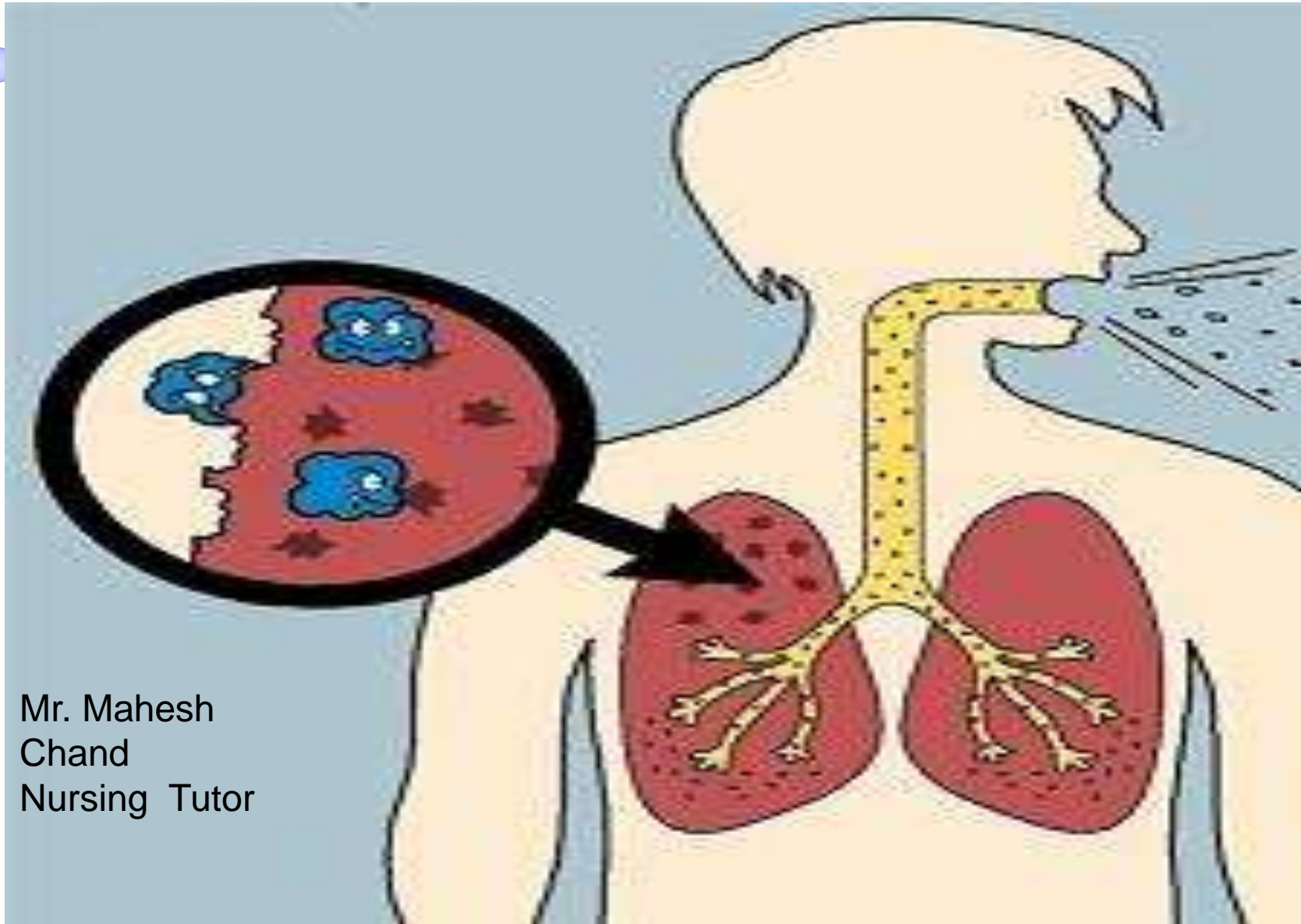


# TUBERCULOSIS



Mr. Mahesh  
Chand  
Nursing Tutor

# INTRODUCTION

- Tuberculosis is a worldwide public health problem



# Cont.. INTRODUCTION

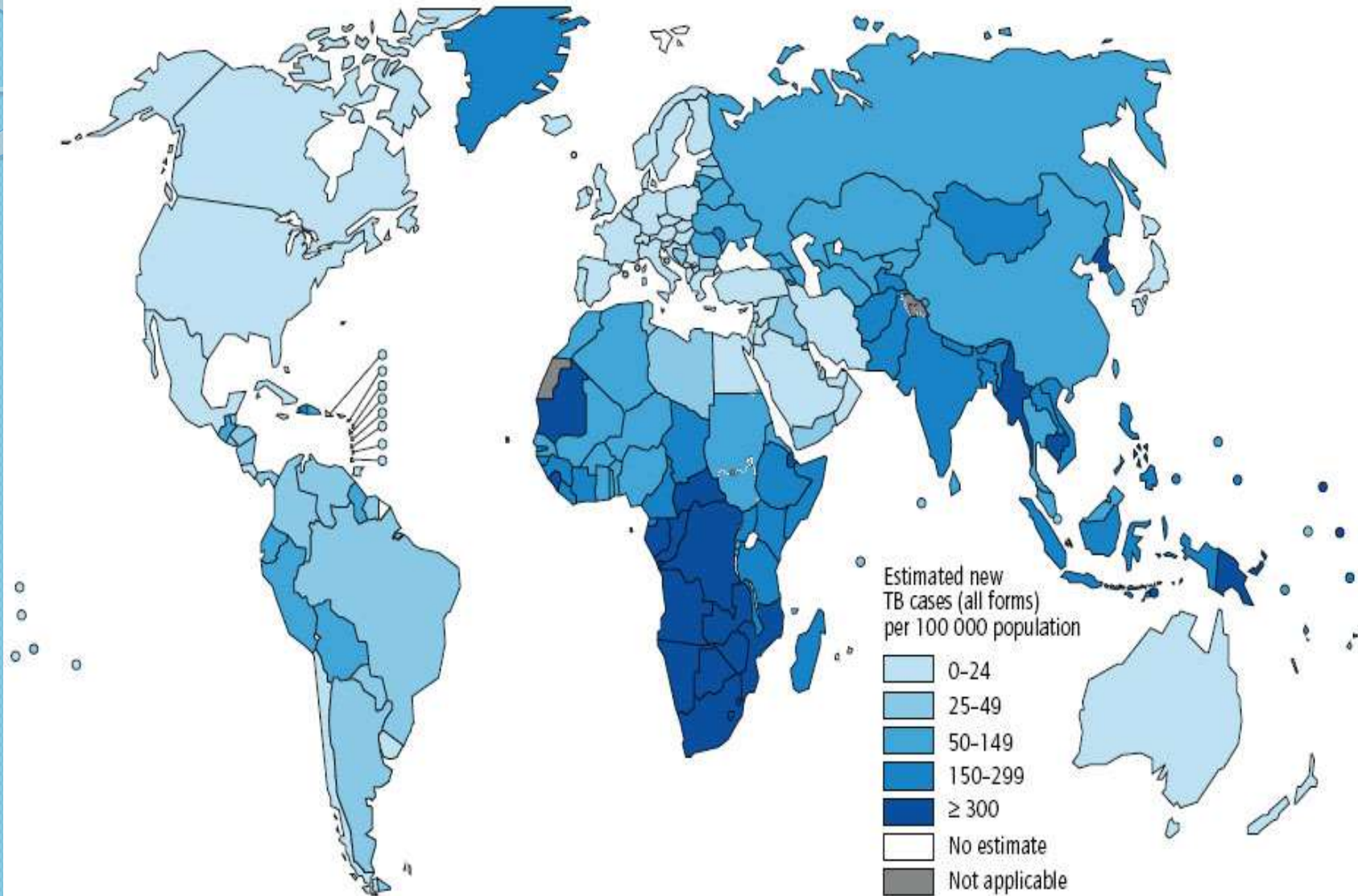


# Cont.. INTRODUCTION

- An estimated 8- 9 million cases per year and approximately 2 million die annually.
- Everyday 5000 people develop the disease. India is the highest TB burden country in the world.

