



TB AND HIV

Key points:

1. TB is the leading cause of death for HIV positive people in South Africa.
2. TB is curable if treatment is taken properly.
3. Drug Resistant TB is serious because it is very difficult and expensive to treat.
4. Always complete your TB medication.

TB is the leading cause of death for HIV positive people in South Africa. If you test positive for HIV, have a TB test. If you have TB, get tested for HIV. TB is very common with HIV positive people and the earlier you know your HIV status, the better it is for your health. TB is completely curable if treatment is taken properly. South Africa has a high defaulter

rate from the 6 month DOTS regimen. Although DOTS is very successful elsewhere, South Africa only had a 74% success rate in 2006. Now there is also DR (drug resistant) TB, which makes it more difficult to treat people with TB. DR TB is the result of people not completing their medication. Always finish your treatment. Get tested. Get treated.



Terms

In this chapter, we may use terms you have not heard before. Please look in the Glossary for a full definition of any words you do not understand when using this manual. Please see the table below for a list of terms translated into different languages used throughout South Africa. You can also write down everyday language that you commonly use to describe these terms.

TERMS	ISIXHOSA	ISIZULU	SESOTHO	SLANG
TB	<i>Isifo sephepha</i>	<i>Isifo sofuba</i>	<i>Lefuba</i>	
DOTS	<i>Unyango lweTB olulandelelwayo</i>	<i>Abantu a ba siza abantu, abane TB.</i>	<i>Bathusi ba bakudi ba lefuba</i>	
DR TB	<i>iTB enenkani</i>	<i>ITB esibhebhetheke, esihlol a ama philisi</i>	<i>Lefuba le hlotseng mefuta ya dithetefatsi</i>	
XDR TB	<i>iTB enganyangekiyo</i>	<i>I TB engasazweli emaphilisini</i>	<i>Lefuba le matla le hlotseng mefuta ya dithetefatsi</i>	
Resistant	<i>ineenkani</i>	<i>ukungu sebenzi kwa ma philisi</i>	<i>Ho hanyetsa</i>	
Inactive/ latent (TB)	<i>iTB eleleyo</i>	<i>ITB engaka sebenzi</i>	<i>Lefuba le robotseng</i>	
Active (TB)	<i>iTB ephilayo</i>	<i>ITB esisebenza</i>	<i>Lefuba le tsohileng</i>	
Bacteria	<i>iintsholongwane</i>	<i>Ingcwane</i>	<i>Dikokwanahloko</i>	
Lungs	<i>Imiphunga</i>	<i>Amaphaphu</i>	<i>Matshwafo</i>	
TB outside the lungs/ Disseminated TB	<i>Isifo sephepha esingaphandle kwemiphunga</i>	<i>ITB engaphandle kwamaphaphu</i>	<i>Lefuba ka ntle ho matshwafo</i>	
Stage 4	<i>Isagaba 4</i>	<i>Isitegi sesine</i>	<i>Mokga wa 4</i>	
Symptoms	<i>limpawu</i>	<i>Izimphawu</i>	<i>Matshwao</i>	
Diagnose	<i>Diagnozwa</i>	<i>Ukutholakala nesifo</i>	<i>Dihlahlobo/ Teko</i>	
Infectious	<i>Iyosulela</i>	<i>Ukuthetheleka ngesifo</i>	<i>Ho tshwaetsana</i>	
X-ray	<i>Ugesi</i>	<i>Ukuhlolwa ngesithombe</i>	<i>Marangrang thlole</i>	
Sputum smear test	<i>Uhlole lwesikhohlela</i>	<i>Ukuhlolwa ngisikhwehlela</i>	<i>Teko ya sekhohlela</i>	
Any names for TB drugs Rifamur and Rifinah	<i>Amachiza e TB yi Rifamur ne Rifinah</i>	<i>Imishanguzo ye TB I Rifamur ne Rifinah</i>	<i>Pheko ya TB Rifamur le Rifinah</i>	
Side effects	<i>imiphumela yamachiza</i>	<i>Izinto ezindalwa Amaphilisi</i>	<i>Ditlamorao</i>	



ABOUT THIS CHAPTER

The aim of this chapter is to understand the relationship between TB and HIV.

This chapter covers the following topics:

- Who can get TB?
- What is TB?
- Latent (inactive) TB
- How is TB transmitted?
- The relationship between TB and HIV
- Diagnosing TB
- Treating TB
- Preventing TB
- DR (drug resistant) TB



Welcome to Chapter 8. In this chapter we are going to talk about TB and HIV. As you may already know, TB (tuberculosis) is the leading cause of death for people living with HIV in South Africa. The good news about TB is that it is completely curable, if you take the treatment properly. Let's learn more.

