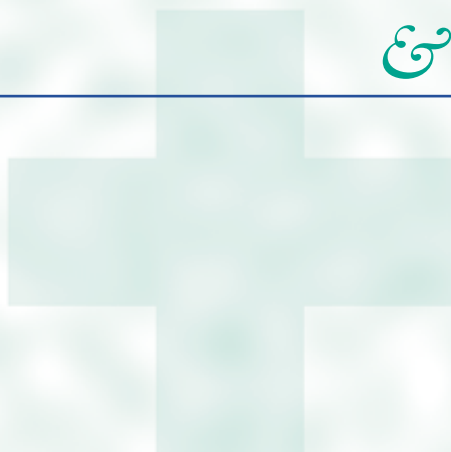


INFORMATION FOR
NURSES ABOUT
HIV INFECTION
& **AIDS**



ABOUT THE AUTHOR

This booklet has been written by Mark Hayter, who is Lecturer in Nursing (HIV/Sexual Health) at the University of Sheffield, with additional editing by James Lawrence and Annabel Kanabus of AVERT.

CONTENTS

INTRODUCTION	4
HIV INFECTION	5
THE DIFFERENT PHASES OF HIV INFECTION	6
WHAT CAUSES THE PROGRESSION OF HIV INFECTION?	9
TRANSMISSION OF HIV	11
– GENERAL	
– MOTHER-TO-CHILD	
– OCCUPATIONAL EXPOSURE	
– HEALTH CARE WORKERS WITH HIV	
– TAKING UNIVERSAL INFECTION CONTROL PRECAUTIONS	
TESTING	20
TREATMENT OF HIV INFECTION	22
HOME CARE, COMMUNITY NURSING & AIDS	27
ATTITUDES & BEHAVIOUR	28
APPENDICES	30
FURTHER INFORMATION	31

INTRODUCTION

This booklet has been specifically written to meet some of the HIV and AIDS information needs of nurses. It addresses a range of professional concerns from detailed information about the virus, to current treatment information, to the risk of occupational exposure faced by nurses. We hope its publication will also aid discussion of HIV and AIDS amongst nurses, their colleagues, and those with, or at risk of HIV infection.

Although there is now little about HIV and AIDS in the media the number of people with HIV infection is still increasing. The World Health Organisation estimates that as of December 1997 there were over 30 million people living with HIV worldwide and there have been 11.7 million deaths from AIDS. In the United Kingdom more than 31,000 people have been recorded as being infected with HIV and over 15,000 people have been diagnosed with AIDS. ■

HIV INFECTION

Most people are now familiar with the terms HIV (Human Immunodeficiency Virus) and AIDS (Acquired Immune Deficiency Syndrome). HIV is the virus that leads to AIDS.

HIV infects cells in the immune system and the central nervous system. The main cell HIV infects is called a T helper lymphocyte. The T helper cell is a crucial cell in the immune system. It co-ordinates all other immune cells so any damage or loss of the T helper cell will seriously affect the immune system.

HIV infects the T helper cell because it has the protein CD4 on its surface. HIV needs to use CD4 to enter cells it infects. This is why the T helper cell is referred to as a CD4 lymphocyte. Once inside a T helper cell, HIV takes over the cell and the virus then replicates. In this process (which takes around a couple of days) the infected cell dies. New virus then seeks out new T helper cells to infect.

However, battling against this the immune system is rapidly killing HIV and HIV-infected cells, and replacing the T helper cells that have been lost. ■

THE DIFFERENT PHASES OF HIV INFECTION

1. PRIMARY HIV INFECTION

This stage of infection lasts for a few weeks and is often accompanied by a short flu-like illness which occurs just after infection.

During this phase there is a large amount of HIV in the peripheral blood and the immune system begins to respond to the virus by producing HIV antibodies and cytotoxic lymphocytes.

2. CLINICALLY ASYMPTOMATIC PHASE

This phase lasts for an average of ten years and as its name suggests, is free from any symptoms, although there may be swollen glands. The level of HIV in the peripheral blood drops to very low levels but people remain infectious and HIV antibodies are detectable in the blood.

