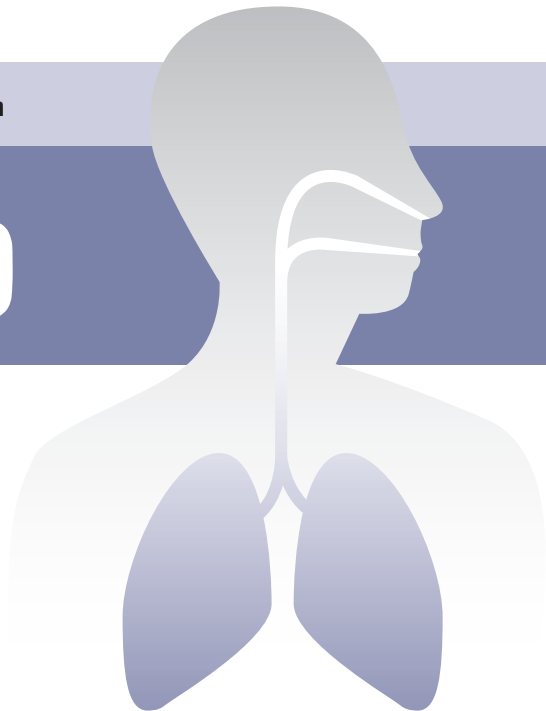


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hiv & tb

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This booklet provides introductory information about tuberculosis (TB), and what it means for you if you have HIV and TB. It includes information on the disease TB, why people with HIV can be more vulnerable to TB, how TB can be treated and prevented, and interactions between anti-TB and anti-HIV drugs. While TB is the most common cause of AIDS deaths around the world, both HIV and TB can be treated successfully.

A summary can be found on page 30, and a glossary on page 32. This booklet is not intended to replace discussion with your doctor. However, it may help you decide what questions to ask.

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What is tuberculosis?

1

A disease of the past?

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

Symptoms of TB include cough, fever, night sweats, and rapid weight loss – the disease used to be called ‘consumption’ because of this.

It has caused illness and death in people for thousands of years. However, the number of cases of TB fell dramatically in countries like the UK in the middle of the 20th century thanks to improved standards of living, better general health, effective anti-TB drugs and TB vaccination programmes. In fact, progress against the disease was so successful that, by the 1980s, many countries, such as the UK

and USA became confident that they could wipe out TB altogether.

This was too optimistic, and the number of cases of TB has increased worldwide, partly because of HIV. TB mainly affects poorer people, young adults and elderly people, and people who have been weakened by other diseases or by not having enough to eat.

In people who have HIV, TB is an AIDS-defining illness. Worldwide, TB is now the most common cause of death among people with HIV. It is one of the most common AIDS-defining illnesses in the UK, but treatment is available for it in nearly all cases.

2 TB – the basics

TB can cause illness in many ways, sometimes at the time of infection, but often years later.

Many people are exposed to TB as children, when they breathe in TB germs that have been expelled into the air from the lungs of a person infected with TB.

The TB germs multiply in the lungs, cause inflammation, and move to the lymph glands (the command centres of the immune system) in the lungs. This phase of the illness is called primary TB. The TB can spread and grow and cause disease. In most people who don't have HIV, the body's immune system keeps the TB under control by forming a wall of scar tissue around it and most people

(about 80%) clear the infection. In the remaining 20% of people, the TB will remain alive, but dormant. Although a person may not feel ill because of TB, the TB germ can remain alive within this contained area for many years, even decades, causing illness at a later time. This type of TB is usually called latent TB.

TB that is causing illness is called active TB.

TB that resurfaces from scar tissue and causes illness after a period of time is called reactivation TB.

Unlike most other opportunistic infections seen in people with HIV (so called because they take the opportunity of the body's

weakened immune defences to develop), TB can occur in people with normal CD4 cell counts and can be transmitted to other people, whether or not they have HIV.