Who can get TB?

Episode 7, Chapter 2



TB often attacks people living with HIV. This is because their immune systems are weak. About 13% of people living with HIV will die of TB. We need to increase awareness and make sure that people get tested for TB and treated. There is no excuse for people dying of a curable illness. In South Africa, about 5 out of 1,000 people are infected by the TB bacterium, which makes them sick. In other places the number can be as high as 10-15 in 1,000 because of environmental factors. For example, people living in informal settlements are at increased risk of getting TB, because of the crowded conditions they live in. In crowded places that have closed windows and doors it is easy for the TB germ to infect a lot of people.

People who are often exposed to TB and for long periods of time are more likely to become infected. A person with active TB can infect 10-15 other people a year if their TB is not treated. If you live in an area where TB is common, such as the Western Cape, you also have an increased risk of getting TB. People who live in crowded areas, who do not have access to good health care, as well as low-income earners, are all at higher risk of getting TB, because of their living conditions.



Informal settlements are the perfect environment for the spread of TB because they are crowded and wet and cold in winter.



DISCUSSION POINTS

In a group talk about the following questions and see if you can answer them.

1. Which infection is responsible for the most deaths of people living with HIV in South Africa?

TB kills more people living with HIV than any other disease in South Africa.

2. What percentage of South Africans living with HIV will die of TB?

About 13% of South Africans living with HIV will die of TB.

What is TB?

TB is a bacterial infection. It is important to distinguish between active and inactive (latent) TB. The TB bacterium has a hard shell around itself, so that it can live outside the body, or inside the body in its inactive or sleeping form. When we are run down or weak – like when our immune systems have been damaged by HIV – inactive TB can become active, making us ill.

Many South Africans have been exposed to the TB germ because it is common in South Africa. This means that they have the germ inside their bodies but are not sick with TB and cannot spread it to other people. If you have inactive TB in your body, you have a 10% chance that during your lifetime it will develop into active TB. But if you are HIV positive and your immune system is weak, you have a much higher chance of having active TB.

Usually we think of TB as an infection of the lungs, but as we have already learnt TB can infect many different parts of the body. When TB is found outside the lungs, it can infect the nervous system, the circulatory system, bones (i.e. spine), joints and the skin. When TB has spread to other parts of the body, it is called ‘disseminated TB’ or ‘extra-pulmonary’ TB (TB outside the lungs). Disseminated TB is a Stage 4 defining illness.



Here we can see TB bacteria in sputum under a microscope. The TB bacteria are red and the sputum is orange.



TB in the lungs can be diagnosed by looking at an x-ray of the lungs.



TB outside the lungs can affect the skin and bones. Disseminated TB is very serious and is a Stage 4 illness.

Symptoms of TB infection

TB can be diagnosed and treated on the basis of symptoms. Symptoms are signs or warnings that we are getting sick. The symptoms of TB include:

- Night sweats
- Coughing for more than two weeks
- Coughing blood
- Unexplained weight loss

If you have any of these symptoms you must go to the clinic and get tested for TB.



DISCUSSION POINTS

In a group talk about the following questions and see if you can answer them.

1. What are some of the symptoms of pulmonary TB?

Some of the symptoms of TB are night sweats, coughing for more than 2 weeks, blood in the sputum and weight loss.

2. Is TB a virus?

No, TB is a bacteria.

3. When can TB become active?

TB can become active when your immune system is weak.

4. What is TB called when it is outside the lungs?

When TB is outside the lungs it is called extra-pulmonary TB or disseminated TB.

Latent (inactive) TB



In most people who breathe in the TB bacteria and become infected, the body is able to fight the bacteria to stop them from growing. The bacteria become inactive, but they remain alive in the body and can become active later. This is called latent TB infection.

People with latent TB infection:

- Have no symptoms
- Don't feel sick
- Can't spread TB to others
- May be hard to diagnose
- Can develop active TB disease if they do not receive treatment for latent tuberculosis infection.

Many people who have latent TB infection never develop active TB disease. In these people, the tuberculosis bacteria remain inactive for a lifetime without causing disease. But in other people, especially those who have weak immune systems, the bacteria become active and cause tuberculosis.



