

12 Points of Tuberculosis (TB) Patient Education

Transmission of TB

- TB is a disease caused by the TB germ. The disease is mainly in the lungs (pulmonary TB), but the germ can travel to other parts of the body (extrapulmonary TB) and sometimes can be in multiple parts of the body (miliary or disseminated TB).
- TB is spread when someone who is sick with TB in his/her lungs coughs, sneezes, talks or sings and sprays the TB germ into the air. When someone spends time with that person, he/she can breathe in the TB germ and become infected. Usually have to be around an infectious person for a long time and share the same airspace.
- Infectiousness decreases after the person has been on treatment for a while
- Can NOT get TB by sharing drinks, toys or personal items.
- When a person is exposed to the TB germ and becomes infected, the person's own immune system will usually build a wall around the TB germs, keeping them from growing and multiplying. This is called latent TB infection or LTBI. The germs can remain dormant in a person's body throughout his/her lifetime.
- A TB skin test (Mantoux) can be given to see if someone has been infected with the TB germ. If the skin test is positive, a chest X-ray and sputum test will be done to make sure the person does not have TB disease. The skin test only determines TB infection. A positive result does not necessarily mean the person has TB disease.
- Once TB disease is ruled out, the doctor may prescribe a preventive medicine called Isoniazid (INH). INH can prevent TB by killing the TB germs.

Differences between LTBI & Active TB disease

- Both can have a positive skin test.
- LTBI has no symptoms & the person feels fine, but in active TB disease, the person usually feels sick and has symptoms of TB.
- LTBI the chest x-ray is normal, in active TB disease, it is usually abnormal.
- LTBI can NOT transmit the germs to others, in active TB disease; the germs can be transmitted to other people.
- Both can be treated.

Progression of LTBI to Active TB

- A person who is exposed and becomes infected with TB has a 10% chance of developing active TB disease. The most critical time period is the first 2 years after becoming infected.
- When the body's immune system is weak, the wall around the TB germs begins to break down. The TB germs wake up and start multiplying; growing and attacking the body, making the person feel sick and develop symptoms.
- Anyone can get TB, but some people are at greater risk than others. These include:
 - Persons living with someone who has active TB of the lungs
 - Persons who had TB disease in the past but didn't receive or complete their treatment
 - Persons who are elderly
 - Persons with weakened immune systems

Signs & symptoms of disease

- The early signs and symptoms of TB develop slowly and may go unnoticed for a long time. These include:
 - Cough
 - Chest pain
 - Loss of appetite

- Weight loss
- Tiredness
- Fever/chills/night sweats
- The symptoms should get better after the person is on medication for a couple of weeks. If they don't or if they come back after getting better, the nurse or physician needs to be notified.

Importance of HIV testing

- All patients in TB clinics should be tested for HIV. This includes TB suspects, patients, and contacts.
- People infected with HIV (the virus that causes AIDS) are more likely than uninfected people to get sick with other infections and diseases. Tuberculosis (TB) is one of these diseases.
- HIV infection weakens the immune system. If a person's immune system gets weak, TB infection can activate and become TB disease. Someone with TB infection and HIV infection has a **very high risk** of developing TB disease. Without treatment, these two infections can work together to shorten the life of the person infected with both.
- HIV infection is the most important known risk factor for progression from latent TB infection to TB disease. Progression to TB disease is often rapid among HIV-infected persons and can be deadly. In addition, TB outbreaks can rapidly expand in HIV-infected patient groups.

Respiratory isolation & use of masks

- It is important for the patient to remain at home on isolation. As much as possible, he/she should stay away from other people in the house by staying in a separate room or wearing a surgical mask when leaving the room. Separate bedrooms or beds are highly recommended, if possible. The patient cannot travel, go to work, go to school, go shopping or participate in any other activity where there is contact with other people.
- The patient needs to cover his/her mouth and nose with a tissue when coughing or sneezing. These tissues should be flushed, burned or placed in a sealed leak proof bag before disposal.
- The patient cannot leave home except to keep medical appointments. He/she must wear a surgical mask to the clinic and doctor's offices.
- The patient should not allow anyone, other than those living with him/her or those individuals providing care to him/her, into the home and should stay away from young children.
- These isolation instructions remain in effect until the patient is told by the health department that he/she no longer has to stay in isolation.
- These isolation instructions may become effective again after the patient has been told that he/she is no longer infectious should the clinical situation change.
- Keep doors and windows open as much as possible.
- DOT visits will be conducted outdoors, beside open windows and as efficiently as possible in order to reduce exposure time.
- The DOT worker will wear an N95 mask during the time the patient is considered infectious.
- Go outside to collect sputum specimens. The DOT worker should wear an N95 mask anytime sputum is being collected.

