicatrix & contraction.
- Burns are grievous if individual has suffered from shock so as to endanger life or if he/she has been in severe bodily pain or bed ridden & unable to follow his ordinary duties for 20 days or more.

4. Age of a Burn

- Redness occurs immediately after burn and vesiculation within 2-3 hours.
- Exudates from partial thickness burn usually begin to dry in 12-24 hrs & within 48- 72 hrs. forms dry crust.
- Pus within 36-72 hours.
- Superficial slough separate out in about a week & deeper slough in about a fortnight. After this, granulation tissue begins to cover the surface of burn.
- Last result is formation of cicatrix & deformity after several weeks or even months.

5. Medico legal aspects of burns

Distinction between antemortem & post mortem burns is based on evidence of vital reaction as below:

5.1. Line of redness: In case of burns caused during life, a line of redness involving whole true skin is formed round about the injured part. This is a permanent line persisting even after death. Line of redness being a vital function separates living from dead tissue & is always present in burns caused during life.

5.2. Vesiculation - Vesiculation caused by a burn during life contains a serous fluid & skin surrounding this is of bright red or coppery colour. Vesication formed after death contains air only but may contain a very small quantity of serum. Its base is dry, hard, horny & yellow instead of red.

5.3. Reparative process- Signs of inflammation, formation of granulation tissue, pus & slough will indicate that burns were caused during life.

Burns caused after death show no vital reaction & have a dull white appearance. Evidence of black soot in trachea, bronchi, up to bronchioles & in oesophagus and stomach are also important signs of antemortem burns in spot death cases.

5. DRUNKENNESS

Drunkenness is the condition, which results from excessive intake of alcohol & person concerned is so much under influence of alcohol that -

- He loses control over his mental faculties.
- He is unable to perform his duties.
- He may be a source of danger to himself or to others.

When drunken person is brought for examination, Medical Officer has to answer whether concerned person is so much under influence of alcohol that he has lost control of his mental faculties. He is unable to execute safely occupation in which he is engaged or is a nuisance to public or is endangering life of another person.

1. Diagnosis

When a drunken person is brought by police requesting for medical examination of accused, MO can carry out examination even without his consent & if necessary by force.

Diagnosis is based on following observations

- Full history of incident from police.
- Smell of alcoholic liquor in his breath & or vomited matter.
- Excited, talkative, abusive with slurred and incoherent speech. Clothes are disarranged or disorderly clothes.
- Eyes - Extreme dilatation to extreme contraction. Fine lateral nystagmus.
- Tongue - Dry, furred or excessive salivation
- Memory- Loss or confusion as regards recent events & time.

- Co ordination- Impaired e.g. unable to thread a needle, button clothes, unable to walk along a straight line, finger nose test impaired.
- Reflexes- Sluggish or delayed.
- Unusual actions - Hiccups, vomiting, belching, and fighting.

2. Laboratory tests

Common tests performed include estimation of alcohol from blood & urine sample. Blood is a better index of alcohol level than urine. Urine sample is collected only when it is not possible to collect blood sample. Following precautions should be taken when collecting blood sample -

- Spirit must not be used to clean skin. It should be cleaned with sterilized water.
- Syringe must be sterilized and free from alcohol & other chemicals.
- Blood should be preserved in fluoride bulb.

After taking sample, container should be vigorously shaken to dissolve anticoagulant & preservative in blood sample. Urine sample should be preserved by adding 2-3 ml. concentrated hydrochloric acid or 2-3 ml of chloroform/100 ml urine.

Container should be tightly stoppered to prevent loss of alcohol by evaporation and should not be kept in hot place / near hot substance. Sample should be labelled as name, date & time of taking sample. It should be sealed by means of wax with official seal or the monogram of PHC. Sample should be immediately handed over to police along with prescribed 'B' form.

3. Interpretation of results

- Alcohol concentration in blood below 0.05% (50 mg %) is without any effect
- At 0.1 % (100 mg %) some impairment is observed.
- At 0.15 % (150 mg %) person is under influence of alcohol.
- Under BPA a person having a blood alcohol level of 0.05% (50 mg %) & above has legally committed the offence of consumption.
- Under motor vehicle act it is an offence to drive or attempt to drive a motor vehicle with any quantity of alcohol (no threshold limit specified.)

6. POISONING

Poison is the substance, which on its administration by various routes (including local exposure or contact) produces ill health or death. It may be chemical, animal, microbial or vegetable origin. In India, suicidal or homicidal cases are common due to availability of poisons in bazaar. Insecticides are commonest poisons in our country. Nowadays accidental poisoning cases are increasing significantly.

1. Duty of MO in case of suspected poisoning

- In all cases, MO should record preliminary particulars like name in full, sex, age, occupation, address, date & time, brought by whom, history. Arrange for dying declaration if necessary.
- Immediately start treatment to the patient.
- MO must report all suicidal, homicidal or accidental poisoning cases admitted in PHC to police.
- Collect stomach wash & samples of vomit & urine passed in your presence & preserve properly in separate containers.

2. Post mortem of poisoning case

Read police report carefully. Get as much as possible information from relatives of the deceased regarding characteristic of symptoms, time of taking poison, duration between taking of poison and treatment and time of death. Many of the poisons except corrosives & irritants do not show any characteristic post mortem signs, particularly when bodies are in advanced state of decomposition.

2.1. External examination

- Some poisons e.g. ether, alcohol & opium give off a peculiar smell on opening the body.
- Body surface & clothes may show stains or marks of vomit, faeces or of the poison.
- Natural orifices such as mouth, nostrils, rectum & vagina may show presence of some poisonous material or evidence of corrosive changes in mouth or lips etc.
- Marks of injection may sometimes give clue to injected poison.
- It is necessary to preserve viscera & urine in all cases of suspected poisoning even if there are no positive post mortem signs of poisoning.

2.2. Internal examination

- Alimentary system should be chiefly examined & contents preserved, as signs of irritant & corrosive poisons are likely to be found in stomach, oesophagus & intestines.
- Changes produced by irritants, corrosive poisons in the digestive tract especially stomach are hyperemia, softening, ulceration of mucous membrane, perforation.

2.3. Stomach examination

- In all cases of death from presumed poisoning, stomach should be tied at both the ends & removed from the body, so that its contents may be retained.
- After removal it should be opened, its smell noted, acidity checked with litmus paper, contents received in clean bottles, mucus membrane carefully examined for appearance & for presence of suspicious particles like pills or fragments thereof. If found adherent, pick off & place in separate container.

3. Chemical analysis

Most important proof of poisoning is detection of poison in vomit, urine etc., in blood during life & in contents of stomach, bowel & in tissues of body after death. MO after obtaining necessary orders from Judicial Magistrate should forward viscera to chemical examiner or State Forensic Laboratory for analysis.

7. DEATH FROM ASPHYXIA

Death from asphyxia occurs when supply of oxygen to the tissues is reduced below normal working level due to interference with respiration.

1. Hanging

Hanging means death caused by suspension of body by a ligature around neck.

- Usually suicidal and no s/o struggle.
- Neck is stretched due to round pull of ligature and head inclined to opposite the knot.
- Face usually pale, pupils are usually dilated, tongue is swollen & blue.
- Saliva dribbling from the corner of mouth opposite the side of knot, vertically down along the neck & front of chest & abdomen.
- Ligature mark above thyroid cartilage, between larynx & chin directed obliquely upwards.
- Absence of fatal injuries.

1.1. Internal appearance

- A careful dissection of neck, layer by layer is essential.
- Injuries to the muscles of neck rare.
- Fracture or fracture dislocation of cervical vertebrae along with compression or laceration of spinal cord may be noticed.
- Mucus membrane of trachea red & congested.
- Right side of heart full of blood & left empty and abdominal organs congested.

2. Strangulation

Constricting neck by force other than weight of body (ligature, hand, stick etc.)

- Mostly homicidal. S/o struggle present.
- Well-defined & slightly depressed mark corresponding roughly to breadth of ligature, low down below thyroid cartilage completely encircles the neck horizontally below hyoid bone. Abrasions & ecchymosis around edges of the ligature mark common.
- If fingers are used, marks of pressure by thumb & fingertips on either side of wind pipe.
- Fracture dislocation of cervical vertebra rare.
- Face congested, marked with petechiae.

2.1. External appearance

Face is puffy & cyanosed, marked with petechiae. Eyes prominent & open, conjunctiva congested, pupil dilated, lips blue, tongue swollen, bruised, protruding & dark in colour.

2.2. Internal appearance

- Extravasations of blood into subcutaneous tissues under ligature mark.
- Muscles of neck are usually lacerated.
- Larynx, trachea congested, contains frothy mucus.
- Fracture of larynx, trachea & also hyoid bone.
- Injury to carotid artery common. Injury to muscles of neck common.
- Lungs congested, hemorrhagic patches & petechiae, may show emphysematous bullae on surface.
- Right side of heart full of dark blood & left empty. Brain is congested.

3. Drowning

It is asphyxia death in which access of air to lungs is prevented by submersion of body in water or fluid medium.

3.1. External appearance

- Clothes on the body wet.
- Face is pale, conjunctiva congested, pupil dilated, and tongue swollen & protruded.
- Profuse, fine froth at mouth & nose. If not visible, appears on compression of chest. This is the diagnostic sign of drowning.
- Material firmly grasped in hands like weeds, mud, sand, twigs or leaves etc.

3.2. Internal appearance

- Increased volume & edematous condition of the lungs. Distended balloon like lungs overlap heart. Often indented by ribs, heavy, doughy to feel.
- On section, exude large quantity of frothy, blood stained fluid.
- Larynx, trachea, bronchial tubes usually contain fine white froth, mucus membrane congested.
- Right side of heart full & left empty.
- Presence of water in stomach & some times in small intestine.
- Liver usually engorged with dark fluid blood. Spleen & kidneys are dark in colour.

8. AIDS AUTOPSY

Although universal precautions should be taken for all autopsies, AIDS autopsy should be carried out with special care & additional protective clothing.

1. Pre-requisites

Sodium hypochlorite solution, pajama, shirt, gown, cap, mask, double latex gloves, shoes with plastic shoe cover, plastic apron, protective goggles or face shield.

2. Important precautions to be observed

2.1. During the procedure

- Use all personal protective devices, never take chance.
- Tips of fingers are particularly prone to needle or blade injury during procedure, therefore handle needles & blade carefully. Take care when loading scalpel or removing blade.
- Never put one hand under the tissue or organ that you are cutting with other hand.
- Removal of the sternum should be done carefully preferably with the help of bone cutter. Ribs should be cut with cartilaginous portion; this prevents injury to hand by tips of already cut ribs.

2.2. After postmortem procedure

- After PM procedure, stitch cadaver properly so that no fluid can come out.
- Wash cadaver with tap water & then with 2:1 sodium hypochlorite solution.
- Plug nose & mouth with cotton swab soaked with sodium hypochlorite solution.
- Put cadaver in a plastic bag for handing over to relatives to avoid dissemination of HIV.

2.3. Tables & floors

Wipe carefully tables & floors with 2:1 sodium hypochlorite solution to remove blood stains & body fluids & then with soap & water.

2.4. Instruments

Instruments used should be wiped with sodium hypochlorite solution. Aluminum & stainless steel instruments are damaged by sodium hypochlorite solution & therefore decontaminated with 2% aqueous glutaraldehyde solution. After 4 hours instruments should be washed & autoclaved.

2.5. Autopsy staff & MO

- After completion of procedure, staff & MO must wash hands thoroughly with soap & water.
- Plastic apron, plastic shoe cover, gloves, plastic cap & mask must be discarded in plastic bag. Tie the bag properly & send it for incineration.
- Pajama, shirt, cotton gown should be soaked in sodium hypochlorite solution, washed with water & then sent for autoclaving.

EXCERSICE FOR PARTICIPANTS

Q.1. Write in brief about classification of injuries?

Q.2. Write in brief about Age of injuries?

Q.3. What are the Medicolegal aspects of wound?

