

IMAGE

Bio-Medical Waste Segregation Chart

Category	Type of Waste
<p>YELLOW</p>  	<ul style="list-style-type: none"> • Post Operative Body Parts • Placenta • Plaster of Paris (POP) • Pathological Waste • Cotton Waste • Dressing Materials • Beddings • Body Fluid Contaminated Paper and Cloth • Face Mask, Cap • Cytotoxic, Expired & Discarded Medicines • Microbiology, Biotechnology Lab Waste
<p>RED</p>  	<ul style="list-style-type: none"> • Syringe with out needles • I.V.Set • Catheters • Gloves • Urine Bag • Dialysis Kit • IV Bottles
<p>WHITE (Translucent)</p>  	<ul style="list-style-type: none"> • Needles • Syringes with fixed needles • Blades • Scalpels <p><small>* Use 1% Hypo Chloride Solution for disinfecting Glass & Metal Sharps</small></p>
<p>BLUE</p> 	<ul style="list-style-type: none"> • Glass <ul style="list-style-type: none"> - Broken Glass - Ampoules - Lab Slides • Metals <ul style="list-style-type: none"> - Nails - Metallic Body Implants - Scissors <p><small>* Use 1% Hypo Chloride Solution for disinfecting Glass & Metal Sharps</small></p>

Blue

(Puncture proof and leak proof containers with blue colored marking)

Type of Waste	Treatment and Disposal Options
<p>Glassware <small>(anujavats47@gmail...)</small></p> <p>Broken or discarded and contaminated glass including medicine vials and ampoules except those containing cytotoxic waste.</p>	<p>Sodium hypochlorite/Autoclaving/ Microwaving/Hydroclaving</p> <p>Later - Recycling</p>

Note: **Ash** from the **incineration** of biomedical waste shall be disposed of at a **common hazardous waste treatment and disposal facility**. However, it may also be disposed of in a **municipal landfill**, if the toxic metals in incineration ash are **within the regulatory quantities** as defined under the Hazardous Waste (Management and Handling and Transboundary Movement) Rules, 2008 as amended from time to time.

Yellow bag (non-chlorinated)

Type of Waste	Treatment and Disposal Options
<p>Human anatomical waste</p> <p>Animal anatomical waste</p>	<p>Incineration/Plasma pyrolysis/Deep Burial</p>
<p>Soiled Waste: Items like dressings, cotton swabs, and plaster casts contaminated with blood and body fluids and bags containing residual discarded blood.</p>	<p>Incineration/Plasma pyrolysis/Deep Burial</p> <p>or</p> <p>Autoclaving/Microwaving/ Hydroclaving</p> <p>Later - Shredding/mutilation</p>
<p>Discarded linen, mattresses, beddings contaminated with blood or body fluid, routine masks, and gowns</p>	<p>Non- chlorinated chemical disinfection followed by incineration or Plazma Pyrolysis or for energy recovery. In absence of the above facilities, shredding, mutilation, or a combination of sterilization and shredding is used.</p>
<p>Microbiology, biotechnology, clinical laboratory waste</p> <p>(Autoclave safe plastic bags used)</p> <p>Blood bags, laboratory cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes, and devices used for cultures.</p>	<p>Pre-treatment with nonchlorinated chemicals</p> <p>Later - Incineration</p>
<p>Expired/discarded medicine, cytotoxic drugs</p>	<p>Incineration/plasma pyrolysis/ disposal in a secured landfill</p>
<p>Chemical waste</p> <p>Chemicals used in biological production and used or discarded disinfectants.</p>	<p>Disposal- incineration/plasma pyrolysis</p> <p>Encapsulation- hazardous waste treatment, storage, and disposa facility.</p>
<p>Chemical liquid waste :</p> <p>Liquid waste generated due to the use of chemicals in the production of biological and used or discarded disinfectants, silver X-ray film developing liquid, discarded formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities etc.</p>	<p>After resource recovery, the chemical liquid waste shall be pre-treated before mixing with other wastewater.</p>

Red bag (non-chlorinated)

Type of Waste	Treatment and Disposal Options
Recyclable contaminated waste Contaminated waste tubing, bottles, intravenous tubes and sets, catheters, urine bags , syringes (without needles and fixed needle syringes with their needles cut), vacutainers with needles cut , and gloves.	Autoclaving/Microwaving/ Hydroclaving Followed by Shredding/mutilation And later, Energy recovery/Plastics to diesel or fuel oil/road-making Not to be sent to landfill

White (translucent) (puncture-proof, leak-proof containers)

Type of Waste	Treatment and Disposal Options
Waste Sharps including metals. Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades, or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded, and contaminated metal sharps	Autoclaving/ Dry heat sterilization Followed by - Shredding/mutilation/ encapsulation Later by - Iron foundries/sanitary landfill/waste sharps

Relative Risk: Ratio of incidence of disease or death among exposed to that among the non-exposed is called **Relative risk (RR)**

aka: Risk Ratio.

$$(RR) = \frac{\text{Incidence of disease (or death) among exposed}}{\text{Incidence of disease (or death) among non-exposed}}$$

It is the direct measure of the strength of association b/w suspected cause & effect in cohort studies.

RR = 1 indicates no association

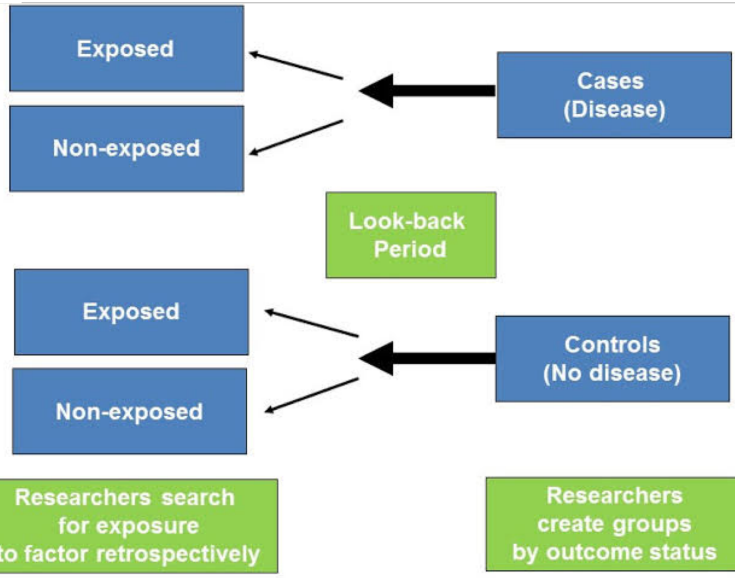
RR > 1 indicates positive "

RR of 2 " 100% Increase in risk

RR calculation: $\frac{[a/(a+b)]}{[c/(c+d)]}$, where

	Cancer		
	Yes	No	
Exposure	Yes	a	b
	No	c	d

Case Control study: Progression is from effect (disease) to cause (exposure) as the outcome or disease has already occurred.

