

WHO AIDS Series **3**

**Guidelines
for nursing management
of people infected with
human immunodeficiency
virus (HIV)**



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Preface

On 7 April 1987 the International Council of Nurses (ICN) and the World Health Organization (WHO) issued a Joint Declaration on AIDS (see Annex 1), which set out the rights and responsibilities of nurses throughout the world in caring for people infected with the human immunodeficiency virus (HIV). Nurses^a were called on to safeguard confidentiality in relation to patients and to assist their families and friends in coping with the complex problems associated with HIV infection. In addition, the ICN committed itself to speaking on, and keeping abreast of, all aspects of the health of nurses caring for those infected with HIV. It pledged full partnership with WHO in efforts on behalf of the public, of those infected with HIV, and of those caring for them.

The present guidelines have been developed by WHO and ICN. They contain basic information on the nursing management of people with HIV infection, including the prevention of transmission and the care of persons with the infection. The guidelines need to be adapted in the light of local circumstances, traditions, beliefs and values. Their specific overall objectives are to educate nurses and, through them, individuals, families and communities, on the different aspects of the prevention and control of the HIV epidemic, to prevent the transmission of HIV in health care, and to ensure effective and holistic nursing care for persons infected with HIV throughout the different phases of the disease.

The guidelines focus especially on:

- modes of HIV transmission and precautions to prevent the transmission of HIV in health care settings;
- basic principles of nursing management in the care of individuals infected with HIV, of patients with acquired immunodeficiency syndrome (AIDS), and of their family, friends, and the community;
- health education for individuals, families, and communities on the prevention of sexual, parenteral, and perinatal transmission of HIV and on the promotion of breast-feeding and childhood immunization;
- specific counselling skills to assist the person infected with HIV to cope with the illness throughout the different phases of the disease.

Information about HIV infection and its implications for nursing management should be planned for and integrated into the formal and continuing educational programmes of all nursing personnel. Such information reflects national policies and strategies and should be adjusted accordingly.

^a Throughout these guidelines the terms "nurse" and "nursing" include "midwife" and "midwifery", as appropriate.



Introduction: the three AIDS-related epidemics

Acquired immunodeficiency syndrome (AIDS) has produced not one but three related worldwide epidemics—HIV infection, AIDS itself, and the social, cultural, economic and political reaction and response to these first two epidemics.

The first epidemic, which began in the 1970s and continues today, is the silent pandemic of HIV infection. In 1988, between 5 and 10 million people are estimated to be infected with the virus throughout the world, and further spread of HIV is inevitable.

The second epidemic is that of the disease AIDS. First recognized in the United States of America in 1981, AIDS had already appeared in several areas of the world by the late 1970s. By 1 July 1988 a total of 100 410 AIDS cases had been reported officially from Africa, the Americas, Asia, Europe and Oceania. However, for a variety of reasons, such as under-recognition, underdiagnosis and under-reporting, the actual total probably exceeds 150 000. Moreover, the number of AIDS cases is a misleading guide to the seriousness of the situation; because AIDS occurs some years after HIV infection, today's AIDS cases reflect the level of HIV infection 3–5 years ago, or even before. It is estimated that for every AIDS case, 25–100 people may be infected with HIV; this ratio will decrease further in the next few years.

A steep increase in the number of AIDS cases is being observed throughout the world. Of the 5–10 million HIV-infected people, it is estimated that 10–30% will develop AIDS during the next five years. Thus, between 500 000 and 3 000 000 new AIDS cases will develop among those already infected with HIV.

The third epidemic—the intense global reaction to AIDS and HIV—is just beginning. Fear and ignorance are having severe effects at the personal, family, and social level. HIV-infected persons, including those with AIDS, are often being excluded from the family and community at a time when they most need support and care.

In contrast to most health problems, which affect either the young or the old, AIDS mainly strikes those in the age group 20–49 years. By depriving the community of people in their most productive years, AIDS poses a serious threat to social and economic development and even to political stability. As the number of AIDS cases rises steeply over the next few years, the economic, social, political and cultural effects will be dramatic. In industrialized countries, the cost of direct medical care for a person with AIDS is estimated at between \$25 000 and \$150 000. In the developing world, the additional burden of AIDS on already strained health resources

will be enormous, especially in countries where the annual per capita health budget is only a few dollars.

AIDS also affects mothers and children. Increased infant mortality from HIV infection may offset the progress anticipated from child health programmes. Thus AIDS threatens the health gains projected for the developing world.

The social and economic stresses associated with HIV and AIDS demonstrate that they are more than just a disease; they have become a major political and cultural issue. Fear of AIDS threatens to restrict travel and communication among countries. Rather than recognize AIDS as a global problem, there is still a tendency to stigmatize specific groups, races, and nationalities. HIV and AIDS may prove to be a threat to the fundamental values of society and any attempt to deal with them presents a formidable challenge.

1. Global epidemiological patterns

The data available on the distribution of AIDS in the world and from numerous epidemiological studies make it possible to distinguish three different patterns, as described below.

Pattern I

In pattern I areas, most cases occur among homosexual or bisexual males and intravenous drug users. Extensive transmission of HIV appears to have begun in the late 1970s.

Heterosexual transmission is responsible for only a small percentage of cases but is increasing. Transmission through blood and blood products occurs, but has now been largely controlled by the exclusion of persons with risk behaviours from giving blood, and by routine screening of blood donors. The male to female ratio of cases ranges from 10:1 to 15:1. The overall population seroprevalence is generally less than 1% but can be over 50% in some groups with high-risk behaviour, such as male homosexuals with multiple partners and intravenous drug users. This pattern is typical of certain industrialized countries with large numbers of reported AIDS cases, including North America, Western Europe, Australia, New Zealand and parts of Latin America.

Pattern II

In pattern II areas, most cases occur among heterosexuals. The male to female ratio of cases is 1:1. As a result, perinatal transmission is common. Transmission from intravenous drug users and male homosexuals is either absent or occurs at a very low level. Extensive transmission appears to have begun in the 1970s, and in a number of countries the overall population seroprevalence may now be more than 1%. In some urban areas, up to 15% or more of the sexually active age group are infected. This pattern is typical of Africa and some Caribbean countries.

Pattern III

In pattern III areas, HIV appears to have been introduced in the early to mid-1980s and only small numbers of cases have been reported. Both homosexual and heterosexual transmission are currently being reported. Cases have generally occurred in persons who have travelled in, or had contact with individuals from, other endemic areas. A small number of cases have been reported in persons receiving imported blood products. This pattern is found in North Africa, Eastern Europe, the Eastern Mediterranean, Asia, and most of the Pacific.

2. Clinical manifestations

Pathogenesis

The human immunodeficiency virus (HIV), the causative agent of AIDS, selectively attacks specific white blood cells that are essential for the coordination of the body's immune defence mechanisms. When these white blood cells are destroyed, a process that may take many years, the person infected becomes susceptible to a range of infectious and parasitic diseases and cancers to which persons with intact immune systems are not. These opportunistic infections and cancers (such as Kaposi's sarcoma) are indicators of the underlying immune deficiency caused by HIV. In addition, HIV may attack nerve cells causing neurological disturbances.

When HIV penetrates a cell it combines with the host cell's own genetic material. The result is an infection that most virologists believe is lifelong. Infected persons are likely to be infectious for life.

Manifestations

The clinical signs and symptoms of infection with HIV are exceedingly complex. They include those of the opportunistic diseases as well as those caused directly by HIV itself.

