Infection Prevention and Control Annual Education

Tuberculosis Prevention and Control 2015

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Objectives

After you complete this Computer-Based Learning (CBL) module, you should be able to:

– Describe groups that are at high risk of tuberculosis (TB) infection.

– Explain the difference between latent TB infection and TB disease.

– Describe measures to reduce and control exposure to tuberculosis, including these types of controls:
  • Administrative
  • Engineering
  • Respiratory
Tuberculosis (TB) Bacterium: Basics

- Tuberculosis (TB) disease is caused by a bacterium called *Mycobacterium tuberculosis (M. tuberculosis)*.

- *Mycobacterium tuberculosis*:  
  - Is transferred through the air when a person coughs, sneezes, sings, talks, or breathes.
  - The particles are so small that normal air currents keep them airborne and can spread them throughout a room or building unless isolation measures are used.
  - May cause infection when you **inhale** the organism exhaled by a person with TB disease.
TB Disease: Basics

• Tuberculosis (TB):
  – Primarily involves the lungs (pulmonary TB), but the infection can spread to other organs (extrapulmonary TB).
  – Is curable if diagnosed and treated early.

• Anyone who shares air for an extended period of time with a person who has TB in the lungs or larynx is at risk for TB.
Georgia TB Case Profile (2013)

- In 2013, Georgia had the seventh highest TB case rate among the 50 states of the US.
- TB cases among persons born outside of the United States accounted for 51% of TB cases in Georgia in 2013.
- Among 173 foreign-born cases, 65 (38%) were diagnosed in the first five years of their arrival in the U.S.
- Georgia TB case rates by race/ethnicity:
  - Asians (19.5 per 100,000)
  - Hispanics (6.2 per 100,000)
  - Non-Hispanic Blacks (5.5 per 100,000)
  - White non-Hispanic (0.7 per 100,000)

  Source: 2013 Georgia Tuberculosis Report

- GMC cases fiscal year 2014:
  - 18 total cases
  - 1 non-pulmonary
TB Infection: High-Risk Groups

• Individuals at high risk for TB infection include members of these groups:
  – Contacts of persons known or suspected to have infectious TB disease.
  – People who have entered the United States within the last 5 years from areas of the world where TB is common.
    • Examples: Asia, Africa, Latin America
  – Persons who visit areas of the world where TB is common, especially if visits are frequent or prolonged.
TB Infection: High-Risk Groups, cont.

– Individuals at high risk for TB infection also include members of these groups:
  • People who live or work in congregate settings among individuals who are at increased risk for TB disease
    – Examples: Prisons, homeless shelters
  • Healthcare workers who serve individuals who are at increased risk for TB disease
  • Populations defined locally as high risk for latent TB infection or TB disease
TB Exposures

• Persons who spend a lot of time in enclosed spaces with people who have TB disease are at the highest risk of becoming infected with *M. tuberculosis*.

• In the hospital this may include other patients and healthcare associates.
  – These persons are identified by Infection Prevention and Occupational Health through associate interviews and chart review.

• Occupational Health and Infection Prevention are responsible for ensuring that these individuals are notified and evaluated for significant exposure.
  – This activity is called a contact investigation.
Developing TB Disease: Risk Factors

• The risk of developing TB disease is much higher for persons with weakened immune systems than for persons with normal immune systems.

• HIV infection is the strongest known risk factor for progressing to TB disease.

• If you have a weakened immune system, consider discussing your risk with Occupational Health or Infection Prevention.
Risk Factors, continued

Other people who have weak immune systems that put them at high risk for developing TB disease include:

– Children younger than 5 years of age.
– Persons who are receiving **immunosuppressive therapy**.
– Persons with:
  • Silicosis,
  • Diabetes,
  • Chronic renal failure,
  • Leukemia,
  • Lymphoma, or
  • Cancer of the head, neck, or lung.
– Persons who have had **gastrectomy** or **jejunoileal bypass**.
– Persons who weigh less than 90% of their ideal body weight.
– Persons who abuse drugs and alcohol.
Latent TB Infection

• Not everyone who is infected with TB bacteria becomes sick.
• A person who is infected with *M. tuberculosis* but does not have TB disease is said to have a **latent TB infection**.
• For such individuals, the only sign of TB infection is a positive reaction to the tuberculin skin test or TB blood test.
• Overall, without treatment, about 5% to 10% of infected persons will develop TB disease.
  – About half of those people who develop TB will do so within the first two years of infection.
  – For persons whose immune systems are weak, especially those with HIV infection, the risk of developing TB disease is considerably higher than for persons with normal immune systems.

