Human Immunodeficiency Virus (HIV) Infection and the Acquired Immunodeficiency Syndrome (AIDS)

Manitoba Health
Public Health

Communicable Disease Control Unit

Case Definition

1. Acquired Immunodeficiency Syndrome (AIDS)

- More than a dozen opportunistic infections and several cancers were considered to be sufficiently specific indicators of underlying immuno-deficiency for inclusion in the initial case definition of AIDS developed by the Centers for Disease Control and Prevention in Atlanta in 1982. The case definition was revised in 1987 and again in 1993. The present AIDS case definition includes the following opportunistic infections, indicator diseases and cancers, among those who are infected with HIV:

  Opportunistic Infections and Indicator Diseases
  - *Pneumocystis carinii* pneumonia
  - Chronic cryptosporidiosis
  - Toxoplasmosis of the central nervous system (CNS)
  - Esophageal or lower respiratory tract candidiasis
  - Disseminated or CNS cryptococcosis
  - Disseminated atypical mycobacteriosis
  - Pulmonary, gastrointestinal (GI), CNS, or ocular cytomegalovirus (CMV) infection
  - Chronic ulcerative mucocutaneous or disseminated *Herpes simplex* infection
  - Progressive multifocal leukoencephalopathy
  - Pulmonary and extra-pulmonary tuberculosis
  - Recurrent pneumonia (two or more episodes in one year)
  - Neurologic disease such as HIV dementia or sensory neuropathy
  - Wasting syndrome

  Cancers
  - Kaposi's sarcoma
  - Primary B-cell lymphoma limited to the brain
  - Non-Hodgkins lymphoma
  - Invasive cervical cancer

- Any of these diseases, if diagnosed by standard histologic and/or culture techniques, are accepted as meeting the surveillance case definition of AIDS in an HIV-positive person, if other known causes of immunodeficiency are ruled out. In addition, HIV-infected persons, with CD4 counts less than 200 per mm^3 or less than 14%, are considered to have AIDS.

2. Human Immunodeficiency Virus (HIV) Infection:

Adults

Positive tests for HIV include:

- tests for the detection of antibodies to the virus;
  (Note that the period between initial infection and antibody detection is known as the window period. Antibodies to HIV are usually detectable six to eight weeks after initial infection with the virus (average is 45 days). Inability to detect antibodies three months after infection is unusual and occurs in less than 3% of most populations. HIV antibodies are detected in 95% or more of patients within six months of infection. Prolonged window periods lasting years may occur in immuno-compromised persons but are rare.)
- tests for detection of antigen to the virus;
- tests for detection of viral nucleic acid (qualitative and quantitative);
- viral culture.

Children

Positive tests for HIV include:

- child less than 18 months who is HIV antibody-positive or born to an HIV-positive mother and has positive results on two separate determinations for HIV PCR;
- child 18 months or older who is HIV antibody-positive or positive for HIV PCR;
- viral culture.

Reporting Requirements

- A positive test for HIV is reportable non-nominally, by code, by laboratories and by attending health care professional.
- AIDS is reportable (using the AIDS Case Reporting Form) by attending health care professional.

Clinical Presentation/Natural History

Adults with HIV infection

Within several weeks to months after infection with HIV, many people develop an acute self-limited mononucleosis-like illness lasting for one to two weeks. Infected persons may then be free of clinical signs or symptoms for many months to years before other clinical manifestations, including opportunistic infections, and constitutional and neurologic symptoms, appear. A viral load test obtained during the asymptomatic period provides important prognostic information, with viral loads more than 5,000 copies/ml being correlated with an increased risk of disease progression. The severity of subsequent HIV-related opportunistic infections is, in general, directly correlated with the degree of immune system dysfunction. Onset of clinical illness is usually insidious with non-specific symptoms such as lymphadenopathy, anorexia, chronic diarrhea, weight loss, fever and fatigue. However, this constellation of non-specific symptoms is usually not sufficient, by itself, for a diagnosis of AIDS. The prognosis for persons with HIV infection is improved with early treatment with combination antiretroviral therapies and appropriate prophylaxis against opportunistic infections. Effective treatment can alter the natural history of HIV infection and reduce the risk of end-stage disease (AIDS).

