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AIDS

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A FAMILY DOCTOR BOOKLET

AIDS

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Contents

"Safer sex" guidelines

No risk	Solo masturbation Massage away from the genital area
Low risk	Mutual masturbation Dry kissing Body rubbing
Medium risk	Wet kissing Fellatio ("sucking") Urination ("watersports") external only Anilingus ("rimming") ie oral-anal sex
High risk	Anal and vaginal intercourse (may be safe if a condom is used) Fisting (insertion of hand or fist into the rectum) Sharing sex toys and needles Any sex act which draws blood

Remember the risk increases with multiple partners

Introduction

The human immune system enables us to overcome most common infections such as coughs and colds without becoming seriously ill. It also allows us to come into everyday contact with a large number of microbes (or organisms) without them causing us any harm. A patient with AIDS has been infected with a virus which seriously weakens the immune system. Thus, the full name for the disease is the *Acquired Immunodeficiency Syndrome*. The virus is known as *HIV* or Human Immunodeficiency Virus.

Incubation

With all viral illnesses there is a delay between catching the virus and developing the disease—this delay is called the incubation period. For instance, when we have "caught a cold" we in fact caught one of the cold viruses a few days previously. Other illnesses can have much longer incubation periods and in the case of AIDS the incubation period varies from six months to over five years. Catching a virus does not mean that we will necessarily develop the disease. Indeed, at present it seems that approximately one in three people infected with HIV develop AIDS within seven years. The full natural history of HIV infection is not yet known, however, because AIDS was first recognised only in 1981. It seems probable that once a person is infected with HIV the virus will remain in his (or her) body forever. If this is the case then the proportion of infected people who go on to develop AIDS is likely to continue to increase as time passes.

It is therefore not possible, strictly speaking, to catch AIDS. It is possible, however, to catch the virus which may eventually cause AIDS. The time between catching the virus and developing the disorder is probably about eight years on average, although sometimes it may be as little as six months. People who are infected with the virus but do not have AIDS often feel completely well. About 25%, however, have persistently swollen lymph glands (known as persistent generalised lymphadenopathy) (see p17). This condition is considerably less serious than AIDS and is never itself fatal, although it may sometimes progress to AIDS.

Although the full natural history of HIV infection is not yet known, it seems probable that once a person is infected the virus will remain in his (or her) body forever.

Opportunistic infections

The underlying immune deficiency makes patients with AIDS vulnerable to a variety of different infections and some malignant tumours. Organisms that are normally completely harmless can cause diseases in people with immune deficiency: these diseases are called opportunistic infections. In AIDS patients the infections can cause disease of the lungs, or brain, or the gut, and often AIDS patients suffer from opportunistic infections affecting more than one of these organs. The commonest infection in AIDS patients is a pneumonia caused by the organism pneumocystis, which is present in the lungs of many healthy people and does no harm unless they become immune deficient (see p18).

Cancer

The immune system is also responsible for guarding against the development of cancer, so it is not surprising that AIDS patients can suffer from certain malignant tumours. By far the commonest of these is a skin tumour called Kaposi's sarcoma (see p20).

Effects on the brain

The virus can damage the brains of people with AIDS causing dementia, but fortunately this happens in only a few people.

How the virus is caught

There are only a few different ways in which the virus may be caught and the most usual is by intimate sexual contact. The virus may also be contracted by intravenous drug users (such as heroin addicts) who share needles contaminated with blood from an infected person, and it may be transmitted by blood transfusion if the blood donor was infected. *However, in the UK blood is now screened to detect donors with evidence of HIV infection.* Many haemophiliacs who require injections of a substance made from blood (Factor VIII) to correct their bleeding disorder were infected in this way in the past. The virus may also be passed from an infected mother to her baby either in the womb or around the time of birth. Splashing of infected blood onto open cuts or sores may also result in transmission of the virus. Although HIV is sometimes present in saliva, it is there in such small quantities that it cannot be passed to another person by ordinary lip to lip kissing or on cups or glasses. The virus is therefore not spread to people living in the same house unless they happen to be sexual contacts. Similarly the virus cannot be transmitted by sneezing or coughing or any form of contact other than those outlined above. HIV can-

Origin and spread

First reports

In June 1981 an American medical report described the case histories of five young homosexual men treated for pneumocystis pneumonia. It was noted that pneumocystis pneumonia was almost exclusively limited to patients with severely damaged immune systems so that the occurrence of five cases in previously healthy individuals was very unusual. The fact that these patients were all homosexuals suggested either that the disease was caused by some aspect of a homosexual lifestyle or by something which could be acquired through sexual contact between homosexuals.