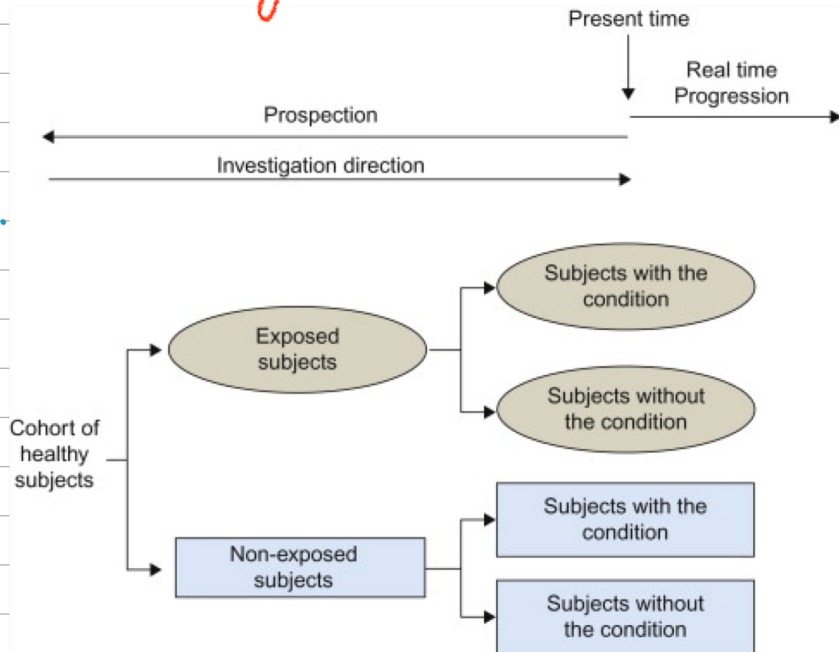


It is aka Retrospective Study

← From Disease to Cause (exposure)

Cohort Study: A cohort study progresses from cause (exposure) to effect (disease)
 aka: ① Forward looking Study
 ② incidence study
 ③ Prospective study
 ④ Longitudinal study

- Types of cohort study:**
- Prospective (concurrent)
 - Retrospective (Historical)
 - Combination cohort study.

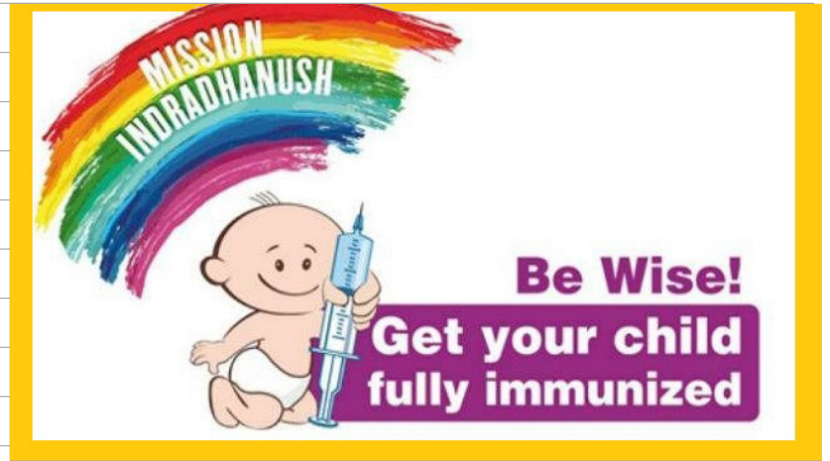


Mission Indradhanush

- Launched in December 2014.
- Intensified mission Indradhanush in 2017.

Indradhanush means rainbow (7 colors)

↳ 7 VPDs: Diphtheria, Pertussis, Tetanus, Polio
vaccine
Preventable
dx
Measles, TB & Hepatitis-B.



Objective: >90% coverage (>7 visits of child till 5 years)

Janani Suraksha Yojana JSY

- Objective: To promote Institutional deliveries.
- Janani: Mother / Reproductive female
- Strategy: Incentive based Service.

Rural: 700 or 1400 (to mother) + 600 (ASHA)
Urban: 600 or 1000 + 400 (ASHA)



जननी
सुरक्षा योजना



JANANI SISHU SURAKSHA
KARYAKRAM (JSSK)

Janani Shishu Suraksha Karyakram / JSSK

- Objective: To promote public health facility utilization.
- Strategy: Free (OPD, IPD, Rx, lab investigations, diet & transport)
- Beneficiaries: All sick pregnant and lactating females + children aged <1 year.

NIKSHAY

Online monitoring Software tool to monitor TB drug usage & consumption by DOTS patients under RNTCP programme.

- Launched by Central TB Division of National Information Centre (NIC) in June 2012.

नो-रिश्तय

NIKSHAY Poshan Abhiyan

- Component of RNTPC.
- Incentives for nutritional support to TB patients registered 1st April 2018 onwards.
- Those who are on DOTs Therapy will get 500/- Rs. per month as a nutritional incentive scheme.

Nikshay Poshan Yojana



NIKUSH : online monitoring software tool for Leprosy.

- NISHCHAY** ∴ Pregnancy Test kit
- Under Reproductive component of RMNCH + A programme under NHM.
 - Home based.



Open Vial Policy

allows reuse of partially used **multidose vials** of applicable vaccines under the universal immunization programme in subsequent sessions **upto 4 weeks (28 days)** subject to certain conditions and thereby reducing vaccine wastage

Applicable only for

- DPT
- TT, Td
- Hep. B vaccine
- OPV
- Liquid pentavalent vaccine.
- inactivated polio vaccine (IPV)
- PCV (pneumococcal conjugated vaccines)

Not applicable for

- BCG
- Measles / MR
- Rotavirus
- JE vaccines
- Covid

Open vials should **not be submerged in water**
All open vials should have a record of **date & time of opening.**

• National Air Quality index (NAQI): is Based on

- PM 2.5
- PM 10
- SO₂ (Best parameter)
- NO₂
- CO
- NH₃
- Ozone (O₃)
- Lead

Color Code	AQI Value	Actions to Protect Your Health
Green	Good (0-50)	None.
Yellow	Moderate (51-100)	Unusually sensitive people should reduce prolonged or heavy exertion outdoors.
Orange	Unhealthy for Sensitive Groups (101-150)	Sensitive groups should reduce prolonged or heavy exertion outdoors: People with heart and lung disease Children and older adults People that are active outdoors
Red	Unhealthy (151-200)	Sensitive groups should avoid prolonged or heavy exertion outdoors. Everyone should reduce prolonged or heavy exertion outdoors.
Purple	Very Unhealthy (201-300)	Sensitive groups should avoid all physical activity outdoors. Everyone should avoid prolonged or heavy exertion outdoors.



