EPIDEMIOLOGY OF LEPROSY
EPIDEMIOLOGY

Study of
Distribution and Determinants
of a disease (leprosy) in a specified population
and to
Apply this knowledge for control of that disease
Determinants of Leprosy

Leprosy

Host

Agent

Environment

Agent

Host

Environment
Causative Organism/Agent

- Mycobacterium leprae
- Gram Positive
- Acid or Alcohol Fast Organism
- Non-toxin producing bacterium.
- Slow growing – 12-14 days to divide
- Non Cultivable – Production of vaccine difficult
- Low Antigenicity – Limited body reaction
BACTERIOLOGY OF LEPROSY contd.

- Schwann cell or occasionally axons
- Obligate intracellular
- Multiplies inside macrophage skin (Histiocytes) nerves (Schwann cells).
- Life span:
  - About 6 months,
  - Longer in case of Persisters
Causative Organism/Agent

- **Source:** Human being.
- **Reservoir:** None
- **Portal of Exit:** Respiratory tract / nose
- **Transmission:** Air-Borne / Droplets
- **Portal of Entry:** Respiratory route
- **Long Incubation Period:** 5 – 7 years
Host Factors.

- 95% population naturally immune to leprosy in India

- Age Distribution: 10 - 20 years (Any Age)

- Gender wise distribution: Male > Female

- Occurrence of leprosy by clusters
  Family clusters influencing factors are
  Sharing of same environment?
  Genetic predisposition?
  Combination of both?
  (one of the opinions)
Host Factors.

- **Distribution by ethnic factors**
  
  Europeans, Chinese and Burmese belong to a ‘highly susceptible' group as compared with Africans, Indians and Malaysians.

- **Mortality**
  
  Leprosy is rarely an immediate and direct cause of death.
Environmental Factors

- **Socio-Economic Factor:**
  - Poverty Related Factors:
    - Overcrowding,
    - Lack of hygiene,
    - Lack of ventilation
  - Improved socio-economic condition

- **Migration:** Affecting elimination &
- Major cause of spread of leprosy
- Fear of Stigma & discrimination
Epidemiology of Leprosy

Epidemiologic concept of interactions of the Agent, Host & Environment

Infectivity
Pathogenicity
Virulence
Toxicity
Antigenicity

Agent

Host

Environment

Age
Sex
Race
Hereditary
Nutrition
Occupation
Immunity

Climate
Soil
Geography
Housing

Psycho Social
Custom, culture
Standard of living
Over crowding, lack of hygiene
Lack of ventilation
Fear of Stigma, Discrimination for the disease
Prevention & Control of leprosy

Non Cultivable

No Vaccine available

No Primary Prevention
Prevention & Control of leprosy

- Early Diagnosis and Treatment
- Screening of Contacts
- Generating Awareness
- Improving Environment & basic hygiene
Disability prevention and Rehabilitation:

Early Diagnosis of Primary Disability and self care

Reconstructive Surgery

Socio- economic Rehabilitation
Thanks !!!