Recent research has shown that HIV is not dormant during this phase, but is very active in the lymph nodes. Large amounts of T helper cells are infected and die and a large amount of virus is produced.

A new test is now available to measure the small amount of HIV that escapes the lymph nodes. This test which measures HIV RNA (HIV genetic material) is referred to as the **viral load test**, and it has an increasingly important role in the treatment of HIV infection.

3. SYMPTOMATIC HIV INFECTION

Over time the immune system loses the struggle to contain HIV. This is for three main reasons:

- The lymph nodes and tissues become damaged or 'burnt out' because of the years of activity;
- HIV mutates and becomes more pathogenic, in other words stronger and more varied, leading to more T helper cell destruction;
- The body fails to keep up with replacing the T helper cells that are lost.

As the immune system fails, so symptoms develop. Initially many of the symptoms are mild, but as the immune system deteriorates the symptoms worsen.

Where do opportunistic infections and cancers occur?

Symptomatic HIV infection is mainly caused by the emergence of opportunistic infections and cancers that normally the immune system would prevent. These can occur in almost all the body systems, but common examples are featured in the table overleaf.

As this table indicates, symptomatic HIV infection is often characterised by multi-system disease. Treatment for the specific infection or cancer is often carried out, but the underlying cause is the action of HIV as it erodes the immune system. Unless HIV itself can be slowed down the symptoms of immune suppression will continue to worsen.



System	Examples of Infection/Cancer
Respiratory System	Pneumocystis Carinii Pneumonia (PCP) Tuberculosis (TB) Kaposi's Sarcoma (KS)
Gastro-intestinal System	Cryptosporidiosis Candida Cytomegalovirus (CMV) Isosporiasis Kaposi's Sarcoma
Central/Peripheral Nervous System	HIV Cytomegalovirus Toxoplasmosis Cryptococcosis Non Hodgkin's Lymphoma Varicella Zoster Herpes Simplex
Skin	Herpes Simplex Kaposi's Sarcoma Varicella Zoster

4. PROGRESSION FROM HIV TO AIDS

As the immune system becomes more and more damaged the illnesses that present become more and more severe leading eventually to an AIDS diagnosis.

At present an AIDS diagnosis is confirmed if a person with HIV develops one or more of a specific number of severe opportunistic infections or cancers. However people can still be ill with HIV but not have an AIDS diagnosis. ■

WHAT CAUSES THE PROGRESSION OF HIV INFECTION?

How long does primary HIV infection take to develop into AIDS?

It is clear that the length of time from a person initially being infected with HIV and developing AIDS varies considerably. In Western countries it appears that it takes an average of ten years for AIDS to develop. Whilst there are cases of people remaining well for 17-18 years, there are also cases of people developing AIDS within 1-2 years of infection.

Why do some people progress more quickly than others?

There are a number of theories about this that involve complicated immunology and genetics, but the following can all be influential factors. It is important to remember that HIV will lead to AIDS without any of these factors, but the presence of additional strains on the immune system can act as an accelerator to immune system failure.

A table specifying factors that can accelerate HIV progression is featured over the page. →

FACTORS THAT CAN ACCELERATE HIV PROGRESSION

Genetic factors	People infected with HIV appear to respond differently in terms of immune response. It may be that those people who produce a large number and wide range of anti-HIV immune cells progress more slowly, this may be part of their genetic make-up.
Viral factors	We know that HIV mutates and there are many different strains. It may be that some strains are more vigorous and can destroy the immune system quicker. Therefore people infected with the more vigorous strains will progress more quickly.
Age	The older the person is the quicker progression is likely to be.
Co-infections	Infections such as TB or Hepatitis B put an additional strain on the immune system leading to possible earlier symptomatic HIV infection.
Recreational drugs	May harm the immune system and accelerate disease progression.
Psychological factors	Stress has been associated with faster progression, although a proven link is not clear.
Type of virus	There are currently several different sub-types of the virus. The sub-type of virus that a person is infected with will often depend on the country in which a person is infected. For example, HIV sub-type E is endemic in Asia, as compared to HIV sub-type B that is prevalent in Europe.