**World Health Organization
(WHO)**

Established- 1945
Constitution- 7th April 1948
(World Health Day)
HQ- Geneva



United Nations (UNO)

Established- 1945
HQ- New York



unicef

**United Nation's Children's
Emergency Fund**

→ formulated in - 1946
• HQ - New York (US)
• functions - mother and child nutrition,
immunization and education.



International Red Cross

HQ- Geneva



The World Bank



**FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS**

FAO

HQ- Rome, Italy



**International Labour
Organization**

HQ- Geneva

UNICEF → initiatives → BFHI (Baby Friendly Hospital initiative.

• GOBIFF: G - Growth monitoring

O - ORS

B - Breast feeding

I - Immunization

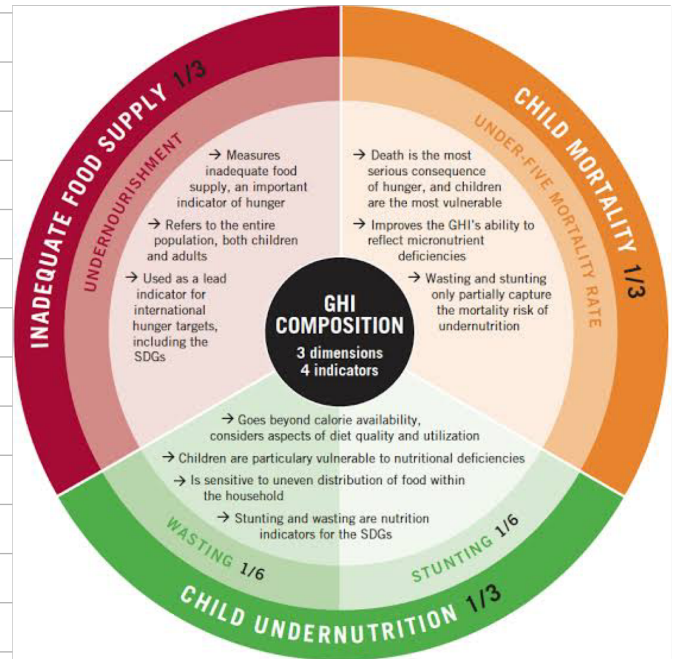
F - family planning

F - Food to the mother

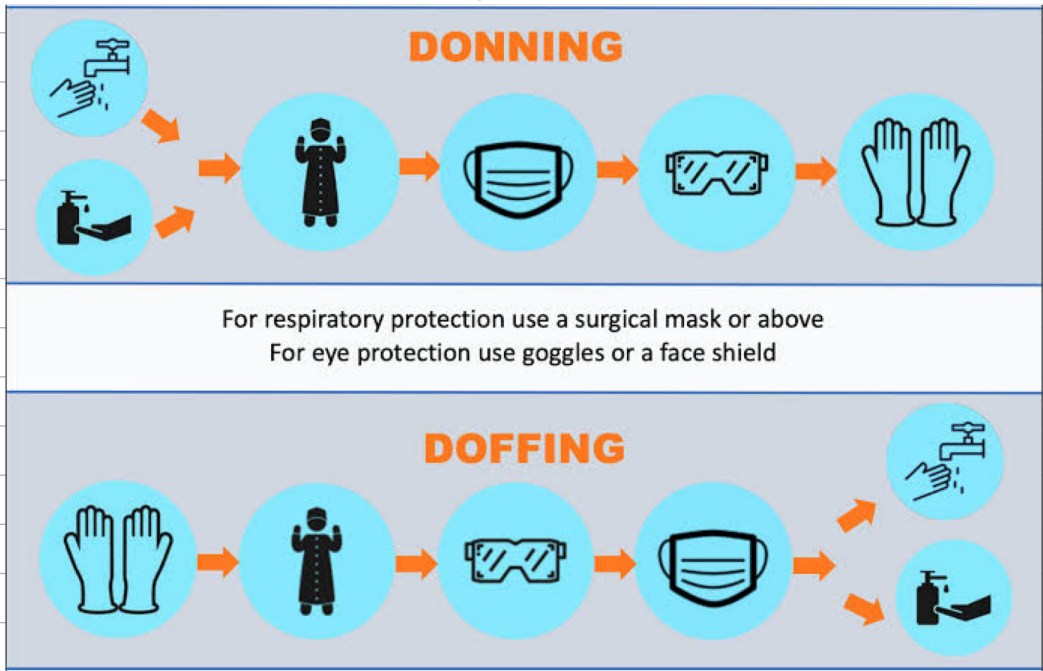
F - Female literacy

Global hunger index

Dimensions	Indicators	Wightage given
Child Mortality Rate	Under 5 mortality Rate	1/3
Child under-nutrition	Wasting rate (Acute) Stunting rate (Chronic)	1/6 + 1/6 = 1/3
Inadequate food supply	Undernourishment rates (in adult)	1/3



Donning and Doffing of PPE



Donning :

- Hand Hygiene
- first pair of gloves
- Gown
- Shoe Cover
- mask
- Goggles
- face shield
- Gloves

Doffing :

- Disinfect your gloves
- Shoe cover
- Remove outer pair of gloves
- Remove face shield
- Remove gown
- Remove inner gloves
- Remove mask
- Hand Hygiene

QALY and DALY are disability indicators used as measures of health in a population.

QALY (Quality Adjusted Life Years)	DALY (Disability Adjusted Life Years)
Measures <u>quality of life</u> in health gain	Measures <u>health loss</u> in quality of life
Indicator of <u>cost-effectiveness</u> of intervention	Indicator of overall <u>burden of disease</u> in a population
Expressed as 1 or 0 where,	Expressed as 0 or 1 where,
1 = Perfect health	0 = Perfect health
0 = Death	1 = Death

Health Adjusted Life Years: A measure of burden of disease based on life expectancy at birth, but including an adjustment for time spent in poor health.

- It is the number of years in full health that a person can expect to live, based on current rates of ill health and mortality.

