

infection Immune System

# STATE OF THE REGION'S HEALTH

*Focus on HIV/AIDS*

Gonorrhoea

# 2007

immunodeficiency



risk facto



epidemi

# virus

**A PEEL HEALTH STATUS REPORT**



antiretroviral

HIV-endemic



research

 **Region of Peel**  
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Public Health

# testing

Chlamydia

blood

# Message from the Medical Officer of Health

The annual State of the Region's Health report highlights important health issues and trends affecting the more than one million residents of the Region of Peel. The 2007 report focuses on the Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS).

Over the past 25 years, the trends in HIV incidence, risk factors and transmission dynamics have changed significantly. While transmission of HIV from one person to another is increased amongst those who engage in such behaviours as unprotected sex with multiple partners or sharing injection drug use equipment, HIV can also affect those who may not think of themselves as being "at risk". Heterosexual transmission of HIV has been increasing. Of particular concern is the potential for HIV to spread into the population of youth who are at risk for infection with other sexually transmitted infections such as gonorrhoea and chlamydia.

Understanding the trends in the dynamics of HIV transmission and progression to AIDS is essential in addressing this important health issue. This report also contains recommendations to assist Public Health staff in delivering programs to increase awareness and to reduce transmission of HIV and AIDS in Peel and to enhance the quality of life of people who are living with HIV/AIDS.

Peel Public Health is committed to working with individuals and organizations in the public and private sectors to prevent illness and promote good health. The information in this and other Peel Public Health status reports is intended to help chart a course to better health for everyone in Peel.



Dr. David L. Mowat  
Medical Officer of Health

STATE OF THE REGION'S  
**HEALTH**  
2007  
*Focus on HIV/AIDS*

A PEEL HEALTH STATUS REPORT

 **Region of Peel**  
*Working for you*  
Public Health



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# *Table of Contents*

1	<b>Introduction</b>
2	<b>HIV/AIDS — an Overview</b>
5	<b>Epidemiology of HIV/AIDS</b>
8	<b>HIV/AIDS Risk Factors</b>
15	<b>Co-Infections with HIV/AIDS</b>
17	<b>HIV/AIDS Mortality</b>
18	<b>Special Populations</b>
18	Youth
20	HIV Screening of Pregnant Women
21	<b>Discussion</b>
22	<b>Recommendations</b>
25	<b>Peel Health Facts</b>
32	<b>Data Sources, Methods and Limitations</b>
42	<b>Glossary</b>
46	<b>References</b>



# List of Figures

- 5 **Figure 1**  
Incidence of HIV (non-AIDS),  
Region of Peel and Ontario, 1986–2006
- 6 **Figure 2**  
Incidence of AIDS,  
Region of Peel and Ontario, 1986–2006
- 7 **Figure 3**  
Incidence of HIV/AIDS by Age Group and Sex,  
Region of Peel, 1997–2006 Combined
- 9 **Figure 4**  
Risk Factors for HIV/AIDS,  
Region of Peel and Ontario,  
1985–2006 Combined
- 10 **Figure 5**  
Risk Factors for HIV/AIDS Among Males,  
Region of Peel, 1985–1996 Combined
- 10 **Figure 6**  
Risk Factors for HIV/AIDS Among Males,  
Region of Peel, 1997–2006 Combined
- 11 **Figure 7**  
Risk Factors for HIV/AIDS Among Females,  
Region of Peel, 1985–1996 Combined
- 11 **Figure 8**  
Risk Factors for HIV/AIDS Among Females,  
Region of Peel, 1997–2006 Combined
- 12 **Figure 9**  
Proportion of Total HIV/AIDS cases with Risk  
Factor Men Having Sex with Men (MSM) by  
Time Period, Region of Peel and Ontario,  
1985–1989 to 2000–2004 Combined
- 13 **Figure 10**  
Proportion of Total HIV/AIDS cases with Risk  
Factor Heterosexual Transmission by Time  
Period, Region of Peel and Ontario, 1985–1989  
to 2000–2004 Combined
- 14 **Figure 11**  
Proportion of Total HIV/AIDS cases with Risk  
Factor from an HIV-Endemic Country by Time  
Period, Region of Peel and Ontario, 1985–1989  
to 2000–2004 Combined
- 15 **Figure 12**  
HIV/AIDS Co-infections with Other  
Reportable Sexually Transmitted Infections,  
Hepatitis C and Tuberculosis, Region of Peel,  
1997–2006 Combined
- 17 **Figure 13**  
Mortality from AIDS by Year,  
Region of Peel and Ontario, 1987–2003
- 19 **Figure 14**  
Incidence of Selected Sexually Transmitted  
Infections (STI) by Age Group and Sex,  
Region of Peel, 1997–2006 Combined
- 20 **Figure 15**  
Proportion of Pregnant Women Tested for HIV,  
Region of Peel, 1999–2006

# STATE OF THE REGION'S HEALTH 2007 *Focus on HIV/AIDS*

## *Introduction*

*The State of the Region's Health Report is published annually as a summary of the health status of residents of Peel Region. It is intended to highlight key health issues and trends for the population of Peel.*

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The *State of the Region's Health 2007 Report* focuses on the Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS). This report will discuss the trends in HIV and AIDS in Peel Region, along with the risk factors associated with HIV infection. This report also contains recommendations to assist Peel Public Health staff in raising community awareness of HIV and AIDS, in their efforts to reduce the transmission of HIV, and in providing programs and services aimed at enhancing the quality of life of Peel residents who are living with HIV/AIDS.

At the end of this report, a section titled Peel Health Facts highlights the most recent health indicator data, including population projections, leading causes of mortality and premature death, leading causes of emergency department visits and hospitalization and selected reproductive health statistics for Peel Region.



# HIV/AIDS—*an Overview*

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## HIGHLIGHTS

- Worldwide, an estimated 39.5 million people are living with Human Immunodeficiency Virus (HIV) infection and Acquired Immunodeficiency Syndrome (AIDS).
- In Canada, approximately 58,000 people were estimated to be living with HIV/AIDS in 2005. In Ontario, there were approximately 24,900 people living with HIV/AIDS as of 2005.
- In the past, about half of those infected with HIV developed AIDS within ten years of infection, but since the introduction of powerful antiretroviral therapy (ART) in 1996, the time between HIV infection and the development of AIDS has increased.
- 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 new-born child.
- Studies have repeatedly shown that people are more likely to become infected with HIV when another sexually transmitted infection (STI) is already present.



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Worldwide, an estimated 39.5 million people are living with Human Immunodeficiency Virus (HIV) infection and Acquired Immunodeficiency Syndrome (AIDS). In 2006, there were 4.3 million new infections and 2.9 million people died of AIDS-related illnesses.<sup>1</sup>

In Canada, approximately 58,000 people were estimated to be living with HIV/AIDS in 2005.<sup>2</sup> About three-quarters of cases were male and one quarter were female. In Ontario, there were approximately 24,900 people living with HIV/AIDS as of 2005.<sup>3</sup> In 2005, an estimated 25% of those living with HIV/AIDS in Canada and 36% in Ontario had never been tested and were unaware that they are infected with HIV.<sup>2,3</sup>

AIDS cases were first described in 1981 when young, previously healthy homosexual men presented with unusual opportunistic infections. At the time, nothing was known about the disease and it was not until 1983 that HIV was found to be the causative agent. Further research showed that HIV survives in the blood and body fluids of infected individuals (e.g. semen, vaginal fluids and breast milk) with transmission occurring through activities such as:

- unprotected sexual intercourse (vaginal, anal, oral)
- sharing needles or equipment for injecting drugs
- needlestick injuries
- tattooing, electrolysis, ear/body piercing and acupuncture with unsterilized equipment

- direct blood to blood contact
- receipt of donated organs, semen, blood or blood products that have not been screened for HIV\*
- mother to child transmission through pregnancy, delivery and breastfeeding.<sup>4,5,6</sup>

Human Immunodeficiency Virus attacks the immune system and weakens the body's ability to fight infections. The progression from HIV infection to the development of Acquired Immunodeficiency Syndrome (AIDS)\*\* varies greatly from person to person and depends largely on the extent to which the immune system has been damaged. In the past, about half of those infected with HIV developed AIDS within ten years of infection, but since the introduction of powerful antiretroviral therapy (ART) in 1996, the time between HIV infection and the development of AIDS has increased.<sup>6,8</sup>

Transmission of infection from an HIV-infected pregnant woman to her newborn child can occur during gestation (in utero), delivery (when the fetus makes contact with maternal blood and mucosa in the birth canal), and post delivery through breast milk.<sup>2</sup> 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 new-born child.<sup>†</sup>

Studies have repeatedly shown that people are more likely to become infected with HIV when another sexually transmitted infection (STI) is already present.<sup>9,10</sup> Sexually transmitted infections can cause genital lesions which act as entry points for HIV. Even without lesions, STIs increase the number of HIV target cells (CD4 cells) in cervical secretions, increasing HIV susceptibility in women. Common STIs which can occur alongside HIV include chlamydia, gonorrhea and syphilis.

\* In Canada, routine HIV screening of donor blood and blood products commenced in November 1985, while routine screening of donor organs and anonymously donated semen has been in place since July 1987.

\*\* For current HIV and AIDS case definitions, see <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/00vol26/26s3/index.html>

† In December 1998, the Ontario Ministry of Health and Long-Term Care recommended that all pregnant women be tested for HIV.<sup>11</sup> (See section about Special Populations, page 18, for additional information).

Under the *Health Protection and Promotion Act* in Ontario, HIV/AIDS cases are reportable to the local Medical Officer of Health by physicians, hospitals and laboratories (public, private, insurance companies, blood services, etc). Unlike other diseases where testing is done by name, people can be tested for HIV in three ways:

- **nominally** – a client’s name is used on the lab requisition.
- **non-nominally** – initials or numbers are used on the lab requisition. Such information is linked to a client’s medical record in the clinic.
- **anonymously** – a code is used on the lab requisition. Neither name nor address is collected during the clinical encounter and there is no way to identify this person following testing. Anonymous HIV testing can only be performed legally in Ontario at specifically designated sites.\*

Human Immunodeficiency Virus (HIV) became reportable in Ontario in 2002. Prior to this, only AIDS cases were reportable. Provincial data about HIV/AIDS are collected by the Ontario Ministry of Health and Long Term Care from local health departments through the Integrated Public Health Information System (iPHIS). National surveillance is conducted by the Public Health Agency of Canada from information submitted by provinces and territories.

\* Peel Public Health’s Sexual Health Clinics are designated anonymous HIV testing sites.

# Epidemiology of HIV/AIDS

## HIGHLIGHTS

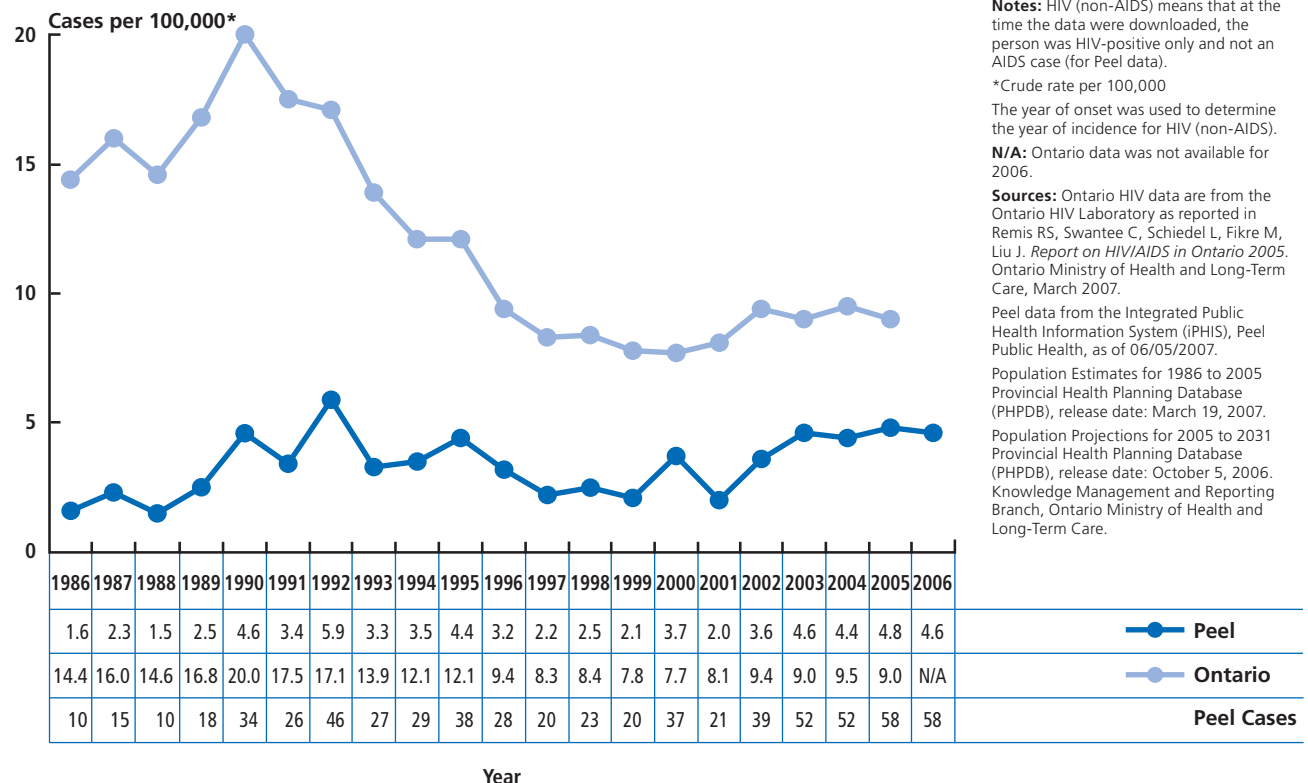
- There were 58 new HIV infections in Peel Region in 2006. Incidence increased from 1.6 per 100,000 in 1986 to 4.6 per 100,000 in 2006 but the rate has remained stable since 2003. The incidence rate in Peel Region is about half the Ontario rate of 9.0 per 100,000.
- The number of AIDS cases has declined in the past 20 years. This decrease was most marked after the mid-1990s when antiretroviral therapy was introduced.
- Between 1997 and 2006 the incidence rate of HIV/AIDS was higher among males than females except in the under 20 age group where incidence was higher among females.



## INCIDENCE OF HIV/AIDS

There were 58 new HIV infections in Peel Region in 2006. The incidence of HIV increased from 1.6 per 100,000 in 1986 to 4.6 per 100,000 in 2006 but the rate has remained stable since 2003. The incidence rate in Peel Region is about half the Ontario rate of 9.0 per 100,000 (see Figure 1 below).

**Figure 1: Incidence of HIV (non-AIDS), Region of Peel and Ontario, 1986–2006**



**Notes:** HIV (non-AIDS) means that at the time the data were downloaded, the person was HIV-positive only and not an AIDS case (for Peel data).