A lot of people only find out that they have HIV because they have been diagnosed with TB. If you are in this situation, it might be helpful to know that finding out you have HIV will mean that you are now in a position to benefit from treatment and care that can keep you well. It is also worth noting that very effective treatment for TB is available, and people with HIV who had their TB treated have gone on to lead long and healthy lives.

NAM produces a lot of information on HIV treatment and living with HIV that you might find useful if you have just found out that you are HIV-positive. You can access this information via NAM's website, www.aidsmap.com or contact us and we can send our other booklets to you. NAM's contact details are at the end of this booklet.

4 Transmission

People who have active TB – TB that the immune system has not been able to control – in their lungs can transmit the disease to other people. TB is spread through the air when a person with active TB coughs. You need to be in close contact with TB in an enclosed space to have a real risk of infection. Close contacts include partners of people with TB, people who live in the same house, and frequent visitors to the house.

If you have been diagnosed with TB, a nurse will usually arrange for close contacts to be screened for TB as well. It is unlikely they will have been infected, but it is important they are contacted.

Once you start treatment for TB, you soon stop being infectious. In the meantime you should make sure you cover your mouth when you cough and wash your hands afterwards. Talk to your nurse or doctor if you have concerns about transmitting TB.

Rarely, TB can affect the larynx (the part of the throat that contains the vocal cords), and active TB here can be spread when a person coughs, shouts, or sneezes. Occasionally, TB can be spread from open wounds and ulcers.

However, not everybody who has active TB in their lungs is infectious and TB that affects the bones or lymph glands is not infectious.

In the UK, there have been cases of HIV-positive people becoming infected with TB on hospital wards. This happened before it was realised that TB was a major health concern for people with HIV, and it is now standard practice for HIV-positive people with TB to be cared for in single rooms rather than wards, and for these rooms to have “negative pressure” meaning that the air is gently sucked out of the room and expelled outside the building so it cannot escape into the rest of the hospital.

If a patient in hospital has a risk of spreading TB they may be asked to wear a mask, as might the staff looking after them and their visitors.

6 TB's interaction with HIV

There is some evidence that having active TB leads to a fall in CD4 cell count and a rise in viral load. This means the effect of HIV may be worse unless anti-HIV drugs are given and the TB is treated.

However, people with HIV who have had TB and been successfully treated are just as likely to benefit from HIV treatment, experiencing the same fall in viral load and increase in CD4 cell count, as HIV-positive people who have never had the disease, and living just as long.

CD4 cell count and viral load are the key indicators of the effect HIV is having on the immune system and should be monitored regularly. If you're not sure what they are or

what they mean, NAM produces a booklet called *Viral load & CD4* which should answer your questions. Contact us for a free copy – contact details are at the end of this booklet.

The most common symptom of TB in the lungs (often called pulmonary TB) is a cough that won't go away, which produces phlegm or mucus that can be bloody. Weight loss, chills and fevers followed by sweats, fatigue, night sweats and, occasionally, pain in the chest are also common symptoms of TB. These symptoms can appear very slowly and are similar to other illnesses seen in people with HIV.

In HIV-positive people with very severe immune damage, TB can spread from the lungs into any part of the body. Often TB affects the lymph nodes, causing them to swell. Other places of TB infection include the gut (causing pain and severe diarrhoea), the spine (causing numbness or tingling), the

liver (causing inflammation), or the brain. If TB infection affects the brain, people might have symptoms of confusion, change in personality, seizures or difficulty moving parts of the body.

If you have symptoms which suggest you might have TB in any of these areas of the body, then you may need some extra tests and treatment, on top of the standard treatment for TB.

8 Diagnosing TB

Active TB

Because the symptoms of TB can resemble those of other illnesses seen in people with HIV, doctors will often carry out a number of tests to see if it is TB or something else causing illness. Also, symptoms of TB can come on very slowly, often over a period of months, and it can be hard for either the person with TB or their doctor to recognise them.

Chest X-rays are the standard test. TB can show up in a number of ways:

- Active TB can cause white patches to show up on the X-ray. These can have holes or cavities in the middle of them.

