

AIDS

Level: PSE/Science, years 9, 10 and 11



Background information

HIV (Human Immunodeficiency Virus) is a virus that weakens (makes deficient) the human immune system, making the victim more vulnerable to disease. AIDS (Acquired Immunodeficiency Syndrome) is a name given to the collection of illnesses (or syndromes) which someone can get if their immune system has been damaged by HIV.

The disease is spread by the following means:

1. Having sex without using condoms
2. Sharing needles when injecting drugs
3. Receiving blood transfusions (although blood is now routinely screened for the virus).

Within 3 months of the infection, the body's immune system makes its first attempt to overcome HIV and produces antibodies to the virus. If a patient is tested HIV-positive, it is actually the HIV antibody that is being detected. The virus is known to invade and inactivate the white blood cells of the immune system. Its genetic information is a single strand of RNA. When it infects a cell, the virus turns its RNA into DNA, and this becomes incorporated into the host's chromosome. The cell now carries a deadly message that can lie hidden for many months or even years. Many people thus remain asymptomatic (without symptoms) for a long time. When the HIV DNA becomes active, it begins to make many viruses. These bud out from the cell to infect more cells. The cell then dies and is not replaced; the reduction in white blood cells makes the body less able to fight infection.

A diagnosis of AIDS means you have had one of the illnesses included in the definition of the syndrome. Such illnesses are often called 'opportunistic' infections, since they take advantage of the immune system being weakened. Some AIDS-related illnesses are relatively minor, e.g. fevers, dehydration, fatigue, weight loss, skin problems. Others can be life-threatening, e.g. chest and breathing problems, hepatitis B, lymphoma (cancer of the lymphatic system, the body's internal drainage system), TB. Although many of these illnesses are easy to treat in normally healthy people, the presence of HIV makes them much harder to fight.

There are many drugs available for the treatment of these opportunistic diseases, but still relatively few licensed for fighting HIV itself. The most well-known anti-HIV drug is AZT (azidothymidine). Although this has helped many sufferers, its effects may not last longer than a few months as the virus becomes resistant to it (and also develops cross-resistance to other drugs). Recently, a number of other treatments have become available, including protease inhibitors and mixed drug regimes.

It is estimated that by the year 2000 over 40 million adults will have been infected, the vast majority by unprotected heterosexual sex. Eight to ten million children will have caught the infection from their mothers, and another ten million or so orphaned because their mothers have died of AIDS.

People living with AIDS have particular needs that must be addressed. In Britain they have access to the following bodies:

1. National Health Service — for medical help
2. Local authorities — for housing benefits, special care, etc.
3. Voluntary sector — e.g. support groups and advice centres

Class discussion 1

Ask the class to answer questions 1, 3 and 5 of the student worksheet on 'AIDS' (without reference to the book).

(5 minutes)

Group work

Split the class into groups and instruct them to use pages 28–31 of the book to help them to complete the worksheet.

(15 minutes)

Class discussion 2

Using the worksheet as a basis, lead a class discussion on AIDS. Explain that the disease is caused by the HIV virus, and invite members of the class to describe how viruses infect human cells (this was covered in Session 2). Discuss the various means by which the disease is spread, and why certain sociological groups are more susceptible than others. What sorts of prejudices are faced by AIDS sufferers? What special needs do they have (counselling, medical care, sickness benefits, etc.)?

N.B. Care must be taken in this session as there is a good chance of pupils having HIV-positive family members or friends who may not want their situation made public.

(15 minutes)

Further group work (as homework or a separate session)

Assign students the task of designing a poster to appeal to young people of their own age, conveying a message about how to avoid catching AIDS. Remind them that, to be most effective, it should be simple and have an eye-catching heading or slogan. Alternatively, the class could be asked to compose the text for a television or radio advertisement.

(30 minutes)