

Patient information from BMJ

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HIV: opportunistic infections in people with HIV

If you have HIV, your immune system doesn't work as well as it should. This means that you're more likely to get certain infections and diseases.

Your doctor should talk to you about the most common infections that can happen when you have HIV (you might hear these being called 'opportunistic' infections). They should also talk to you about how to prevent and treat them.

What is HIV?

HIV stands for **Human Immunodeficiency Virus**. Infection with the virus damages your immune system and makes it harder to fight off some types of infection. It also makes it easier for some conditions and cancers to develop.

Without treatment, HIV infection can lead to AIDS. AIDS stands for **Acquired Immune Deficiency Syndrome**.

AIDS is the name given to the group of infections and illnesses that develop as HIV gradually weakens your immune system. Without treatment, AIDS usually develops over 10 to 15 years after infection with HIV.

What are 'opportunistic' infections?

Opportunistic infections are infections you are more likely to get if you have a weakened immune system, like in HIV.

The word opportunistic means to take advantage of an opportunity - in simple terms, to grab your chance when it happens.

Your chance of getting opportunistic infections partly depends on how much your immune system has been affected by HIV. You may hear your doctor talk about your **CD4+ count**. This roughly means how many blood cells you have that can fight infection.

The lower your CD4+ count, the greater your chance of getting an infection. You are also more likely to get an infection if you don't take your HIV treatment as prescribed, regardless of your CD4+ count. Treatment for HIV is with antiretroviral therapy, or ART, for short.

Examples of opportunistic infections in HIV

Certain infections are more common in HIV. They include tuberculosis (TB), pneumonia, cytomegalovirus (CMV), and thrush, to name a few.

But it's important to remember that these are just possible problems and they might not happen to you at all.

You can talk to your doctor in more detail about any of these infections that you're concerned about.

Tuberculosis

Tuberculosis (TB) is an infection that normally affects the lungs. But the symptoms of TB can be vague and non-specific. They include fever, weight loss, and feeling generally unwell.

TB is treated with antibiotics to kill the bacteria that cause the infection.

Even if you don't have symptoms, when you're first diagnosed with HIV you should have a test to check for latent TB. This is when you have the infection but it's not causing you any problems.

If the test is positive for latent TB, you will be given antibiotic treatment to get rid of the infection.

Disseminated MAC disease

Disseminated MAC is a bacterial infection that stands for disseminated mycobacterium avium complex. It's a serious infection that can spread throughout the body in people who have a very low CD4+ count.

Symptoms are general and include fever, night sweats, weight loss, and sometimes stomach problems.

Disseminated MAC disease is treated with long-term antibiotics. Some people have to take antibiotics for the rest of their lives to stop the condition from coming back.

People with very low CD4+ counts, or those who cannot have ART for specific reasons, may also need to take antibiotics to prevent the infection in the first place.

Pneumonia

Pneumonia is a common infection that causes inflammation in the lungs. But people with HIV can be affected by a specific type of pneumonia called *Pneumocystis* pneumonia, or PCP for short.

This type of pneumonia is caused by a fungus that attacks the lungs in people with weakened immune systems. Symptoms include fever, fatigue, and a dry cough.

PCP is treated with antibiotics. As with some other infections in people with HIV, it might be necessary to take long-term antibiotics to stop the infection from coming back.

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Even if you don't have PCP, your doctor might still recommend you take long-term antibiotics to prevent future infection. This is called **prophylaxis** and may be the case if you have a very low CD4+ count. But you should only have to take the antibiotics until your CD4+ count improves to a certain level.

Toxoplasmosis

Toxoplasmosis is a common infection caused by a parasite. You can get it from infected meat or from the faeces of infected cats. In people with strong immune systems it doesn't usually cause any problems and the infection goes away on its own.

But in people with HIV, toxoplasmosis can cause serious problems, including issues with the eyes and brain. Symptoms include headaches, confusion, fever, and weakness.

