

Appendix A: Disease-Specific Chapters

**Chapter: Acquired Immunodeficiency Syndrome
(AIDS)**

Effective: February 2019

Acquired Immunodeficiency Syndrome (AIDS)

Communicable

Virulent

**Health Protection and Promotion Act:
O. Reg. 135/18 (Designation of Diseases)**

1.0 Aetiologic Agent

The human immunodeficiency virus (HIV) is a retrovirus of which two types have been identified: type 1 (HIV-1) and type 2 (HIV-2). They are serologically and geographically distinct but have similar epidemiological characteristics.¹

2.0 Case Definition

2.1 Surveillance Case Definition

Refer to [Appendix B](#) for Case Definitions.

2.2 Outbreak Case Definition

Not applicable

3.0 Identification

3.1 Clinical Presentation: HIV

As the virus that causes AIDS, early testing, diagnosis and treatment for HIV are important factors in reducing morbidity and mortality associated with HIV infection and disease progression to AIDS. Depending on the stage of infection, an individual infected with HIV may be asymptomatic or may present with non-specific symptoms. Due to the high risk of transmission of HIV during the primary acute infection stage, clinicians should maintain a high index of awareness in individuals with a non-specific febrile illness and/or a history of high-risk behaviour.^{2,3}

HIV infection can generally be broken down into three distinct stages: primary acute infection, chronic asymptomatic stage, and chronic symptomatic infection, before progression from HIV to AIDS.³

Primary acute infection: Symptoms, if present, generally appear two to six weeks after exposure, are usually self-limited, and last one to two weeks, although some may last several months. Symptoms are similar to those of many other illnesses, including viral syndromes, such as influenza and mononucleosis. They include: fever, arthralgia,

myalgia, rash, sore throat, fatigue, headache, oral ulcers and/or genital ulcers, weight loss, nausea, vomiting or diarrhea.³

Chronic asymptomatic infection: Individuals may be free of clinical signs or symptoms, though generalized lymphadenopathy and/or thrombocytopenia may be present. Viral replication and plasma viremia are more controlled by the immune response represented by the level of CD4+ T cells. Disease progression varies but can last years.³

Chronic symptomatic infection: The disease is characterized by high levels of viral replication, plasma viremia, a depressed CD4+ T cell count, and shedding from mucosal sites. Viral replication depletes the CD4+ T cells to the level of profound immunosuppression, leading to opportunistic infections.³

3.2 Clinical Presentation: AIDS

AIDS is a severe, life threatening clinical condition and an advanced HIV-related disease. This syndrome represents the late clinical stage of HIV infection resulting from progressive damage to the immune system, leading to one or more opportunistic infections and cancers of which bacterial pneumonia is one of the common presentations.¹

Indicator diseases for AIDS may include the following:⁴

- Bacterial pneumonia (recurrent)*
- Candidiasis (bronchi, trachea or lungs)
- Candidiasis (esophageal)*
- Cervical cancer (invasive)
- Coccidioidomycosis (disseminated or extrapulmonary)*
- Cryptococcosis (extrapulmonary)
- Cryptosporidiosis chronic intestinal (> 1 month duration)
- Cytomegalovirus diseases (other than in liver, spleen or nodes)
- Cytomegalovirus retinitis (with loss of vision)*
- Encephalopathy, HIV-related (dementia)
- *Herpes simplex*: chronic ulcer(s) (> 1 month duration) or bronchitis, pneumonitis or esophagitis
- Histoplasmosis (disseminated or extrapulmonary)
- Isosporiasis, chronic intestinal (> 1 month duration)
- Kaposi's sarcoma*
- Lymphoma, Burkitt's (or equivalent term)
- Lymphoma, immunoblastic (or equivalent term)*
- Lymphoma (primary in brain)
- *Mycobacterium avium* complex or *M. kansasii* (disseminated or extrapulmonary)*
- *Mycobacterium* of other species or unidentified species*
- *M. tuberculosis* (disseminated or extrapulmonary)
- *M. tuberculosis* (pulmonary)*
- *Pneumocystis jirovecii* pneumonia*.[†]

* These conditions may be diagnosed presumptively; otherwise, definitive diagnosis is required.