HIV infection may be divided into four different stages, which do not necessarily occur in all infected individuals. These stages consist of: an acute phase; an asymptomatic stage which may include persistent generalized lymphadenopathy; the AIDS-related complex; and AIDS. An understanding of the natural history of HIV infection is essential not only for predicting the further course of the epidemic but also for developing and evaluating measures for the prevention and treatment of HIV infection and AIDS.

Acute phase

Acute HIV disease may occur as early as a week after infection and ordinarily precedes seroconversion, which usually develops 6–12 weeks after infection but may take longer.

According to several studies, the clinical manifestations of the acute phase are fever, lymphadenopathy, night sweats, skin rash, headache, and cough.

Persistent generalized lymphadenopathy

Persistent generalized lymphadenopathy (PGL) is characterized by enlarged lymph nodes greater than 1 cm in diameter involving two or more extra-inguinal sites and lasting for at least three months, in the absence of

any current illness or the use of drugs known to cause lymphadenopathy. It may slowly regress during the course of the disease. Persons with PGL are generally otherwise healthy.

AIDS-related complex (ARC)

No accepted or uniform definition of ARC exists. However, persistence of the following signs and symptoms is generally considered to be characteristic of ARC: diarrhoea, weight loss, malaise, fatigue and lethargy, anorexia, abdominal discomfort, fever, night sweats, headache, lymphadenopathy, splenomegaly and neurological changes leading to loss of memory and peripheral neuropathy. These symptoms and signs are frequently intermittent. Weight loss is found in most patients and is generally progressive.

Many people with ARC have mucocutaneous lesions, including in particular zoster, seborrhoeic dermatitis, recurrent and persistent orolabial and genital lesions due to herpesvirus and oral hairy leukoplakia.

AIDS

The period between infection with HIV and the onset of AIDS symptoms may range from six months to seven years or more. This long and often unrecognized period of asymptomatic infection, during which an infected person can infect others, complicates the task of controlling the spread of the virus.

AIDS represents the severe end-stage of the clinical spectrum of HIV infection. It is characterized by the presence of opportunistic infections and tumours, such as Kaposi's sarcoma, which occur in the presence of the profound cellular immunodeficiency caused by HIV. The types of opportunistic infection depend largely on the past and existing exposure of the individual to microbial agents. This explains the differences in the frequency of certain opportunistic infections between African and American or European patients with AIDS. *Pneumocystis carinii* pneumonia is by far the commonest opportunistic infection in countries outside Africa. In Africa, on the other hand, the gastrointestinal system is a major site of infection. The signs and symptoms described for ARC patients can also occur in patients with AIDS, but the manifestations may be more pronounced.

Neurological manifestations

An increasing number of neurological abnormalities are being documented in people with HIV infection, such as peripheral neuropathy and memory loss. They may be the initial manifestation of HIV infection and are often atypical in presentation.

The commonest neurological disorder is a subacute encephalopathy characterized by progressive behaviour changes associated with dementia. This AIDS encephalopathy or AIDS dementia occurs in approximately

one-third of AIDS patients. The onset is usually insidious, and cognitive dysfunction predominates initially. Common early signs include tremor, slowness and aphasia. The course is usually progressive towards severe dementia. Mutism, incontinence, loss of vision and paraplegia may develop in the terminal stage.

Central nervous system involvement may be a direct consequence of HIV infection. Other causes of neurological manifestations in patients with HIV infection include opportunistic infections and cancers, including: cryptococcal meningitis, cerebral toxoplasmosis, lymphoma of the brain, papovavirus infection, herpesviral encephalitis, infection with cytomegalovirus, tuberculous and candidal meningitis, and abscesses.

It is possible that an epidemic of progressive neurological disease may occur among HIV-infected people.

Rate of progression to AIDS

Initially it was thought that only a small proportion (5–10%) of HIV-infected persons would ultimately develop AIDS. However, there is increasing evidence that 25–50% of those infected may develop AIDS within 5–10 years of acquiring the infection. Whether an increasing proportion will develop AIDS after 10 years is not currently known since there has been less than 10 years of follow up on any group of infected persons.

3. Transmission

HIV has been isolated from many body fluids of infected persons. However, only blood, semen, vaginal fluids and breast milk have been implicated in transmission. Detailed epidemiological studies throughout the world have documented three modes of transmission: sexual, parenteral, and perinatal.

Sexual transmission

Sexual transmission is the most frequent mode of transmitting HIV. The virus can be transmitted from an infected person to his or her sexual partner (man to man, man to woman, and woman to man). HIV transmission from woman to woman may also occur.

To avoid sexually acquired infection, people must take very specific steps. It should first be stated that people who abstain from sex and people who are not infected and have sexual intercourse only with a faithful uninfected partner are not in danger of becoming infected sexually with HIV.

Other people should:

- reduce the number of their sexual partners (the more partners, the greater the risk);
- avoid sex with people who have many sexual partners (e.g. prostitutes);
- avoid sexual penetration—vaginal, oral and anal;
- always use a condom, every time, from start to finish.

Parenteral transmission

Parenteral transmission occurs through the transfusion of infected blood or blood products, or through the use of contaminated needles, syringes, or other skin-piercing instruments. The risk of acquiring HIV infection is related to the size of the inoculum: recipients of a single unit of HIV-infected blood have virtually a 100% probability of acquiring infection.

Transmission through blood transfusion is a significant problem in countries that have not yet established nationwide HIV antibody screening facilities for blood donors. Transmission through contaminated needles and syringes is an especially significant problem among intravenous drug users and where needles and syringes are not sterilized before reuse.

Perinatal transmission

Perinatal transmission may occur before, during or shortly after birth. The overall risk of HIV transmission from an HIV-infected mother to her infant is about 50%. Infection has been reported in infants delivered by caesarean section. Postnatal transmission (probably through breast milk) has been described in infants exposed to mothers who acquired HIV infection after delivery.

There is no evidence to suggest that HIV can be transmitted by the respiratory or enteric routes or by casual person-to-person contact in the home or outside.

There is no evidence to suggest that HIV can be transmitted through insects, food, water, toilets, swimming-pools, sweat, tears, shared eating and drinking utensils, or other items such as telephones or second-hand clothing.

4. Basic principles of nursing management

The primary health care approach to health development is now recognized throughout the world. In a great number of countries it forms the basic framework of the national health care system. An essential principle of primary health care is the duty and responsibility of governments and health personnel to provide the public with information on the prevailing health problems and on methods for their prevention and control. Another primary health care principle emphasizes the right and duty of individuals and communities to assume responsibility for matters related to their own health, and on that basis to make changes in both their individual and their collective behaviour. Adherence to those two essential primary health care principles is an effective way of curtailing the spread of AIDS.

The basic principles of good nursing practice apply to the provision of care for infected individuals and support for their families and friends. Their application should be strengthened and promoted, as needed, through effective leadership.

Patients infected with HIV present nursing staff with numerous challenges at all stages of the disease. Because AIDS is a highly publicized disease for which there is no cure, a diagnosis of HIV infection often has a devastating impact upon the individual, the family and friends, and often places great emotional stress on the nurses themselves. Because of the fear of contagion and the stigma often associated with AIDS, social ostracism and isolation can occur. Nurses are in a position to provide care that respects the dignity of the individual and to set an example of appropriate non-judgemental attitudes to other health workers and members of the community. The ICN/WHO Joint Declaration on AIDS (Annex 1) quotes the ICN's Code for Nurses to the effect that "The nurse's responsibility is to those people who require nursing care", and that "in providing care she/he promotes an environment in which the values, customs and spiritual beliefs of the individual are respected".