Adults with AIDS

AIDS is advanced HIV-related disease. This syndrome represents the late clinical stage of HIV infection resulting from progressive damage to the immune system, leading to the many opportunistic infections and cancers listed above. AIDS is a severe, life-threatening clinical condition, first recognized as a distinct syndrome in 1981. Cohort studies of HIV-infected adults carried out before specific antiviral therapy was available indicated that about 15-20% developed AIDS (according to the 1987 definition) within five years, about 50% within seven to 10 years and close to 70% within 15 years. Prior to the availability of highly active anti-retroviral therapy (HAART), the case-fatality rate of AIDS was felt to be 100%, and most individuals died within three to five years after the diagnosis of AIDS was made. However, the use of HAART and prophylactic drugs for the prevention of *P. carinii* pneumonia and other opportunistic infections may prevent, or at least significantly delay, the development of AIDS, prolonging survival for several years, and perhaps indefinitely.

Children with HIV Infection

Ten to 20% of perinatally infected children who are untreated will present with moderate to severely symptomatic disease in the first year of life. The median time to disease progression of other perinatally infected children is unknown but is likely similar to adults. With treatment, disease progression is likely delayed.

Table 1 describes the expected relationship between the immunologic status of a child and the degree of immune suppression.

Table 1: 1994 CDC Pediatric HIV Classification

Immunologic Category	Age of Child					
	<12 Months		1-5 Years		6-12 Years	
	CD4 *u*l	(%)	CD4 *u*l	(%)	CD4 *u*l	(%)
1. No evidence of suppression	>1,500	(>25)	>1,000	(>25)		(>25)
2. Evidence of moderate suppression	750-1,499	(15-24)	500-999	(15-24)	200-499	(15-24)
3. Severe suppression	<750	(<15)	<500	(<15)	<200	(<15)

Clinical Categories for Children with HIV Infection

Children who are infected with HIV can be classified as not symptomatic, mildly symptomatic, moderately symptomatic or severely symptomatic, based on their clinical presentation.

A. Not Symptomatic

Children who have no signs or symptoms considered to be the result of HIV infection or who have only one of the conditions listed in Category B.

B. Mildly Symptomatic

Children with two or more of the conditions listed below, but none of the conditions in C or D:

- lymphadenopathy
- hepatomegaly
- splenomegaly
- dermatitis
- parotitis
- recurrent or persistent upper respiratory infection, sinusitis, or otitis media

C. Moderately Symptomatic

Children who have symptomatic conditions other than those listed for B and D that are attributed to HIV infection. Examples include, but are not limited to:

- anemia
- bacterial meningitis, pneumonia or sepsis
- candidiasis (oropharyngeal thrush)
- cardiomyopathy
- cytomegalovirus infection with onset before one month of age
- diarrhea, recurrent or chronic
- hepatitis
- herpes simplex virus (HSV) stomatitis, more than two episodes within one year
- HSV bronchitis, pneumonitis or esophagitis with onset before one month of age
- herpes zoster (shingles)
- leiomyosarcoma associated with EBV
- lymphoid interstitial pneumonia (LIP)
- nephropathy
- nocardiosis
- persistent fever (lasting more than one month)
- toxoplasmosis, onset before one month of age
- varicella, disseminated (complicated chicken pox)

D. Severely Symptomatic

- serious bacterial infections, multiple or recurrent (e.g., septicemia, pneumonia, meningitis)
- candidiasis, esophageal or pulmonary
- cryptococcosis, extrapulmonary
- cryptosporidiosis or isosporiasis with diarrhea persisting more than one month
- cytomegalovirus disease with onset of symptoms at age more than one month
- encephalopathy