- Progressive multifocal leukoencephalopathy
- *Salmonella* septicemia (recurrent)
- Toxoplasmosis of brain*
- Wasting syndrome due to HIV

Indicator diseases that apply only to pediatric cases (< 15 years old):

- Bacterial infections (multiple or recurrent, excluding recurrent bacterial pneumonia)
- Lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia*

3.3 Diagnosis

See [Appendix B](#) for diagnostic criteria relevant to the Case Definitions.

For further information about human diagnostic testing, contact the Public Health Ontario Laboratories or refer to the Public Health Ontario Laboratory Services webpage: <http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/default.aspx>

For information regarding available testing technologies, approaches to testing and interpretation of results, also consult: Human Immunodeficiency Virus - HIV Screening and Testing Guide (2014, or as current).⁵

4.0 Epidemiology

4.1 Occurrence: HIV and AIDS

In 2015, there were 16,110 people living with diagnosed HIV in Ontario in the [Ontario HIV Laboratory Cohort](#).⁶ Between 2007 and 2016, the number of new diagnoses of HIV each year fell from 1,013 to 881 and the annual rate of new diagnoses per 100,000 people dropped from 7.9 to 6.3. Despite an overall decrease in new diagnoses over the past 10 years, there has been a slight increase in recent years. From 2013 to 2016, there was a 10.5% increase in the number of new diagnoses and a 7.2% increase in the rate of new diagnoses per 100,000 people. This increase may be partly due to the 18.9% increase in the number of HIV tests during the same time period.⁷

The recent increase in new diagnoses has been pronounced among females – with the diagnosis rate increasing by 2.5% for males and 29.3% for females between 2013 and 2016. The increase among females appears to be driven by diagnoses in individuals who were White, Indigenous and/or who use injection drugs. However, the diagnosis rate has consistently been three to four times higher for males. In 2016, the diagnosis rate per 100,000 people was 10.1 for males and 2.5 for females. Over the past decade, the majority of new male HIV diagnoses were among men who have sex with men and/or White, while the majority of new female diagnoses were African, Caribbean and Black. Compared to males, a higher percent of new female diagnoses were Indigenous and/or people who use injection drugs.⁷

† Formerly known as *Pneumocystis carinii*.

From 2013 to 2017, an average of 73 cases of AIDS was reported each year. Diagnoses of AIDS continue to decline in the province from 106 in 2013 to 60 in 2017.[‡]

Please refer to Public Health Ontario's (PHO) Reportable Disease Trends in Ontario reporting tool and other reports for the most up-to-date information on infectious disease trends in Ontario.

<http://www.publichealthontario.ca/en/DataAndAnalytics/Pages/DataReports.aspx>

For additional national and international epidemiological information, please refer to the Public Health Agency of Canada and the World Health Organization.

4.2 Reservoir

Humans.¹

4.3 Modes of Transmission

Person to person transmission through: unprotected sexual intercourse; contact with infected body fluids such as sexual fluids (vaginal, seminal and anal), blood, and breast milk; cerebral spinal fluid (CSF); the use of HIV-contaminated needles and syringes and some drug paraphernalia, including sharing by injection drug users; transfusion of infected blood or its components; organ and tissue transplants; mother to child transmission; and contact of abraded skin or mucosa with body secretions such as blood, CSF or semen.¹

A more detailed description of HIV transmission is available in the Canadian AIDS Society publication, "HIV Transmission: Guidelines for Assessing Risk – A Resource Guide for Educators, Counsellors and Health Care Providers".⁸ Updated information with a focus on biological risk and transmission through sexual activity is available in the Canadian AIDS Society publication, "HIV Transmission: Factors that Affect Biological Risk"; as well as in the other resources and references listed below.⁹

4.4 Incubation Period: HIV and AIDS

Variable; time from initial infection to detectable antibodies varies depending on the test that is used. Of the two main types of tests:³

- Third-generation HIV enzyme immunoassay (EIA) antibody tests are able to detect the antibody as early as 20 to 30 days and in 99% of people 3 months after exposure.
- Fourth-generation combination tests reduce the detection window period to between 15 and 20 days.

[‡] Data included in the epidemiological summary are from January 1, 2013 to December 31, 2017. Data were extracted from Query on February 7, 2018 and therefore are considered preliminary.