Personal Story:

"My name is Busisiwe Maqungo. I have disseminated TB. I thought it was ordinary pains that could be experienced by anyone. I never thought it could be TB of the spine, even though I should have, as a person living with HIV. I experienced these back pains for about a year, about 6 months ago, it became unbearable painful...I went to private sector doctors and not doctors from the public sector. After consulting with so many doctors, there was still no improvement. Not one doctor could diagnose what the cause of my backache was...It was only last week that I went to my MSF doctor regarding ARVs. The reason I think I should start taking ARVs is because disseminated TB is 1 of the AIDS defining illnesses."

[Busisiwe's spinal TB is now cured].

Note that treatment guidelines have changed since Busisiwe's told us her story - if you have TB, you should begin taking ARVs when your CD4 count is 350 or less. You should also start taking ARVs if you have drug resistant TB - regardless of your CD4 count.



TB is spread through the air when a person with TB sneezes or coughs.



WORKBOOK NOTES

How is TB transmitted?

Episode 7, Chapter 1



TB is transmitted through the air. People who have active TB release TB germs into the air when they cough, sneeze, breathe or spit. A single sneeze can release up to 40,000 infectious droplets, which can then be breathed in by other people. Once you inhale air that contains the TB bacteria, the bacteria will go to the lungs. In the lungs the bacteria attacks and changes the vessels that are supposed to deliver air to and from the lungs. TB can survive for a long time in the air – long enough for it to be inhaled by someone and enter into their lungs. Damp winters combined with crowded living conditions and high prevalence of HIV create ideal conditions for TB. This is why the Western Cape is a TB hotspot.



DISCUSSION POINTS

In a group talk about the following questions and see if you can answer them.

1. How is TB transmitted?

TB is transmitted in the air when someone with active TB sneezes, coughs or spits. It can then be inhaled by someone else.

2. Can TB survive in the air?

Yes, TB can survive in the air. This is how it is able to enter other people's bodies.

3. Why is the Western Cape a TB hotspot?

The Western Cape is a TB hotspot because the winters are wet and there are also crowded informal settlements where TB is easily spread.

The relationship between TB & HIV

Episode 7, Chapter 4



TB is the most common opportunistic infection in people living with HIV. Therefore it is really important that people who are HIV positive know the symptoms of TB and watch out for it, especially if they are in Stage 2. If you have TB, you should also test for HIV. This is especially important because TB can make HIV worse. HIV also makes TB worse.

However, anyone can get TB, whether or not they have HIV. TB of the lungs is not an AIDS-defining condition, but it is still an opportunistic infection because it affects people when their immune systems are weakened.

Eosinophils	1.0%	0
Basophils	0.3%	0
MORPHOLOGY AND COMMENT		
Please note:		AUTO
LYMPHOCYTE SUBSET ANALYSIS		
CD45 +ve White Cell Count	4.12	
CD4% of Lymphocytes	24.30	
Absolute CD4	192	
Remarks		The CD45+ WCC correspond to

*This is a CD4 count test result.
This person has a CD4 count of 192.
If your immune system is weak you have increased chance of getting TB.*



DISCUSSION POINTS

In a group talk about the following questions and see if you can answer them.

1. Is TB an opportunistic infection?

Yes, because it is common among people living with HIV when their immune systems are weak.

2. Is TB common among people living with HIV?

Yes, TB is the most common opportunistic infection for people living with HIV.

3. Why is it important to test for HIV if you have TB?

It is important to test for HIV if you have TB because HIV can make your TB worse and TB can also further weaken your immune system.



TIPS FOR TRAINERS

If you are in a clinic, show the DVD. Use the discussion time questions to talk about how TB is transmitted and the relationship between TB and HIV. If you are in a training, divide the group into smaller groups of 3 to 4 people. Each group has to discuss how TB is transmitted and also the relationship between TB and HIV. Each group has to create a drama that tells a story about either TB transmission or TB and HIV. Each group then has to perform in front of everyone else (20 minutes).

Diagnosing TB

Episode 7, Chapter 5 & 6

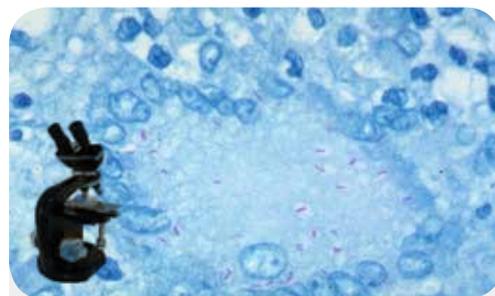


We now know the symptoms of TB. These can tell a health worker that you probably have TB. To be 100% sure the clinic will usually take an x-ray, a sputum smear test (or microscopy) or culture. The tests for diagnosing TB are over 100 years old so there is an urgent need to develop quicker and cheaper ways of testing for TB. In 2011 the South African government introduced the Gene Xpert, which is a much more reliable tool for diagnosing TB.