- herpes simplex virus infection causing a mucocutaneous ulcer that persists for more than one month, or bronchitis, pneumonitis or esophagitis
- histoplasmosis, disseminated
- kaposi's sarcoma
- lymphoma, primary, in brain
- lymphoma (Burkitt's, B-cell or unknown immunologic phenotype)
- mycobacterium tuberculosis, disseminated or extrapulmonary
- mycobacterium, other species
- mycobacterium avium complex or Mycobacterium kansasii, disseminated
- pneumocystis carinii pneumonia
- progressive multifocal leukoencephalopahy
- salmonella (non-typhoid) septicemia, recurrent
- toxoplasmosis of the brain with onset at more than one month
- wasting syndrome

Etiology

The human immunodeficiency virus is a retrovirus, of which two types have been identified: type 1 (HIV-1) and type 2 (HIV-2). These viruses are serologically, epidemiologically and geographically distinct. In Manitoba, HIV-1 is the predominant infection.

Epidemiology

Reservoir: Humans

Transmission:

1. Sexual Transmission

a) Sexual Practices and HIV Transmission

High risk:

- unprotected anal receptive intercourse (highest)
- unprotected vaginal receptive intercourse

Significant risk:

- unprotected oral receptive intercourse
- unprotected anal insertive intercourse
- unprotected vaginal insertive intercourse (risk may be higher during menses)
- unprotected oral insertive intercourse

Low risk:

Latex or vinyl condoms (vaginal or penile) provide protection against HIV transmission. However, protection is not complete. Estimates of efficacy vary widely, but maximum efficacy is probably about 90%.

Minimal risk:

- deep kissing
- protected sex with HIV negative partner
- mutual monogamy
- mutual masturbation or massage

Safest sex practice:

- abstinence

b) Factors Which Facilitate HIV Sexual Transmission

Male-to-female transmission:

- sexually transmitted infections
- vaginitis or vaginosis

Female-to-male transmission:

- lack of male circumcision
- sexually transmitted infections

Other possible facilitating factors:

- oral contraceptive use, trauma during sex, sexual contact during menses, cervical ectopy, vitamin A deficiency

Titres of viral RNA in vaginal secretions (infectivity) are increased with:

- sexually transmitted infections
- low CD4 count
- vitamin A deficiency
- presence of cervical mucopus

- menstruation
- end-stage disease (AIDS) or high viral loads, as in primary infection

Titres of viral RNA in semen (ejaculate) increased with:

- sexually transmitted infections
- low CD4 count
- end-stage disease (AIDS) or high viral loads, as in primary infection

2. Transmission Through Injecting Drug Use

Riskiest practices:

- sharing unclean needles, syringes and other paraphernalia ("works") especially in "shooting galleries"
- practising aspiration of blood prior to injection ("backloading")

Less risky practices:

- Injecting with clean needles/works (Household bleach is effective especially after washing and when contact time is greater than five minutes. It is important to rinse with water after bleach use.)

Least risky practices:

- single use needles, syringes
- sterile needles, syringes

3. Exposure to Blood, Tissues or Organs

- In Manitoba the risk of HIV transmission from donations of blood, tissue or organs is very low, as all donors are screened for HIV. The addition of P24 antigen screening to routine antibody testing reduces the "window" period by about six days. The use of nucleic acid amplification testing by Canadian Blood Services reduces the window period still further, but it will still be possible for a donor to be in a window period of infection at the time of donation, and HIV could be transmitted in this manner.
- Receipt of blood, blood products or tissues between 1978-1985, or in countries where screening is unreliable or not carried out, poses a risk for transmission.
- Rhogam and hepatitis B vaccine (serum-derived) have never been reported to transmit HIV-1.
- The average risk of acquiring HIV infection after percutaneous exposure to HIV-infected blood is approximately 0.3%. Body fluids presenting risk for bloodborne disease transmission are blood, semen and vaginal secretions, and possibly cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, amniotic fluid, and peritoneal fluid. Urine or vomitus pose risk only if there is visible blood.