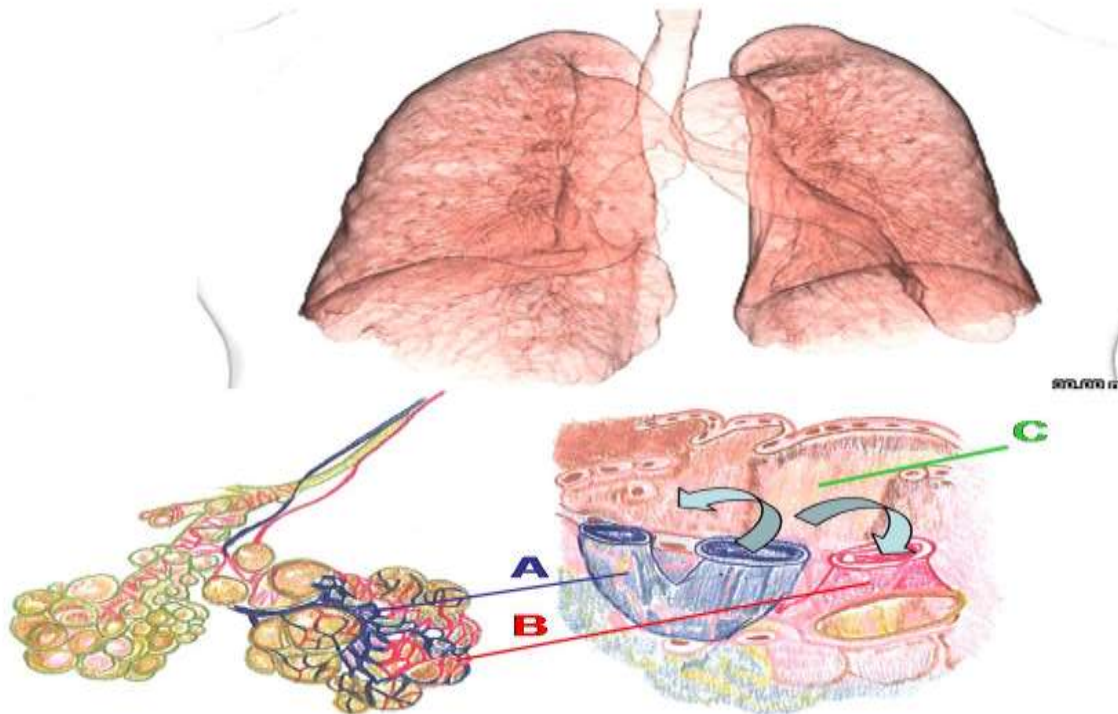
# Cont.. INTRODUCTION

Estimated TB incidence rates, 2011



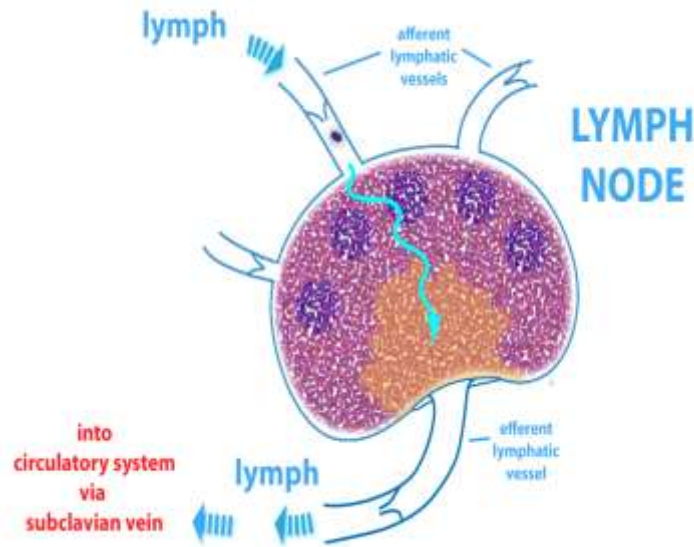
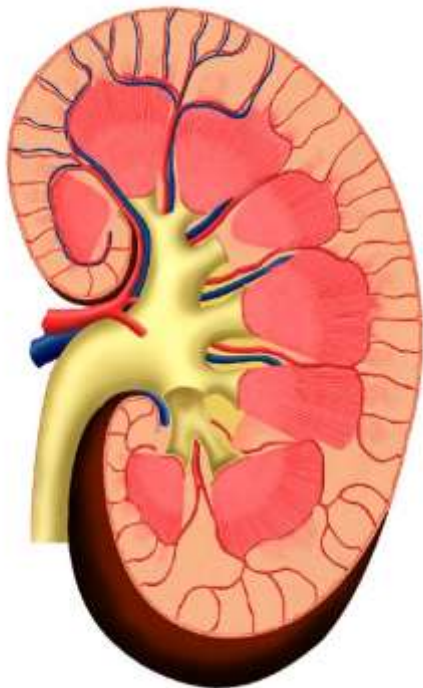
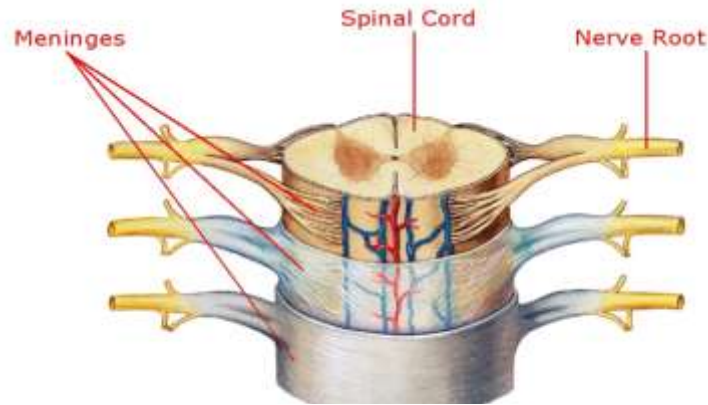
# MEANING