The time from HIV infection to diagnosis of AIDS has an observed range of less than one year to 15 years or longer.¹

4.5 Period of Communicability: HIV

Begins early after onset of HIV infection, highlighting the importance of treatment to reduce communicability. Infectivity during the early stages is considered to be high; it increases with viral load, with worsening clinical status and with the presence of other sexually transmitted infections (STIs).¹ Advances in HIV treatment have slowed disease progression to the degree that HIV infection is now understood to be a chronic, manageable condition, in which people can live healthy, long and active lives. Early diagnosis and initiation of treatment can lead to reduced communicability associated with HIV infection and disease progression.³

4.6 Host Susceptibility and Resistance

Presumed to be general; race, sex and pregnancy status do not appear to affect susceptibility to HIV infection or AIDS. The presence of other STIs especially if ulcerative increases susceptibility.¹

5.0 Reporting Requirements

As per Requirement #3 of the “Reporting of Infectious Diseases” section of the *Infectious Diseases Protocol, 2018* (or as current), the minimum data elements to be reported for each case are specified in the following:

- *Ontario Regulation 569* (Reports) under the *Health Protection and Promotion Act* (HPPA);¹⁰
- The iPHIS User Guides published by PHO; and
- Bulletins and directives issued by PHO.

6.0 Prevention and Control Measures

6.1 Personal Prevention Measures

Measures include:^{5,11}

- Provide education and communicate positive messaging to persons, especially those presenting with concerns about HIV infections, about HIV transmission, the benefits of early diagnosis, including available treatments and improved disease prognosis, and safer sex/drug practices, including proper use of barrier methods and risk reduction with injection drug use.
- Persons with known risk behaviors and clinical indications should be offered HIV screening, with appropriate pre and post-test counselling, and referral if necessary. High risk clients should be counselled to test more frequently.¹¹ Counselling should be age appropriate and individualized to the person being tested.

- All pregnant women should be offered confidential HIV testing and counselling as part of a routine prenatal care for each pregnancy.

For recommendations on testing and contact management refer to the following documents:

- *Sexual Health and Sexually Transmitted/Blood-Borne Infections Prevention and Control Protocol, 2018* (or as current);¹²
- Canadian Guidelines on Sexually Transmitted Infections (2018, or as current);¹³ and
- Human Immunodeficiency Virus - HIV Screening and Testing Guide (2014, or as current).⁵

For more information on counselling and education refer to the following documents:

- Ontario HIV Testing Frequency Guidelines: Guidance for Counselors and Health Professionals (2012, or as current);¹¹
- PIDAC Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations (2009, or as current);
- *Sexual Health and Sexually Transmitted/Blood-Borne Infections Prevention and Control Protocol, 2018* (or as current);¹²
- Canadian Guidelines on Sexually Transmitted Infections (2018, or as current);¹³ and
- *Substance Use Prevention and Harm Reduction Guideline, 2018* (or as current).¹⁵

6.2 Infection Prevention and Control Strategies

Strategies include:

- At the time of diagnostic testing for HIV, the health care practitioners should review prevention practices;
- Health care practitioners should work with clients to identify barriers to prevention practices and the means to overcome them; and
- Routine practices are recommended for contact with bodily fluids.¹⁶

6.3 Management of Cases

In addition to the requirements set out in the Requirement #2 of the “Management of Infectious Diseases – Sporadic Cases” and “Investigation and Management of Infectious Disease Outbreaks” sections of the *Infectious Diseases Protocol, 2018* (or as current), the board of health shall primarily focus on:

- Active engagement to initiate highly active antiretroviral therapy (HAART), Pre-exposure prophylaxis (PrEP), or Post-exposure prophylaxis (PEP) following recent exposure
- Active engagement to ensure people living with HIV/AIDS are retained in care
- Referrals to testing, treatment and, community and mental health services
- Management of co-morbidities

- Ensure individuals engaging in high-risk behaviours have the support they need to change those behaviours, maintain their health and avoid criminal sanctions
- Carry out partner notification; and
- Developing an individualized care pathway

Provide education and counselling as above to the client including information about community support agencies and a reminder not to donate blood or blood products.