Benefits of ESI

1. **Medical Benefit**: OPD, IPD, diet, Rx, Ix, Medical devices.

- **Direct**: Availed by the insured person (ESI employees)
- **Indirect**: Panel system (Private Hospitals empanelled with ESI)

2. **Health benefit**: **Sickness benefit**: Sick employee will get some wage (91 days: upto 70% of wage)

3. **Extended sickness benefit**: Disease with longer duration.

- Applicable for 2 years
- Can avail upto 80% wage.
- Only applicable for 34 diseases.

4. **Enhanced sickness benefit**:

- Primarily for tubectomy / vasectomy.
- 100% wage upto 7 days (male) / 14 days (Female)

5. **Disability benefits**:

- includes temporary and permanent disability.
- Decided by the medical board.
- Not more than 90% wage can be given.

6. **Dependant Benefits**: Spouse of children < 18 years.

7. **Maternity benefits**: 100% wage.

- 4 wks (any medical condition affecting pregnancy)
- 6 wks of Leave (abortion / miscarriage / loss of baby).
- 26 wks of Leave (delivery).

8. **Funeral Expense**: Given to grieving family: 15000 INR

Vaccines Contraindicated in pregnancy

mnemonic → in Pregnancy MMR is Banned

- P - Pregnancy
- M - Measles
- M - Mumps
- R - Rubella
- V - Varicella
- B - BCG

antihypertensives safe during pregnancy

Better Mother Care during Hypertensive Pregnancy

- B-B BLOCKERS(CARDIOSELECTIVE)
- M-METTYLDOPA
- C-CCBS, CLONIDINE
- H-HYDRALAZINE
- P-PRAZOSIN

contraindicated drugs in pregnancy

SAFE Moms Take Really Good Care

- s-sulfonamides
- A-aminoglycoside
- F-fluroquilonones
- E-erythromycin
- M-metranidazole
- T-tetracyclines
- R-ribavarin
- G-gresofelvin
- C-chloramfinical

Live Vaccines

C/I → in severe immunocompromized state / Pregnancy / allergies.

Mnemonics – Live vaccines

ROME Is My Best Place To go Yet ! “

- Rubella
- Oral polio vaccine
- Measles
- Epidemic typhus
- Influenza
- Mumps
- BCG
- Plague
- Typhoid oral vaccine
- Yellow fever

- BOYS Love The CRIME

- B= BCG
- O=OPV
- Y=YELLOW FEVER

- Love= LIVE ATTENUATED

- The= TYPHOID
- C=CHICKEN POX
- R=RUBELLA
- I=INFLUENZA
- M=MUMPS, MEASLES
- E=EPIDEMIC TYPHUS

National immunization Schedule: NIS

is a component of Universal immunisation program (1985)

component of Reproductive and child Health program (1997)

which is further a component of NHM (2013)

AT BIRTH — BCG OPV₀ Hep B NIS, 2020-21

6 WEEKS ... DPT₁* OPV₁ Hep B₁* HiB₁* Rotav, fIPV, PCV₁

10 WEEKS -- DPT₂ OPV₂ Hep B₂ HiB₂ Rotav₂ - -

14 WEEKS -- DPT₃ OPV₃ Hep B₃ HiB₃ Rotav₃ fIPV₂ PCV₂

9 MONTHS -- M₁/MR₁ Vit A₁ LacIU JE Live₁ PCV_B

EVERY 6m ... Vitamin A (2 LacIU) each till 5y age

16-24m ... DPT_B OPV_B M₂/MR₂ JE Live₂

5y ... DPT_B

10y -- TT → **Td** ← TT in PREGNANCY

16y -- TT → **Td** ← PENTAVALENT Vaccine*

NO OF DOSES, NIS

OPV	5	Rotav	3
TT	7	fIPV	2
Hep B	3	PCV	3
BCG	1	JE Live	2
D	5	Vit A	9
P	5		
HiB	3		

TOTAL VITAMIN A DOSE UNDER NIS

9m	1 Lac IU
1 1/2 y	2 Lac IU
2	2
2 1/2	2
3	2
3 1/2	2
4	2
4 1/2	2
5	2

17 Lac IU

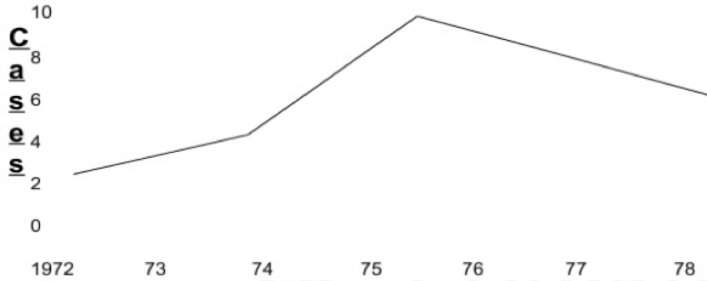


DELAYED IMMUNISATION LIMITS, NIS

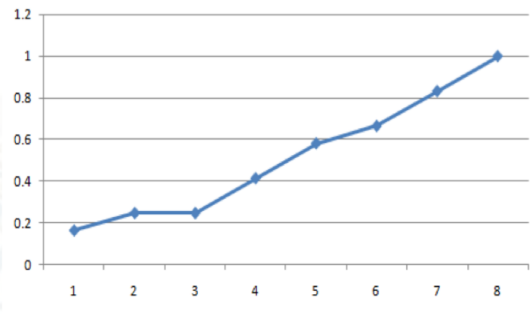
BCG	< 1 year age	Measles	5y
bOPV ₀	15 days	MR	15y
bOPV _{1,2,3}	5 years	JE	15y
DPT	7y	Vit A	5y
Hep B	1y	TT	16y
HiB	6y	Pentavalent	< 1y
Rotav	1y	fIPV	< 1y
		PCV	< 1y

Line diagram

- Line diagrams are used to show the trend of events with the passage of time.
- Line diagram showing the malaria cases reported throughout the world excluding African region during 1972-78