4. Perinatal Infection

- Perinatal transmission rates in the absence of anti-retroviral therapy during pregnancy range from 14 to over 40% in cohort studies worldwide. Differences in breastfeeding practices account for a large part of the wide variation in rates. Transmission occurs in *utero*, *intrapartum* or postnatally through breastfeeding. Treatment reduces transmission risk by two-thirds or more.
- Differences in maternal disease status, mode of disease acquisition, mode of delivery, viral phenotype, and frequency of breastfeeding all potentially contribute to the observed differences in transmission rates.
- All pregnant women should be counselled about HIV early in pregnancy and encouraged to be tested for HIV infection. Those found to be HIV-positive should be offered anti-retroviral therapy.

Maternal disease status:

Early or late disease is associated with increased maternal viral load and increased perinatal transmission. Placental infection and instrumentation at delivery increase exposure of the infant to the virus and thus may increase perinatal transmission.

Mode of delivery:

Vaginal delivery may expose infants to the virus. Therefore, Cesarean reduces the risk of perinatal transmission. Prolonged rupture of membranes is also associated with increased risk of infant infection.

Viral phenotype:

HIV-2, unlike HIV-1, is rarely transmitted from mother to child. Women who are dually infected with HIV-1 and 2 are more likely to transmit HIV-1 to their infants.

Infant susceptibility:

Prematurity and low birth are shown to be associated with increased transmission of HIV-1. Determining whether these characteristics are the result of infection rather than predisposing factors for infection is difficult.

5. Occupational Exposure

The greatest risks for transmission in the occupational setting are:

- Deep parenteral inoculation via a hollow-bore needle of blood from a source with high-titre HIV-I viremia, such as in recent seroconversion or advanced HIV disease.
- Parenteral inoculation of materials containing high-titre virus in a laboratory setting.

Occupational exposures of less risk are those with a small volume, solid bore needles, and blood to mucous membrane or non-intact skin. Risk may be increased in the latter if the volume of blood is large or the exposure prolonged. See the Integrated Post-Exposure Protocol for more detail.

6. Other Exposures

- Exposure to urine, saliva, sweat and tears does not pose a risk for HIV infection unless the fluid contains visible blood. Saliva has been shown to be potentially capable of HBV transmission, but not HIV or HCV.
- Routine social or community contact with an HIV-infected person carries no risk of transmission. Intact skin and mucous membranes afford good protection against infection.

Occurrence:

General: AIDS was first reported in 1981, but isolated cases occurred in the United States and in several other areas of the world (Haiti, Africa and Europe) during the 1970s. AIDS has been recorded in virtually all countries, among all races, ages and social classes. Worldwide, the World Health Organization estimates that over 50 million HIV-infection cases (with more than half in sub-Saharan Africa) occurred by the end of 1999 and that over 34 million people were living with HIV/AIDS. AIDS cases were diagnosed in Canada from the beginning of the epidemic in 1979. Distribution of cases by exposure category has changed over the years. There has been a decrease in the percentage of male cases attributed to sexual relations between men. The proportion of male cases attributed to this category peaked during 1987-1988 and has been decreasing since then. There has also been an increase in the percentage of cases attributed to heterosexual relations. HIV-1 infections are now distributed worldwide, but are most prevalent in sub-Saharan Africa, the Americas, Western Europe, and South and Southeast Asia. HIV-2 has been found primarily in West Africa, with some cases in the Western Hemisphere and other African countries that are linked epidemiologically to West Africa.

Manitoba: The three most common risk categories for HIV infection in Manitoba are men who have sex with men, injection drug

use, and heterosexual activity with person(s) at risk of HIV. Since the first HIV-positive person was reported to Manitoba Health in 1985, there have been an average of 53 new HIV-positive persons (range: three in 1985 to 60 in 1989) identified each year. Eighty-five percent of all reported HIV-positive persons are male. There have been an average of nine AIDS-related deaths per year (range: 0 in 1985 to 18 in 1993). There has been a consistent increase in the number of women testing positive for HIV since 1984. The primary risk factors identified for women are sex with a male involved in high-risk sexual behaviour or injection drug use.

