

**A DISEASE PROCESS MODULE:
A TUBERCULOSIS UPDATE**



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A n Infection Control Module:
A TUBERCULOSIS UPDATE

We hope you enjoy this inservice, prepared by registered nurses especially for caregivers like you!

Instructions for the Learner

If you are studying the inservice on your own, please do the following:

- Read through **all** the material. You may find it useful to have a highlighting marker nearby as you read. Highlight any information that is new to you or that you feel is especially important.
- If you have questions about anything you read, please ask your supervisor.
- Take the quiz. Think about each statement and pick the best answer.
- Check with your supervisor for the right answers. You need **8 correct** to pass!
- Print your name, write in the date, and then sign your name.
- Email In the Know at feedback@knowingmore.com with your comments and/or suggestions for improving this inservice.

THANK YOU!

After finishing this inservice, you will be able to:

Describe the difference between TB infection and TB disease.



Name at least six symptoms of tuberculosis.



Discuss three kinds of tests that help control the spread of TB.



Explain why TB treatment is an important infection control measure.



Describe five ways that you can help control the spread of tuberculosis.



An Infection Control Module:
A Tuberculosis Update

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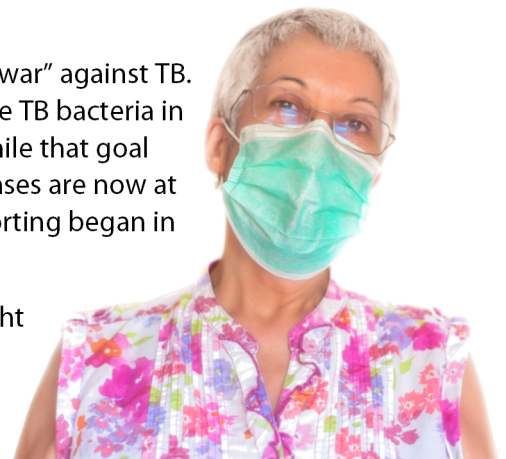
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THE BATTLE AGAINST TB CONTINUES...

- One hundred years ago TB was the *number one cause of death* in the United States. But, who cares? That was one hundred years ago! We've come a long way in controlling TB since then, right? Well, yes . . . and no.
- Yes, we have tests to tell if people have TB and we have drugs to treat the disease.
- We've learned how to protect healthcare workers from being infected and how to keep other patients in a hospital safe from a patient with TB.
- But, the bacteria that cause TB are not giving up! Still, nearly 9,000 new cases of TB are reported each year in the United States.
- The TB bacteria have learned how to outsmart our best drugs. And, they like to attack people who have weak immune systems—like people with AIDS.
- These tiny bacteria cause a serious disease that usually attacks and damages the lungs, but can also affect other parts of the body like the kidneys, the spine and the brain.
- A third of the world's population (about 2 billion people) are infected with TB bacteria. And, one out of every ten of those people will become sick with active TB.
- So, it has never been more important to practice proper infection control measures against TB.
- In fact, our government has “declared war” against TB. Originally, the goal was to get rid of the TB bacteria in the United States by the year 2010. While that goal was not met, the total number of TB cases are now at the lowest number since national reporting began in 1953.
- There is still more work to do in the fight against tuberculosis. Keep reading to find out how you can become part of the solution!



THE FACTS ABOUT TUBERCULOSIS

THE HISTORY OF TUBERCULOSIS

- TB disease is caused by a bacteria that has been around since prehistoric times. It spreads quickly among people who live in crowded areas.
- In the early 1900's, most people knew a friend or family member who was sick with tuberculosis.
- Every community had a special "TB hospital", called a sanatorium. However, people were not sent to the sanatorium to get better. They were sent there to die.
- After World War II, antibiotics were discovered that helped treat tuberculosis and community health programs were developed to help test people for TB.
- The post-war boom improved the standard of living for many people in this country; they lived in less crowded conditions and ate a better diet. For a while, it seemed as if tuberculosis had been wiped out in the United States.
- Unfortunately, this was not the case. TB is back—with a vengeance!