TRANSMISSION OF HIV

GENERAL

A person can only become infected with HIV if a sufficient quantity of virus gets into their bloodstream. The routes of transmission are:

- through sexual contact;
- through blood to blood contact;
- from mother to child, during pregnancy and through breast-feeding.

Infection is not possible through everyday social contact such as sharing cutlery or crockery or sharing a toilet used by an infected person.

Sexual intercourse, either vaginal or anal, is risky as the virus is present in an infected person's sexual fluids and can pass directly into their partner's body. Oral sex with an infected person does carry some risk of infection. But infection from oral sex alone seems to be **very rare**.

Giving blood in the United Kingdom is safe as a new sterile needle is used for each donor. Going to the dentist is also safe providing standard sterilisation techniques are practised.

There is a very small risk associated with receiving a blood transfusion in the United Kingdom, but this is extremely unlikely given the screening procedures used by the Blood Transfusion Authority. There is no risk of HIV infection from blood clotting products such as Factor VIII as they are heat treated. →

MOTHER-TO-CHILD

There are additional issues for people to consider who are having a baby, or are thinking about pregnancy, as HIV can be passed from an infected mother to her child. This form of transmission is often referred to as vertical transmission.

Transmission can occur

- during the pregnancy (in utero);
- during delivery (intra partum);
- or after delivery (post partum), mainly through breast-feeding.

The rates of mother-to-child transmission vary around the world, but in Europe a large collaborative study quantified transmission rates at around 15%. This rate excluded breast-feeding and additional research identified that if an HIV positive woman breast-fed her baby it could almost double the risk of transmission to 29%.

CO-FACTORS IN MOTHER-TO-CHILD TRANSMISSION

There are a variety of factors that contribute to increasing the risk of maternal transmission of HIV.

Factors that increase the risk of HIV transmission to the child are:

- If the mother develops symptomatic HIV infection whilst pregnant;
- The mother has a high viral load or low CD4 count;
- The mother breast-feeds;

- The labour is difficult or long;
- Instrumental delivery, the use of scalp electrodes and episiotomy.

REDUCING THE RISK OF MOTHER-TO-CHILD TRANSMISSION

Taking zidovudine

Recent research has shown that the drug zidovudine (AZT, Retrovir) has a protective effect in HIV vertical transmission. A large study (ACTG 076) of zidovudine use in pregnant women resulted in a transmission rate of only 8.3% compared to an untreated rate of 25.5%.

This research strengthens and adds to the debate about HIV testing in pregnancy. If a woman's HIV status is not known, then drug treatment with zidovudine is not a possibility.

There are also long-term considerations with this treatment, for example:

- What effect will zidovudine exposure have in the long-term on the children?
- Will taking zidovudine during pregnancy cause resistance to develop that will limit the woman's drug choices at a later date?

Initial findings on these two issues appear promising, but long-term follow up is essential. It is also still unclear whether the full zidovudine regime used in ACTG076 is necessary to reduce vertical transmission. →

Avoiding breast-feeding

It is usually best for babies to be breast-fed. However, if a mother has HIV, breast-feeding will increase the risk of her baby becoming infected. So, in the UK, a mother with HIV should not breast-feed as bottle-feeding is a safe alternative.

Caesarean section delivery

The role of caesarean section in HIV transmission is still unclear. However some studies suggest that a caesarean section may reduce the risk of transmission of HIV to a child.

OCCUPATIONAL EXPOSURE

As HIV is a blood-borne virus there is always a potential for infection through accidents that can occur whilst care is being performed. Although the risks are very small it is still an area of great concern for nurses.

NEEDLESTICK INJURIES

The main cause of HIV infection in occupational settings is via a percutaneous (i.e. needlestick) injury resulting in exposure to HIV infected blood. Research suggests that infection is rare after a needlestick injury, with a rate of about 3 per 1000 injuries.