Incubation Period: The incubation period for HIV is variable. Although the time from infection to the development of detectable antibodies is generally one to three months, the time from HIV infection to diagnosis of AIDS has an observed range of less than one year to 12 years or longer. Treatment appears to lengthen the clinical latency period (i.e., time without symptoms). Appropriate therapy will delay progression to AIDS. The mean incubation period in some infected infants may be shorter than in adults.

Susceptibility and Resistance: There are a small number of reports of relative resistance to HIV infection among some persons. A homozygous defect in a specific gene is associated with protection from infection; heterozygosity may provide partial protection from infection in the form of slower disease progression. This defect is present in approximately 1% of Caucasians of western European ancestry, whereas it is absent or rare among black Africans and Japanese. Factors which increase susceptibility for sexual transmission of HIV are indicated above.

Period of Communicability: Transmissibility begins early after the onset of HIV infection and extends throughout life. Epidemiologic evidence suggests that infectivity is high during the initial period after infection; and increases with increasing immune deficiency, the presence of clinical symptoms and the presence of other STDs. Persons who have recently acquired the infection and are asymptomatic have high viral loads and are at high risk for transmission.

Diagnosis

Serologic tests for antibodies to HIV have been commercially available since November 1985. Cadham Provincial Laboratory, which does all diagnostic HIV testing in Manitoba, uses the ELISA on blood serum as the initial screening test. It is highly sensitive and specific. All positive ELISA test results are confirmed by Western blot. A negative confirmatory test negates the initial reactive ELISA, and is reported as negative. A positive Western blot supports the initial positive screening test and is reported as positive. An indeterminate result in the Western blot cannot be interpreted as either positive or negative and requires further evaluation.

Most people infected with HIV develop detectable antibodies within one to three months after infection; occasionally, there may be a more prolonged interval in persons who are immunocompromised. HIV infection may be detected during the period after infection but prior to seroconversion by polymerase chain reaction (PCR), which identifies specific viral nucleic acid sequences. The absolute T-helper cell (CD4+) count or percentage is used to evaluate the severity of HIV infection. Viral load testing is used to assist clinicians to make decisions regarding therapy.

All infants born to HIV-positive women have anti-HIV IgG, since IgG crosses the placenta at or after 30 weeks of gestation. All will be ELISA and Western blot positive, although only about 15-20% of non-breastfed infants will be truly infected. Thus, in infants less than 18 months of age, diagnosis of HIV infection depends on PCR testing which is performed twice for confirmation.

Key Investigations

- The history and risk assessment should include enquiries regarding:
  - men who have sex with men (MSM);
  - participation in anal sex
  - injection drug use;
  - multiple sex partners;

  - risk factors or markers such as sexually transmitted infections or incarceration in correctional institutions.
- Sexual, IDU and female contacts who may be pregnant should be given priority for follow-up.

Control

Management of Cases:

- Public health workers should contact the attending physician who performed the HIV test for the following objectives:

1. **Collaborate with the physician as appropriate in the management of HIV positive persons.**

   Public health workers can play an important role in educating both physicians and patients about HIV/AIDS, local/regional/provincial resources available, the role of public health in the education, interviewing and counselling of HIV positive persons, and the confidential notification of their partners. As HIV testing in Manitoba is non-nominal, the identity of the HIV infected individual can only be obtained from the physician.

   Public health may be of assistance in the management of situations where persons who are HIV positive continue to place themselves and others at risk through their behaviour. Reference may also be made to the document *Guidelines for Reducing HIV Transmission by People Who are Unwilling or Unable to Take Appropriate Precautions* by Manitoba Health. (See **Additional Resources**)

2. **Collect epidemiologic information.**

   It is important to verify that the code on the lab report is accurate and to collect pertinent information for epidemiologic purposes. This will assist Manitoba Health in monitoring trends in the occurrence of HIV infection in Manitoba, which will in turn direct programs and policies.