- Something called a 'pleural effusion' may form. This is fluid on the lung and it shows up as a block of white at the bottom of the lung.

Samples of phlegm can be checked for TB germs. If these are present it shows that a person has active TB and that they could potentially infect other people with TB.

Sometimes the lung is examined with a tiny camera that is put down the nose. This is done under local anaesthetic. It is called a bronchoscopy and will only be conducted if doctors are uncertain what is causing the illness.

Samples of tissue (a biopsy) from the place of infection may be taken under anaesthetic for examination under a microscope. Again, this should only be performed if doctors cannot diagnose the cause of illness using simpler methods.

When TB germs are found they will be checked in the laboratory to see which anti-TB drugs work against them. This will help doctors to make sure that you're taking the right TB treatment.

Latent TB

Tests are also available to see if a person has latent TB – TB that is present in the body, but not causing illness.

Chest X-rays can be used to diagnose latent TB. The scar tissue, which often contains 'chalk' (or calcium), around the TB shows as a 'shadow'.

Another test is called a Mantoux or tuberculin skin test (sometimes called a purified protein derivative or PPD test). This involves injecting a small amount of dead, purified TB protein into the skin. After a few days, the area of injection may show a reaction by reddening or hardening. The

larger the size of this reaction, the more likely it is that a person has been infected with TB in the past and has either active TB or latent infection.

However, lack of a reaction does not prove that a person does not have TB, and this is particularly the case in people who have very weakened immune systems. What's more, the Mantoux test does not provide very accurate results in people who have had the BCG TB vaccination (there's more about this in the next section). This used to be given to most school children in the UK.

A newer, more reliable and quicker blood test has been developed called the T SPOT-TB test. It looks for key immune cells called T cells that the body produces in response to infection with TB. There is some evidence to show that it can be better at detecting TB in people with weakened immunity due to HIV than the Mantoux test.

Vaccination

Until 2005, school children in the UK and most other European countries were given a vaccination against TB, called BCG. However, this vaccination does not offer complete protection against TB, and there have been cases of people who received the BCG vaccination as a child developing TB. Since 2005, the UK has had a policy of targeting use of this vaccine. Those recommended for vaccination include:

- All children living in areas where there is a lot of TB.
- Children whose parents or grandparents were born in countries where there is a lot of TB.

- Recent immigrants from countries where there is a lot of TB.

People with HIV should not be given the BCG injection as it is a live vaccine and can cause a TB-like illness.

Improving the immune system with HIV treatment

One of the best ways of preventing TB in people with HIV is to improve the immune system. Treatment with combinations of effective anti-HIV drugs boosts the immune system, enabling it to fight TB and other infections.

Taking TB prophylaxis

People with latent TB are sometimes given an anti-TB drug or drugs to prevent the TB becoming active. People who have been in close contact with people who have TB may also be given an anti-TB drug to prevent them becoming infected.

The drug normally used is called isoniazid, which is given for at least six months. Sometimes a combination of another drug, rifampicin, with isoniazid can be given for four months. It is recommended that HIV-positive people who come from communities that have high levels of TB, including people from Africa and those from the Indian sub-continent, are given this

prophylactic treatment if their Mantoux test was positive. It is also recommended that HIV-positive people who have been in close contact with people who have active TB should receive this treatment. Talk to your doctor or someone else at your HIV clinic if you are concerned this might apply to you.

Isoniazid can cause side-effects and interact with some anti-HIV medicines, particularly ddI (didanosine, *Videx*) and d4T (stavudine, *Zerit*). You will need to discuss your HIV treatment with your doctor if you are on either of these drugs.

Isoniazid can also be harmful to the liver, and you will have your liver's function monitored closely as long as you are taking isoniazid.

Helping yourself

Eating well, getting an adequate amount of sleep and living in dry, well-ventilated housing will help you avoid infection with TB or stay well if you have been exposed to it or have latent TB. The booklet *Nutrition*, which is also produced by NAM in this series, gives some tips on healthy eating.