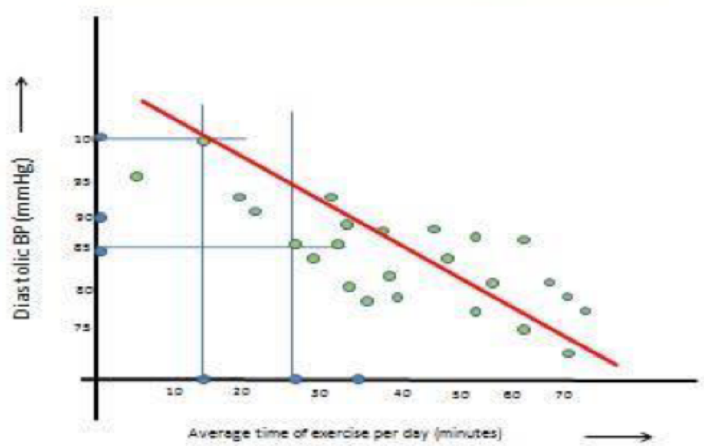


OGIVE



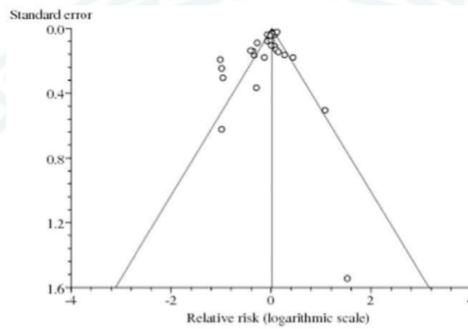
OGIVE- Cumulative Frequency Diagram (Frequency only increases)

Scatter diagram

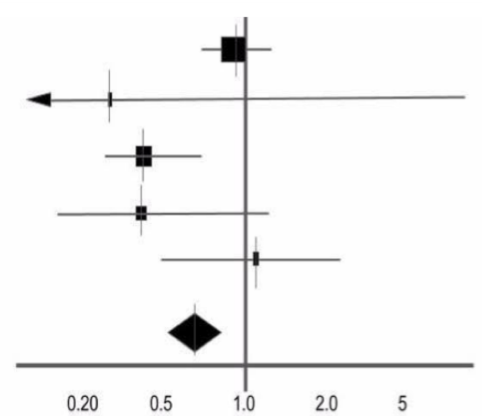


Stem	Leaf
-2	4
-1	2
-0	3
0	4 6 6
1	7
2	5
3	
4	
5	7

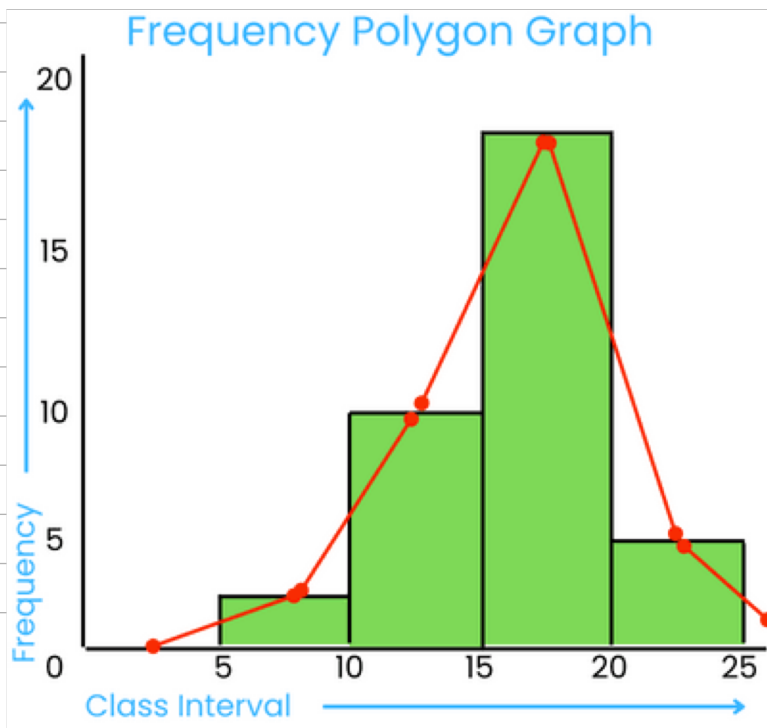
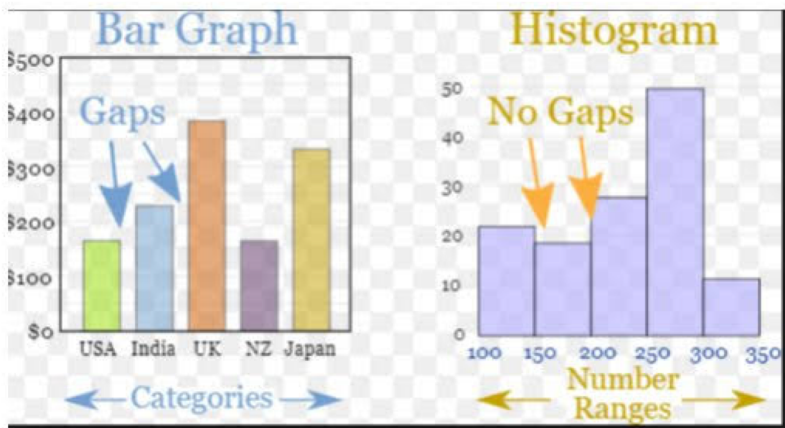
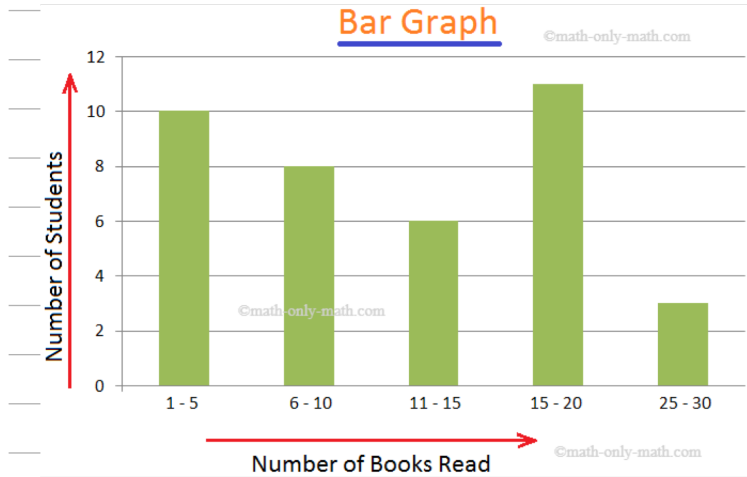
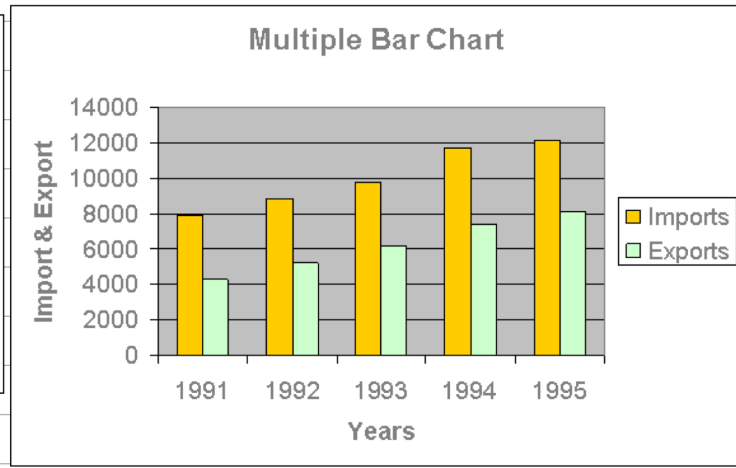
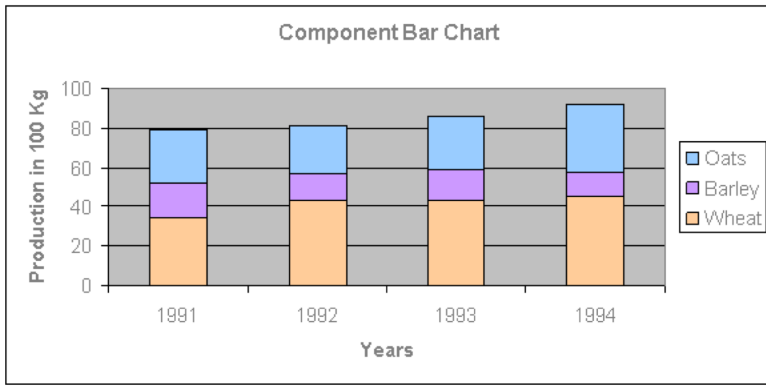
Stem and Leaf Plot