The nurse understands that she or he cannot provide everything needed. She or he possesses knowledge of official and unofficial resources including inpatient and outpatient medical care and support systems. Unofficial resources include the care and support given by the family and friends, by religious groups or civic clubs helping the patient to remain in community life, and by peer support groups. The nurse has an obligation to keep fully up to date with local and regional official and unofficial resources.

Owing to the widening range of disease manifestations and to the psychosocial aspects of HIV infection, a broad variety of professional nursing skills, including effective educational and counselling skills, are needed to

provide optimal nursing care wherever it might be needed—in the hospital, the outpatient clinic, or the community-based care system. More research is necessary to determine the most appropriate health care settings. *The variety of problems experienced by a person with AIDS will be familiar to the nurse and management is not different from that for patients with other similar signs and symptoms.*

No single nursing model or ideal health care setting can be outlined. Factors that influence the health care system can include the type of health care setting, the availability of skilled staff, the technical support available, and the number of patients.

Health education and prevention of HIV transmission

The aim of health education in AIDS prevention and control should always be to modify risk behaviour, reduce the risk of exposure and transmission, diminish psychosocial stress, and help individuals to develop their ability to cope with the situation. To achieve this, people who are directly affected should be educated, and so also should those with whom they come into regular and frequent (especially sexual) contact. Family, friends, and employers, for example, need as much education as do those who are infected, although discussion regarding the patient must respect any wishes the patient may have regarding confidentiality.

To obtain the maximum effectiveness, educational programmes should take into account the characteristics of the different groups, their knowledge and attitudes, their capacity for understanding technical information, the channels by which information is most likely to reach them, and the types of communication most likely to be acted upon by them. Information should be factual, but at the same time adapted to their sociocultural situation. Thus, for example, drug users may need different information from that intended for pregnant women, and the latter may in turn require a different type of information from that suitable for homosexual persons. Decisions as to how educational information reaches them, through what channels, and who delivers the messages will also need to be made according to the target population, their characteristics, and their social situation.

Sexual transmission of HIV is the most important mode of transmission. The sexual behaviour to be changed is often pleasurable or has a symbolic meaning. Thus, even in the face of real danger from infection people may resist change.

Points to be taken into consideration in providing effective health education are:

- the most acceptable ways of effecting a change in behaviour;
- the individuals or groups most at risk;

- the activities of individuals that place them at risk;
- the stigma or condemnation of individuals and risk groups that makes it difficult for them to ask for treatment or to receive help or information about prevention;
- the reasons for the continued practice of unsafe behaviour;
- the forms of resistance to changing unsafe behaviour;
- the perceived reward for changing behaviour;
- the question whether it is realistic to expect people to change their attitudes and behaviour and to stop unsafe practices;
- the resources available for the dissemination of information about prevention;
- the action to be taken upon development of the disease—the type of assistance to be given to affected persons, their families, and their friends;
- local traditions in relation to resource-sharing and mutual assistance;
- the experience of communities that have dealt with previous crises (epidemics, natural disasters);
- the local community groups, or individual or group leaders with the influence to bring about a change in behaviour.

Counselling

Counselling is a process of dialogue and interaction aimed at facilitating problem-solving and understanding, and increasing motivation. In counselling, the psychosocial needs of the individual are taken into account, together with, and in the same way as, his or her medical, financial, and legal needs. Counselling is designed to provide support at times of crisis; to promote change when change is required; to propose realistic action in the context of different life situations; and to assist individuals to accept information on health and well-being and adapt to its implications. Counselling can be a process of giving advice or of education, or it can respond to individual psychosocial needs. In practice, the different forms of counselling often overlap.

Counselling is concerned with individuals, couples, families and groups. All of them have similar concerns, obligations, feelings, and needs, though they may each need different forms of support.

The guidelines on counselling given here are based on experience gained in a number of countries, both developing and developed. Specifically, they are concerned with individuals who:

- are considering being tested for HIV infection;
- are at risk of HIV infection and are anxious to reduce that risk;
- have already been tested and are awaiting the results;
- have been diagnosed as having HIV infection, AIDS, or ARC; or
- can be suspected of being infected but for whom testing is not possible or practical.

They are also concerned with the family, friends and sexual partners of individuals in any of the above situations, and others needing advice and help in a similar context.

Counselling must always aim at helping people take responsibility for their own health and the health of others.

Prerequisites of counselling

Counselling techniques are likely to vary between one country and another and between social groups according to the resources available and the traditional ways in which illness and death are perceived. They may also vary according to the characteristics of the individual and those around him or her. They are, however, based on a number of general assumptions and prerequisites.

Confidentiality

One of the most important factors influencing the relationship between the nurse and the person being counselled is trust. Trust in the nurse enhances that relationship and improves the chance that the individual will act on the counsel provided. Given the possibility of discrimination, ostracism, and personal recrimination when individuals are diagnosed as seropositive or as having AIDS, it is all the more important that confidentiality should be guaranteed. The relationship between the nurse and the person being counselled must be built on the understanding that whatever is discussed remains a private issue between the two.

Accessibility

Counselling should be obtainable by all persons infected by HIV, or with HIV-related diseases, who need it. It may also mean having to call on new helpers who, with some basic training, can provide counselling support in areas where counselling would otherwise not be available. Availability should not be confused with accessibility. Care should be taken to ensure that all those at risk of HIV infection or in need of counselling actually perceive the counselling services as being both available *and* readily accessible.

Informed consent

Whenever an individual requests an HIV antibody test or is encouraged to take the test, he or she must be given complete information about the personal, psychological, legal, and social implications of a positive finding.

Consistency

Approaches to counselling vary according to the person being counselled and the nurse's background. It is important that all information about HIV infection, risk of infection, and ways of reducing the risk should be consistent.

Self-determination

Individuals are responsible for determining the conduct of their own life and the management of their illness. The nurse supports such self-determination while understanding that frightened or ill people often feel anger, sorrow, guilt, and shame. The nurse must always help such people to take decisions for themselves, encouraging them to continue to do so for as long as possible and providing information, on the basis of which sound decisions can be taken.

Understanding grief, mourning, and loss

The nurse working with HIV-infected people and their families will frequently encounter mourning and loss. She or he must have a good working knowledge of culturally expected and accepted ways of expressing grief.

The nurse must be able to help HIV-infected persons and their friends face the fact of impending death. The sick should be supported for as long as possible in their own decision-making and their own self-care. The nurse should respect and support the patient's spiritual beliefs and facilitate the observance of traditional rituals related to terminal illness, death and bereavement by the patient, family and friends, if desired. Death causes distress and disruption to the family and the nurse may need to provide counselling to ease the pain of loss or grief.

The nurse must have support in dealing with her or his own grief, particularly the nurse who is caring for people with AIDS and therefore dealing with large numbers of dying people and their relatives.

Behaviour and attitudes are shaped by tradition and background. The nurse must respect the cultural variations that exist within a locality, a group, a country, or a region.

HIV antibody screening and testing

Diagnosis of HIV infection can be made in the laboratory by the detection of specific antibodies against the virus. In many other viral diseases, the presence of antibodies is indicative of past infection. However, because HIV establishes chronic infections, a seropositive person is not only actively infected, but also infectious.