If you cannot afford to eat properly or have housing problems, it is important that you find help and advice. Talk to your doctor or someone else at your clinic, or if you have a social worker or an advice worker, ask them to help you. If you are not sure who to talk to, you can contact THT Direct (contact details are provided at the back of this

booklet) which is a helpline for people living with HIV. They can help you look at your options and put you in contact with somebody who can provide you with support and help.

If you come into contact with somebody with TB, such as a family member, housemate or friend, then you should go to your HIV clinic as soon as possible for tests to see if you have been infected.

14 Treating TB

Antibiotics to treat TB have been available since the 1950s, and, when used correctly they can cure TB in people with HIV.

Like HIV, treating TB successfully means taking a combination of drugs at the right time and in the right way. Treatment is usually for six months. In some cases, people may have to take treatment for nine months or a year.

If people either don't take their treatment properly or stop taking their pills once they start to feel better, this can lead to TB becoming resistant to some or all of the drugs used to treat it. This means that the drugs stop working on that type of TB. Drug-resistant TB is becoming more common in many places in

the world. Resistant TB can need treatment for a longer time, often for two years.

Anti-TB drugs can also interact with some other drugs, including those used to treat HIV, and can have side-effects. It is important to let your doctor know all the medicines you are taking so they can avoid possible interactions. If there is a chance that medicines you are taking might interact, you will be closely monitored by your doctor. Your doctor or pharmacist should explain the possible side-effects of your TB treatment and you will be monitored to see if you develop any. It also makes good sense to tell your doctor about any symptoms of side-effects that you experience as it is often possible to do something about them.

Anti-TB drugs

- **Rifampicin.** An anti-mycobacterial drug that is included in standard anti-TB combinations.
- **Isoniazid.** An antibiotic drug that, in combination with other drugs, is a standard treatment for TB. It is also sometimes used by itself as TB prophylaxis.
- **Pyrazinamide.** A first-line drug for the treatment of TB in combination with other drugs.
- **Ethambutol.** An anti-mycobacterial antibiotic which, in combination with other drugs is used as part of standard treatment TB.
- **Clarithromycin.** This drug is an antibiotic used for the treatment of the AIDS-defining illness MAI, but is also sometimes used to treat TB.
- **Dapsone.** An antibiotic used to treat the AIDS-defining illnesses PCP and MAI, which is also occasionally used to treat TB, particularly drug-resistant TB.

- **Ofloxacin.** Used to treat resistant TB.
- **Rifabutin.** This drug is used against the AIDS-defining illness MAI and is sometimes used as an alternative to rifampicin in anti-TB combinations.
- **Streptomycin.** The first effective anti-TB drug. It is now rarely used except in cases of multidrug-resistant TB. Administered by injection.
- **Combinations pills.** To help reduce the number of pills you need to take, some anti-TB drugs are available combined together in a single tablet. The following are available in the UK: Rifater (contains rifampicin, pyrazinamide and isoniazid), Rifinah (contains rifampicin and isoniazid) and Rimactazid (contains rifampicin and isoniazid).

drug name	side-effects	tips on taking it	drug interactions
rifampicin	Rash, fever, stomach problems and orange discolouration of the skin, urine, stools and tears (do not wear contact lenses when taking rifampicin).	Take on an empty stomach, 30 minutes to one hour before food.	Reduces levels of protease inhibitors and NNRTIs in the blood. Reduces blood levels of atovaquone (used to treat PCP). Can reduce blood levels of methadone by up to 50%. It is also possible that it reduces the amount of the anti-fungal drug ketaconazole.
isoniazid	Fever, rash, peripheral neuropathy and liver problems. Taking vitamin B-6 (pyridoxine) reduces the risk of peripheral neuropathy. Avoiding alcohol can help reduce the risk of liver problems.	Take on an empty stomach, a minimum of 30 minutes to one hour before eating.	Care is needed when taking with anti-HIV drugs that can cause peripheral neuropathy, particularly d4T and ddI.

