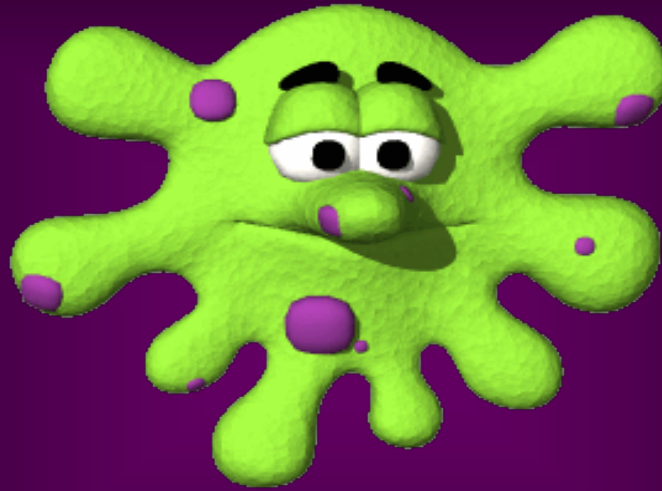


Tuberculosis 101



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The reader will be able to.....

recall two ways that TB is transmitted

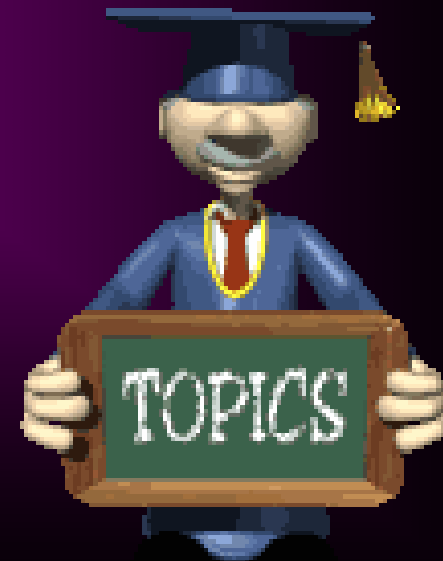
identify two risk groups for TB transmission

state the various sites of TB infection or disease

describe the difference between TB disease and infection

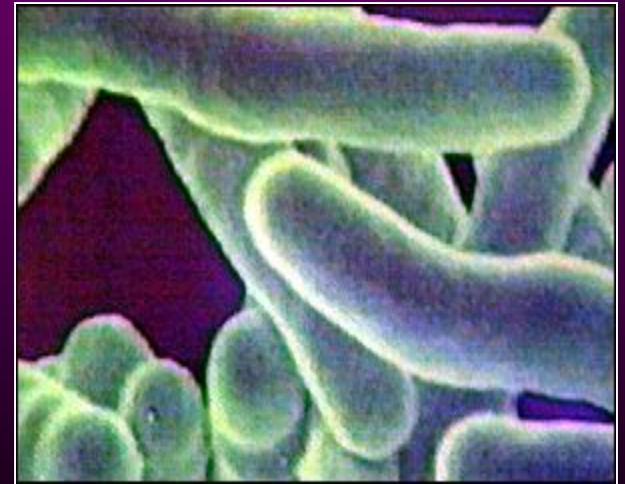
explain the treatment of TB

discuss the various treatments for TB



What is TB?

- Is an infectious disease caused by bacteria called: *Mycobacterium tuberculosis*
- The bacteria usually attack the lungs, but they can also damage other parts of the body.
- If not treated properly, TB disease can be fatal.



Areas of Concern



- ↑ **TB cases continue to be reported in every state**
- ↑ **Drug-resistant cases reported in almost every state**
- ↑ **Estimated 10-15 million people in U.S. infected with *M.tuberculosis***
- ↑ **Without intervention, about 10% will develop TB disease at some point in life**