## Latent TB Infection v. TB Disease

<table>
<thead>
<tr>
<th>Persons with Latent TB Infection:</th>
<th>Persons with TB Disease:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not feel sick.</td>
<td>Usually feel sick.</td>
</tr>
<tr>
<td>Have no symptoms.</td>
<td>Usually have one or more symptoms.</td>
</tr>
<tr>
<td>Cannot spread TB to others.</td>
<td>May be able to spread TB bacteria to others.</td>
</tr>
<tr>
<td>Need to take preventative treatment.</td>
<td>Need to have the infection treated.</td>
</tr>
<tr>
<td>Are at risk for developing TB disease.</td>
<td></td>
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</tbody>
</table>
Contact Investigation

• A **baseline** tuberculin skin test (TST) is performed for those with a previously negative TST and a symptom screening questionnaire for those with a previously positive TST.

• The TST and symptom screen are **repeated in 8-10 weeks** after the end of exposure.

• If the repeat TST or screening questionnaire is **positive**, additional testing and /or treatment may be required.

• If the test is **negative**, no additional action is required.

• **For your safety**, make sure you respond if you receive exposure notification.
Controlling TB Transmission

The following groups of controls are used to control TB transmission in healthcare facilities:

– Administrative
– Engineering
– Respiratory
Administrative Controls

Controlling TB Transmission

Administrative controls include:

– Evaluate the risk of TB exposure for associates each year.
– Evaluate each patient on admission for signs and symptoms of TB.
– Evaluate all new associates for previous exposure to TB.
– Investigate all work related TB exposures.
– Educate associates about TB.
Administrative Controls

Annual TB Risk Assessment

• The **TB Risk Assessment** helps reduce exposures by monitoring:
  – The number of TB patient seen at GMC.
  – Associate TST conversion rate.
  – TB testing turn around time.
  – Compliance with environmental controls.
  – Days until isolation for admitted TB patients.
  – Annual TST compliance for associates.
  – Assessment of additional factors related to TB control.

• **In spite of our best efforts, there may be times when healthcare associates are exposed to undiagnosed patients with active TB.**
Engineering Controls

Controlling TB Transmission

Engineering controls include:

– Place all patients with suspected or confirmed TB in an airborne infection isolation room (AIIR).
– Perform daily checks of the directional airflow (negative pressure) when a TB patient is using an airborne infection isolation room.
– Keep the door to the room closed when a TB patient is using an airborne infection isolation room.
Respiratory controls include:

– All associates who may enter an airborne infection isolation room must be fit-tested for an N95 respirator.

– The associate **must** wear an N95 respirator when entering an airborne infection isolation room in use for a TB patient.

– The associate must fit-check the N95 respirator each time worn to ensure proper placement on the face.
Prevent Transmission: Isolate Early

Based on the TB screening criteria, if the patient has a high risk for TB or presents with signs and symptoms of TB:

– Place the patient in an AIIR (airborne infection isolation room).
  • If unable to place the patient in an AIIR, place a surgical mask on the patient.
– Notify Infection Prevention and Control.
– Notify the doctor.
– Give the patient the Patient Information Sheet for TB.
TB Screening Criteria: If patient meets a score of => 5, place in Airborne Isolation or have patient wear surgical mask and notify physician

* Without explanation
  - Cough > 2 weeks* (3)
  - Hemoptysis or bloody sputum* (5)
  - Fever/chills/night sweats* (2)
  - Weight loss > 10 lbs* in last 6 months (2)
  - HIV Positive (2)
  - History of TB (even if on meds) (4)

** Recent is defined as 2 years
  - Recent** exposure to TB (2)
  - Incarcerated in the past 2 years (2)
  - Homeless or in shelter past 2 years (2)
  - Foreign born; in US less than 5 years (1)
  - Recent** Travel (Asia, Africa, Latin America, E. Europe) (1)
Congratulations!

• You have completed this CBL module.
• Continue on and take the test.
• Questions?
  – Contact Infection Prevention and Control
  – Ext. 24695