Funnel Plot



Forest Plot



Attributable Risk:

- **Attributable risk (AR)** is the **difference** in incidence rates or proportions of disease or death between an exposed and non-exposed group.
- It is expressed in **percentage** and gives the extent to which the disease can be attributed to the exposure in a **cohort study**.

$$\text{Attributable risk (AR)} = \frac{\text{Incidence of disease rate among exposed} - \text{Incidence of disease rate among non-exposed}}{\text{Incidence of disease rate among exposed}} \times 100$$

Tests of significance

How to choose which test to use?

- See the **variable**. Are the variables **quantitative** or **qualitative**?
 - If the variables are **qualitative (nominal)**, then **Chi square test** is used.
 - If the variables are **quantitative**, then see whether **2 groups or more than 2 groups**.
 - If **2 groups** are being tested, then **T tests** are used. In that, if the same group is tested before and after, paired T test is used. Otherwise, unpaired T test is used.
 - If **more than 2 groups** are being tested, then use **ANOVA**.

1. T Tests

- **Unpaired t tests**
 - Also known as the **student's t test, independent t test, two-samples t test**.
 - It's the **most commonly used t test** and it tests the difference between two groups (the means of 2 groups) **independent** of each other and indicates how significant the differences are.
- **Paired t tests**
 - "Pairs **before** marriage are not the same **after!**"
 - So remember the **paired test** is mainly used in the comparison of a **before and after scenario**
 - Also known as **correlated t test, dependent samples t test**.
 - It is mainly used on dependent samples. For example, the cholesterol level of a person before and after using a specific drug.
 - It can also be used when you put the **same condition** under **test using different items** or things. For example, same crash safety tests for different cars.
- **T scores**
 - The t score is referred to as the **ratio** of the difference between two groups and the difference within the groups.
 - The **smaller** the t score, the **more similarity** there is between two groups and vice versa.

2. Analysis of Variance (ANOVA)

- The analysis of variance test (**ANOVA**) is used to test the difference between two or usually **more than two groups (means)** and here the inferences are made by analyzing the variances.

3. Chi-Square Test

- The **Chi-Square test (χ^2)** is a **non-parametric(non-numeric) test** and it is used to test hypotheses in relation to **nominal scale data or categorical data**.
- It is a **test of proportions and associations**.
- A Chi-square distribution is usually **positively skewed** but it approaches a normal distribution as its degrees of freedom increases.
- If the **frequency of any of the cells of the categorical table** is <5 , then **Fisher's exact test** is used.

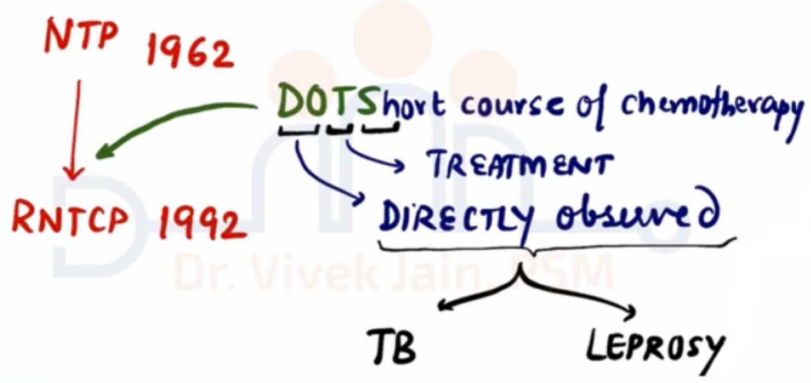
RNTCP : Revised National TB control Programme.

• Based on internationally recommended DOTS strategy.

Directly Observed Treatment Short-Course

RNTCP REVISED NATIONAL TB CONTROL PROGRAM

HISTORICAL ASPECTS



RNTCP

OBJECTIVES of RNTCP

"90/90"

1. > 90% CASE Detection Rate
2. > 90% CURE Rate
3. > 85% Cure Rate previously treated cases.