Specific factors may mean a needlestick injury carries a higher risk, for example:

- A deep injury.
- An injury with a hollow bore needle.
- Where the source patient has AIDS.

- When the sharp instrument is visibly contaminated with blood.
- When the sharp instrument has been in an artery/vein.

OTHER TYPES OF EXPOSURE

There is very strong evidence that the contact of HIV-infected blood on intact skin presents no risk of infection.

There are a small number of cases when HIV has been acquired through contact with non-intact skin or mucous membranes.

Research suggests that the risk of HIV infection after mucous membrane exposure, e.g. splashes of blood in the eye, is much less than 1 in 1000.

REDUCING THE RISKS

Firstly every practitioner should observe policy on handling blood/body fluids and disposal of sharps. It is a fact that many sharps injuries occur because of inappropriate disposal.

Any non-intact skin should be covered with a waterproof dressing and gloves should be worn.

If an exposure occurs then first aid should be undertaken immediately.

Percutaneous exposure

Encourage bleeding by pressing around the site of the injury (take care not to press immediately on the injury site).

Try to do this under a running water tap. →

Mucocutaneous exposure

Wash the affected area thoroughly with soap and water. If the eye is affected irrigate thoroughly.

After any occupational exposure to HIV it is important that the incident is reported in line with local policy. However as the risk of transmission from splashes or needlestick/sharps injuries is low, the best course of action is not to panic, but to seek advice as soon as possible.

PROPHYLAXIS

Additional measures to reduce the chance of infection also include treating with anti-HIV drugs as soon as possible after an exposure has occurred. This is referred to as **Post Exposure Prophylaxis (PEP)**. Research evidence seems to indicate that the use of anti-HIV drugs like zidovudine in combination with other anti-HIV drugs if given soon after the injury can reduce the rate of transmission.

Many hospitals and trusts have Post Exposure Prophylaxis protocols in place and many more are developing strategies to deal with occupational exposure to HIV.

It is in the interests of all practitioners to familiarise themselves with local policy in this area.

Although exposure through needlestick injuries can usually be avoided by following good working practices, nurses should consider the implications of taking PEP. This will help them make a swift decision in the event of an accident where an injury occurs.

A risk assessment is necessary before starting PEP. This should take into account details of the exposure along with information about the CD4 count, viral load and treatment history of the infected person if available.

Currently Department of Health guidelines for PEP are that most needlestick injuries should be treated with the drug zidovudine in combination with the drug lamivudine (3TC, Epivir) for four weeks. For more serious exposures adding a protease inhibitor is suggested.

See pages 22-26 for more information on drug treatment.

HEALTH CARE WORKERS WITH HIV

Many people with HIV are employed in a health care capacity. Although the risk of transmission of HIV from a health care worker to a patient is extremely small, safe practices do need to be considered.

Current advice and guidance is that any health care worker who suspects they may be HIV positive should seek an HIV antibody test, and any health care worker who knows they are HIV positive should seek medical and occupational advice if they continue to practice. HIV positive health care workers have the same right to confidentiality as their clients, and this must be ensured by their employers.

Further information on this topic is available from the Department of Health. →

TAKING UNIVERSAL INFECTION CONTROL PRECAUTIONS

The use of universal infection control precautions is one way that health care workers can help reduce the risk of HIV transmission. Remember, protecting yourself against infection, whether it is HIV or Hepatitis B, is your right.

The following should be carried out for protection against any infection:

- Always wear gloves when handling blood and other body fluids.
- If you have cuts or other abrasions then cover them with a waterproof plaster.
- Mop up blood spills using gloves and paper towels and wash with either detergent or a chlorine solution made from NaDCC (sodium dichloroisocyanurate) tablets. For large spillages NaDCC granules should be available. An alternative is to use a 1% solution of sodium hypochlorite.

‘Spill Kits’ containing the above items may also be available in some districts for use in the community. In instances where NaDCC tablets are not available, diluted household bleach should be used.