Q.4. Write short notes on

- a) Management of Mass casualties
- b) Medicolegal aspects of burns
- c) Medicolegal aspects of drunkenness
- d) Medicolegal aspects of Poisoning

Q.5. Write in brief about Autopsy of AIDS victim.

55. MEDICAL CONSUMER PROTECTION Act (CPA / COPRA) RELATED TO MEDICAL PROFESSION

Introduction:

With the fast pace of commercialization and globalization on all spheres of life, the medical profession is no exception. Since the passing of the Consumer Protection Act in 1986, the doctor-patient's relationship has deteriorated significantly and litigation against doctors is increasing day by day. This review article enlightens medical practitioners regarding Consumer Protection Act and how to prevent litigations.

The Doctor patient relationship in our country has undergone a sea change in the last decade and a half. The fortunate doctors of the past were treated like God and earned respect. Commercialization and globalization on all spheres of life has not even spared the medical profession as well. As a result, the doctor-patients relationship has deteriorated considerably. Earlier too, doctors were covered by various laws, i.e. the Law of Torts, IPC etc., but since the passing of the Consumer Protection Act in 1986, litigation against doctors is on the increase. Doctors practicing ethically and honestly should not have any reason for fear. Law whether civil, criminal or consumer law, can only set the outer limits of acceptable conduct i.e. minimum standards of professional care and skill, leaving the question of ideal to the profession itself.

The purpose of the Act:

To protect the interest of the consumers of different commodities available to them for which they pay but do not get standard quality of service. e.g. patient pay for the treatment but do not get correct treatment. Any sufferer consumer, State / Central govt. may lodge the complaint against the erring trader or suppliers, etc for the deficient service which cause some harm to the consumer in the different redressal forum. e.g. District Forum, State Commission, National Commission.

Nature of Complaint:

Any unfair trade practice adopted by the trader, and defective goods, deficiency in services /Deficiency in treatment, excess price charged by the trader /doctor by doing unnecessary investigation, prolonged hospital stay etc. for unlawful goods sale, which is hazardous to life and safety when used. A complaint hand written or typed can be filed by a consumer. Usually complaint should be decided within 90 days from the date of notice issued to the opposite party. Where sample of any goods is required to tested, case may be disposed within 150 days or it may take more time due to practical problems. The complaint should be filed in the District forum, State commission or National Commission within two years from the date on which the cause of action has arisen. In case there is sufficient ground for not filing the complaint within such period delay may be condoned at the discretion of the consumer forum/Commission.

How to Avoid Litigation?

a) Prevention at personal Level

MCI approved qualification, training and experience of recognized center are the primary safeguard against any litigation.

Communication: This is the key to doctor Patient relationship. We should have polite and sympathetic attitude toward patients and their relatives. Increasing crowds of patients and improper communication to the patient about diagnostic and treatment procedures, complications and claims of guaranteed success are the main reasons for Patient's dissatisfaction. Answers all queries of the patients / relatives without getting irritated. Academic and Technical up gradations- One should regularly attend Conferences, CMEs & Workshops to keep pace with progress in medical science. Other academic sessions should also be organized to up grade our junior staff and nursing team.

Medical Ethics Laws: A thorough knowledge of medical ethics and laws is essential for all medical professional. We should always get feed back from our patients about our setup, our staff & charges

etc. Special training should be for doctors, paramedical staff, nursing staff etc from HRD experts about dealing with patients /relatives under grievous mental stress due to some loss or injury.

b) Prevention at Practice:

- Should have reasonable skill and care in diagnosis and treatment.
- Proper documentation of facts and legally valid informed Consent. The reasonable Skill and care.
- There are three aspects of reasonable skill and care - Medical, Social & Legal
 - **Medical Aspect**-First and foremost it is essential for every Doctor /Hospital /Nursing home to exercise reasonable skill and care expected of an average person with equivalent qualification and experience in similar circumstances.
 - **Social Aspects**-We should always exhibit our reasonable skill and care to the patients / attendants / relatives through expression, body language, action and discussion. We may be very sincere toward patient but failure to exhibit these gestures may leads to doubts in the mind of patients and their relatives.
 - **Legal aspects** - This include proper documentation about exercising reasonable skill and care in consultation, diagnosis and treatment. This can be done by making good clinical notes of finding on examination and treatment given. When there is failure to follow instruction, refusal for investigation, failure to come for review on specified day by patient, should always be recorded in underline way. These negative records act as important tool while defending our case in court of law.

Prevention by professional indemnity by insurance cover -Professional indemnity insurance is a tool which not only meets the claim of compensation awarded against the doctor /hospital but also gives sense of mental security that even if same negligence is proved the insurance company will take care of it. Prevention by people support groups-By forming societies like I.M.A , Medical Collage Teachers Welfare Society we get a type of social security. It also prohibit the doctor speaking foul against there own colleague.

Factual defenses:

Mention qualification, training, experience etc. We can say that complainant or patient has not come to the court with clean hand i.e he has suppressed material facts e.g. previous illness, treatment etc. Written consent of the patients / relative / attendant especially, involving special risk in the treatment. Circumstances of the case e.g. there was emergency, lack of facility (e.g. rural area) no one to give history of patients illness etc. Burden of proof of duty of care, breach of that duty, causation, damage etc, is on the patients or complainants. Reasonable knowledge, skill and care exercised. Treatment by patient from other doctor / other system of medicine simultaneously. More than one reason for occurrence of damage. Contributory Negligence.

DO'S AND DON'TS FOR DOCTORS:

Do's for Doctors:

- Mention your qualifications/ training/ experience/ designation on the prescription.
- Always mention date and timing of the consultation.
- Mention age and sex of the patient.
- In a pediatric prescription weight of the patient must also be mentioned.
- Always put your hand on the part that the patient/ attendant say is painful.
- Apply your stethoscope on him, even if for cosmetic reasons.
- Listen attentively. Look carefully, ask questions intelligently.
- Always face the patient. Do not stare, especially female patients.
- Ask the patient to come back for review on the next day, if you are not sure about the diagnosis/ treatment.
- Mention “diagnosis under review” until the diagnosis is finally settled.

- In complicated cases record precisely history of illness and substantial physical findings about the patient on your prescription.
- Record history of drug allergy.
- Write names of drugs clearly. Use correct dosages.
- Always advise the patient not to stop taking a drug suddenly which is required to be tapered before it is stopped.
- Remember major drug interactions.
- Mention if patient/ attendant are/ is under effect of alcohol/ drugs.
- Adjust doses in case of a child/ elderly patient and in renal or hepatic disorders.
- In case of chronic ailments, mention treatment to be taken immediately in case of an emergency.
- For example, a patient on anti-epileptic treatment should be advised to take an injection of diazepam when convulsions occur.
- Mention where the patient should contact in case of your non-availability/ emergency.
- If you are not sure what disease a patient has after a thorough workup, get a consultation.
- Whenever referring a patient, provide him with a referring note.
- In case of emergency/ serious illness, ring up the concerned doctor in the patient's presence in hospital casualty.
- Participate in at least one national / international conference of respective subjects every year.
- Update your knowledge and skill from time to time.
- Update not only your own knowledge and skill, but also that of your staff.
- Update the facilities and equipment according to prevailing current standards in your area.
- Preferably employ qualified assistants. If not available, impart proper training and skill at your or some appropriate centre and obtain a certificate for the same.
- Routinely advise X-rays in injury to bones and joints and related diseases of bones/ joints.
- Always rule out pregnancy before subjecting the uterus to X-ray.
- The period for the responsibility of the surgeon extends to and includes the post-operative care.
- Always seek proper legal and medical advice before filing reply to the complainant referred to you from a consumer court.

Don'ts for Doctors:

- Don't prescribe without examining the patient, even if he is a close friend or relative.
- Never examine a female patient without presence of female nurse/ attendant, especially during genital and breast examinations.
- Don't smoke while examining a patient.
- Don't examine a patient when you are sick, exhausted, or under influence of alcohol or any intoxicated substance.
- Don't be overconfident. Don't look overconfident.
- Don't prescribe/ administer a drug which is banned, e.g. Analgin.
- Don't over-prescribe/ administer too much of the drug, too large a dose, for too long.
- Don't under-prescribe: dose is too small, length of treatment is too short.
- Never talk loose of your colleagues, despite intense professional enemy.
- Possibilities of drug interactions increase with polypharmacy.
- Don't allow substitutions.
- Don't do anything beyond your level of competence.
- Competence is defined by your qualification, training and experience.
- Don't give a drug parentally if it can be given orally. There may be some exceptions.
- When you are not sure what and why to do. Consult your senior/ specialist/ colleague.
- Don't refuse the patient's right to know about the hospital rules, regulations and hospital charges.
- Don't refuse if the patient/ attendants want to leave against medical advice (LAMA). It is their right. Document this properly.

- Never avoid a call for help from a nurse on duty at night. A genuine emergency may be there.
- Never label any condition as “functional” until you are as certain as possible of the accuracy.
- Don't leave at the moment of death. There is a tendency especially on the part of senior doctors to go away at this time when his presence and experience are most needed.
- Don't hesitate to extend your condolences and sympathies to the bereaved persons.
- Don't issue death certificates unless you have yourself verified it.
- Don't divulge secrets you come to know during discharge of your professional duties.
- Don't deny medical care to a patient with HIV infection/ AIDS. Observe all necessary precautions.
- Don't inform that the person is infected with HIV unless confirmatory test results are received.
- Don't give untrue, misleading or improper reports, documents, etc.
- Do not leave a patient unattended during labor.

EXERCISE FOR PARTICIPANTS

Q.1. Write short note on CPA

Q.2. What are the Do's and Don'ts for Doctors regarding CPA

५६. मृत्युच्या कारणांचे वैद्यकीय प्रमाणिकरण योजना.

(Medical Certification of Cause of Death)

मृत्युच्या कारणांचे वैद्यकीय प्रमाणिकरण योजना केंद्रशासनाच्या जन्म व मृत्यु अधिनियम १९६९ च्या कलम १०(२) व १०(३) अन्वये देशात अमलात आली आहे. त्यानुसार मृत व्यक्तीच्या शेवटच्या आजारात ज्या नोंदणिकृत वैद्यकीय व्यवसायीकाने तिच्यावर उपचार केले होते, तो वैद्यकीय व्यवसायीक त्या व्यक्तीच्या मृत्यूनंतर ताबडतोब विहीत नमुन्यात मृत्युचे कारण नमुद करणारे एमसीसीडी प्रमाणपत्र देईल. सदर योजनेमध्ये मृत व्यक्ती दवाखान्यात मृत पावल्यास नमुना क्र. ४ प्रमाणपत्र वैद्यकीय व्यवसायीकाने भरून देणे बंधनकारक आहे. वरील प्रमाणपत्र संबंधित वैद्यकीय व्यवसायीक विनामुल्य देईल.

महाराष्ट्र शासनाने केंद्रशासनाच्या जन्म व मृत्यु नोंदणी अधिनियम १९६९ च्या अधिन राहून सन २००० साली महाराष्ट्र जन्म आणि मृत्यु नोंदणी नियम तयार केले. त्यामधील नियम क्र. ७ अन्वये सर्व वैद्यकीय व्यवसायीकांनी मृत्युच्या कारणांचे वैद्यकीय प्रमाणीकरण प्रमाणपत्रे भरून संबंधित निबंधकाकडे देणे बंधनकारक केले. त्याअन्वये सर्व वैद्यकीय व्यवसायीकांनी एमसीसीडी प्रमाणपत्रे भरून संबंधित निबंधकाकडे दर महिन्याच्या ५ तारखे पर्यंत देणे बंधनकारक आहे तसेच नमुना क्र. ४ व नमुना क्र. २ एकत्रितरित्या संबंधित निबंधकाकडे पाठविणे अपेक्षित आहे.

निबंधकाने दरमहा आपल्या कार्यक्षेत्रात झालेल्या मृत्युंची मृत्युच्या कारणांचे वैद्यकीय प्रमाणीकरण प्रमाणपत्रे उपसंचालक, आरोग्य सेवा, आमाजीआ, पुणे या कार्यालयाकडे प्रत्येक महिन्याच्या १० तारखेपर्यंत पोहचतील अशा बेताने पाठवावीत.