RNTCP

DOTS

- Accountability
- Good quality sputum microscopy
- Political commitment
- Uninterrupted supply of Good quality DRUGS
- DIRECTLY observed therapy

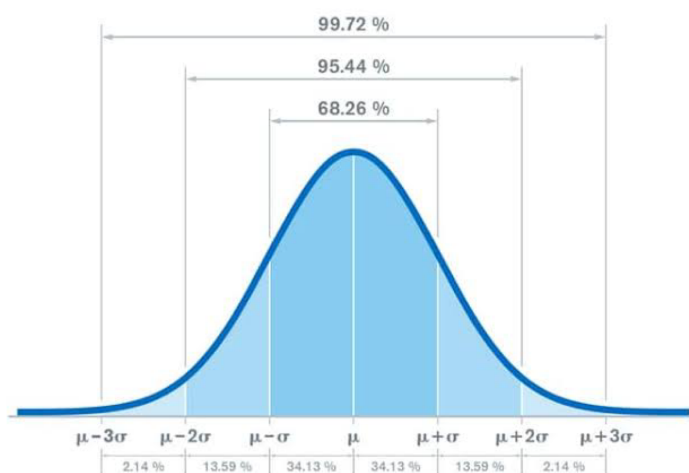
New changes in RNTCP 2019-20

1. CXR, CBNAAT
2. Active case finding
3. Daily Regimens, Fixed dose combinations (FDCs)
4. Drug resistance TB treatment
5. Bedaquiline, Delamanid
6. Weight bands treatment
 - 4: Adults
 - 6: Children
 - 5: MDR TB
7. DOTS-99
8. Nikshay
9. No Extension of intensive phase treatment
10. Incentives
11. RNTCR merger with NACP (National aids control program)

First-line drugs	Isoniazid	Rifampicin	Pyrazinamide	Ethambutol
Mechanism	Bactericidal	Bactericidal (Maximum)	Bactericidal	Bacteriostatic
Location of Mycobacteria	Intracellular + Extracellular	Intracellular + Extracellular	Intracellular	Extracellular
Metabolism	Liver	Liver (Maximum)	Liver	Kidney

Standard Deviation

- It is the square root of variance.
- The standard deviation of population is denoted by σ and the standard deviation of a sample is deviation of a sample.
- The formula for the standard deviation of a sample (usually < 30):



$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}}$$

- For a population (large sample), the denominator would be replaced by just **N**.
- It is particularly useful for normal distributions but can be used in **skewed distributions**
- It is used to calculate the **proportion** of the **population** within the given SD
- A low SD means that the data are close to the mean but a high SD would mean that the data are more spread out.
- The **empirical rule** of a normal distribution states that:
 - Approximately **68%** of the distribution falls within **one** standard deviation of the mean.
 - Approximately **95%** of the distribution falls within **two** standard deviations of the mean.
 - Approximately **99.7%** of the distribution falls within **three** standard deviations of the mean.

Coefficient of Variation

- The coefficient of variation (**CV**) is a statistical measure of the relative dispersion of data points in a data series around the mean.
- It is done to measure of relative variability and it is also known as **relative standard deviation (RSD)**.
- It is expressed as a **percentage of the mean** and its formulas are given in the image below:

CV for a population:

$$CV = \frac{\sigma}{\mu} * 100\%$$

CV for a sample:

$$CV = \frac{s}{\bar{x}} * 100\%$$

where σ and s = standard deviation; and μ and \bar{x} = mean

- In simpler terms, **coefficient of variation (CV) = standard deviation x 100/mean**.
- CV usually gives an idea into the performance of a test or method. A CV of 5% gives the general idea that the method is good in its performance but a CV of more than 10% gives an idea that the method isn't very good.

NCEP ATP

National Cholesterol Education Program, Adult Treatment Panel

Points of New ATP iv guidelines

- Focus on ASCVD risk reduction
- New perspective on LDL-C & Non-HDL-C treatment goals
- Global risk assesment for Primary prevention
- Safety recommendation
- Role of Biomarkers and Non-invasive tests
- Future updates to the blood cholesterol guidelines

Focus on ASCVD risk reduction

Classified into 4 statin benefit groups:

1. Individuals with clinical ASCVD
2. Individuals with primary elevation of LDL-C ≥ 190 mg/dl
3. Individuals 40- 75 years of age with diabetes with LDL-C 70-189 mg/dl
4. Individuals without clinical ASCVD or diabetes who are 40 – 75 years of age with LDL-C 70-189 mg/dl and an estimated 10 year ASCVD risk of 7.5 % or higher.

IMNCI Guidelines

- Integrated Management of childhood illness. (WHO launched)
- In India, neonatal component is integrated with IMCI.
- Integration is for adequacy of man power (human resource)
- Any frontline worker (ASHA, AWW, teachers, Lab technician, MPW, ANM) can help in treating children with malaria, typhoid, pneumonia, diarrhoea etc.
- Strategy :- LACT (Look, Assess, Classify and Treat)
 - IMNCI booklet given. Table made for every disease. One disease in each page. One divided into 3 categories.

First / top category	Pink	First aid + Urgent referral
Second / middle category	Yellow	Treat the child + follow up.
Third / Last category	Green	Reassurance + Home based management + Health education

SIGNS	CLASSIFY AS	IDENTIFY TREATMENT
<p>Two of the following signs:</p> <ul style="list-style-type: none"> Lethargic or unconscious Sunken eyes Not able to drink or drinking poorly Skin pinch goes back very slowly 	SEVERE DEHYDRATION	<p>(Urgent pre-referral treatments are in bold print)</p> <ul style="list-style-type: none"> If child has no other severe classification <ul style="list-style-type: none"> - Give fluid for severe dehydration (Plan C). <p>OR</p> <p>If child also has another severe classification:</p> <p>Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breastfeeding.</p> <ul style="list-style-type: none"> If child is 2 years or older, and there is cholera in your area, give antibiotic for cholera.
<p>Two of the following signs:</p> <ul style="list-style-type: none"> Restless, irritable Sunken eyes Drinks eagerly, thirsty Skin pinch goes back slowly. 	SOME DEHYDRATION	<ul style="list-style-type: none"> Give fluid, Zinc supplements and food for some dehydration (Plan B) If Child also has a severe classification: <p>Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breastfeeding.</p> <ul style="list-style-type: none"> Advise mother when to return immediately. Follow-up in 5 days if not improving. If confirmed/symptomatic HIV, follow-up in 2 days if not improving.
<ul style="list-style-type: none"> Not enough signs to classify as some or severe dehydration 	NO DEHYDRATION	<ul style="list-style-type: none"> Give fluid, Zinc supplements and food to treat diarrhoea at home (Plan A) Advise mother when to return immediately. Follow-up in 5 days if not improving. If confirmed/symptomatic HIV, follow-up in 2 days if not improving.

Diphtheria Prophylaxis

Cases

Diphtheria Antitoxin (DAT) - 20000 - 1 Lac I/V

- Given after a skin sensitivity test.
- I/M: mild to moderate cases.
- I/V: moderate to severe cases.

Antibiotics: DOC: Penicillin G or erythromycin - 12-14 days.

- Serial cultures: To know the response to the treatment.
- Diphtheria toxoid: Given only in the convalescent phase if the patient is not immunized.
- Carriers: DOC is oral erythromycin - At least for 10 days (up to 12-14 days)

Contacts

- Assess for any signs / symptoms
- Send samples for the culture of *Corynebacterium diphtheriae*.
- Antibiotics: Have to be given to all contacts.
 - Penicillin G or Oral Erythromycin 7-10 days.
 - Stopped if the culture reports are negative.