For case management refer to the following documents:

- PIDAC Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations (2009, or as current);¹⁴
- *Sexual Health and Sexually Transmitted/Blood-Borne Infections Prevention and Control Protocol, 2018* (or as current);¹²
- Complementary resources and professional development - HIV;¹⁷ and
- Canadian Guidelines on Sexually Transmitted Infections (2018, or as current).¹³

6.4 Management of Contacts

For contact management and the development of partner notification strategies with individuals, refer to the following documents:

- PIDAC Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations (2009, or as current);¹⁴
- *Sexual Health and Sexually Transmitted/Blood-Borne Infections Prevention and Control Protocol, 2018* (or as current);¹²
- Canadian Guidelines on Sexually Transmitted Infections (2018, or as current);¹³ and
- Human Immunodeficiency Virus - HIV Screening and Testing Guide (2014, or as current).⁵

6.5 Management of Outbreaks

Not applicable

7.0 References

1. Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.
2. Government of Canada. Symptoms of HIV and AIDS [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2015 [updated November 30, 2015; cited June 4, 2018]. Available from: <https://www.canada.ca/en/public-health/services/diseases/hiv-aids/symptoms-hiv-aids.html>
3. Government of Canada. For Health Professionals: HIV and AIDS [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2017 [updated December 4, 2017; cited June 4, 2018]. Available from: <https://www.canada.ca/en/public-health/services/diseases/hiv-aids/health-professionals-hiv-aids.html#s2>

4. Public Health Agency of Canada. Acquired Immunodeficiency Syndrome. In: Case Definitions for Communicable Diseases under National Surveillance. Canada Communicable Disease Report. 2009;35S2.
5. Public Health Agency of Canada. Human Immunodeficiency Virus - HIV Screening and Testing Guide [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2014 [cited May 28, 2018]. Available from: <https://www.canada.ca/en/public-health/services/hiv-aids/hiv-screening-testing-guide.html>
6. Wilton J, Liu J, Sullivan A, Kroch A, Sider D, Gilbert M. HIV Care Cascade in Ontario: Linkage to Care, in Care, on Antiretroviral Treatment, and Virally Suppressed, 2015. Toronto, ON: Ontario HIV Epidemiology and Surveillance Initiative; 2017. Available from: <http://www.ohesi.ca/resources-and-links/>
7. Wilton J, Liu J, Sullivan A, Sider D, Kroch A. New HIV Diagnoses in Ontario: Preliminary Update, 2016. Toronto, ON: Ontario HIV Epidemiology and Surveillance Initiative; 2017. Available from: <http://ohesi.ca/reports.html>
8. Canadian AIDS Society. HIV Transmission: Guidelines for Assessing Risk, 5 ed. Ottawa, ON: Canadian AIDS Society; 2004. Available from: <http://www.cdnaids.ca/hiv-transmission-guidelines-for-assessing-risk/>
9. Canadian AIDS Society. HIV Transmission: Factors that Affect Biological Risk. Ottawa, ON: Canadian AIDS Society; 2013. Available from: <http://www.cdnaids.ca/hiv-transmission-factors-affect-biological-risk/>
10. Health Protection and Promotion Act, R.S.O. 1990, Reg. 569, Reports, (2018). Available from: <https://www.ontario.ca/laws/regulation/900569>
11. AIDS Bureau, Ministry of Health and Long-Term Care. Ontario HIV Testing Frequency Guidelines: Guidance for Counselors and Health Professionals. Toronto, ON: Queen's Printer for Ontario; 2012. Available from: <http://www.catie.ca/en/resources/ontario-hiv-testing-frequency-guidelines-guidance-counselors-and-health-professionals>
12. Ontario, Ministry of Health and Long-Term Care. Sexual Health and Sexually Transmitted/ Blood-Borne Infections Prevention and Control Protocol, 2018. Toronto, ON: Queen's Printer for Ontario; 2018. Available from: http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/protocolsguidelines.aspx
13. Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2018 [cited May 15, 2018]. Available from: <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/sexually-transmitted-infections.html>
14. Ontario, Ministry of Health and Long-Term Care, Provincial Infectious Diseases Advisory Committee. Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations. Toronto,