A serological test to detect antibodies against HIV became available for general use in 1985. The most frequently used method is the enzyme-linked immunosorbent assay (ELISA), but other types of antibody tests, such as those based on the agglutination of particles and "dot" ELISAs are now being developed. These tests are rapid and simple to perform and do not require sophisticated equipment.

Although the above-mentioned tests are highly sensitive, they are not completely free from false results, and a reactive sample in ELISA will require further confirmation by a supplementary test such as Western blot (immunoblot), or indirect immunofluorescence.

It is also possible to detect directly the presence of HIV antigens (virus or viral proteins) in semen, and kits are commercially available. These assays were initially developed in an attempt to provide a laboratory marker of infection during the "window" that exists between infection and antibody production, which usually lasts from 4 to 16 weeks. Antigen detection assays are now more widely used to follow the results of antiviral therapy in patients with AIDS.

In the light of the statement issued by WHO, entitled *Screening and testing in AIDS prevention and control programmes* (see Annex 2), attention is drawn to the following issues.

Screening programmes for HIV infection (i.e. examination of entire populations or groups within populations to determine their infection or disease state) can help:

- to prevent transmission through blood and blood products, semen, tissues, or organs for transplant;
- to obtain epidemiological information on the prevalence and incidence of HIV infection.

Whenever a screening programme is under consideration, all the issues raised in the WHO statement (Annex 2) should be explicitly addressed and resolved. Poorly designed and poorly implemented HIV screening programmes can be detrimental to public health and waste resources. Public health needs and human rights are best served by a careful consideration of the entire range of technical, logistic, social, legal and ethical issues before a decision is made on whether to proceed with a screening programme.

Mandatory screening for HIV has only a very limited role in programmes for AIDS prevention and control.

Routine screening of donors helps to prevent HIV transmission through blood, semen, or other cells, tissues and organs. Informed consent and counselling are a part of such screening and confidentiality should be ensured.

Serosurveys help clarify the epidemiological pattern of HIV, which is required for assessment of the areas and groups that need specific educational programmes or other preventive services. These surveys should be conducted using methods that do not threaten human rights. They should be carried out either with informed consent and counselling, confidentiality being ensured, or in an anonymous unlinked manner (no names or other specific forms of identification being recorded).

Voluntary HIV testing may form part of health care for suspected HIV-related illness and may also be provided in conjunction with information, education and counselling and other support services to help promote sustained behaviour change. In voluntary HIV testing, informed consent and counselling are essential, and confidentiality should be ensured. Voluntary HIV testing services should be made widely available as part of AIDS prevention and control programmes, and access to such services should be facilitated.

Maternal and child care aspects

Evidence concerning the transmission of HIV from infected mothers to their infants suggests that about 50% of offspring are infected. The risk of transmission depends on a number of factors, including the time when the mother became infected, her immunological and overall health state, and parity.

Counselling for prevention must include information for women who are seropositive and/or have a seropositive partner. The following groups of women should be offered counselling services, preferably before pregnancy:

- women who are HIV seropositive;
- intravenous drug users;
- women with many sexual partners;
- women whose husbands or sexual partners have or have had multiple sexual contacts;
- partners of bisexual men or intravenous drug users;
- women who have had known seropositive partners.

The potential risk to the infant and to the mother must be carefully explained. The decision to avoid pregnancy as long as the woman is at risk and possibly to terminate an existing pregnancy depends on national policies and cultural beliefs and values. If pregnancy does occur, strict antenatal care is desirable and if possible the infant should be delivered in an institution with a high level of perinatal support. During delivery, full infection control precautions must be observed (as they should be regardless of the HIV antibody status of the mother). In many countries deliveries are performed by traditional birth attendants; as part of the health worker team, these attendants must be educated on how to prevent the transmission of blood-borne infectious agents, such as HIV, during delivery.

Breast-feeding and HIV

The extent to which breast-feeding is an important source of transmission of HIV is not known; the likelihood is that its role is small. In any case the advantages of breast-feeding generally outweigh the possible risk of infection (Annex 3).

The immunological, nutritional, psychosocial, and child-spacing benefits of breast-feeding are well recognized in national and international policies on maternal and child health. Breast milk also helps prevent intercurrent infections that could accelerate the progress of HIV-related disease in already infected infants.

Breast-feeding should therefore continue to be encouraged.

Children and HIV infection

Throughout the world increasing numbers of children with HIV infection are being reported. They may have become infected in any of the following ways:

- through being born to seropositive mothers;
- through exposure to contaminated blood or blood products, or unsterile needles/syringes;
- through skin-piercing procedures (as of the ear and nose), tattooing, scarification, circumcision, etc.;
- through sexual contact.

Children are often born prematurely to seropositive mothers and need special medical and nursing care. Infected infants are more likely than HIV-infected adults to develop ARC and AIDS, and the incubation period is often shorter.

It is difficult to define criteria for the diagnosis of ARC and AIDS in children. Children with ARC and AIDS usually fail to thrive and have serious infections.

Children who are seropositive are generally not a threat to others in the home or school and infection should not be an obstacle to foster care. Intensive continuous education of people around them is essential to prevent these children being stigmatized. Full infection control precautions must be taught and applied routinely in all schools and in foster care, and older children need to be very carefully and repeatedly counselled regarding sexual practices. If a child's development is delayed or he or she is often admitted to hospital, special provision may need to be made locally for his or her support and education.

Childhood immunization and HIV infection

The theoretical risk of immunizing a child infected with HIV must always be weighed against the benefit to be gained from immunization. In the present state of knowledge the benefit far outweighs the risk. However, HIV-infected infants or children who are immunized generally have a lower level of protection from the vaccines than uninfected children.

In countries where HIV infection is a problem, children, including those with asymptomatic HIV infection, should continue to be immunized with vaccines recommended by WHO according to standard schedules (Annex 4). However, non-immunized children with symptomatic AIDS should not receive BCG. They should, however, receive the other vaccines.

HIV infection control in health care settings

Application of the principles of infection control is a vital part of effective day-to-day nursing practice. Adherence to guidelines for the prevention of transmission of blood-borne agents, such as hepatitis B virus, is more than sufficient for preventing HIV transmission.

Health care settings include hospitals, outpatient departments, or anywhere in the home or community where medical care is provided directly (e.g., home care, immunization centres, mobile clinics).

Transmission has been reported very rarely from patient to nurse through needle-stick injuries or exposure of mucous membranes to blood. Infection can pass from patient to patient, as through the reuse of improperly sterilized needles. Personnel providing first aid, such as paramedical staff, emergency medical technicians, law-enforcement officers, fire-fighters, and lifeguards, are at no greater risk than nurses providing emergency care in hospital.

Infection control in health care settings consists of:

- precautions in relation to blood and other body fluids;
- precautions in relation to injections and skin-piercing;
- effective use of sterilization and disinfection.

In countries with limited health care systems it may not be possible to adopt all the recommendations outlined below. If limited resources prevent a particular recommendation from being adopted, an effective alternative should be devised.