CURRENT TB FACTS

- A total of 1.5 million people died from TB in 2018 (including 251 000 people with HIV).
- Worldwide, TB is one of the top 10 causes of death.
- In 2018, 1.1 million children fell ill with TB globally, and there were 205,000 child deaths due to TB.
- In 2018, eight countries account for two thirds of the total of all TB, with India leading the count, followed by, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh and South Africa.
- Multidrug-resistant TB (MDR-TB) remains a public health crisis and a health security threat.
- Globally, TB incidence is falling at about 2% per year. This needs to accelerate to a 4–5% annual decline to reach the 2020 milestones of the End TB Strategy.
 - An estimated 58 million lives were saved through TB diagnosis and treatment between 2000 and 2018.



DID YOU KNOW?

- Tuberculosis was once called "consumption" because the illness wasted away or "consumed" its victims.
- Nelson Mandela was diagnosed, treated and cured of TB while in prison in 1988.
- In the film "Moulin Rouge", Nicole Kidman's character dies of consumption in the middle of her biggest performance.
- Vivian Leigh, who played Scarlet O'Hara in Gone with the Wind, died from complications of TB in 1967.

TB TERMS YOU SHOULD KNOW

- **EXPOSED:** People are exposed to tuberculosis when they share the same air as a person who has infectious TB.
- **TB SKIN TEST:** There is a skin test for TB infection in which a small amount of testing fluid is injected just under the skin on the lower part of the arm. After two or three days, a health care worker checks for a positive reaction at the injection site. You might hear this test called a “Mantoux” test or a “PPD” test.
- **LATENT TB INFECTION:** People with latent TB infection have no symptoms, don't feel sick, can't spread TB to others, and usually have a positive skin test reaction. But they may develop TB disease later in life if they do not receive treatment for latent TB infection.



- **TB DISEASE:** People who show signs of being sick from the tuberculosis bacteria are said to have TB disease. They have *active* or *infectious* tuberculosis disease—and can spread it to others. People with TB disease show signs of having TB when doctors check their chest x-rays and look at their sputum under a microscope.
- **MULTIDRUG-RESISTANT TB (MDR TB)** - TB disease caused by bacteria resistant to more than one drug often used to treat TB.
- **QUARANTINE:** Keeping people who have active TB disease in quarantine means that they are *made* to stay in a hospital or in their homes until they are no longer infectious.
- **DIRECTLY OBSERVED THERAPY (DOT):** Because many people don't take their anti-TB medications properly, Directly Observed Therapy was developed. This is the name for the TB treatment in which healthcare professionals or other individuals actually *watch* people taking their anti-TB medications.

SIGNS AND SYMPTOMS OF TB

- A productive cough lasting longer than two weeks
- Chest pain
- Coughing up blood
- Fever and chills
- Sweating at night
- Loss of appetite
- Weight loss
- Constant tiredness

Did You Know?

Singers Carlos Santana, Tina Turner and Ringo Starr all battled tuberculosis in their younger years.

HOW IS TB SPREAD?

- The germs that cause TB are spread through the air.
- TB can be spread from one person to another by coughing, laughing, sneezing, singing or even talking.
- Tuberculosis is usually spread between family members, close friends, and people who spend time in crowded places together over long periods of time such as jails and homeless shelters.

TB OR NOT TB?

- So, you know that there is a difference between being HIV positive and having AIDS, right?
- People who are just *HIV positive* have been exposed to the virus that causes AIDS, but they are not sick—and they may go for years without getting sick. But, people who have *AIDS* are actively sick with the virus.
- It's similar with tuberculosis. People with *Latent TB infection* have been exposed to TB bacteria, but they are not sick—and they may go forever without getting sick.
- But, people with *TB disease* are actively sick with tuberculosis.
- There is one big difference though. People who are just HIV + can still spread the HIV virus to others. But, people who have TB infection **cannot** spread tuberculosis to anyone else.
- The only time TB is infectious is when people have active TB disease. People with active TB spread the bacteria through the air to others.
- It's possible for a person with active TB to infect up to 15 people a year if left untreated.