- Tuberculosis (TB) is an infectious disease that primarily affects the lung



# Cont.. MEANING

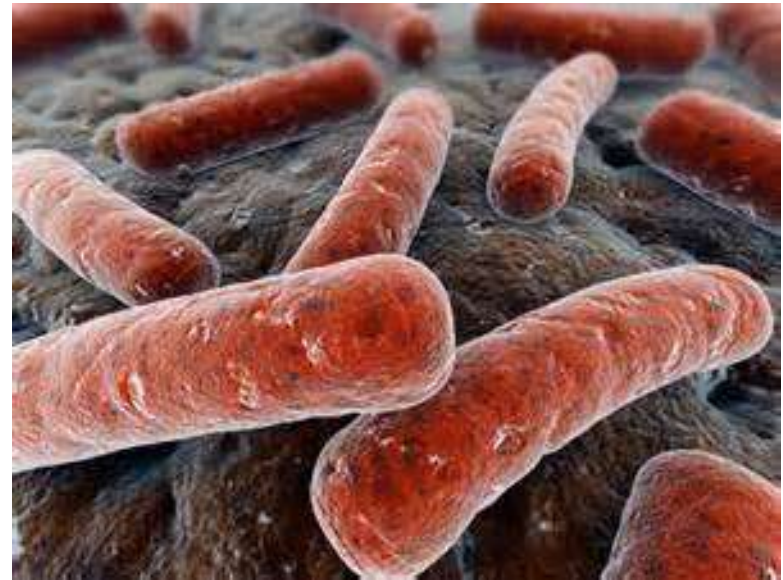
It also may be transmitted to other parts of the body, includ



The human skeleton

# Cont.. MEANING

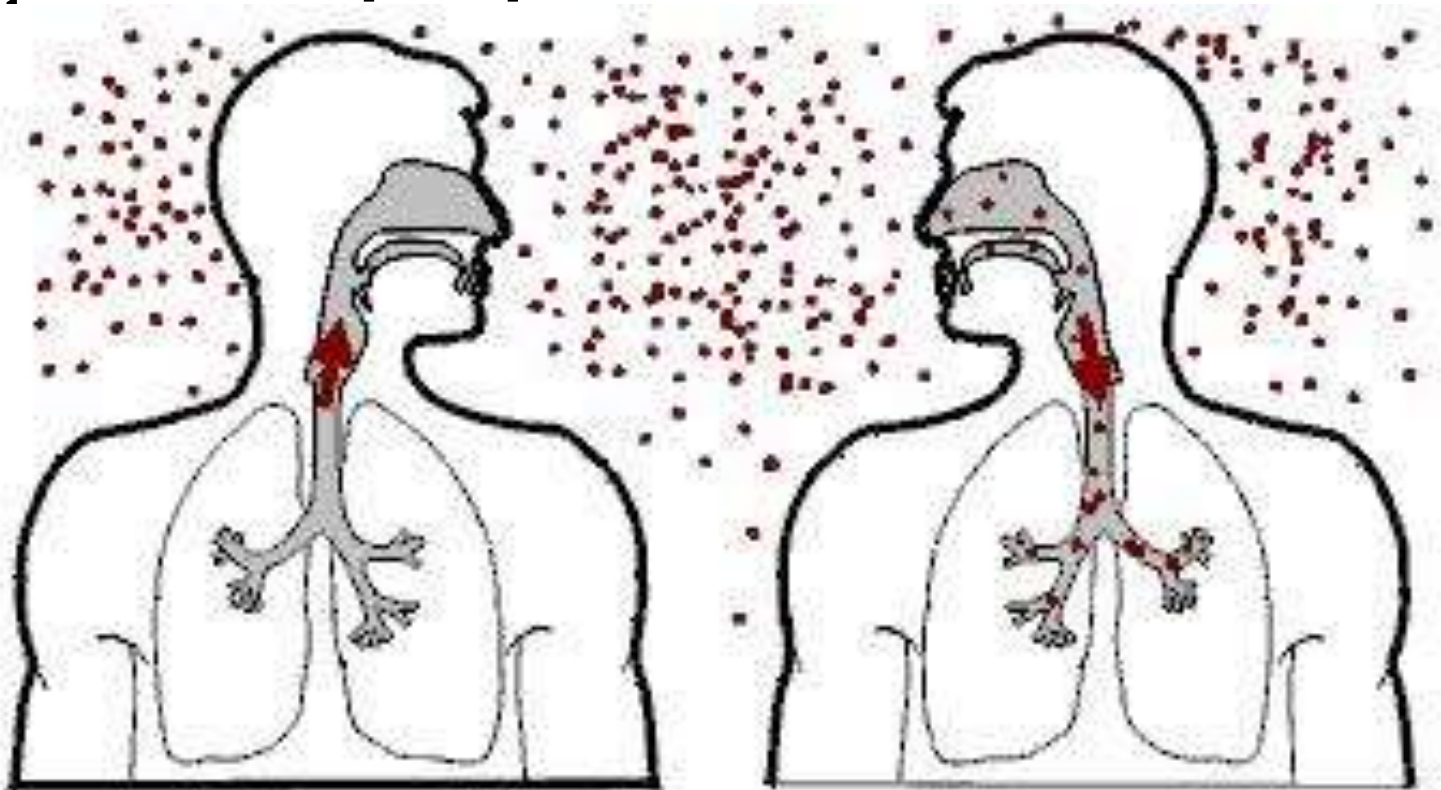
- The primary infectious agent, *Mycobacterium tuberculosis*, is an acid fast aerobic rod that grows slowly and is sensitive to heat and ultraviolet light.