\*Crude rate per 100,000

The year of onset was used to determine the year of incidence for HIV (non-AIDS).

**N/A:** Ontario data was not available for 2006.

**Sources:** Ontario HIV data are from the Ontario HIV Laboratory as reported in Remis RS, Swantee C, Schiedel L, Fikre M, Liu J. *Report on HIV/AIDS in Ontario 2005*. Ontario Ministry of Health and Long-Term Care, March 2007.

Peel data from the Integrated Public Health Information System (iPHIS), Peel Public Health, as of 06/05/2007.

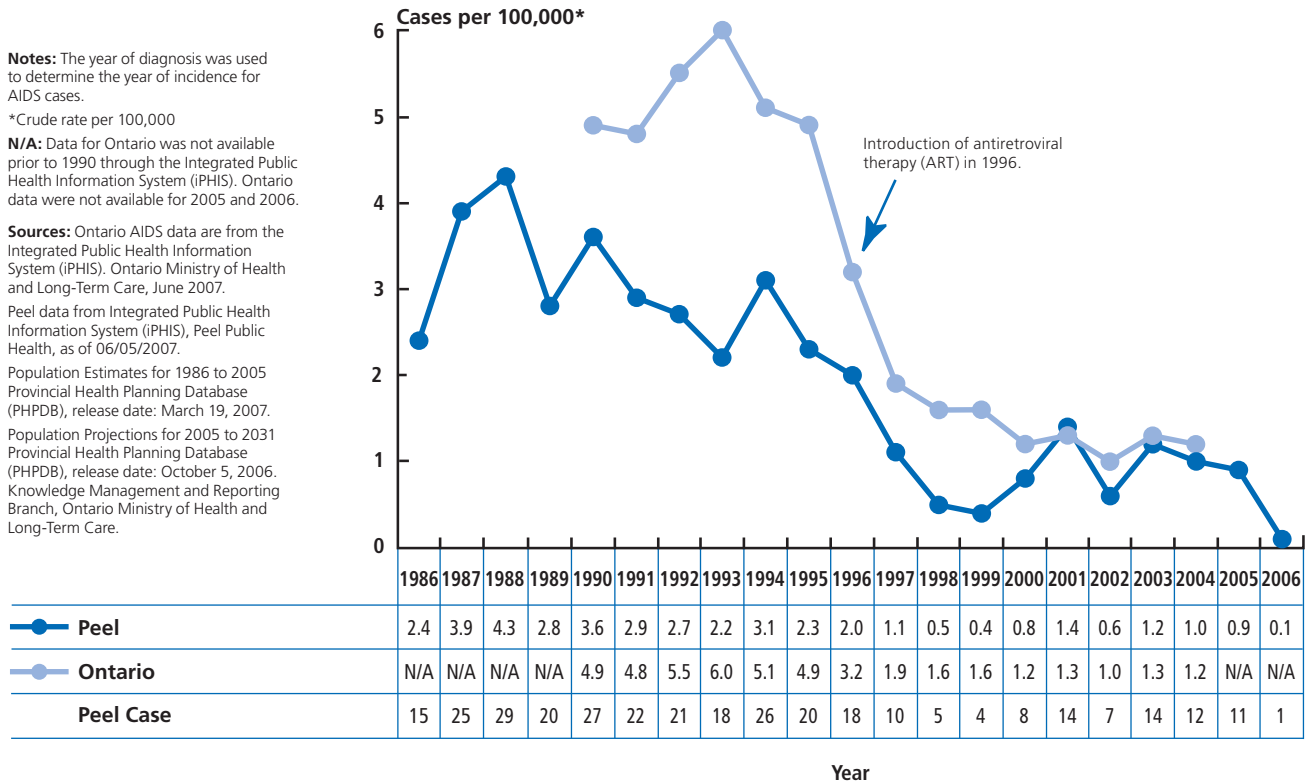
Population Estimates for 1986 to 2005 Provincial Health Planning Database (PHPDB), release date: March 19, 2007.

Population Projections for 2005 to 2031 Provincial Health Planning Database (PHPDB), release date: October 5, 2006. Knowledge Management and Reporting Branch, Ontario Ministry of Health and Long-Term Care.

The number of AIDS cases has declined in the past 20 years. This was most marked after the mid-1990s when antiretroviral therapy was introduced.

Recent AIDS incidence is estimated to be about 1.0 per 100,000 in Ontario and Peel, although the Peel incidence rate has declined to 0.1 per 100,000 in 2006 (see Figure 2 below).

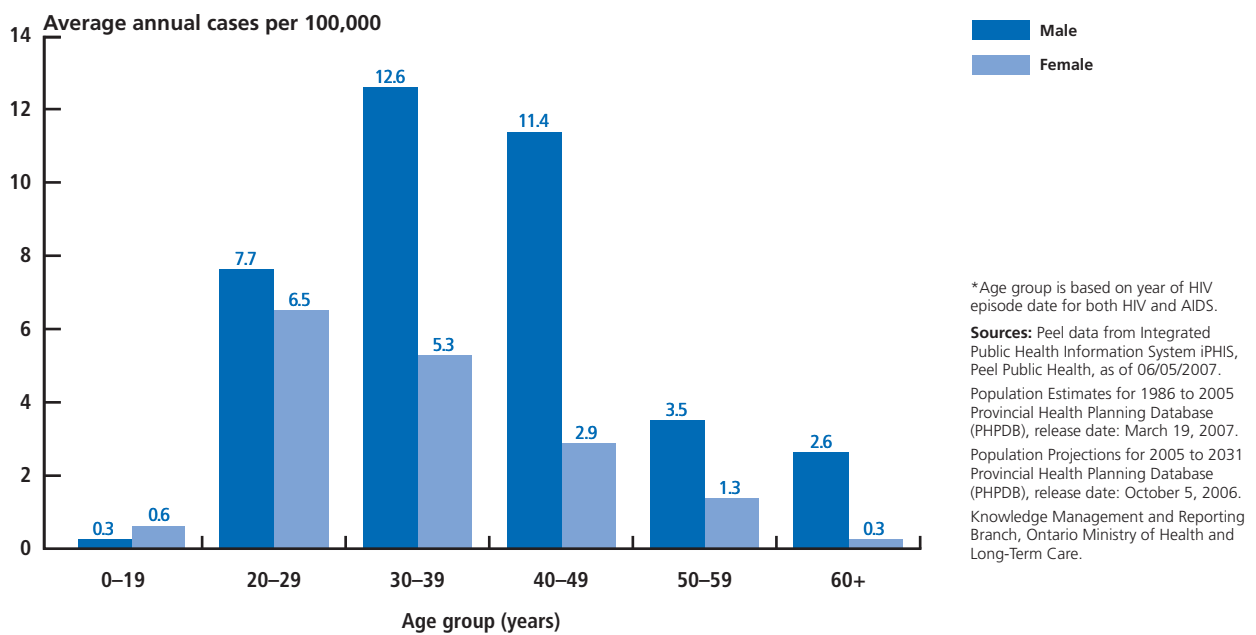
**Figure 2: Incidence of AIDS, Region of Peel and Ontario, 1986–2006**



Between 1997 and 2006, the incidence rate of HIV/AIDS was higher among males than females except in the under 20 age group where incidence was higher among females. In the under 20 age group, most HIV/AIDS cases were due to mother-to-child (MTC) transmission.

Among women 20 years of age and older, incidence was highest in the 20–29 age group and declined steadily with age. Among men 20 years of age and older, the highest incidence was among those who were 30–39 years (*see Figure 3 below*).

**Figure 3: Incidence of HIV/AIDS by Age Group\* and Sex, Region of Peel, 1997–2006 Combined**



# HIV/AIDS Risk Factors

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## HIGHLIGHTS

- In Peel Region, a greater proportion of HIV/AIDS cases were due to heterosexual transmission compared to Ontario. Between 2000 to 2004, heterosexual transmission accounted for 30% of all HIV/AIDS cases in Peel.
- In the decade from 1997 to 2006, heterosexual transmission and origin from an HIV-endemic country have become increasingly important risk factors for HIV/AIDS among males in Peel Region.
- Among females in Peel, the most notable change in risk has been the dramatic increase in women reporting origin from an HIV-endemic country. From 1985 to 1996, 9% of HIV-positive women reported origin from an HIV-endemic country whereas in the next decade, 34% of women reported this risk.
- The proportion of HIV/AIDS cases attributed to men having sex with other men (MSM) has decreased over time in Peel Region as well as in Ontario.
- Origin from an HIV-endemic country is one of the most rapidly increasing risk categories in Ontario and in Peel Region. During the last 20 years, the proportion of HIV/AIDS cases reporting origin from an HIV-endemic country has risen about 9-fold in Ontario and 14-fold in Peel. Given the demographic profile for the Region of Peel and the predicted immigration pattern, this trend is likely to continue into the foreseeable future.



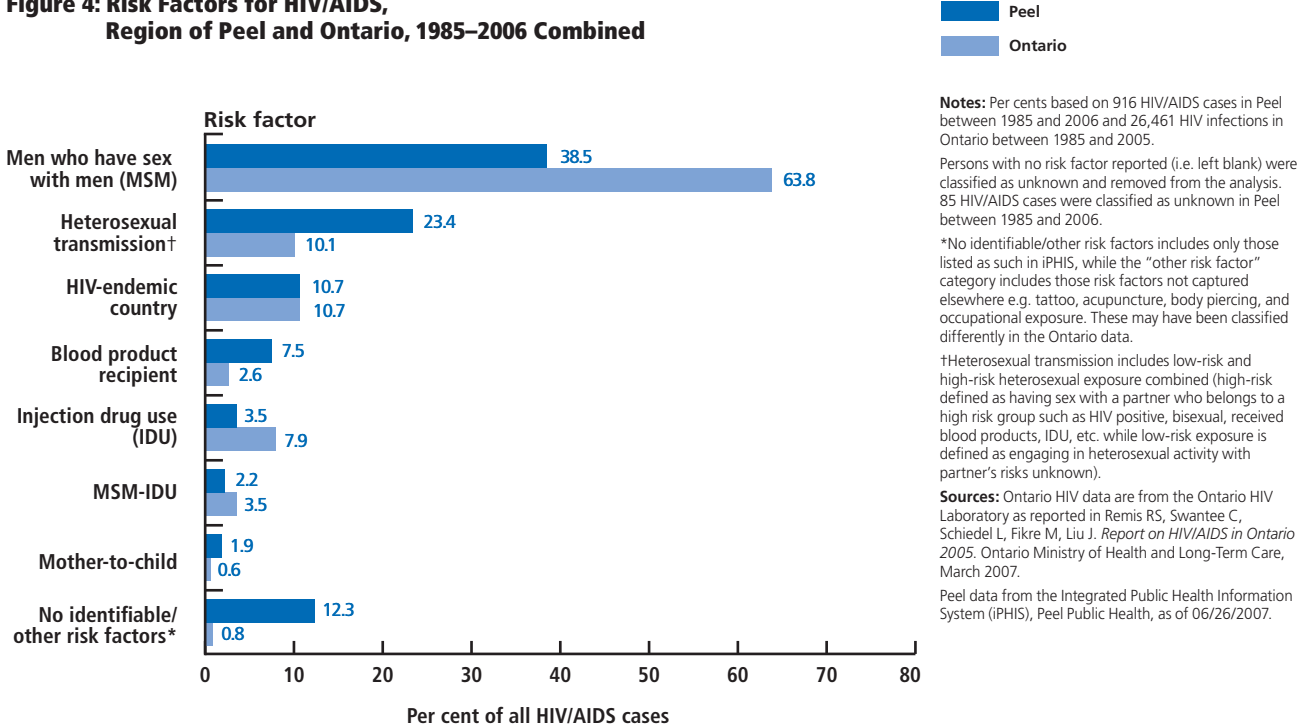
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A transmission risk factor or exposure category refers to the most likely way a person became infected with HIV. A person may report one, several or no risk factors for HIV. Although a person may report several HIV-related risk factors, the data presented in this section use a hierarchy to assign a person to the risk factor or exposure category considered to be the highest risk of HIV transmission. This “hierarchy” or ordering is similar to national HIV surveillance reporting. The ordering of this hierarchy and the definition of various risk factors is presented in the glossary of this report on page 42.

In Peel Region, 39% of HIV/AIDS cases were among men who have sex with men (MSM) while 23% of cases were among heterosexuals (*see Figure 4 on following page*). In contrast, 64% of cases in Ontario were among MSM and 10% of cases were among heterosexuals. Hence, heterosexual contact was a more significant risk factor in Peel Region compared to Ontario. There are a few reasons for the difference observed. First, there is a smaller known MSM community in Peel compared to larger cities like Toronto. Second, new immigrants are a significant percentage of the population in Peel. Often such individuals originate from HIV-endemic countries where heterosexual transmission plays a significant role.

In Peel Region and Ontario, origin from an HIV-endemic country was the next highest risk of exposure at 11%. Injection drug use was, however, a less significant risk factor in Peel Region than in the rest of Ontario.

**Figure 4: Risk Factors for HIV/AIDS, Region of Peel and Ontario, 1985–2006 Combined**



In the decade from 1997 to 2006, heterosexual transmission and origin from an HIV-endemic country have become increasingly important risk factors for HIV/AIDS among males in Peel Region. Unlike the time period from 1985 to 1996 when MSM was the predominant risk (55%), MSM risk declined to 44% between 1997 and 2006 while heterosexual transmission risk rose from 16% to 22%, and origin from an HIV-endemic country rose from 2% to 13% (see Figures 5 and 6 below).

Among male HIV/AIDS cases, HIV risk from blood transfusion has decreased with time. This was due to improved screening of blood and blood products.

**Figure 5: Risk Factors for HIV/AIDS Among Males, Region of Peel, 1985–1996 Combined**

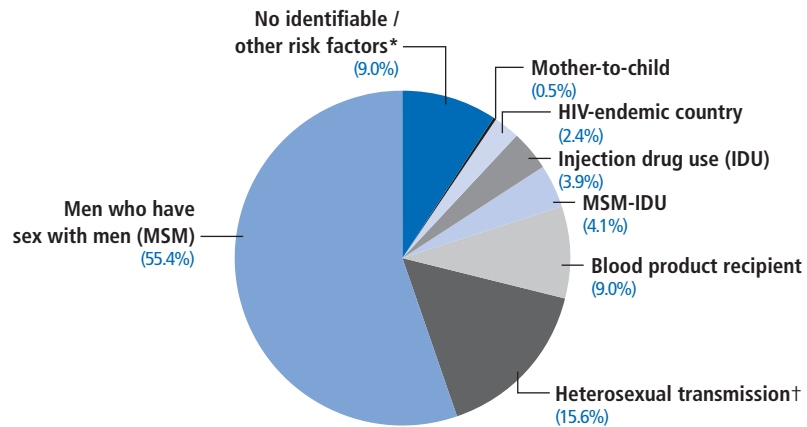
**Notes:** Per cent based on 410 male HIV/AIDS cases in Peel between 1985 and 1996.

