Understanding and Preventing Tuberculosis

Commonwealth Health Corporation
This Computer Based Learning Course:

- describe KY state law mandated changes in TB testing
- describes how to prevent the spread of tuberculosis
- compares latent and active TB
- outlines steps to take if you are exposed to TB
- describes OSHA regulations and the respiratory protection program
- describes tuberculosis diagnosis and treatment
*Attention all CHC Employees*

Starting **8/29/16** KY state law mandates changes in annual TB testing for health care workers.

*(This does not change your annual due date.)*
If you do **NOT** have a history of positive TB skin test or T-spot:

- Make an appointment with Employee Health when you receive your annual reminder email.
- Bring TB Risk Assessment form (attached to your reminder email or get a copy from your supervisor).
- A PPD (TB skin test) will be administered to be read by a trained healthcare provider.
- This is your new annual requirement.
If you have a history of **positive PPD (TB skin test)**, Employee Health **must** have the medical documentation in your record.

- Make an appointment with Employee Health when you receive your annual reminder email.
- Bring TB Risk Assessment form (attached to your reminder email or get a copy from your supervisor).
- Bring medical documentation of positive PPD (TB skin test) result, if not already provided (one time request).
- A T-spot will be drawn, if no medical documentation of prior positive T-spot results
  - If your T-spot result is negative, you will have a T-spot drawn annually.
  - If your T-spot is positive, you will receive information about necessary follow up care.
- *The TB questionnaire form will no longer be used.*
If you have a history of **positive T-spot**, Employee Health must have the medical documentation in your record.

- Make an appointment with Employee Health when you receive your annual reminder email.
- Bring TB Risk Assessment form (attached to your reminder email or get a copy from your supervisor).
- Bring medical documentation of positive T-spot result, if not already provided (one time request).
  - If you received INH, bring in the medical documentation, if not already provided (one time request).
  - A chest x-ray may be performed (one time).
- If you did not receive INH, bring in the medical documentation, if not already provided (one time request).
  - A chest x-ray may be performed (one time).
- This is repeated every 6 months until 2 years after your conversion date or new hire date, whichever is longer.
- **Your new annual requirement is to make an appointment with Employee Health and complete the TB Risk Assessment form.**
**Understanding and Preventing Tuberculosis**

- **Tuberculosis** (TB) is a disease caused by the germ *mycobacterium tuberculosis*.

- Growth of the TB germ in the lungs causes tissue destruction.

**TB** usually affects the lungs, but it can also affect other parts of the body, such as:

- the brain
- the kidneys
- the spine
- the lymph nodes
Who has Tuberculosis?

Estimates show that one-third of the world's population is infected with the TB germ.

- Each year approximately 9 million cases of TB are diagnosed.
- About 1.5 million people die each year from tuberculosis.
- In 2014, 9,421 cases of active TB disease were reported in the United States (a rate of 2.9 cases per 100,000 persons).
- Multidrug-resistant TB remains a threat and extensively drug-resistant TB has become an emerging threat.
Tuberculosis may affect which of the following?

- toes and fingers
- liver
- lungs, brain, kidneys, spine, or lymph nodes

Click on the ✳️ next to the correct answer
How Does TB Spread?

- TB spreads from person to person through the air.
- You can get TB by sharing the air space with an individual with active TB who is:
  - coughing
  - sneezing
  - singing
  - talking
  - or anytime air is forcibly expelled from the lungs

People can become infected when they breathe in air containing TB germs.
What Happens When A Person is Exposed to TB?

- A person may develop **active** TB disease shortly after exposure to the TB germ.
- TB can remain **latent or inactive** while the immune system is strong.
- Latent TB may become active TB if the immune system is weakened.
- A person exposed to TB may **never** get the active disease.
- A person who is exposed to TB has only a 5% to 10% chance of getting the active disease in his/her lifetime. Persons with HIV have a higher risk.
Who Is At Risk?

Certain groups of people are more likely to develop tuberculosis.

These groups include:

- the elderly
- people born in areas of the world where TB is more common (e.g., Asia, Africa, the Caribbean, and Latin America)
- alcoholics
- the homeless
- IVDU (intravenous drug user)
- those in institutions
- people with chronic diseases
Who Is At Risk?

People with certain medical conditions, including:
- HIV
- Cancer
- Diabetes
are more likely to develop active TB disease.

People with HIV are 400 times more likely to develop active TB disease.
QUESTION

TB is spread from person to person through the air when an individual with *active* TB is coughing, singing, sneezing, and talking.