   There are a number of issues to discuss with the physician:

a) **Advise the physician that the public health nurse (PHN) is calling to discuss a person who is HIV positive.**

   The PHN should state s/he is calling to speak with the physician directly regarding an important confidential matter.

b) **Verify that the information on the lab report is correct (code, specimen date).**

   This is the only means of distinguishing HIV-positive individuals from each other. It is essential to ensure that the code is correct. This will help to avoid duplicate or incorrect codes.

c) **Was the person previously tested for HIV? If so, where and under what code?**

   It is not unusual for one person to have a number of different codes (for example, if there has been a change of residence). This is important for the same reasons as given in b) above.

d) **Obtain additional information on clinical data and risk factors.**

   Ask the physician whether there are additional risk factors or clinical data beyond those documented on the HIV test requisition.

e) **Obtain information about additional testing.**

   Find out if, for example, serology for hepatitis B/C or syphilis, or swabs for *N. gonorrhoeae* and *C. trachomatis* have been taken, or if any testing for tuberculosis has occurred.

f) **Obtain information on symptoms.**

   Verify whether the person has symptoms or has been diagnosed with AIDS. If an AIDS diagnosis has been made as per the case definition, verify that the *AIDS Case Reporting Form* has been completed and sent to Manitoba Health. This information will be appropriately entered on either the HIV or the AIDS database and will be reflected in the bi-annual statistical report.

g) Offer public health services as appropriate.

Advise the physician that all public health services are strictly confidential.

- Offer assistance to locate the person if the physician has been unable to do so.
- Find out from the physician whether or not the person has received HIV pre-test counselling; whether the person has been interviewed for partners; how the person plans to notify partners; and who will do the post-test counselling. All HIV-positive persons should be counselled regarding notifying current and past sex or needle-sharing partners of their exposure to HIV, and of the importance of taking appropriate precautions with future partners. Discuss with the physician the role of the PHN in counselling, interviewing the person and providing third-party partner notification. If not already interviewed, request that the physician inform the person of the option of being counselled, educated and interviewed by the PHN, and having contacts notified by public health.
- In counselling, note that final test results may not be available for 10 to14 days. It is essential that the person have someone reliable that they can confide in during this difficult time. After assessing for stressors, coping skills and supports, ensure that the person is linked to resources. The person should know that results will only be provided in person. It should be suggested to them that they may want to arrange to have someone accompany them to receive the results.
- Emphasize the need to prevent transmission to sex and needle-sharing partners. The person must begin to use precautions immediately to prevent transmission. These precautions should continue indefinitely for persons with more than one partner. For persons who are in mutually monogamous relationships, precautions should continue until they have tested negative at least six months after their last risk behaviour.
- Discuss the issue of confidentiality. This is often of particular concern in rural areas. Encourage the person to ask their physician how HIV-related paperwork is handled in his/her office, who sees the results and where they are filed.
- Discuss who will manage the person's medical follow-up: the primary care physician and/or an infectious disease specialist? Practitioners may wish to contact an infectious disease specialist for advice on provision of immunizations to persons with HIV infection.
- Offer assistance to link the physician and/or person with resources and supports such as: the Physician Mentorship Program, HIV care and treatment services, financial and housing assistance, home care, mental health supports, and addictions services.
- Persons who are infected with HIV and are unable or unwilling to take appropriate precautions, thereby continuing to place themselves and others at risk for infection, will require special attention and support, often through the collaborative efforts of the attending physicians and nurses, public health practitioners, and others such as mental health, family, community agencies and organizations. Manitoba Health's *Guidelines for Reducing HIV Transmission by People Who Are Unwilling or Unable to Take Appropriate Precautions* may be of assistance in these matters (see

Additional Resources). These are complex situations requiring careful judgment based on the unique nature of each case, with a consideration of the need to balance the rights of the individual with the rights of the public.