drug name	side-effects	tips on taking it	drug interactions
pyrazinamide	Liver inflammation (hepatitis) and should be used with caution by people with a history of liver problems. Can also cause upset stomach, rash and gout.	Drinking plenty of water helps reduce the risk of upset stomach.	Should be taken two hours before ddI.
ethambutol	Inflammation of the optic nerve, distorted vision, fever and rash. If you develop sight problems whilst taking ethambutol, contact your doctor immediately. Risk of allergic reaction. Can cause ear problems and kidney damage.	Take with food to reduce the risk of nausea.	
clarithromycin	Stomach problems, nausea and altered taste. Should be used with caution by people with liver and kidney problems.		Rifabutin reduces levels of clarithromycin in the blood and clarithromycin increases levels of rifabutin.

drug name	side-effects	tips on taking it	drug interactions
dapsone	Nausea and rash.	Take with food to reduce the risk of nausea.	Should be taken two hours before ddI.
ofloxacin	Headache, dizziness, anxiety, tremors, upset stomach and thrush.		
rifabutin	Rash, fever, nausea, liver inflammation, leukopenia (shortage of white blood cells), thrombocytopenia (shortage of platelets in the blood) and inflammation around the eye when used with clarithromycin and ethambutol.	Can be taken with or without food.	Can have complex interactions with protease inhibitors and NNRTIs. Your doctor will adjust doses if necessary and closely monitor you.
streptomycin	Risk of allergic reaction. Can cause ear problems and kidney damage.	Injected.	

Treating active TB

In the UK, the TB treatment of choice is a combination of four antibiotics that work against TB. The treatment is taken for at least six months. For the first two months, four anti-TB drugs are used. These are isoniazid, rifampicin, pyrazinamide and ethambutol.

Treatment with two drugs, normally isoniazid and rifampicin, continues for a further four months. Everybody taking isoniazid should also take a vitamin supplement called pyridoxine to stop a painful side-effect involving nerve damage in the lower legs and feet (and sometimes the hands) developing.

If the TB is in other places besides the lungs, treatment may be needed for longer, especially if the TB is in the brain, or if there is TB meningitis.

It is normal to take all the drugs as tablets, once daily. Some drugs are combined into a single tablet to make them easier to take.

As TB comes under control, normally after a week or two of treatment, you will feel a lot better. If you have infectious TB you will stop being able to pass on the disease to others after this time, as long as you take anti-TB medication.

However, it is vital to go on and complete the full course of TB treatment. Failure to do this

can cause the TB to come back, or drug resistance to emerge. If you would like more information on why taking medicines properly is important and some tips on things that might help you to take your medicines correctly read the NAM booklet in this series called *Adherence*.

Directly observed therapy

Because of the importance of taking TB treatment correctly, both for your health and to avoid strains of TB developing which are resistant to anti-TB drugs, it might be recommended that a healthcare worker visits you at home every day to make sure that you take your medication. This is called Directly

Observed Therapy (DOT for short), and it is standard practice in some countries. It is used in some circumstances in the UK, such as where someone has multidrug-resistant TB (see page 27) or when a patient has problems with adherence.

Treat TB first or TB and HIV together?

Treating TB and HIV at the same time can be difficult. There can be interactions between some of the medicines used, and it can also mean taking a lot of pills. This can be an issue for people who have just been diagnosed with TB and HIV, those who have had HIV for sometime before being

diagnosed with TB, and people who are taking HIV treatment and develop TB.

There are interactions between some anti-HIV drugs and TB medication. Types of HIV treatment called protease inhibitors and non-nucleoside reverse transcriptase inhibitors (NNRTIs) interact with rifampicin, a key drug included in many anti-TB combinations.

Many doctors recommend either delaying HIV treatment until the TB has been controlled, or even stopping or changing anti-HIV medication if a person develops TB whilst taking it. Treatment for HIV and TB can be very complex and your doctor will discuss with you the treatment best suited to your circumstances.

If you have a low CD4 cell count, and start anti-HIV drugs immediately after starting your TB treatment, you may be at risk of developing what is called immune reconstitution syndrome. This is when your strengthening immune system is stimulated to attack TB again. This can make you very unwell and cause unpleasant symptoms, particularly fever and an enlargement of the lymph nodes.