- In hospital settings, seal all linen with blood on it in a water-soluble bag. This should then be placed in a red marked bag and labelled according to hospital procedures. Linen contaminated in the community should be washed on a hot wash cycle (approx. 70 degrees). If a machine is not available, contact should be made with the Infection Control Department.

- In domestic settings, sanitary wear and disposable nappies should be (double) wrapped in polythene bags and put in a lidded bin away from children, or put in an incinerator where available. Hands should be washed before and after changing nappies, or disposable gloves should be used.

Terry nappies and protective plastic pants should be washed as normal (soaked in a bucket with nappy cleanser, rinsed and washed with hot water and detergent).

You may also find that there are local policies which are periodically updated. Contact your Infection Control Department for any guidance they may have. ■

TESTING

THE HIV ANTIBODY TEST

There have been many misconceptions and uncertainties about the HIV antibody test. Often this test has been inaccurately called an AIDS test or a test for AIDS. This is not the case. There is no single straightforward test for AIDS. The test that is carried out detects the presence of antibodies to HIV, so the test is not even to detect the virus itself.

If the result of an HIV antibody test is positive it means that HIV antibodies have been detected, and that the person is infected with HIV, often referred to as being 'HIV positive'.

If the result of the test is negative, it is likely the person is not infected with HIV. However, antibodies to HIV can take up to three months to become detectable, and if a person has been recently at risk the test may have to be repeated after three months to ensure the first negative result was accurate.

The HIV antibody test cannot tell when a person became infected, nor how long they will remain free of symptoms.

Accuracy of the tests is very high, and a number of confirmatory tests are performed to ensure that the likelihood of a 'false' result is highly unlikely.

ISSUES WHEN CONSIDERING A TEST

- **Discuss the issues**

Anyone considering an HIV antibody test should be able to talk, in confidence, to someone who can help them explore the reasons for them seeking a test and to consider their reactions to the result.

- **Where to take the test**

HIV testing is available in a number of settings. An NHS Sexually Transmitted Diseases (STD) Clinical or Genito-Urinary Medicine (GUM) department is a reliable place for obtaining counselling and a confidential service. Some areas now have alternative testing services including GP practices. An important consideration for anyone considering where to have an HIV antibody test is the level of confidentiality and expert advice and counselling available, as well as the ease of access.

- **What does the test involve?**

The test involves a sample of blood being taken and sent to a laboratory for testing. Results are normally available within a week. Some testing services offer a same-day HIV antibody test and result service that some people find very helpful. ■

TREATMENT OF HIV INFECTION

ANTIRETROVIRALS

Treatment of HIV infection is developing quickly. More new drugs are emerging that create new opportunities but also create dilemmas for people with HIV and AIDS.

Drugs to directly treat HIV are called antiretrovirals. They work by inhibiting the replication process of HIV inside cells, therefore reducing the amount of virus in the body. Currently there are two main types of drugs licensed in the UK: Nucleoside Analogue drugs and Protease Inhibitor drugs.

For many years only zidovudine (AZT), a nucleoside analogue drug, was available to try to slow HIV activity. Zidovudine was successful in prolonging life if used in people with symptoms, but the virus built up resistance to the drug fairly quickly. It was discovered that early treatment, using zidovudine in people with HIV who are asymptomatic, did not delay progression of the disease.

See Appendix 1 for a full list of Nucleoside Analogue drugs.

Protease Inhibitors are a group of agents which are active at a different part of the life cycle of the virus. These drugs are potent inhibitors of HIV, including virus which has become resistant to zidovudine and other Nucleoside Analogues.

See Appendix 2 for a full list of Protease Inhibitor drugs.

The newest group of drugs are called Non-Nucleoside Reverse Transcriptase Inhibitors, NNRTIs. There are currently three available through special access programmes.

The term Highly Active Antiretroviral Therapy (HAART) is often used to mean treatment with three or more of the drugs above.

Combination therapy (using two, three or four drugs) has been shown to be more effective in reducing disease progression than one drug alone (monotherapy). Using combination therapy means that it takes longer for HIV to become resistant.