- ON: Queen’s Printer for Ontario; 2009. Available from:
http://www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/PIDAC/Pages/PIDAC_Documents.aspx
15. Ontario, Ministry of Health and Long-Term Care. Substance Use Prevention and Harm Reduction Guideline, 2018. Toronto, ON: Queen's Printer for Ontario; 2018. Available from:
http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/protocolsguidelines.aspx
16. Ontario Agency for Health Protection and Promotion (Public Health Ontario) PIDAC. Infection Prevention and Control for Clinical Office Practice. Toronto, ON: Queen's Printer for Ontario; 2015. Available from:
<http://www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/PIDAC/Pages/Infection-Prevention-and-Control-for-Clinical-Office-Practice.aspx>
17. Government of Canada. Complementary resources and professional development - HIV [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2017 [updated March 29, 2017; cited June 4, 2018]. Available from:
<https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/complementary-resources-professional-development.html>

8.0 Document History

Table 1: History of Revisions

Revision Date	Document Section	Description of Revisions
December 2014	1.0 Aetiologic Agent	Second paragraph, first line, error corrected: “that that” replaced with “than that”.
December 2014	3.1 Clinical Presentation	Second paragraph, addition of “Acute symptoms, if present, occur two to four weeks or as long as several months” to the end of the paragraph. Under AIDS defining conditions, removed “(formerly carinii)” from <i>Pneumocystis jirovecii</i> and replaced with the following note: “formerly known as <i>Pneumocystis carinii</i> ”. Deleted “carinii pneumonia”.
December 2014	3.2 Diagnosis	Addition of “For further information about human diagnostic testing...”

Revision Date	Document Section	Description of Revisions
December 2014	4.1 Occurrence	Second sentence changed from “The Public Health Agency of Canada, 2007, list of HIV Endemic Countries includes...” to “The Public Health Agency of Canada list of HIV Endemic Countries from 2009, includes...” Addition of second and third paragraphs.
December 2014	4.3 Modes of Transmission	First paragraph, addition of “(vaginal, seminal and anal)”. Second paragraph, addition of “Updated information with a focus on biological risk and transmission through sexual activity is available in the Canadian AIDS Society publication, “HIV Transmission: Factors that Affect Biological Risk”.”.
December 2014	4.6 Host Susceptibility and Resistance	“Host” added to section title. First sentence, deletion of “Unknown, but”. First sentence, “gender” replaced with “sex”. Deletion of second paragraph.
December 2014	5.1 To local Board of Health	Addition of abbreviation “(HPPA)” following “ <i>Health Protection and Promotion Act</i> ”.
December 2014	5.2 To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry	Section title changed from “To Public Health Division (PHD)” to “To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry”. First paragraph, deletion of “to PHD”. Third paragraph, second and third bullets updated.
December 2014	6.1 Personal Prevention Measures	Entire section updated.
December 2014	6.2 Infection Prevention and Control Strategies	Entire section updated.

Revision Date	Document Section	Description of Revisions
December 2014	6.4 Management of Contacts	Addition of the PIDAC <i>Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations</i> as a document to refer to.
December 2014	7.0 References	All references updated.
December 2014	8.0 Additional Resources	All additional resources updated.
February 2019	General	Minor revisions were made to support the regulation change to Diseases of Public Health Significance. Common text included in all Disease Specific chapters: Surveillance Case Definition, Diagnosis, Reporting Requirements and Management of Cases. The epidemiology section and references were updated and Section 8.0 was deleted.
February 2019	1.0 Aetiologic Agent	Second paragraph removed: "The pathogenicity of HIV-2 may be lower than that of HIV-1; they have genotypic and phenotypic differences. HIV-2 has lower disease progression and lower rates of mother-to-child transmission."
February 2019	3.1 Clinical Presentation	Entire section updated and subdivided into 3.1 Clinical Presentation: HIV and 3.2 Clinical Presentation: AIDS
February 2019	3.3 Diagnosis	Addition of "For information regarding available testing technologies..."
February 2019	4.4 Incubation Period	First sentence changed from "Variable; time from initial infection to detectable antibodies is usually 1-3 months" to "Variable; time from initial infection to detectable antibodies varies depending on the test that is used..."
February 2019	4.5 Period of Communicability	Entire section updated.
February 2019	6.1 Personal Prevention Measures	First bullet divided into two bullets. Addition of "the benefits of early diagnosis, including available treatments and improved disease prognosis" to first bullet.