Diphtheria toxoid: Based on immunization status.

- Unknown status / < 3 doses: Give diphtheria toxoid and complete the series (3 primary + 2 booster doses)
- > 3 doses and last dose taken > 5 years ago: Give single diphtheria toxoid booster dose.
- > 3 doses and last dose taken within 5 years: Continue the NIS (National Immunization Schedule) and give vaccine which is due.

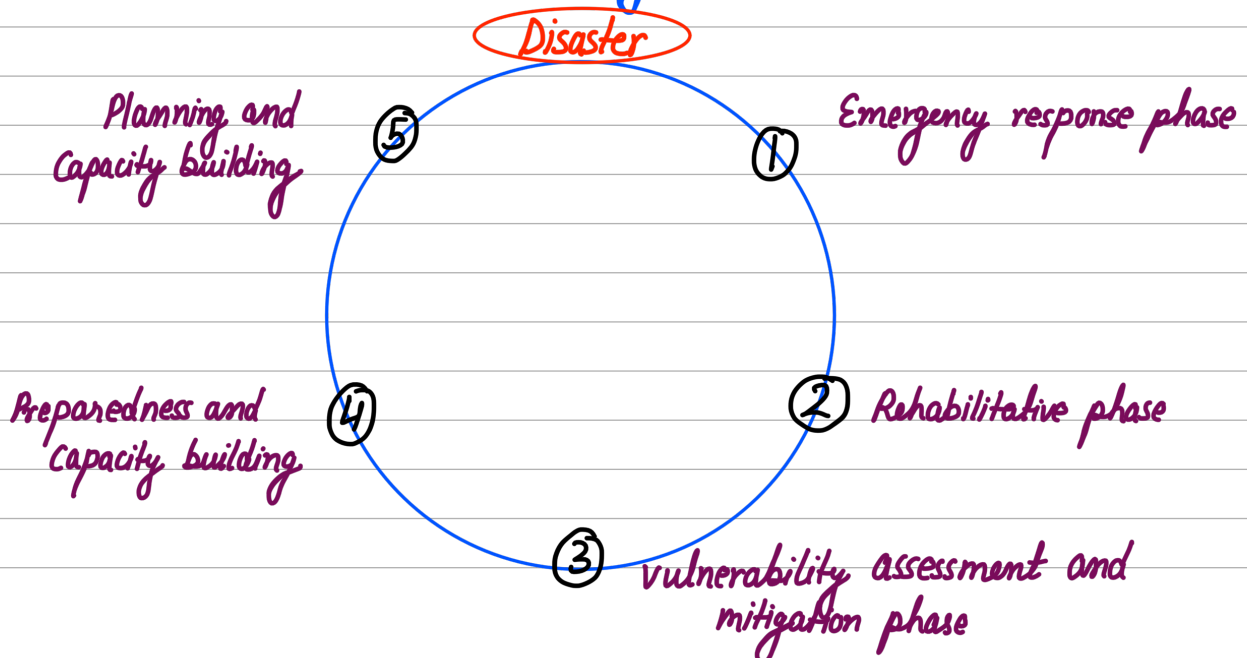
Levels of Prevention

Level	Primordial	Primary	Secondary	Tertiary
Phase of disease	Underlying socio-economic & environmental conditions leading to causation	Specific causal or risk factors	Early stage of disease	Late stage of disease
Aim	Establish and maintain conditions that minimize hazards to health	Reduce the incidence of disease	Reduce prevalence by shortening duration	Reduce number and impact of complications
Actions	Inhibition of emergence of socio-economic, environmental and behavioural conditions	Protection of personal and community health by eliminating risks	Early detection and intervention to minimize disability	Soften the impact of long-term disease and disability, minimize suffering
Modes of Intervention	Health education	Health promotion and specific protection	Diagnosis and treatment	Disability limitation and rehabilitation
Targets	Total population or select groups	Total population or high risk individuals/groups	Individuals/ Patients	Patients

Disaster Management

• National disaster management day : 2nd Wednesday of October.

• Disaster risk (DR) = Hazard X Vulnerability.



Hardness of Water

- Hardness is the **soap destroying power of water** or the **amount of dissolved calcium and magnesium** in water.
- It is most commonly caused by **bicarbonates and sulphates** of **calcium and magnesium**, but their nitrates and chlorides can also cause hardness.
- **Temporary** (carbonate) hardness is due to **bicarbonates** of calcium and magnesium.
- **Permanent** (non-carbonate) hardness is due to **sulphates, chlorides and nitrates**.
- **1 mEq/L** of an ion that produces hardness is equal to **50 mg CaCO₃** (50 ppm) in **1 litre of water**.

Classification	Level of hardness (mEq/l)	Amount of ion producing hardness (mg/l)
Soft water	Less than 1	Less than 50
Moderately hard	1 – 3	50 – 150
Hard water	3 – 6	150 – 300
Very hard water	Over 6	More than 300

- **Drinking water** must be **moderately hard**
- **Softening of water** is recommended when the **hardness exceeds 3 mEq/L (150 mg/litre)**
- **Removal of hardness:**
 - **Boiling:**
 - This **removes temporary hardness** by **expelling carbon dioxide** and **precipitating insoluble calcium carbonate**. It would be expensive to do this on a large scale.
 - **Addition of lime:**
 - This **removes temporary hardness** and also **reduces magnesium**. Lime **absorbs carbon dioxide** and **precipitates insoluble calcium carbonate**. In **Clark's method** of softening water, **lime** is used.
 - **Addition of sodium carbonate** (soda ash): **removes both temporary and permanent hardness**.
 - **Base exchange process:**
 - This **removes permanent and temporary hardness** and can be used on a large scale. In this method, **permutit** is used. **Sodium permutit** is a complex compound of **sodium, aluminium and silica**. When hard water is passed through this permutit, the calcium and magnesium ions are removed by **base exchange** and is converted into **calcium and magnesium permutit**. This process reduces water to **zero hardness**, which is corrosive and thus it is then mixed with a part of raw water.

Neurolathyrism

- Synonym lathyrism
- Neurolathyrism (NL) is a neurodegenerative disease that is caused by heavy consumption of grass pea, *Lathyrus sativus*.

→ Toxin: **BOAA (Beta Oxylyl Amino Alanine)**.

C/F: **Neurological, joints (Knee > Hip)**



-*Lathyrus sativus*