The British HIV Association (BHIVA), the professional body for doctors treating people with HIV, recommends that TB should be treated first if your CD4 cell count is above 350.

If your CD4 cell count is between 100 and 350, your doctor may recommend that you start your anti-HIV drugs two months after starting your anti-TB drugs. If you have a very weak immune system, with a CD4 cell count below 100, BHIVA recommends that you start HIV treatment as soon as possible after starting TB drugs as the risk of side-effects, drug interactions, and immune reconstitution syndrome are outweighed by the risk of further HIV-related illness and even death if HIV treatment is delayed.

Your doctor should discuss these issues with you and explain why decisions on how to treat your TB and HIV have been made.

TB treatment for HIV-positive women who are pregnant

UK doctors make special recommendations for the treatment of TB in HIV-positive women who are pregnant or breastfeeding.

It is important that pregnant women with active TB take TB treatment. Women with latent TB are also recommended to take isoniazid treatment if it is thought that they have a reasonable risk of developing active TB. The chance of TB being passed on to the baby is very small, but if the woman is not treated for TB, there is an increased chance of early labour.

TB treatment in pregnant women should consist of four drugs – rifampicin, isoniazid, pyrazinamide and ethambutol for the first two months and then two drugs – rifampicin and isoniazid – for a further seven months. Pyridoxine (vitamin B-6) should also be taken to prevent isoniazid causing nerve damage.

If you are pregnant, it will be recommended that you take HIV treatment to protect your baby from being infected with HIV in the womb or during birth. The exact type of treatment will depend on your health and when your HIV was diagnosed. Because of the risk of an interaction between some anti-TB drugs and some anti-HIV medicines, it is extremely important that the doctors

providing antenatal care and TB treatment are very knowledgeable about HIV and TB and work very closely together.

Because of the risk of passing on HIV, it is recommended that HIV-positive women in the UK should not breastfeed.

For more information on HIV and pregnancy and mother-to-child transmission of HIV see the booklets in this series, *HIV and women* and *HIV and children*.

Don't be afraid to ask for support – having a baby is a life-changing experience in itself and if you have only just found out that you have HIV or TB, then you may have lots of questions, or may need extra support from

family, friends, doctors, nurses and midwives and from other advice and support workers or other people living with HIV. There is information and support available to you – if you are not sure where to go, then you could talk to someone at your clinic or call a helpline such as THT Direct (0845 12 21 200) or Positively Women (020 7713 0222).

Interactions between anti-TB drugs and anti-HIV drugs

Many anti-HIV drugs and anti-TB drugs can work well and safely together. However, as mentioned above, there can be interactions. It is not recommended to use certain anti-TB and anti-HIV drugs together and

sometimes it is necessary to adjust the dose of one or the other.

The anti-TB drug rifampicin can cause large reductions in the amount of protease inhibitors (one of the types of anti-HIV drugs) in the blood, even if they are 'boosted' by ritonavir, making them ineffective and increasing the chance that resistance to anti-HIV drugs will develop. Because of this, rifampicin should not be used with many of the protease inhibitors. Rifampicin can be used with the commonly-prescribed NNRTI efavirenz (*Sustiva*, also in the combination pill *Atripla*).

Another anti-TB drug, rifabutin can also interact with protease inhibitors, causing the

amount of antiretrovirals in the bloodstream to fall and the amount of rifabutin to increase. If taken with efavirenz, the amount of rifabutin in the blood can fall.

Because of these interactions it is very important that your doctor is skilled in the treatment of both TB and HIV.

If you are concerned about your treatment, or have any questions, ask your doctor or someone else involved in your care, to spend some time explaining your treatment to you.

Anti-TB drugs and anti-HIV drugs – side-effects

Some people taking HIV treatment and who are also taking isoniazid or rifampicin may develop hepatitis (inflammation of the liver). Your doctor should do regular blood tests to check on the health of your liver as part of your care.