- सर्व जिल्हे / मनपा यांची एमसीसीडी प्रमाणपत्रे मिळल्यानंतर उपसंचालक, आरोग्य सेवा, आमाजीआ, पुणे या कार्यालयात सदर प्रमाणपत्रांचे आयसीडी - १० प्रमाणे कोडींग केले जाते. त्यानंतर राज्याचा वार्षिक अहवाल तयार करण्यात येतो व तो मा. महानिबंधक, भारत सरकार, नवी दिल्ली यांना सादर करण्यात येतो.
- शवविच्छेदन झालेल्या मृत व्यक्तीचे मृत्यूच्या कारणाचे वैद्यकीय प्रमाणीकरण प्रमाणपत्र क्र. ४ शवविच्छेदन करणाऱ्या वैद्यकीय अधिकारी यांनी लिहावे.
- दंड - जन्म व मृत्यू नोंदणी अधिनियम १९६९ च्या कलम २३(३) नुसार जो कोणताही वैद्यकीय व्यवसायीक कलम १० च्या पोटकलम ३ अन्वये प्रमाणपत्र देण्याबाबत उपेक्षा करील किंवा नकार देईल तो आणि जी व्यक्ती असे प्रमाणपत्र सुपूर्द करण्याबाबत उपेक्षा करील किंवा नकार देईल ती व्यक्ती, रुपये ५०/- इतक्या द्रव्य दंडास पात्र होईल.
- १९६९ च्या जन्म आणि मृत्यू नोंदणी अधिनियमातील कलम १७(१) (ख) नुसार एमसीसीडी प्रमाणपत्रामधील माहिती जन माहिती अधिकार अधिनियम २००५ (आर टी आय) अंतर्गत देता येणार नाही.
- मा. सर्वोच्च न्यायालय आदेश ३०.०६.२०२१ (write Petition (Civil) No. 539 &555 2021) आणि मा. महानिबंधक, जन्म मृत्यू नवी दिल्ली यांचे कार्यालयाचे परिपत्रक No. 08/02/2017- Vs (MCCD) dt. 03.09.2021 अनुसार आपले कार्यक्षेत्रात कोविड-१९ या आजाराने मृत पावलेल्या व्यक्तीचे मृत्यूच्या कारणांचे वैद्यकीय प्रमाणिकरण (एम.सी.सी.डी.) प्रमाणपत्राची एक प्रत आपले कार्यालयात/आरोग्य संस्थेमध्ये जतन करावी व मृत व्यक्तीच्या नातेवाईकांनी मागितल्यास त्वरीत उपलब्ध करून द्यावी. तसेच मृत्यू नोंद वहीमधील संबंधित मृत व्यक्तीच्या शेरा रकान्यात MCCD प्रमाणपत्र हस्तांतर केलेल्या नातेवाईकाचे नाव व तसेच मृत्यू नोंद हस्तांतराचा दिनांक नोंदवावा

मृत्यूच्या कारणाचे वैद्यकीय प्रमाणीकरण प्रमाणपत्रे पाठविताना निबंधकासाठी सूचना प्रमाणपत्रे कशी असावीत

- १) प्रमाणपत्रे पाठविताना फक्त मृत्यूच्या कारणांचे वैद्यकीय प्रमाणीकरण प्रमाणपत्राच्या मूळ प्रतीच पाठविण्यात याव्यात. (By Registered post)
- २) प्रत्येक महिन्याच्या गठठ्याचे उपरिपत्रावर (Covering letter) नमुना क्र.४ व ४अ प्रमाणपत्रांची एकूण संख्या नमूद करावी.
- ३) शवविच्छेदनानंतर संबंधित मृत व्यक्तीचे मृत्यूच्या कारणाचे वैद्यकीय प्रमाणीकरण प्रमाणपत्र - नमुना क्र. ४ शवविच्छेदन करणाऱ्या संबंधित डॉक्टरांनी लिहिणे बंधनकारक आहे.
- ४) जागतीक आरोग्य संघटनेने विहित केलेल्या नमुना क्र.४ व ४अ प्रमाणपत्रे असणे आवश्यक आहे. (सोबत विहित नमुना)
- ५) प्रमाणपत्रातील सर्व रकाने इंग्रजी मध्ये मोठ्या लिपीत (Capital letters) लिहावेत.
- ६) भाग १ मध्ये आजाराचा (a), (b), (c) इ. चा क्रम योग्य पद्धतीने लिहावा.
- ७) एका ओळीवरती एकाच आजाराचे नाव लिहावे.
- ८) मृत्यू अपघातामुळे झाला असल्यास इजा झालेल्या अवयवाचा नेमका भाग नमूद करावा.
- ९) सर्व प्रमाणपत्र क्र. ४ चे ICD-10 प्रणाली नुसार कोडींग करूनच प्रमाणपत्रे पाठविण्यात यावीत.

१०७ मृत्यूच्या कारणाचे वैद्यकीय प्रमाणीकरण प्रमाणपत्रांच्या मागील बाजूस प्रमाणत्र भरणेबाबत सूचना नमूद केलेल्या आहेत, त्यानुसार मृत्यूच्या कारणाचे वैद्यकीय प्रमाणीकरण प्रमाणपत्रे भरून पाठवावीत.

For Hospital Event

FORM No. 4
(See Rule 7)

MEDICAL CERTIFICATION OF CAUSE OF DEATH

(Hospital in-patients. Not to be used for still births)

To be sent to Registrar along with Form No. 2 (Death Report)

I hereby certify that the deceased Shri/Smt./Kum..... Son/Wife/Daughter of resident of was under my treatment from to and he/she died on at A.M. / P.M.

NAME OF DECEASED				For Use of Statistical Office	
Sex	Age at Death				
	If 1 year or more, age in Years	If less than 1 year, age in Months	If less than one month, age in Days	If less than one day, age in Hours.	
1. Male 2. Female 3. Unknown					
CAUSE OF DEATH				Interval between onset and death approx.	
Part I Immediate cause State the disease, injury or complication which caused death, not the mode of dying such as heart failure, asthenia, etc.					
Antecedent cause Morbidity conditions, if any, giving rise to the above cause, stating underlying conditions last				(b)..... Due to (or as a consequence of)	
				(c).....	
Part II Other significant conditions contributing to the death but not related to the disease or conditions causing it					

How did the injury occur?

.....

Manner of Death

1. Natural 2. Accident 3. Suicide 4. Homicide 5. Pending investigation

If deceased was a female, was the death associated with pregnancy? 1. Yes 2. No

If yes, was there a delivery? 1. Yes 2. No

Name and signature of the Medical Practitioner certifying the cause of death
Date of Certification.....

SEE REVERSE FOR INSTRUCTIONS

(To be detached and handed over to the relative of the deceased)

Certified that Shri/Smt./Kum..... S/W/D of Shri.....
..... R/o..... was under my treatment from to
and he/she expired on at A.M. / P.M.

Name and Signature of Medical Practitioner and Hospital Name with Registration No.

FORM NO.4A

(See Rule 7)

MEDICAL CERTIFICATE OF CAUSE OF DEATH

(For non-institutional deaths. Not to be used for still births) To be sent to Registrar along with Form No.2 (Death Report)

I hereby certify that the deceased Shri/Smt./Km..... son of/wife of/daughter of resident of was under my treatment from to and he/she died on at AM/PM.

NAME OF DECEASED					For use of Statistical Office
Sex	Age at Death				
	Age in completed years	If less than 1 year age in months	If less than one month age in Days	If less than one day, age in Hours	
1. Male					
2. Female					
CAUSE OF DEATH				Interval between onset & death approx.	
I) Immediate cause		(a)			
State the disease, injury or complication which caused death, not the mode of dying such as heart failure, asthma etc.		 Due to (or as a consequence of)			
Antecedent cause		(b)			
Morbid conditions, if any, giving rise to the above Cause, stating underlying condition last		 Due to (or as a consequence of)			
II Other significant conditions contributing to the death but not related to the disease or conditions causing it		©			

If deceased was a female, was pregnancy the death associated with? 1. Yes 2. No
No If yes, was there a delivery? 1. Yes 2. No

.....
Name and signature of the Medical Attendant certifying the cause of death Date of Certificate

To be detached and handed over to the related of the deceased) Certified that Shri/Smt./Km..... S/W/D of Shri R/O Was under treatment from to And he/she expired on at AM/PM

Doctor.....

Signature and address of Medical Practitioner/Medical attendant with
 Registration No.

प्रमाणपत्रे कशी नसावीत

- १) कोरी अथवा अर्धवट लिहिलेली प्रमाणपत्रे पाठवू नयेत.
- २) प्रमाणपत्रातील कोणताही रकाना रिकामा ठेऊ नये.
- ३) आजाराची संक्षिप्तरूपे (short forms) लिहू नयेत.

उदा. M.I. - MYOCARDIAL INFRACTION

C.R.F - CHRONIC RENAL FAILURE इ.

- ४) मृत्यूचे कारण मराठी भाषेत लिहू नये.
- ५) मृत्यूचे कारण संदिग्ध व अपूर्ण स्वरूपात (Ill-defined) लिहू नये.
- ६) उपजत मृत्युसाठी एमसीसीडीचे कोणतेही प्रमाणपत्र भरण्यात येवू नये.
- ७) प्रमाणपत्र आडव्या कागदावर (Landscape) पाठविण्यात येऊ नये.

या योजनेतून खालील मुद्द्यांची माहिती उपलब्ध होते -

- माता मृत्यू व अर्भक मृत्युंची कारणे व संख्या.
- सांसर्गिक रोगामुळे होणारे मृत्यू - स्वाईन फ्लू, टि.बी. एच.आय.व्ही., इ.
- असांसर्गिक रोगामुळे होणारे मृत्यू - कॅन्सर, डायबेटिस, रक्तदाब, अपघात, इ.
- वेगवेगळ्या ऋतुमानामध्ये (seasonal trends) होणाऱ्या मृत्युंची कारणे. उदा. swine flu in winter season, water borne diseases in rainy season.
- वेगवेगळ्या वयोगटात होणारे मृत्यू उदा. लहान बालकात अतिसार, न्युमोनिया, इ.
- या उपलब्ध होणाऱ्या माहितीवरून राज्यशासनाच्या आरोग्य सेवांचे नियोजन करण्यास मदत होते.

ICD -10

- जागतिक आरोग्य संघटनेमार्फत आजारांची वर्गवारी प्रसिद्ध केली जाते.
- सदर वर्गवारीवरून विविध रोगामुळे आजारी पडलेल्या आणि मृत पावलेल्या रुग्णांची संख्यात्मक माहिती जागतिक स्तरावर उपलब्ध होते. या माहितीचा उपयोग आरोग्य कार्यक्रमाचे नियोजन करण्यासाठी होतो.
- ICD - 10 प्रणाली तयार करण्याची सुरुवात सन १९८३ मध्ये होवून सन १९९२ मध्ये पूर्ण झाली.
- कोडींगची रचना अक्षरे व आकडे यापासून झालेली आहे.
- यामध्ये तीन भाग आहेत :
 - भाग १ : मुख्य वर्गवारी (Tabular list)
 - भाग २ : सूचना पुस्तिका (Instruction Manual)
 - भाग ३ : वर्णाक्षर क्रमानुसार अनुक्रमणिका (Alphabetical Index)

आय.सी.डी.-१० वर्गवारीचा आधार

वर्णाक्षर - संख्या प्रणाली (Alphanumeric Codes)

यामध्ये २१ प्रकरणे असून इंग्रजी A to Z या २६ वर्णाक्षरांचा उपयोग केलेला आहे. प्रत्येक प्रकरणास रोमन आकड्यांचा क्रमांक देण्यात आलेला आहे. उदा.: I, II, III, IV.. .XXI

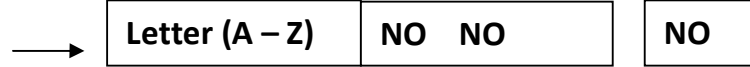
- एका वर्णाक्षरानंतर दोन अंकी संख्या उदा. A40, P06.

