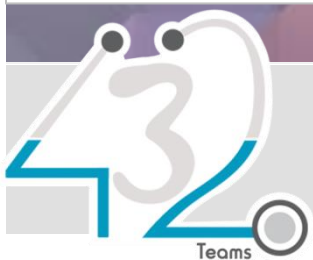


13 Epidemiology of Tuberculosis

Objectives

1. Perceive the magnitude of global tuberculosis problem.
2. Understand the cycle of infection of tuberculosis.
3. Understand methods of prevention and control of tuberculosis.

*Don't forget to go through the original slides



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Tuberculosis

Tuberculosis (TB) remains one of the world's **deadliest communicable diseases, and it presents in all world's regions.** In 2013, an estimated 9.0 million people developed TB and 1.5 million died from the disease, 360,000 of whom were HIV-positive.

95% from developing countries, 19-43% of world's population is infected.

Of the estimated 9 million people who developed TB in 2013, **more than half (56%) were Southeast Asia and Western Pacific regions.** A further one-quarter was in the **African region**, which also had the **highest rates of cases and deaths relative to population.** India and China alone accounted for 24% and 11% of total cases, respectively.

Effective treatment and diagnosis decreased the mortality, and about 60% of TB deaths occur among men. Almost 60% of TB cases worldwide are now detected, and the vast majority is cured.

The rate of TB among Saudis ranged between **8.6 and 12.2/100,000.** **Regional variation was observed. Makkah and Jazan regions had the highest incidence rates.**

Non-Saudis had 2-3 times higher incidence. Disease trend was rising over the first 10 years (2000-2010) then it started to fall slightly.

Factors contributing to rise of TB occurrence:

- HIV/AIDS. "15% of deaths among AIDS patients are due to TB".
- Poorly managed TB programs.
- Movement of people. "Global trade, travelling and migration".

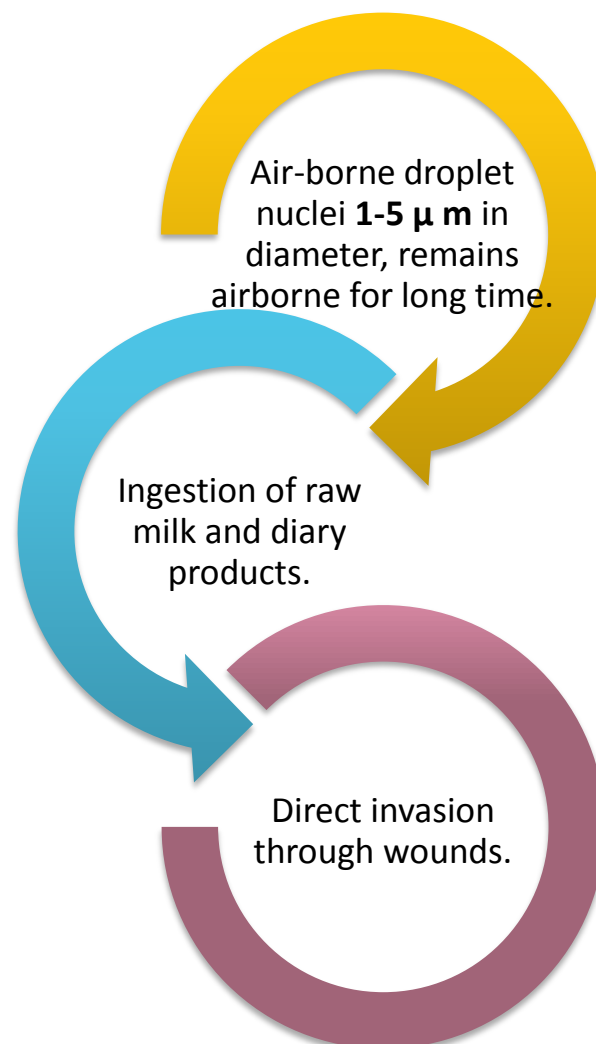
Agent:

Mycobacterium tuberculosis complex

- M. Tuberculosis
- M. Bovis
- M. Africanum
- M. Microti
- M. Canetti

Reservoir: Human and cattle.

Modes of transmission:

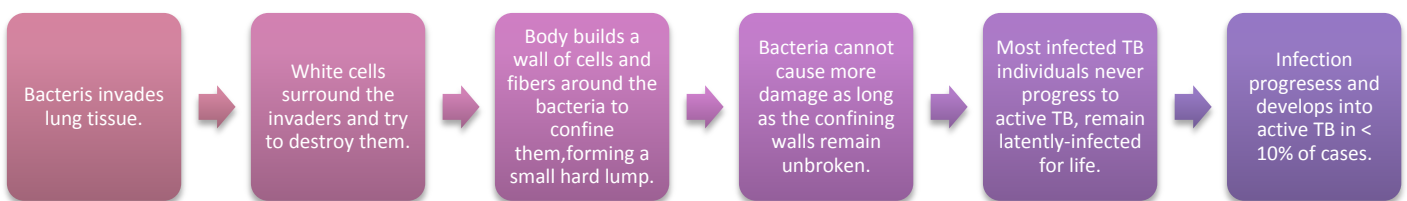


Factors determining the probability of infection:

1. *Number of organisms expelled.*
2. *Concentration of organisms in air.*
3. *Length of exposure.*
4. *Immune status of exposed person.*

Immune system response:

Incubation period = 4-12 weeks.



Diagnosis:

1. Tuberculin skin (**Mantoux**) test to identify infection.
2. Acid-fast bacilli smear.
3. Culture.
4. MMR and X-ray.
5. Genotype (**DNA fingerprinting**).

Interpretation: On the basis of sensitivity, specificity, and the prevalence of TB in different groups three cut points have been recommended for defining positive tuberculin reaction:

5mm, 10 mm, 15 mm.

Classification of tuberculosis: Based on the exposure, infection and disease.

- A. **Class 0:** no history of exposure, negative tuberculin test (**no infection**).
- B. **Class 1:** history of exposure and negative tuberculin test.
- C. **Class 2:** positive tuberculin test (**latent infection**), negative X-ray, bacteriology and radiology.
- D. **Class 3:** clinically active TB whose diagnostic procedures were completed (**positive clinical, bacteriological or/and radiological of current TB**).
- E. **Class 4:** not clinically active, receiving treatment for latent infection, completed previously prescribed, course of chemotherapy, and **abnormal stable radiology with negative bacteriology and positive tuberculin test**.
- F. **Class 5:** suspicion, clinically active disease has not ruled out (**persons not adequately treated in the past, and should not remain in this stage > 3 months**).

Prevention and control:

Prevention by:

- ✓ *Case finding.*
- ✓ *Vaccination.*
- ✓ *Chemoprophylaxis.*
- ✓ *Environmental.*

Control by:

- ✓ *Reporting.*
- ✓ *Isolation.*
- ✓ *Concurrent disinfection.*
- ✓ *Contact measures.*
- ✓ *Treatment.*

MCQs

Q1: TB is more common in which of the following:

A: South Asia

B: Pakistan

C: Sub-Saharan Africa

Answer is A

Community medicine team leader :

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If you find any Mistakes please contact me:

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