

OneShot 4.0

**Community**

**Medicine**

DBMCI · 2026





# COMMUNITY MEDICINE

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“

Hunger for survival, Keep that hunger alive. Let the universe feed you.

- Dr. Rajeev Shetty

”

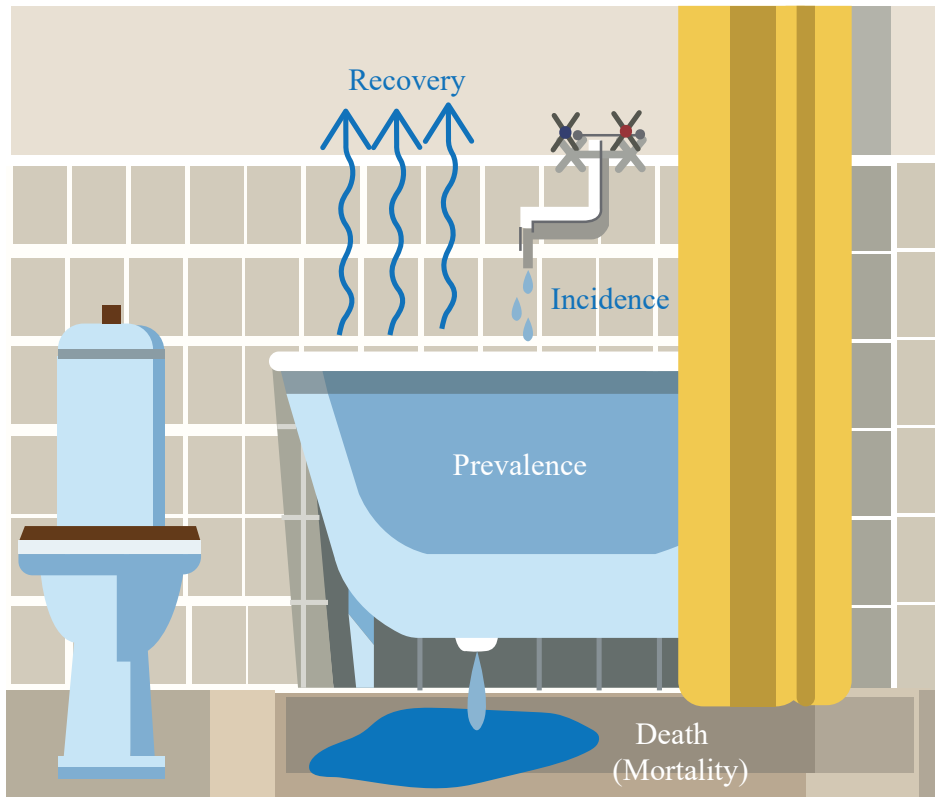


## HEALTH INDICATORS

### Health Indicators

Indicator	Use
<b>Crude death rate</b> Not age / sex specific	Deaths during 1 year / MYP
<b>Proportional mortality rate</b> - To express burden	Deaths due to disease / Total deaths
<b>Case fatality rate</b> - To express virulence	
<b>Age standardised death rate</b> From direct standardisation	Compare mortality pattern between two populations with different age structure
<b>Standardised mortality ratio</b> = Observed deaths / expected deaths From indirect standardisation	Compare mortality between occupation vs General population

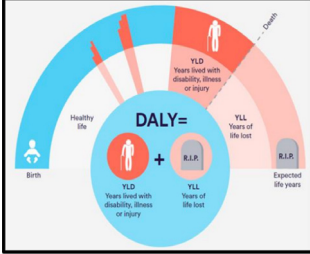
Incidence	Prevalence
New cases / population at risk	Existing cases at one point of time
Cohort study	Cross sectional study
To study cause to effect relationship	Cannot be used
To study etiological hypothesis	Cannot be used
Risk of developing disease	Indicates burden of disease
Does not depend on duration of illness	Depends on duration of illness ( $P = I \times D$ )



<b>Intervention</b>	
<p><b>A new effective treatment for cancer / NCD</b>                      Ex: Surgical intervention</p>	
<p><b>A new treatment for cancer prolonging survival but no cure</b>                      Ex: Chemotherapy</p>	
<p><b>A new effective treatment for communicable disease</b>                      Ex: TB</p>	
<p><b>A new prophylactic intervention</b></p>	



<b>HDI</b>	<b>PQLI</b>
<b>Knowledge</b> <ul style="list-style-type: none"><li>• Mean years of schooling</li><li>• Expected years of schooling</li></ul> <b>Income</b> <ul style="list-style-type: none"><li>• Per capita GNI</li></ul> <b>Longevity</b> <ul style="list-style-type: none"><li>• LE at birth</li></ul>	<b>IMR</b> <b>Literacy rate</b> <b>LE at age 1</b>

<p><b>DALYs</b></p> 	<p><b>QALYs</b></p> <p><i>To express effectiveness of intervention</i></p> <ul style="list-style-type: none"> <li>• Consider quantity and quality of life</li> <li>• Quality of life – Given by utility value</li> <li>• An intervention for cervical cancer prolong life by 8 years with utility value of 0.5</li> </ul>
<p><i>To express burden of disease</i></p> <p><b>DALY = YLL + YLD</b></p>	

## INFECTIOUS DISEASE EPIDEMIOLOGY

<b>Incubation period</b>	<i>Time between exposure and first sign/symptoms</i>
<b>Median incubation period</b>	<i>Time required for 50% of cases to occur after exposure</i>
<b>Generation time</b>	<i>Time taken from receipt of infection to develop maximum infectivity</i>
<b>Serial Interval</b>	<i>Gap in onset between primary case and secondary case</i> <i>Indirect estimate of incubation period</i>
<b>Period of communicability</b>	<i>Time during which an infectious agent may spread</i>
<b>Latent period</b>	<i>Period from disease initiation to disease detection</i> <i>Used for NCDs</i>
<b>Secondary attack rate</b>	<i>Communicability in contacts</i> <i>Sec cases / susceptible contacts</i>
<b>Quarantine</b>	<i>Observe exposed till max IP</i>
<b>Epidemic</b>	<i>Point source - all cases within 1 IP</i>  <i>Multiple source - cases develop after 1 IP</i>  <i>Propogated epidemic</i>



NOTES

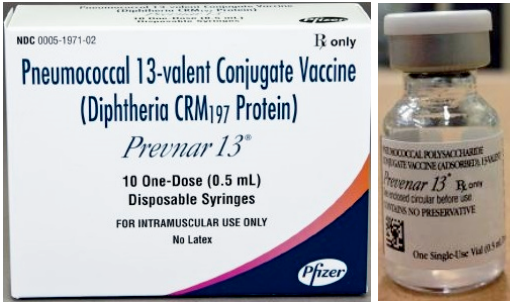
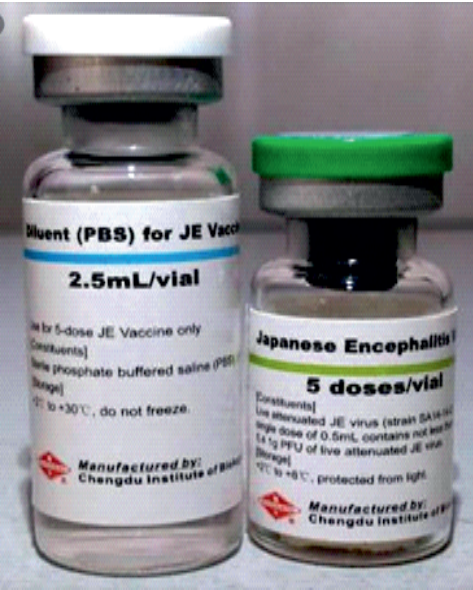
## VACCINES

### Vaccines

At birth	BCG, OPV-zero dose, Hep B-birth dose
6 weeks	OPV-1, Pentavalent-1, Rota-1*, fIPV-1, PCV-1*
10 weeks	OPV-2, Pentavalent-2, Rota-2*
14 weeks	OPV-3, Pentavalent-3, Rota-3*, fIPV-2, PCV-2*
9 months	Measles-1/MR-1, Vit A, JE-1*, PCV-B*, IPV - 3 <sup>RD</sup> DOSE
16-24 months	DPT first booster dose, OPV-booster dose, Measles-2/ MR-2, JE-2*
5-6 years	DPT second booster dose
<b>10 &amp; 16 years</b>	Td
<b>For pregnant woman</b>	Td-1: early in pregnancy Td-2: 4 weeks after Td-1 Td-B: if pregnancy occur within 3 years of last pregnancy and 2 Td doses were received

Vaccine	Adverse effect
BCG	<ul style="list-style-type: none"> <li>• Suppurative lymphadenitis</li> <li>• BCG osteitis</li> <li>• Disseminated BCG infection</li> </ul>
Measles/MR/MMR	<ul style="list-style-type: none"> <li>• Febrile seizure</li> <li>• Thrombocytopenia</li> <li>• Encephalopathy</li> <li>• Toxic shock syndrome</li> </ul>
OPV	<ul style="list-style-type: none"> <li>• VAPP (Vaccine associated paralytic polio)</li> </ul>
Pertussis (Whole cell)	<ul style="list-style-type: none"> <li>• Persistent (&gt;3 hours) screaming</li> <li>• Seizures</li> <li>• Hypotonic, hypo responsive episode(HHE)</li> <li>• Encephalopathy</li> </ul>
Rotavac	<ul style="list-style-type: none"> <li>• Intussusception</li> </ul>
Influenza (Killed)	<ul style="list-style-type: none"> <li>• Guillain bairre syndrome</li> </ul>
Yellow fever (17D)	<ul style="list-style-type: none"> <li>• Vaccine associated viscerotropic disease</li> </ul>

<p><b>Hep B</b></p> <p>Within 24 hours If mother is Hbsag + :</p>	<p>Recombinant DNA vaccine</p>
<p><b>Pentavalent</b></p>  <p>The image shows a white box for Pentavac PFS vaccine with a yellow and red diagonal stripe. The box lists the components: Diphtheria, Tetanus, Pertussis (Whole Cell), Hepatitis B (rDNA), and Haemophilus Type b Conjugate Vaccine (Adsorbed) LP. It also indicates '1 x 0.5 ml - 1 dose pre-filled syringe'. Next to the box is a pre-filled syringe with a yellow plunger and a red cap.</p>	
<p><b>MR</b></p>	<p>0.5 ml - Subcutaneous - right arm</p>
<p><b>ROTAVAC</b></p>  <p>The image shows a pink and white box for Rotavirus Vaccine (Live Attenuated, Oral) IP, Vero cell-Derived. The box is labeled 'ROTAVAC' and 'Single Dose Vial'. It also mentions 'Bharat Biotech Lead Innovation'. Next to the box is a clear glass vial with a pink cap, labeled '1 Dose 0.5 ml Rotavirus Vaccine (Live Attenuated, Oral) IP Vero cell-Derived ROTAVAC Single Dose Vial For oral administration only Not for injection'.</p>	<p>5 drops oral</p> <p>S/E: Intussusception</p>
<p><b>Fractional IPV</b></p>  <p>The image shows a clear glass vial with a red cap. The label on the vial reads '0.5 ml - 1 dose POLIOMYELITIS VACCINE (INACTIVATED)'. It also mentions 'Manufactured by SERUM INSTITUTE OF INDIA'.</p>	<p>Trivalent</p> <p>0.1 ml, id</p> <p>6 wk, 14wk - right deltoid</p> <p>9 th month - left deltoid</p>

<p><b>PCV</b></p> 	<p>PCV 13</p> <p>0.5 ml , im , right thigh</p>
<p><b>JE</b></p>  <p>JENVAC</p> <p>0.5 ml - im , left thigh</p>	<p>SA 14-14-2</p> <p>0.5 ml - Subcutaneous - left arm</p>

### Vaccine Vial Monitor

The diagram illustrates four stages of a Vaccine Vial Monitor (VVM) using a central square and a surrounding circle. Stage 1 shows a light square inside a light circle, labeled 'Stage 1 = good: Utilize'. Stage 2 shows a dark square inside a light circle, labeled 'Stage 2 = good: Utilize'. Stage 3 shows a light square inside a dark circle, labeled 'Stage 3 = bad: Don't Utilize'. Stage 4 shows a dark square inside a dark circle, labeled 'Stage 4 = bad: Don't Utilize'. A dashed vertical line separates the 'good' stages from the 'bad' stages. Below the diagram, two boxes provide additional context: 'The central square is lighter than the surrounding circle' and 'The central square is equal to, or darker than the surrounding circle'.