# TRANSMISSION

- TB spreads from person to person by airborne



**Cony..**

## **TRANSMISSION**

- An infected person releases droplet nuclei
- ( usually particles 1 to 5  $\mu\text{m}$  in diameter) through talking, coughing, sneezing, laughing, or singing

# RISK FACTORS

- Close contact with someone who has active TB
- Imm status



# Cont.. RISK FACTORS

- Substance abuse



- Any person without adequate health care

# Cont.. RISK FACTORS

- Preexisting medical conditions or special treatment
- Immigration from countries with a high prevalence of TB



# Cont.. RISK FACTORS

- Institutionalization
- Living in overcrowded, substandard housing
- Being a health worker performing high risk activities



# PATHOPHYSIOLOGY

Due to etiological factors



Exposure to the source



no  
infection  
50%

Cont..

## PATHOPHYSIOLOGY

Bacteria reaches lung and enters macrophages( 20-25%)

After cell immune system is activated, granuloma is formed from the alveolar macrophages to prevent further infection



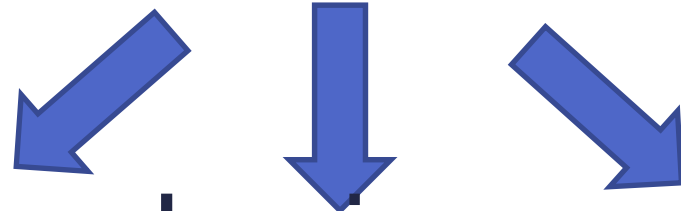
Cont..

# PATHOPHYSIOLOGY

Bacteria  
ceases to  
grow  
lesions  
calcifies  
(95%)

Lesion  
s  
liquefies  
s

Bacteri  
a  
coughed  
up in  
the  
sputum



**Cont..**

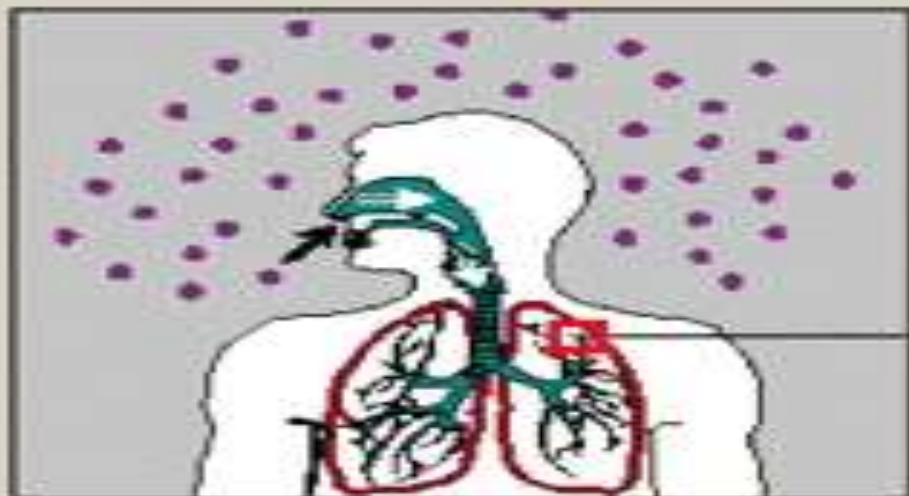
# **PATHOPHYSIOLOGY**

**Bacteria  
ceases to  
grow  
lesions  
calcifies  
(95%)**

**Immune  
suppresses and  
reactivation**

**Lesions  
liquefies**

**Spreads to  
blood organs  
and death**

**A**

Droplet nuclei with bacilli are inhaled, enter the lung, and deposit in alveoli.

**B**

Macrophages and T lymphocytes act together to try to contain the infection by forming granulomas.

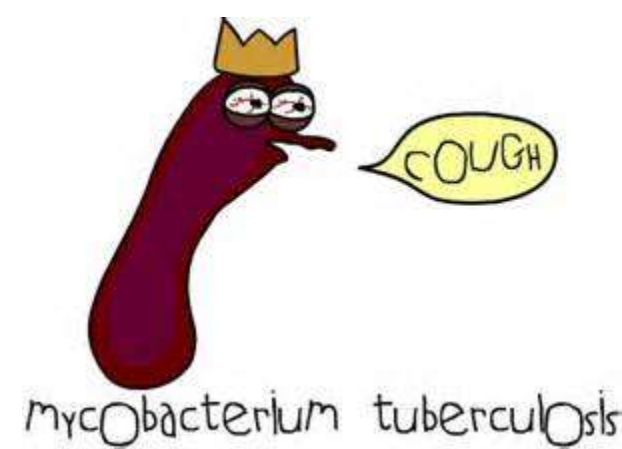
**C**

In weaker immune systems, the wall loses integrity and the bacilli are able to escape and spread to other alveoli or other organs.