- **Interviewing the HIV-positive person for contacts**

  The purpose of partner notification is to provide an opportunity for partners to better understand their HIV-related risk status and to identify strategies for reducing risk. Partner notification is recommended, and it is preferable to become involved in HIV-related partner notification with the consent of the person. Exceptions may be made when there is reason to inform a partner without obtaining consent, such as a situation where there is felt to be significant risk to a partner and the health care professional reasonably believes that the person will not inform the partner directly. The decision as to which sexual and injection drug equipment-sharing partners should be notified by public health should be based on the period of infectivity, the significance of the exposure, the feasibility of notification, and a prioritization of partners at risk.

  It is important to meet in person. If you are advising a person of test results, arrange to meet early in the week so that s/he may link with supports before the weekend.

  – Partner notification by public health practitioners may be undertaken for one, a few or all contacts. If the HIV-positive person wishes to notify his/her partners directly, the public health professional can assist in preparing him/her to do so.

  – The interview period should begin with the onset of high-risk behaviour by the index case, or with the approximate date of seroconversion, if known. For example, if a person has tested seropositive six months after a documented seronegative test result, the interview period should start six months prior to the date of the seronegative test result.

  – When the onset of high risk behaviour/seroconversion of the index case is unclear or is unknown, the interview period for identifying partners at risk for infection should begin as far back as is practicable, but generally not more than one year.

- Female contacts to HIV, within child-bearing ages (15 to 45 years), should be advised of recent evidence regarding the efficacy of anti-retroviral drugs in preventing perinatal transmission. Also important to include in counselling is the recommendation by Manitoba Health and the College of Physicians and Surgeons that all pregnant women be offered, and encouraged to request, HIV testing.

- Children born to HIV-positive women after the woman was known to be infected with HIV should be tested for HIV. If the date of seroconversion is unknown, testing of children born after the onset of the mother's risk exposure is recommended. Women should be informed that the lack of signs and symptoms suggestive of HIV infection in older children may not indicate a lack of HIV infection. Some perinatally infected children can remain asymptomatic for several years.

Management of Contacts:

- Although HIV case reporting is non-nominal, reporting of contacts must be by name to enable follow-up by public health, particularly if the contact is from a jurisdiction other than that of the case.
- It is important to meet with contacts in person. If the contact refuses, this should be documented.
- Neither the date nor the nature of exposure between the index case and the contact should be divulged to the contact as this may jeopardize confidentiality by revealing the identity of the index case. It is the legal and ethical responsibility of public health to assure the confidentiality of cases and contacts; to advise the contacts of their risk for infection; and assist them in accessing medical attention if they desire. It is not a public health mandate to assist persons to determine from whom they acquired the infection.
- Arrange to meet with contacts early in the week so that they may access a physician for testing, or may link with supports as necessary, before the weekend.
- Offer to educate contacts regarding HIV/AIDS; conduct a risk assessment; and offer pre-test counselling. Contacts may be referred to local clinics, or clinics in nearby major centres. Education, risk assessment and HIV counselling are undertaken with individuals who are in various stages of readiness to hear this information. Counselling should be undertaken as discussed above, and interventions should be modified accordingly.

Pregnant Female Contacts

- If a pregnant woman is named as a contact, one negative HIV-1 test result is considered inadequate due to the possibilities of being in a window period or becoming re-exposed to infection. It is therefore recommended that she be retested prior to delivery.
- If the woman does not attend for retesting, public health should make attempts to contact her and provide additional information.
- Pregnant women who are HIV-positive should receive zidovudine and/or other anti-retroviral therapy prenatally and during labour and delivery. Infants should also be treated for two weeks post-partum. This is generally done under the care of an infectious disease specialist.

Infants

- For infants born to HIV positive mothers who have not taken anti-retroviral prophylaxis, perinatal transmission can still be significantly reduced by starting anti-retroviral treatment as soon as possible after birth, preferably within six hours (maximum 48-72 hours after birth). Starting treatment after 72 hours is probably not beneficial.
- To ensure that infants at risk receive appropriate care, Manitoba Health will refer anti-HIV positive test results on infants to regional public health authorities, even though this result may be a reflection of maternal antibody transfer and not infant infection. As with adults, the attending physician must be contacted and his/her collaboration sought in identifying the infant and family and proceeding with appropriate follow-up.
- All infants should be referred to a pediatric infectious disease specialist and should receive PCR testing. PCR positive test results will be referred to the appropriate jurisdiction.