### Shake Test

The Shake Test procedure is shown in four panels. The top-left panel shows a person holding two vials. The top-right panel shows two vials labeled 'Control' and 'Test', both containing clear liquids, with the word 'USE' below them. The bottom-left panel shows two vials labeled 'Test' and 'Control', both containing cloudy liquids. The bottom-right panel shows two vials labeled 'Test' and 'Control', both containing cloudy liquids, with the word 'Discard' below them.

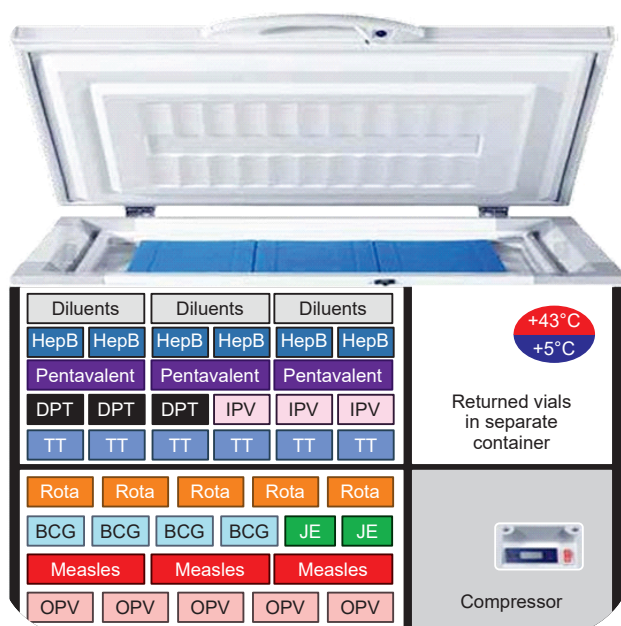
*Rate of sedimentation - fast or same as control vial :*



### Open Vial Policy

<p><b>Policy :</b></p>	<p><i>Reuse of partially used multi dose vials in subsequent session up to four weeks (28 days)</i></p>
	<ul style="list-style-type: none"> <li>• <i>Date and time mentioned</i></li> <li>• <i>The expiry date has not passed</i></li> </ul>
<p><b>Not applicable to</b></p>	
<p><b>Applicable to</b></p>	

### ILR :



*Most heat sensitive:*

*Most freeze sensitive:*



NOTES

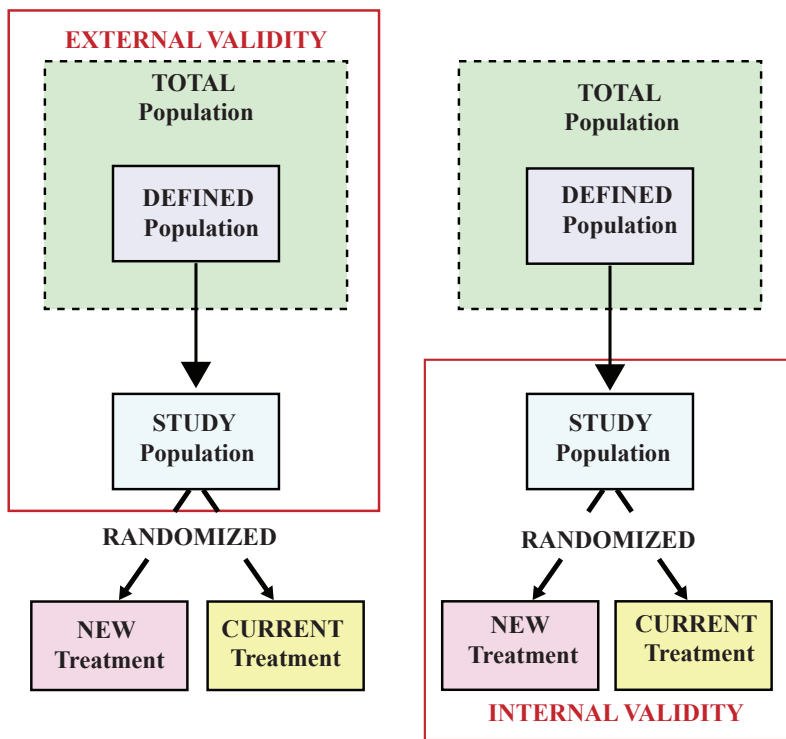
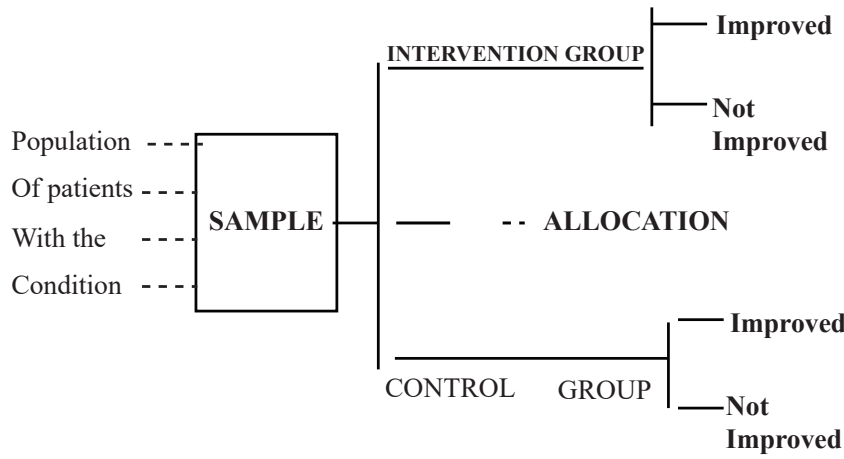


# STUDY DESIGNS

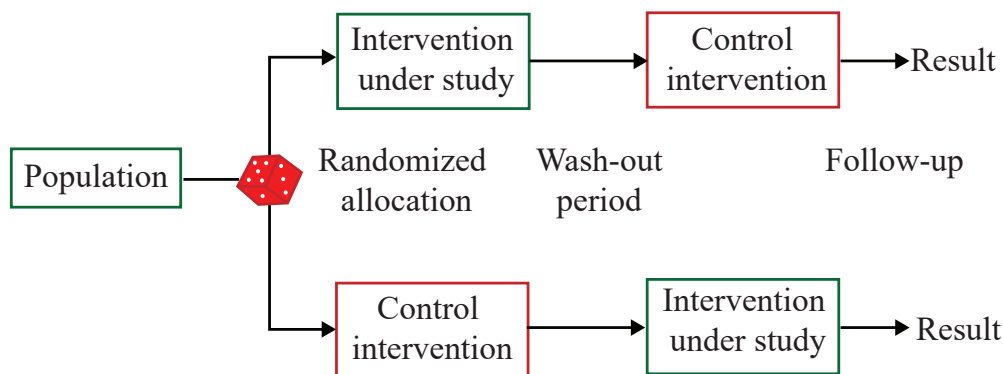
## Study Designs

<i>Case study</i>						
<i>Case series</i>						
<i>Cross sectional study</i>	<b>At one point of time : Prevalence – Burden of disease</b>					
<i>Case control study</i>	<p>1. Case</p> <p>2. Control</p> <p>3. Matching – remove known confounders</p> <p>4. Exposure assessment –</p> <p style="padding-left: 40px;"><i>Interviewer bias – Leading questions/more time</i></p> <p style="padding-left: 40px;"><i>Recall bias + – Cases try to recall more</i></p> <p>5. Analysis : odds ratio – strength of association</p> <table border="1" style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 50%; height: 15px;"></td> <td style="width: 50%; height: 15px;"></td> </tr> <tr> <td style="width: 50%; height: 15px;"></td> <td style="width: 50%; height: 15px;"></td> </tr> </table>					
<i>Cohort study</i>	<p><b>Exposed group</b></p> <p><b>Non exposed group</b></p> <p><b>Follow up – attrition bias +</b></p> <p style="padding-left: 40px;"><b>Attention bias or Hawthorne effect</b></p> <p><b>Analysis : Incidence , Risk ratio</b></p>					
<i>Risk ratio</i>						
<i>Attributable risk</i>						
<i>Population attributable risk</i>						