BLOOD TESTS

There are several specific blood tests available to help an infected person and their doctor make decisions about beginning and continuing treatment. The most important tests are the lymphocyte subsets or T4 (or CD4) count, and the viral load test.

The viral load test has recently become part of clinical practice, and is often used in conjunction with the more established T4 count that helps place the viral load result in context.

The T4 count is used to predict the current risk of infections. The viral load test is used to assess the future risk of illness and the person's response to treatment.

T Cell count

The T Cell count may vary by up to 25% due to infections, exercise and even time of day. As a result, decisions should not generally be based on a single T cell count. The proportion of T4 cells (percentage) in circulation, rather than the absolute number, may be a better guide for decision-making, particularly when on a treatment. →

Normally T4 cells make up over 25% of the T cells in circulation. A normal value for a T cell count is considered to be 500 or above. If the count falls below 200 (or 15%) there is a considerable increase in the risk of developing PCP.

In general, the lower the T4 count, the greater the risk there is of all opportunistic infections.

Viral load test

This test measures the amount of HIV in the blood. Whilst it is rarely used to diagnose HIV, it is now being used regularly (every 2 to 3 months) to monitor viral activity in infected people and inform their treatment decisions. Some studies have shown that if viral load has been reduced by treatment, the infected person will have longer periods of better health.

The aim of the viral load test is to achieve as low a reading as possible. Although some people do manage to achieve 'undetectable' readings, this only means that the levels of HIV are so low that the test cannot detect it. These lower limits vary depending on which test is being used.

Viral load test results can vary by around threefold in normal circumstances and may temporarily rise after an infection or vaccination. Testing should be done during a period of good health so that monitoring can be consistent.

STARTING TREATMENT – ISSUES TO CONSIDER

The development of new drugs and the prospect of early treatment does create a range of issues that mean more choices but also more dilemmas, for people with HIV considering treatment.

- **Side-effects**

The drugs used to treat HIV can have severe side-effects including anaemia, neuropathy, nausea, nephrolithiasis (kidney stones) and pancreatitis. Initial side-effects can be harsh, but generally improve after 3-4 weeks.

- **Which combination of drugs to choose?**

Research is ongoing in this area, but people with HIV are often faced with a difficult decision over drug treatment. This field is rapidly changing, but at present combination treatment with three drugs is a common option.

- **Compliance**

Compliance, whether or not the person can maintain a strict regime is critically important. If regimes are not strictly maintained resistance to whole classes of drugs can quickly build, severely limiting treatment options. Not every treatment regime will be practical or culturally suitable, so it is a good idea that the person taking the drugs is as involved and well-informed as possible in treatment decisions and is supported by other health care workers in the decisions they make.

- **Early treatment vs. late treatment**

This is a very difficult area. Should a person who has asymptomatic HIV infection, but whose viral load tests show high HIV activity start treatment? Preliminary studies do appear to show a benefit with early treatment, but there is still a lack of clear benefits in the long term. →

The negative side to early treatment is that the drugs may well cause side effects to occur in a well person with no symptoms, and that viral resistance will occur in response to the drug treatment.

CHANGING DRUG TREATMENT

If a drug treatment loses its effectiveness a change is possible to other drugs. Should severe side effects occur then drugs can be stopped and replaced, hopefully with drugs that can be tolerated. However some people are now being infected with strains of the virus that are resistant to certain drug treatments, which limits future treatment options.

THE FUTURE

There is every reason to be very optimistic about the treatment of HIV. The new drug combinations are already very successful in reducing symptoms and prolonging life. Many other treatment possibilities are currently in the research phase, but hopefully new treatments will emerge to further expand the treatment possibilities for people with HIV and AIDS. ■

HOME CARE, COMMUNITY NURSING & AIDS

In the past when people with HIV became ill it was often necessary to admit them into hospitals, where a long stay was often needed to administer care and treatment. Now, more and more people with symptomatic infection can be cared for at home by Community Nurses and other health professionals.