TRANSMISSION

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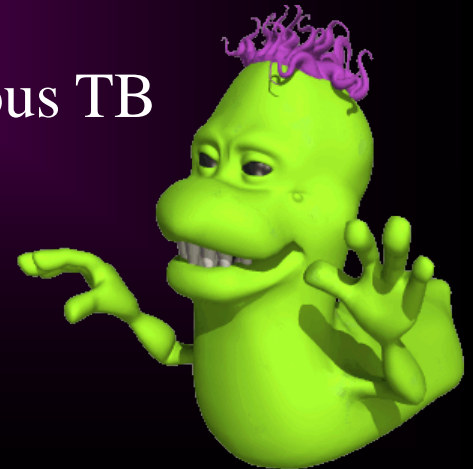
Latent TB	TB Disease
<ul style="list-style-type: none">• Usually has a skin test or blood test indicating TB Infection	<ul style="list-style-type: none">• Usually has a skin test or blood test result indicating TB infection
<ul style="list-style-type: none">• Has a normal chest X-ray, negative labs	<ul style="list-style-type: none">• May have an abnormal chest X-ray or positive labs
<ul style="list-style-type: none">• Does not feel sick	<ul style="list-style-type: none">• Feels sick and may have symptoms such as coughing, fever and weight loss
<ul style="list-style-type: none">• Has TB bacterial in the body, but inactive	<ul style="list-style-type: none">• Has active TB bacteria in the body
<ul style="list-style-type: none">• Can not spread TB to others	<ul style="list-style-type: none">• Can spread TB to others
<ul style="list-style-type: none">• Should be given treatment for latent TB infection to prevent TB disease	<ul style="list-style-type: none">• Must have treatment for active TB disease

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Transmission of *M. tuberculosis*

- ↑ Spread by droplet nuclei
- ↑ Expelled when person with infectious TB coughs, sneezes, speaks, or sings
- ↑ Close contacts at highest risk of becoming infected
- ↑ Transmission occurs from person with infectious TB disease (not latent TB infection)



Probability TB Will Be Transmitted

- ↑ How sick the person with TB is or was
- ↑ Environment in which exposure occurred
- ↑ Duration of exposure
- ↑ How strong the organism is



About The Disease

- ↑ 10% of infected persons with normal immune systems develop TB at some point in life
- ↑ HIV strongest risk factor for development of TB if infected
- ↑ Risk of developing TB disease 7% to 10% each year
- ↑ Certain medical conditions increase risk that TB infection will progress to TB disease



Drug-Resistant TB

- ↑ Drug-resistant TB transmitted same way as drug-susceptible TB
- ↑ Drug resistance is divided into two types:
 1. Primary resistance develops in person initially infected with resistant organisms
 2. Secondary resistance (acquired resistance) develops during TB therapy



Conditions That Increase the Risk of Progression to TB Disease

- ↑ HIV infection
- ↑ Substance abuse
- ↑ Recent infections
- ↑ Chest X-Ray findings suggestive of previous TB
- ↑ Diabetes mellitus
- ↑ Silicosis
- ↑ Prolonged corticosteroid therapy & Other immunosuppressive



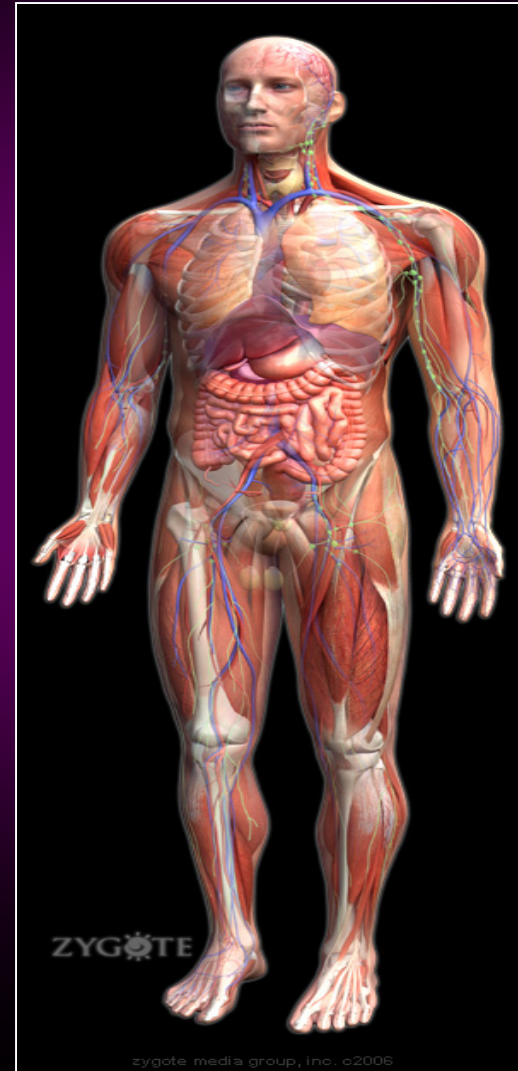
Conditions That Increase the Risk of Progression to TB Disease