**RCT :**

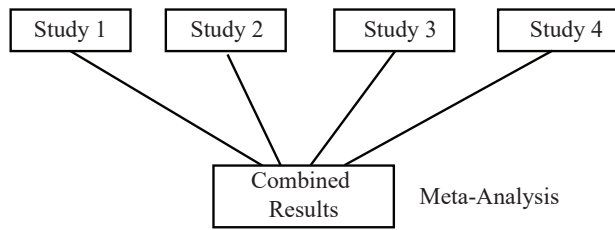


**Cross Over RCT :**





*Systematic review and Meta-analysis:*

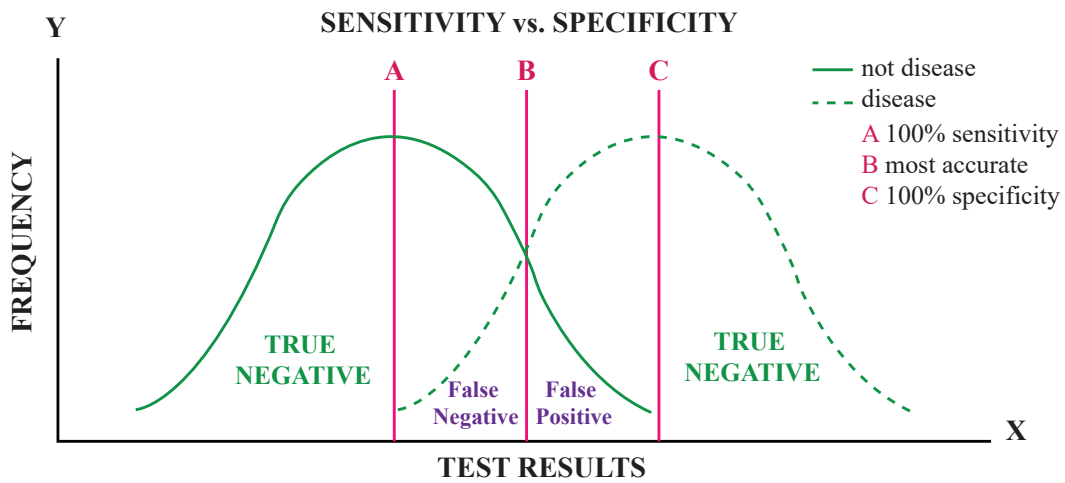
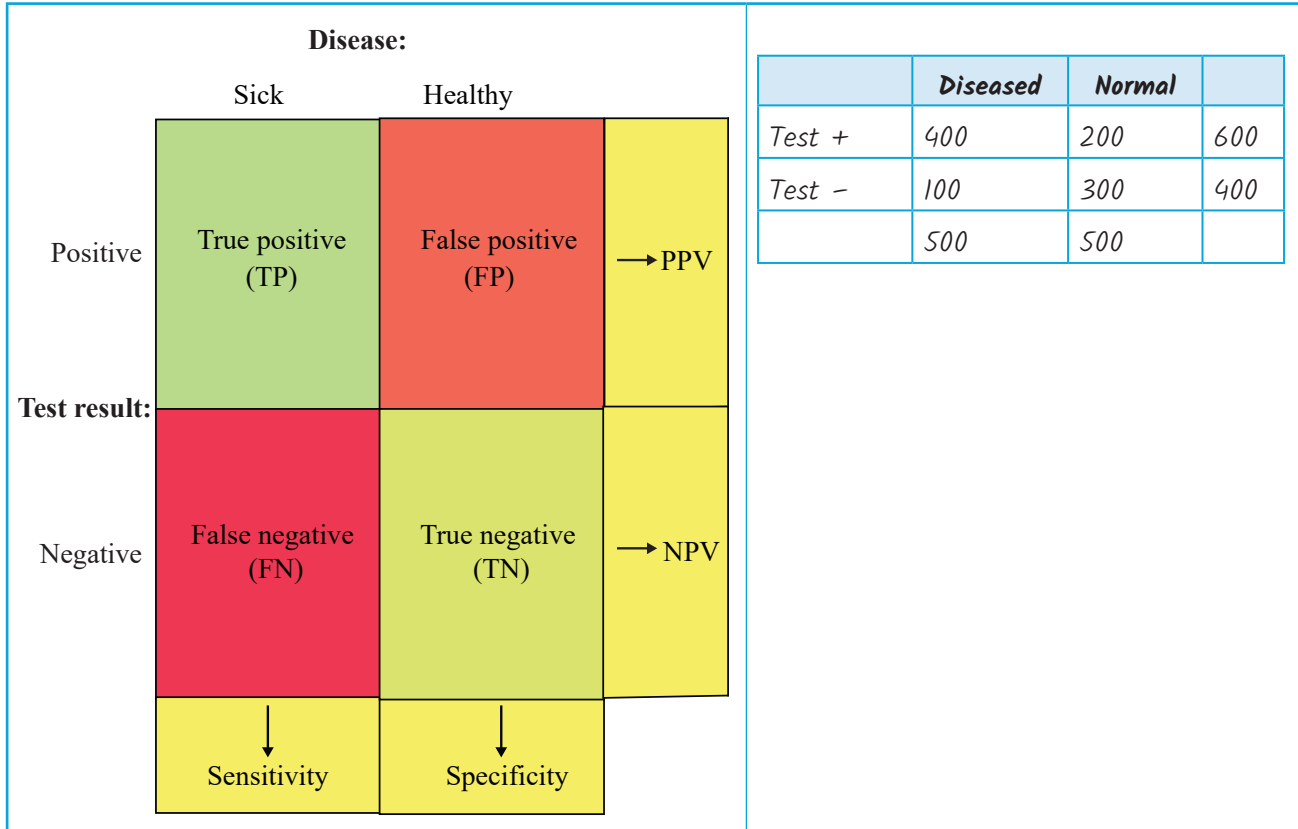




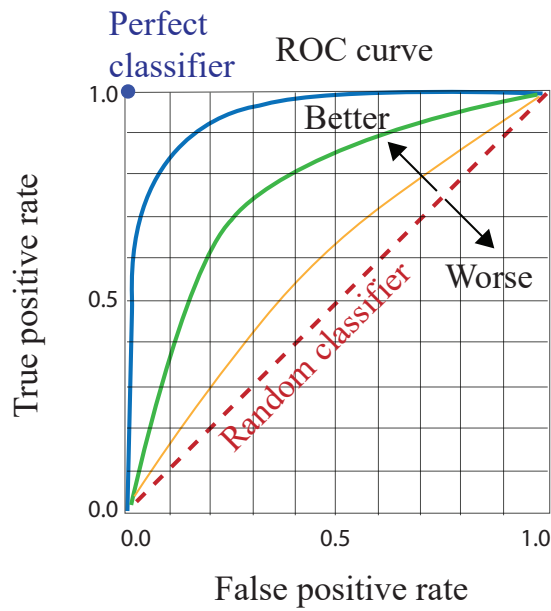
NOTES

# SCREENING

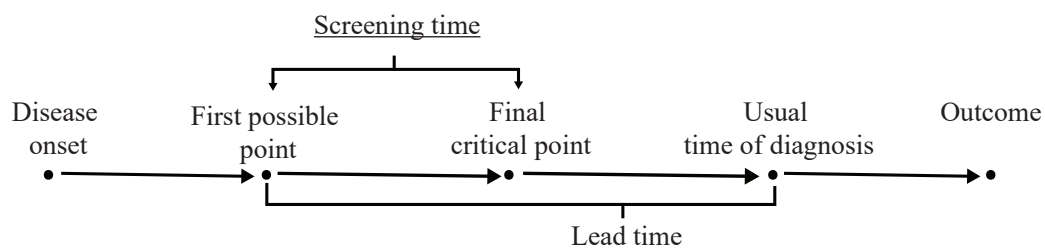
## Screening



**Roc Curve :**



**Lead Time Vs Screening Time :**



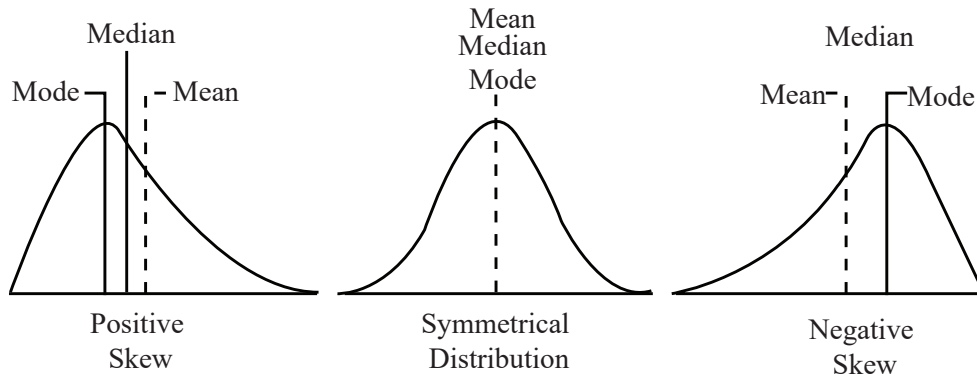
*Apparent increase in survival without benefit -*

*Types of screening :*

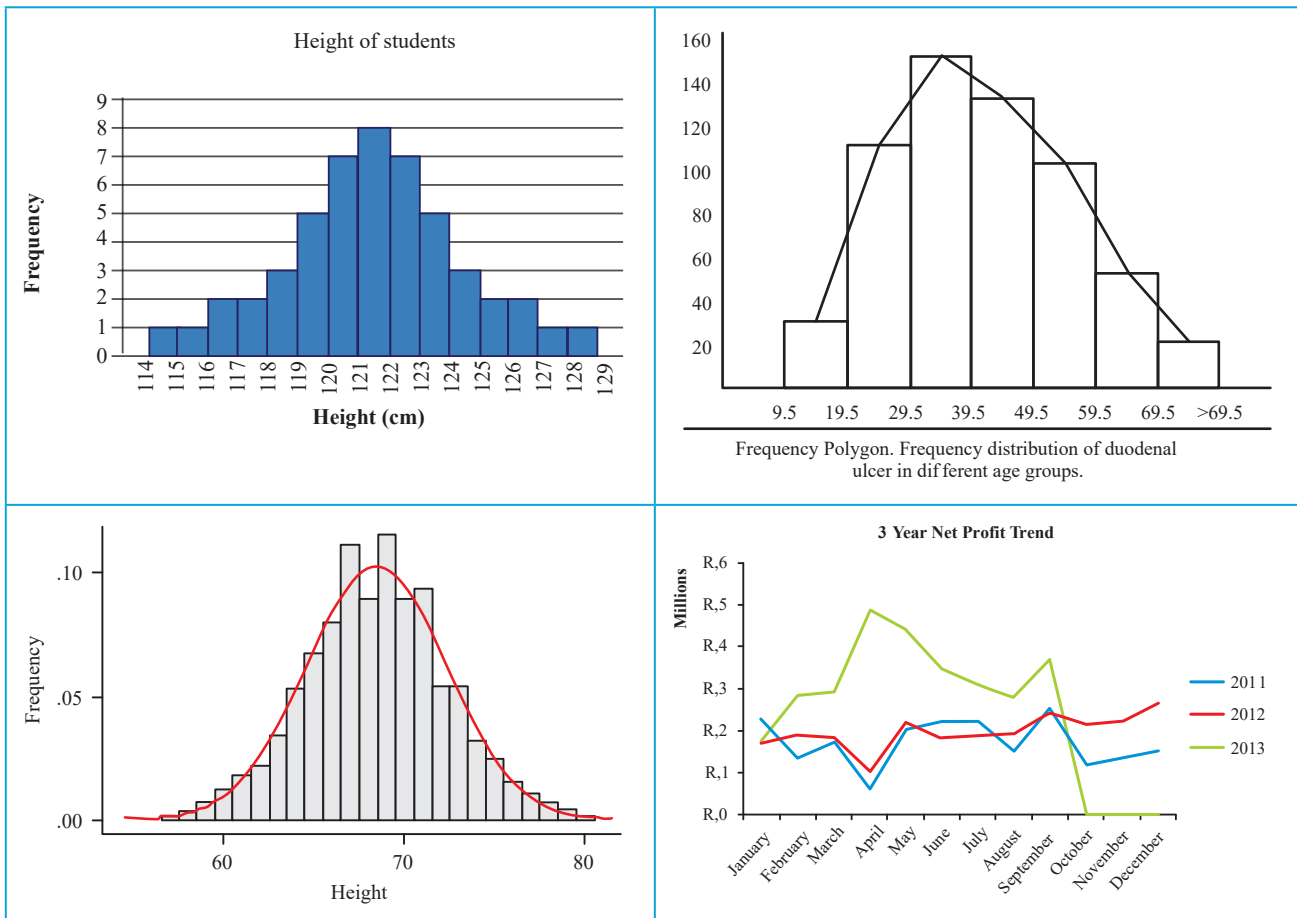
- a. Prospective screening -*
- b. Prescriptive screening -*
- c. Opportunistic screening -*

