

## **BACKGROUNDER HIV/AIDS in Canada**

### **Definition and background**

The Human Immunodeficiency Virus (HIV) is the virus that causes Acquired Immune Deficiency Syndrome (AIDS). HIV attacks the immune system, resulting in a chronic, progressive illness, leaving infected people vulnerable to opportunistic infections (e.g., pneumonia), neurological disease (e.g., AIDS dementia) and cancers (e.g., lymphoma). There is no cure and no vaccine available to prevent infection.<sup>1</sup>

The new and deadly disease that became known as AIDS was first identified in the early 1980s. In 1983, a retrovirus was identified as the cause of AIDS and was subsequently named the human immunodeficiency virus (HIV). The discovery led to the development of treatments that have changed the disease from a near-certain death sentence to a chronic illness which for most is manageable with ongoing treatment.

### **Population breakdown**

#### *Men and HIV/AIDS*

- Men account for 82.9% of all total positive HIV test reports in Canada between November 1, 1985 and December 31, 2007.<sup>2</sup>

#### *Women and HIV/AIDS*

- Women represent an increasing proportion of diagnosed HIV infections and account for 17.1% of all total positive HIV test reports in Canada between November 1, 1985 and December 31, 2007.<sup>2</sup>
- Heterosexual contact and injecting drugs are the two main risk factors for HIV infection in women.<sup>3</sup>
- Pregnant women infected with HIV are at risk of transmitting the virus to their unborn children. In the absence of any intervention, an estimated 15% to 30% of women with HIV infection will transmit the infection during pregnancy and delivery, and 10% to 20% through breast milk to their newborn children.<sup>3</sup>

#### *Aboriginal persons and HIV/AIDS*

- Aboriginal peoples make up 3.1% of reported AIDS cases and in 2002 accounted for 5 to 8% of prevalent infections of persons living with HIV.<sup>4</sup>
- The overall infection rate among Aboriginal persons is about 2.8 times higher than among non-Aboriginal persons.<sup>3</sup>
- Almost a third (32.4%) of the positive HIV test reports from Aboriginal persons from 1998 to the end of 2006 were younger than 30 years as compared with 21.0% of this age among infected non-Aboriginal persons.<sup>5</sup>

- The proportion of new HIV infections in 2005 due to intravenous drug use among Aboriginal persons (53%) is much higher than among the general population (14%).<sup>3</sup>
- From 1998 to 2006, 48.1% of Aboriginal people who tested positive for HIV were female, compared to 20.7% among non-Aboriginal people.<sup>3</sup>

### **Transmission**

- HIV is transmitted through unprotected sexual intercourse (vaginal, anal and oral), shared needles and equipment for injecting drugs, and less commonly from unsterilized needles for tattooing, skin piercings and acupuncture. It can also be transmitted from mother to child during pregnancy, delivery and breast feeding, and through occupational exposure in healthcare settings.<sup>6</sup>
- HIV/AIDS cannot be transmitted through casual, everyday contact such as shaking hands, hugging, kissing, or through coughs, sneezes, giving blood, swimming pools, toilet seats, sharing eating utensils, water fountains, or through mosquitoes and other insects, or animals.<sup>7</sup>
- Sexual transmission of HIV is enhanced by the presence of other sexually transmitted diseases such as syphilis, genital herpes, chlamydia and gonorrhea.<sup>1</sup>

### **Treatment**

- Antiretroviral (ARV) medicines are used to treat individuals infected with HIV. ARVs currently consist of six classes of medicines:
  - Nucleoside reverse transcriptase inhibitors (NRTIs)
  - Non-nucleoside reverse transcriptase inhibitors (NNRTIs)
  - Protease inhibitors (PIs)
  - Entry inhibitors (EIs)
  - Fusion inhibitors (FIs)
  - Integrase inhibitors (IIs)
- HIV-infected patients on therapy take a combination of three medicines from at least two classes of ARVs. This type of regimen is known as Highly Active Antiretroviral Therapy (HAART). The focus of treatment is maximum durable suppression of HIV with the ideal objective of achieving undetectable viral load.
- An undetectable viral load is less than 50 copies / mL.
- HAART has dramatically changed the face of the HIV epidemic, increasing the life spans of people living with HIV and transforming HIV into a chronic disease. HAART does, however, have adverse effects and long-term adherence to treatment is an ongoing challenge.<sup>1</sup>
- Resistance to current HIV therapies in treatment-experienced patients has been noted in numerous international studies.<sup>8,9</sup> There are no available statistics on the percentage of resistance in treatment-experienced patients in Canada but it continues to be a challenge for patients making the need for new therapies essential.

## **Incidence**

- A total of 64,800 diagnoses of HIV infection have been reported to the Public Health Agency of Canada from November 1985, (when reporting began) to December 31, 2007. This number represents the number of people who have been tested and diagnosed with HIV or AIDS and does not include those who remain untested and undiagnosed or persons who are newly infected in a given year and may not be diagnosed until later years.<sup>2</sup>
- The Public Health Agency of Canada estimates that at the end of 2005 there were approximately 58,000 people in Canada living with HIV (including those living with AIDS), of whom approximately 27% were undiagnosed. These estimates were created using a combination of methods, incorporating data from a wide variety of sources, including HIV test reports, AIDS case reports, population-based surveys, targeted epidemiologic studies and census data.<sup>2</sup>
- An estimated 2,300 to 4,500 new infections occurred in Canada in 2005, slightly higher than was estimated for 2002.<sup>3</sup>
- Heterosexual contact accounted for close to one third (29.7%) of all positive HIV test reports among men and women in 2007.<sup>2</sup>
- Of the positive HIV test reports in 2007, the age group with the largest number of new infections, in both men and women, is 30 to 39 years of age.<sup>2</sup>
- From 1980 to December 2007, there were 13,362 reported deaths among reported AIDS cases. The largest number of deaths were reported from 1991 to 1996.<sup>2</sup>

## **Regional breakdown<sup>2</sup>**

The majority of Canadians (86.8%) who have tested positive for HIV, between 1985 and December 31, 2007, are located in three provinces: British Columbia, Ontario and Quebec.

### *British Columbia*

- An estimated 12,966 or 20.0% of the total number of HIV test reports in Canada between 1985 and 2007 are in British Columbia.
- In British Columbia, the ratio of men who have tested positive for HIV compared to women from 1985 to 2007 is 6:1.

### *Ontario*

- An estimated 28,688 or 44.3% of the total number of HIV test reports in Canada between 1985 and 2007 are in Ontario.
- In Ontario, the ratio of men who have tested positive for HIV compared to women from 1985 to 2007 is 6:1.

### *Quebec*

- An estimated 14,599 or 22.5% of the total number of HIV test reports in Canada between 1985 and 2007 are in Quebec.
- In Quebec, the ratio of men who have tested positive for HIV compared to women from 1985 to 2007 is 4:1.

## Other statistics<sup>3</sup>

### *Canadians from HIV-endemic countries and HIV/AIDS*

- The estimated infection rate among Canadians from HIV-endemic countries (e.g., sub-Saharan Africa and the Caribbean) is at least 12.6 times higher than among other Canadians. Those particularly affected include Canadians under the age of 40 and women, including women of childbearing age.<sup>5</sup>

### *Intravenous drug use and HIV/AIDS*

- The high levels of risky injecting and sexual behaviors reported by intravenous drug users in Canada suggest that the potential for the transmission of HIV in these populations continues to be significant.

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