The following month a report appeared of 20 homosexual men in New York and six in California who had been diagnosed as having the rare skin tumour, Kaposi's sarcoma. This type of cancer is most unusual in young people in developed countries. For example, one large New York hospital had not seen a single case of Kaposi's sarcoma in a man under 50 in the 10 years before that.

The report explained that, apart from two exceptions, Kaposi's sarcoma had previously been seen only in elderly men. The first exception was in Africa where the disease occurred in a belt across equatorial Africa and commonly affected children and young adults. The second was in people receiving drugs to suppress their immune systems, such as some recipients of kidney transplants.

Early cases unrecognised

On careful re-examination of medical records it was clear that the first American AIDS cases had been seen, albeit unrecognised, in the late 1970s. However, the disease seems to have occurred even earlier in central Africa, but its origin remains obscure.

Research among homosexuals

Research projects were set up to try to find the cause of AIDS. The early studies found that the homosexuals who acquired the disease had usually had substantial numbers of sexual partners and often contracted numerous sexually transmitted diseases. This led some researchers to suggest that AIDS was the result of the immune system becoming worn out after fighting lots of sexually transmitted organisms. This conclusion was false, however, as AIDS was subsequently found to be caused by HIV, and it is quite possible to catch HIV and subsequently develop AIDS as a result of a single exposure to the virus.

Other at risk groups

In 1982 reports were published of the disease being seen among intravenous drug users such as heroin addicts, sufferers from the bleeding disorder haemophilia, and recent immigrants from Haiti. An intravenous drug user can transmit the infection by sharing needles and syringes. In this way other people inject themselves with the contaminated blood left on the needle and in the syringe.

Haemophiliacs

Factor VIII is the name given to a clotting agent missing from haemophiliacs' blood so that they bleed easily. When a bleeding episode occurs this is treated with Factor VIII derived from numerous blood donations. Some of this blood was donated by people

unknowingly carrying HIV and consequently many haemophiliacs have been infected. (Steps have now been taken to ensure that Factor VIII given to haemophiliacs is not contaminated.)

Haitians

The reason why Haitians were infected is not so clear as very few Haitian AIDS patients admit to either homosexuality or intravenous drug use. A number of Haitian men worked as male prostitutes, however, and Haiti became a holiday resort for American homosexuals. The disease appeared in Haiti and the United States at approximately the same time so it is not certain that the disease entered the USA by this route. If this were the case it might be relevant that a number of Haitians had been employed as labourers in central Africa during the 1970s and may have acquired the virus there, introducing it to Haiti on their return.

Related virus found in monkeys

Blood samples from African Green Monkeys has shown evidence that they are often infected with a closely related virus. It is unclear how the monkey virus spread to man. This virus is not identical but it is conceivable that a mutation (that is a change in the virus' structure) may have taken place at some stage which resulted in the totally new virus HIV.

Second type of HIV found

Recently, a second type of HIV, called HIV-2 has been found in people from West Africa. This can also cause AIDS. The more common type of HIV should now, strictly speaking, be called HIV-1.

This view of the virus' origin and spread is necessarily speculative and it is possible that we will never be sure of the true story.

High risk groups

In the UK and USA most people with AIDS have belonged to the so-called high risk groups. The number of cases in each of the risk groups up to August 1988 is shown in the Tables. HIV infection, however, is being seen with increasing frequency outside these groups and anyone must consider themselves at risk of acquiring the disease if they have several sexual partners or if their sexual partner has multiple partners.

AIDS patient groups in the United Kingdom (August 1988)

Patient groups	Men	Women	Deaths
Homosexual/bisexual	1426	—	780
Intravenous drug abuser (IVDA)	23	9	19
Homosexual and IVDA	36	—	13
Haemophiliac	113	1	70
Recipient of blood: abroad	10	10	13
UK	6	3	10
Heterosexual: presumed infected abroad	35	15	15
presumed infected UK	4	6	7
Child of at risk/infected parent	8	11	8
Other/undetermined	15	2	10
Total	**1673**	**57**	**969**

Homosexual and bisexual men

So far most British and American cases have occurred among homosexual and bisexual men. The reason for this is that the more sexual partners an infected person

has the more quickly the disease will spread, and in the 1970s and early 1980s many homosexual men were having large numbers of partners. Recently, because of the fear of catching or passing on HIV, it has become far less common for homosexual men to have several partners.