For the **sputum test** a health worker will take a sputum sample and send it to a laboratory where it will be examined under a microscope to see if the TB bacteria are there. Unfortunately, the sputum tests do not always work, even though we may have TB. When someone tests negative even though they do have TB, it is called “smear negative TB”. If you test smear negative, health workers will start treatment on the basis of your symptoms. If the patient responds well to TB medicines and starts to get better, then it will be assumed that the patient does in fact have TB. The sputum smear test detects 75% of TB cases at best and only looks for pulmonary (in the lungs) TB. It does not always detect TB in HIV positive people due to high rates of smear-negative and extra-pulmonary TB. Even pulmonary (in the lungs) TB in HIV positive people can go undetected with this test.

Another test is called the **TB culture**. In this test, laboratory workers see if they can grow the TB in your sputum in the laboratory. But it can take 4 to 12 weeks for the TB culture to grow and to get a positive result. This is particularly a problem in remote areas where the laboratory will be far away from where the patient lives. Rather than wait for a result, health care workers will start TB treatment before they receive laboratory confirmation. This is necessary for the health of the patient and to stop the spread of TB to others. TB patients stop being infectious to others after two weeks on treatment.

As mentioned above, the **Gene Xpert** is a newly introduced diagnostic tool for TB, which can give accurate results in just 90 minutes. Sputum is placed into a cartridge and then loaded into the Gene Xpert machine to be analysed. It is very specific, accurately detecting 604 out of 609 samples to not have TB in a large study. The Gene Xpert is also very sensitive, being able to accurately detect Rifampicin resistance and smear negative cases of TB. Unfortunately there are some challenges to providing the Gene Xpert to communities. The price of the machine and the cartridges are very expensive and requires electricity to operate. We need to advocate for the Gene Xpert to be provided at a lower cost so it can be offered at more healthcare facilities across the country.



Here we can see TB bacteria (tiny dark blue stripes in the middle) in sputum under a microscope.



Here we can see a TB culture test that is done in a laboratory.



Sputum is placed into a cartridge and then into the Gene Xpert.

Treating TB

Episode 7, Chapter 7



Unlike HIV, TB can be cured. This is because TB is a bacterial infection and HIV is a virus. Bacterial infections are usually treated with antibiotics. TB is a difficult bacterial infection to get rid of, so you need to take the treatment for between 6 and 12 months in order to ensure that the bacteria is no longer in your body. Like HIV it is very important to take TB treatment properly, because if TB treatment fails, there is a chance of developing drug resistant TB, which is much more difficult to treat. Even if you start to feel better, you must always finish your treatment.

TB REGIMEN 1:

TB Regimen 1 is used to treat and cure TB the first time you are diagnosed with TB. The first line of TB treatment is a combination of 4 drugs (sometimes called Rifafour).

The name of each drug in Rifafour and what the drug does is listed below:

- Isoniazid (INH) - this drug kills the TB bacteria
- Pyrazinamide (PZA) - this drug stops the bacteria from replicating
- Rifampicin - this drug kills the TB bacteria
- Ethambutol - this drug stops the TB bacteria from developing resistance to TB treatment

This treatment is taken for 2 months. If the Rifafour has done its job, we change to taking Refinah, a combination of 2 drugs, Rifampicin and INH, is taken together with Ethambutol. This must be taken for the next 4 months. While on treatment, TB microscopy tests are done at 2 weeks and 6 months after starting treatment to see if the medication is working.



Here we can see Rifafour and Rifinah, which are used in both Regimen 1 and 2.

If you are on TB Regimen 2, you will need Streptomycin injections (above) in the first 2 months.

TB REGIMEN 2:

Sometimes the first line of TB treatment fails, even when people have taken all their pills. Fortunately, there is a second line of TB treatment, which lasts 8 months. Second-line TB treatment only works for 1 out of 2 people. It also takes longer and is more difficult than first line treatment.

For the first 2 months you'll be taking the combination of 4 drugs, called Rifafour, but this time you will also have an injection of a drug called Streptomycin as well. On the third month, the injection is stopped and you only take the Rifafour. Then you take Refinah (Rifampicin and INH) along with Ethambutol for the remaining 5 months.