- ↑ Cancer of the head and neck
- ↑ Hematologic and reticuloendothelial disease
- ↑ End-stage renal disease
- ↑ Intestinal bypass or gastrectomy
- ↑ Chronic malabsorption syndromes
- ↑ Low body weight (10% or more below the ideal)



Common Sites of TB Disease

- ↑ Lungs
- ↑ Pleura
- ↑ CNS (Brain)
- ↑ Lymphatic system
- ↑ Genitourinary system
- ↑ Bone and joints
- ↑ Disseminated (miliary TB)



Factors Contributing to the Increase in TB Morbidity:

- ↑ Deterioration of the TB public health infrastructure
- ↑ HIV/AIDS
- ↑ Immigrants from countries where TB is common
- ↑ Transmission of TB in congregate settings



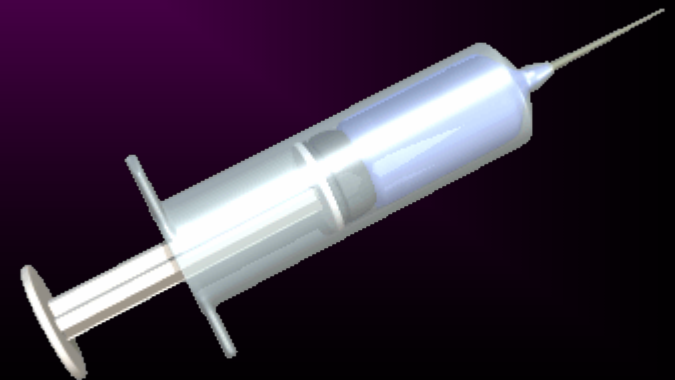
Persons at Higher Risk for Exposure to or Infection with TB

- ↑ Close contacts of person known or suspected to have TB
- ↑ Foreign-born person from areas where TB is common
- ↑ Residents and employees of high-risk congregate settings
- ↑ Health care workers (HCWs) who serve high-risk clients



Persons at Higher Risk for Exposure to Infection with TB

- ↑ Medically underserved, low-income populations
- ↑ High-risk racial or ethnic minority populations
- ↑ Children exposed to adults in high-risk categories
- ↑ Persons who inject illicit drugs



Persons at Higher Risk of Developing TB Disease once Infected

- ↑ HIV infected
- ↑ Recently infected
- ↑ Persons with certain medical conditions
- ↑ Persons who inject illicit drugs
- ↑ History of inadequately treated TB



TESTING FOR TB DISEASE AND INFECTION



Groups That Should Be Tested for TB Disease

Persons at higher risk for exposure to or infection with TB

- ↑ Close contacts of a person known or suspected to have TB
- ↑ Foreign-born persons from areas where TB is common
- ↑ Residents and employees of high-risk congregate settings
- ↑ Health care workers who serve high-risk clients



Groups That Should Be Tested for TB Disease

Persons at higher risk for TB disease once infected

- ↑ Persons with HIV infections
- ↑ Persons recently infected with M.tuberculosis
- ↑ Persons with certain medical conditions
- ↑ Persons who inject illicit drugs
- ↑ Persons with a history of inadequately treated TB



Systemic Symptoms of TB

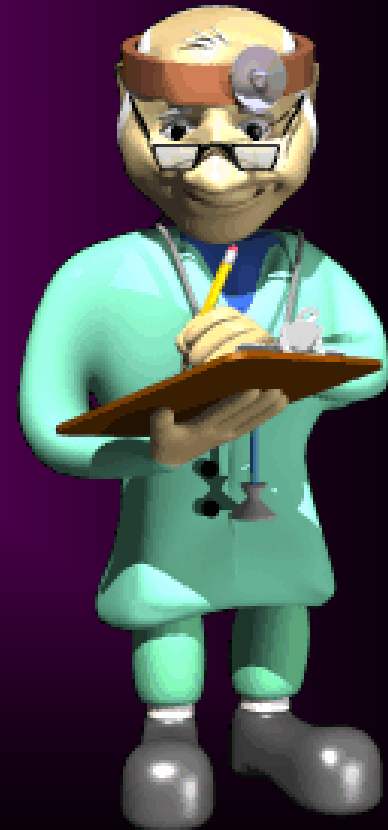
- ↑ Fever
- ↑ Chills
- ↑ Night sweats
- ↑ Appetite loss
- ↑ Weight loss
- ↑ Easily fatigued



DIAGNOSIS OF TB

TB is Diagnosed by...