- प्रत्येक प्रकरणास एक वर्णाक्षर किंवा वर्णाक्षरांचा समूह देण्यात आलेला आहे, त्यामध्ये १०० आजार/ व्यंग हे तीन आकड्यांच्या श्रेणीपर्यंत सामावले आहे.
- तसेच वरील बाबी ० ते ९९ यामध्ये वर्गिकृत केलेल्या आहेत.
- २६ पैकी २५ वर्णाक्षरे वापरात आलेली आहेत.
- **U** हे वर्णाक्षर भविष्यातील आजारांची नोंद घेणे करिता आणि बदलांसाठी राखीव ठेवलेले आहे.
- **U00** ते **U49** हे **Codes** तात्पुरत्या स्वरूपात केलेली वर्गवारी.
- **U50** ते **U99** हे **Codes** संशोधनासाठी आहेत.

सांकेतांक प्रणाली

- २१ प्रकरणे

- वर्णाक्षर - संख्या प्रणाली



- मृत्यूच्या कारणांना देण्यात येणारे ICD-१० प्रणाली नुसारचे सांकेतांक A00.0 पासून सुरु होऊन Z99.9 पर्यंत आहेत.

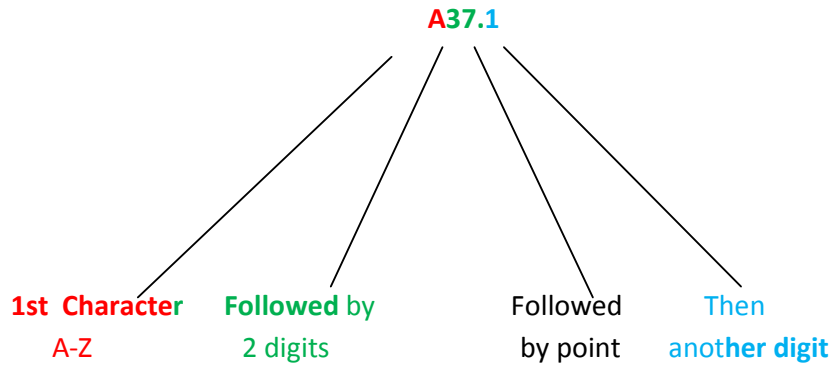
- वर्णाक्षर U उपयोगात आणलेले नाही.

ICD – 10

वर्णाक्षर - संख्या प्रणाली (Alphanumeric Codes)

- आय.सी.डी.-१० च्या वर्णाक्षर - संख्या प्रणाली मध्ये प्रथम वर्णाक्षर येते त्यानंतर दोन अंकी संख्या नंतर अपूर्णाक चिन्ह व त्यानंतर पुन्हा एक आकडी संख्य खालील प्रमाणे दर्शविण्यात येते.

वर्णाक्षर - संख्या प्रणाली रचना



CHAPTERS OF ICD – 10 (Page no. 25)

	CHAPTER	CODE
I	Certain infectious and parasitic diseases	A00 – B99
II	Neoplasms	C00 – D48
III	Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	D50 – D89
IV	Endocrine, nutritional and metabolic diseases	E00 – E90
V	Mental and behavioural disorders	F00 – F99
VI	Diseases of the nervous system	G00 – G99

VII	Diseases of eye and adnexa	H00 – H59
VIII	Diseases of ear and mastoid process	H60 – H95
IX	Diseases of the circulatory system	I00 – I99
X	Diseases of the respiratory system	J00 – J99
XI	Diseases of the digestive system	K00 – K93
XII	Diseases of the skin and subcutaneous tissue	L00 – L99
XIII	Diseases of the musculoskeletal system and connective tissue	M00 – M99
XIV	Diseases of the genitourinary system	N00 – N99
XV	Pregnancy, childbirth and the puerperium	O00 – O99
XVI	Certain conditions originating in the perinatal period	P00 – P96
XVII	Congenital malformations, deformations and chromosomal abnormalities	Q00 – Q99
XVIII	Symptoms, sign and abnormal clinical and laboratory findings, not elsewhere classified	R00 – R99
XIX	Injury, poisoning and certain other consequences of external causes	S00 – T98
XX	External causes of morbidity and mortality	V01 – Y98
XXI	Factors influencing health status and contact with health services	Z00 – Z99
XI	Diseases of the digestive system	K00 – K93
XII	Diseases of the skin and subcutaneous tissue	L00 – L99
XIII	Diseases of the musculoskeletal system and connective tissue	M00 – M99
XIV	Diseases of the genitourinary system	N00 – N99
XV	Pregnancy, childbirth and the puerperium	O00 – O99
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XX	External causes of morbidity and mortality	V01 – Y98
XXI	Factors influencing health status and contact with health services	Z00 – Z99

Part I

Immediate cause (a) page (5)-

- Direct or immediate cause of death is reported on line (a). Disease / injury / complication that directly preceded death.
- It can be sole entry in the statement, if only one condition was present at death.
- There must always be an entry on line (a).
- Mode of dying such as Heart failure / Resp. failure, CRF etc. should not be written as these are symptoms of the fact that death occurred and provides no useful information.

For unnatural (injury/ poison/accident) cause (page 77 - 80) -

- In case of deaths due to injuries the part of body injured, type of injury and supplementary cause for injury should be written.
- Death due to the result of external cause (S & T) - Fracture of skull (S02), poly trauma (T07).
- In poisoning - toxic effect of substance e.g. pesticide (T60), unspecified substance (T65).
- In asphyxia (T71), Burns and corrosion body region unspecified(T 30)

Antecedent cause (b)

- If the condition on line (a) was the consequence of another condition, then record it on (b).
- This condition must be antecedent to the immediate cause of death, both with respect to time, etiological or pathological, violence or circumstances of accidents is antecedent to an injury entered on line (a) and should be entered on line (b).
- An antecedent condition might have just prepared way for immediate cause of death, by damage to tissue or impairment of function, even after a long time.

Underlying cause (c)

- The condition, if any which gave rise to the antecedent condition on line (b) is to reported here. If condition on line (b) is underlying cause, nothing more to be entered on this line.
- However, if the sequence of events more than three stages, extra line (and entries) may be made in part I.
- However, many conditions are involved; write full sequence of events, one condition per line, with more recent condition at the top (immediate cause) and the earliest condition written last (the condition that started the sequence of events between normal health and death).
- The disease or injury which initiated the train of morbid events leading directly to death or the circumstances of the accident or violence which produced the fatal injury is noted here.

Underlying cause is defined as

- The disease or injury which initiated the train of morbid events leading directly to death.
- Or
- The circumstances of the accident or violence which produced the fatal injury.
- Underlying cause of death is used for statistical classification of cause of death according to ICD – 10. Normally condition or circumstance on the lowest line in part I will be taken as the basis for underlying cause as per ICD – 10.
- In case of deaths due to injury, poisoning accident dual coding system is used i.e. two different codes 1st for external cause (S & T) and 2nd place and activity code (V, W, X and Y).

Maternal Death

If the deceased was a female, was the death associated with pregnancy.

1. Yes 2. No **tick appropriately**

If yes was there a delivery ?

1. Yes 2. No **tick appropriately**

In case of maternal death period of gestation, gravidity, parity, nature of complication, timing of death in relation to labor should be entered.

Part II (page 15 -17)

Other significant condition that contributed to death but not directly related to the disease or conditions causing death.

Manner of Death

- ♦ Natural death :- Deaths not due to external cause should be identified as "Natural"
- ♦ Unnatural death :-
 - ♦ Suicide
 - ♦ Homicide
 - ♦ Accident
- ♦ Pending investigation :-

If the cause of death is known, but *circumstances* is not known, whether it was the result of accident, suicide or homicide and is subjected to further investigations, then manner of death will be shown as pending investigation.

How did injury occur?

A brief description of cause of injury is expected.

Collision between Motor cycle & Truck The Victim was motor cycle rider had head injury died in road traffic accident

उपमुख्य निबंधक जन्म आणि मृत्यु,
राज्य माहिती व जीवनविषयक आकडेवारी कार्यालय,
सार्वजनिक आरोग्य विभाग,
महाराष्ट्र राज्य पुणे- १

G) HIV AIDS

57. OVERVIEW OF HIV AND AIDS

HIV/AIDS

Human Immunodeficiency Virus

H – Infects only human being

I – Immunodeficiency virus weakens the immune system and increases risk of infection

V – Virus that affects body

When immune system became weakens by HIV virus, the illness progresses to AIDS

Acquired Immune Deficiency Syndrome

A – Acquired not inherited

I – Weakens the immune system

D – Creates a deficiency of CD4 cells in immune system

S – Syndrome or group of illness taking place at the same time

Some blood tests symptoms or certain infections indicate effectiveness of HIV to AIDS.

HIV-1 and HIV-2 are

- Transmitted through the same routes
- Associated to similar opportunistic infection

HIV-1 – More common worldwide

HIV-2 – Is found in West Africa, Mozambique and Angola

Difference

	HIV-1	HIV-2
1	Common Worldwide	Found in West Africa, Mozambique and Angola
2	HIV-1 transmitted easily	HIV-2 less easily transmitted
3	HIV-1 is more opportunistic infection and more pathogenic	HIV-2 is less pathogenic
4	Longer incubation period or duration of HIV-1 infection is longer HIV-2	Duration of HIV-2 infection is shorter
5	MTCT HIV-1 is seen in India	MTCT (Mother to child transmission has not been reported from India

Transmission :