Isoniazid can cause painful nerve damage called peripheral neuropathy, and it is recommended that it is used with extreme caution if given at the same time as d4T or ddI, which also cause this side-effect. Taking a daily dose of vitamin B-6 (pyridoxine) can help prevent isoniazid causing peripheral neuropathy, but does not prevent peripheral neuropathy caused by some anti-HIV drugs.

TB that is resistant to isoniazid and rifampicin, and to other drugs as well, is becoming much more common. This is called multidrug-resistant TB (MDR-TB) and cases have been seen in HIV-positive people.

Unlike drug-sensitive TB, which is normally cured, the risk of dying from multidrug-resistant TB is higher, unless you very quickly receive treatment consisting of anti-TB drugs that still work.

In the early 1990s, there were outbreaks of multidrug-resistant TB on HIV wards in two UK hospitals but, thanks to effective infection-control measures, there has not been an outbreak for many years.

To help control the spread of multidrug-resistant TB, it is often necessary for a person with it to stay in hospital in isolation, until treatment has started to be effective.

Treating multidrug-resistant TB is much harder than treating normal drug-sensitive TB. People who have it need to take more anti-TB drugs for longer. Treatment for up to two years or in some cases even longer may be required. Drugs used to treat multidrug-resistant TB include streptomycin, kanamycin, clarithromycin, amikacin, capreomycin, and quinolones.

Some of these drugs can also interact with anti-HIV medication or have unpleasant

side-effects and close monitoring is needed. It is very important that you complete the whole course of treatment, so do talk to your doctor about side-effects and what can be done to make them easier to manage.

Multidrug-resistant TB is more difficult to treat, so it is likely you will be referred to a doctor who specialises in treating TB.

Some strains of TB have also emerged which are resistant to second choice drugs as well; this is called extensively drug-resistant TB (XDR-TB). There have been outbreaks of XDR-TB in a number of places across the world, often involving people with HIV.

The risk of death from extensively drug-resistant TB is very high. There have been no cases of extensively drug-resistant TB in people with HIV in the UK to date.

After starting HIV treatment and experiencing an improvement in their immune system, about 25% of people who have had TB, experience a temporary worsening of TB symptoms. A chest X-ray might show worsening of TB in the lungs. Symptoms include fever and swollen glands, which can turn into pus-filled abscesses. These will go away given time, but they need expert management.

It is not normally necessary to change HIV treatment or to restart TB therapy. Sometimes a drug called prednisolone is used to control the immune reaction.

It seems that people who started HIV treatment with a CD4 cell count below 100, and within two months of starting an anti-TB drug combination, are at greatest risk of experiencing this. If you are concerned about any aspect of starting treatment, including the possibility of developing this syndrome, ask your doctor to spend some time talking to you about it and answering any questions you have.

30 Summary

- TB is the most common AIDS-defining illness worldwide, but people with HIV respond well to TB treatment.
- People who have been successfully treated for TB respond well to HIV treatment.
- People with HIV can get TB when their CD4 cell count is at any level and pass it on to other people. But the risk of developing TB is highest in people who aren't taking HIV treatment and who have a low CD4 cell count.
- TB can be active, causing illness, or latent, which could cause illness in the future.

- TB can be treated, but it is very important to take the drugs properly over many months.
- Anti-TB drugs can interact with anti-HIV drugs, meaning that the doses of both may need to be adjusted.
- Some strains of TB are multidrug-resistant. This type of TB is harder to treat. Extensively drug-resistant TB has also become a serious health concern in some regions of the world.
- TB in people with HIV needs expert management.

32 Glossary

abscess A collection of pus formed as the result of infection.

antibiotic A drug that affects bacteria.

bacteria A single-celled micro-organism.

biopsy A small sample of tissue that can be examined for signs of disease.

bronchoscopy A medical procedure using a flexible tube that enables examination and biopsy of the lungs.