AIDS patient groups in the USA (August 1988)

Patient groups	Male	Female
Adult and adolescent		
Homosexual/bisexual	43 362	—
Intravenous drug abuser (IVDA)	10 738	2975
Homosexual and IVDA	3078	—
Haemophilia/coagulation disorder	646	21
Heterosexual cases	1244	1849
Transfusion of blood/blood components	1128	518
Undetermined	1730	981
Children		
Haemophilia/coagulation disorder	62	3
Parents with/at risk of AIDS	837	479
Transfusion of blood/blood components	88	56
Undetermined	78	21

Drug users

The second most affected group in the United States is the intravenous drug abusing population, who spread HIV by sharing needles and syringes contaminated with blood. In New York, where almost all of AIDS cases among drug abusers have occurred, there are many homosexual and bisexual men who have also used intravenous drugs like heroin. This substantial overlap between the two main risk groups has hastened the spread of the disease in these two populations in New York.

In the UK the spread of the disease among intravenous drug abusers has been slow initially in most areas. Nevertheless there are now a substantial number of HIV infected drug abusers here and unless the practice of sharing needles is stopped the virus will spread with increasing rapidity.

Haemophiliacs

Both here and in the USA a large number of haemophiliacs have developed the disease and many more are infected with the virus. As mentioned previously, haemophilia is a bleeding disorder caused by a deficiency of the clotting agent called Factor VIII. It is an inherited disease which only affects men. When episodes of bleeding occur these are often internal, such as into a joint causing a painful swelling and damage to the joint. To stop the bleeding it is necessary to give transfusions of Factor VIII. The preparations used are made from blood donated by many thousands of people, and because there are too few blood donors in Britain for us to be self-sufficient in these preparations, they have largely been imported from the United States. Many batches of imported Factor VIII have been contaminated with HIV because one of the many thousands of donors was unknowingly infected with the virus. Now screening of blood donors for HIV antibodies and other measures are being taken to ensure the safety of Factor VIII preparations.

Recipients of blood transfusions

Similarly, some people who have received blood transfusions have become infected with HIV. This has occurred on rare occasions, however, because most blood transfusions are of only a few pints, and therefore derived from just a few blood donors. As only a tiny proportion of blood donors have been infected the chances of receiving contaminated blood were extremely remote even before screening of blood donors

Donated blood is screened for HIV.

for HIV was introduced. Nowadays donated blood is screened using an anti-HIV test (see p 29) and any contaminated blood is rejected.

Partners of bisexuals and drug abusers

An emerging risk group in both Britain and the USA is made up of the heterosexual partners of bisexuals and intravenous drug abusers. There is clearly the poten-

tial for spread of the virus from those heterosexual partners to those outside the recognised risk groups. Another route of spread into the rest of the population is via prostitutes. All prostitutes are at risk through having multiple partners and some are also at risk because they are intravenous drug abusers who have turned to prostitution to finance their addiction. *Heterosexuals who have multiple partners or have sex with prostitutes are at risk of acquiring HIV and of passing the infection on to others.*

Heterosexual spread in Africa

Heterosexual spread of the virus is, as yet, fairly uncommon in Europe and the UK but in central Africa it seems to be the commonest route of transmission, and the number of women with the disease almost equals the number of men. There are several reasons for this difference in the pattern of disease. Firstly, central Africa has very few homosexuals and intravenous drug abusers, sexually in certain sections of society multiple heterosexual partners is the norm, and thirdly the virus has been present for longer among the people of central Africa and has therefore had a greater chance to spread widely. The relatively common occurrence of genital ulceration may also play a part in aiding transmission of the virus. Many Africans also have other infections which may make them more susceptible to HIV. An additional factor in spreading the virus in Africa is the economic requirement to reuse needles in hospitals and clinics. In Britain a small proportion of the AIDS cases consists of people who have had sexual intercourse with people from central Africa.

Babies born to infected mothers

The last risk group is common to all geographic areas and is made up of the babies born to infected mothers, who are themselves usually well at the time they

because pregnant and are unaware of being infected. The virus can pass from the mother to her baby in the womb or at the time of delivery, and is also probably present in breast milk. Babies born to an infected mother stand a 20 to 50% chance of acquiring the virus, and if infected are very likely to develop AIDS subsequently. Similarly, infected mothers who become pregnant may do badly during pregnancy and are perhaps more likely to progress to AIDS. Infected mothers are thought to be vulnerable because pregnancy itself induces a state of temporary mild immunosuppression, and newborn babies are at increased risk because of their immature immune systems. This combination of suboptimal functioning of the immune system together with a virus infection causing immunosuppression renders babies especially vulnerable and possibly also their mothers.