Infectious period

- The infectious period is the time when a patient sick with active TB can pass the germs to other people.
- The infectious period begins 3 months prior to the onset of symptoms or clinical sign of TB.
- The infectious period continues until all of the following criteria is met:
 - 3 consecutive smear negative specimens
 - The patient is on appropriate medications
 - The patient is getting better.
- The infectious period is important to determine in order to focus the contact investigation.

Importance of chemotherapy as prescribed

- Having TB should not keep someone from leading a normal life. When TB patients are no longer infectious or feeling sick, they can do the same things they did before they had TB. The medicine does not affect strength, sexual function or the ability to work. If the TB medicine is taken as directed, the medicine will kill all the TB germs and prevent the patient from becoming sick with TB again.
- It is necessary to take several different TB medications because there are many TB germs to be killed. Taking three to four different TB medications will stop the TB germs from becoming resistant to the medication.
- The most common medications are Isoniazid; Rifampin; Pyrazinamide & Ethambutol.
- The patient will usually take several tablets of 4 different medications every day (M-F) for the first 2 months. Then the patient may be able to take several tablets of just 2 medications twice a week until treatment is completed (another 4-7 months).
- TB is almost always curable if the patient adheres to the treatment regimen of taking several special medications for six to nine months. The medication must be taken continuously and uninterrupted for the duration of treatment.
- The treatment takes this long because the TB germs grow very slowly and are slow to die. The combination of these medications delivered by DOT can cure the disease in less than a year.
- Prolonged illness, disability or possible death is avoided.
- Risk of developing MDR-TB or XDR-TB is decreased.

Side effects and adverse medication reactions

Side effects of medications are those things which are anticipated to happen in people taking certain medications. Most of the side effects are manageable and do not require stopping the medication.

Medication	Side Effect	Action
Isoniazid	Dizziness, tingling/numbness around the mouth or in the extremities GI distress; nausea when taking the pills but feels better later in the day	Proactively B6 is usually given; report any mild signs or symptoms to the nurse or physician Alter time of day pills are given; try giving pills with a small snack or food; report to nurse or physician
Rifampin	Discoloration of bodily fluids; urine, sweat or tears may be orange or reddish Drug interactions; can interfere with birth control pills or implants; can alter effectiveness of methadone	Prepare the patient to see this; have him/her switch to hard contact lenses or glasses because staining can occur of soft contact lenses Counsel patient to use an alternative or back-up method of birth control (e.g., copper-bearing IUD such as ParaGard, condoms, diaphragm) when rifampin is prescribed, it reduces effectiveness (degree depending on method) of combined oral contraceptives, progestinonly oral contraceptives, levonorgestrel implants, Depo-Provera, patch and ring. Advise condom back- up. Make

	<p>Sun sensitivity; frequent sunburn</p> <p>Easy bruising; slow blood clotting</p> <p>GI distress; nausea when taking the pills but feels better later in the day</p>	<p>sure nurse & physician are aware of all medications the patient is taking.</p> <p>Counsel patient to avoid prolonged exposure to sun & to wear adequate sunblock</p> <p>Avoid bruising; do not take aspirin unless ordered by a physician; tell healthcare provider about medications prior to any procedure that might cause bleeding</p> <p>Alter time of day pills are given; try giving pills with a small snack or food; report to nurse or physician</p>
Pyrazinamide	<p>GI distress; nausea when taking the pills but feels better later in the day</p> <p>Joint aches</p>	<p>Alter time of day pills are given; try giving pills with a small snack or food; report to nurse or physician</p> <p>Cold packs or heat packs; report to nurse or physician</p>
Ethambutol	<p>Can cause blurred or changes vision; changes in color vision</p>	<p>Monitor & test eyes monthly</p>

Adverse reactions to medications are unexpected reactions to medications that may be severe and warrant stopping the medications to avoid harm or damage to the patient.