HIV is transmitted by direct contact with infected blood

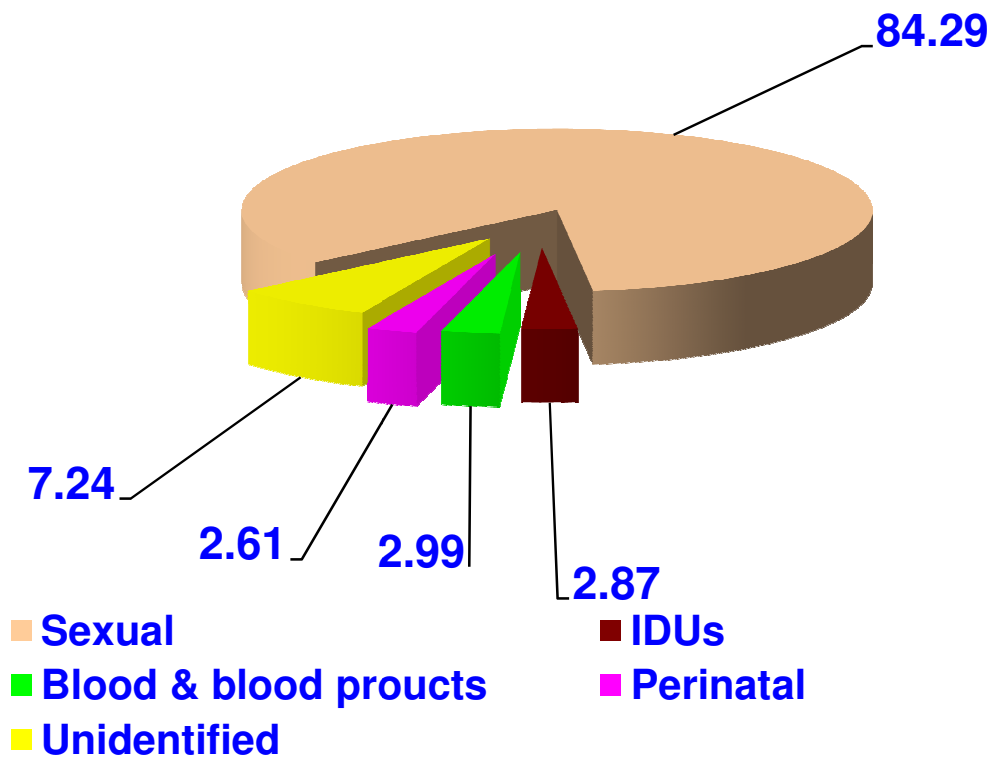
Sexual contact – oral, anal or vaginal

Direct contact with semen or vaginal and cervical secretions

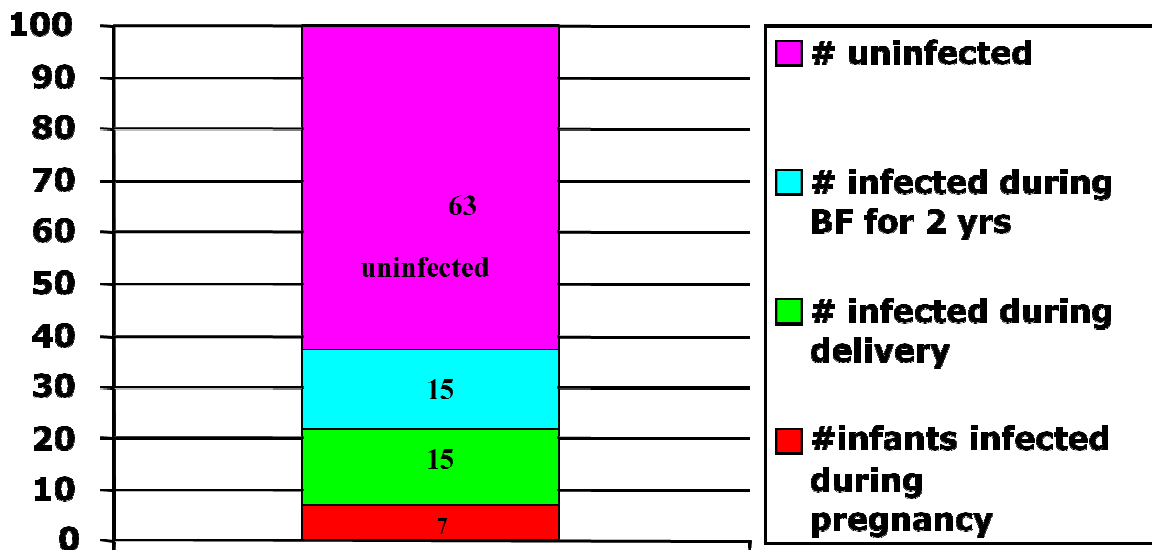
HIV infected mothers to infants during pregnancy, deliver and breastfeeding.

HIV is not transmitted by coughing, sneezing, insect bites, touching, hugging, water, food, kissing, handshakes, public bathroom, work or school contacts, sharing cups, glasses, plates or other utensils.

Rate of transmission chart



Majority of child do not get infected



Incidence

- Globally – 15-45%
- India – 30-37% (average)

- Strategies to prevent HIV Infection
 - 1) Personal Strategies – Safe

2) Public Health Strategies

1. Safe Practices

- No risk of HIV infection
- reduces the risk but does not eliminate risk

2. Public health strategies to prevent HIV transmission

- Screen all blood and blood products
- follow universal precaution
- educate in safe sex practices
- identify and heal STI's
- Provide referral for treatment of drug dependence
- apply the comprehensive PPTCT approach to prevent vertical transmission of HIV

Natural causes of HIV diseases

Virus can be transmitted during each stage

1. Seroconversion – Infection with HIV antibodies develop.
2. Asymptomatic – No signs of HIV. Immune systems controls virus infection.
3. Symptomatic – Physical signs of HIV infection some immune suppression
4. AIDS – Opportunistic infection end stage disease

Immune Suppression

- HIV attacks white blood cells, called CD4 cells, that protect body from illness
- Over time, the body's ability to fight common infections is lost
- Opportunistic infections occur

Progression of HIV disease is measured by:

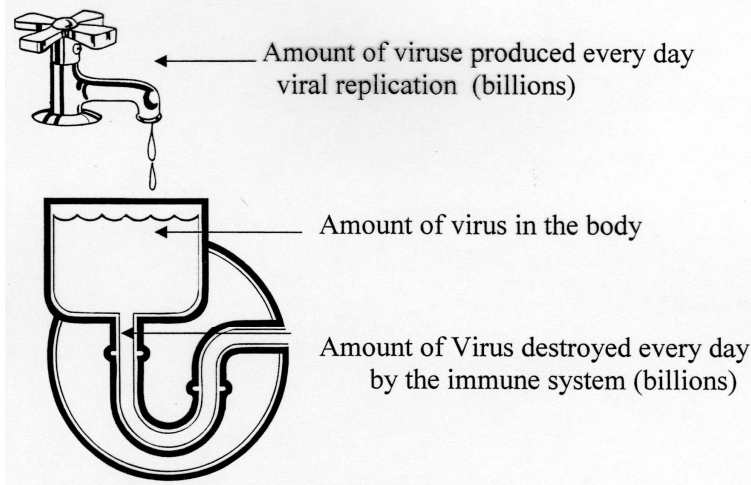
CD4+ count

- Degree of immune suppression
- Lower CD4+ count means decreasing immunity

Viral load

- Amount of virus in the blood
 - Higher viral load means more immune suppression
-
- Severity of illness is determined by amount of virus in the body (increasing viral load) and the degree of immune suppression (decreasing CD4+ counts)
 - Higher the viral load, the sooner immune suppression occurs

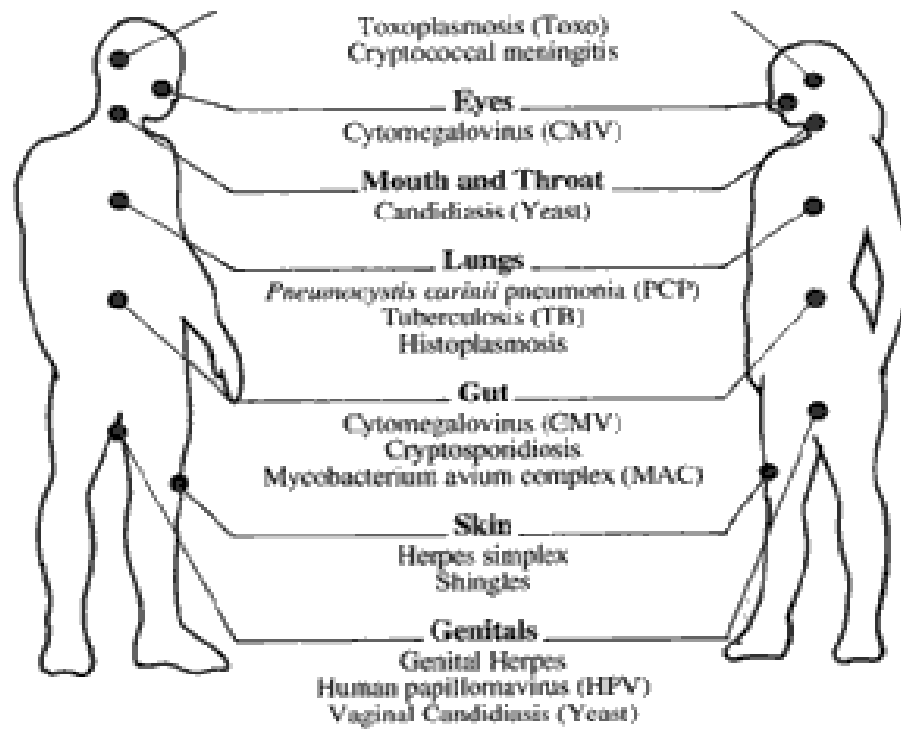
What's a Viral Load anyway?



Direct infection of organ systems

HIV can directly infect the:

- Brain (HIV dementia)
- Gut (wasting)
- Heart (cardiomyopathy)
- HIV multiplies inside the CD4+ cells, destroying them
- As CD4+ cell count decreases and viral load increases, the immune defences are weakened
- HIV-infected people become vulnerable to opportunistic infections
- HIV is a chronic viral infection with no known cure
- Without ARV treatment, HIV progresses to symptomatic disease and AIDS
- The most common main route of transmission worldwide is heterosexual transmission.
- Women of childbearing age are at particular risk for acquiring HIV through unprotected sex with an infected male partner.
- HIV-positive women who are pregnant are at risk of passing HIV infection to their newborn.
- Risk of HIV transmission from mother-to-child can be greatly reduced through effective PPTCT programs



H) IMNCI

58. OVERVIEW OF INTEGRATED MANAGEMENT OF NEONATAL AND CHILDHOOD ILLNESS (IMNCI)

In children under five years of age, neonatal infections, pneumonia, diarrhoea and malaria are the most important causes of death. Malnutrition increases the risk of death and is associated with approximately 50% of all deaths among children. Low birth weight and poor feeding practices are the major reasons for malnutrition in infants and children. Moreover, many children and infants suffer from more than one illness at a time. Children present with overlapping signs and symptoms of diseases; therefore, a single diagnosis can be difficult and may not be feasible or appropriate. An integrated approach is needed to manage these sick children for better outcomes. This approach reduces death and the frequency and severity of illness and disability, and contributes to improved growth and development.

Outpatient management of children is an integrated approach that includes the assessment, classification and management of the major problems in a sick infant or a child aged less than 5 years may have. It also includes assessment of nutritional and immunization status of all sick infants and children.

THERE ARE TWO PARTS OF THIS COURSE:

- Management of young infants aged upto 2 months (0 to 59 days old)
- Management of sick children 2 months upto 5 years (2 to 59 months). This module will teach you how to do the following:

For young infant upto 2 months

- Assess and classify young infants for possible serious bacterial infection/jaundice
- Assess for diarrhoea
- Assess and classify for feeding problem and low weight for age
- Assess and classify the young infant's immunization status
- Assess other problems
- Assess the mother/caregiver's development supportive practices & counsel for practices to support child's development using MCP card
- Counsel the mother about her own health
- Provide treatment and refer when required
- Correct breastfeeding problems
- Advise the mother on home care to young infant
- Follow-up care

For the sick child 2 months upto 5 years

- Assessment for General Danger Signs
- Assess major symptoms (Cough/Diarrhoea/Fever)
- Check for malnutrition & anemia
- Check for immunization, prophylactic vitamin A & iron-folic acid supplementation status
- Assess other problems
- Assess feeding if age is less than 2 years/ has uncomplicated Severe/ Moderate Acute Malnutrition or Anemia
- Assess the mother/ caregiver's development supportive practices if less than 3 years/ has uncomplicated severe acute malnutrition or anemia
- Classification and identification of treatment
- Provide treatment and refer when required
- Counsel for feeding and development of supportive practices
- Follow-up care

INTRODUCTION TO COLOUR-CODED CHART BOOKLET

Color-coded chart booklet has four columns:

“**Assess**” column lists what signs and symptoms to check and how to do it. “**Signs**” column summarizes the signs and symptoms present. “**Classification**” helps in classifying each illness the young infant or child has.

“**Identify Treatment**” section lists appropriate treatment decisions for each classification.

The 'Assess' and 'Classify' sections are organized in three different colours (pink, yellow and green):

- Conditions included in the boxes with **pink colour** indicate **severe illness**. Children with a severe illness must be **referred** to a hospital or sent to the doctor after giving pre-referral treatment.
- Conditions included in the boxes with a **yellow colour** should be treated with **medicine at home** and home care advice (given) or (provided) to the mother.
- Conditions included in the boxes with **green colour** are to be treated with **home care without the use of medicines**.

D) F-IMNCI

59. OVERVIEW OF Facility-Based Integrated Management of Neonate and Childhood Illness (F-IMNCI)

Facility-Based Integrated Management of Neonate and Childhood Illness (F-IMNCI): A Comprehensive Approach to Child Health

Child health remains a critical concern globally, with millions of newborns and children succumbing to preventable illnesses each year. To address this challenge, the World Health Organization (WHO) and UNICEF developed the Integrated Management of Childhood Illness (IMCI) strategy. In various countries, this strategy has been adapted to local contexts. In India, the Facility-Based Integrated Management of Neonate and Childhood Illness (F-IMNCI) program serves as the cornerstone for improving child health outcome.

F-IMNCI is a comprehensive approach to managing common illnesses in neonates (newborns) and children under five years of age **within healthcare facilities**. It integrates essential components of preventive and curative care, aiming to reduce child mortality, morbidity, and disability.