Dispelling some myths

Many people worry about the possibility of acquiring HIV infection as a result of casual household spread or by spread of the virus at work, or on public transport, or in swimming pools. All the available evidence indicates that the virus cannot be spread by these casual means and spreads only in the ways already outlined. It is not, for instance, spread by social lip to lip kissing. This is because when the virus is present in saliva (and that is unusual) it is only present in very small quantities that are insufficient to infect anyone else.

Household disinfectants kill HIV

Even in situations where you are in direct contact with blood from someone infected with HIV, such as giving first aid at a road accident, that blood would have to enter your bloodstream in order to infect you. If an infected person cuts himself and spills some blood this can be cleared up perfectly safely by using diluted household disinfectants such as Milton. Domestic or

bleach which will kill any virus present. The virus is also killed by hot water and washing up liquid.

Living in the same household

A study from New York looked at 101 subjects who were living in households with HIV-infected people. The types of contact included sharing eating utensils, plates, and glasses; using the same towels; sharing baths, toilets, and kitchens; sleeping in the same bed; hugging, kissing, and presumably being exposed to the infected person's coughs and sneezes. None of these subjects acquired the virus by casual spread, although one infected child was born to an infected mother.

Those caring for AIDS patients

Nurses or relatives who look after sick AIDS patients may come into contact with the patient's blood and other bodily secretions. In addition to normal levels of cleanliness it is sensible for them to wear rubber gloves which will afford protection even if their hands have cuts or other breaks in the skin. Hundreds of thousands of health workers have cared for people with HIV infection. Of these, only 15 have acquired the virus while at work – 10 from accidents with dirty needles and 5 from blood splashes onto unprotected broken skin or mucous membranes. (Mucous membrane is the name of the surface lining of the inside of the body including mouth, vagina, and under the foreskin.)

Many people worry about acquiring HIV infection as a result of casual household spread or by spread of the virus at work, or on public transport, or in swimming pools. All the available evidence indicates that the virus cannot be spread by these casual means.

Symptoms and disease

Most people who are infected with HIV may feel entirely fit and well, but those who go on to develop AIDS have an illness that is virtually always fatal. Others who have HIV infection may suffer from less serious illnesses.

Some people feel ill at the time that they catch the virus. This illness may take a form similar to glandular fever, although of course the usual glandular fever (called infectious mononucleosis) is much more common. Very rarely the virus may affect the nervous system at this stage, for instance causing a form of meningitis. All types of illness occurring at the time of acquisition of HIV clear up without treatment.

Illnesses associated with HIV infection

When people have been infected with HIV for months or years they may develop a generalised swelling of the lymph glands particularly at the back of the neck and in the armpits. This condition is known as persistent generalised lymphadenopathy (or PGL). Most HIV-infected people feel well but they are more prone to certain common skin conditions. In a small proportion of those infected the virus causes a depletion of the blood cells, called platelets, which are required for blood clotting. This is usually not sufficiently severe to cause problems but the worst affected people may suffer from abnormal bruising or bleeding and some may even require an operation to remove the spleen in order to correct the disorder.

AIDS-related complex

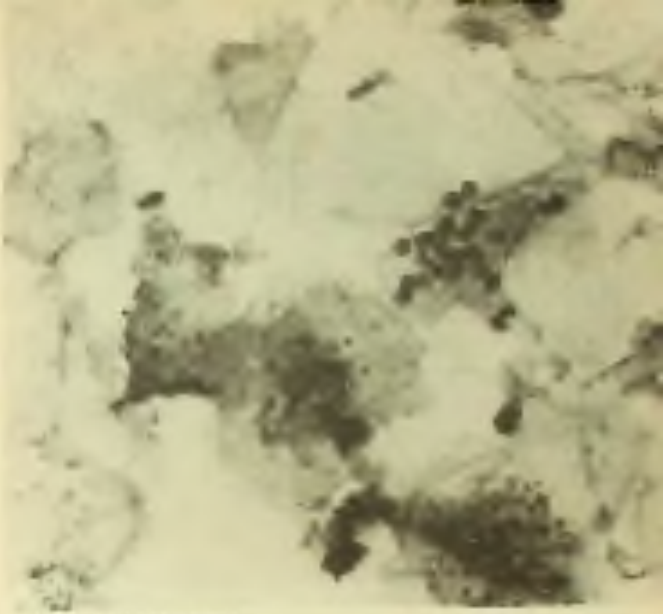
Some HIV-infected people who do not have AIDS become unwell with symptoms such as fever, weight loss, diarrhoea, or thrush in the mouth (a white material which sticks to the gums and causes discomfort). Many of these people are termed as having AIDS-related complex or ARC. This condition is never itself fatal but people with ARC are more likely to progress to AIDS than others infected with HIV. The virus can cause serious diseases of the nervous system in people with AIDS. The commonest is known as subacute encephalitis which causes a gradual loss of intellectual function which may progress to severe dementia.