\*No identifiable/other risk factors includes only those listed as such in iPHIS, while the "other risk factor" category includes those risk factors not captured elsewhere e.g. tattoo, acupuncture, body piercing, and occupational exposure. These may have been classified differently in the Ontario data.

† Heterosexual transmission includes low-risk and high-risk heterosexual exposure combined (high-risk defined as having sex with a partner who belongs to a high risk group such as HIV positive, bisexual, received blood products, IDU, etc. while low-risk exposure is defined as engaging in heterosexual activity with partner's risks unknown).

Persons with no risk factor reported (i.e. left blank) were classified as unknown and removed from the analysis.

**Source:** Peel data from the Integrated Public Health Information System (iPHIS), Peel Public Health, as of 06/26/2007.



**Figure 6: Risk Factors for HIV/AIDS Among Males, Region of Peel, 1997–2006 Combined**

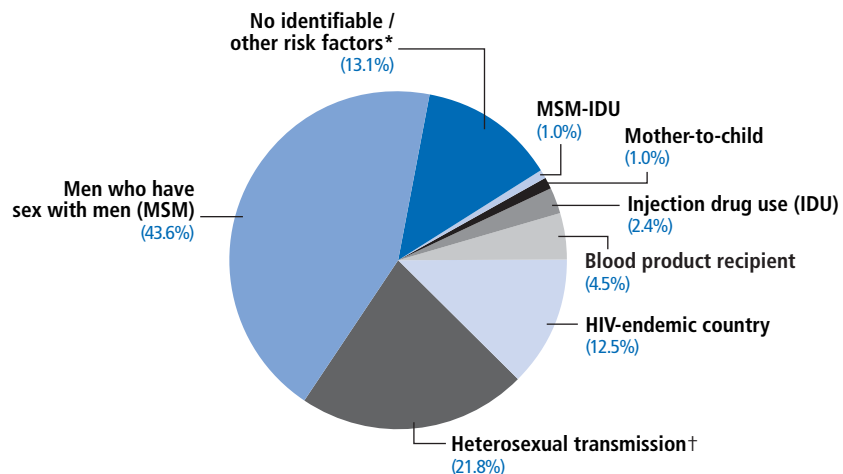
**Notes:** Per cent based on 289 male HIV/AIDS cases in Peel between 1997 and 2006.

\*No identifiable/other risk factors includes only those listed as such in iPHIS, while the "other risk factor" category includes those risk factors not captured elsewhere e.g. tattoo, acupuncture, body piercing, and occupational exposure. These may have been classified differently in the Ontario data.

† Heterosexual transmission includes low-risk and high-risk heterosexual exposure combined (high-risk defined as having sex with a partner who belongs to a high risk group such as HIV positive, bisexual, received blood products, IDU, etc. while low-risk exposure is defined as engaging in heterosexual activity with partner's risks unknown).

Persons with no risk factor reported (i.e. left blank) were classified as unknown and removed from the analysis.

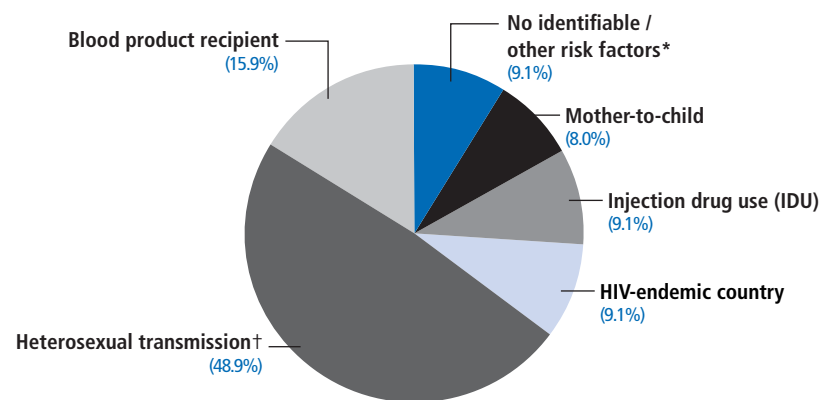
**Source:** Peel data from the Integrated Public Health Information System (iPHIS), Peel Public Health, as of 06/26/2007.



Among females in Peel, the most notable change in risk has been the dramatic increase in women reporting “origin from an HIV-endemic country”. From 1985 to 1996, 9% of HIV-positive women reported “origin from an HIV-endemic country” whereas in the next decade, 34% of women reported this risk factor (see Figures 7 and 8 below).

Among female HIV/AIDS cases, risk from blood transfusion has declined with time. This is due to improved screening of blood and blood products.

**Figure 7: Risk Factors for HIV/AIDS Among Females, Region of Peel, 1985–1996 Combined**



**Notes:** Per cent based on 88 female HIV/AIDS cases in Peel between 1985 and 1996.

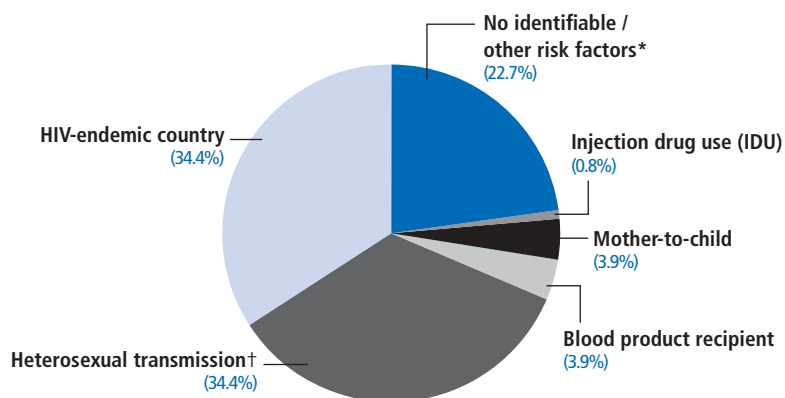
\*No identifiable/other risk factors includes only those listed as such in iPHIS, while the “other risk factor” category includes those risk factors not captured elsewhere e.g. tattoo, acupuncture, body piercing, and occupational exposure. These may have been classified differently in the Ontario data.

†Heterosexual transmission includes low-risk and high-risk heterosexual exposure combined (high-risk defined as having sex with a partner who belongs to a high risk group such as HIV positive, bisexual, received blood products, IDU, etc. while low-risk exposure is defined as engaging in heterosexual activity with partner’s risks unknown).

Persons with no risk factor reported (i.e. left blank) were classified as unknown and removed from the analysis.

**Source:** Peel data from the Integrated Public Health Information System (iPHIS), Peel Public Health, as of 06/26/2007.

**Figure 8: Risk Factors for HIV/AIDS Among Females, Region of Peel, 1997–2006 Combined**



**Notes:** Per cent based on 128 female HIV/AIDS cases in Peel between 1997 and 2006.

\*No identifiable/other risk factors includes only those listed as such in iPHIS, while the “other risk factor” category includes those risk factors not captured elsewhere e.g. tattoo, acupuncture, body piercing, and occupational exposure. These may have been classified differently in the Ontario data.

†Heterosexual transmission includes low-risk and high-risk heterosexual exposure combined (high-risk defined as having sex with a partner who belongs to a high risk group such as HIV positive, bisexual, received blood products, IDU, etc. while low-risk exposure is defined as engaging in heterosexual activity with partner’s risks unknown).

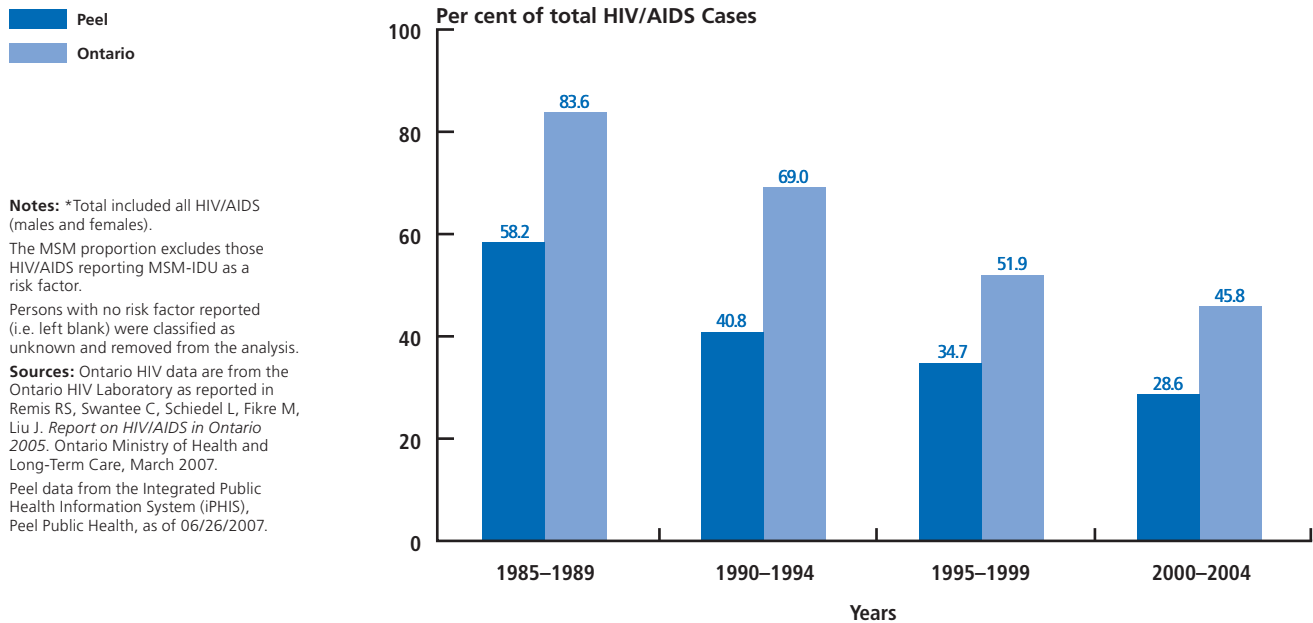
Persons with no risk factor reported (i.e. left blank) were classified as unknown and removed from the analysis.

**Source:** Peel data from the Integrated Public Health Information System (iPHIS), Peel Public Health, as of 06/26/2007

In Ontario, 39% of HIV-infected women between 1985 and 2005 reported that their source of exposure was through heterosexual contact in an HIV-endemic country; a further 34% reported heterosexual contact in a non-endemic country.<sup>3</sup> Worldwide, an estimated 17.7 million women were living with HIV in 2006.<sup>1</sup>

The proportion of HIV/AIDS cases attributed to MSM has decreased with time in Peel Region as well as in Ontario (see Figure 9 below).

**Figure 9: Proportion of Total\* HIV/AIDS cases with Risk Factor Men Having Sex with Men (MSM) by Time Period, Region of Peel and Ontario, 1985–1989 to 2000–2004 Combined**



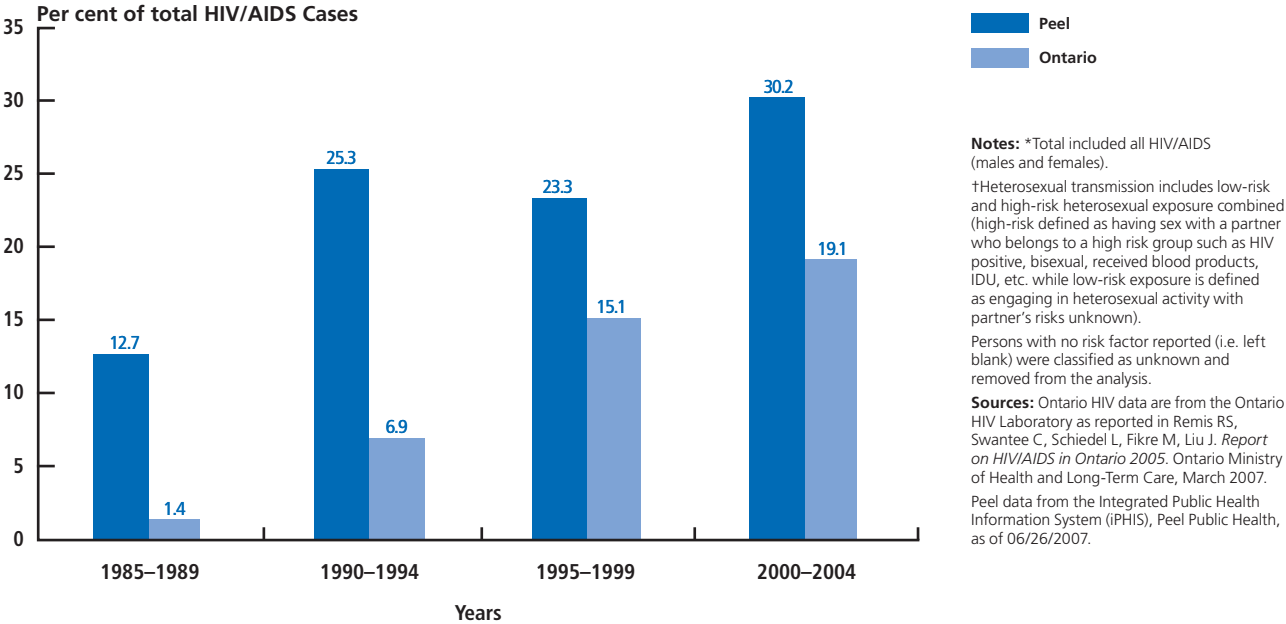
In 2005, it was estimated that 45% of HIV/AIDS cases in Canada were among MSM. Even though MSM cases among those with new infections steadily decreased between the early 1980s and 1996, the trend has now reversed and is on the increase again.<sup>2</sup>

In Peel Region, a greater proportion of HIV/AIDS cases were due to heterosexual transmission compared to Ontario. Between 2000 and 2004, heterosexual transmission accounted for 30% of all HIV/AIDS cases (see Figure 10 below).

In Ontario, heterosexual transmission has markedly increased as a risk factor for HIV/AIDS. From 1985 to 2004, this risk category increased from 1% to 19%.