Precautions in relation to blood and other body fluids

Since blood and other body fluids are capable of transmitting HIV and other infectious agents, *nurses should always treat all blood and body fluids as if they were infectious.*

- **Handwashing.** Hands and other parts of the body that have been contaminated with blood or body fluids should be washed thoroughly with soap and water. Hands should also be washed immediately after removal of protective gloves.
- **Gloves and other attire.** Nurses should wear gloves of suitable quality for all direct contact with blood and body fluids. When gloves are not available, other methods should be used to prevent direct contact with blood; for example, forceps, a towel, gauze or, if these are unavailable, even a leaf may be employed to hold a bloodstained

needle or syringe. If gloves are not disposable they should be changed, washed, and disinfected or sterilized after contact with each patient. When injuries from sharp instruments are possible (e.g. when they are being cleaned), extra-heavy-duty gloves are recommended and the instruments should be handled with extreme care.

During procedures in which there may be splashing or suspensions of blood (e.g. during surgery or childbirth), the eyes, nose, and mouth should be protected with a face shield or mask and glasses, and gowns or aprons should be worn.

- **Needle-stick and other sharp injuries.** Methods should be devised to reduce the risk of needle-stick and other injuries from sharp instruments, which should always be handled with extreme care. The handling of anything sharp should be reduced to a minimum. To prevent needle-stick injuries, needles should not be recapped, bent, broken, removed from disposable syringes, or otherwise manipulated by hand. After use, needles and other sharp instruments should be placed in puncture-proof containers located as close as possible to where they are to be used and then handled as infected material.
- **Mouth-to-mouth resuscitation.** Although HIV has been recovered from saliva, there is no conclusive evidence that saliva is involved in HIV transmission. Nevertheless, to reduce occupational exposure to HIV, mouthpieces, resuscitation bags, or other ventilation devices should be used if available when resuscitation is necessary. Resuscitation equipment should be used once only and discarded, or be thoroughly cleansed and disinfected. Mouth-to-mouth mucus extractors should be replaced, if possible, by electrical hand-operated or foot-operated suction machines.
- **Isolation.** If the precautions described are taken, isolation of HIV-infected patients is not necessary unless they have other infections for which isolation is indicated.

Isolate the infection, not the patient.

Precautions in relation to injections and skin-piercing

Injections and other procedures in which the skin or mucous membranes are pierced for preventive, diagnostic, cosmetic or therapeutic purposes play an important role in both traditional and modern care.

- It is important to restrict injections and other skin-piercing procedures to situations in which the indications are clearly and appropriately defined. In many situations drugs are given by injection when they would be equally effective if given orally. Reducing the number of unnecessary injections is therefore important in protecting both the health worker and the patient.
- To avoid person-to-person transmission of HIV, single-use (disposable) instruments should be used once only. To prevent reuse, they should then be destroyed under careful supervision. Multiple-use (reusable) instruments should always be washed and appropriately sterilized (or disinfected) according to existing guidelines. Chemical disinfection must not be used, however, for needles and syringes.^a If these procedures are always strictly observed, the risk of transmission of HIV through injections and other skin-piercing procedures can be eliminated.

Prevent transmission of HIV—use one sterile needle and one sterile syringe per injection.

Precautions in relation to laboratory specimens

- Nurses should always wear gloves when handling and processing specimens of blood and other body fluids (e.g. in taking and collecting blood).
- All open wounds on hands and arms should be covered with a water-tight dressing. Hands should always be washed with water and soap immediately after exposure to specimens.
- Specimens should be placed in containers with a secure lid to prevent leakage during transport. Care should be taken to avoid contamination of the outside of the container. When samples are mailed or otherwise shipped, they should be placed inside unbreakable plastic containers.

^a See *Guidelines on sterilization and high-level disinfection methods effective against human immunodeficiency virus (HIV)*. Geneva, World Health Organization, 1988 (WHO AIDS Series, No. 2).

- Working surfaces should be covered with a non-penetrative material that is easy to clean thoroughly, e.g. plastic film. Any spillage of blood or other body fluids should immediately be decontaminated with a disinfectant such as sodium hypochlorite 0.5% before cleaning.
- Specimens should be carefully disposed of by pouring them down a drain connected to a sewer. If this is not possible, blood and body fluids should be decontaminated with an appropriate disinfectant such as sodium hypochlorite 0.5% before disposal. Gloves should preferably be worn during disposal.

Hands must be carefully washed after laboratory activities.

Precautions in relation to invasive procedures

An invasive procedure may be defined as a surgical entry into tissues, cavities, or organs, whether for an operation or for the repair of injury. Strict blood and body fluid precautions should be observed. In addition:

- Gloves and a surgical mask should be worn for all invasive procedures.
- Protective glasses or face shield should be worn for procedures that may result in the generation of droplets or the splashing of blood or other body fluids.
- A gown or apron should be worn if blood splashes are likely.
- Nurses who perform or assist in vaginal or caesarean deliveries should wear gloves and gown or apron when handling the placenta and until the blood has been removed from the infant's skin and post-delivery care of the umbilical cord is complete.
- If a glove is torn or a needle-stick or other injury occurs, the glove should be changed and the hands washed carefully as soon as the safety of the patient permits. The needle or instrument involved in the accident should be removed from the sterile field.

Laundry

Soiled linen should be bagged where used and not sorted or rinsed where patients are being cared for. Linen soiled with blood or other body fluids should be placed and transported in leakproof bags. If leakproof bags are not available, the linen should be folded with the soiled parts inside. When handling soiled linen, gloves and protective apron should be worn.

Linen should be washed with detergent and water at a temperature of at least 71°C (160°F) for 25 minutes. If low-temperature laundry cycles are

used (less than 70°C (158°F)), chemicals suitable for low-temperature washing should be used at the appropriate concentration as recommended by the manufacturer.

Spills of blood and other body fluids

For visible spills of blood or other body fluids, the area should first be flooded with an appropriate disinfectant (preferably sodium hypochlorite, 0.1-0.5% available chlorine). The mixed body fluid and disinfectant should then be removed, and the surface wiped with disinfectant. For more details, see *Guidelines on sterilization and high-level disinfection methods effective against human immunodeficiency virus (HIV)*, published by the World Health Organization (WHO AIDS Series, No. 2).

Postmortem procedures

Nurses performing postmortem procedures should follow the precautions outlined above and the standard guidelines for the health care setting involved.

Disposal of infected wastes

Needles and other sharp instruments or materials should be placed in a puncture-proof container immediately after use and should preferably be incinerated.

Liquid wastes such as bulk blood, suction fluids, excretions and secretions should be carefully poured down a drain connected to an adequately treated sewer system, or disposed of in a pit latrine.

Solid wastes, such as dressings and laboratory and pathology wastes, should be considered as infectious and treated by incineration, burning or autoclaving. Other solid wastes, such as excreta, may be disposed of in a hygienically controlled sanitary landfill or pit latrine.

Solid waste materials in the home (dressings, diapers, menstrual pads) should be considered infectious. They should preferably be burned; if this is not possible, they should be deposited in a domestic or public hygienically controlled sanitary landfill or pit latrine.

Guidelines for the safety of nurses

The risk of acquiring HIV from infected patients is extremely low.

In the exceptionally rare instances where nurses have acquired HIV infection in their work, the route of infection has been parenteral, or through exposure of mucous membranes or skin lesions to HIV-infected blood.

Parenteral exposure occurs when a nurse sustains a needle-stick injury, or a cut from a scalpel or other sharp instrument contaminated with blood from an infected patient. The risk of infection after such exposure is likely to depend on two factors: (a) the volume of blood to which the nurse was exposed, and (b) the infectiousness of the patient. Although HIV can be present in both asymptomatic and symptomatic persons, recent studies suggest that persons with symptomatic AIDS or at an advanced stage of HIV infection are likely to be more infectious. Several prospective studies have reported that the risk of acquiring HIV infection after a needle-stick injury or other parenteral exposure to HIV is less than 1%.