# STAGES OF TUBERCULOSIS

## Primary disease

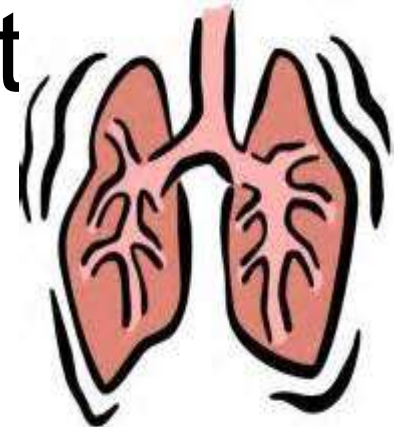
- Immune system does not control primary infection
- Patient often have non specific signs and symptom's
- Non productive cough develops and diagnosis may be difficult



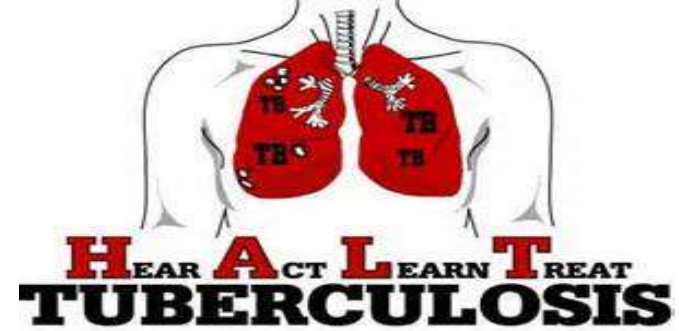
# Cont.. STAGES

## Primary progressive disease

- Cough becomes productive
- More signs and symptoms appears
- Diagnosis shows TB on chest x rays and sputum cult



# Cont.. STAGES



## Latent disease

- Mycobacterium persist in the body
- No sign and symptoms occur
- Patient are susceptible for reactivation of disease
- Granuloma lesion becomes calcify and fibrotic and appears on chest x rays

# CLINICAL MANIFESTATION

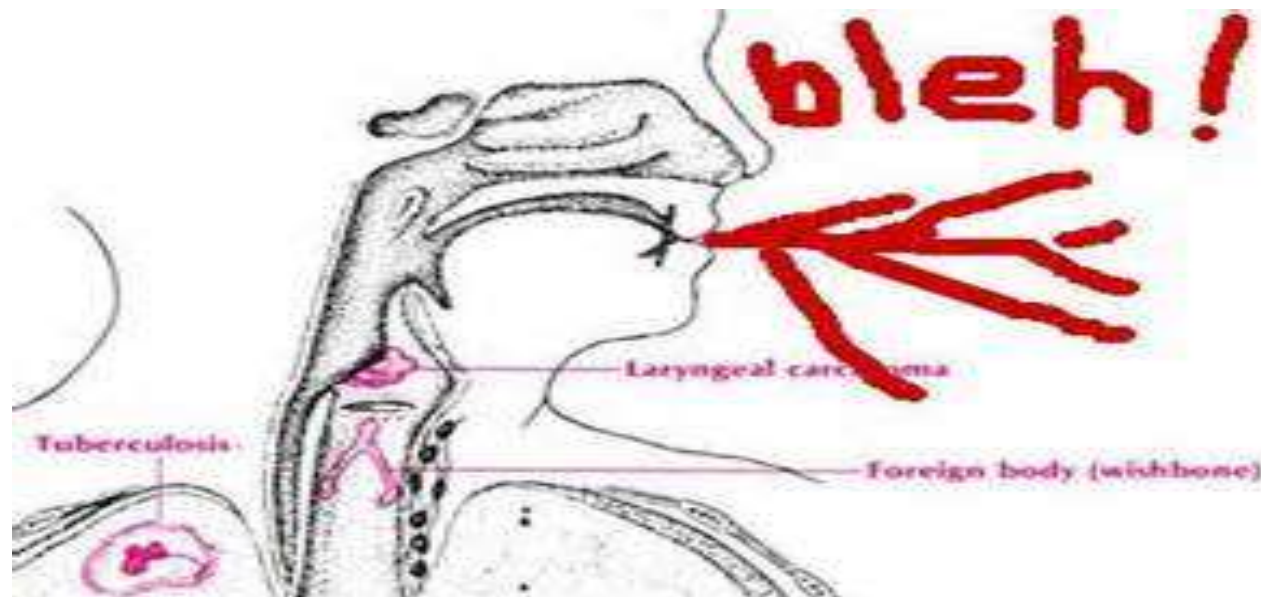
- Low grade fever
- Cough( may be productive or nonproductive)



- Night sweat

# Cont.. CLINICAL MANIFESTATION

- Fatigue
- Weight loss
- Hemoptysis also may occur





# Cont.. CLINICAL MANIFESTATION

- Anorexia
- Finger clubbing, a late sign of poor oxygenation, may occur
- The inflamed parenchyma may cause pleuritic chest pain
- Dyspnea