Summary of second line TB treatment:

- Month 1-2: Rifafour and Streptomycin injections
- Month 3: Rifafour only
- Months 4-8: Refinah and Ethambutol

Side-effects of TB treatment

Episode 7, Chapter 9



Just like ARVs, TB treatment unfortunately comes with its own side-effects.

Common side-effects are:

- Nausea
- Cramps or tingling feeling in your feet (called peripheral neuropathy)
- Stinging pains
- Changes in the colour of your urine and tears
- Skin rash

If you get side-effects you must not stop taking TB treatment on your own. Carry on with the treatment but go to your doctor or nurse and tell them what you are experiencing. They can give you something for the nausea and something for the cramps. For cramps you can be given a pill called Amitriptyline or Vitamin B6, which will ease the peripheral neuropathy. Remember, if you stop your TB treatment by yourself, you are putting yourself at risk of getting DR TB, which is resistant to TB medication and very difficult to treat.

TB medication can interact with the birth control pill, making it not effective. Women who are on TB treatment, and who want to avoid becoming pregnant should talk with their health worker about other options for contraception.

TB TREATMENT AND ARVS

TB of the lungs is a Stage 3 HIV infection, which is a serious opportunistic infection. Disseminated TB, or TB outside of the lungs, is a Stage 4 illness, which means you have AIDS and need to start ARV treatment.

Depending on your CD4 count, doctors will treat the TB first, and then start you on ARVs, either 2 weeks or up to 2 months later. TB treatment can affect the liver. This means if you are on TB treatment, you should not be started on an ARV regimen that includes Nevirapine, which can also cause liver damage. Instead, you should start on a regimen that includes Efavirenz. Some side effects can be caused by the medication for both HIV and TB. For example D4T and INH can cause peripheral neuropathy and nevirapine and INH can cause liver toxicity which can lead to liver damage.

Guidelines for treating TB at different CD4 Counts:

- If your CD4 count is above 350, then start normal TB treatment
- If your CD4 count is 100 - 350, then start TB treatment for 2 - 8 weeks before starting ARVs
- If your CD4 count is below 100, then start TB treatment for 2 weeks before starting ARVs
- If you have DR TB, you should start taking ARVs - regardless of your CD4 count

These guidelines may be changed by your doctor, depending on how your body handles the TB medication.



If you are on TB treatment and need to start ARVs, you must take Efavirenz (left) and not Nevirapine (right).

If you are experiencing side effects, never stop taking TB treatment on your own

TB treatment is not easy to take, especially because you have to take it for such a long time and its side-effects are also unpleasant. For a long time pharmaceutical companies have not spent very much money on developing new TB treatment and better and more accurate TB tests. Many people argue it is because TB affects mostly poor people in the world and so the pharmaceutical companies are not interested because they cannot make a profit. This means that TB, like HIV, is made worse by social inequality and poverty. In wealthy communities, very few people get TB.

But the good news is that more recently, money has been raised to research and develop better TB tests, treatment and prevention medication (prophylaxis). TB has been put forward as one of the biggest health challenges facing the developing world, together with HIV and malaria. Apart from big organisations, such as WHO and UNAIDS, private funders such as the Gates Foundation have also identified the need for better TB tests and treatment and have put money towards research. This is promising, but we mustn't stop campaigning for better and affordable TB tests and treatment.



WORKBOOK NOTES



Here we can see the work done in laboratories, where TB culture tests are done, as well as new research.

We need to advocate for research and development into new and better TB drugs

Preventing TB

Episode 7, Chapter 8



As we have already discussed, the TB germ can survive in the air for a long time. TB can even survive weak disinfectants. This means if you are in a closed space, such as a room with no open windows or doors, the chances of TB infecting someone in the room are increased. Try and make sure your home is well ventilated and that there is plenty of sunlight and fresh air moving in and out of the home – especially if someone in your home has TB. This can be difficult in winter and also in informal settlements where many homes are shacks.

You can also wear a mask while around those infected by TB. Or you can cover your mouth and nose with a scarf. Remember someone with normal TB is not infectious 2 weeks after starting their TB treatment.

Isoniazid Preventative Therapy (IPT)

One can also prevent TB by using 1 of the medicines used to treat it. This is called Isoniazid Preventative Therapy or IPT. Isoniazid is also called isonicotinyll hydrazine or INH and is 1 of the first line TB regimen drugs. If you live in a community that has a lot of people living with TB, or you are always around people who have TB, you can be given prophylaxis called INH. This means that you are given INH (Isoniazid) in order to prevent getting sick with TB.

