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The Truth About AIDS - free book

- [Introduction - the truth about AIDS](#)
- [Chapter 1: The Extent of the AIDS Nightmare](#)
- [Chapter 2: What's so Special about an AIDS / HIV Virus?](#)
- [Chapter 3: When Cells Start to Die](#)
- [Chapter 4: How People Become Infected by HIV](#)
- [Chapter 5: Questions People Ask about AIDS / HIV and a Christian response / church programmes](#)
- [Chapter 6: Condoms Are Unsafe](#)
- [Chapter 7: Moral Dilemmas in AIDS / HIV work](#)
- [Chapter 8: Wrath or Reaping? Is AIDS the wrath of God? Is AIDS the anger of God?](#)
- [Chapter 9: Some Life and Death Issues](#)
- [Chapter 10: When Church Members Need Help about AIDS](#)
- [Chapter 11: Others Need Help about AIDS Too](#)
- [Chapter 12: Saving Lives - preventing HIV infection](#)
- [Chapter 13: Needle and Condom Distribution to stop HIV spread?](#)
- [Chapter 14: Special AIDS / HIV Issues in Africa and Asia](#)
- [Chapter 15: A Ten Point Plan for the Government](#)
- [Chapter 16: A Global Christian Challenge and a Christian Response to AIDS](#)

When do AIDS symptoms start? The virus causing AIDS enters the blood and quickly penetrates certain white cells (called 'CD4' cells or "T4 cells") in the body. As we saw in the last chapter, they program the white cells after which there is often little or no trace of the virus at all. This situation usually lasts for six to twelve weeks. During this time the person is free of symptoms and antibody tests are negative.

First signs of illness - symptoms of HIV

The first thing that happens after infection with HIV is that many people develop a flu-like illness. These HIV symptoms may be severe enough to look like glandular fever with swollen glands in the neck and armpits, tiredness, fever and night sweats. Some of those white cells are dying, virus is being released, and for the first time the body is working hard to make correct antibodies. At this stage the blood test for HIV will usually become positive as it picks

up the tell-tale antibodies. This process of converting the blood from negative to positive is called 'sero-conversion'. Most people do not realise what is happening, although when they later develop AIDS they look back and remember the symptoms clearly. Most people have produced HIV antibodies in about twelve weeks.

Latent infection

Then everything settles down. The person now has a positive test, and feels completely well - no symptoms at all. The virus often seems to disappear completely from the blood again. However, during this latent phase, HIV can be found in large quantities in lymph nodes, spleen, adenoid glands and tonsils. We do not know how many people will go on to the next stage. As we saw in an earlier chapter, at first doctors thought it might only be one in ten, then two or three out of ten. Now it looks as though at least nine out of ten will develop further problems.

San Francisco studies show that in developed countries, without use of the latest therapies, 50% with HIV develop AIDS in ten years, 70% in fourteen years. Of those with AIDS, 94% are dead in five years. The rate of progression can be much faster in those with weakened immunity from other causes---drug users or those in developing countries, for example. It can be far slower in those on various treatments.

Most scientists and doctors are convinced that if we follow up infected people for long enough---maybe for twenty to thirty years or more if they are getting good treatment---then all or nearly all will die of AIDS, unless they have died of something else in the meantime such as a heart attack or cancer. How long can someone live before some infection triggers production of more virus and death of more white cells?

The next stage begins when the immune system starts to break down. This is often preceded by subtle mutations in the virus, during which it becomes more aggressive in damaging white cells. New HIV symptoms develop. Several glands in the neck and armpits may swell and remain swollen for more than three months without any explanation. This is known as persistent generalised lymphadenopathy (PGL).

Early disease progression

As the disease progresses, the person develops other conditions related to AIDS. A simple boil or warts may spread all over the body. The mouth may become infected by thrush (thick white coating), or may develop some other problem. Dentists are often the first to be in a position to make the diagnosis. People may develop severe shingles (painful blisters in a band of red skin), or herpes. They may feel overwhelmingly tired all the time, have high temperatures, drenching night sweats, lose more than 10% of their body weight, and have diarrhoea lasting more than a month. No other cause is found and a blood test will usually be positive. Some used to call this stage ARC, or AIDS related complex.