The proportion of new HIV infections attributed to heterosexual transmission has increased steadily in Canada.<sup>2</sup>

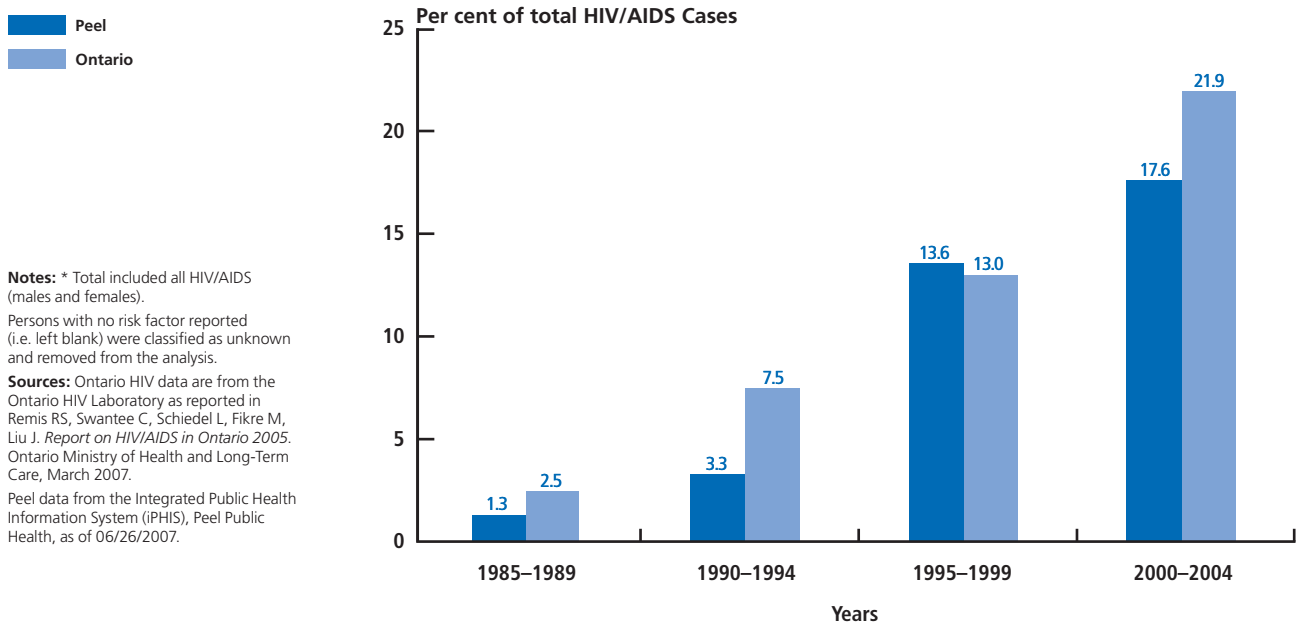
**Figure 10: Proportion of Total\* HIV/AIDS cases with Risk Factor Heterosexual Transmission† by Time Period, Region of Peel and Ontario, 1985–1989 to 2000–2004 Combined**



Origin from an HIV-endemic country is one of the most rapidly increasing risk factor categories in Ontario and in Peel Region. During the last 20 years, the proportion of HIV/AIDS cases reporting origin from an HIV-endemic country has risen about 9-fold in Ontario and 14-fold in Peel (see Figure 11 below). Given the demographic profile for the Region of Peel and the predicted immigration pattern, this trend is likely to continue into the foreseeable future.

Persons from HIV-endemic countries continue to be over-represented in Canada’s HIV data. In 2005, about 16% of new infections were attributed to heterosexual transmission in people who originated from HIV-endemic countries.<sup>2</sup>

**Figure 11: Proportion of Total\* HIV/AIDS cases with Risk Factor from an HIV-Endemic Country by Time Period, Region of Peel and Ontario, 1985–1989 to 2000–2004 Combined**



# Co-Infections with HIV/AIDS

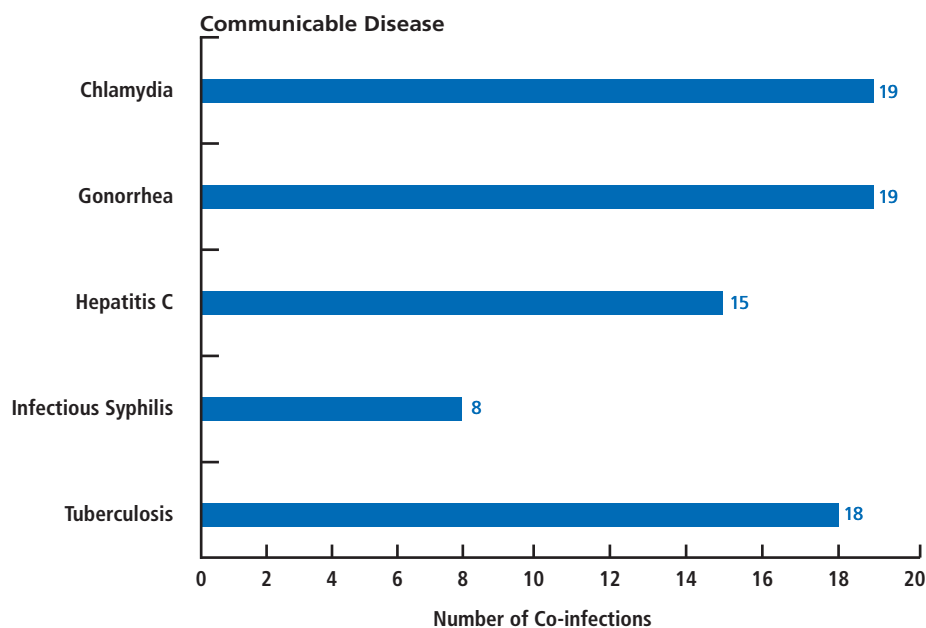
## HIGHLIGHTS

- Persons with HIV, especially injection drug users, can also be infected with the hepatitis C virus (HCV). It is estimated that between 50 to 90% of HIV-infected injection drug users are co-infected with HCV. HCV infection can be more serious in persons with HIV.
- Adults who are co-infected with TB and HIV have a 10% risk of developing active TB disease every year.



Figure 12 presents the number of episodes of co-infection in Peel Region with HIV/AIDS during a 10 year period. The number of episodes is not equivalent to the number of persons with co-infection since an HIV-infected person may acquire other infections more than once.

**Figure 12: HIV/AIDS Co-infections with Other Reportable Sexually Transmitted Infections, Hepatitis C and Tuberculosis, Region of Peel, 1997–2006 Combined**



**Note:** It is important to note that these are episodes of infectious diseases and not specific to one person. An individual may have more than one infectious disease along with HIV/AIDS.

Number of HIV/AIDS cases between 1997 and 2006 = 465

**Source:** Peel data from the Integrated Public Health Information System (iPHIS), Peel Public Health, as of 06/05/2007.

Diseases are defined in the glossary on page 42.

Co-infection of HIV/AIDS with sexually transmitted infections such as chlamydia, gonorrhea and infectious syphilis is concerning because it suggests that an HIV-infected individual and his/her partner have not been using condoms to prevent the transmission of HIV and STIs.

Persons with HIV, especially injection drug users, can also be infected with the hepatitis C virus (HCV). It is estimated that between 50 to 90% of HIV-infected injection drug users are co-infected with HCV.<sup>12</sup> HCV infection can be more serious in persons with HIV.

Adults with TB infection have about a 10% chance of developing active TB disease in their lifetime. Adults who are co-infected with TB and HIV have a 10% risk of developing active TB disease *every year*.<sup>13</sup>

# HIV/AIDS Mortality

## HIGHLIGHTS

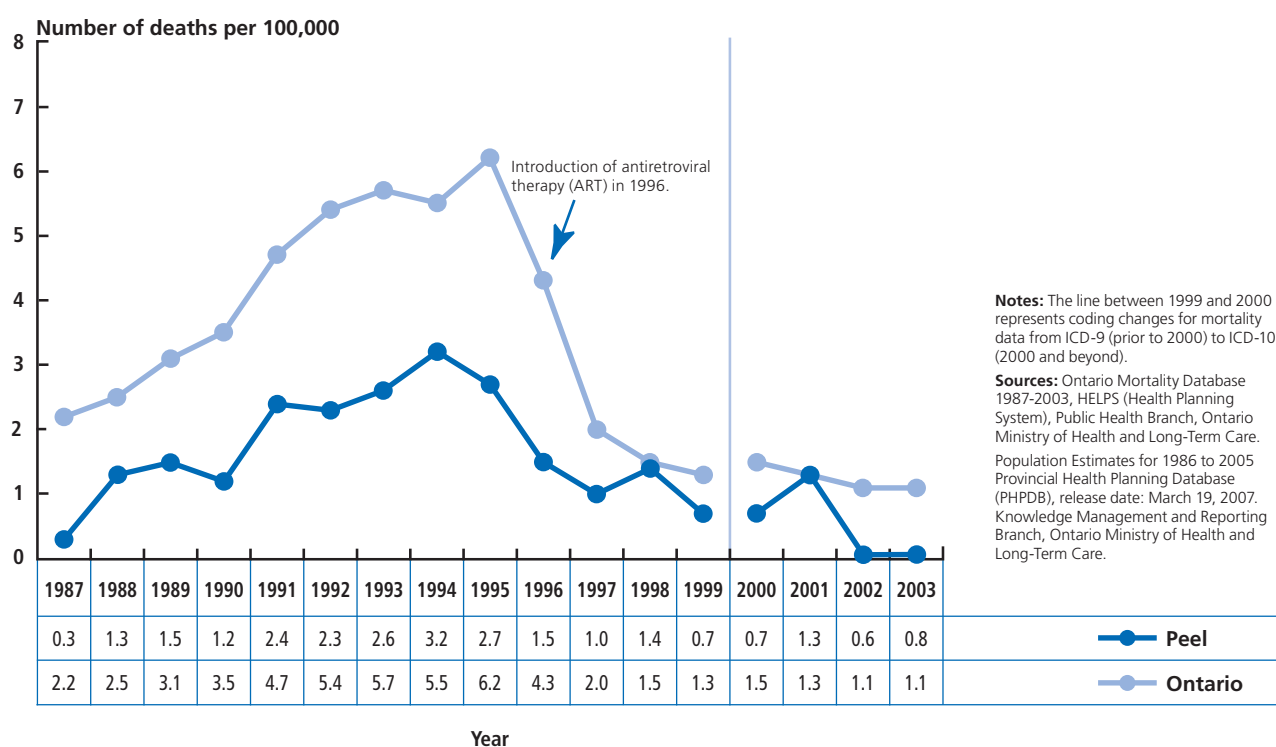
- AIDS mortality rates increased in Ontario and Peel Region until the mid-1990's, after which time they declined. This was largely due to the introduction of antiretroviral therapy (ART) in 1996. Mortality rates have been stable since 1999.



Globally it was estimated that 2.9 million people died from AIDS-related illnesses in 2006.<sup>1</sup> Between 1980 and June 2006, there were 13,326 AIDS deaths in Canada.<sup>14</sup> In Peel Region, 88% of AIDS-related deaths between 1987 and 2003 were among males.

AIDS mortality rates increased in Ontario and Peel Region until the mid-1990's, after which time a decline is noted (*see Figure 13 below*). This was largely due to the introduction of antiretroviral therapy in 1996. Mortality rates have been stable since 1999.

**Figure 13: Mortality from AIDS by Year, Region of Peel and Ontario, 1987–2003**



# Special Populations

## HIGHLIGHTS

- According to a 2004 Peel Public Health survey of high school students, more than a quarter (26%) reported that they had sex in the past 12 months.
- One-third (34%) of sexually active students in Peel reported they had three or more sexual partners in their lifetime.
- A 2002 survey of Canadian youth found that approximately half of all grade 9 students believed that HIV/AIDS could be cured if it is caught early.
- Among persons under age 20, incidence of HIV/AIDS in Peel was 0.3 per 100,000 in males and 0.7 per 100,000 in females. The high rates of sexually transmitted infections in this age group are concerning because existing STIs increase the transmission risk of HIV.
- In December 1998, Ontario's Ministry of Health and Long-Term Care recommended that all pregnant women be tested for HIV. In Peel Region, approximately 45% of pregnant women were tested for HIV in 1999 but this increased to 94% in 2006. In 2006, one woman tested positive for HIV out of over 16,000 pregnant women screened.



## YOUTH

Youth are particularly at risk for HIV infection since this is the time of exploration around behaviours related to sexual activity, alcohol and drug use.

According to a 2004 Peel Public Health survey of high school students, more than a quarter (26%) reported that they had sex in the past 12 months. Close to two-thirds (62%) of sexually-active students were 15 years of age or younger when they first had sex.<sup>15</sup> Forty per cent of sexually-active students indicated that they were sometimes or always high or drunk when they had sex. Almost one-third (32%) of sexually-active grade 9 students reported that they did not use any form of birth control or protection during sex.<sup>15</sup>

Forty-two per cent of sexually-active high school students reported they had only had sex with one person in their lifetime. However, one-third (34%) of sexually active students reported they had three or more sexual partners in their lifetime. Females (48%) were significantly more likely than males (36%) to report they had had sexual intercourse with only one person in their lifetime while males (27%) were significantly more likely than females (19%) to report they had four or more sexual partners in their lifetime.<sup>15</sup>

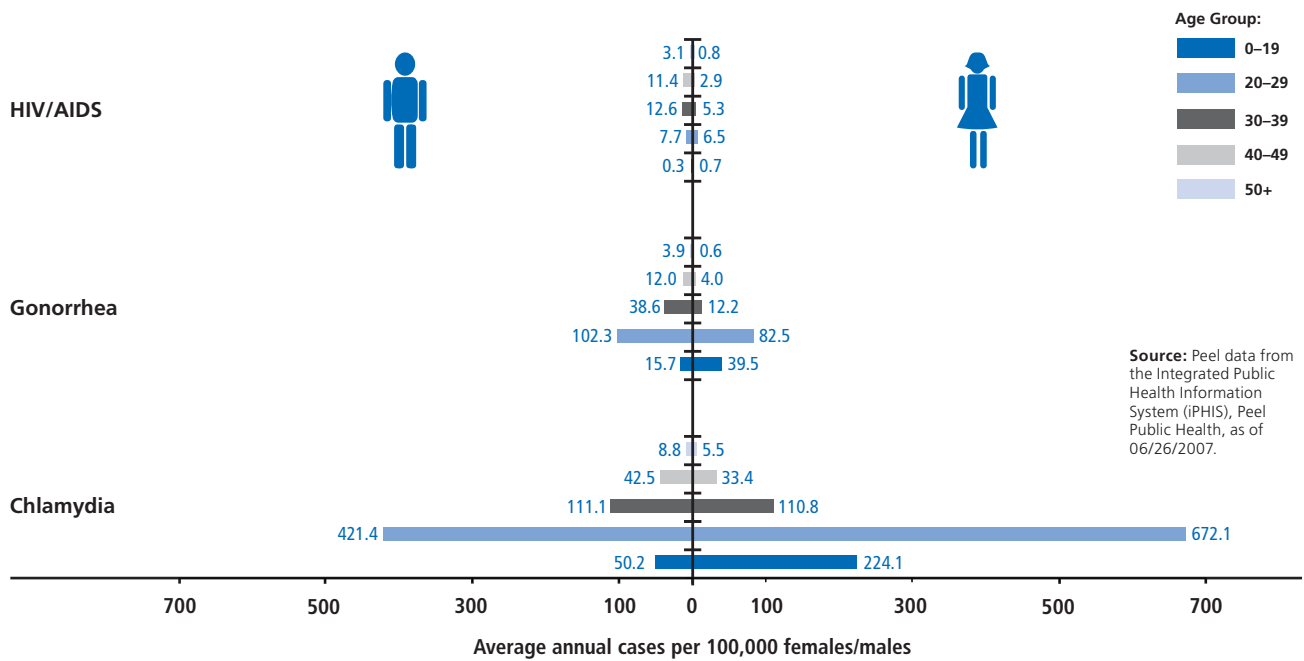
According to a 2002 survey of Canadian youth in grades 7, 9 and 11, there is a lack of understanding of HIV and AIDS. For example, a high proportion of youth incorrectly believe that there are vaccines available to prevent AIDS

(64% of males and 64% of females in grade 9, 49% of males and 37% of females in grade 10).<sup>16</sup> One of the most alarming findings of the survey was that approximately half of all grade 9 students (53% of males, 51% of females) believed that HIV/AIDS could be cured if it is caught early. This proportion was even higher among grade 7 males (78%) and females (66%).<sup>16</sup>

Among persons under age 20, incidence of HIV/AIDS in Peel was 0.3 per 100,000 in males and 0.7 per 100,000 in females (see Figure 14 below).

