Screening for disease:

⇒ Define:

Screening is the presumptive identification of unrecognized disease or defect in an apparently healthy population by the application of tests.

- The mayo submerged portion of ice in iceberg phenomenon of disease correspond to subclinical cases, carries, undiagnosed cases. They are responsible for constant prevalence of the disease.

Criteria for Screening:

This is based on two consideration,

⇒
- the disease to be screened
- test to be applied

Principle of screening:

1. Disease Related Criteria: (Wilson And Junger)

- The condition ~~sought~~ should be an imp public health Problem

- There should be a Recognizable latent or early asymptomatic stage.

__/__/____

- The natural history of the disease should be well understood.

- The disease should have significant morbidity, mortality or disability.

- The test should be Acceptable to the Population.

2. Test Related Criteria:

- There should be suitable screening test or examination
- The test should be simple, useful, Rapid, Reliable and Acceptable to the population.
- The test should be cost-effective if feasible for large population.
- The test should have high sensitivity of specificity.

3. H/t of health system criteria.

- There should be an accepted effective H/t for the di
- Facilities for confirmation of diagnosis & H/t
- There should be an agreed policy on whom to H/t

4. Program-Related Criteria.

- Case finding should be a continous process
- cost of case finding should be economically balanc

List and briefly describe the feature of a disease which make it suitable for screening.

It must satisfy one/all disease Related criteria
Wilson & Jungner classification

1) Imp Public heal Problem.
   Eg: TB, cancer, diabetes

2) Recognizable Latent or Early Asymptomatic stage
   - There must be a detectable pre-clinical Phase

3) Availability the effective t/t
4) Natural History should be well understood
5) continous occurance of Disease
6) Social And Economic Importance

Sensitivity And Specificity:

- These are measure of the validity of a screening or diagnostic test.
  They indicate how well a test correctly identifies diseased or non diseased individuals.

(a) True(+) = Disease, Result is +ve.
(b) False(+) = ND, Result +ve
(d) True(-) = ND, Result -ve
(c) False(-) = D, Result is (-ve)

Sensitivity:

- Sensitivity is the Ability of a test to correctly identify those who actually have the disease
  ie, true positive

$$= \frac{a}{a+c} \times 100$$

$$= \frac{\text{True}(+)}{\text{True}+, \text{False}(-)} \times 100$$

Eg: HIV, Mantoux screening test.
→ Best for screening.

Specificity:

- Ability of a test to correctly identify those who do not have the disease
  ie, True -ve.

$$\frac{d}{b+d} \times 100.$$

Eg: Biopsy for cancer, culture, Organ transplant screening / TB,
↳ Best for confirmation.

Predict the value of +ve test = $\frac{a}{a+b} \times 100$.

-ve test = $\frac{d}{c+d} \times 100$.

False +ve = $\frac{b}{b+d} \times 100$

False -ve = $\frac{c}{c+a} \times 100$.

Lead time = time b/w the detection of the disease by screening test & detection of the disease by clinical signs & symptoms.

Types of Screening: - 5.

- Mass screening:
  - Screening of a whole population or large ~~population~~
  - usually done by govt / PHA.

  Eg: fevers, HTN, DM.

- High Risk screening / Selective Screening.
  - Screening restricted to high Risk groups only (targeted groups).
  - More cost effective & practical

  Eg: Screening for TB, DM in obese
  Screening of cervical Ca in women > 30Y

- Multiphasic Screening
  - 2 or more screening tests applied simultaneously on the same individual during on purpose health check up.

  Eg: - Screening of pregnant Mothers ~~for~~ for B.P, DM, HTN, Hemoglobin, Serum Antigen.

- Opportunistic screening: (case finding screening)
  - screening done for ~~specific disease in~~ specific group as ~~per~~ when a person visit a health care for some other complaint.

- Multiphasic screening:
  - screening of population by applying diff test in diff phase for the diagnosis of one disease.

  eg: +ve for glycosuria → subjected to FBS.