There have been a number of developments that have enabled this change to occur:

- The last few years have seen the provision of intensive home nursing become more available. This enables people who are ill and require 24 hour care to receive this at home.
- Many areas now have a Specialist Community Nurse for HIV care. This practitioner (or sometimes a team of specialist nurses) can have a key role in co-ordinating care services and providing care and support.
- HIV treatments are becoming much more user friendly. The ability to administer intravenous drugs and other intravenous treatments in the home is becoming easier, thanks to the development of safer, easier to use and store, drugs and equipment.
- It is being increasingly recognised that care in the person's own home in many ways is safer and less stressful and this is often true in the care of people with AIDS.
- Fewer people now need help with chronic disability.

ATTITUDES & BEHAVIOUR

You may have noticed that your own viewpoints about HIV and AIDS have changed over time. You may be sure about your feelings in one situation, yet be less certain about them in another. And you are likely to have come across a range of opinions in both professional work and personal situations.

While some people may be aware of the prejudices others hold, they may find it difficult to acknowledge such feelings in themselves. A nurse may feel saddened by the baby which has just been diagnosed with an HIV related infection, yet feel annoyance at having to nurse a woman or man who has received a similar diagnosis. Some people feel that adults should have known better than to become infected with HIV, especially these days. Or it may be difficult to think about people's sexuality or drug use, or to talk about it.

The reasons why people behave in the way they do are quite complex. Certainly, people do not act on information alone. If that were the case, no one would smoke, few would drink and people would always use other drugs safely. Many people will have heard about safer sex or safer drug use but may not act on this information. If people ask for help about taking fewer risks, or if you are wanting to take fewer risks yourself, it is likely to require ongoing advice and encouragement. And for that, a range of matters will need to be discussed which are usually thought of as difficult or embarrassing.

Above all else, it is important for nurses who care for people with HIV infection and AIDS to act professionally. For some, this may not always be easy. Difficulties can arise for those who have to care for someone whilst feeling uncomfortable about doing so. But working professionally involves providing care which is both non-judgmental and of a high quality. ■

APPENDICES

APPENDIX 1

NUCLEOSIDE ANALOGUE DRUGS

Drug Name	Other Names
zidovudine	AZT, Retrovir
ddl	didanosine, Videx
ddC	zalcitabine, HIVID
3TC	lamivudine, Epivir
d4T	stavudine, Zerit

APPENDIX 2

PROTEASE INHIBITOR DRUGS

Drug Name	Other Names
saquinavir	Invirase
ritonavir	Norvir
indinavir	Crixivan
nelfinavir	Viracept

FURTHER INFORMATION

AVERT - AIDS Education & Research Trust
4 Brighton Road, Horsham, West Sussex RH13 5BA.

Tel: 01403 210202

Fax: 01403 211001

e-mail: avert@dial.pipex.com

AVERT has a free HIV and AIDS information service available to both the general public as well as health professionals. Enquiries are welcome by post, telephone, e-mail and personal visit.

Internet: <http://www.avert.org/>

Other booklets and books published by AVERT:

**A Guide to the Medical Treatment of HIV
Related Diseases**

Single copies available free of charge

Nurse Education:

Teaching about HIV Infection & AIDS

ISBN 1-898616-01-9 £9.95

**Guidelines for Management of
Children with HIV Infection (Third Edition)**

ISBN 1-898616-10-8 £4.00

**A Guide to HIV Infection & Childbearing
(Second Edition)**

ISBN 1-898616-08-6 £3.00



AVERTing AIDS & HIV

AVERT is a registered charity (no.1074849) that relies on voluntary donations to continue producing up-to-date and accurate literature on AIDS and related areas. AVERT also funds medical research into HIV and AIDS in order to develop improved treatments and eventually a cure.

For more information on ways you can help, please contact:

AVERT, 4 Brighton Road, Horsham, West Sussex RH13 5BA

Tel: 01403 210202

Fax: 01403 211001

e-mail: avert@dial.pipex.com

<http://www.avert.org/>