The high rates of sexually transmitted infections in this age group are concerning because existing STIs increase the transmission risk of HIV.

**Figure 14: Incidence of Selected Sexually Transmitted Infections (STI) by Age Group and Sex, Region of Peel, 1997–2006 Combined**



Source: Peel data from the Integrated Public Health Information System (iPHIS), Peel Public Health, as of 06/26/2007.

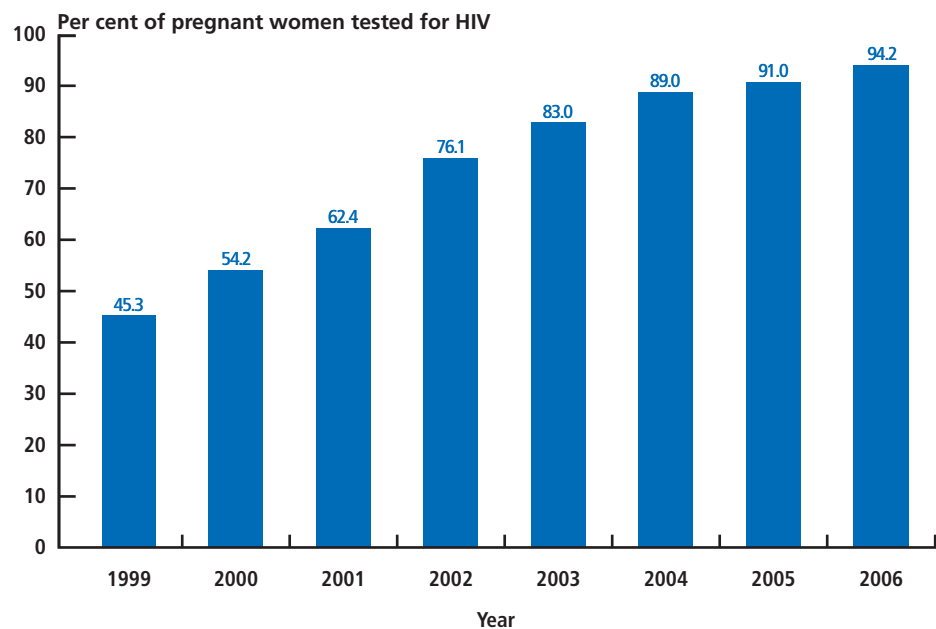
## HIV SCREENING OF PREGNANT WOMEN

Worldwide, an estimated 2.1 million women and 530,000 children under the age of 15 years were newly infected with HIV in 2006.<sup>1</sup> Most of these children were infected before or during birth or through breastfeeding. The Canadian Medical Association, College of Family Physicians of Canada and The Society of Obstetricians and Gynaecologists of Canada have recommended that all women considering pregnancy or who are pregnant be screened for HIV.

In December 1998, Ontario's Ministry of Health and Long-Term Care recommended that all pregnant women be tested for HIV.<sup>11</sup> In Peel Region, approximately 45% of pregnant women were tested for HIV in 1999 but this increased to 94% in 2006 (see Figure 15 below). In 2006, only one woman in Peel tested positive for HIV out of over 16,000 pregnant women screened. Out of over 93,000 pregnant women in Peel tested for HIV between 1999 and 2006, 23 were HIV-positive (0.3%).

Between 1994 and 2005 in Ontario, of the 618 HIV-infected pregnant women, 121 HIV-infected infants were delivered. This translates into a vertical transmission rate of 20%. Of these infants, 55% were born to women from HIV-endemic countries.

**Figure 15: Proportion of Pregnant Women Tested for HIV, Region of Peel\*, 1999–2006**



**\*Notes:** Not all of those tested were residents of Peel. In addition, not all pregnant women seek prenatal care, and some of those receiving prenatal care may not consent to a blood test for HIV.

It is difficult to know the exact number of pregnant women in Peel region who seek testing because some pregnant women opt not to be tested for HIV and others do not seek prenatal care prior to delivery. The data presented here can also include women living outside Peel Region but who were tested by Peel physicians. As well, women who live in Peel Region but are tested anonymously are not included.

**Source:** HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care Analysis by Ontario HIV Epidemiologic Monitoring Unit, March 19, 2007.

# Discussion

The incidence rate of HIV infection in Peel Region is about half the provincial rate of 4.6 per 100,000. This rate has remained stable since 2003. Since the availability of antiretroviral therapy in the mid-1990s, the incidence of AIDS cases has declined to approximately 1.0 per 100,000 in Ontario and less than 1.0 per 100,000 in Peel. The incidence of HIV/AIDS is higher among males than females except in the under 20 age group where incidence is higher among females. Improved screening of blood and blood products since 1985 has resulted in a marked decline of HIV/AIDS cases from blood transfusions.

Between 2000 and 2004, 29% of HIV/AIDS cases in Peel Region were men having sex with men (MSM) and 30% were heterosexual. During this period, heterosexual transmission overtook MSM as the major risk factor of HIV/AIDS acquisition in Peel. HIV incidence has, however, been reported to be on the increase among young MSM in the U.S. and some parts of Canada.<sup>2</sup>

Among men in Peel Region, the highest incidence of HIV/AIDS was in the 30-39 year age group. In the most recent decade, heterosexual transmission and origin from an HIV-endemic country have become increasingly important risks among males. Among females, the most dramatic change has been a four-fold increase in cases reporting origin from an HIV-endemic country.

Co-infections of STIs and HIV/AIDS have been reported in Peel Region. This is concerning since it suggests that some HIV-infected persons and their partners are not using adequate protection such as condoms to prevent disease transmission. It is also known that the presence of STIs facilitates the transmission of HIV. With high rates of chlamydia and gonorrhea reported among youth and adults of reproductive age, this trend is worrying because these individuals are at higher risk of acquiring HIV.

Mortality rates from AIDS-related diseases have declined with the advent of antiretroviral therapy. Since 1999, AIDS mortality is about 1.0 per 100,000 in Peel and Ontario.

# Recommendations

## PEEL PUBLIC HEALTH'S HEALTHY SEXUALITY PROGRAM

The Healthy Sexuality Program is mandated under the Ontario Ministry of Health and Long-Term Care's Mandatory Programs and Health Services Guidelines (MPHSG) and the *Ontario Health Protection and Promotion Act*. Although it is anticipated that the MPHSG will be replaced in Spring 2008 by the Ontario Public Health Standards and associated protocols, no major changes are expected to the requirements for the Healthy Sexuality Program which includes:

- a. **Clinical services** - Services provided include counselling, education and the provision of birth control, counselling specific to unplanned pregnancy, testing and treatment of sexually transmitted infections (STI) and anonymous HIV testing. Peel Public Health has six clinic locations throughout Mississauga, Brampton and Caledon.
- b. **Case management** - Public health case management focuses on the control of reportable sexually transmitted infections. Clients receive counselling and education on the particular STI in question, modes of transmission and prevention strategies. All those at risk through contact with the case are identified, notified and encouraged to seek testing and treatment.
- c. **Health promotion** - Among the key health promotion activities for Peel Public Health's Healthy Sexuality Program are broad based communication campaigns focusing on specific populations, collaborating with school boards, and other community based groups and agencies, social service and multicultural agencies, and direct service to those at risk through harm reduction and homelessness initiatives.

The following are recommendations to assist Peel Public Health staff in raising community awareness of HIV and AIDS, in their efforts to reduce the transmission of HIV, and in providing programs and services aimed at enhancing the quality of life of Peel residents who are living with HIV/AIDS.

## **TO REDUCE THE INCIDENCE OF SEXUALLY TRANSMITTED INFECTIONS AND HIV/AIDS IN THE REGION OF PEEL**

Sexually transmitted infections are among the most commonly reported infections to Peel Public Health, especially among youth and young adults. The high rates of these infections suggest that individuals within these age groups are often not engaging in safer sex practices. Furthermore, the presence of an STI increases the risk of HIV transmission. Local and national surveys have demonstrated that there is poor understanding of HIV/AIDS among high school students, despite a high proportion of students who report to be sexually active.

### **Recommendations**

That public health staff:

- Design and implement health promotion initiatives to promote safer sex messages and knowledge about STI including HIV/AIDS by collaborating with local AIDS service organizations and school boards within the Region of Peel.
- Design and implement public awareness campaigns to promote Peel Public Health's Healthy Sexuality clinics as a means to accessing birth control including barrier methods, and STI testing, treatment and prevention counselling.

## **TO REDUCE THE RATES OF VERTICAL HIV TRANSMISSION IN THE REGION OF PEEL**

The risk of HIV vertical transmission from an HIV-infected mother to her child can be effectively reduced through such strategies as the use of antiretroviral therapy (ART) and the avoidance of breastfeeding. In order to enact these strategies, women must first be aware of their HIV status. Peel Region has a high uptake of HIV testing among women receiving prenatal care, at 94% in 2006. Our goal is to have HIV testing offered to all pregnant women who receive prenatal care in Peel.

### **Recommendations**

That public health staff:

- Continue to work with physicians and other health care providers to promote HIV testing as a part of routine prenatal care for all pregnant women in the Region of Peel.
- Ensure that known HIV-positive women receive education and counselling specific to family planning and methods that may reduce the risk of vertical HIV transmission, including the use of ART and the avoidance of breastfeeding.
- Collaborate with physicians and other health care providers in the Region of Peel to provide culturally competent services and culturally sensitive messages about the importance of prenatal HIV testing, particularly for women who are from HIV-endemic countries.

## **TO INCREASE THE AVAILABILITY AND UPTAKE OF HIV TESTING IN THE REGION OF PEEL**

Awareness of one's HIV status is the first step towards ensuring access to the appropriate health care and support services that are available for people living with HIV/AIDS. Knowledge of HIV status is also important as it allows individuals to disclose their HIV status to their sexual and needle-sharing partners and reduce the risk of HIV transmission through safer sex and injection drug use practices. Given that most HIV testing in Peel Region is accessed through community-based physicians, ongoing collaboration with this group of health care providers will be a key element in the efforts to enhance access to HIV testing in Peel Region.

### **Recommendations**

That public health staff:

- Provide ongoing education to physicians and other health care providers on the epidemiology of HIV/AIDS in Peel Region.
- Collaborate with local family physicians and other health care providers to minimize barriers to HIV testing, especially for youth, women who are pregnant or are planning a pregnancy, for those who originate from an HIV-endemic country, and for men having sex with men (MSM).
- Investigate and develop mechanisms and sites outside of physicians' offices to provide HIV counselling and testing.

## **TO IMPROVE THE QUALITY OF LIFE FOR INDIVIDUALS LIVING WITH HIV/AIDS IN THE REGION OF PEEL**

Despite medical advances that have occurred in the last decade, and the changing epidemiology of HIV/AIDS, a diagnosis of HIV/AIDS is still one that is associated with considerable stigma for many individuals. This stigma can result in feelings of isolation and shame for many individuals, which may also deter some from seeking out and accessing HIV testing.<sup>17,18</sup>

### **Recommendations**

That public health staff:

- Continue to provide education and counselling to all HIV-positive clients to increase their understanding of HIV.
- Continue to offer all HIV-positive clients referrals to medical, social and community resources.
- Collaborate with local AIDS service organizations to strengthen the community resources available for HIV-positive clients in Peel Region.
- Advocate for the expansion and financial support of AIDS service organizations within Peel Region.

# Peel Health Facts

## POPULATION

### Population Projections – 2007, Region of Peel and Municipalities

	Mississauga	Brampton	Caledon	Peel
Male	351,890	230,910	30,640	613,410
Female	353,110	229,090	30,360	612,560
Total*	705,000	460,000	61,000	1,225,970

\*Total numbers have been rounded.

Source: Region of Peel Planning Department, September 2007

## LIFE EXPECTANCY

### Life Expectancy (in years) at Birth by Sex, Region of Peel and Ontario, 2003

	Peel	Ontario
Males	79.9	77.7
Females	83.7	82.3

Source: Ontario Mortality Database 2003, HELPS (Health Planning System), Public Health Branch, Ontario Ministry of Health and Long-Term Care. Life table template distributed by the Central East Health Information Partnership.

## SELECTED REPRODUCTIVE HEALTH INDICATORS

### Live Births, Region of Peel and Ontario, 2003

	Number	Crude Birth Rate*
Peel	14,438	12.8
Ontario	130,603	10.7

\*rate per 1,000 population

Source: Ontario Live Birth Database 2003, HELPS (Health Planning System), Public Health Branch, Ontario Ministry of Health and Long-Term Care.

### Infant Mortality, Region of Peel and Ontario, 2003

	Number	Infant Mortality Rate*
Peel	78	5.4
Ontario	680	5.2

\*rate per 1,000 live births

Source: Ontario Mortality Database 2003, HELPS (Health Planning System), Public Health Branch, Ontario Ministry of Health and Long-Term Care.