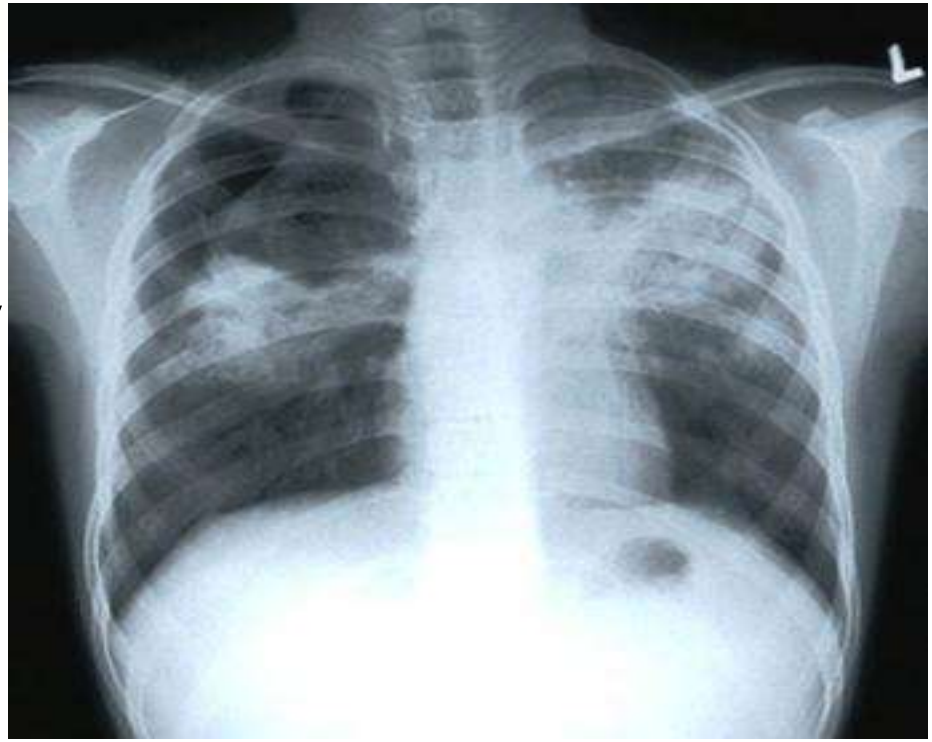
# DIAGNOSIS

- History and physical examination



skin test

- Chest x-ray



# Cont.. DIAGNOSIS

- Acid fast bacilli smear
- Sputum culture
- qunatiFERON-TB test



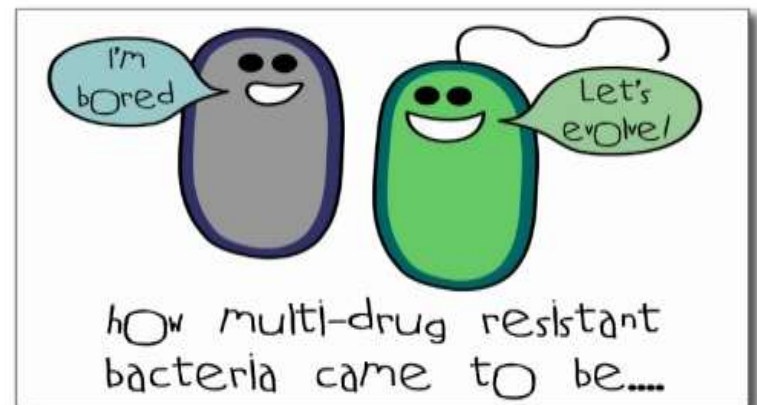
- bacteriologic studies

# TREATMENT

- Pulmonary TB is treated primarily with anti-tuberculosis agents for 6 to 12 months.
- BCG vaccine is given at birth to prevent it.
- The continuing and increasing resistance of *M. tuberculosis* to TB is a worldwide concern and challenge

# Cont.. TREATMENT

- **Primary drug resistance:**  
Resistance to one of the first line anti-tuberculosis agents in people who have not had previous treatment



# Cont.. TREATMENT

- **Secondary drug resistance:** Drug resistance to one or more anti-tuberculosis agents in patients



# Cont.. TREATMENT

- **Multi drug resistance(MDR):**  
Resistance to two agents,  
Isoniazid and rifampin



# JOURNAL STUDY

- **Development of a new tuberculosis vaccine: is there value in the mucosal approach**
- **Effective prophylactic vaccination remains the key long-term strategy for combating TB.**

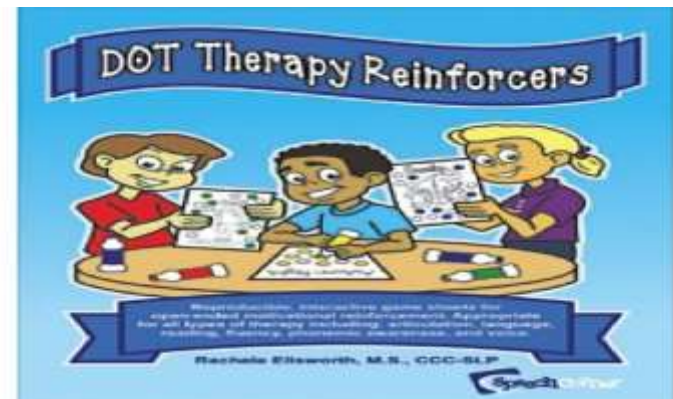


## Cont.. JOURNAL

- It is also based on the assumption, that the failure of recent human vaccine trials could have been due to a suboptimal vaccine design and delivery, and focuses on the most recent advances in the field of mucosal TB vaccine development, with a specific emphasis on subunit TB