Medication	Adverse Reaction	Action
Isoniazid	<p>Dizziness; tingling/numbness around the mouth or in the extremities</p> <p>Hepatitis: nausea; vomiting; yellowish skin or eyes; abdominal pain; dark, maple syrup or coffee colored urine; abnormal liver function tests; fatigue; fever >3 days; flu-like symptoms; lack of appetite</p>	<p>Stop medication if severe or seems to be worsening; notify nurse or physician</p> <p>Stop medication and notify nurse or physician</p>
Rifampin	<p>Easy bruising; slow blood clotting</p> <p>Hepatitis: nausea; vomiting; yellowish skin or eyes; abdominal pain; dark, maple syrup or coffee</p>	<p>Stop medication and notify nurse or physician</p> <p>Stop medication and notify nurse or physician</p>

	colored urine; abnormal liver function tests; fatigue; fever >3 days; flu-like symptoms; lack of appetite	
Pyrazinamide	Severe stomach upset; vomiting; lack of appetite Hepatitis: nausea; vomiting; yellowish skin or eyes; abdominal pain; dark, maple syrup or coffee colored urine; abnormal liver function tests; fatigue; fever >3 days; flu-like symptoms; lack of appetite	Stop medication and notify nurse or physician Stop medication and notify nurse or physician
Ethambutol	Any changes in visions noted	Stop medication and notify nurse or physician

Other warnings to tell clients taking TB medications

- Limit alcohol use when taking TB medication. Combining alcohol and TB medicine can cause liver damage.
- Tell the nurse if other medications are being taken. TB medication can interfere with certain prescription drugs.
- Report any concerns to the nurse.

Directly Observed Therapy (DOT)

- Most TB patients start feeling well after only a few weeks of treatment but the TB germs are still alive in the body.
- It is very dangerous for a TB patient to stop taking medicine early or not to take it regularly. The TB germs begin to grow again and patients may become infectious and remain sick much longer.
- Stopping treatment too early or taking treatment irregularly could cause the TB germs to become resistant to the TB medicine. If this happens, new and different medicines will be needed to kill the TB germs. These new medicines have to be taken for a longer time and usually have more serious side effects.
- DOT helps prevent these problems by making sure that treatment is complete.

Importance of regular medical assessments

- It is very important to have regular checkups at the clinic at least monthly.
- Blood tests can be done to make sure the medications are not harming the liver.
- Chest x-rays may be done to see if there is improvement.
- Sputum tests will be done to ensure medications are working. The sputum results also help decide when a patient is no longer infectious and can return to his/her normal life.

Importance of contact investigation

- When a patient has TB disease, they are doing the right thing by sharing the names of people they spent time with when they were able to pass TB germs to others (infectious period). By helping the healthcare worker do a contact investigation, they are helping their family and friends stay well. And they are helping to make sure their community stays healthy.
- The healthcare worker will ask for the names of contacts, people the patient spent time with before getting treatment—when the TB germs could be passed on to others.

- The healthcare worker will call or visit people to let them know they should be tested for TB. Together the healthcare worker and patient make a list of all contacts. Contacts are family members, friends, neighbors, co-workers, and others who spent time with the patient when they were sick.
- Give the names of the contacts to your healthcare worker. Don't let being embarrassed keep you from listing people you may have given TB germs. Think of how you are helping those around you stay well. Protect your family and friends.
- Questions the healthcare worker may ask the patient:
 - "How long have you been coughing? When did you first feel sick?"
 - "Where did you spend time when you were feeling sick and coughing? Where did you live? Did you go to school? Where did you hang out when you were not at home or working?"
 - "Who are the family members, friends, neighbors, and co-workers you spent time with while coughing?"
- The healthcare worker will decide which people need to be contacted based on the information given. It is important for the healthcare worker to be in touch with people who may have been given TB germs. These friends, family members, co-workers, or classmates may have TB infection. This means they have dormant (sleeping) TB germs in their body, so they may not feel sick. If they get treatment for TB infection, they won't get sick with TB disease. If they already have TB disease, they will need treatment right away.
- Some people with TB disease are afraid they will lose their job if others learn they passed TB germs to people at work. Others may be worried their friends and family will reject them. What you need to know is that the information you share with the healthcare worker is kept private and personal.
- The healthcare worker will call or visit the people named. He/she may talk to a group of people at the patient's work, school, or place of worship. The healthcare worker will suggest the contact get a TB skin test and will provide information on where to get tested.