## TOP 15 CAUSES OF DEATH IN MALES

### Deaths by Selected Leading Causes, Region of Peel and Ontario, 2003

Rank	Cause of Death	Peel #	Peel %	Ontario %
1	Ischemic heart disease	408	18.9	20.9
2	Lung cancer	171	7.9	8.1
3	Stroke (cerebrovascular disease)	112	5.2	5.8
4	Chronic lower respiratory diseases	84	3.9	4.3
5	Colorectal cancer	83	3.8	3.9
6	Diabetes mellitus	76	3.5	4.0
7	Cancers of lymph, blood & related tissue	75	3.5	3.2
8	Prostate cancer	55	2.5	3.2
9	Dementia & Alzheimer's disease	52	2.4	2.5
10	Influenza and pneumonia	47	2.2	2.0
11	Liver disease	44	2.0	1.7
12	Suicide	43	2.0	1.8
13	Pancreatic cancer	37	1.7	1.4
14	Stomach cancer	35	1.6	1.1
14	Land transport*	35	1.6	1.4
15	Liver cancer	34	1.6	1.0
	Other causes	771	35.7	33.7
	<b>ALL CAUSE TOTAL</b>	<b>2,162</b>	<b>100.0</b>	<b>100.0</b>

## TOP 15 CAUSES OF DEATH IN FEMALES

### Deaths by Selected Leading Causes, Region of Peel and Ontario, 2003

Rank	Cause of Death	Peel #	Peel %	Ontario %
1	Ischemic heart disease	281	13.8	17.6
2	Stroke (cerebrovascular disease)	130	6.4	8.2
3	Lung cancer	123	6.1	6.0
4	Breast cancer	120	5.9	4.6
5	Dementia & Alzheimer's disease	113	5.7	6.1
6	Chronic lower respiratory diseases	87	4.3	4.1
7	Colorectal cancer	75	3.4	3.3
8	Diabetes mellitus	68	3.3	3.9
9	Cancers of lymph, blood & related tissue	53	2.6	2.7
10	Diseases of urinary system	50	2.5	2.2
11	Heart failure	45	2.2	2.1
12	Influenza and pneumonia	44	2.2	2.7
13	Ovarian cancer	35	1.7	1.5
14	Pancreatic cancer	32	1.6	1.6
14	Diseases of musculoskeletal & connective tissue	32	1.6	1.0
15	Certain conditions originating perinatally	30	1.5	0.4
	Other causes	712	35.2	32.0
	<b>ALL CAUSE TOTAL</b>	<b>2,030</b>	<b>100.0</b>	<b>100.0</b>

**Note:** Due to changes in methodology for estimating top external causes of death, comparisons should not be made between data reported in the Peel Health Facts section of this report, and data reported in State of the Region's Health reports prior to 2007.

Leading causes of death were based on ICD-10 coding.

\* Land transport includes motor vehicle accidents, railway accidents and other road accidents.

**Source:** Ontario Mortality Database 2003, HELPS (Health Planning System), Public Health Branch, Ontario Ministry of Health and Long-Term Care.

## TOP 15 CAUSES OF PREMATURE DEATH IN MALES

### Potential Years of Life Lost by Selected Leading Causes, Region of Peel and Ontario, 2003

Rank	Cause of Death	Peel #	Peel %	Ontario %
1	Ischemic heart disease	2,941	12.6	13.4
2	Certain conditions originating perinatally	2,250	9.6	5.0
3	Land transport*	1,426	6.1	6.2
4	Suicide	1,292	5.5	6.8
5	Lung cancer	1,215	5.2	6.8
6	Cancers of lymph, blood & related tissue	978	4.2	3.6
7	Liver disease	712	3.0	2.9
8	Congenital malformations, deformations, & chromosomal	704	3.0	2.5
9	Assault	629	2.7	1.4
10	Colorectal cancer	627	2.7	3.2
11	Diabetes mellitus	578	2.5	2.8
12	Stroke (cerebrovascular disease)	552	2.4	2.2
13	Accidental poisoning	449	1.9	2.0
14	Pancreatic cancer	429	1.8	1.3
15	Stomach cancer	332	1.4	1.1
	Other causes	8,239	35.4	38.8
	<b>ALL CAUSE TOTAL</b>	<b>23,353</b>	<b>100.0</b>	<b>100.0</b>

## TOP 15 CAUSES OF PREMATURE DEATH IN FEMALES

### Potential Years of Life Lost by Selected Leading Causes, Region of Peel and Ontario, 2003

Rank	Cause of Death	Peel #	Peel %	Ontario %
1	Certain conditions originating perinatally	2,250	14.0	6.6
2	Breast cancer	1,517	9.5	8.8
3	Lung cancer	949	5.9	8.2
4	Land transport*	799	5.0	3.6
5	Ischemic heart disease	791	4.9	5.9
6	Congenital malformations, deformations, & chromosomal	743	4.6	4.1
7	Suicide	570	3.6	3.5
8	Cancers of lymph, blood & related tissue	533	3.3	3.6
9	Colorectal cancer	498	3.1	3.5
10	Uterine cancer	439	2.7	2.2
11	Ovarian cancer	380	2.4	2.6
12	Diseases of urinary system	309	1.9	1.0
13	Stroke (cerebrovascular disease)	287	1.8	2.9
14	Brain cancer	267	1.7	1.5
15	Liver disease	254	1.6	1.0
	Other causes	5,465	34.0	41.0
	<b>ALL CAUSE TOTAL</b>	<b>16,051</b>	<b>100.0</b>	<b>100.0</b>

**Note:** Due to changes in methodology for estimating top external causes of death, comparisons should not be made between data reported in the Peel Health Facts section of this report, and data reported in State of the Region's Health reports prior to 2007.

Leading causes of death were based on ICD-10 coding.

\* Land transport includes motor vehicle accidents, railway accidents and other road accidents.

**Source:** Ontario Mortality Database 2003, HELPS (Health Planning System), Public Health Branch, Ontario Ministry of Health and Long-Term Care.

## TOP 15 CAUSES OF HOSPITALIZATION IN MALES

### Hospital Separations by Selected Leading Causes, Region of Peel and Ontario, 2005

Rank	Cause of Hospitalization	Peel #	Peel %	Ontario %
1	Ischemic heart disease	2,555	8.8	9.4
2	Certain conditions originating perinatally	2,494	8.6	5.1
3	Injury and poisoning	2,422	8.3	9.3
4	Chronic obstructive lung disease	1,157	4.0	4.1
5	Arthritis/rheumatism	1,120	3.8	4.3
6	Pneumonia and influenza	678	2.3	2.7
7	Hernia	597	2.0	2.3
8	Heart failure	596	2.0	2.5
9	Stroke (cerebrovascular disease)	593	2.0	2.2
10	Diseases of appendix	543	1.9	1.4
11	Mood disorder	440	1.5	2.3
12	Prostate cancer	389	1.3	1.2
13	Schizophrenia	367	1.3	1.3
14	Hyperplasia of prostate	365	1.3	1.3
15	Diabetes mellitus	361	1.2	1.6
	Other causes	14,456	49.6	49.0
	<b>ALL CAUSE TOTAL†</b>	<b>29,133</b>	<b>100.0</b>	<b>100.0</b>

## TOP 15 CAUSES OF HOSPITALIZATION IN FEMALES

### Hospital Separations by Selected Leading Causes, Region of Peel and Ontario, 2005

Rank	Cause of Hospitalization	Peel #	Peel %	Ontario %
1	Pregnancy, childbirth and the puerperium	15,937	36.1	24.9
2	Injury and poisoning	2,132	4.8	6.9
3	Certain conditions originating perinatally	1,913	4.3	3.0
4	Arthritis/rheumatism	1,561	3.5	4.1
5	Ischemic heart disease	1,125	2.5	3.7
6	Chronic obstructive lung disease	1,064	2.4	3.0
7	Mood disorder	811	1.8	2.6
8	Pneumonia and influenza	646	1.5	1.9
9	Heart failure	629	1.4	1.9
10	Stroke (cerebrovascular disease)	512	1.2	1.6
11	Cholelithiasis and other disorders of the gall bladder	497	1.1	1.2
12	Diseases of appendix	416	0.9	0.9
13	Diabetes mellitus	316	0.7	0.9
14	Congenital malformations, deformations and chromosomal abnormalities	305	0.7	0.5
15	Anemia	271	0.6	0.5
	Other causes	16,065	36.3	42.4
	<b>ALL CAUSE TOTAL†</b>	<b>44,200</b>	<b>100.0</b>	<b>100.0</b>

**Note:** Due to changes in methodology for estimating top causes of hospitalization, comparisons should not be made between data reported in the Peel Health Facts section of this report, and data reported in State of the Region's Health reports prior to 2007.

† All causes exclude Z-codes as the most responsible diagnosis.

Leading causes of hospitalization were based on ICD-10-CA coding.

**Source:** Hospital In-Patient Data 2005, Provincial Health Planning Database (PHPDB), Health Planning Branch, Ontario Ministry of Health and Long-Term Care.

## TOP 10 EXTERNAL CAUSES OF HOSPITALIZATION IN MALES

### External Causes of Hospital Separations by Selected Leading Causes, Region of Peel and Ontario, 2005

Rank	Cause of Hospitalization	Peel #	Peel %	Ontario %
1	Complications of medical and surgical care	2,875	9.9	10.7
2	Falls	869	3.0	3.6
3	Motor vehicle accidents	248	0.9	1.0
4	Environmental and natural factors	247	0.8	0.8
5	Other accidents*	230	0.8	0.9
6	Suicide and self-inflicted injury	154	0.5	0.8
7	Assault	101	0.3	0.5
8	Accidents caused by suffocation and foreign bodies	93	0.3	0.2
9	Accidental poisoning by drugs, medicaments and biologicals/solid, liquid substances, gases and vapours	90	0.3	0.3
10	Other road accidents**	54	0.2	0.2
	All other external causes	112	0.4	0.5
	<b>All External Causes†</b>	<b>5,073</b>	<b>17.4</b>	<b>19.7</b>
	<b>ALL CAUSE TOTAL</b>	<b>29,133</b>	<b>100.0</b>	<b>100.0</b>

## TOP 10 EXTERNAL CAUSES OF HOSPITALIZATION IN FEMALES

### External Causes of Hospital Separations by Selected Leading Causes, Region of Peel and Ontario, 2005

Rank	Cause of Hospitalization	Peel #	Peel %	Ontario %
1	Complications of medical and surgical care	2,811	6.4	8.0
2	Falls	1,106	2.5	3.9
3	Suicide and self-inflicted injury	303	0.7	0.9
4	Environmental and natural factors	182	0.4	0.5
5	Motor vehicle accidents	165	0.4	0.4
6	Accidental poisoning by drugs, medicaments and biologicals/solid, liquid substances, gases and vapours	94	0.2	0.3
7	Other accidents*	68	0.2	0.2
8	Accidents caused by suffocation and foreign bodies	54	0.1	0.1
9	Other road accidents**	21	0.0	0.1
10	Assault	13	0.0	0.1
	All other external causes	69	0.2	0.3
	<b>All External Causes†</b>	<b>4,886</b>	<b>11.1</b>	<b>14.8</b>
	<b>ALL CAUSE TOTAL</b>	<b>44,200</b>	<b>100.0</b>	<b>100.0</b>

**Note:** Due to changes in methodology for estimating top external causes of hospitalization, comparisons should not be made between data reported in the Peel Health Facts section of this report, and data reported in State of the Region's Health reports prior to 2007.

Leading external causes of hospitalization were based on ICD-10-CA coding.

\*Other accidents include: those caused by being struck by, against or between objects or persons; those involving machinery, cutting or piercing objects, firearms, explosive materials, hot, caustic or corrosive materials, electric currents, or radiation; or those resulting from overexertion and strenuous movements or other environmental factors.

\*\*Other road accidents exclude railway accidents and motor vehicle accidents

† All external causes exclude Z-codes as the most responsible diagnosis.

**Source:** Hospital In-Patient Data 2005, Provincial Health Planning Database (PHPDB), Health Planning Branch, Ontario Ministry of Health and Long-Term Care.

## TOP 15 CAUSES OF EMERGENCY DEPARTMENT VISITS IN MALES

### Emergency Department Visits by Selected Leading Causes, Region of Peel and Ontario, 2005

Rank	Cause of Emergency Department Visit	Peel #	Peel %	Ontario %
1	Injury and poisoning	47,802	34.8	31.7
2	Arthritis/rheumatism	4,239	3.1	3.9
3	Diseases of the skin and subcutaneous tissue	4,138	3.0	3.9
4	Chronic obstructive lung disease	3,716	2.7	3.1
5	Diseases of the ear	2,652	1.9	3.2
6	Diseases of the eye and adnexa	2,248	1.6	1.9
7	Pneumonia and influenza	1,632	1.2	1.6
8	Ischemic heart disease	1,592	1.2	1.1
9	Mood disorder	810	0.6	0.7
10	Heart failure	653	0.5	0.6
11	Diabetes mellitus	549	0.4	0.5
12	Stroke (cerebrovascular disease)	513	0.4	0.3
13	Schizophrenia	440	0.3	0.3
14	Anemia	396	0.3	0.2
15	Diseases of appendix	388	0.3	0.2
	Other causes	65,546	47.7	46.8
	<b>ALL CAUSE TOTAL†</b>	<b>137,314</b>	<b>100.0</b>	<b>100.0</b>

## TOP 15 CAUSES OF EMERGENCY DEPARTMENT VISITS IN FEMALES

### Emergency Department Visits by Selected Leading Causes, Region of Peel and Ontario, 2005

Rank	Cause of Emergency Department Visit	Peel #	Peel %	Ontario %
1	Injury and poisoning	31,434	22.9	21.7
2	Pregnancy, childbirth and the puerperium	5,707	4.2	2.5
3	Arthritis/rheumatism	4,305	3.1	3.8
4	Chronic obstructive lung disease	3,570	2.6	3.2
5	Diseases of the skin and subcutaneous tissue	3,559	2.6	3.3
6	Diseases of the ear	2,621	1.9	3.1
7	Diseases of the eye and adnexa	2,351	1.7	1.9
8	Pneumonia and influenza	1,495	1.1	1.4
9	Mood disorder	1,236	0.9	0.9
10	Ischemic heart disease	856	0.6	0.7
11	Heart failure	766	0.5	0.5
12	Cholelithiasis and other disorders of gallbladder	709	0.5	0.5
13	Diabetes mellitus	562	0.4	0.4
14	Anemia	524	0.4	0.3
15	Inflammatory diseases of female pelvic organs	469	0.3	0.3
	Other causes	77,256	56.2	55.5
	<b>ALL CAUSE TOTAL†</b>	<b>137,420</b>	<b>100.0</b>	<b>100.0</b>

Leading causes of emergency department visits were based on ICD-10-CA coding.

† All causes exclude Z-codes as the most responsible diagnosis.

**Source:** National Ambulatory Care Reporting System Data 2005, Provincial Health Planning Database (PHPDB), Knowledge Management and Reporting Branch, Ontario Ministry of Health and Long-Term Care.