- True
- False

Click on the ☀ next to the correct answer
People with latent TB infection have the germ that causes TB in their bodies.

Persons with latent TB:

- Have no signs or symptoms of TB
- Cannot spread the germ to others
- Have inactive TB germs
- May develop active TB disease at some later time
- Often receive treatment to prevent getting active disease
- Will have a positive TB skin test or TB blood test (QuantiFERON-TB Gold, T-Spot)
Active Tuberculosis

People with **active** TB disease have the germ that causes TB in their bodies and have at least one sign or symptom of TB.

- They are sick from germs that are **active** in their body.
- They *can* spread the disease to others.
- They are prescribed drugs that can usually cure TB.
Signs and Symptoms of Active TB

Signs and symptoms of **active TB disease** include:

- Weight loss
- Fever
- Night sweats
- Coughing for more than 3 weeks
- Chest pain
- Coughing up blood (Hemoptysis)
- Chills
- Difficulty breathing
- Shortness of breath
- Feeling tired
- Abnormal chest x-ray
- Loss of appetite
Which of the following is NOT a symptom of active TB?

- night sweats
- vomiting and diarrhea
- coughing for more than three weeks
- feeling tired
- an abnormal chest x-ray

Click on the sun next to the correct answer.
Evaluate those suspected of having TB disease in the following ways:

- physical examination
- **Mantoux** tuberculin skin test (sometimes called a **TST**) or TB blood test
- chest x-ray
- sputum for AFB smear and culture
A physical exam offers the first opportunity to check for tuberculosis.

Note if the patient has **signs and symptoms** of tuberculosis.

Is the patient in a group that is **at risk** for TB?

Does the patient have a **medical condition** that makes them more likely to develop the **active TB disease**?
Mantoux Tuberculin Skin Test

- The Mantoux tuberculin skin test (TST) determines if a person is infected with the TB germ.
- It does NOT tell you whether a person has active TB disease or latent TB infection.
- A small amount of fluid is injected just under the skin into the inner surface of the forearm forming a wheal. If the wheal is inadequate, a new TB skin test will be placed immediately at another site.
Mantoux Tuberculin Skin Test

- 48 to 72 hours after injection, a nurse or physician looks for a reaction on the arm. The completed documentation form must be returned to Employee Health. Any employee with a positive skin test must see the Employee Health nurse as soon as possible.

- A positive reaction is based on a measurement of **swelling or induration** and not on redness.

- Those testing positive for TB should **never** have another TB skin test. They have a higher than normal risk of having a more severe local reaction.

- Employee skin tests are done annually based on the annual risk assessment of our facilities and state law. Some employees may receive TB skin tests more frequently if clustering of employee TB skin test conversions is noted.
The FDA has approved the QuantiFERON-TB Gold Test and the T-SPOT TB test. These blood tests determine if a person has the TB germ.

They do NOT tell you whether a person has active TB disease or latent TB infection.

Blood is collected by a health care provider and sent to a laboratory for processing. Blood samples must be processed within 8-16 hours after collection. Results can be available in 24 hours.

Only one visit to the health care provider is required.

TB blood tests are more costly.
Testing the sputum for AFB smear and culture is the only definitive test for TB. It shows if acid-fast bacilli (AFB) are present.

Three sputum samples are collected. Each should be at least 8 hours apart and at least one should be an early morning specimen.

If one of the tests is positive, the person is usually considered to have active TB.

Positive AFB tests do NOT absolutely prove that the person has active TB. There are other germs that will also result in positive AFB tests. When the culture is AFB positive, further testing will be done to identify whether the germ is TB or another germ.
Chest X-Rays

- Chest x-rays are an important diagnostic tool. They cannot be used alone to diagnose TB.

- In the past, healthcare workers with positive TSTs had x-rays taken annually.

- Routine yearly x-rays are no longer necessary. An annual symptom screening will be done for those employees.
Evaluation for tuberculosis includes:

- a physical exam, tuberculin skin test or TB blood test, chest x-ray, and sputum smear and culture
- a stool sample
- an MRI

Click on the ☀ next to the correct answer.
A drug used to treat latent TB infection is INH.

It is sometimes used with 2-3 other drugs to treat active TB disease. It is normally taken for 6 to 9 months.

It is extremely important that people who have TB disease take the drugs exactly as prescribed.

If they stop taking the drugs too soon, or take them incorrectly, the germs may become resistant to the drugs. This makes TB harder to treat.