People who benefit from IPT include health care workers because they work in an environment where they are exposed to a lot of TB. HIV positive people and children with HIV who are not already taking ARVs can also benefit from IPT because it can prevent latent TB from becoming active. As of yet, there is little proven benefit of starting IPT if you are already taking ARVs.

If you take Isoniazid for 6 months, it will greatly decrease the risk of being infected with TB over the next 18 months. In people with HIV, IPT can reduce the risk of developing TB by 60%.

The main challenge is to make sure that there is no active TB before using IPT. Isoniazid on its own is not strong enough to cure TB. If you take Isoniazid on its own while you have active TB, the TB germ will become resistant to TB treatment. Before starting IPT you have to:

- Make sure there are no symptoms of TB (coughing for 2 weeks; more than 5kg weight loss over more than 4 weeks; night sweats).
- You need to do a TB culture test to make sure there is no active TB.
- If all these come back negative, you qualify for IPT.

Who will benefit most from IPT?

- Someone who has latent (inactive) TB.
- Health workers with a high occupational exposure to TB.
- Families of people who have TB.
- HIV positive people who are not yet taking ARVs.

You should NOT be put on IPT if:

- You have active liver disease.
- Are abusing alcohol, because Isoniazid is hard on the liver and the combination with alcohol will produce more problems.
- If you have been treated for TB in the past 2 years.
- If you are on ARVs – there is no evidence that it will provide benefit.

Cross ventilation in your home is an important way to prevent TB



DISCUSSION POINTS

In a group talk about the following questions and see if you can answer them.

1. How can TB be prevented in the home?

TB can be prevented by making sure that there is plenty of fresh air by keeping windows and doors open.

2. What is the name of the TB prevention treatment?

IPT is the name given to treatment that prevents TB.

3. Who would benefit most from IPT?

Health care workers and adults and children living with HIV and not taking ARVs would benefit most from IPT.

4. What do you have to do before you can be given IPT?

You need to make sure that you do not have active TB before you are given IPT.



WORKBOOK NOTES

Drug Resistant TB (DR TB)

Episode 7, Chapter 11



If you don't adhere properly to your TB treatment, such as you don't take all your pills or you miss some days, you can develop drug resistant (DR) TB. Sometimes people are just unlucky or have been infected with DR TB and so develop resistant TB. DR TB starts with multi-drug resistant (MDR) TB, which can lead to XDR (Extensively drug resistant) TB. MDR TB means that 2 of the first-line drugs, called Isoniazid and Rifampicin, no longer work.

DR TB is very dangerous, because it is so difficult to treat. It can be passed on to people who have never had TB before. This will put those around you at risk. If you are going to pass on this resistant TB, the people you infect will also be infected with the resistant TB. Because of the dangers of DR TB, if you visit someone with DR TB at the hospital you must wear a face mask to protect yourself from being infected. Only 15% of people with MDR TB can be cured. This is why people who have DR TB are isolated in hospital for a long time while being treated.



People with DR TB are treated in hospital and isolated in a special ward only for DR TB.

We have some drugs that can be used as a second-line against TB that has become resistant. Unlike ordinary TB, up to 24 months of treatment may be needed to clear MDR TB. Medication for MDR includes drugs like Ciprofloxacin, Ofloxacin and they are expensive. It costs R377 to treat ordinary TB for 6 months. MDR TB treatment can cost R31,000 for 6 months' treatment.

Being HIV positive means a 10% greater chance of getting MDR TB per year, even if someone hasn't had TB before. So HIV plays a significant role in the development of MDR TB. It is possible to get MDR TB for the second time. It is rare, but your chances are a lot higher if you have had MDR TB before.

Treating MDR TB

The treatment for MDR TB consists of an initial phase and a continuation phase. In the initial phase, Kanamycin injections or Amikacin injections are given every day for 2 weeks. Pills are also taken to treat the MDR TB at the same time as having injections. These pills are:

- Pyrazinamide
- Ethionamide
- Ethambutol
- Ofloxacin or Ciprofloxacin
- Terizidone or Cycloserine

Any HIV positive person diagnosed with MDR or XDR TB should start taking ARVs, regardless of their CD4 count

After the first 2 weeks of treatment another sputum sample will be sent to the laboratory for a sputum culture to check if the sputum is still positive for MDR TB, or if it is now negative for MDR TB.