Opportunistic infections

We have seen that AIDS affects only a small proportion of HIV-infected people. People with AIDS may suffer either life-threatening opportunistic infections or tumours, or both. The life threatening opportunistic infections fall into three main categories: those affecting the lungs, the gut, and the nervous system.

Lung infections

The commonest of these lung infections is called pneumocystis pneumonia. This causes a dry cough, increasing breathlessness, and fever. About four of every five AIDS patients suffering from this form of pneumonia will recover when treated in hospital but they are at risk of getting a recurrence of this infection or of succumbing subsequently to a different infection. The average life expectancy of someone diagnosed as having AIDS during their first bout of pneumocystis pneumonia is nine months. Those who recover from their first opportunistic infection will be fit enough to spend long periods out of hospital and many will be able to return to work.



Pneumocystis jiroveci

Gut infections

Opportunistic infections affecting the gut may take various forms. Firstly, 'thrush' (or candida) may affect the gullet causing discomfort on swallowing. Various infections may cause diarrhoea, the commonest of which is called cryptosporidiosis which can be very difficult to treat. Sometimes the diarrhoea is very severe and very watery – indeed volumes of 1 litre (2 pints) a day have been reported as occurring in some patients, although this is unusual. Another common manifestation is severe ulceration of the anal area caused by the herpes virus. Fortunately there is a drug which is extremely effective in combating this condition.

Non-Hodgkin lymphoma (brain tumour)

Nervous system

The nervous system may also be affected in a variety of different ways in AIDS. The commonest disorder, subacute encephalitis is, as previously mentioned, a direct result of HIV infection itself. A fungus called cryptococcus may cause meningitis in AIDS patients, resulting in headache and fever. Other patients may suffer from cerebral toxoplasmosis which can cause fits, headache, drowsiness and limb weakness.

Tumours

By far the commonest tumour to affect AIDS patients is a form of skin cancer called Kaposi's sarcoma. This causes small purple patches which are painless and may crop up anywhere on the skin surface and may also affect the internal organs. People with Kaposi's sarcoma alone usually feel well and their average life expectancy (15 months) is slightly better than that of AIDS patients with opportunistic infections.

Non-Hodgkins lymphoma

Far less commonly, AIDS patients may develop a cancer of the lymph tissue known as non-Hodgkins lymphoma. This is a disease which affects a lot of people who do not have AIDS but if the patient is found to be infected with HIV then the disorder is considered to be related to AIDS. AIDS patients tend to do worse than other patients with non-Hodgkins lymphoma.

Above. Kaposi's sarcoma in the foot.

Kaposi's sarcoma in the leg.

How HIV infection may progress to AIDS

Acute infection

May have
- Glandular-fever like illness

Chronic infection

May have
- Swollen lymph glands
- Fever, weight loss, night sweats
- Low levels of red and white blood cells
- Thrush in the mouth

AIDS

May have
- Major opportunistic infections eg pneumocystis pneumonia
- Kaposi's sarcoma
- Lymphoma

Anti-HIV test

When a person is infected with HIV this stimulates the body's immune system to develop antibodies against the virus. Antibodies are protein structures that fit onto the virus. The term "anti-HIV" means antibody that fits specifically on to HIV. Antibodies are part of the body's defence mechanism against invading organisms. In the case of HIV, however, this mechanism is defective and the antibody fails to kill the virus. This implies that if anti-HIV is found in someone's blood that person is infected with HIV. It is in fact far easier to test for antibody than it is to test for HIV itself.

Widely used

The antibody test is now widely used. For instance all blood donated for blood transfusion is tested and any anti-HIV positive blood is rejected. This test is sometimes incorrectly referred to as an AIDS test. It isn't an AIDS test because most people who are anti-HIV positive are fit and well and do not have AIDS.

Antibodies develop gradually

If a person becomes infected with HIV they will develop antibody gradually. It generally takes from a few weeks to a few months after exposure before any antibody is detectable. If someone comes for a test a few days after possibly catching HIV one would not expect the anti-HIV test to have become positive, and he or she would need to be retested three months after their last possible exposure to the virus in order to make certain that anti-HIV was not developing.