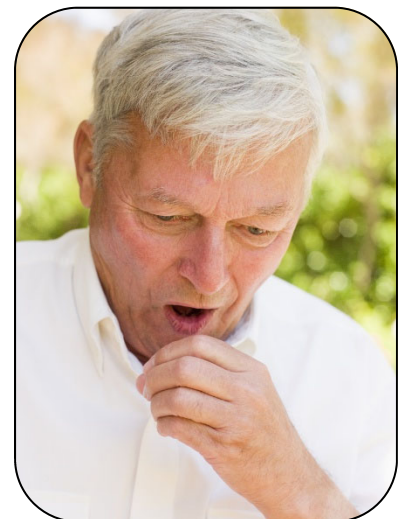
WHO IS MOST AT RISK FOR TB?

PEOPLE ARE MOST AT RISK FOR DEVELOPING ACTIVE TB IF THEY ARE:

- HIV-positive.
- In close contact with a person who has infectious TB.
- Infected with TB within the last two years.
- Babies or young children.
- Poor or homeless.
- IV users and alcoholics.
- Sick with other illnesses that weaken the immune system.
- Elderly, especially if they live in a community facility like a nursing home.

IS EVERYONE WITH TB DISEASE INFECTIOUS?

- Yes, everyone with **active** TB disease is infectious, but some are more infectious than others.
- People are more likely to spread the disease to others if they:
 - Have a cough that produces a lot of sputum.
 - Do not cover their mouths when they cough.
 - Don't take their anti-TB medications properly.
 - Have the kind of TB (called "drug-resistant") that knows how to fight off our best antibiotics.



WINNING THE WAR AGAINST TB WITH TESTING

THE TB SKIN TEST

- Screening people with the TB skin test helps identify new cases of TB infection.
- In many states, a TB skin test is required for children to enter school.
- Health care workers are screened whenever they start a new job and usually yearly after that.
- When people move into a nursing home or other facility, they are given the TB skin test.
- Health departments work to screen HIV positive clients and other high risk populations.
- *The TB skin test is pretty accurate, but not foolproof.* Sometimes, even when people are infected with TB, the skin test will be negative. For example, people who have AIDS often have negative skin tests—even when they have active TB.
- It is also possible to have a negative skin test if tested *too soon* after exposure.

HOW CAN YOU HELP?

- Getting tested for TB is important for your health—and for the health of your clients and your family.
- Be sure to follow your organization’s policy about how often you need a repeat skin test.
- Don’t try to get out of it because you don’t like needles!



ADAM

CHEST X-RAYS

- Most often, doctors use chest x-rays as a “follow-up” test for people who have a positive TB skin test.
- Even if they have no signs of the disease, a chest x-ray is recommended to make sure that they don’t have active TB.
- For people who do have symptoms of active TB—such as coughing, fever and night sweats—a chest x-ray might show that TB has started to do damage to the lungs.



HOW CAN YOU HELP?

- If you test positive on the TB skin test, you will be asked to get a chest x-ray—and you probably won’t be allowed to work with clients until you do.
- If your chest x-ray is normal, your doctor and/or your supervisor will tell you how often you should get a repeat chest x-ray. (You won’t need to get the TB skin test again since you will test positive for the rest of your life.)
- You might hear about a client getting a chest x-ray to “rule out” tuberculosis.
- If TB is suspected, be sure you use proper infection control (including a special respirator mask) until you are told the client is not infectious.

WINNING THE WAR AGAINST TB WITH TREATMENT

TREATING ACTIVE TUBERCULOSIS

- When people are diagnosed with active TB disease, they **must** take anti-TB medications as prescribed by their doctors.
- Usually, after a week or two of taking the medications, people are no longer infectious. This does not mean they can stop taking their meds!
- TB bacteria die *very* slowly so treatment takes many months. But, the good news is that TB disease can be cured most of the time.
- Most of the anti-TB drugs, such as INH and rifampin, have been around a long time. Recently, our government approved the first new anti-TB drug in 25 years. It is called rifapentin and it only needs to be taken once a week—instead of three times a week like the older drugs.