The risk of acquiring HIV infection after mucous membrane or skin lesion exposure to infected blood is very low, but more difficult to quantify. Individual case reports, however, indicate that a risk does exist when nurses are contaminated with HIV-infected blood through open cuts, abrasions or mucous membranes (e.g. mouth or lips, conjunctiva).

Parenteral or mucous membrane exposure to HIV

Exposure may be through:

- parenteral exposure to blood and other body fluids (e.g. needle-stick injury or cut);
- mucous membrane exposure to blood and other body fluids (e.g. blood splashes to the eye and mouth);
- cutaneous exposure involving large amounts of blood when the nurse's skin is chapped, has abrasions, or is affected with dermatitis.

Any exposure should be reported to the supervisor; subsequent actions, including counselling and possible further evaluation and follow-up, will depend on national policies and the local setting.

Methods of reducing exposure to the minimum have been described in the sections on the precautions to be taken in relation to injections, skin-piercing and invasive procedures, pages 22 and 23. The same sections deal with the management of lesions if they occur.

Special conditions

- Nurses with open skin lesions should cover the lesion with an occlusive dressing or gloves to prevent direct exposure to blood and other body fluids. To protect patients, nurses who have draining skin lesions should not take part in direct patient care and should not handle equipment for patient care.
- Nurses providing HIV-infected persons with home care are at the same low risk of infection, as nurses in hospitals and other health care settings. Most infected persons who do not need hospitalization can safely be cared for at home. The precautions outlined above should be observed.
- Since HIV infection in a pregnant nurse carries the additional risk of subsequent perinatal transmission, pregnant nurses should strictly observe the precautions.
- In general, an HIV-infected nurse does not pose a risk to patients and restrictions in work are not needed.
- An infected nurse's personal doctor should advise on precautions and/or restrictions to protect patients and on whether the patients pose a risk to the nurse and, if so, suggest changes in work assignment.

5. Conclusion

Nursing personnel, as front-line health care providers working directly with individuals infected with HIV, their families, and their community, are presented with a challenge that requires unprecedented creativity, energy and resources. The extent to which nursing personnel are willing and able to meet this challenge may well have a profound impact on the future course of the HIV epidemic.

ICN/WHO Joint Declaration on AIDS

7 April 1987

- WHEREAS acquired immunodeficiency syndrome (AIDS)/human immunodeficiency virus (HIV) infections are an international health problem of extraordinary urgency, and
- WHEREAS the HIV pandemic threatens both the developed and the developing countries, and
- WHEREAS HIV infections threaten the health gains recently achieved in many parts of the world, and
- WHEREAS HIV infection is an adverse health outcome of profound personal, family and social importance and of great concern to nurses everywhere, and
- WHEREAS neither vaccine nor treatment is likely to be available for several years, and global HIV prevention and control will require a long-term effort, and
- WHEREAS the global epidemic of HIV infection represents a great challenge which will demand unprecedented creativity, energy and resources from all parts of the health system, with the particular demands for nursing care increasing rapidly, and
- WHEREAS global AIDS prevention and control will require both strong national AIDS prevention and control programmes and international leadership, coordination and cooperation, and
- WHEREAS the International Council of Nurses' *Code for nurses*^a states: "The nurse shares with other citizens the responsibility for initiating and supporting action to meet the health and social needs of the public" and further states: "The nurse's responsibility is to those people who require nursing care" and that the nurse, "in providing care, promotes an environment in which the values, customs and spiritual beliefs of the individual are respected", and "Holds in confidence personal information and uses judgement in sharing information", and

^a *Code for nurses*, Geneva, ICN, 1973.

WHEREAS in the same spirit with which the World Health Organization undertook global smallpox eradication, the World Health Organization is now committed to the more urgent, difficult and complex task of global AIDS prevention and control,

THEREFORE BE IT RESOLVED

that ICN will speak for and keep abreast of all aspects pertaining to the protection of the health of the nurse in her/his providing care for people with HIV infection, and

ALSO BE IT RESOLVED

that the International Council of Nurses commits itself to full partnership with the World Health Organization in working for the interests of the public, those infected with HIV, and those providing care to them, and

FURTHER BE IT RESOLVED

that ICN will assist nurses through their national nurses' associations to be well informed on new developments relative to the prevention of, and care for people with, HIV infection, and calls upon all its member associations and upon all individual nurses worldwide to actively assist in all of these efforts.

Screening and testing in AIDS prevention and control programmes

Screening is the examination of entire populations or groups within populations to determine their infection or disease status.

Testing is the determination of infection or disease status for an individual.

During 1987, the World Health Organization, through its Special Programme on AIDS,^a worked with national authorities in over 100 countries to develop programmes for AIDS prevention and control. In this context, screening for human immunodeficiency virus (HIV) infection has often been discussed in an attempt to define its role, if any, in national AIDS programmes. HIV screening involves many complex technical, logistic, social, legal and ethical issues; to help ensure their complete analysis and review, WHO convened a meeting of health experts on screening for HIV infection.^b The meeting listed a broad range of issues that must be considered, including:

- the rationale of the proposed programme;
- the population to be screened;
- the test method to be used;
- where the laboratory testing is to be done;
- the intended use of the data obtained from the testing;
- the plan for communicating results to the person tested;
- how counselling is to be accomplished;
- the social impact of screening;
- legal and ethical considerations raised by the proposed screening programme.

^a In January 1988, the Special Programme on AIDS was renamed the Global Programme on AIDS.

^b Single copies of the *Report of the Meeting on Criteria for HIV Screening Programmes, Geneva, 20-21 May 1987* (WHO/SPA/GLO/87.2) can be obtained from the Global Programme on AIDS, World Health Organization, 1211 Geneva 27, Switzerland.

In the light of:

- the report of the Meeting;
- the experience of national programmes to date;
- current knowledge about HIV infection and AIDS;

the World Health Organization draws attention to the following issues related to screening and testing in AIDS prevention and control programmes.

1. Screening programmes for HIV infection can help:
 - prevent transmission of the virus through blood supplies, semen, tissues, or organs for transplant;
 - obtain epidemiological information on HIV prevalence or incidence.

2. Whenever a screening programme is under consideration, all the issues raised by the Meeting on Criteria for HIV Screening Programmes should be explicitly addressed and resolved. Poorly designed or implemented HIV screening programmes will be detrimental to public health, and will waste resources. Public health needs and human rights will be best served through careful consideration of the entire range of technical, logistic, social, legal and ethical issues before any decision is taken as to whether to proceed with a screening programme.

3. Mandatory screening for HIV has only a very limited role in programmes for AIDS prevention and control. Mandatory screening of donors is useful to prevent HIV transmission through blood, semen, or other cells, tissues or organs. This screening should involve informed consent and counselling and should ensure confidentiality.

4. Serosurveys help clarify the epidemiological pattern of HIV infection, which is useful to assess the areas and groups that need specific educational programmes or other preventive services. These surveys can be conducted using methods that do not threaten human rights. Such surveys can either involve informed consent and counselling and ensure confidentiality or they may be conducted anonymously (no record of name or other specific identification).