# BIOSTATISTICS

## Skewed Data :

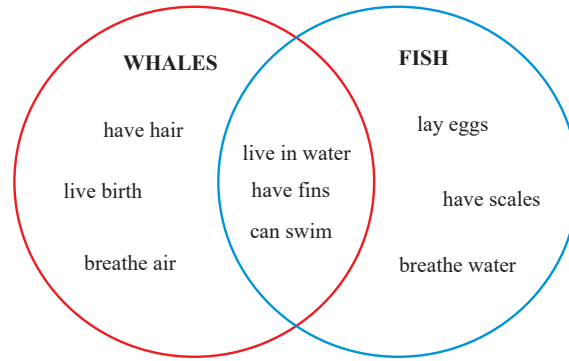


## Images :

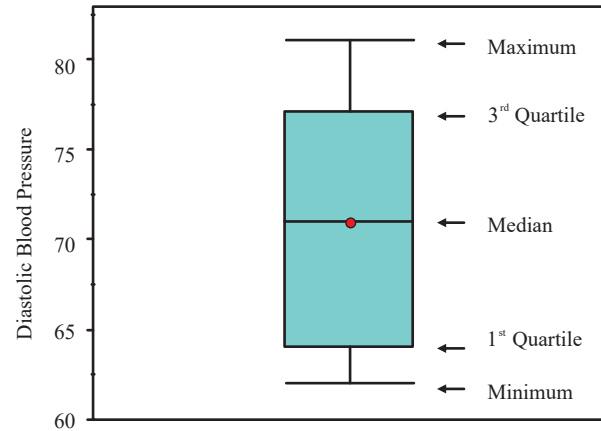
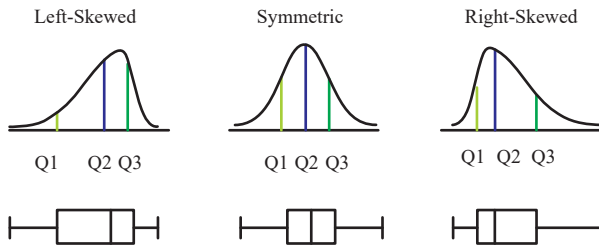


12, 23, 35, 23, 14, 25, 32, 18

Stem	leaf
1	2, 4, 8
2	3, 3, 5
3	2, 5



Distribution Shape and Box and Whisker Plot



**Z Score**

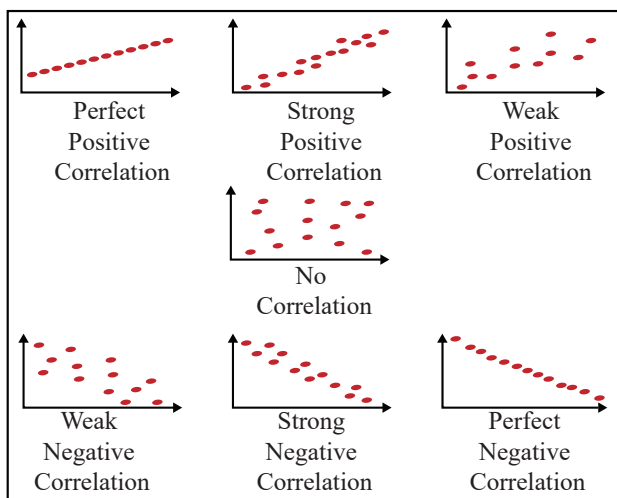
Weight -  
 Mean : 60 kg  
 SD : 10 kg  
 Z score for 70 kg -

**Standard Deviation**

**Coefficient of Variation**

Compare variation between 2 samples  
 Mean - 12 kg, SD - 3 kg  
 Mean - 12 kg, SD - 4 kg

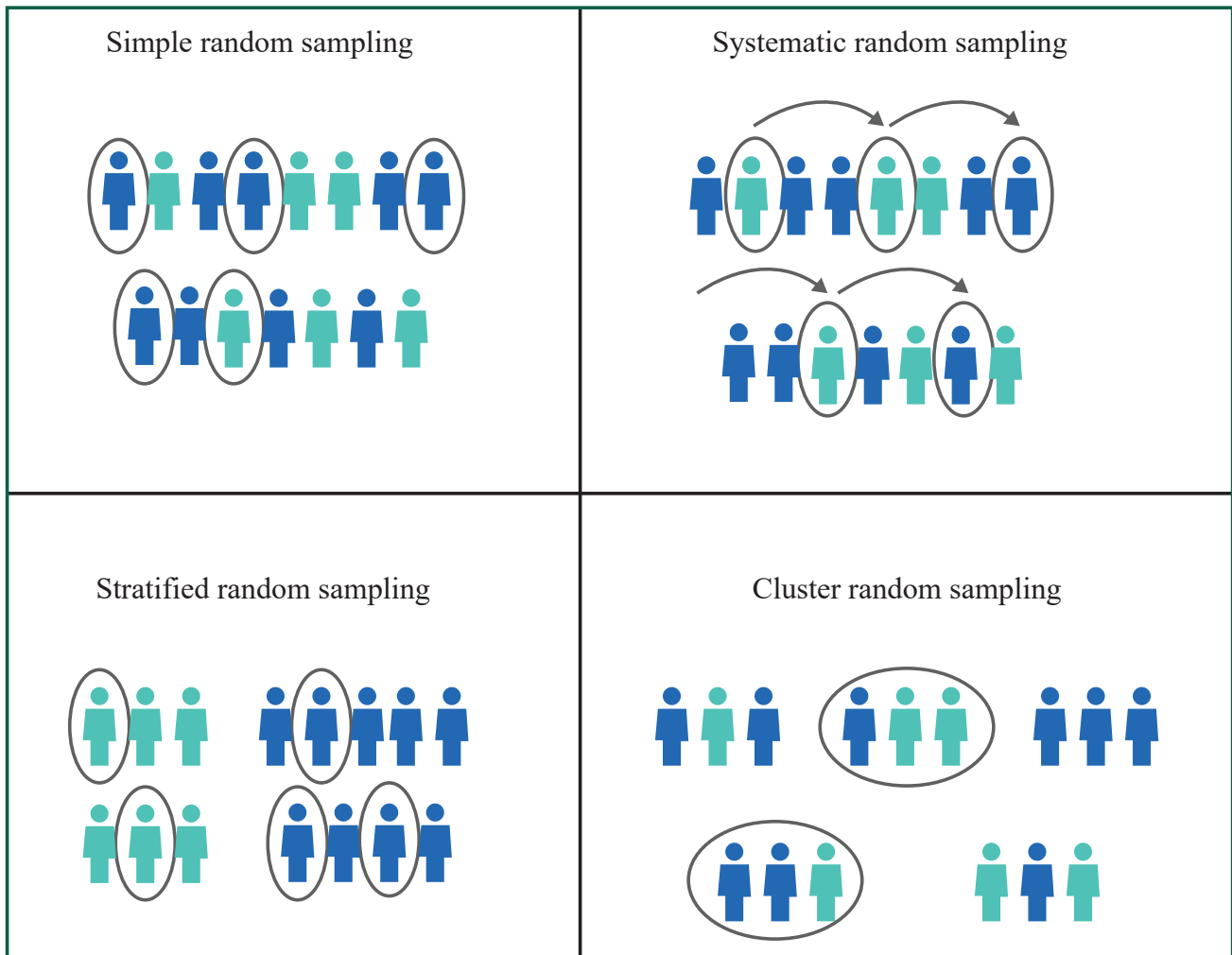
**Corelation Coefficient**





<p><b>Coefficient of Regression</b></p>	<p>To predict amount of change in <math>y</math> wrt <math>x</math></p> <p><math>Y =</math> Dependent variable</p> <p><math>X =</math> Independent variable</p> <p>a. Constant</p> <p>b. Regression coefficient</p>
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**SAMPLING :**



**TESTS :***Parametric Tests*

<b>Compare mean between 2 groups</b>	<i>Student t test or unpaired t test</i>
<b>Compare mean – within one group</b>	<i>Paired t test</i>
<b>Compare mean more than 2 groups</b>	<i>ANOVA – Analysis of variance</i>

*Non-Parametric Tests*

<b>Compare proportion – 2 or &gt; 2 groups</b>	<i>Chi square test</i>
<b>Compare proportion – within 1 group</b>	<i>Mcnemar test</i>

<b>Compare median between 2 groups</b>	<i>Man whitney test or Wilcoxon ranksum test</i>
<b>Compare median – within one group</b>	<i>Wilcoxon sign rank test</i>
<b>Compare median more than 2 groups</b>	<i>Kruskal wallis test</i>

**Errors :***Type 1 Error*

- *False positive error by chance*
- *Reject a true null hypothesis*
- *Level of significance – alpha*
- *P value – Probability of committing type 1 error*
- *Less than 5 % - Statistically significant*

*Type 2 Error – Beta Error*

- *False negative error*
- *Not able to detect statistical significance*
- *Because of less sample size*
- *POWER – able to detect statistical significance*



### Type I and Type II Error

Null hypothesis is ...	True	False
Rejected	Type I error False positive Probability = $\alpha$	Correct decision True positive Probability = $1 - \beta$
Not rejected	Correct decision True negative Probability = $1 - \alpha$	Type II error False negative Probability = $\beta$



NOTES

## COMMUNICABLE DISEASES AND HEALTH PROGRAMMES

**TB :**

<p><b>Diagnosis</b></p> 	<p>CBNAAT OR TRUNAAT</p>
<p><b>Treatment</b></p>	<p>2 HRZE+ 4 HRE</p>
<p><b>B-PALM regimen</b></p>	<p>FOR MDR treatment</p> <ul style="list-style-type: none"> <li>• Bedaquiline</li> <li>• Pretomanid</li> <li>• Linezolid</li> <li>• Moxiflox</li> </ul>
<p><b>Isoniazid preventive therapy</b></p>	<p>6 month - Daily isoniazid 3 month - Weekly Isoniazid + Rifapentine</p>
<p><b>HIV - TB</b></p>	<p>ATT followed by ART : Gap 2 wks. (Increase dose of dolutegravir)</p>
<p><b>NIKSHAY</b></p>	<p>Website for notification - monthly reports</p>
<p><b>NIKSHAY POSHAN YOJANA</b></p>	<p>Nutrition support - 1000 rs per month during treatment</p>
<p><b>99 DOTS</b></p>	<p>Missed call initiative To monitor adherence</p>

**Malaria :****Treatment**

FALCIPARUM	ACT 3 days + primaquine 1 dose North east - Artemether + Lumefantrine Other states - Artesunate + sulfadoxine - pyrimethamine
VIVAX	Chloroquine for 3 days + primaquine : 14 days
MIXED INFECTION	
OVALE	
MALARIAE	