Here's a breakdown of the key aspects of F-IMNCI:

1. **Case Management:** This core component focuses on the accurate diagnosis and treatment of prevalent childhood illnesses, including pneumonia, diarrhea, acute respiratory infections (ARI), malaria, and nutritional deficiencies. F-IMNCI equips healthcare workers with standardized algorithms for identifying signs and symptoms, classifying illness severity, and administering appropriate treatment protocols, including antibiotics, oral rehydration solutions (ORS), zinc supplements, and micronutrients.
2. **Counseling:** F-IMNCI emphasizes the importance of effective communication with caregivers. Healthcare workers are trained to provide clear and practical advice on key topics like appropriate feeding practices, hygiene measures, immunization schedules, danger signs of illness, and home-based care.
3. **Prevention:** This aspect focuses on promoting healthy behaviors at the individual and community levels. F-IMNCI encourages immunization, exclusive breastfeeding for the first six months, complementary feeding practices thereafter, proper hand washing hygiene, and the use of insecticide-treated bed nets (ITNs) in malaria-endemic regions.

F-IMNCI offers a multitude of benefits for child health and well-being.

- **Reduced Child Mortality:** By facilitating early diagnosis and appropriate treatment of childhood illnesses, F-IMNCI contributes significantly to the reduction of child mortality rates.
- **Improved Morbidity:** Early intervention and proper management of illnesses minimize complications and long-term health consequences.
- **Enhanced Development:** Improved nutrition practices and preventive measures contribute to optimal growth and development in children.
- **Empowered Caregivers:** F-IMNCI equips caregivers with knowledge and skills to provide better care for their children at home.
- **Strengthened Healthcare Systems:** The standardized approach promotes consistency in quality of care across healthcare facilities.

Effective implementation of F-IMNCI requires a multi-pronged approach:

- **Capacity Building:** Healthcare providers at all levels require training on F-IMNCI protocols, including case management algorithms, counseling techniques, and preventive interventions.
- **Essential Supplies:** Ensuring adequate availability of essential drugs, ORS packets, zinc supplements, micronutrients, growth charts, and counseling materials is crucial.
- **Supportive Supervision:** Regular monitoring and feedback from supervisors are essential for maintaining quality F-IMNCI implementation.
- **Community Mobilization:** Engaging communities through awareness campaigns about F-IMNCI helps build trust and encourages caregivers to seek timely healthcare for their children.
- **Data Management:** Robust data collection and analysis systems allow for monitoring progress, identifying challenges, and implementing necessary modification.

F-IMNCI plays a pivotal role in reducing childhood illness and mortality in India. By integrating prevention, early diagnosis, and appropriate treatment with effective counseling and community engagement, F-IMNCI empowers both healthcare providers and caregivers to ensure a healthier future for children. Addressing the existing challenges and ensuring sustained program implementation requires a collaborative effort from government agencies, healthcare institutions, and communities. By focusing on capacity building, resource mobilization, and continuous monitoring, F-IMNCI can pave the way for a healthier generation of children in India.

J) Basic Life Support (BLS)

60. OVERVIEW OF Basic Life Support (BLS)

Introduction:

BLS, or Basic Life Support, equips medical officers with the essential skills to manage life-threatening emergencies until advanced care arrives. These emergencies often involve cardiac arrest, which disrupts blood flow and oxygen delivery to vital organs. BLS focuses on maintaining basic life functions like circulation and respiration through a systematic approach.

BLS Algorithm:

BLS follows a standardized algorithm that ensures a logical and efficient response:

1. **Scene Safety:** Assess the scene for potential dangers to yourself and the patient. Secure the area if necessary.
2. **Check for Responsiveness:** Gently shake the patient and ask loudly, "Are you alright?" If unresponsive, activate the emergency response system.
3. **Open the Airway:** Use a head-tilt chin-lift maneuver to tilt the head back and lift the chin, opening the airway.
4. **Check for Breathing:** Look, listen, and feel for chest rise and fall for no more than 10 seconds. If not breathing normally, initiate rescue breaths.
5. **Deliver Rescue Breaths:** Pinch the nose closed, form a seal with your mouth over the patient's mouth, and deliver two slow, forceful breaths (1 second each).
6. **Check for Pulse:** Feel for a carotid pulse in the neck for no more than 10 seconds. If no pulse is detected, begin chest compressions.
7. **Perform Chest Compressions:** Push hard and fast (at least 100 compressions per minute) in the center of the chest, allowing complete chest recoil between compressions.
8. **Combine Chest Compressions and Rescue Breaths:** For a single rescuer, provide 30 chest compressions followed by 2 rescue breaths in a cycle. For two rescuers, alternate delivering 15 chest compressions each followed by 2 rescue breaths.
9. **Continue CPR:** Maintain CPR cycles until advanced care arrives or the patient regains a pulse and spontaneous breathing.

BLS Techniques for Medical Officers:

- **Airway Management:** Medical officers have the advantage of utilizing advanced airway adjuncts like oropharyngeal airways or bag-valve masks to maintain an open airway.
- **Advanced Ventilation Techniques:** Medical officers can utilize bag-valve mask ventilation with supplemental oxygen to deliver more effective breaths.
- **Intravascular Access:** Medical officers can establish intravenous (IV) access to administer medications during resuscitation efforts.

Importance of BLS for Medical Officers:

BLS forms the cornerstone of emergency resuscitation for medical officers. Proficiency in these skills allows for immediate life-saving interventions while awaiting advanced care. Early intervention with BLS significantly improves patient outcomes in cardiac arrest scenarios.

K) Advanced Cardiac Life Support (ACLS)

61. OVERVIEW OF Advanced Cardiac Life Support (ACLS)

Advanced Cardiac Life Support (ACLS) for Medical Officers: Building on the Foundation

ACLS - The Next Step:

ACLS builds upon the foundation of BLS, providing medical officers with a structured approach to manage life-threatening cardiac emergencies. While BLS focuses on basic life functions, ACLS incorporates advanced techniques, medications, and equipment to optimize resuscitation efforts.

ACLS Core Elements:

1. **ACLS Team:** ACLS emphasizes coordinated teamwork, with each member fulfilling specific roles for effective resuscitation.
2. **High-Performance CPR:** ACLS prioritizes high-quality CPR with minimal interruptions for interventions.
3. **Early Defibrillation:** ACLS highlights the importance of early defibrillation for shockable rhythms like ventricular fibrillation (VF) and ventricular tachycardia (VT).
4. **Airway Management:** ACLS emphasizes securing a definitive airway using advanced techniques like endotracheal intubation.
5. **ACLS Algorithms:** ACLS utilizes standardized algorithms for specific cardiac arrest rhythms, guiding medication administration and interventions.

ACLS Algorithms - Tailored Care:

ACLS algorithms provide a structured approach to manage different cardiac arrest rhythms. These algorithms consider factors like:

- **ECG Interpretation:** ACLS requires identifying the underlying rhythm causing the arrest through ECG (electrocardiogram) analysis.
- **Medication Selection:** Specific medications are indicated based on the identified rhythm, targeting issues like heart rate or contractility.
- **Advanced Interventions:** ACLS may involve advanced interventions like synchronized cardio version or percutaneous coronary intervention (PCI) depending on the situation.

Common ACLS Algorithms:

- **VF/VT Algorithm:** This algorithm guides defibrillation, medication administration (e.g., epinephrine), and advanced interventions for shockable rhythms.
- **Pulseless Electrical Activity (PEA) Algorithm:** This algorithm focuses on maximizing CPR quality, identifying reversible causes (e.g., hypoxia), and utilizing medications to improve circulation.
- **Asystole Algorithm:** This algorithm emphasizes high-quality CPR and identifying potentially reversible causes for this non-shockable rhythm.
- **Bradycardia Algorithm:** This algorithm guides interventions for slow heart rates that compromise circulation, including medications or pacing.
- **Tachycardia Algorithm:** This algorithm tackles rapid heart rates that may be causing hemodynamic instability, with options for medications or synchronized cardioversion.

ACLS Medications for Medical Officers:

ACLS equips medical officers with a specific armamentarium of medications to address various aspects of cardiac arrest:

- **Antiarrhythmics:** Medications like **amiodarone or lidocaine** can help regulate abnormal heart rhythms.
- **Vasopressors:** Medications like **epinephrine** can improve blood pressure and circulation during resuscitation.
- **Antidotes:** Certain medications can reverse the effects of poisoning or overdoses that may contribute to cardiac arrest.

ACLS for Medical Officers - Why it Matters:

ACLS empowers medical officers to manage complex cardiac emergencies beyond BLS capabilities. The ability to interpret ECGs, select appropriate medications, and perform advanced interventions can significantly improve patient outcomes during cardiac arrest.

L) STEMI

62. OVERVIEW OF STEMI

STEMI (ST Elevation in Myocardial Infarction) Project in Maharashtra

गेल्या काही दशकांमध्ये कोरोनरी आर्टरी रोगांमुळे मृत्यु आणि अपंगत्व लक्षणीय प्रमाणात वाढली आहे. ग्रामीण भागातील ३% ते ४% आणि शहरी भागात ८% ते १०% व्यक्तींना हृदयरोग आहे.

देशपातळी वरील हृदयविकार आजाराचे प्रमाण-

भारतामध्ये हृदयविकार प्रामुख्याने मृत्युदर वाढीचे मुख्य कारण आहे. एकूण हृदय विकाराच्या रुग्णांपैकी २३% रुग्ण मृत्युमुखी पडतात. इतर देशांच्या तुलनेत भारतमध्ये १० वर्षा आधी हृदय विकाराला सुरुवात होते.

● राज्यस्तरावर हृदयविकार आजाराचे प्रमाण-

देशाप्रमाणे, महाराष्ट्रात देखील हृदयविकार व त्यासंबंधी आजार प्रामुख्याने आढळून येतात. राज्यामध्ये हृदयविकारामुळे मृत्युमुखी पडणाऱ्या पैकी हृदयाला रक्त पुरवठा कमी झाल्यामुळे होणाऱ्या मृत्यु पैकी हृदयविकारचा झटका प्रथम क्रमांकावर येतो.

● हृदय विकाराची मुख्य कारणे

- ✓ उच्चरक्तदाब व मधूमेह हे आजार असणे.
- ✓ घरामध्ये आई-वडील यांना रक्तदाब व मधूमेह असणे. (अनुवंशिकता)
- ✓ असंतुलित आहार करणे.
- ✓ शरीरिक हलचाली कमी करणे किंवा न करणे
- ✓ तंबाखूचे सेवन, मद्यपान इत्यादी व्यसन
- ✓ दैनंदिन जीवनशैली
- ✓ मानसिक ताण तणाव

● स्टेमी प्रकल्पाचा उद्देश

- १) हृदयविकाराचा झटका आल्यानंतर अर्धा तासाच्या आत औषधोपचार करून मृत्युचे प्रमाण कमी करण्याचे उद्दिष्ट आहे.
- २) तीव्र हृदयविकाराचा झटकाची चिन्हे ओळखण्याकरीता आणि लवकर उपचार घेण्यासाठी व जास्तीतजास्त लोकांना मध्ये जागरुकता निर्माण करण्यासाठी.

● स्टेमी प्रकल्पाचा सेवांबाबत -

या योजनेमध्ये स्पोक व हब हे मॉडेल वापरण्यात येत आहे.