Test accuracy vital

If a person is told that they are antibody positive it has important implications for their lives. It is therefore essential that the laboratories carrying out the tests do not make mistakes. For this reason it is normal practice to repeat the test on any positive sample using a different type of anti-HIV test (there are several methods available) to make absolutely sure before informing a patient of a positive result.

Implications of a positive test

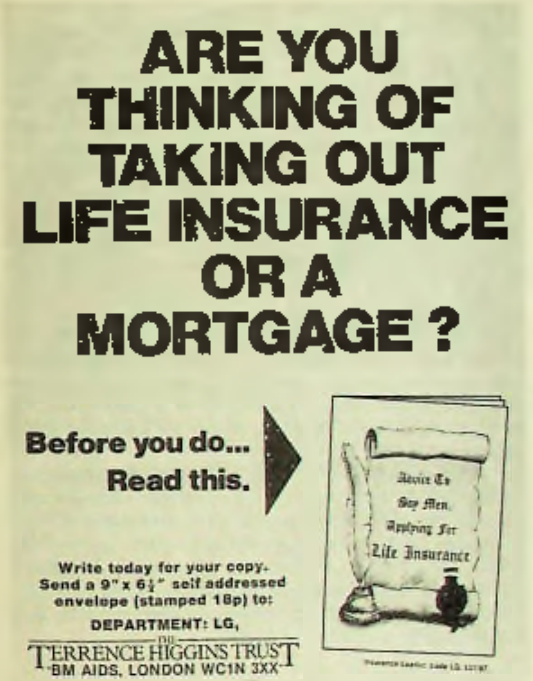
The first major implication of becoming antibody positive is the risk of developing AIDS—at least one in 10 people progress to AIDS within five years of acquiring HIV but the risk thereafter is not known. The knowledge that one is anti-HIV positive is especially stressful because of this uncertainty. Many people who have been told that they are positive suffer from anxiety or depression and some even commit suicide. Anyone who is considering the test therefore requires detailed information about the implications of a positive result before they decide whether or not to be tested.

Insurance risk

Insurance companies take the risk of developing AIDS into account when assessing whether an applicant should be granted a new life assurance policy and will reject any applicants who are known to be anti-HIV positive. This will clearly make it impossible to obtain a mortgage if a new life insurance policy is required, and may influence the decision on whether to have the test.

Transmitting infection

An anti-HIV positive person has to regard himself or herself as infectious for HIV. In other words they can transmit the virus by donating blood, having genuine



Poster produced by the Terrence Higgins Trust in 1987.

tive sexual contact, or in the case of a woman, giving birth. There are major implications for people's sex lives as any kind of sexual contact involving penetra-

tion of the penis into the vagina, mouth or anal canal is liable to transmit the virus. Any woman known to be anti-HIV positive is recommended to use a reliable method of contraception and if she does become pregnant she needs to consider seriously whether she wants the pregnancy terminated. An antibody-positive person is also asked to inform his dentist so that necessary safety precautions can be taken. Any doctor looking after that patient will need to take precautions when taking blood and will also need to know of a positive test result in case it is relevant to any medical complaints that the patient may have.

Tell as few people as possible

Apart from informing doctors and dentists and one or two trusted friends, anti-HIV positive people are recommended to tell as few people as possible of their test result. This is because when such information ceases to be confidential it is likely to become the subject of gossip and the antibody positive person can suffer considerably as a result of people's misconceptions about AIDS. Some people have been sacked from their jobs and others have been evicted from their homes. There is no rational or legal basis for these actions but the antibody positive person faced with this rejection may feel so humiliated and dejected that it is easier to give way than to object.

Advantages of knowing

There are therefore some disadvantages in finding out that one is anti-HIV positive. The major advantage in taking the antibody test is that it enables one to make rational decisions about sexual behaviour and other important questions in life. Most people who take the test want to establish whether or not they are infectious so that they can ensure that they don't infect other people. Many people also want to take definite steps towards a healthier lifestyle if they are antibody

positive to try to help the body in its fight against the virus. They can also have regular medical checks, and if these indicate a high risk of progression to AIDS in the near future, drug treatment can be started to try to prevent progression. There are also many people who feel that the uncertainty of not knowing their antibody status is worse than the possible knowledge that they are antibody positive.