HOW CAN YOU HELP?

- Remind your clients to take their medications on time. If your supervisor asks you to actually **watch** a client swallow anti-TB pills, be sure you observe the client carefully and report any missed doses.
- Don't forget to protect **yourself** when working with a client who has active TB. You must wear a special respirator mask at all times as long as there is any chance that the client is infectious!

TREATING DRUG-RESISTANT TB

- When people stop taking anti-TB medications before they should, they are helping to create powerful drug-resistant TB bacteria!
- Some TB germs are able to fight off one anti-TB drug and some can fight off a number of drugs. (This is known as “multidrug-resistant TB”, and it is very dangerous.)
- The normal drugs used to treat TB can't kill these strong germs, so people with drug-resistant TB must take a combination of different drugs that have more side effects and that don't work as well.
- While almost all people with regular TB get well, only about 50% of people with drug-resistant TB can be cured.



HOW CAN YOU HELP?

- Remember that the best way to fight TB is for people to take their anti-TB medications as ordered!
- Protect yourself from exposure to drug-resistant TB.

PREVENTATIVE TREATMENT FOR INACTIVE TUBERCULOSIS

- People who have a “positive” TB skin test are sometimes treated with an anti-TB medication, even if they have no signs of the disease—especially if they are elderly or HIV positive.
- The medicine used most often for preventative treatment is called isoniazid or INH. This medicine keeps people from ever developing active TB disease.

HOW CAN YOU HELP?

- If you have clients who take INH, remind them to take their medication—as ordered.
- Keep in mind that drinking alcoholic beverages while taking INH can be dangerous, so report any client who is doing so.

STOPPING THE SPREAD OF TUBERCULOSIS

DETENTION OR QUARANTINE

- Sometimes, doctors recommend that people with TB be confined to one place. This is so they can get their medications on schedule and so they won't spread the disease to others.
- Some people are kept in a hospital. Some are allowed to stay in their own homes. In some states, people are even put in jail for a while (if they have had trouble in the past taking their anti-TB medications).
- If a doctor orders this type of treatment, it is known as detention or quarantine.

HOW CAN YOU HELP?

- If you are working with a client who is under quarantine, be sure to tell your supervisor if your client *breaks* quarantine. While it may seem cruel to keep a person isolated, you can help by explaining to your client that by staying put he is helping win the war against TB!
- Remember that people are detained during their *infectious* period. Protect yourself by following standard precautions and by using a personal respirator mask.

TB ISOLATION ROOMS

- Remember that tuberculosis is spread through the air. So, to protect other clients, healthcare workers and visitors, many facilities have what's known as an "isolation room".
- Engineers designed isolation rooms with special air systems so that the air inside the room can't get to any other rooms.
- Also, many isolation rooms have "negative pressure" which means that the contaminated air will **not** go out into the hallway.

HOW CAN YOU HELP?

- Follow your workplace policy for isolating clients who have active TB.
- Remember that you will not "catch" TB from handling the dishes, clothing or linens of a client with TB. Tuberculosis is spread through the air, not by touching things.

PERSONAL RESPIRATOR MASKS

- Studies have shown that if ten people spend a lot of time with someone who has active TB, at least **three** of them will become infected.
- Health care workers can protect themselves by wearing a special mask called a personal respirator. (You might also hear it called a "hepa filter" mask.)
- These masks are **not** one-size-fits-all. Each employee has to be fitted to the right size mask by someone who has been trained to do so.

HOW CAN YOU HELP?

- Remember that a paper mask will not protect you from TB! If you are going to work with clients who have TB (or who *might* have TB), be sure to get fitted for a personal respirator mask.
- Some people complain that the respirator masks are uncomfortable and hot. Even if you feel this way, **don't take off your mask while you are working with a client with TB.** You don't want to get infected!