When you're first diagnosed with HIV, you should have a test to check for toxoplasmosis. If the test is positive, you will be treated with a combination of medicines. Your doctor may recommend you take long-term antibiotics to prevent future infection. This is called **prophylaxis** and might be the case if you have a very low CD4+ count. But this is usually only until your CD4+ count improves to a certain level.

To reduce the risk of infection with toxoplasmosis, people with HIV should avoid eating raw or undercooked meat and should avoid direct contact with cat faeces.

Cytomegalovirus (CMV)

CMV is a virus that is usually harmless in people with a healthy immune system. Many people get the infection without ever knowing. But it can cause serious problems in people with HIV, including damage to the eyes, brain and lungs. Symptoms include fever, aching muscles, and swollen glands.

CMV is treated with antiviral medicines. Unlike other infections, you won't be tested for CMV when you're first diagnosed with HIV. The best way to prevent CMV from causing a severe infection is to take your ART as prescribed.

Cryptococcosis

Cryptococcosis is a fungal infection that commonly affects the lungs and brain. It can be dangerous if it's not caught and treated early. Symptoms include fever, headache, confusion, chest pain, and coughing.

Cryptococcosis is treated with antifungal drugs. This is long-term, usually until your CD4+ count reaches a certain level, to stop the infection coming back. People with severe symptoms may also need to have more intensive treatment, including daily lumbar punctures to test the spinal fluid for infection and improve symptoms. A lumbar puncture is a procedure where your doctor inserts a needle into the spine to drain fluid.

If you have a very low CD4+ count when you're first diagnosed with HIV, you may have a test to check for the fungus that causes Cryptococcosis - even if you don't actually have any symptoms. If you test positive, you may also have a lumbar puncture to test your spinal fluid too.

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Immune Reconstitution Inflammatory Syndrome (IRIS)

IRIS is a condition that happens, strangely, when your immune system starts to get better.

It can develop as early as 7 days after you start taking your ART. IRIS is when your strengthened immune system overreacts to an opportunistic infection, making you ill. It's most commonly seen in people with TB and disseminated MAC disease, but it can happen with other infections too. Symptoms include fever, weight loss, shortness of breath, and swollen, painful glands.

Treatment for IRIS is usually with non-steroidal anti-inflammatory medicines, but in more severe cases, steroids are recommended. You will also be treated for the infection that has triggered your IRIS. Your ART will continue as normal.

Mucocutaneous candidiasis (thrush)

Thrush is a common fungal infection that usually affects the mouth and throat. In women it can also affect the vagina. While it isn't usually serious, it can be unpleasant and annoying.

Thrush in the mouth and throat can cause a cottony feeling in the mouth, changes to taste, and difficulty swallowing food and liquids. Symptoms of vaginal thrush include itching, swelling, and discharge.

Thrush is common in people with HIV and it's treated using short courses of antifungal drugs. Taking antifungals to prevent thrush from coming back isn't usually recommended, as the infection can become resistant to the drugs.

Treatment side effects

Like all medicines, the drugs used to treat opportunistic infections in HIV can have unpleasant side effects in some people. Your doctor should explain these possible side effects to you.

Many people with HIV need to take a lot of different treatments. Some medicines can interact badly with each other to cause problems. If you notice any side effects, speak to your doctor.

What will happen?

While it's not possible to say what will happen to individual people with HIV, opportunistic infections are more likely when your CD4+ count is low.

Taking your ART exactly as prescribed helps keep your CD4+ count high and helps to keep your immune system healthy.

How well you recover from opportunistic infections varies depending on how well you are when you get the infection, and on the type of infection.

For example, candidiasis (thrush) is common, but it is usually simple to treat and rarely causes serious problems. Other infections can be more severe and harder to treat.

Many organisations and support groups offer help and information to people with HIV. For example, in the UK, the Terrence Higgins Trust (tth.org.uk) has been providing these services for many years.

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Your doctor might be able to help you find support in your area, or you can search online too.

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