## TOP 10 EXTERNAL CAUSES OF EMERGENCY DEPARTMENT VISITS IN MALES

### External Causes of Emergency Department Visits by Selected Leading Causes, Region of Peel and Ontario, 2005

Rank	Cause of Emergency Department Visit	Peel #	Peel %	Ontario %
1	Other accidents*	14,702	10.7	9.9
2	Falls	11,614	8.5	7.7
3	Environmental and natural factors	10,771	7.8	6.9
4	Accidents caused by suffocation and foreign bodies	4,161	3.0	3.0
5	Motor vehicle accidents	3,280	2.4	1.9
6	Complications of medical and surgical care	1,635	1.2	1.6
7	Assault	1,547	1.1	1.2
8	Other road accidents**	1,153	0.8	0.8
9	Accidental poisoning by drugs, medicaments and biologicals/solid, liquid substances, gases and vapours	611	0.4	0.4
10	Suicide and self-inflicted injury	417	0.3	0.3
	All other external causes	720	0.5	0.6
	<b>All External Causes†</b>	<b>50,611</b>	<b>36.9</b>	<b>34.4</b>
	<b>ALL CAUSE TOTAL</b>	<b>137,314</b>	<b>100.0</b>	<b>100.0</b>

## TOP 10 EXTERNAL CAUSES OF EMERGENCY DEPARTMENT VISITS IN FEMALES

### External Causes of Emergency Department Visits by Selected Leading Causes, Region of Peel and Ontario, 2005

Rank	Cause of Emergency Department Visit	Peel #	Peel %	Ontario %
1	Falls	11,129	8.1	7.8
2	Environmental and natural factors	7,674	5.6	5.5
3	Other accidents*	5,793	4.2	4.3
4	Motor vehicle accidents	3,283	2.4	1.6
5	Complications of medical and surgical care	1,981	1.4	1.8
6	Accidents caused by suffocation and foreign bodies	1,550	1.1	1.1
7	Suicide and self-inflicted injury	715	0.5	0.5
8	Accidental poisoning by drugs, medicaments and biologicals/solid, liquid substances, gases and vapours	551	0.4	0.4
9	Other road accidents**	477	0.3	0.3
10	Assault	475	0.3	0.4
	All other external causes	466	0.3	0.4
	<b>All External Causes†</b>	<b>34,094</b>	<b>24.8</b>	<b>24.1</b>
	<b>ALL CAUSE TOTAL</b>	<b>137,420</b>	<b>100.0</b>	<b>100.0</b>

\*Other accidents include: those caused by being struck by, against or between objects or persons; those involving machinery, cutting or piercing objects, firearms, explosive materials, hot, caustic or corrosive materials, electric currents, or radiation; or those resulting from overexertion and strenuous movements or other environmental factors.

\*\*Other road accidents exclude railway accidents and motor vehicle accidents

Leading external causes of emergency department visits were based on ICD-10-CA coding.

† All external causes exclude Z-codes as the most responsible diagnosis.

Source: National Ambulatory Care Reporting System Data 2005, Provincial Health Planning Database (PHPDB), Knowledge Management and Reporting Branch, Ontario Ministry of Health and Long-Term Care.

# Data Sources, Methods and Limitations

The communicable diseases contained in this report are reportable to the local Medical Officer of Health under the jurisdiction of the *Health Protection and Promotion Act* (HPPA). Human Immunodeficiency Virus (HIV) became reportable in Ontario in 2002. Prior to this only acquired immunodeficiency syndrome (AIDS) cases were reportable. Between 1990 and 2004, reportable diseases were monitored through a provincial public health surveillance system called the Reportable Diseases Information System (RDIS). In early 2005, the province introduced a new data collection system called the Integrated Public Health Information System (iPHIS). Data collected in the old system (RDIS) were imported into iPHIS.

All Peel data was extracted from iPHIS, however for all AIDS cases imported from RDIS to iPHIS the diagnosis date from RDIS is used.

Proportions reported within the text of this report were rounded to the nearest whole percentage. For example, if a proportion was 5.0% to 5.4%, it was rounded down to 5%, whereas if a proportion was 5.5% to 5.9%, it was rounded up to 6%.

## CANADIAN HIV AND AIDS DATA

Canadian data presented in this report were based on estimates calculated by the Centre for Infectious Disease Prevention and Control (CIDCP) and reported to the Public Health Agency of Canada. Various modelling techniques were used to estimate prevalence and incidence of HIV and AIDS in Canada in 2005 and previous years. These modelling techniques were beyond the scope of this report and are discussed in more detail in the report from the Public Health Agency of Canada titled “*HIV/AIDS Epi Updates*”.<sup>2</sup>

## ONTARIO HIV AND AIDS DATA

Ontario data were obtained from various sources.

- Ontario AIDS data between 1990 and 2004 were provided by the Ontario Ministry of Health and Long-Term Care through the Ontario Public Health portal [www.publichealthontario.ca](http://www.publichealthontario.ca).
- Ontario-level HIV data between 1986 and 2005 were taken from the HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care as reported in Remis RS, Swantee C, Schiedel L, Fikre M, Liu J. *Report on HIV/AIDS in Ontario 2005*. Ontario Ministry of Health and

Long-Term Care, March 2007. The Ontario HIV data in the report referenced above was presented by actual numbers (for HIV incidence) and revised estimates based on modelling techniques for risk factors. The Ontario data in the State of Region's Health Report: Focus on HIV/AIDS was based on the actual number of HIV infections and AIDS cases.

## **PEEL HIV/AIDS DATA**

The Peel-specific iPHIS data for all diseases were downloaded on June 5, 2007 with the exception of HIV/AIDS transmission risk factor data which was downloaded on June 26, 2007.

For the purposes of this report, the new calculation date (year) from iPHIS was used to determine the incidence year for HIV infection. The diagnosis date (year) was used to determine the incidence year for AIDS cases. If the AIDS case was originally entered in RDIS then the RDIS diagnosis date was used; otherwise, the diagnosis date in iPHIS was used if the record was entered directly into iPHIS.

The new calculation date from iPHIS was used to determine the incidence year for the other reportable diseases presented in this report (chlamydia, gonorrhoea, hepatitis C, infectious syphilis, and tuberculosis).

## **LIMITATIONS FOR HIV/AIDS DATA**

The data presented in this report do not include all persons infected with HIV, only those who were tested. There may be a delay in the time between when a person is infected with HIV and the time they are diagnosed and reported by the HIV laboratory, clinic or physician. The data presented in this report is reflective of those who were tested for HIV. As mentioned in the report, in 2005 approximately 25% and 36% of HIV-infected individuals in Canada and Ontario respectively, may not know they have HIV. Some people may present with AIDS symptoms and not be aware of their HIV status. The methods used to calculate the estimated prevalence of HIV and AIDS in Canada and Ontario are described in the references mentioned in the Canada and Ontario sections on the previous page.

Caution is advised when comparing the rates between Peel and Ontario since the data were obtained from different sources and were downloaded at different time periods. In addition, Ontario data were not cleaned (e.g. removing duplicate records, verifying dates or other information) to the same extent as the Peel-level data.

## AGE AND TRANSMISSION

Age can be a factor in whether a person acquires a disease and in the progression of that disease. When comparing two populations, differences in the respective age distributions can be controlled by using a process called “age-standardization”. This minimizes the effect of differences in age distributions between populations so that observed differences can then be attributed to factors other than age.

In this report, crude incidence rates were used for HIV and AIDS. This was done to reflect the rates based on Peel Region’s population age structure. This is consistent with provincial and national HIV/AIDS reporting.

HIV/AIDS data were combined when presented by age group and risk factors. Due to small numbers of cases, age group data by sex were based on the average annual 10 year rate combining incidence data between 1997 and 2006.

## RISK FACTORS

Data in this document from August 2005 to December 2006 were based on risk factors as reported in iPHIS. Risk factors defined in iPHIS are different from the method by which risk factors were described in RDIS. iPHIS presents risk factor data based on the client and the client’s partner rather than the particular episode. For some records, data migration from RDIS to iPHIS resulted in the re-entry or recoding of data into iPHIS. Factors such as injection drug use (IDU) and transmission via blood for example, had to be recoded to be compatible with iPHIS. Where possible, risk factors in iPHIS were compared to the risk factors entered in RDIS (i.e. for HIV/AIDS records entered in RDIS prior to the migration to iPHIS) so that they were correctly labelled. For example, “Received a transfusion of blood or blood components - after November, 1985” in RDIS was reclassified as “Received blood or blood products” in iPHIS.

A person may report more than one risk factor, however only one is reported as the main risk factor. Risk factors were presented by a hierarchy which is the ordering of risk factors by the most likely cause of HIV-infection. The only instance when two risk factors are listed together is men having sex with men (MSM) and injection drug user (IDU) or MSM-IDU. This reporting is consistent with provincial and national reporting methods. These risk factors are described in the glossary section of this report.

The method for classifying some of the less commonly reported risk factors for Ontario may be slightly different than the classification used by Peel Public Health. Provincial risk factor data were taken from the HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care as reported in Remis RS, Swantee C, Schiedel L, Fikre M, Liu J. *Report on HIV/AIDS in Ontario 2005*. Ontario Ministry of Health and Long-Term Care, March 2007.

Risk factor data for 2005 and 2006 were not included in the time trend figures 9 to 11 from this report for the following reasons: there were only two years of data available compared to five years of data for other time periods; the high proportion of unknown risk factors reported in 2005 and 2006 (30%) compared to earlier time periods (9% or less); the time lag between HIV infection and reporting to public health; the conversion from Reportable Diseases Information System (1990 to 2004 data) to Integrated Public Health Information System (iPHIS) which was implemented by Peel Health in August 2005.

## POPULATION DATA

The Population Estimates from 1986 to 2005 for single-year age groups were downloaded from the Provincial Health Planning Database (PHPDB) on September, 2005 and were used to calculate overall rates and age-specific rates in Peel residents in the report from 1986 to 2005. Population projections from 2005 to 2031 for single-year age groups were downloaded from the Provincial Health Planning Database (PHPDB) on October 5, 2006 and were used to calculate overall rates and age-specific rates for 2006.

## LOCAL SURVEY

### 2004 School Health Assessment Survey

This survey was designed by Peel Public Health in collaboration with its partners in education, the Peel District School Board and the Dufferin-Peel Catholic District School Board. Data were collected from a sample of over 7,000 children in grades 7 to 12 during the spring and fall of 2004. The data collected from this survey were summarized in the report entitled “*Student Health 2005: Gauging the Health of Peel’s Youth*”.

Topics included in the survey and described in the report included:

- Student profile
- Eating habits, body weight and physical activity
- Tobacco, alcohol, marijuana and drug use
- Bullying and safety
- Mental health and self esteem
- Sexual health (Grades 9 to 12 only)
- Dental health
- Injuries
- Sun safety

Limitations: The data contained in the report are not generalizable to all Grade 7 to 12 students in the Region of Peel, as the survey was administered to a sample of students in only two participating school boards (i.e. students in private schools were excluded). In addition, findings for students in the two participating boards should be interpreted with caution, as data could not be adjusted for other factors such as non-response, sex, and sampling method.

## EMERGENCY ROOM VISITS

Emergency room visits data in this report's Peel Health Facts section were derived from the Canadian Institute of Health Information (CIHI) and collected through the National Ambulatory Care Reporting System (NACRS). Data for Peel for 2005 were obtained through the Provincial Health Planning Database (PHPDB) initiative at the Ontario Ministry of Health and Long-Term Care.

The NACRS collects detailed data on emergency department visits, day surgeries, medical day and night care, and special high cost clinics (such as oncology and renal clinics). This report was based on data for the 2005 calendar year and included data for emergency department visits only.

Emergency room data for 2005 were coded based on the International Classification of Diseases 10th Revision (ICD-10-CA).

Limitations of emergency room data include:

- Only the main problem for the visit is available for analysis. The “Main Problem” represents the patient's main problem or diagnosis as determined by the ER. All visits have one main problem and up to nine other problems, but only the main problem is available for analysis.
- Ambulatory visit data provide only a crude measure of the prevalence of a cause since a person may not visit the ER, or may visit several times for the same disease or injury event, or may visit more than one hospital for the same disease or injury event.
- Ontario residents visiting hospitals outside of the province are excluded. Areas bordering other provinces may be more affected by this data limitation.

## HOSPITALIZATION

Hospitalization data in this report are collected by the Canadian Institute for Health Information (CIHI). Since 1999, data were obtained through the Provincial Health Planning Database (PHPDB) initiative at the Ontario Ministry of Health and Long-Term Care. The hospitalization data in this report were based on hospital discharge data only and do not include data from hospital services provided on an outpatient basis.

Hospitalization data for the years since 2003 were coded based on ICD-10-CA.

Limitations of the hospital separation data are as follows:

- Only cases serious enough to require hospital admission are captured;
- Codes presented in the hospital separation data set reflect the cause of stay upon discharge, not admission;
- People admitted to hospital more than once in a year for the same cause are counted for each hospital stay, not as an individual case;
- Other reasons, such as factors related to physician referral, screening, and admission practices, may explain changes in the data over time

## MORTALITY

Mortality data for this report were derived from the Mortality Data File, collected by the Ontario Office of the Registrar General and distributed to Peel Public Health through the Health Planning System (HELPS) initiative of the Ontario Ministry of Health and Long-Term Care. Mortality data for the years 1986 to 1999 were coded based on the International Classification of Diseases, 9th Revision (ICD-9) system of classifying causes of death. Mortality data between 2000 and 2003 were coded based on ICD-10.

## ICD-10 CODES

ICD-10 was implemented with mortality data in Ontario on January 1, 2000. ICD-10-CA was implemented with hospitalization data in Ontario on April 1, 2001. On rare occasions codes in ICD-10 and ICD-10-CA differ slightly. The table below presents the ICD-10 codes used for HIV/AIDS and all of the leading causes presented in the Peel Health Facts section.