You can easily panic reading a list of symptoms like this because all of us tend to read about diseases and think instantly we've got them. Chronic diarrhoea does not mean you have HIV infection or AIDS. Nor do symptoms such as weight loss, high temperatures, tiredness and swollen glands. These things can be particularly common in many developing countries.

At the moment in many countries there is an epidemic of viral illnesses which cause fevers, tiredness, rashes and other symptoms that last a long time, always go away completely, and have nothing to do with HIV infection or AIDS. See your doctor or go to a clinic for sexually-transmitted diseases (STD) or genito-urinary medicine (GUM) if you are unsure.

Late HIV illness---AIDS

The final stage is AIDS. Most of the immune system is intact and the body can deal with most infections, but one or two more unusual infections become almost impossible for the body to get rid of without medical help---usually intensive antibiotics.

These infections can be a nightmare for doctors and patients. The desperate struggle is to find the new germ, identify it, and give the right drug in huge doses to kill it. The germ may be hiding deep in a lung requiring a tube (bronchoscope) to be put down the windpipe into the lung to get a sample. The person is sedated for this. It may be hiding in the fluid covering the brain and spinal cord, requiring a needle to be put into the spine (lumbar puncture). It may be hiding in the brain itself. It may hide in the liver or gall-bladder or bowel. It can hide anywhere.

Chest infections are common

The most common infection is a chest infection. A twenty-three-year-old man walks into his doctor's office with a chest infection not responding to antibiotics. He is flushed and has a high temperature. He has been increasingly short of breath with a dry cough for several weeks. He becomes breathless and has an emergency chest X-ray. The X-ray is strange. No one has seen anything like it before. Could this be AIDS? Samples are taken from the lung. The man is rushed to intensive care and is too ill to ask if he would agree to a blood test. Within two days he is dead. A strange germ is found in his lung: pneumocystis carinii. This is incredibly rare except in AIDS.

He may or may not be reported as a statistic to the centre collecting information on AIDS. This is voluntary and doctors are busy. If he had died a day or two earlier, the cause of death would have been thought to be pneumonia. Yet another silent victim, unnoticed and unrecorded. Our statistics may be incomplete, and remember, no test was done for HIV.

He was unlucky. Average life expectancy if you develop your first pneumocystis pneumonia is just over two years. 78% survive the first episode, only 40% survive the second. You could live for over three years, or you might be dead in three months. Each new chest infection could be your last. Often people seem only an hour or two from death, then pull around, recover completely, and go home for several months until the next crisis.

We know that eighty-five out of a hundred people with these chest infections in Western nations are infected with pneumocystis carinii, but many are infected with several things at once. Worldwide, the commonest HIV-related chest infection is tuberculosis. As HIV spreads, TB is on the increase, with possibly a million extra cases a year at present as a result of HIV. Latent TB infection is common in the general population. HIV damage to CD4 white cells allows reactivation, rapid deterioration and death.

Damage to nervous system

Half of the people with AIDS will develop signs of brain impairment or nerve damage during their illness. In one person out of ten it is the first symptom. HIV itself seems to attack, damage and destroy brain cells of the majority of people with AIDS who survive long enough. The virus

is probably carried into the brain by special white cells called macrophages, which then produce more virus there. Brain cells have a texture on their surfaces similar to CD4 white cells which enables the virus to latch on and enter.

The damage happens gradually and often is not noticed until a significant part of the brain has been destroyed: a brain scan shows a shrunken appearance with enlarged cavities. The signs can be threefold: difficulties in thinking, difficulties in co-ordinating balance and moving, and changes in behaviour. Sometimes the problems are caused by other infections spreading throughout the body, or by tumours, all brought on by AIDS.

Brain damage affects children as well. In one study, sixteen out of twenty-one children with AIDS developed progressive brain destruction (encephalopathy). But any part of the nervous system can be damaged in adults or children, not just the brain, and AIDS can mimic just about any other disease of nerves.

The 1993 AIDS Surveillance Case Definition of the U.S. Centers for Disease Control and Prevention

A diagnosis of AIDS is made whenever a person is HIV-positive and:

- he or she has a CD4+ cell count below 200 cells per microliter OR

- Cytomegalovirus retinitis (with loss of vision)

- Encephalopathy, (See [Dementia](#))

- Herpes simplex: chronic ulcer(s) (>1 month duration) or bronchitis, pneumonitis, or esophagitis

- Histoplasmosis, disseminated (see Fungal Infections)

- Lymphoma, primary, of brain (primary central nervous system lymphoma)
- Mycobacterium avium complex or disease caused by M. Kansalii, disseminated
- Disease caused by Mycobacterium (see Tuberculosis) (pulmonary)
- Disease caused by Mycobacterium, other species or unidentified species, disseminated

Children with HIV

Worldwide, over 3 million children have HIV infection and half a million die every year.