5. Voluntary HIV testing may form part of medical care for suspected HIV-related illness and may also be provided as a service to individuals in conjunction with information and education, counselling and other support services to help promote sustained behaviour change. Voluntary HIV testing should involve informed consent and counselling and should ensure confidentiality.
6. Voluntary HIV testing services should be made widely available as part of AIDS prevention and control programmes, and access to such services should be facilitated.

Breast-feeding/breast milk and HIV

In view of the importance of breast milk and breast-feeding for the health of infants and young children, and of the increasing prevalence of human immunodeficiency virus (HIV) infection in many parts of the world, a Consultation on Breast-feeding/Breast Milk and HIV Infection was organized by the World Health Organization from 23 to 25 June 1987. Its purpose was to review currently available information on the possible relationship between breast-feeding/breast milk and HIV transmission, and to identify further research needs in this area. Twenty participants from 15 countries attended the consultation, representing the fields of epidemiology, immunology, virology, paediatrics and nutrition. The conclusions of the consultation are summarized below.

Evidence concerning the transmission of HIV from infected mothers to their infants suggests that between 25% and 50% of all offspring will be infected. The risk of transmission may depend on a number of factors; including: the timing of the mother's HIV infection, the mother's immunological and overall health status, her parity, intercurrent infections, and other possible factors.

Transmission of HIV from infected mothers to their infants may occur before, during, or shortly after birth. The possibility that HIV could be transmitted through breast-feeding/breast milk is supported by a report that HIV can be cultured from breast milk from mothers who are themselves infected. At present, the risk of HIV transmission from mothers to infants through breast-feeding has not been defined, but available information suggests that, if such transmission occurs, the relative contribution of this route is probably small, as compared with *in utero* and intrapartum transmission. For example, a substantial number of infants born to infected mothers have been breast-fed without any evidence of their having acquired HIV infection. On the other hand, there are a few reported cases where mothers became infected postpartum through blood transfusion, and where their infants, in turn, became infected, possibly through breast-feeding. This does not necessarily imply, however, that such transmission occurs among mothers who were infected with HIV before or during pregnancy.

The immunological, nutritional, psychosocial and child-spacing benefits of breast milk/breast-feeding are well recognized. They have been reflected increasingly in national and international policies on child and maternal health.

Breast milk is also important in preventing intercurrent infections which could accelerate progression of HIV-related disease in already infected

infants. The importance of breast milk and breast-feeding for the survival and development of infants and young children, as well as for child spacing and hence maternal health, should continue to be emphasized in all health and nutrition policies.

Additional epidemiological and laboratory research is needed on the risks of HIV transmission through breast milk and on the potential benefits of breast milk in situations where infants have been exposed to HIV, or are already infected.

In the interim:

- (a) Breast-feeding should continue to be promoted, supported and protected in both developing and developed countries. The immunological, nutritional, psychosocial and child-spacing benefits of breast-feeding to infants and their mothers continue to be important factors in determining the overall health of mother and child.
- (b) If, for whatever reason, the biological mother cannot breast-feed or her milk is not available, and the use of pooled human milk is considered, the report of isolation of HIV in breast milk should be taken into account. Pasteurization at 56 °C for 30 minutes has been reported to inactivate the virus. Further research on the effectiveness of different methods of pasteurization, however, is needed. As an additional precaution, the possibility of screening donors (in accordance with WHO criteria on HIV screening) should be considered, especially in areas where the prevalence of HIV infection is known to be high. Similarly, if, for whatever reason, the biological mother cannot breast-feed, or her milk is not available, and where wet-nursing is the next obvious choice, care may need to be taken in selecting the wet-nurse, bearing in mind her possible HIV infection status and that of the infant who is to be fed.
- (c) In individual situations where the mother is considered to be HIV-infected, and recognizing the difficulties inherent in assessing the infection status of the newborn, the known and potential benefits of breast-feeding should be compared to the theoretical, but apparently small, incremental risk to the infant of becoming infected through breast-feeding. Consideration should be given to the socioeconomic and ecological environment of the mother-child pair and the extent to which alternatives can safely and effectively be used. In many circumstances and, particularly, where the safe and effective use of alternatives is not possible, breast-feeding by the biological mother should continue to be the feeding method of choice, irrespective of her HIV infection status.

HIV and routine childhood immunization

Concern has been voiced that children infected with the human immunodeficiency virus (HIV) who receive routine childhood immunizations may have decreased immune responses and be at increased risk of adverse effects or acceleration of HIV-induced immunosuppression. Limited experience suggests that the likelihood of successful immunization is reduced in some HIV-infected individuals but that the risk of serious adverse effects remains low. The theoretical risk of accelerating HIV infection by simultaneous administration of multiple antigens is not supported by the clinical information available and is likely to be negligible in contrast to other natural sources of antigenic stimulation.

A WHO Informal Consultation on HIV and Routine Childhood Immunization met in Geneva on 12 and 13 August 1987 and, having reviewed the available information, came to the following conclusions.

1. The Consultation endorsed the 1986 recommendations of the Expanded Programme on Immunization (EPI) Global Advisory Group on the use of EPI antigens, i.e. "In countries where human immunodeficiency virus infection is considered a problem, individuals should be immunized with the EPI antigens according to standard schedules. This also applies to individuals with asymptomatic HIV infection. Unimmunized individuals with clinical (symptomatic) AIDS in countries where the EPI target diseases remain serious risks should not receive BCG, but should receive the other vaccines" (see table below).

Recommendations on the use of EPI antigens in HIV-infected individuals in countries where the EPI target diseases remain important causes of morbidity

	Vaccine	Asymptomatic	Clinical AIDS
Infants	BCG	Yes	No
	Diphtheria, tetanus, pertussis	Yes	Yes
	Oral poliovirus	Yes	Yes
	Inactivated poliovirus	Yes	Yes
	Measles	Yes	Yes
Women	Tetanus toxoid	Yes	Yes

2. In accordance with the EPI Global Advisory Group, the Consultation noted that live vaccines are not usually given to immunocompromised individuals, but agreed that, in areas where the risk of exposure to measles and poliovirus is high, the benefits of immunization outweigh the apparently low risk of adverse effects from these vaccines, even in the presence of symptomatic HIV infection. Inactivated poliovirus vaccine (IPV) is an alternative to oral poliovirus vaccine (OPV) for immunization of children with symptomatic HIV infection who may be at increased risk of OPV-associated paralytic poliomyelitis.

3. It was noted that, although a theoretical risk exists, evidence for an increased rate of adverse reactions after BCG immunization among asymptomatic HIV-infected individuals remains inconclusive. Therefore:

(a) For asymptomatic HIV-infected individuals:

- where the risk of tuberculosis is high, BCG is recommended at birth or as soon as possible thereafter, in accordance with standard policies for immunization of non-HIV-infected children;
- in a limited number of areas, the risk of tuberculosis is low, but BCG is recommended as a routine immunization; in these areas, BCG may be withheld from individuals known or suspected to be infected with HIV.

(b) For symptomatic HIV-infected individuals, BCG should be withheld.

4. The Consultation emphasized the EPI recommendation to immunize children as early in life as possible. Vaccine-associated adverse effects may be minimized and vaccine response optimized by beginning immunization before the progression of HIV-induced immunosuppression.

5. The Consultation endorsed the simultaneous administration of multiple antigens such as BCG, DTP, poliovirus and measles vaccines when indicated.

