

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*”.²

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.
- 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)

Disease/Condition	ICD-10
HIV/AIDS	B20-B24

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

Disease/Condition	ICD-10
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)

Description	ICD-10
Anemia	D50.0-D64.9

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

Description	ICD-10
Diabetes Mellitus	E10.0-E14.9

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

Description	ICD-10
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)

Description	ICD-10
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)

Description	ICD-10
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)

Description	ICD-10
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)

Description	ICD-10
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)*

Description	ICD-10
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"> • connective tissue diseases • rheumatoid arthritis • osteoarthritis and allied disorders • other arthritis • rheumatism 	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)

Description	ICD-10
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)

Description	ICD-10
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)*

Description	ICD-10
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)*

Description	ICD-10
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.