Counselling

Anyone who is considering having the test done should discuss the matter with someone who can give an informed, unbiased opinion. This advice should be available to everyone at clinics for sexually transmitted diseases.

Controlling the spread

Efforts to control the spread of HIV can be taken by the community and by individuals. The first step in control is education about AIDS, HIV, and its routes of transmission, which must include the message that although certain groups of people have so far suffered the brunt of the HIV epidemic, the infection can affect *anyone*. Everyone who has sex with a partner in a high risk group, or with a prostitute, or with more than one partner may be at risk of acquiring HIV infection.

Education campaigns

Education campaigns must partly be directed at recognised high risk groups and partly at the general public. Health education messages can be conveyed to some homosexuals and bisexuals, intravenous drug abusers, and haemophiliacs by health care personnel at sexually tranmitted disease clinics, drug dependency units, and haemophilia centres. But only a minority of the homosexual and intravenous drug abusing populations will be contacted in this way. Some voluntary organisations such as the Terrence Higgins Trust have been extremely successful at health education of a wider population, partly by publishing and distributing their own literature. Other homosexuals will get accurate information by reading newspapers such as *Capital Gay* which is distributed free to gay pubs.

Reducing the risk

The message to all at risk people should include information about how to reduce the risk of acquiring or transmitting HIV. As far as sexual behaviour is concerned this means discouraging people from having sex outside a regular relationship. If, however, this is unacceptable then any sexual activity should be what is known as "safer sex". The term "safer sex" refers to any sexual practice where there is no exchange of body fluids, that is mutual masturbation, dry lip to lip kissing, and body rubbing. Any form of penetrative sex – homosexual or heterosexual – carries risks. If, however, someone wants to go on with vaginal or anal intercourse then the use of a sheath with a spermicidal lubricant may provide protection. In the case of anal intercourse extra strong sheaths are required and these are sold at some gay pubs.

Blood and organ donors

People at risk are also strongly discouraged from donating blood or semen or from giving permission for their organs (for example kidneys) to be donated.

Do not share needles or syringes

Drug abusers who inject intravenously or in any other way should not share needles or syringes. Drug abusers often share equipment through difficulty in obtaining new needles and syringes. Because of the risk of them acquiring HIV by sharing equipment it seems sensible to allow drug abusers to obtain new syringes and needles in exchange for used ones, as this will reduce the need for sharing.

Testing blood and blood products

In order to safeguard haemophiliacs against the risk of HIV infection all Factor VIII preparations are heat

treated to kill any virus present. Unfortunately many haemophiliacs were infected before heat treatment was introduced, and they used to be counselled about the risk of transmitting HIV. The introduction of anti-HIV testing of blood donors has similarly protected blood transfusion recipients from the risk of acquiring HIV. Intravenous drug abusers, bisexual men, and haemophiliacs are the main groups who may spread HIV to heterosexuals outside the recognised high risk groups.

Isolation will not work

Occasionally one hears people suggest sweeping measures such as locking up all AIDS patients in an attempt to control the spread of HIV. Apart from the inhumanity of this suggestion it does not make practical sense. Patients with AIDS account for only a small proportion of HIV infected people and it is inconceivable that attempts would be made to 'imprison' over 50 000 HIV infected people in the UK and over one million in the USA. These suggestions are no doubt made partly because of prejudice against some of the high risk groups and partly because of misconceptions about the ways in which HIV is spread.

Treatment of AIDS and HIV infection

No drug has been shown to cure HIV infection, but an antiviral drug called zidovudine (AZT) has been successful in prolonging life expectancy in some AIDS patients, and various drugs are the subject of current research trials. Similarly, no vaccine has yet been demonstrated to protect people from acquiring HIV, although one is already being tested in Africa. The treatment of AIDS patients consists of supportive measures, treating the opportunistic infections and Kaposi's sarcoma, and giving drugs such as zidovudine where appropriate.

Emotional support

Emotional support is vitally important. An AIDS patient has to face problems over and above those faced by any person with a terminal disease. It may be difficult for someone who is newly diagnosed to know who it is safe to confide in. There may be a fear of rejection by family and friends, and perhaps the worry that the information will not remain confidential. They may feel that there is a stigma associated with the diagnosis and not want their family to have to share in that feeling. In some cases the family may not know that the patient is a homosexual or an intravenous

drug abuser and this may create extra difficulties in breaking the news. Some patients have guilty feelings about their past lifestyle and may be greatly troubled by the thought that they could have infected loved ones and perhaps others that they have had sex with.