If the sputum is negative for MDR TB, it means that the person is responding to the treatment and the injections are reduced to 3 times per week – given on Mondays, Wednesdays and Fridays – and not daily. The pills must still be taken daily. This regimen is followed for 4 to 6 months.

If the sputum is still positive for MDR TB after the first 2 weeks of treatment, the daily injections and the pills must continue to be taken for 6 months. The sputum is checked again at 6 months, if it is still positive for MDR TB, the treatment is continued until 12 months. This is called the continuation phase.

If the sputum is still positive for MDR TB at 12 months, treatment must be continued for another 6 months. If the sputum test is still positive at 18 months, the patient is classified as having XDR TB.



DISCUSSION POINTS

In a group talk about the following questions and see if you can answer them.

1. Why is MDR TB so dangerous?

MDR TB is dangerous because it is very difficult to cure and can be passed onto other people.

2. How long does MDR TB treatment last?

MDR TB treatment can last as long as 24 months (2 years).

3. What role does HIV have in getting MDR TB?

If you are HIV positive you have a 10% greater chance of getting MDR TB per year.

4. Can you get MDR TB for a second time?

It is uncommon, but you can get MDR TB for a second time.

5. What percentage of people are cured of MDR TB?

Only 15% of people with MDR TB are cured.

XDR (Extensively Drug Resistant) TB

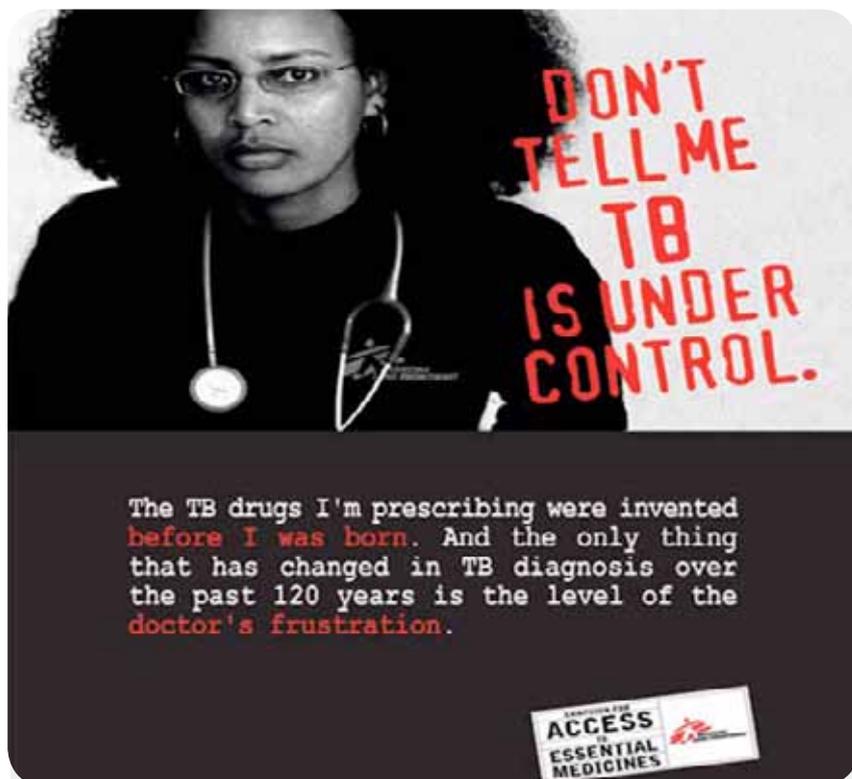
XDR TB can develop when the second-line drugs are misused and also become ineffective. Because XDR-TB strains have developed resistance to most of the first- and second-line drugs available to treat TB, it is potentially untreatable. There are some second-line drugs which work against XDR TB but success is limited.

Another problem with XDR TB is that it takes a very long time for tests to show that the person has XDR TB and so they remain in their communities with a very infectious and dangerous kind of TB. XDR TB is very difficult to treat and to make it non-infectious because the only drugs that can be used for XDR TB are weaker and much more expensive and it takes a very long time to kill the bacteria.

Because drug-resistant TB is infectious for a long time, people with DR and XDR are usually hospitalised so that they can be isolated from their communities. Another problem is that social grants are usually stopped when someone is hospitalised and so many people with XDR TB resist being put in hospital because their social grant supports their family.

Treating XDR TB

There are no specific drugs for treating XDR TB. The doctor will request a Drug Susceptibility Test to identify the drugs that a person is resistant to. Any drugs which the person is resistant to will be removed from the treatment regimen, while drugs that the person is not resistant to, remain part of the treatment. In addition, other drugs that the person has not been exposed before will be included in the treatment - as long as they do not have a cross resistance with other drugs.