**Pregnancy**

Falciparum

Vivax

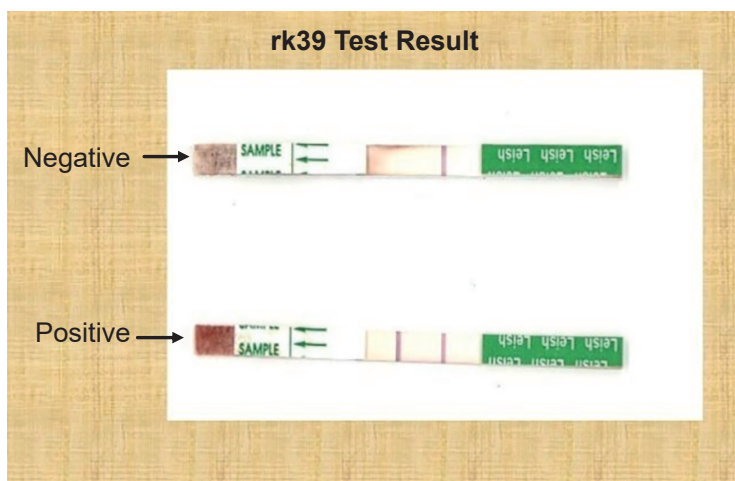
**Chemoprophylaxis**

Short term _ upto 6 weeks	Doxy
More than 6 weeks	Mefloquine

**Indicators**

Annual parasite incidence	
Annual blood examination rate	
Infant parasite rate	
Spleen rate	

**KALA AZAR :**



Endemic states	Bihar, Jharkhand, UP, West bengal
Kala azar suspect	Fever, anemia, hepatosplenomegaly
Diagnosis	
Drug of choice	
Post kala azar dermal leishmeniasis	
Vector control	Sand fly : phlebotomous argentipes Indoor residual spray – Synthetic pyretheroids



**FILARIASIS :**



MAPPING	Prevalence of mf more than 1 % - Endemic area
MASS DRUG ADMINISTRATION	<ul style="list-style-type: none"><li>• Triple drug therapy</li><li>• Ivermectin + DEC + Albendazole</li><li>• Biannual</li><li>• For 5 years</li></ul>
Transmission assessment survey	






**HIV :**

<p><b>ART : TEST AND TREAT POLICY</b></p> 	<p>TLD</p> <p>Start treatment irrespective of CD4 counts</p>
<p><b>PPTCT</b></p> <p><b>Prevention of Parent To Child Transmission of HIV (PPTCT)</b></p> 	<p>Prophylaxis :</p> <ol style="list-style-type: none"> <li>1. Mother on ART – Nevirapine Duration – min : 6 wks and max : 18 months</li> <li>2. Not on art / less than 6 weeks / viral load more than 1000 copies per ml Dual drug : Nevirapine + Zidovudine</li> </ol> <p>Diagnosis</p> <p>6 wks -</p> <p>18 months -</p> <p>Feeding -</p> <p>Cotromoxazole prophylaxis</p>
<p>POST EXPOSURE PROPHYLAXIS</p>	
<p>Pre-exposure prophylaxis</p>	

**POLIO : AFP surveillance**

<b>Component</b>	<b>Details</b>
Purpose	Detect poliovirus circulation and monitor polio eradication
Target Age Group	< 15 years (any acute flaccid paralysis)
Case Investigation	Within 48 hours of notification
Stool Samples	2 samples, 24 hours apart
Time for Stool Collection	Ideal - Within 14 days of onset of paralysis Maximum - within 2 months
Quantity of Stool	8 grams each
Transport	To WHO-accredited polio laboratory (Reverse cold chain)
Follow-up Examination	At 60 days after onset to check residual paralysis
Confirmation	Virological (polio virus isolation)
Classification	Polio, Vaccine-derived polio (VDPV), Non-polio AFP
Key Surveillance Indicator	$\geq 2$ non-polio AFP cases / 100,000 children
Adequate sample collection	$\geq 80\%$ cases Adequate stool sample - 8 gm collected within 2 wks

**LEPROSY :**

	
<p>DIAGNOSIS</p>	<p>PB - MB -</p>
<p>TREATMENT</p> 	<p>DAY 1 : RCD  Day 2 - 28 : CD</p>
<p>SPARSH CAMPAIGN</p> 	

**TRACHOMA :****Syndromic Management : STI - Under Suraksha Clinics**

<b>Kit 1: Grey</b>	Urethral Discharge Cervical Discharge Painful Scrotal Swelling	Tab. Azithromycin + Tab. Cefixime
<b>Kit 2: Green</b>	Vaginal Discharge	Tab. Secnidazole + Cap. Fluconazole
<b>Kit 3: White</b>	Genital Ulcer-Non herpetic	Inj. Benzathine penicillin + Tab. Azithro
<b>Kit 4: Blue</b>	Genital Ulcer-Non herpetic (Allergic to Penicillin)	Doxycycline + Tab. Azithromycin
<b>Kit 5: Red</b>	Genital Ulcer- Herpetic	Tab. Acyclovir
<b>Kit 6: Yellow</b>	Lower Abdominal Pain	Tab. Cefixime + Tab. Metronidazole + Tab. Doxycycline
<b>Kit 7: Black</b>	Inguinal Bubo (IB)	Tab. Doxycycline
<b>Kit 8: Brown</b>	Ano-rectal discharge	Tab. Cefixime + Tab. Doxycycline

**Rabies :**

<b>POST EXPOSURE PROPHYLAXIS</b>	1. Updated thai redcross schedule <ul style="list-style-type: none"> <li>• 0.1 ml, id, Each deltoid (2 site )</li> <li>• 0, 3, 7, 28 (4 visits)</li> </ul> 2. Essen schedule <ul style="list-style-type: none"> <li>• 0.5ml, im, Deltoid (1 site)</li> <li>• 0, 3, 7, 14, 28 (5 visits)</li> </ul>
<b>PRE EXPOSURE PROPHYLAXIS</b>	<ul style="list-style-type: none"> <li>• 3 visits</li> <li>• 0, 7, 21/28 : im (1 site) or id (1 site)</li> </ul>
<b>RE EXPOSURE</b>	<ul style="list-style-type: none"> <li>• Upto 3 months of completed vaccine : Nothing to be done</li> <li>• After 3 mnths : ( 0,3 ) 2 visits - im/id (1 site)</li> </ul> No igs

Immunoglobulin	HRIG - 20 IU / Kg 30 kg - Within 7 days from first dose of vaccine
Cost effective strategy to eliminate rabies	Mass vaccination of dogs and eliminate stray dogs
Zero by 30	Zero mortality by 2030

**Emerging Infections :**

CRIMEAN CONGO HEMORRHAGIC FEVER	Reservoir : Cattle, camel Vector - hard tick C/O - Viral hemorrhagic fever
<p>NIPAH</p> <p style="text-align: center;"><u>Nipah Virus Transmission and Mortality</u></p>	Reservoir : Fruit bats BAT --- PIG ---- MAN BAT ---- MAN C/o - Acute encephalitis D/D - JE
EBOLA	Reservoir : Fruit bats BAT ----- MAN c/o - Internal bleed - death D/D - Yellow fever
ZIKA	Vector - Aedes C/O - Viral hemorrhagic fever Pregnancy ----- microcephaly
Hanta virus	Hanta pulmonary syndrome Hanta haemorrhagic fever with renal failure
Rat flea Rat urine	

<b>Feature</b>	<b>Epidemic Typhus</b>	<b>Endemic (Murine) Typhus</b>	<b>Scrub Typhus</b>
<i>Causative Agent</i>	<i>Rickettsia prowazekii</i>	<i>Rickettsia typhi</i>	<i>Orientia tsutsugamushi</i>
<i>Vector</i>	<i>Body louse (Pediculus humanus corporis)</i>	<i>Rat flea (Xenopsylla cheopis)</i>	<i>Chigger mite (larval trombiculid mite)</i>
<i>Reservoir</i>	<i>Humans</i>	<i>Rats</i>	<i>Rodents</i>
<i>Geographical Setting</i>	<i>Overcrowding, war, refugee camps</i>	<i>Urban / coastal areas</i>	<i>Rural, scrub vegetation</i>
<i>Mode of Transmission</i>	<i>Louse feces rubbed into skin</i>	<i>Flea feces</i>	<i>Bite of chigger</i>
<i>Rash</i>	<i>Present (trunk → limbs, spares face)</i>	<i>Mild or absent</i>	<i>Variable, often absent</i>
<i>Eschar</i>	<i>X Absent</i>	<i>X Absent</i>	<i>✓ Present (pathognomonic)</i>
<i>Diagnosis (Weil–Felix)</i>	<i>OX19</i>	<i>OX19</i>	<i>OXX</i>
<i>Treatment of Choice</i>	<i>Doxycycline</i>	<i>Doxycycline</i>	<i>Doxycycline / Azithromycin</i>
<i>Prevention</i>	<i>Louse control</i>	<i>Rodent control</i>	<i>Avoid mite exposure</i>



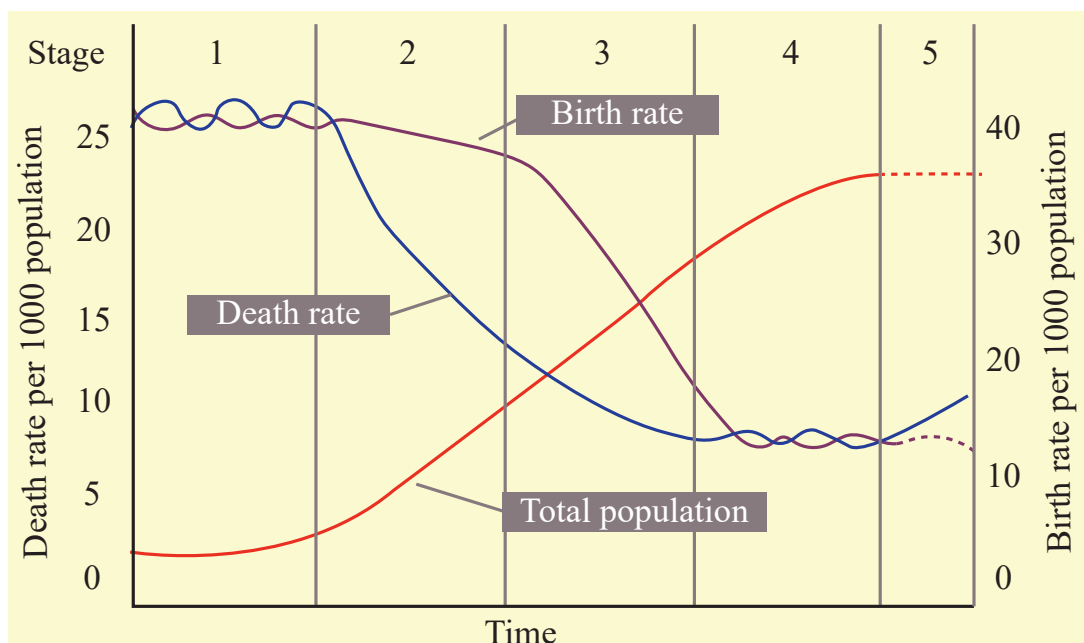
## NOTES



NOTES

## DEMOGRAPHY AND FAMILY PLANNING

**Demographic Cycle :**



	<b>Phase I High Stationary Phase</b>	<b>Phase II Early Expanding Phase</b>	<b>Phase III Late Expanding Phase</b>	<b>Phase IV Low Stationary Phase</b>	<b>Phase V Declining Phase</b>
Birth rate	High	No change	Starts declining	Low	Less than death rate
Death rate	High	Starts declining	Declining	Low	-
Growth rate	Zero	Positive	Positive	Zero	Negative
Population	Stationary	Growing	Growing	Stationary	Decreasing
Demographic gap	Narrow	<ul style="list-style-type: none"> <li>· Starts increasing</li> <li>· Maximum gap</li> </ul>	<ul style="list-style-type: none"> <li>· Starts decreasing</li> </ul>	Narrow	Reversal