STOPPING THE SPREAD OF TUBERCULOSIS, CONTINUED

STATE LAWS ABOUT TB INFECTION

Every state has specific laws to help control the spread of tuberculosis. Here are some of the main points of these laws:

- All 50 states require that new or suspected cases of TB be reported to the local health department. Each state has its own rule about how soon the report must be made: some say within 24 hours and some say within one week.
- Over half of our states have the power to *arrest* people who fail to report a new case of TB!
- Many states have outpatient treatment programs available for people with TB, and will pay for the treatment if people can't afford it. Many states have the power to *force* people with TB to take part in these programs. Some states can fine people who do not stick to their treatment program.
- Nearly every state requires that people with active TB stay in quarantine until they are no longer infectious.
- Most states have laws requiring that certain people be tested for TB, such as health care workers, teachers, day care workers, police and school children.



HOW CAN YOU HELP?

- Tell your supervisor if any of your clients have signs of TB, such as a bad cough, fever, bloody sputum and night sweats. Be sure to document your observations and who you reported them to. Your supervisor will take the necessary steps to have the client tested for TB and to contact the health department if necessary.

HEALTH DEPARTMENTS

Your local health department is working hard to win the war against TB. Most health departments are responsible for:

- Receiving reports of new and suspected cases of tuberculosis.
- Doing an investigation of each report they receive.
- Making sure that people with TB get the medications they need.
- Educating the community about TB prevention.
- Helping health care facilities develop and manage their own TB infection control program.

HOW CAN YOU HELP?

- Contact your local health department if you have any questions or want more information about tuberculosis.

IS THERE A VACCINE FOR TUBERCULOSIS?

- In countries outside of the U.S. and Canada, a TB vaccine called BCG has been used for many years. However, studies have shown that this vaccine does not always work or it stops working after a few years.
- An effective vaccine is urgently needed to control TB. In 2008, two major pharmaceutical companies, Sanofi Pasteur and SSI joined efforts to develop a vaccine against TB hoping to have a major impact on global health.

SPECIAL NEEDS OF TB PATIENTS

LONELINESS, BOREDOM AND CONFUSION

- Clients with active TB are usually placed on isolation precautions. This means they spend all of their time alone in room with little outside contact.
- Clients on isolation precautions face issues of loneliness, boredom, and loss of a sense of time. The days all begin to blend together and the difference between day and night can become confused.
- When nurses, doctors or visitors come into to room, their faces and clothing are completely covered leaving only the eyes visible. This can be distressing in many ways to the patient.
- It is difficult to understand people because their speech is muffled by the mask and it is difficult to communicate with others when we can't see their entire face for non-verbal cues such as a smile or a frown.



HOW CAN YOU HELP?

- Make sure clients have a clock and a television in the room. Keeping up with time and watching regularly scheduled programs like the news can help them feel connected to the outside world.
- Be sure clients have a working telephone and know how to use it. Making and receiving telephone calls will help with boredom and loneliness.
- Open the curtains each morning and close them each night. This will help clients in isolation maintain an awareness of day and night.

SPECIAL DIETARY NEEDS

- Did you know weight loss is common in adults with tuberculosis? The disease itself and the medications that treat it can cause clients with TB to have nausea and decreased appetite.
- Decreased appetite leads to weight loss and can be dangerous for TB patients. It weakens their immune system, making it harder for their bodies to fight the TB bacteria.
- Additionally, the depression and anxiety from being isolated worsens the problem.

HOW CAN YOU HELP?

- Monitor weight on a regular basis and report any significant or gradual weight loss to your supervisor.
- Observe food choices, monitor intake and output, make healthy food choice suggestions and report any decrease in intake.
- Some tips for a balanced diet are:
 - **Fruits and Vegetables**
Make sure your clients are getting 2 cups of fruit and 2 cups of vegetables each day.
 - **Whole Grains**
Your TB clients need 3 or more servings of whole-grain foods each day. Whole grains help with weight maintenance and will lower the risk for other chronic diseases.
 - **Protein**
Clients fighting TB need lean meats and poultry that are baked, broiled, or grilled. They will also benefit from other protein-rich foods such as fish, beans, peas, nuts and seeds.