Altogether, 83% of children with HIV will show some kind of abnormality in their white cells, or will have symptoms, by the time they are six months old. Problems seen can include large lymph nodes, enlarged liver and spleen, failure to thrive (small for age), small head, ear infections, chest infections, unexplained fever, encephalopathy (brain deterioration).

Of those showing symptoms within the first year of life, half die before the age of three.

However, with improved treatments children are surviving longer. A common pattern is

beginning to emerge of a child who becomes unwell in the first year or two of life with different

chronic or acute infections, yet with treatment carries on for many years, possibly even into

adolescence with many ups and downs. Pain and other symptoms are often overlooked in

these children.

Blood tests are often confused by the presence after birth of the mother's own antibodies.

All babies of infected mothers will test positive for around the first year, whether infected or not.

Most babies who test positive at birth turn out to be uninfected. The greatest risk to the baby

is the birth process itself and breast milk. Dramatic reductions in infection rates can be made if

the mother is given anti-viral medication before and immediately after birth. This is one of the

most appropriate occasions to use anti-viral drugs in the poorest nations. But it should always be done under strict medical supervision.

There is a very slight risk that children who later test negative may still carry HIV. If first infected in the womb, the child may regard HIV as part of itself and not react to it. We are still in the early stages of learning about HIV in children.

Skin rashes and growths

The majority of people with AIDS develop skin problems which are usually an exaggeration of things common to most people, such as acne and rashes of various kinds. Cold sores and

genital herpes may develop, or warts. Athlete's foot in severe forms, ringworm and thrush are common. Rashes due to food allergy are also common---no one knows why. Hair frequently falls out. Drug rashes frequently occur, often due to life-saving co-trimoxazole used for treatment or prevention of the pneumocystis carinii pneumonia.

Kaposi's sarcoma develops in up to a quarter of the people with AIDS (depending on the country and route of infection). This produces blue or red hard painless patches on the skin, often on the face. In the majority of these people it is the first sign of AIDS. Tumours can spread to lymph nodes, gut lining and lungs where they can be confused with pneumocystis pneumonia. The growths may be caused by a second virus that is allowed to grow more easily if you have AIDS. Treatment consists mainly of radiotherapy and chemotherapy, including injections of the lesions.

Because it often affects the face or may be visible elsewhere on the body and is so distinctive, people who develop Kaposi's sarcoma often feel especially vulnerable. In fact people usually live longer if they first develop this tumour than if they first develop a pneumonia. Kaposi's sarcoma is less common in drug users with AIDS, presumably because it is caused by a second virus also found in , which is then activated by HIV.

The other common cancer is a tumour (lymphoma) which develops in the brain or elsewhere in the body.

Problems in gut, eyes and other organs

Almost all people with AIDS have stomach problems from strange infections and cancers caused by AIDS and HIV attacking the gut directly. All three cause food to be poorly digested resulting in diarrhoea and weight loss. Stool samples can be examined or samples can be taken from within the gut using special tubing (endoscopy) to see if there is a second treatable infection in addition to HIV.

AIDS can also seriously affect sight in up to a quarter of all those with HIV by allowing an infection of the back of the eye (retinitis). This is usually caused by cytomegalovirus and is sometimes amenable to treatment. In addition, the virus can cause damage to other organs of the body such as the heart.

Changing disease pattern in adults

In different parts of the world, AIDS tends to have its own characteristics. This may be due to the pattern of other illnesses present in different communities, which explains why TB is the commonest cause of death from AIDS in Africa and Asia. Different patterns may be related to different co-factors (compared to drug injectors, for example), viral differences or possibly genetic differences.

However, patterns are changing. For example, the incidence of Kaposi's sarcoma is falling among with HIV in a number of countries, while it is rising among drug users. Some of these changed patterns are because of altered treatments; others are due to other factors.