Preventive Measures:

- Target preventive and public health measures towards persons most at risk for HIV.
- Abstention from sexual intercourse is the only certain way of preventing the sexual transmission of HIV.
- Engaging in mutually monogamous sexual intercourse with someone known to be uninfected is the next surest way to prevent infection.
- In other situations, condoms made of latex must be used correctly every time a person has vaginal, anal or oral sex. Latex condoms (for men), with

or without water-based lubricants, significantly reduce the risk of sexual transmission. Oil-based lubricants damage condom integrity and should not be used. The female condom is an available alternative for vaginal, anal or oral sex.

- Programs for treating drug users reduce HIV transmission. Such measures as instructing needle users in decontamination methods and needle-exchange programs have been shown to be effective.
- Confidential HIV counselling and testing sites are available throughout the province. Counselling, voluntary HIV testing and medical referrals should be offered routinely to STD cases and contacts; in tuberculosis and drug treatment clinics; in clinics offering pre-natal care or family planning services; in facilities that offer services to men who have sex with men; in correctional facilities; and in communities where HIV seroprevalence is high.
- Sexually active persons should be advised to seek prompt screening and treatment for STDs.
- Practitioners should recommend to all STD cases and contacts that they be tested for HIV.
- All pregnant women should be counselled regarding HIV infection early in pregnancy and be encouraged to be tested for HIV infection. Those found to be HIV-positive should be prescribed prophylaxis with anti-retroviral drugs.
- All donations of blood are tested for HIV; only donations testing negative are used.
- People who have engaged in behaviour that places them at increased risk for HIV infection should not donate plasma, blood, organs for transplantation, tissue or cells (including semen for artificial insemination).
- Care should be taken in handling, using and disposing of needles or other sharp instruments within health care facilities.
- HIV post-exposure prophylaxis is available for persons who have experienced a significant exposure to blood or body fluids. Definition of 'significant exposure', and the process for determining eligibility for prophylaxis is contained in Manitoba Health's *Integrated Post-Exposure Protocol: Guidelines for Managing Occupational Exposure to Blood/Body Fluids.*
- Public and school health education should focus on information, motivation and behavioural skills for sexual risk reduction. Effective school-based programs have been characterized as those that: use social learning theories for program development; focus on reducing sexual risk-taking behaviours that may lead to HIV infection or STDs, or to unintended pregnancies; provide accurate, basic information about the risks of and methods for avoiding unprotected intercourse; address social or media influences on sexual behaviours; reinforce clear and appropriate individual and group values against unprotected intercourse; and model and practice communication and negotiation skills.

Additional Resources

- **For the public:**
  - Clinics that offer HIV/AIDS Testing and Counselling
- **For health care professionals:**
  - *Guidelines for HIV Testing and Counselling*, revised 1997.
  - *Management Guidelines for Adults and Children with HIV*, revised 1994.
  - *Integrated Post-Exposure Protocol: Guidelines for Managing Occupational Exposure to Blood/Body Fluids*, revised 2000.
  - *Guidelines for Reducing HIV Transmission by People Who Are Unwilling or Unable to Take Appropriate Precautions*, revised 1996.

- STD/HIV Information Line (Winnipeg RHA), 940-2200

- AIDS/STD Information (Village Clinic/Nine Circles Community Health Centre)
  Winnipeg, 945-2437
  Outside Winnipeg, 1-800-782-2437

- Facts of LIFE Line (Sexuality Education Resource Centre)
  Winnipeg, 947-9222
  Outside Winnipeg, 1-800-452-1957

Resources available from Audiovisual and Publications Department, Manitoba Health, telephone (204) 786-7112, fax (204) 772-7213.