THE TOP 5 WAYS YOU CAN HELP STOP TB!

1. KNOW THE SIGNS OF TUBERCULOSIS.

- Remember that the symptoms of active tuberculosis include a lasting cough, chest pain, fever, chills, night sweats, fatigue, loss of appetite and weight loss.
- Keep an eye on your clients for these signs, especially if they are over 65, are HIV+, have other chronic illnesses like diabetes or renal failure, or have been exposed to someone else with TB.

2. TELL YOUR SUPERVISOR IF ANY OF YOUR CLIENTS SHOW THE SIGNS OF TB.

- It's not up to you—or your supervisor—to diagnose tuberculosis. But you must report changes in your clients that might mean they have TB. And, the sooner, the better!
- Your supervisor will make sure the client gets tested and that everyone who works with the client protects themselves from possible infection.

3. HELP YOUR CLIENTS WITH TB PRACTICE GOOD INFECTION CONTROL.

- Ask your clients to cover their mouth and nose with a tissue when coughing or sneezing. Then, throw the tissue in the trash.
- Air out their rooms if possible (unless they are in a special isolation room). TB spreads in small closed spaces where air can't move. Open a window if it's not too cold. Consider using a fan to blow the room air **out** the window.
- Remind your clients about how important it is that they take their anti-TB medication. Don't let them forget—especially when they start feeling better.

4. WEAR A PERSONAL RESPIRATOR MASK.

- Whenever you work with clients who have active TB—or who might have it—you must wear a personal respirator mask. Remember that a paper mask will not do any good. (The TB bacteria are small enough to fit through the weave of a paper mask.)



- Be sure you have been fitted for the right size mask, and that you put it on **before** you enter the client's area. Wear it the entire time you are with the client and take it off only after you leave!

"In high school, I won a prize for an essay on tuberculosis. When I got through writing the essay, I was sure I had the disease!"

~ Constance Baker Motley

5. HAVE YOUR TB SKIN TEST AND/OR YOUR CHEST X-RAY ON SCHEDULE.

- Don't ignore these important tests. If you don't know when you are due for another TB test, ask your supervisor. Then, make sure you get it on schedule—don't wait for someone to remind you. Getting tested on time could make a difference to you, your clients, your coworkers and your family.



An Infection Control Module:
A Tuberculosis Update

EMPLOYEE NAME
(Please print):

DATE: _____

- ***I understand the information presented in this inservice.***
- ***I have completed this inservice and answered at least eight of the test questions correctly.***

EMPLOYEE SIGNATURE:

SUPERVISOR SIGNATURE:

Inservice Credit:

<input type="checkbox"/> Self Study	1 hour
<input type="checkbox"/> Group Study	1 hour

File completed test in employee's personnel file.

Are you "In the Know" about tuberculosis? Circle the best choice or fill in your answer. Then check your answers with your supervisor!

1. True or False

A third of the world's population are infected with TB bacteria and, one out of every ten of those people will become sick with active TB

2. True or False

TB can be spread from one person to another by coughing, laughing, sneezing, singing or talking.

3. Tuberculosis is especially dangerous for:

- A. Health care workers.
- B. People between the ages of 20 and 40.
- C. People who are HIV positive.

4. A person with latent TB infection:

- A. Has no symptoms of TB and does not feel sick.
- B. Has a positive TB skin test but cannot spread TB to others.
- C. All of the above.

5. True or False

A person with a positive skin TB test always has active TB disease

6. True or False

One of the reasons we have drug-resistant TB is because people with TB do not take their TB medication as directed

7. When working with clients who have infectious TB, you should:

- A. Wear a paper mask, a gown and gloves.
- B. Have a TB skin test once a week.
- C. Wear a personal respirator mask.

8. True or False

Many states have the power to force people with TB to get treatment.

9. True or False

It is okay to take a client on isolation precautions to the cafeteria for socializing.

10. True or False

A long term cough, chest pain, fever, chills, night sweats, fatigue, loss of appetite and weight loss are all possible symptoms of TB.