CD4 A molecule on the surface of some cells onto which HIV can bind. The CD4 cell count roughly reflects the state of the immune system.

hepatitis Inflammation of the liver.

immune system The body's mechanism for fighting infection and eradicating dysfunctional cells.

leukopenia Fewer than normal white blood cells, usually due to bone marrow damage.

lymph nodes Special areas in the body where white blood cells and other important immune cells are found. Also known as glands.

meningitis Inflammation of the outer lining of the brain.

NNRTI Non-nucleoside reverse transcriptase inhibitor, the family of antiretrovirals that includes efavirenz, etravirine and nevirapine.

NRTI Nucleoside reverse transcriptase inhibitor, the family of antiretrovirals that includes 3TC, abacavir, AZT, d4T, ddI and FTC.

opportunistic infection Specific infections that cause illness in someone with a damaged immune system.

peripheral neuropathy Damage to the nerves of the hands and/or feet, causing symptoms ranging from numbness to excruciating pain.

protease inhibitor Family of antiretrovirals that target the protease enzyme. Includes atazanavir, darunavir, fosamprenavir, indinavir, lopinavir/ritonavir, nelfinavir, ritonavir, saquinavir and tipranavir.

pulmonary Affecting the lungs.

regimen A drug or treatment combination and the way it is taken.

strain A variant of a disease characterised by its genotype.

thrombocytopenia A decreased number of specific cells (responsible for clotting) in the blood.

tuberculosis A disease caused by the bacterium *Mycobacterium tuberculosis*.

viral load Measurement of the amount of virus in a sample. HIV viral load indicates the extent to which HIV is reproducing in the body.

34 Questions for my doctor

My treatment

35

You could write down the drugs you're on and when you have to take them.

36 Notes



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NAM wants to make sure this booklet is useful to you. We would be grateful if you could take a minute to provide us with some valuable feedback.

THE QUESTIONNAIRE IS ANONYMOUS AND CONFIDENTIAL

Below is a series of statements. Please tick the box you agree with.

This booklet:

- has increased my knowledge of the symptoms of TB
- has increased my understanding of how TB is passed on to other people
- has increased my knowledge of the treatments available for people with HIV and TB
- will help me talk to my healthcare teams/doctor about TB
- used language that was easy to understand

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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We would like to ask a few more questions. You don't have to answer these but if you do it will help us make sure that our information reaches the people who need it most

Please circle the description that best describes you

- I am: male / female / transgender
- I live: in London / outside London / outside the UK
- My ethnic background is: White / Black-Caribbean / Black-African / Black – other /
Indian or Pakistani or Bangladeshi / other Asian or oriental / other or mixed
- I think I got HIV as a result of: sex between men / injecting drugs / sex between men and women /
from blood or blood products / mother to child transmission of HIV /
other / don't know / rather not say
- I got this booklet from: nurse / doctor / clinic / THT's HIV Health Support Service /
support group / friend / family member / NAM /
other (please specify)

Thank you very much for taking the time to fill in this questionnaire.

NAM really does value your feedback. It helps make the information we provide better.

HIV helplines

THT Direct

from the Terrence Higgins Trust

telephone 0845 1221 200

opening hours Monday-Friday, 10am-10pm
Saturday & Sunday, 12pm-6pm

African AIDS Helpline

telephone 0800 0967 500

opening hours Monday-Friday, 10am-6pm

HIV i-Base Treatment Phonenumber

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NAM information series for HIV-positive people

The booklet series includes: ■ adherence ■ anti-hiv drugs ■ clinical trials ■ hiv & children
■ hiv & hepatitis ■ hiv & mental health ■ hiv & sex ■ hiv & stigma ■ hiv & women
■ hiv drug resistance ■ hiv therapy ■ side-effects ■ nutrition ■ viral load & CD4

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NAM Information Forums

Monthly, free meetings offering an opportunity to hear the latest news, views and research around HIV treatments. Held in the evening at a central London location. Call NAM for details.

HIV Health Support Service

NAM supports THT in providing one-to-one and group skills sessions on health and treatments to people living with HIV in London. Call THT Direct for details.



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