- १) स्पोक :- स्पोक मध्ये उपजिल्हा रुग्णालय व जिल्हा रुग्णालय जिथे अतिदक्षता विभाग आणि हृदयविकाराच्या व अतितात्काळ सेवा दिल्या जातात अशा रुग्णालयांचा समावेश करण्यात आलेला आहे. महाराष्ट्र राज्यामध्ये ११० ठिकाणी स्पोक स्थापन करण्यात आलेले आहे. त्या ठिकाणी दोन खाटांचा अतितात्काळ विभाग स्थापन करण्यात आला आहे. स्पोक येथे ECG मशीन लावण्यात आली आहे व ECG reading साठी cloud connectivity द्वारे तज्ञांकडून ECG चे reading करून औषधोपचाराबाबत मार्गदर्शन १० मिनिटांच्याआत कळविण्यात येत आहे अशा रुग्णांना स्पोक येथे ईसीजी करून हृदयविकाराचा झटका आला किंवा नाही याची तपासणी केली जाते व जर हृदयविकाराचा झटका आला असेल तर अशा रुग्णांना तात्काळ रक्ताची गुठळी पातळ करण्याची औषधी (Thrombolysis) तज्ञांच्या मार्गदर्शनाखाली दिली जातात. अशा रुग्णांना पुढील उपचारासाठी २४ तासापर्यंतचा अवधी Thrombolysis केल्यानंतर मिळतो.
- २) हब :- हब म्हणजे मोठी व खाजगी रुग्णालये जिथे हृदयरोग तज्ञ उपलब्ध असतात आणि जेथे हृदयरोग शस्त्रक्रिया केली जाते. त्यामुळे Angiography, Angioplasty व Bypass शस्त्रक्रिया केल्या जातात. (उदा. वैद्यकिय महाविद्यालय, शासकिय युनिवर्सिटी, महात्मा जोतिबा फुले योजने अंतर्गत असलेली खाजगी रुग्णालये).
हब येथे हृदयविकाराचा झटका आल्यानंतर Thrombolysis केल्यानंतरच्या रुग्णांना Angiography, Angioplasty व Bypass सारख्या शस्त्रक्रिया मोफत शासना मार्फत पुरविण्यात येतील. त्यामध्ये महात्मा जोतीबा फुले आरोग्यदायी योजने अंतर्गत ५००० रुग्णांना लाभ होईल. अशा ३५ हब निवडण्यात आलेले आहेत.

स्टेमी प्रकल्प हा महाराष्ट्र राज्यातील १२ जिल्ह्यांमध्ये राबविण्यात येणार आहे.

- १) पूणे २) नागपूर ३) छत्रपती संभाजीनगर ४) नांदेड ५) अकोला
- ६) नाशिक ७) ठाणे ८) रत्नागिरी ९) सोलापूर १०) वर्धा
- ११) जालना १२) कोल्हापूर

M) Rape Victim

63. OVERVIEW OF Medical Examination of the Rape Victim

Medical Examination of the Rape Victim

Sexual assault is any type of sexual activity or contact that a person does not consent to.

Sexual assault, including rape, may cause physical injury or illness or psychological trauma. Survivors should be evaluated for injury, sexually transmitted infections, pregnancy, and acute or post traumatic stress disorders; they are asked to give permission for an examination to collect evidence. Treatment includes infection prophylaxis and mental health care.

Sexual assault includes rape and sexual coercion; it may involve physical force or threats of force, or the attacker giving the victim drugs or alcohol.

Although legal and medical definitions vary, rape is typically defined as penetration, no matter how slight, of the vagina or anus with any body part or object or oral penetration by another person's sex organ without the consent of the victim. People under the age of consent cannot give consent to sexual activity with an adult.

Typically, sexual assault is an expression of aggression, anger, or need for power; psychologically, it is more violent than sexual. Nongenital or genital injury occurs in approximately 40% of rapes of females.

Rape and other forms of sexual assault, including childhood sexual assault, are common; the estimated lifetime incidence for rape in the United States is 19.3% of women and 1.7% of men. However, actual incidence may be higher because rape and sexual assault tend to be underreported.

Females have the highest rates of rape and sexual assault; however, victims include people of all genders.

Sexual assault may result in the following:

- Genital injury
- Extra genital injury
- Psychological trauma
- Hepatitis
- HIV infection
- Human papilloma virus infection
- Other sexually transmitted infections (STIs—eg, syphilis, gonorrhea, chlamydial infection, trichomoniasis)
- Bacterial vaginosis
- Pregnancy

Physical injuries may be relatively minor, but some lacerations of the upper vagina are severe. Additional injuries may result from physical violence that occurs during the sexual assault. Evidence indicates that a lifetime experience of rape is also related to long-term physical health problems; for example, risk of developing asthma, irritable bowel syndrome, frequent headaches, dyspareunia, pelvic pain, or chronic pain is higher for people who do versus do not have a history of being the victim of rape.

Psychological symptoms of sexual assault are potentially the most prominent. In the short term, most patients experience fear, nightmares, sleep problems, anger, embarrassment, shame, guilt, or a combination. They may be unable to remember important parts of the event (dissociative amnesia, which is a symptom of acute stress disorder or post traumatic stress disorder [PTSD]).

Immediately after an assault, patient behavior can range from talk activeness, tenseness, crying, and trembling to shock and disbelief with dispassion or quiescence. The latter responses rarely indicate lack of concern; rather, they reflect avoidance reactions, physical exhaustion, or coping mechanisms that require control of emotion. Anger may be displaced onto hospital staff or family members.

For acute stress disorder to be diagnosed, symptoms must be present for 3 days to 1 month after the assault.

Friends, family members, and officials may be supportive or react judgmentally or in another negative way. Negative reactions can impede recovery after an assault.

Long-range effects of sexual assault may include PTSD, particularly among women. PTSD is a trauma-related disorder; symptoms of PTSD include

- Re-experiencing the trauma (eg, flash backs, intrusive upsetting thoughts or images)
- Avoidance (eg, of trauma-related situations, thoughts, and feelings)
- Negative effects on cognition and mood (eg, persistent distorted blame of self or others, inability to experience positive emotions)
- Altered arousal and reactivity (eg, sleep difficulties, irritability, concentration problems)

For PTSD to be diagnosed, symptoms must last for >1 month, must not be attributable to the physiologic effects of a substance or a medical disorder, and must significantly impair social and occupational functioning. Patients with PTSD often also have depression and/or other psychological disorders (eg, substance use disorder).

The medical evaluation of a sexual assault victim, including victims of rape, should be approached using principles of trauma-informed care (1). Goals of medical evaluation after sexual assault are

- Medical assessment and treatment of injuries and assessment, treatment, and prevention of pregnancy and STIs
- Collection of forensic evidence
- Psychological evaluation
- Recommendation of psychological treatment and support

If patients seek advice before medical evaluation, they are told not to throw out or change clothing, wash, shower, brush their teeth, clip their fingernails, or use mouthwash; doing so may destroy evidence.

Whenever possible, all people who are raped are referred to a local rape center, often a hospital emergency department; such centers are staffed by specially trained professionals

Most patients experience the effects of trauma, and their care requires sensitivity, empathy, and compassion. Patients may feel more comfortable with a clinician of the same sex; all patients should be asked about their preference before the examination. A female staff member should accompany all males evaluating a female. Patients are provided privacy and quiet whenever possible.

A form (sometimes part of a sexual assault evidence collection kit) is used to record legal evidence and medical findings. Because the medical record may be used in court, results should be written legibly and in nontechnical language that can be understood by a jury.

History and examination

Before beginning, the examiner asks the patient's permission. Because recounting the events often frightens or embarrasses the patient, the examiner must be reassuring, empathetic, and nonjudgmental and should not rush the patient. Privacy should be ensured. The examiner elicits specific details, including

- Type of injuries sustained (particularly to the mouth, breasts, vagina, and rectum)
- Any bleeding from or abrasions on the patient or assailant (to help assess the risk of transmission of HIV and hepatitis)
- Description of the attack (eg, which orifices were penetrated, whether ejaculation occurred or a condom was used)
- Assailant's use of aggression, threats, weapons, and violent behavior
- Description of the assailant

Many sexual assault reporting forms include most or all of these elements. The patient should be told why questions are being asked (eg, information about contraceptive use helps determine risk of pregnancy after sexual assault; information about previous coitus helps determine validity of sperm testing).

The examination should be explained before each step; the patient may refuse any part of the examination. Results should be reviewed with the patient. When feasible, photographs of possible injuries are taken. The mouth, breasts, genitals, and rectum are examined closely. Common sites of injury in females include the labia minora and posterior vagina. Examination using a Wood's lamp may detect semen or foreign debris on the skin. Colposcopy is particularly sensitive for subtle genital injuries. Some colposcopes have cameras attached, making it possible to detect and photograph injuries simultaneously. Whether use of toluidine blue to highlight areas of injury is accepted as evidence varies by jurisdiction.

Testing and evidence collection

Routine testing includes a pregnancy test and serologic tests for syphilis, hepatitis B, and HIV; if done within a few hours of sexual assault, these tests provide information about pregnancy or infections present before the sexual assault but not those that develop after the sexual assault. Vaginal secretions or urine is tested for trichomonal vaginitis and bacterial vaginosis; samples from every penetrated orifice (vaginal, oral, or rectal) are obtained for gonorrheal and chlamydial testing. Patients may decline STI testing, possibly because empiric therapy is typically given to all patients.

Follow-up tests are done to check for pregnancy and STIs:

- At 1 week: Gonorrhea, chlamydial infection, and trichomoniasis in patients who received prophylactic treatment
- At 2 weeks: Pregnancy
- At 4 to 6 weeks: Syphilis and HIV infection
- At 3 months: Syphilis, hepatitis, and HIV infection

If the patient has amnesia for events around the time of sexual assault, drug screening for flunitrazepam (the date rape drug) and gamma hydroxybutyrate (GHB) should be considered. Testing for drugs of abuse and alcohol is controversial because evidence of intoxication may be used to discredit the patient.

Patients with severe lacerations of the upper vagina, especially children, may require laparoscopy to determine depth of the injury.

Evidence that can provide proof of sexual assault is collected (see table Typical Examination for Alleged Sexual Assault); it typically includes

- Clothing
- Smear of soft buccal, vaginal, and rectal mucosa
- Combed samples of scalp and pubic hair as well as control samples (pulled from the patient)
- Finger nail clippings and scrapings
- Blood and saliva samples
- If available, semen

Many types of evidence collection kits are available commercially, and some states recommend specific kits. Evidence is often absent or inconclusive after showering, changing clothes, or activities that involve sites of penetration, such as douching. Evidence becomes weaker or disappears as time passes, particularly after >36 hours; however, depending on the jurisdiction, evidence may be collected up to 7 days after sexual assault.

A chain of custody, in which evidence is in the possession of an identified person at all times, must be maintained. Thus, specimens are placed in individual packages, labeled, dated, sealed, and held until delivery to another person (typically, law enforcement or laboratory personnel), who signs a receipt. In some jurisdictions, samples for DNA testing to identify the assailant are collected.

Clinicians should encourage patients to seek help with managing the effects of their trauma and with restoring their ability to function (crisis intervention) and to seek psychological support.

64. OVERVIEW OF CrPC section 164(A)

Description

1. Where, during the stage when an offence of committing rape or attempt to commit rape is under investigation, it is proposed to get the person of the woman with whom rape is alleged or attempted to have been committed or attempted, examined by a medical expert, such examination shall be conducted by a registered medical practitioner employed in a hospital run by the Government or a local authority and in the absence of such a practitioner, by any other registered medical practitioner, with the consent of such woman or of a person competent to give such consent on her behalf and such woman shall be sent to such registered medical practitioner within twenty-four hours from the time of receiving the information relating to the commission of such offence.
2. The registered medical practitioner, to whom such woman is sent shall, without delay, examine her person and prepare a report of his examination giving the following particulars, namely—
 1. the name and address of the woman and of the person by whom she was brought;
 2. the age of the woman;
 3. the description of material taken from the person of the woman for DNA profiling;
 4. marks of injury, if any, on the person of the woman;
 5. general mental condition of the woman; and
 6. other material particulars in reasonable detail,
3. The report shall state precisely the conclusions arrived at.
4. The report shall specifically record that the consent of the woman or of the person competent, to give such consent on her behalf to such examination had been obtained.
5. The exact time of commencement and completion of the examination shall also be noted in the report.
6. The registered medical practitioner shall, without delay forward the report to the investigating officer who shall forward it to the Magistrate referred to in section 173 as part of the documents referred to in clause (a) of Sub-Section (5) of that section.
7. Nothing in this section shall be construed as rendering lawful any examination without the consent of the woman or of any person competent to give such consent on her behalf.