**FERTILITY INDICATORS:**

<b>CRUDE BIRTH RATE</b>	<i>Live births / MYP</i>
<b>GENERAL FERTILITY RATE</b>	<i>Live births / Reproductive women</i>
<b>TOTAL FERTILITY RATE</b>	<i>Average number of children per woman Indicate completed family size</i>
<b>GROSS REPRODUCTION RATE</b>	<i>Average number of girls per woman</i>
<b>NET REPRODUCTION RATE</b>	<i>Number of daughters a newborn female will have in the future Consider both fertility and mortality together</i>
<b>Couple protection rate</b>	<i>Couples using contraceptives / total couples Proportion of contraceptive practice</i>

<b>IUD</b>	<b>OCPs</b>	<b>Emergency contraception</b>
<p><b>CuT 380 A</b></p> <p><b>Timing :</b></p> <p>Post-placental: Within 10 minutes of placental delivery</p> <p>Immediate postpartum: Within 48 hours</p> <p>Delayed postpartum: After 6 weeks</p> <p>Post-abortion: Immediately after MTP</p>	<p><b>Mala N and Mala D</b></p> <p>Each tablet contains:</p> <p>Ethinyl estradiol 30 µg</p> <p>Levonorgestrel 150 µg</p>	<p><b>LNG –</b></p> <ul style="list-style-type: none"> <li>levonorgestrel 1.5 mg or 0.75 mg two tablets</li> <li>Single oral dose</li> <li>Within 72 hours</li> </ul>
<p><b>Side effect –</b></p> <p>Most common –</p> <p>For removal –</p>	<p><b>Side effect –</b></p> <p>Cervical cancer, Breast ca</p> <p>Cardiovascular effects</p>	<p><b>IUD – Most Effective Method</b></p> <p><b>Ulipristal acetate – most effective pill</b></p>
<p><b>Contraindications –</b></p> <p>Pregnancy</p> <p>Active PID</p> <p>Pelvic tumours</p> <p>Undiagnosed bleeding</p>	<p>Liver abnormalities</p> <p>Protective for –</p> <p>Ovarian ca,</p> <p>endometrial ca,</p> <p>DUB</p>	

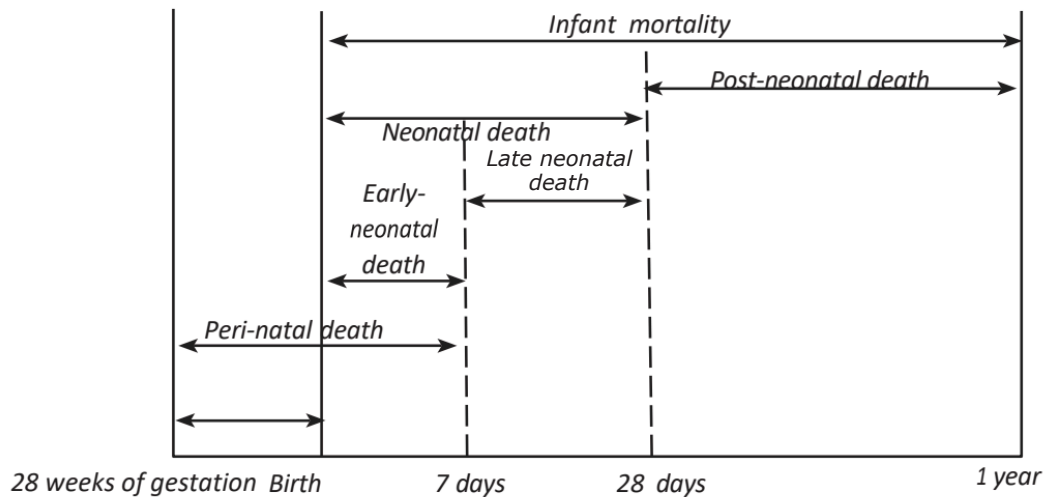


NOTES



NOTES

## MATERNAL AND CHILD HEALTH






### Maternal and Child Health

<b>NEONATAL MORTALITY RATE</b>	<i>Neonatal deaths / live births</i>
<b>INFANT MORTALITY RATE</b>	<i>Infant deaths / live births</i>
<b>MATERNAL MORTALITY RATIO</b>	<i>Maternal deaths / live births</i>
<b>Pregnancy calculation</b>	<i>Live births + 10%</i>

### Schemes For : Maternal Health




<p><b>NISCHAY</b></p> <p>स्वस्थ मातृत्व, अब आपके हाथ Healthy Motherhood, Now in your control</p> <p><b>निश्चय</b></p> <p><b>Nishchay</b></p> <p>Rapid One Step hCG-Urine Pregnancy Test Card (Anti hCG Anti Sera on membrane)</p> <p>यूरीन स्यामले के लिए डिज़ाइन है इसे सही संकेतों पर नज़र रखें और परिणाम को देखें Refer to pack insert &amp; instructions for use for complete details</p> <p>Government of India Free Supply. Not for sale.</p>	<p><i>Pregnancy testing kits</i></p>
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<p><b>JANANI SURAKSHA YOJANA</b></p> <p><i>Incentives for hospital delivery</i></p> <p>LPS – UP, Uttarakhand, MP, Chattisgarh, Bihar, Jharkhand, rajasthan, Odisha, Jammu – Kashmir, Assam</p>	<table border="1"> <thead> <tr> <th></th> <th colspan="2">Rural Area</th> <th colspan="2">Urban area</th> </tr> <tr> <th></th> <th>Mother</th> <th>ASHA</th> <th>Mother</th> <th>ASHA</th> </tr> </thead> <tbody> <tr> <td>LPS</td> <td>1400</td> <td>600</td> <td>1000</td> <td>400</td> </tr> <tr> <td>HPS</td> <td>700</td> <td>600</td> <td>600</td> <td>400</td> </tr> </tbody> </table>		Rural Area		Urban area			Mother	ASHA	Mother	ASHA	LPS	1400	600	1000	400	HPS	700	600	600	400
	Rural Area		Urban area																		
	Mother	ASHA	Mother	ASHA																	
LPS	1400	600	1000	400																	
HPS	700	600	600	400																	
<p><b>JSSK</b></p>  <p>JANANI SISHU SURAKSHA KARYAKRAM ( JSSK)</p>	<p><b>FOR PREGNANT AND SICK INFANTS</b></p> <ul style="list-style-type: none"> <li>• D - Diet, drugs, Diagnostics</li> <li>• T - transport</li> <li>• C - caesarian section</li> </ul>																				
<p><b>PMSMA</b></p>  <p>9th of Every Month</p>	<p><b>ANC visit</b> : 9<sup>th</sup> of every month</p> <p>Either in 2<sup>nd</sup> or 3<sup>rd</sup> trimester</p> <p>From PHC onwards</p> <p>Green – No risk factor</p> <p>Red – High risk pregnancy</p> <p>Blue – PIH</p> <p>Yellow – co morbidities (Gestational diabetes, STDs, Hypothyroidism)</p>																				
<p><b>SUMAN</b></p>  <p>SURAKSHIT MATRITVA AASHWASAN (SUMAN)</p> <p>An Initiative for Zero Preventable Maternal and Newborn Deaths</p>	<ul style="list-style-type: none"> <li>• Zero maternal and neonatal deaths</li> <li>• Free transport</li> <li>• Service guarantee charter</li> <li>• Greviance redressal mechanisms</li> </ul>																				

<p><b>LAQSHYA</b></p>  <p><b>LAQSHYA</b> लक्ष्य</p>	<p><i>Labour room quality</i></p>
<p><b>DAKSHATA</b></p> 	<p><i>Train MO and ANM – for intra partum care and immediate post partum care</i></p>

**SCHEMES FOR : NEWBORN AND CHILD HEALTH**

<p><b>HOME BASED NEWBORN CARE</b></p> 	<p><i>Home visits by ASHA</i></p>
<p><b>HOME BASED CARE OF YOUNG CHILD</b></p>	<p><i>Home visits by ASHA</i></p> <p><i>5 Visits</i></p> <p><i>3rd month , 6m , 9m ,12m, 15m</i></p>

<p><b>NAVJAAT SHISHU SURAKSHA KARYAKRAM</b></p> 	<p><i>Train MO and ANM – for neonatal care and resuscitation</i></p>
<p><b>INDIAN NEWBORN ACTION PLAN</b></p> 	<p><i>Single digit NMR and still birth rate by 2030</i></p>
<p><b>RASHTRIYA BAL SWASTHYA KARYAKRAM</b></p> 	<p><i>Screen and early intervention</i></p> <p><i>4Ds –</i></p> <p><i>Disease</i></p> <p><i>Defects</i></p> <p><i>Deficiency – Vitamin A, Anemia, Vit D, Goitre, SAM</i></p> <p><i>Developmental delay and disabilities</i></p>
<p><b>MAA – Mothers Absolute Affection</b></p>	<p><i>Promote breast feeding</i></p>





NOTES







NOTES

# NUTRITION

## Vitamin Deficiencies

<p>VITAMIN B1</p>	<p>Risk factors – Polished rice, Chronic alcoholic</p> <p>Beri beri</p> <p>Wernickes encephalopathy</p>
<p>VITAMIN B3</p> 	<p>Pellagra – 3Ds</p> <p>Jowar – rich in leucine</p> <p>Maize – lack of tryptophan</p>
<p>VITAMIN B6</p>	<p>Peripheral neuropathy</p> <p>INH – b6 deficiency</p>
<p>VITAMIN B12</p>	<p>Seen in vegetarian</p> <p>Peripheral neuropathy</p>
<p>VITAMIN K</p>	<p>Hemorrhagic disease of newborn</p>
<p>Zinc</p> 	<p>Acrodermatitis enteropathica</p>
<p>Selenium</p>	<p>Keshan disease</p>