### *Chapter I: Certain Infectious and Parasitic Diseases (ICD-10: A00.0-B99.9)*

<b>Disease/Condition</b>	<b>ICD-10</b>
HIV/AIDS	B20-B24

### *Chapter II: Neoplasms (ICD-10: C00.0-D48.9)*

<b>Disease/Condition</b>	<b>ICD-10</b>
Stomach Cancer	C16.0-C16.9
Colorectal Cancer	C18.0-C21.9
Liver and Bile Ducts Cancer	C22.0-C22.9
Pancreas Cancer	C25.0-C25.9
Lung Cancer	C33.0-C34.9
Breast Cancer	C50.0-C50.9
Uterine Cancer	C53.0-C55
Ovarian Cancer	C56.0-C56.9
Prostate Cancer	C61.0
Brain cancer	C71.0-71.9
Lymphatic and Haematopoietic Malignancy	C81.0-C85.9, C88.0-C95.9
• Hodgkin's Disease	C81.0-C81.9
• Non-Hodgkin's Lymphoma	C82.0-C85.9
• Multiple Myeloma	C88.00-C88.9, C90.0-C90.21
• Leukemia	C91.0-C95.9

### *Chapter III: Diseases of the Blood and Blood-Forming Organs and Certain Disorders Involving the Immune Mechanism (ICD-10: D50.0-D89.9)*

<b>Description</b>	<b>ICD-10</b>
Anemia	D50.0-D64.9

### *Chapter IV - Endocrine, Nutritional and Metabolic diseases (ICD-10: E00.0-E90.9)*

<b>Description</b>	<b>ICD-10</b>
Diabetes Mellitus	E10.0-E14.9

*Chapter V - Mental and Behavioural Disorders (ICD-10: F00.0-F99.9)*

<b>Description</b>	<b>ICD-10</b>
Dementia (including Alzheimer's and other etiology)	F00.0-F03.9, F05.1
Schizophrenia	F20.0-F20.9
Mood Disorder	F30.0-F33.9, F34.1-F39.9, F41.2, F53.0

*Chapter VI - Diseases of the Nervous System (ICD-10: G00.0-G99.9)*

<b>Description</b>	<b>ICD-10</b>
Alzheimer's Disease	G30.0-G30.9

*Chapter VII - Diseases of the Eye and Adnexa (ICD-10: H00.0-H59.9)*

*Chapter VIII - Diseases of the Ear and Mastoid Process  
(ICD-10: H60.0-H95.9)*

*Chapter IX - Diseases of the Circulatory System (ICD-10: I00.0-I99.9)*

<b>Description</b>	<b>ICD-10</b>
Ischemic Heart Disease	I20.0-I25.9
• Angina Pectoris	I20.0-I20.9
• Acute Myocardial Infarction	I21.0-I22.9
Heart Failure	I50.0-I50.9
Stroke (cerebrovascular disease)	I60.0-I69.8

*Chapter X - Diseases of the Respiratory System (ICD-10: J00.0-J99.9)*

<b>Description</b>	<b>ICD-10</b>
Pneumonia and Influenza	J10.0-J18.9
• Pneumonia	J12.0-J18.9
• Influenza	J10.0-J11.8
Chronic Obstructive Lung Disease	J40.0-J47.9
• COPD	J41.0-J44.9
• Asthma	J45.0-J45.9

*Chapter XI - Diseases of the Digestive System (ICD-10: K00.0-K93.9)*

<b>Description</b>	<b>ICD-10</b>
Diseases of Appendix	K35.0-K38.9
Hernia	K40.0-K46.9
Chronic Liver Disease and Cirrhosis	K70.0, K73.0-K74.9
Cholelithiasis and Other Disorders of Gallbladder	K80.0-K82.9

*Chapter XII - Diseases of the Skin and Subcutaneous Tissue  
(ICD-10: L00.0-L99.9)*

*Chapter XIII - Diseases of the Musculoskeletal System and Connective Tissue  
(ICD-10: M00.0-M99.9)*

<b>Description</b>	<b>ICD-10</b>
Arthritis/Rheumatism	M00.0-00.9, M02.3-M02.4, M02.8-M02.9, M05.0-M08.9, M10.0-M10.9, M11.8-M13.9, M15.0-M19.9, M22.0-M25.9, M30.0-M35.9, M45.0-M48.9, M60.0-M62.9, M65.0-M67.9, M70.0-M72.9, M75.0-M79.9, M89.4
<ul style="list-style-type: none"> <li>• connective tissue diseases</li> <li>• rheumatoid arthritis</li> <li>• osteoarthritis and allied disorders</li> <li>• other arthritis</li> <li>• rheumatism</li> </ul>	M30.0-M35.2, M35.5, M35.7-M35.9 M05.0-M06.9, M08.0, M08.2-M08.9, M12.0 M15.0-M15.2, M15.4-M15.7, M16.0-M19.9, M89.4 M00.0-M00.9, M02.3-M02.4, M02.8-M02.9, M08.1, M10.0-M10.9, M11.8, M11.9, M12.1-M13.9, M15.3, M15.8, M15.9, M22.0-M24.1, M24.3-M25.6, M25.8-M25.9, M45.0-M48.9 M24.2, M25.7, M35.3-M35.4, M35.6, M60.0-M62.9, M65.0-M67.9, M70.0-M72.9, M75.0-M79.9
Osteoporosis	M80.0-M82.8
All Other Causes of Diseases of the Musculoskeletal and Connective Tissue	M01.0-M02.2, M02.5-M02.7, M03.0-M04.9, M09.0-M09.9, M11.0-M11.7, M14.0-M14.9, M20.0-M21.9, M26.0-M29.9, M36.0-M44.9, M49.0-M59.9, M63.0-M64.9, M68.0-M69.9, M73.0-M74.9, M83.0-M89.3, M89.5-M99.9

*Chapter XIV - Diseases of the genitourinary system (ICD-10: N00.0-N99.9)*

<b>Description</b>	<b>ICD-10</b>
Diseases of urinary system	N00.0- N39.9
Hyperplasia of Prostate	N40.0
Inflammatory Diseases of Female Pelvic Organs	N70.0-N76.9

*Chapter XV - Pregnancy, childbirth and the puerperium (ICD-10: O00.0-O99.9)*

<b>Description</b>	<b>ICD-10</b>
Pregnancy with Abortive Outcome	O00.0-O08.9
Other Conditions Associated with Pregnancy, Childbirth and the Puerperium	O09.0-O99.9

*Chapter XVI - Certain conditions originating in the perinatal period  
(ICD-10: P00.0-P96.9)*

<b>Description</b>	<b>ICD-10</b>
Short Gestation and Low Birth Weight	P07.0-P07.3
Other Conditions Originating in the Perinatal Period	P00.0-P06.9, P08.0-P96.9

*Chapter XVII - Congenital malformations, deformations and chromosomal abnormalities (ICD-10: Q00.0-Q99.9)*

*Chapter XIX - Injury, poisoning and certain other consequences of external causes (ICD-10: S00.0-T98.9)*

*Chapter XX - External causes of morbidity and mortality  
(ICD-10: V01.0-Y98)*

<b>Description</b>	<b>ICD-10</b>
Accidents	
• Land Transport	V01.0-V89.9
• MVA accidents	V02.0-V04.9, V09.0-V09.9, V12.0-V14.9, V19.0-V19.2, V19.4-V19.6, V20.0-V79.9, V80.3-V80.5, V82.1, V83.0-V83.4, V84.0-V84.3, V85.0-V87.5, V87.7, V87.8, V89.0, V89.2
• Other road accidents	V01.0-V01.9, V06.0-V06.9, V10.0-V11.9, V16.0-V18.9, V19.3, V19.7-V19.9, V80.0-V80.2, V80.7-V80.9, V82.0, V82.2-V82.9, V84.4-V84.9, V87.6, V87.9, V88.0-V88.9, V89.1, V89.3
Accidental Poisoning by Drugs, Medicaments and Biologicals/Solid, Liquid Substances, Gases and Vapours	X40-X49
Falls	W00-W19
Environmental and Natural Factors	W53-W64, W85-W99, X10-X39, X50-X59
Accidents Caused by Suffocation and Foreign Bodies	W44, W45, W75-W84
Other Accidents*	W20-W43, W46-W52
Complications of Medical and Surgical care	Y40.0-Y84.9, Y88.0-Y88.3
Suicide and Self-Inflicted Injury	X60-X84, Y87.0
Assault	X85-X99, Y00-Y09, Y87.1

\* Other accidents include: those caused by being struck by, against or between objects or persons; those involving machinery, cutting or piercing objects, firearms, explosive materials.

# Glossary

**AIDS**— Acquired Immunodeficiency Syndrome

**ANTIBODIES**— A protein produced by the body's immune system that recognizes and fights infectious organisms and other foreign substances that enter the body. Each antibody is specific to a particular piece of an infectious organism or other foreign substance.

**ANTIRETROVIRAL THERAPY (ART)** — ART refers to any of a range of treatments that include antiretroviral medications. The drugs that are used in the treatment of HIV, a retrovirus, are designed to interfere with the virus' ability to replicate itself and, therefore, slow the progression of the disease.

**CHLAMYDIA**— Chlamydia, the most common sexually transmitted infection in Canada, is a bacterial infection caused by *Chlamydia trachomatis*. Symptoms may include genital discharge and painful or difficulty urinating. However, more than 50% of infected males and 70% of infected females have no symptoms and are unaware of their condition, making diagnosis and treatment of chlamydia difficult.<sup>19,20</sup>

**CONTACT**— A person's contacts are based on their activities, however Public Health staff typically asks for all sexual contacts, needle sharing contacts and vertical transmission contacts, depending on the diagnosis and situation.

**CO-INFECTION**— Having two infections at the same time. For example, a person infected with both human immunodeficiency virus (HIV) and tuberculosis (TB) has a co-infection.

**CRUDE RATE**— The rate of a disease or health condition in a population expressed as a number per 100,000. Crude rates were not adjusted to reflect the age distribution effects for the Region of Peel's population.

**EXPOSURE CATEGORY**— Exposure category refers to the most likely way a person became infected with HIV.

**GONORRHEA**— Gonorrhea is a bacterial infection caused by *Neisseria gonorrhoea*. Gonorrhea is very similar to chlamydia in that it presents with symptoms of urinary pain and genital discharge. If left untreated, gonorrhea and chlamydia can have long-term complications such as chronic infection, infertility and tubal pregnancy. Like chlamydia, gonorrhea can be asymptomatic and go undiagnosed.<sup>19,21,22</sup>

**HEPATITIS C**— Hepatitis C is a viral infection of the liver. The symptoms of hepatitis include loss of appetite, nausea, tiredness and jaundice. Complications of hepatitis C include cirrhosis (liver scarring), liver cancer and liver failure. In Ontario, reporting of hepatitis C became mandatory in 1995. In Canada, injection drug use is the primary risk factor for acquisition of hepatitis C.<sup>19,23,24</sup>

**HIERARCHY**— The ordering of risk factors by the most likely cause of HIV-infection. An individual may report more than one risk factor, however only one is reported as the main risk factor which carries the highest risk of HIV transmission. The only instance when two risk factors are listed together are men having sex with men (MSM) and injection drug user (IDU) or MSM-IDU.

**MSM**— Men who reported having sex with men.

**MSM-IDU**— Men who report having sex with men and who also inject drugs.

**IDU**— A person who injects drugs is called an injection drug user.

**MOTHER-TO-CHILD TRANSMISSION**— Also referred to as “vertical transmission,” is the transmission of HIV from an HIV-infected mother to her child either during pregnancy, during labour, at birth or after birth through breastfeeding.

**BLOOD PRODUCT RECIPIENT**— This category from iPHIS includes those who have received blood, blood products or clotting factor. This exposure category or risk factor was separated in RDIS as those who received blood products before 1985 or after 1985. In iPHIS there is no distinction made with respect to date of transmission.

**HIV-ENDEMIC COUNTRY**— Endemic refers to the constant presence of a disease or infectious agent within a given geographic area or population group. It may also refer to a disease that is usually present at a relatively high prevalence and incidence rate in comparison with other areas or populations. In terms of HIV/AIDS surveillance, HIV-endemic may be used to refer to a country where the principal way people become infected with HIV is through heterosexual contact.

**HETEROSEXUAL TRANSMISSION**— A person could report either high-risk heterosexual contact which is with another person of the opposite sex who is either HIV-infected or who is at an increased risk for HIV infection. A person at an increased risk for HIV infection would include someone who is an injection drug user, an MSM partner, a person born in a country in which the predominant means of HIV transmission is heterosexual contact, a person who has received blood or blood products, or a person with suspected HIV infection or AIDS. A person could also report heterosexual contact with another person but does not report on the HIV-related risk factors associated with their partner (or partner’s risk factors are unknown). Also included in this category is a person who reports heterosexual contact without any information about their partner and reported that they did not use a condom.

**OTHER RISK FACTOR**— Used to classify cases in which the mode of HIV transmission is known but cannot be classified into any of the major exposure categories listed (example: non-medical non-occupational exposures such as acupuncture, tattoo, body piercing, occupational exposure to potentially HIV contaminated blood or body fluids, or intra-nasal non-prescription drug use).

**NO IDENTIFIABLE RISK (NIR)**—Used to classify those who reported a risk factor which is not considered specific to HIV infection such as: travel outside province or country (country not specified); pregnant, abnormal chest x-ray, low income, or where NIR is listed as a risk factor.

**UNKNOWN RISK FACTOR**—Used to classify those persons with a missing history of exposure to HIV (i.e. left blank) or where the risk factor is specified as “unknown”. There are several reasons as to why this occurs such as the person has died with an incomplete risk factor history; the person has been lost to follow up: the person declines to be interviewed or to report a risk factor or the person cannot identify a risk factor.

**HIV**—Human Immunodeficiency Virus

**IMMUNE SYSTEM**—The body’s system of defence against foreign organisms such as bacteria, viruses or fungi.

**iPHIS**—Integrated Public Health Information System. A data collection system for reportable diseases first used in Ontario in 2005 (replacing RDIS - see below).

**INCIDENCE**—A measure of the number of new cases of illness occurring in a population over a period of time (e.g. one year). The denominator is the population at risk; the numerator is the number of new cases occurring during a given time period.

**OPPORTUNISTIC INFECTIONS**—Diseases that rarely occur in healthy people but cause infections in individuals whose immune systems are compromised, such as in HIV infection. These organisms are frequently present in the body but are generally kept under control by a healthy immune system. When a person infected with HIV develops an opportunistic infection, they are considered to have progressed to an AIDS diagnosis.

**PREVALENCE**—The total number of people with a specific disease or health condition living in a defined population at a particular time. HIV prevalence is the total number of people living with HIV infection (including those with AIDS) in Canada at a particular time.

**RDIS**—Reportable Disease Information System. This database was used in Ontario between 1990 and 2004 (and part of 2005). See Data Methods Section for more information.

**RISK FACTORS**—A risk factor is an aspect of someone’s behaviour or lifestyle, a characteristic that a person was born with, or an event that he or she has been exposed to that is known to be associated with a health-related condition.

**REPORTABLE**—Communicable or infectious diseases (including those contained in this report) are reportable to the local Medical Officer of Health under the jurisdiction of the Health Protection and Promotion Act (HPPA). Human Immunodeficiency Virus (HIV) became reportable in Ontario in 2002. Prior to this only Acquired Immunodeficiency Syndrome (AIDS) cases were reportable.

**SYPHILIS**—Syphilis is a complex sexually transmitted infection caused by the bacteria *Treponema pallidum*. Syphilis moves through five stages if left untreated and is infectious mostly during the early stages (typically less than one year after becoming infected). However, it is during the later stages of the disease that syphilis can do the most damage to the body, affecting the brain, blood vessels, the heart and bones. It can eventually lead to death. Similar to chlamydia and gonorrhea, syphilis can be asymptomatic and go undiagnosed.<sup>19</sup>

**TUBERCULOSIS**—Tuberculosis (TB) is a disease caused by bacteria called *Mycobacterium tuberculosis*. It mainly affects the lungs but can affect other parts of the body as well. Tuberculosis is spread through the air from person-to-person when someone with infectious or active TB disease in their lungs or larynx coughs or sneezes. Even though TB is completely curable with antibiotics, it continues to be a major health problem and is a leading cause of death for people infected with HIV worldwide.<sup>13</sup>

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