N) POCSO

65. OVERVIEW OF POSCO

बालकांचे लैंगिक अपराधापासुन संरक्षण अधिनियम प्राथमिक मार्गदर्शिका

- २००७ साली भारत सरकारने नॅशनल स्टडि ऑन चाईल्ड अँबुज या नावाने संशोध केले त्यात १८ राज्य १७०० पेक्षा अधिक मुलांशी संवाद साधला.
- १०० पैकी ६० मुलांनी सांगितले... त्यांच्यासोबत शारीरिक, मानसिक, आर्थिक आणि लैंगिक प्रकारची हिंसा झाली आहे.
- या अहवालाबाबत मुलांसोबतच्या लैंगिक अपराधाविषयी कायदा असावा अशी शिफारस २०१२ साली
- लैंगिक अपराधापासुन मुलांचे संरक्षण अधिनियम २०१२ अस्तित्वात
- लैंगिक अपराधापासुन मुलांचे संरक्षण अधिनियम २०१२ या कायद्यात स्पर्श आणि स्पर्शाशिवाय होणाऱ्या सर्व प्रकारच्या अत्याचाराचा समावेश केलेला आहे. मुलांवरील लैंगिक आघात, लैंगिक छळ, अधिक गंभिर, विकृत पद्धतीने केलेले अत्याचार, लैंगिक समागम, अश्लील चित्रफीत मुलांना दाखवणे किंवा मुलांचा वापर करुन साहित्य तयार करणे, फोटो घेणे, एवढेच नव्हे तर, या प्रकारचं साहित्य साठविणे. अशा सर्व प्रकारच्या गुन्ह्याची दखल कायद्यात घेण्यात आली आहे.
- लैंगिक शोषणाच्या गुन्ह्याची पोलिसात नोंद झाल्यावर त्याबाबतची माहिती विशेष न्यायालय, जिल्ह्यातील बाल कल्याण समिती आणि जिल्हा विधी सेवा प्राधिकरण यांना देणे पोलिसांना बंधनकारक आहे.
- बाल कल्याण समिती समोर बळीत बालकांची माहिती सादर करणे आवश्यक.
- बाल कल्याण समिती बळीत बालकाच्या मदतीसाठी सपोर्ट पर्सन नेमते.
- या कायद्याअंतर्गत बळीत बालकासोबत लैंगिक अत्याचार झाल्याचं सिध्द झाल्यास प्रत्येक गुन्ह्यासाठी कायद्यात किमान शिक्षा निर्धारित केलेली आहे..... मात्र कोणत्याही केसबाबतच्या क्रुरतेवर आणि गंभिरतेवर विशेष न्यायालये ती शिक्षा वाढवु शकतात पण कमी करु शकत नाही.
- लैंगिक शोषण करणारी व्यक्ती ही पोलिस, लष्करी अधिकारी, सुरक्षा अधिकारी, हॉस्पिटल, शैक्षणिक आणि धार्मिक संस्थेशी संबधीत असेल तर, मुलांच्या निवासी संस्थेतील पदाधिकारी किंवा कर्मचारी, कोणत्याही जबाबदारीच्या पदावर असणारी व्यक्ती किंवा बालकाचा ताबा ज्या व्यक्तीकडे आहे यापैकी कुणाही व्यक्तीकडुन बालकाचे लैंगिक शोषण झाल्यास कायद्यात कडक शिक्षेची तरतुद आहे.
- लैंगिक अपराधापासुन बालकांचे संरक्षण अधिनियम २०१२ या कायद्यात विशेष न्यायालये आहेत. बालकांचा १६४ नुसार जबाब बालस्नेही वातावरणात नोंदविण्यापासुन ते पुढील व्हिडीओ कॉन्फरन्सद्वारा किंवा एकतरफी आरसा, पडदा किंवा उपलब्ध असणाऱ्या त्या वस्तुंचा वापर करुन घेतला जातो. पिडीत बालकावर कोणत्याही प्रकारचा दबाव येणार नाही आणि ती मोकळेपणाने बोलु शकतील. आपल्या आपबीतीबाबत नीट सांगु शकतील.
- गुन्हा घडल्याची माहिती किंवा तक्रार केल्यावर तक्रारदाराला एफ. आय. आर. ची एक प्रत कोणतीही फी न घेता पोलिसांकडुन मिळेल.
- ज्या व्यक्तीबाबत गुन्हा घडला ती व्यक्ती किंवा गुन्ह्याची प्रत्यक्षदर्शी व्यक्ती किंवा वेळ पडल्यास पोलिस गुन्हा नोंदवु शकतात.

- टेलिफोनवरुन कुणी तक्रार केली तरी पोलिस प्रत्यक्ष तपास सुरु करु शकतात.
- कायम लक्षात घेण्यायोग्य मुददा १८ आतील मुलांचा आणि मुलींचा जबाब त्यांच्या घरी जाउन पोलिसांनी नोंदविला पाहिजे. पोलिस ठाण्यात बोलावुन कोणतीही चौकशी किंवा जबाब नोंदविता येत नाही.
- मुलांचा जबाब नोंदवितांना त्यांना परिचित, मोकळ वाटेल, कोणताही आणि कुणाचही भय वाटणार नाही अशा ठिकाणी विश्वासातील व्यक्तीच्या उपस्थितीत नोंदवला जाणं कधीहि चांगलेच.
- बळीत बालकांसोबत स्पर्श केल्याशिवाय लैंगिक दुरवर्तन झाल्यास आरोपीस ३ वर्ष कारावास, साधा किंवा सश्रम अधिक दंड.
- अश्लील साहित्य बणविण्यासाठी बालकांचा वापर, साहित्य साठवण किंवा प्रकाशित करणं यासाठी ५ ते ७ वर्ष कारावास आणि दंड.
- अश्लील साहित्य बणविण्यासाठी किंवा प्रत्यक्ष लैंगिक कृतीत सहभाग असल्यास १० वर्ष सश्रम कैद आणि दंड या शिक्षा देण्याची तरतुद कायद्यात करण्यात आली आहे.
- लैंगिक अपराधांपासुन बालकांचे संरक्षण अधिनियम २०१२ या कायद्यातील मुलांवरील लैंगिक अत्याचाराची व्याख्या म्हणजे लिंगसमभाव निरपेक्ष केली आहे. याचाच अर्थ कायद्याने मुलगा आणि मुलगी असा भेदभाव केलेला नाही. अत्याचार ग्रस्त व्यक्ती ही ट्रान्सजेंडर, स्त्रीलिंगी किंवा पुलिंगी असु शकते अशी भुमिका कायदा मांडतो म्हणुन हा कायदा विशेष म्हणुन ओळखला जातोय.
- जर एखादया व्यक्तीने लैंगिक शोषणाच्या गुन्ह्याची खोटी माहिती दिल्यास किंवा जाणुनबुजुण खोटी तक्रार केल्यास त्या व्यक्तीस कमीत कमी ६ महिने कारावास आणि दंड किंवा दोन्ही शिक्षा होउ शकतात.
- बळीत बालकांच्या ओळखीबाबत गुप्तता बाळगणं आवश्यक आहे. बळीत बालकांची माहिती प्रसिध्दीमाध्यमांमध्ये आल्यास कमीत कमी ६ महिने कारावास आणि दंड किंवा दोन्ही शिक्षा होउ शकतात.
- लैंगिक अपराधांपासुन बालकांचे संरक्षण अधिनियम २०१२ या कायद्या अंतर्गत बळीत बालकांचा ज्या व्यक्तीवर विश्वास आहे अशा अधिकारी व्यक्तीन गंभीर स्वरुपाचा अत्याचार (अॅग्रीव्हेटेड सेक्सुअल ऑफेन्स) केल्यास कमीत कमी १० वर्षांचा सश्रम कारावास किंवा जन्मठेप शिवाय दंड अशी शिक्षा सुनावली आहे. तसेच लैंगिक आघातसाठी ३ ते ५ वर्ष कारावास आणि दंड या दोन्ही शिक्षा होउ शकतात.
- लैंगिक अपराधांपासुन बालकांचे संरक्षण अधिनियम २०१२ या कायद्या अंतर्गत बळीत बालकांसोबत लैंगिक अत्याचार झाल्याच सिध्द झाल्यास प्रत्येक गुन्ह्यासाठी कायद्यात किमान शिक्षा निर्धारित केली आहे. मात्र कोणत्याही केसबाबतच्या कुरतेवर आणि गंभिरतेवर विशेष न्यायालये ती शिक्षा वाढवु शकतात पण कमी करु शकत नाही.
- लैंगिक अपराधांपासुन बालकांचे संरक्षण अधिनियम २०१२ या कायद्यान्वये बालकांवर अत्याचार झाल्यास किंवा होत असल्याची माहिती मिळाल्यास त्यांनी संबधित विभागाला तक्रार देणे बंधनकारक आहे.
- बालकांच्या बाबतीत शारीरिक, मानसिक, भावनिक स्वरुपाचा अत्याचार झाल्यास १०९८ चार्डलड हेल्पलाईनला तक्रार नोंदवु शकतात.
- अत्याचार पिडीत बालकांच्या समुपदेशनाकरीता किंवा मदतीकरीता, जिल्हा बाल संरक्षण कक्ष, चार्डलड हेल्पलाईन, पोलिस विभाग यांची मदत घेउ शकते.
- अत्याचार पिडीत बालिकेला शासनाकडुन मनोधैर्य योजनेचा लाभ प्राप्त करुन घेता येईल.

O) Ayushman Bharat Digital Mission (ABDM)

66. OVERVIEW OF Ayushman Bharat Digital Mission (ABDM)

Introduction

Ayushman Bharat Digital Mission is a Nationwide initiative that aims to provide affordable accessible digital health care initiative to all citizens of India launch in September 2021 by honorable Prime Minister. ABDM aims to create world's largest digital health eco system supporting universal health coverage and developing the backbone for integrated digital health infrastructure across the country.

Components:-

1. Ayushman Bharat Health Account (ABHA)
2. Healthcare Professional Registry (HPR)
3. Health Facility Registry (HFR)
4. Scan and Share
5. Digital Health Incentive Scheme (DHIS)

ABHA Number: It is fourteen digit unique identifier of all citizens of India, to create longitudinal health record of the people.

Health Care Professional Registry: It is fourteen digit unique identifier health's professional Doctors (All system & Nurses).

Health Facility Registry: It is 12 digit unique identifier of health facilities. Hospitals, Labs and pharmacies and blood bank.

Drug Registry: It includes List of verified Drugs & Unique code to each drug and strip.

Health Care Professional Registry (HPR)

HPR is a comprehensive repository of all health care professionals across the systems of medicines. Health professional can enroll with basic information such as name qualification registration number etc. This will cater difference category of health care professionals such as doctors and nurses (may includes pharmacies, ASHA, AWW in future).

Health Facilities Registry (HFR)

It is a single complete and up to date repository of health facilities in the country. HFR is a primary source of information for all other data bases. The HFR lists and facilitates the exchange of standardise data of both public and private health facilities. HFR uniquely identify each health facility with their name location as well as information on service capacity.

Benefits

- Trustable Identity in healthcare sector
- Ease of doing business
- Help achieve the goal of Universal Health Coverage
- Discoverability across the health ecosystem

Scan and Share: The QR code-based OPD registration service enables patients to effortlessly share their profile details with the hospital by scanning the hospital's unique QR code using their mobile phone camera or any ABDM-enabled app like ABHA or Arogya Setu.

- Reduced Waiting Time
- Accurate Data
- Linked Health Records

Digital Health Incentive Scheme (DHIS): The Digital Health Incentive Scheme under the Ayushman Bharat Digital Mission aims to incentivize healthcare facilities and digital health solution providers to adopt the digital health ecosystem. This initiative intends to further boost digital health transactions in India and encourage majority healthcare providers to embrace digital health practices. The Scheme provides incentives of up to Rs. 4 Crore for registered health facilities and digital solution providers.

- Hospitals, Clinics & nursing homes (Rs.20 per transaction)
- Labs & Imaging Centres (Rs. 20 per transaction)
- Pharmacies with e-prescription (Rs. 20 Per transaction)
- Digital solution Company (HMIS, LMIS, Health locker, Teleconsultation.) (Rs.5 per transaction)

ABDM ECO-SYSTEM