- ↑ Positive Skin Test (TST)
- ↑ Blood test (QuantiFERON Gold)
- ↑ Chest X-ray
- ↑ Bacteriology



TB Test

- The TB skin test (Mantoux tuberculin skin test) is performed by injecting a small amount of fluid (called tuberculin) into the skin in the lower part of the arm.
- A person given the tuberculin skin test **must return within 48 to 72 hours** to **have a trained health care worker** look for a reaction on the arm.

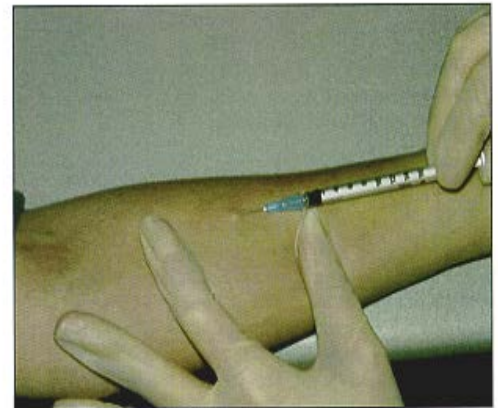


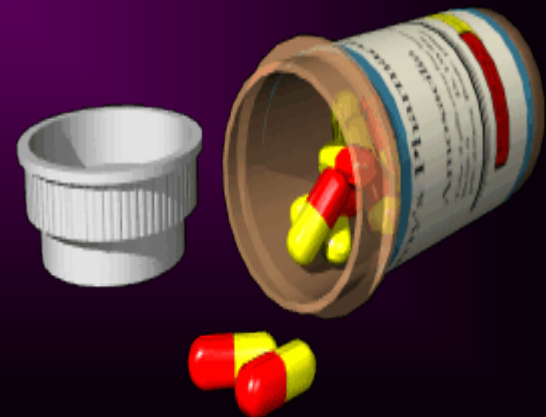
Figure 1. Administration of the tuberculin skin test using the Mantoux method.

TB Testing

- A positive TB skin test or TB blood test only tells that a person has been infected with TB bacteria. **It does not tell whether or not the person has progressed to TB disease.**
- Other tests, such as a chest x-ray and a sample of sputum, are needed to see whether the person has TB disease

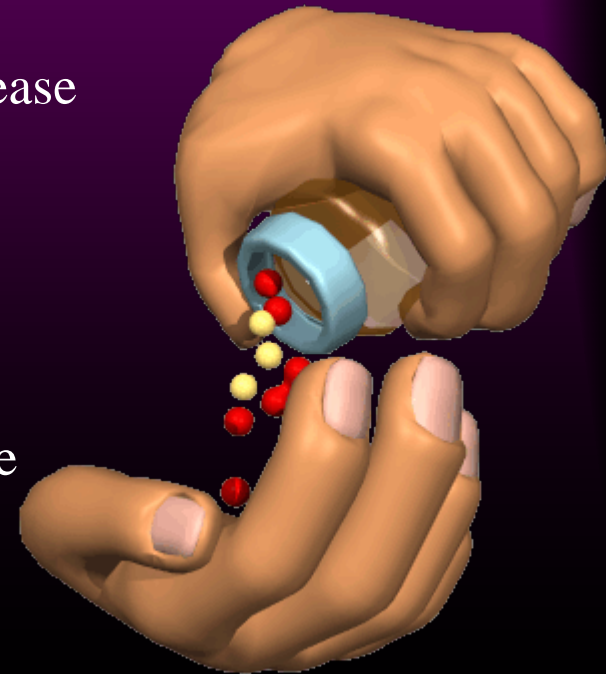


TREATMENT OF TB



Treatment For Active TB

- A person with active TB disease has a large amount of TB bacteria in the body.
- TB disease can be treated by taking several drugs for 6 to 12 months.
- It is very important that people who have TB disease finish the medicine, and take the drugs exactly as prescribed.
- If they stop taking the drugs too soon, they can become sick again; if they do not take the drugs correctly, the germs that are still alive may become resistant to those drugs.
- TB that is resistant to drugs is harder and more expensive to treat.



Treatment Latent TB

- People with latent TB infection have TB germs in their bodies, but they are not sick because the germs are not active.
- These people do not have symptoms of TB disease, and they cannot spread the germs to others.
- However, they may develop TB disease in the future if not treated.
- They are often prescribed treatment to prevent them from developing TB disease.



For More Information Visit:

American Lung Association

<http://www.lungusa.org/>

Centers for Disease Control and Prevention

www.cdc.gov