Also, when this resistant germ is passed to another person, their TB is also harder to treat.
OSHA Guidelines

The Occupational Safety and Health Administration (OSHA) publishes and enforces national guidelines for TB infection prevention.

The three primary goals of the TB infection prevention plan are:
- early detection
- prompt isolation
- prompt treatment
Patients will be asked questions to determine if they have **signs and symptoms** of tuberculosis.

If the patient does have signs and symptoms of TB, the patient will be placed in **airborne precautions**, unless the physician confirms the symptoms are related to another diagnosis. The patient's illness may **not** be caused by TB. It could be:

- pneumonia
- bronchitis
- chronic lung disease
- lung cancer
QUESTION

OSHA's tuberculosis prevention plan emphasizes which of the following?

☀️ early detection
☀️ prompt isolation
☀️ prompt treatment
☀️ all of the above

Click on the ☀️ next to the correct answer
If a patient shows some symptoms of TB, it could be pneumonia, bronchitis, chronic lung disease, or lung cancer.

- True
- False

Click on the ☀️ next to the correct answer
Engineering Controls
Isolation/Precautions

- Place **Airborne Precautions** sign in plain view at the entrance of isolation rooms.

- The pressure in the room must be less than the pressure in the hallway allowing air to flow into but **not** out of the room (negative pressure).

- Keep the door to the room closed at all times.

- Air from a negative pressure room is exhausted to the outside of the hospital and is **not** recirculated into the building.

- Negative pressure is monitored daily by Engineering.
QUESTION

Which of the following statements is true of negative pressure isolation rooms?

- Isolation rooms should have airborne isolation/precaution signs in plain view.
- Air flows outside isolation rooms and into hallways and lobbies.
- It is acceptable to leave isolation room doors open into public hallways.

Click on the ☀️ next to the correct answer.
Hospital personnel entering an airborne isolation room should only wear the size and type respirator they were fit tested for.

- Employees whose positions require the use of respirators receive an annual Respiratory Protection Evaluation along with their annual TB Skin Test in Employee Health.

- Employees who are unsure of their appropriate respirator should notify Employee Health at 1263.
Patient Care Measures

- Encourage patients to cough into a tissue.
- TB patients **must** wear a mask if they leave their room (*Never place an N-95 on a patient or visitor – use surgical masks*).
- TB patients are no longer considered contagious when they are on appropriate medication **and**
  - their symptoms improve
  - sputum smears are negative for AFB X 3 (this usually happens within 2 weeks after therapy begins).
- Patients who have a bronchoscopy should have a sputum specimen collected after the bronchoscopy.
- The physician, along with hospital policy based on CDC guidelines, determines when a patient’s isolation can be discontinued.
A face shield or surgical mask may be used in place of a respirator when entering an airborne isolation room, if a respirator is NOT readily available.

True

False

Click on the next to the correct answer
Exposure Follow-up

- If a healthcare worker is exposed to an undiagnosed active TB patient who is NOT properly isolated, every attempt will be made to identify all exposed employees.

- A follow-up TB skin test will be performed at least 10-12 weeks after the last date of exposure.

- A symptom screen will be performed for exposed employees with a previously documented positive TB skin test.
Exposure Follow-up

If transmission of TB infection is documented, other healthcare workers in the same work area will be tested to determine if there are any additional new converters.

If additional converters are found, a problem evaluation will be initiated to determine if the following are responsible:
- patient detection
- isolation practices
- engineering controls

Identified problems will be addressed and corrected promptly.
Test Results and Documentation

The results of all employee medical evaluations, TB skin tests, post-exposure evaluations, and respirator fit-testing results will be recorded in the employee’s medical records and maintained in Employee Health.

Documented new conversions and cases of active TB in employees will be recorded on the OSHA Log in the manner required by OSHA.
In Summary.....

- Understand what tuberculosis is and how it is transmitted.
- Be familiar with the signs and symptoms of TB.
- Know this facility’s policies and procedures.
- Follow OSHA regulations.
- Report all possible TB exposures.
- Complete all suggested follow-up procedures if you are exposed to TB.

For more information about tuberculosis contact Infection Prevention at Ext. 1581 or Employee Health at Ext. 1263.

Click the Take Test button to complete a short quiz

- You will have three chances to pass the test.
- If you do not pass the test after the third attempt, please contact Melissa Allen at X1581 to make arrangements to retake the test.
- Passing score is 80%.
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