A poster fighting for new drugs and better treatment for TB.



Personal Story:

“My name is Shane. I was diagnosed with HIV in 1998 at Tygerberg Hospital. In October 2003, I was diagnosed with TB, I did the 6 months short course and after about 2 or 3 months, my sputums were cleared. I completed the 6 months of treatment. But then just a month later I was diagnosed again with TB... I had just finished 8 months of treatment, I was feeling very well. When I was tested for MDR TB, I had been on ARVs for about a month and I was feeling good with no side-effects from the ARVs. The only thing that was a problem was that I had a pain in my right chest and that was the only thing. I didn't even think it would be TB or MDR TB as such. It was only when the pain persisted after a month, the doctor who treated me with my ARVs and stuff, recommended we have an x-ray done and that's when we saw the cavity that was there... MDR basically means drug resistant... I'm resistant to 2 of the main ingredients. While I was at Brooklyn Chest, after a week we found out that I was resistant to a third component as well. So what it means is that those things will not work in your system.”



WORKBOOK NOTES



DISCUSSION POINTS

In a group talk about the following questions and see if you can answer them.

1. What is XDR TB?

XDR TB stands for extensively drug resistant TB which means that most of the drugs used to treat TB do not work.

2. What happens to people who have XDR TB to help prevent them from infecting others?

People with XDR TB are hospitalised in order to prevent infecting others.

3. What are some of the problems with XDR TB?

Some of the problems with XDR TB is that it is very difficult and very expensive to treat. Patients also have to be hospitalised and sometimes lose their social grants.

Well done for completing this chapter on TB and HIV.

You will now know a lot about TB and its relationship to HIV. We have also discussed some of the problems with TB, such as the fact that many people do not finish their TB treatment. This has resulted in an increase of DR TB cases in South Africa. DR TB is extremely serious and very few people are cured because the drugs no longer work. Let's work together to deal with TB by learning about this illness and by making sure that people with TB complete their medication.



BEFORE WE END OFF

Make sure all questions have been answered. It is important that you understand the following key points:

1. TB is the leading cause of death for HIV positive people in South Africa.
2. TB is curable if treatment is taken properly.
3. DR TB is very serious because it is very difficult to treat.
4. Always complete your TB medication.



MULTIPLE CHOICE QUESTIONS

Name :

Circle the correct answer for each question. You can only choose 1 answer for each question.

1. What is the leading cause of death of people living with HIV?

- a) Car accidents
- b) Pneumonia
- c) TB
- d) Oral thrush

2. Which statement is not true?

- a) If you have HIV you have a higher chance of getting TB.
- b) If you have TB you should test for HIV.
- c) If you are HIV positive you should have a TB test.
- d) If you have TB, you are HIV positive.

3. TB is a:

- a) Fungus
- b) Virus
- c) Bacteria
- d) Protozoa

4. Which statement is true?

- a) TB is only found in the lungs.
- b) TB is transmitted through unprotected sex.
- c) TB is curable.
- d) TB only infects old people.

5. Which is not a way to diagnose TB?

- a) X-ray
- b) Blood test
- c) Sputum test
- d) TB culture test

6. Smear negative TB is:

- a) When you don't have TB.
- b) When a sputum test doesn't show any TB, but you have TB.
- c) When an x-ray doesn't show TB, but you have TB.
- d) When you test positive for TB.

7. Why do health workers start you on TB treatment even if the sputum test is negative?

- a) Because they like giving people medicine.
- b) Because you have TB symptoms and the tests are unreliable.
- c) Because they don't know what is wrong with you.
- d) Because the treatment is cheap.

8. TB outside the lungs is:

- a) Stage 1
- b) Stage 2
- c) Stage 3
- d) Stage 4

9. Which statement is true?

- a) You cannot take TB treatment if you are on ARVs.
- b) If your CD4 count is below 100 then you take TB treatment for 2 weeks before starting ARVs.
- c) TB treatment doesn't work if you take ARVs.
- d) ARVs stop TB treatment from working.

10. Drug resistant TB is caused by:

- a) People drinking alcohol while they take TB treatment.
- b) People not taking their TB treatment properly.
- c) People finishing their TB treatment.
- d) People taking ARVs with TB treatment.



WORKBOOK NOTES

A large area for writing notes, consisting of 20 horizontal dashed orange lines on a light gray background.