**FOOD ADULTERATION AND TOXINS :**

 <p style="text-align: center;"> <span>One stick stage</span>      <span>Two sticks stage</span>      <span>Crawler stage</span> </p>	<p><b>Neuro-lathyrism</b></p> <p><i>Khesar dal – lathyrus sativus</i>  <i>Beta oxalyl amino alinine – toxin</i>  <i>Prevention –</i></p>
	<p><b>Epidemic dropsy</b></p> <p><i>Argemone added to mustard</i>  <i>Toxin –</i>  <i>Tests –</i></p> <p><i>Nitric acid test</i>  <i>Paper chromatography test</i></p>
	<p><b>Endemic ascites</b></p>
	<p><b>Aspergillus flavus</b></p>









*Ergotism*


**IODINE :**

RDA	<p><i>Adult -</i></p> <p><i>Pregnant</i></p> <p><i>Lactation -</i></p>
SALT	<p><i>Production level -</i></p> <p><i>Consumer level -</i></p>
<p>SALT</p> 	
INDICATORS	<p><i>Urinary iodine excretion -</i></p> <p><i>Neonatal hypothyroidism -</i></p>


**FLOURINE :**

DEFICIENCY	EXCESS		
	 Normal	 Questionable	 Very mild
	 Mild	 Moderate	 Severe

**ANEMIA MUKHT BHARAT :**

Age	Dose
Children (6m-5 yrs)	
Children (5-10yrs)	
Adolescents (10-19yrs)	
	
Pregnant	
Reproductive women (20-49 yrs)	

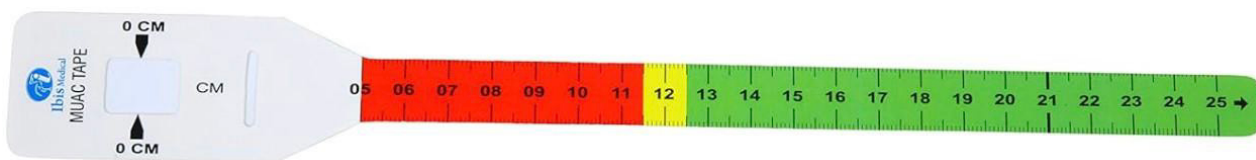
ICDS:

	Calories (kcal)	Protein	
	Child : 6m-6 yr	500	12-15 gm
	Pregnant and lactating mothers	600	18-20
Severely malnourished child	800	20-25	

MID DAY MEAL SCHEME : PM - POSHAN



Shakir's Tape Interpretation



MUAC	Colour	Grading
> 12.5 cm	Green	Normal
11.5 - 12.5 cm	Yellow	Moderate malnourished
< 11.5 cm	Red	Severe malnourished


Global Hunger Index

Dimensions	Indicators
Inadequate food supply	Undernourished population
Child undernutrition	Under 5 wasting Under 5 stunting
Child mortality	Under 5 mortality rate



NOTES

## OCCUPATIONAL HEALTH

<b>SILICOSIS</b> 	<i>Mica mines , stone cutters</i> <i>Snow storm appearance</i> <i>Egg shell calcification</i>
<b>ASBESTOSIS</b>	<i>Shipyards</i> <i>Amphibole - crocidolite type</i> <i>Ground glass appearance</i>
<b>ANTHRACOSIS</b>	<i>Progressive massive fibrosis</i>
<b>BYSSINOSIS</b>	<i>Cotton spinners</i>
<b>BAGASSOSIS</b>	<i>Cardboard, paper</i> <i>Thermoactinomyces sacchari</i> <i>Prevention -</i>

ESI :



<b>Benefit</b>	<b>Facility</b>
<i>Sickness</i>	70% of daily wage is payable for 91 days (In order to qualify for sickness benefit the worker is required to contribute for 78 days in a contribution period of 6 months.)
<i>Extended sickness</i>	80% of daily wage payable for 2 years (730 days) for 34 diseases
<i>Enhanced sickness</i>	Full wage upto 7 days for vasectomy and 14 days for tubectomy
<i>Maternity</i>	Full daily wages <ul style="list-style-type: none"> <li>• Up to 26 weeks for confinement</li> <li>• Up to 6 weeks for miscarriage or MTP</li> <li>• Up to 4 weeks for sickness arising out of pregnancy, confinement, premature birth</li> </ul>
<i>Temporary disablement</i>	90% of daily wage till recovery
<i>Permanent disablement</i>	90% of daily wage
<i>Dependant</i>	Pension at 90% of wages
<i>Funeral expenses</i>	15000/-



NOTES

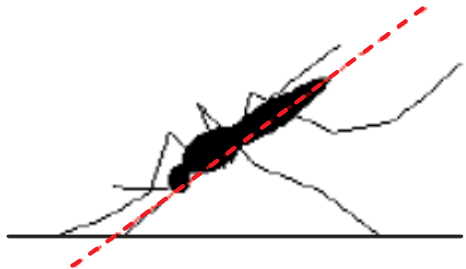


NOTES



# VECTORS

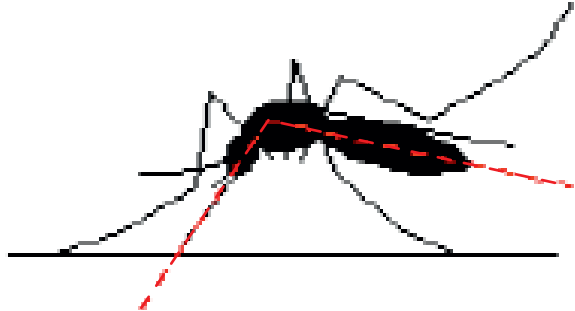
*Anopheles*



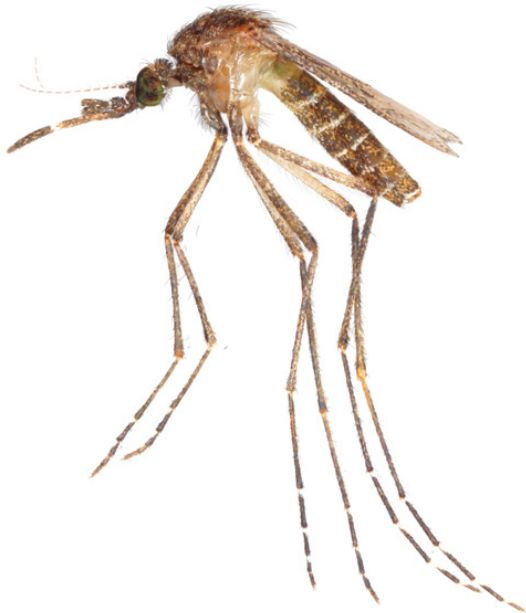
*Culex*

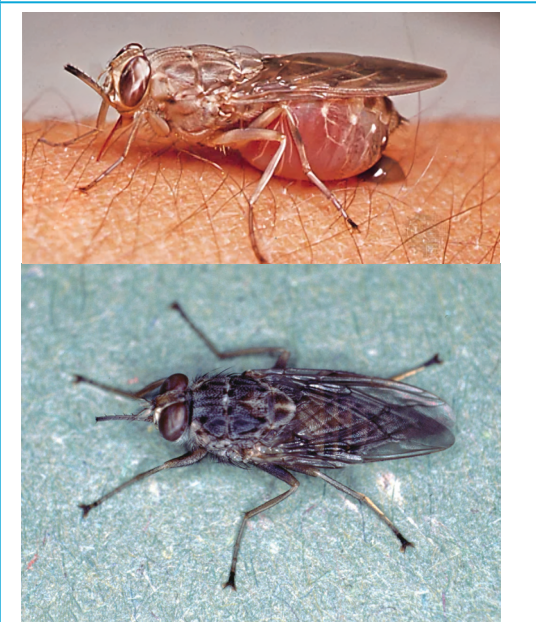
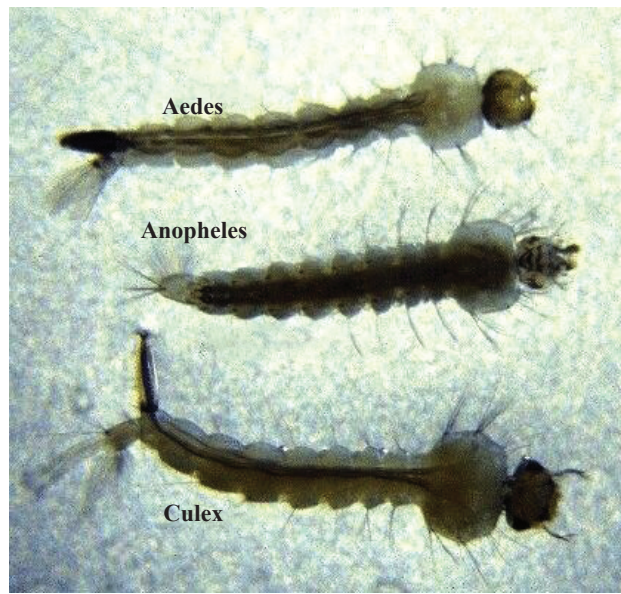


*Aedes*



*Mansonia*





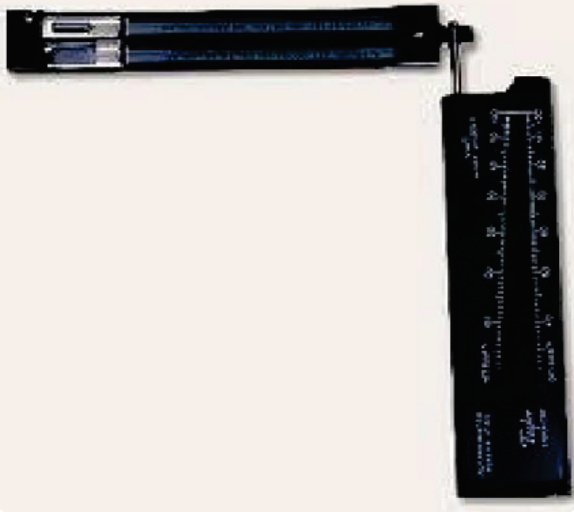
## INSTRUMENTS



*Kata thermometer*



*Anemometer*



*Sling psychrometer*

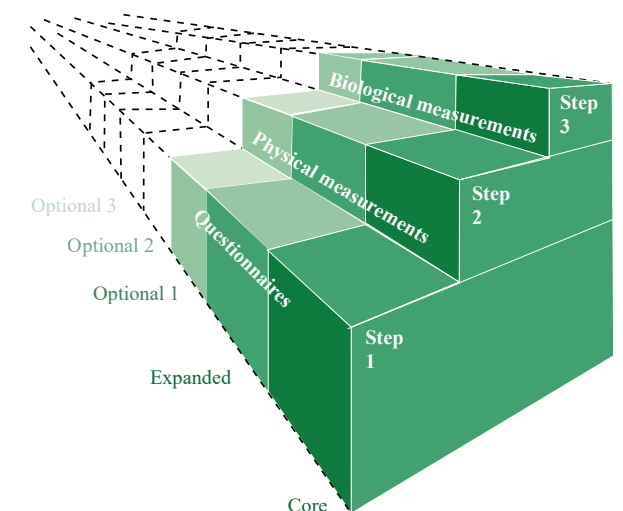
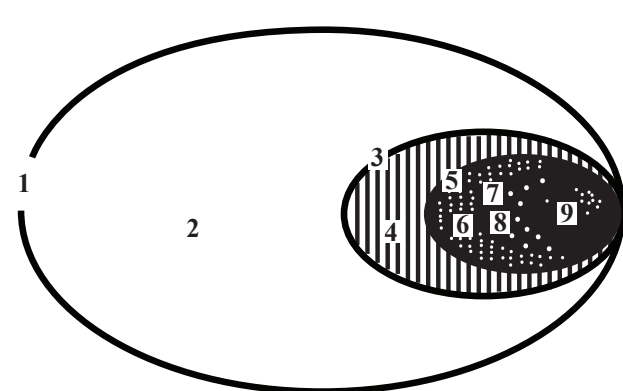
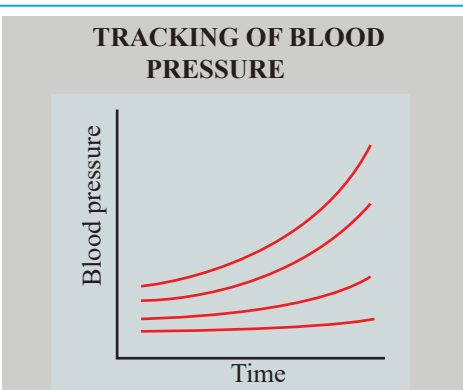