Voluntary support organisations

It is important therefore that the doctors, nurses, and other health professionals treating AIDS patients find time to provide as much support as possible, and try to guide the patient to finding a good support structure outside the hospital or clinic environment. Apart from family and friends a considerable degree of support is available through voluntary organisations such as the Terrence Higgins Trust.

Treating opportunistic infections

Much has been learnt about how best to diagnose and treat opportunistic infections. Nowadays four out of five people with pneumocystis pneumonia will survive their first attack and can often be put on antibiotic in the long term to prevent a recurrence. Improvements in diagnosis and treatment not only have the effect of improving life expectancy but can also improve the quality of life as we learn more about how to control the uncomfortable chronic problems like thrush in the mouth and anal herpes. Because of this it is unusual for an AIDS patient to suffer a physically painful illness.

Kaposi's sarcoma

Kaposi's sarcoma may be treated in various ways. Interferon, which is a natural product of the body's immune system, may be made artificially and injected regularly. This has an antiviral action as well as stimulating the immune system. Roughly speaking, about one third of patients treated with interferon

show improvement, about one third stay the same, and the remainder continue to deteriorate. Unfortunately, even in those patients who show some improvement the effect is only temporary and interferon generally makes the patient feel unwell with flu-like symptoms at least when starting treatment.

Kaposi's sarcoma may also be treated with anti-cancer drugs known as cytotoxic drugs. These drugs may give the undesirable side effect of depressing the bone marrow's production of white cells. They can therefore only be used in low doses and their use needs to be closely monitored with blood tests. Because of the risk of side effects from cytotoxic drugs and interferon many doctors and patients will jointly decide that no treatment should be given unless the disease is interfering with the quality of life. Often the only treatment currently given is very low dose radiotherapy to exposed lesions such as those on the face so that their appearance is disguised. This is known as cosmetic radiotherapy.

Alternative medicine

In the absence of effective drug treatment for AIDS many patients will receive forms of treatment often referred to as "alternative medicine", frequently with the full support of their "conventional" doctor. These approaches to treatment include hypnotherapy, acupuncture, herbalism, and homeopathy. While no research trials have been done to assess the effectiveness of these methods their use is often associated with an increased sense of well being and a positive approach to illness.

Avenues of research

Many different avenues are being followed by research workers in their attempts to develop an effective treatment for AIDS. Several of the drugs that have reached the stage of clinical trials fall into the group known as

reverse transcriptase inhibitors. Reverse transcriptase is an enzyme - that is, a kind of protein – which enables the genetic information carried by the virus to be transferred into the substance called DNA, which carries genetic information in human cells.

Reverse transcriptase is vital to the spread of the virus within the body. By inhibiting this enzyme it should be possible to prevent the virus spreading to infect more cells in the immune system. One reverse transcriptase inhibitor, zidovudine, has now been licensed for use. It can prolong life expectancy in AIDS patients who have had opportunistic infections but seems less useful in those with Kaposi's sarcoma alone. It is also helpful in patients with ARC in delaying or possibly preventing progression to AIDS, and has also been shown to at least partially reverse the neurological damage done by the virus.

Current trials are examining whether zidovudine is of benefit to all HIV antibody positive people in diminishing the risk of progressing to AIDS. Other trials are looking at whether zidovudine should be combined with other anti-viral drugs.

Immune modulators

Drugs known as immune modulators may be used to stimulate the immune system. These include interferon, interleukin-2, and isoprinosine. If used alone there is a danger that they may encourage the virus to multiply. So the best treatment will possibly be a combination of these and an antiviral drug.

Marrow transplant

Bone marrow transplant has been tried but is only suitable if the donor's genetic make up is very similar to that of the patient. Identical twins are the best, but even then success has only been short lived. This approach has therefore been superceded by the development of antiviral drugs.

Problems in developing a vaccine

The object of any vaccine is to stimulate the body's immune system to protect itself against an organism. In order to do this it must stimulate the production of antibodies which can destroy the organism. One problem with HIV is that the body fails to produce antibodies that are capable of killing it. The first step, then, in developing a vaccine is to discover which structures in the virus are capable of stimulating the production of effective antibodies against HIV. A second problem is that part of the virus tends to change its structure over time. If the body induces antibodies against the part which changes then those antibodies will stop being able to kill the virus. Another vital requirement is that the vaccine must be safe.

AIDS has become one of the most feared diseases of modern times.

In this new edition of his booklet, Dr Christopher Carne gives the facts about AIDS—how it is spread, those at risk, symptoms and disease, treatment, prevention, and where to go for help.