As survival times have increased, other problems have emerged which are far more difficult to

treat. These include blindness due to cytomegalovirus, progressive multifocal leucoencephalopathy (weakness, muscle wasting, difficulty thinking), cryptosporidiosis (causes various infections), mycobacterium infections and cryptococcal meningitis.

In addition, as we have seen, advanced Kaposi's sarcoma can bring its own problems, with lung involvement causing shortness of breath and triggering chest infections, gut involvement causing obstruction or sudden bleeding, and with blockage of lymphatic drainage causing swollen limbs or face, skin ulceration and infection.

In a quarter of those dying with AIDS, the exact cause of death may be difficult to establish, with profound weakness, loss of weight and multi-system failure. Many infections can be chronic, low grade and difficult to diagnose, and when diagnosed can be hard to treat. Indeed, post-mortem examinations show that half of all HIV-related diseases found at autopsy have not

been diagnosed during life.

In the early days in many countries, those with AIDS often spent a long time in hospital as doctors battled to get to grips with the complex spectrum of illnesses. Now people with AIDS are usually able to spend more time at home, with many treatments given in clinics or in the home. However, many have multiple problems and need practical help, backed by nursing care and symptom control, to stay at home in comfort and in control of their own lives. Later on in this book we will look at the practicalities of setting up community care programmes.

Many people who are ill are now opting not to have every symptom investigated, when the price is valuable time spent in hospital, unpleasant tests, and treatments that may have side effects.

AIDS diagnosis in developing nations

In developing countries it can be hard to make an accurate diagnosis of AIDS because of the lack of HIV testing facilities. The World Health Organisation proposed a clinical case definition, combining symptoms and signs common in AIDS (see table below). This has been used as the basis for AIDS statistics in many countries, but is inaccurate.

A study of hospital patients in Zaire showed that the case definition missed 31% of AIDS cases (definition not very sensitive), and 10% of those it identified as having AIDS were errors. The case definition misses people dying with severe HIV illnesses which do not fit the definition. For example, deaths from streptococcal pneumonia are far more common in those with HIV, yet

such deaths were not included.

The commonest manifestations of AIDS in Africa are gross weight loss, chronic diarrhoea and chronic fever---the picture of 'slim disease' as AIDS is known in African countries. However, it is difficult to exclude other causes for the same symptoms and signs.

Deaths from tuberculosis are another problem. TB is probably the most important infection in those with HIV in Africa. High rates of TB infection are found in those with HIV and the risk of death from TB is greatly increased in those with HIV. However, it is questionable whether all those with TB and HIV can be diagnosed as AIDS cases, since many have TB anyway. Many with TB lose weight and have fever as well as a cough. Therefore in the absence of HIV testing, many with advanced TB are likely to be labelled as AIDS cases using the WHO case definition.

In the light of all these problems, a revised case definition has been agreed. You may wonder how it is possible to be sure of the right diagnosis at all without laboratory facilities, and the answer is that it is very difficult.

Some have pounced on this difficulty to suggest that there is no AIDS in Africa at all. As we see elsewhere, this is not very convincing for two reasons. First, death rates have soared in the sexually-active age groups as HIV infection rates have risen. TB and other illnesses have been around and studied in detail for decades. Something new is happening. Secondly, when people with AIDS from African nations are cared for either in countries like the UK, or in very well-equipped hospitals nearer home, it is clear that there are gross abnormalities of their immune systems indicative of AIDS, with positive antibodies for HIV and damaged white cells.

AIDS-related illnesses in Africa

The spectrum of illness seen in AIDS in African nations can vary, particularly in places where

HIV-2 is more prevalent. The pattern is very different from developed countries:

- Candida (thrush) in the mouth 80--100%
- Oesophageal candidiasis 30--50%
- Tuberculosis 30--50%
- Cerebral toxoplasmosis 15--20%
- Herpes zoster (shingles) 10%
- Cryptosporidiosis (diarrhoea) 50%

Most people have several problems. (For further discussion on needs of those with AIDS and how to meet them, see Chapters 10, 11 and 14; also Appendices A, B and C.)

So, now that we have reviewed how the virus attacks cells and causes diseases associated with AIDS, we are in a position to look at some of the ways the virus can enter the human body and how we can prevent it from happening.

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- [Chapter 12: Saving Lives - preventing HIV infection](#)

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