*Globe thermometer*



*Horrocks apparatus*

# NON COMMUNICABLE DISEASES

<p><b>STEPS PROTOCOL</b></p> 	
<p><b>RULE OF HALVES</b></p>  <p style="text-align: center;"><b>Hypertension in the community</b></p>	
<p><b>TRACKING OF BLOOD PRESSURE</b></p> 	
<p><b>MONICA PROJECT</b></p>	

**OBESITY**

	<b>Indian</b>
Underweight	<18.5
Normal	18.5-22.99
Overweight	23-24.99
Obese	25 and above

**Parameters for Obesity Assessment**

- BMI (Quetlets index) =
- Broca's index = Height - 100 = Ideal weight

**Screening – in more than 30 years**

<b>Condition</b>	<b>Screening Method at HWC</b>
<b>Oral cancer</b>	Visual examination of oral cavity
<b>Breast cancer</b>	Clinical Breast Examination (CBE)
<b>Cervical cancer</b>	VIA (Visual Inspection with Acetic Acid)
<b>Diabetes mellitus</b>	Blood glucose estimation (CBG/FBS/RBS)
<b>Hypertension</b>	Blood pressure measurement

**CHD**

- Total fat: ≤20- 30% of total energy
- Saturated fat: <10% of total energy
- Dietary cholesterol: preferably <200 mg/day
- Salt intake: <5 g/day

Increase complex carbohydrate

Cholesterol/HDL ratio – less than 3.5

## COMMUNICATION

<b>GATHER approach</b> <i>Ex : To counsel regarding family planning.</i>	<b>SPIKES protocol : To disclose bad news for patient and family</b>
<i>G – Greet the client</i>	<i>Set up the interview</i>
<i>A – Ask/ascertain – needs/problems</i>	<i>Assess the patient’s perception</i>
<i>T – Telling different methods/options to solve problem</i>	<i>Obtain the patient’s invitation</i>
<i>H – Help to make voluntary decision</i>	<i>Give knowledge and information to the patient</i>
<i>E – Explain fully the chosen decision/action</i>	<i>Address the patient’s emotions with empathy</i>
<i>R – Return for follow up visit</i>	<i>Strategy and summary</i>

### **Barriers In Communication**

- *Physiological : Hearing loss*
- *Psychological : Emotional disturbances*
- *Environmental : Noise*
- *Cultural : Beliefs*
- *Semantic : Misinterpretate the message*

<b>Focused group discussion (FGD)</b>	<b>Panel discussion</b>	<b>Symposium</b>
<i>6-12 members in a group</i> <i>Group leader should facilitate the discussion.</i> <i>Sociogram : Graphical representation of interaction among participants in FGD</i>	<i>Experts – discussion</i> <i>no order of speeches</i> <i>audience can raise question</i>	<i>Series of speeches,</i> <i>no discussion among experts,</i> <i>audience can raise question.</i>

### **Delphi Method : For Decision Making**

- *Interactive method for obtaining consensus from a panel of independent experts : Conducted in 2-3 rounds.*
- *Participants are encouraged to revise their earlier answers.*
- *Till it converge towards the correct consensual answer.*
- *Most useful to arrive at single decision*



NOTES

## HEALTH CARE DELIVERY

Subcentre	PHC	CHC
1 per 3k : hilly 1 per 5k : Plains	1 per 20k : hilly 1 per 30k : Plains	1 per 80k : hilly 1 per 1.2L : Plains
No inpatient beds SC-A :No deliveries SC- B: upto 10 deliveries/month	Referral unit for 6 subcentres Inpatient beds: 4-6 PHC-A: upto 20 del / month PHC- B: > 20 del / month	Referral unit for 4 PHCs Inpatient beds: 30 FRU (First referral unit) : To conduct emergency CS

### Urban Health Care

Urban PHC	Urban CHC
1 per 50,000	1 per 2.5 lakh (per 5 lakh for metro cities)

### Primary Health Care

#### Principles

- Appropriate technology
- Community participation
- Equitable distribution
- Intersectoral coordination

#### Elements of primary health care : Alma Ata declaration

- Health education
- Prevent locally endemic diseases
- Essential drugs
- MCH facilities
- EPI : Expanded programme on immunization
- Nutritional promotion
- Treat common diseases
- Safe water and sanitation



NOTES

## HEALTH PLANNING METHODS

<p><b>COST BENEFIT ANALYSIS</b></p>	<ul style="list-style-type: none"> <li>• Input : Cost</li> <li>• Benefits : Are expressed in monetary terms Ex : Rs. 100 gained for Rs. 10 spent</li> </ul>
<p><b>COST EFFECTIVENESS ANALYSIS</b></p>	<ul style="list-style-type: none"> <li>• Input : Cost</li> <li>• Benefits : Result achieved Ex: Deaths avoided per unit cost</li> </ul>
<p><b>NETWORK ANALYSIS</b></p> <pre> graph LR     Start((Start)) -- 4 Months --&gt; SR((Staff Recruited))     SR -- 2 Months --&gt; ST((Staff Trained))     Start -- 2 Months --&gt; EO((Equipment Ordered))     EO -- 10 Months --&gt; EI((Equipment Installed))     ST -- 1 Month --&gt; EI     EI -- 1 Month --&gt; SPS((Start Providing Service))     SPS --- TE[Terminal Event]     </pre>	<ul style="list-style-type: none"> <li>• A graphic plan of all activities.</li> <li>• 2 types :             <ul style="list-style-type: none"> <li>- PERT (Programme Evaluation &amp; Review Technique) Arrow diagram - representing logical sequence of events.</li> <li>- CPM - Longest path of network in critical path. If any activity along critical path is delayed, the entire project will be delayed.</li> </ul> </li> </ul>
<p><b>SYSTEM ANALYSIS</b></p>	<p>Compare cost effectiveness of different alternatives</p>
<p><b>Work sampling</b></p>	<ul style="list-style-type: none"> <li>• Observation of activities at predetermined or random intervals. Ex : Medical officer observing immunization session at random intervals.</li> </ul>
<p><b>ABC ANALYSIS – for stock management or inventory control</b></p>	<p>A - Always, B - Better, C - Control</p> <p>A : 10% of items account for 70% of budget</p> <p>B : 20% of items account for 20% of budget</p> <p>C : 70% of items account for 10% of budget</p>



NOTES

## BMW MANAGEMENT

<b>Red Bag</b>	<i>i.v. Tubes, catheters, Urine bags, Syringes without needles, Hazmet suit, Vaccutainers, Goggles, face-shield, splash proof apron, nitrile gloves</i>
<b>Yellow bag</b>	<ul style="list-style-type: none"> <li>• <i>Anatomical waste : Human and animal</i></li> <li>• <i>Soiled : contaminated with blood and body fluids (Linen, swabs )</i></li> <li>• <i>Cytotoxic , Expired/ discarded medicines</i></li> <li>• <i>Chemical liquid : Silver X ray film</i></li> <li>• <i>Blood bags, culture</i></li> <li>• <i>Used mask, head cover, shoe-cover, disposable linen (non-plastic)</i></li> </ul>
<b>White: puncture proof container</b>	<i>Needles, syringes with fixed needles, blades, scalpels</i>
<b>Blue: cardboard box</b>	<p><i>Glass: Broken or discarded glass - medicine vials and ampoules (Except contaminated with cytotoxic waste)</i></p> <p><i>Metals: Nails, metallic implants</i></p>

## SPILL MANAGEMENT

### **HIV Spill**

*Step 1 : Use absorbable tissue, mop it, dispose in yellow bag.*

*Step 2 : Disinfect with sodium hypochlorite for 20-30 minutes.*

*Step 3 : Repeat Step 1.*

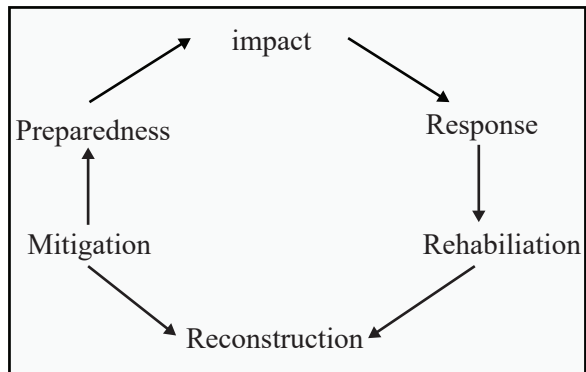
### **Mercury Spill**

- *After broken thermometer or sphygmomanometer*
  - *Dispose broken glass in blue bag.*
  - *Collect mercury using thick cardboard or X-ray sheets & dispose into container with water.*



NOTES

## DISASTER MANAGEMENT



- Triage

<b>Red (highest priority)</b>	<i>Immediate resuscitation or life saving surgery in next 6 hours.</i>
<b>Yellow (high priority)</b>	<i>Possible resuscitation or life saving surgery in next 24 hours</i>
<b>Green (low priority)</b>	<i>Minor illness / ambulatory patients</i>
<b>Black (least priority)</b>	<i>Dead &amp; moribund patients</i>



NOTES

## INTERNATIONAL HEALTH



UNICEF	<p><b>1. GOBI-FFF campaign</b></p> <ul style="list-style-type: none"> <li><i>Growth Monitoring</i></li> <li><i>Oral Rehydration Therapy</i></li> <li><i>Breastfeeding</i></li> <li><i>Immunization</i></li> <li><i>Female Education</i></li> <li><i>Family Planning</i></li> <li><i>Food Supplementation</i></li> </ul> <p><b>2. Applied nutrition programme</b></p>
DANIDA	
SIDA	
<i>Ottawa charter</i>	
<i>Helsinki declaration</i>	



NOTES