# Cont.. TREATMENT

- **DOTS( DIRECTLY OBSERVED THERAPY)**
- Involves providing antituberculous drug directly to the patient and watching as he or she swallows the medications



# Cont.. TREATMENT

- **First line drugs:** isoniazid (INH), rifampin, ethambutol, pyrazinamide (if pyrazinamide cannot be included in the initial phase due to liver disease, it can be given later)



# Cont.. TREATMENT

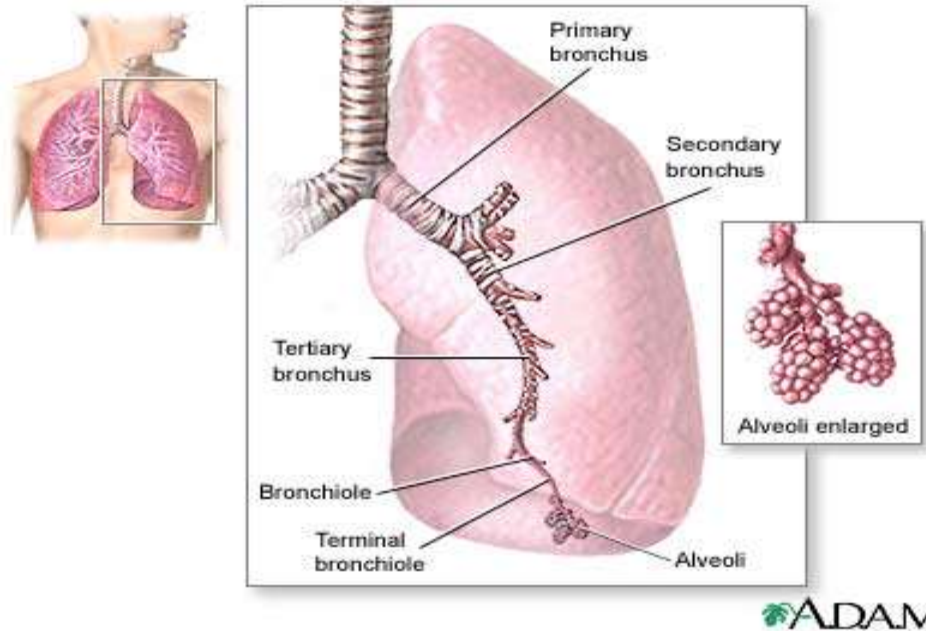
- **Second line drugs:**  
cycloserine , ethionamide,  
streptomycin capreomycin



# Cont.. TREATMENT

- **DRUG THERAPY REGIMEN**
- **Initial phase** : 4 drugs consist of INH, rifampin, pyrazinamide, ethanbutol for 4 months
- **Continuation phase**: INH, rifampin for 2 months

# COMPLICATIONS



- Miliary TB
- Pleural effusion and empyema
- TB pneumonia
- Other organs involvement

# NURSING MANAGEMENT



- Promoting airway clearance
- Advocating adherence to treatment regimen
- Promoting activity and adequate nutrition
- Preventing spreading of tuberculosis infection



SUMMARY





# QUESTION

- Define tuberculosis
- List major risk factors of tuberculosis
- Classify the stages of tuberculosis
- What is the treatment of tuberculosis?

# MCQ

1. BCG vaccine is used to prevent

a. Cholera

b. Tetanus

c. Typhoid

d. Tuberculosis

## Cont.. MCQ

2. Mode of transmission of tuberculosis is

a. Direct contact

b. Inhalation

c. Ingestion

d. Sexual contact

# ASSIGNMENT

- A client came with the history of fever, cough since 1 week, weakness, anorexia, dyspnea, weight loss; he was diagnosed with active tuberculosis. Write 5 care plans for this client according to the priority.

<b>SL NO</b>	<b>CRETERIA</b>	<b>MARKS ALLOTTED</b>
1	List down 5 nursing diagnosis	3
2	Objectives	2
3	Plan of action	3
4	outcome	2
5	Total	10

# REFERENCE

## JOURNAL

- GR Diogo, R. R. (2014( september)). Development of new tuberculosis vaccine:is there value in the mucosal approach. *Journal of Immunotherapy.*

# Cont.. REFERENCE

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- [www. Pubmedcentral.com](http://www.Pubmedcentral.com)
- [www. Wikipedia](http://www.Wikipedia) (more)

T H A N K

Y 😊 U!