6. The Consultation strongly encouraged further investigations in the following areas.

(a) Safety of immunizations in HIV-infected children:

- (i) surveillance of HIV-infected children to permit rapid identification of any unexpectedly frequent adverse events following immunization;
- (ii) establishment or modification of population-based surveillance systems to detect rare serious adverse events associated with immunization of HIV-infected children;

- (iii) comparison of the rates of frequent and less severe adverse events which occur in HIV-infected and uninfected children following immunization.
- (b) **The natural history of vaccine-preventable diseases in HIV-infected children:**
- (i) determination of the rates of serious complications of vaccine-preventable diseases in HIV-infected children in health care facilities and in the community, and correlation of such complications with the stage of HIV infection and degree of immunosuppression;
 - (ii) establishment or modification of population-based surveillance systems to detect serious complications of vaccine-preventable diseases in HIV-infected children;
 - (iii) assessment of the role of immune globulin in protection of HIV-infected children against vaccine-preventable diseases.
- (c) **Immunogenicity and efficacy of immunizations in HIV-infected children:**
- (i) determination of the serological response to immunization in HIV-infected children as compared to uninfected children, and correlation of vaccine response with stage of HIV infection and degree of immunosuppression;
 - (ii) development of methods to improve responses of HIV-infected children to vaccines, if these are found to be decreased;
 - (iii) determination of the persistence of vaccine-induced antibody;
 - (iv) prospective follow-up of immunized HIV-infected children and retrospective evaluation of cases of vaccine-preventable diseases to determine rates of vaccine failure in HIV-infected children.
- (d) **Possible activation or acceleration of HIV infection by repeated antigenic stimulation with immunizations, including simultaneous administration of multiple antigens:**
- (i) detection of increased HIV replication following immunization of HIV-infected children;

- (ii) detection of immunological abnormalities following immunization of HIV-infected children;
 - (iii) retrospective studies of the relationship between total number of immunizations received and/or number of antigens received simultaneously by HIV-infected children and the onset of symptomatic HIV infection, progression of clinical HIV disease and/or fatal outcome of HIV infection. The Consultation agreed that prospective placebo-controlled double-blind studies in which some HIV-infected children would not receive recommended immunizations were not appropriate.
- (e) **The immunogenicity and efficacy of tetanus toxoid immunization of HIV-infected pregnant women in the prevention of neonatal tetanus.**

Neuropsychiatric aspects of HIV infection

In persons with the disease AIDS and in those with the AIDS-related complex (ARC), important neuropsychiatric clinical conditions have been recognized to occur. In many cases these conditions have been linked to effects of HIV-1 in the central and peripheral nervous system. As a result, concern has been expressed about whether people infected with HIV-1 who are otherwise healthy might experience functional neuropsychiatric impairments.

A WHO Consultation on Neuropsychiatric Aspects of HIV Infection was held from 14 to 17 March 1988. The participants in the Consultation concluded that:

At present, there is no evidence for an increase of clinically significant neuropsychiatric abnormalities in CDC Group II or Group III HIV-1 seropositive [i.e. otherwise asymptomatic] individuals as compared with HIV-1 seronegative controls.

Therefore, there is no justification for HIV-1 serological screening as a strategy for detecting such functional impairment in asymptomatic persons.

The most important outcome of these deliberations is that governments, employers and the public can be assured that, on the basis of available scientific evidence, otherwise healthy HIV-1-infected individuals are no more likely to be functionally impaired from a neuropsychiatric viewpoint than uninfected persons. Thus, HIV-1 screening would not be a useful strategy as a marker of such functional impairment in otherwise healthy persons.

These policy recommendations will be kept under continual review as additional scientific information becomes available.

The Consultation also recommended that:

1. WHO should promote research to obtain information on the natural history, pathogenesis, predictors and possible markers for HIV-1-related neuropsychiatric disorders with particular attention to dementia and other neurobehavioural abnormalities.
2. WHO should promote the development and standardization of research methodology, and in particular:

- (a) the definition or creation of a standard broadly-based neuropsychological test battery for assessment of HIV-1-related neuropsychiatric abnormalities including instruments or approaches with predictive power for changes in functional/occupational capacity;
 - (b) the development of an easily administered and culturally non-specific measure of neuropsychological function which could help provide data on the global extent of HIV-1-related neuropsychiatric abnormalities.
- 3. WHO should investigate, as a high priority, a report from Africa of the apparent occurrence of acute psychotic disorders as a possible first manifestation of HIV-1 infection, which are associated with rapid death without the development of either ARC or AIDS.
- 4. WHO should promote awareness among health workers both of the wide range of neuropsychiatric conditions particularly associated with late stages of HIV-1 infection and that, based on available evidence, otherwise healthy HIV-1-infected individuals are no more likely to be functionally impaired than uninfected persons.
- 5. WHO should continue to play an active role in the exchange of information in this field, with particular attention to the impact of new information on the policy issues described in the report of the Consultation.

Social aspects of AIDS prevention and control programmes

The World Health Organization, through its Global Programme on AIDS, has worked with over 100 national authorities throughout the world in developing national programmes for the prevention and control of AIDS. While these national programmes operate in substantially different epidemiological, social, economic and political environments, they have been faced with a similar range of complex social issues, involving such areas as screening, employment, housing, access to health care and schooling. In the light of the experience of these national programmes to date, as well as current knowledge about human immunodeficiency virus (HIV) infection and AIDS, the World Health Organization wishes to draw attention to the following social aspects of AIDS prevention and control.

1. AIDS prevention and control strategies can be implemented effectively and efficiently and evaluated in a manner that respects and protects human rights.
2. There is no public health rationale to justify isolation, quarantine, or any discriminatory measures based solely on the fact that a person is suspected or known to be HIV-infected. The modes of HIV transmission are limited and the virus spreads almost entirely through identifiable behaviours and specific actions which are subject to individual control. In most instances, the active participation of two people is required for HIV transmission, such as in sexual intercourse or in sharing contaminated needles or syringes. However, spread of HIV can also be prevented through the health system (e.g. by ensuring the safety of blood, blood products, artificial insemination and organ transplantation, and preventing reuse of needles, syringes and other skin-piercing or invasive equipment without proper sterilization).

HIV infection is *not* spread through casual contact, routine social contact in schools, the workplace or public places, or through water or food, eating utensils, coughing or sneezing, insects, toilets or swimming-pools.

Accordingly, an AIDS prevention and control strategy should include:

- **provision of information and education** to the general public, to persons with behaviours that place them at risk of HIV infection, and to HIV-infected persons;
- **counselling** of HIV-infected persons;
- **ensuring the safety** of blood and blood products, skin-piercing practices and other invasive procedures.

In accordance with this strategy, persons suspected or known to be HIV-infected should remain integrated within society to the maximum possible extent and be helped to assume responsibility for preventing HIV transmission to others. Exclusion of persons suspected or known to be HIV-infected would be unjustified in public health terms and would seriously jeopardize educational and other efforts to prevent the spread of HIV. Furthermore, discriminatory measures create additional problems and cause unnecessary human suffering. The avoidance of discrimination against persons known or suspected to be HIV-infected is important for AIDS prevention and control; failure to prevent such discrimination may endanger public health.

3. An individual's HIV-infection status may be determined through medical examination for suspected HIV-related illness, voluntary testing programmes, screening of blood donors, or in other settings. Testing for the purpose of determining an individual's HIV-infection status should involve informed consent and counselling and should ensure confidentiality.^a

^a See Annex 2, page 30.