REPORT ON HIV/AIDS IN ONTARIO

2007

Robert S. Remis, MD, MPH, University of Toronto
Carol Swantee, BSc, HIV Laboratory
Juan Liu, MSc, University of Toronto

JUNE 2009

FOREWORD

The preparation of this report would not have been possible without the collaboration of staff at the AIDS Bureau and the Public Health Division at the Ontario Ministry of Health and Long-Term Care, HIV Laboratory, Ontario Agency for Health Protection and Promotion and the persons and organizations listed in the acknowledgments.

The analyses on which this report is based are made possible by support from the AIDS Bureau of the Ontario Ministry of Health and Long-Term Care which provides a mandate for researchers at the Ontario HIV Epidemiologic Monitoring Unit (Dr. Robert Remis and Juan Liu) at the University of Toronto to monitor the HIV/AIDS epidemic in Ontario.

We continue to produce an updated Ontario HIV/AIDS surveillance report each year. The report is disseminated to public health units, community groups involved in HIV prevention and in the care of those affected by HIV/AIDS and to HIV researchers. We hope this report serves as an important resource for these groups, as well as for others, including the media, students, persons in other provinces and countries, etc. We continue to appreciate your critical comments and suggestions for future reports.

This report is also available on our web site (*www.phs.utoronto.ca/ohemu*) as are updated semi-annual summaries of HIV diagnostic data posted as soon as possible after the end of each period.

June 2009

ACKNOWLEDGMENTS

This report was made possible through the commitment and cooperation of the following persons, to whom we owe our sincere gratitude:

Frank McGee, Coordinator, AIDS Bureau, Ontario Ministry of Health and Long-Term Care for core funding of the Ontario HIV Epidemiologic Monitoring Unit;

Staff of the Public Health Division Ontario Ministry of Health and Long-Term Care and, in particular, Michael Whelan, Brenda Lee and Kevin Cherry who provided us with the AIDS case data;

Staff of the public health units who report AIDS case data to the Ontario Ministry and the physicians who report the cases;

Dr. Lindy Samson, Children's Hospital of Eastern Ontario, Ottawa, for providing perinatal data collected by the Ontario region of the Canadian Pediatric AIDS Research Group and Dieter Ayers, Canadian HIV Trials Network, University of British Columbia, for providing us with the data extraction.

Carol Major, formerly of the HIV Laboratory, who provided valued guidance and advice in the analysis of the HIV diagnostic database and the conception and implementation of the Laboratory Enhancement Study;

Dena Schanzer and Dr. Ping Yan of the Centre for Infectious Disease Prevention and Control, Health Canada, for providing estimates of reporting delays in Ontario used to adjust AIDS incidence;

Lisa Santangelo, Laboratory Enhancement Program, HIV Laboratory, Laboratories Branch, Ontario Agency for Health Protection and Promotion.

EXECUTIVE SUMMARY

In this eleventh annual Ontario HIV/AIDS Surveillance Report, we present updated information and analyses from multiple data sources as before, including HIV diagnostic data, AIDS case reports, surveillance on HIV-infected mothers and infants, uptake of HIV testing in pregnancy, HIV-related mortality, and HIV incidence based on the detuned assay. We updated our HIV statistical model to December 2007. We also updated the supplement on HIV diagnoses and AIDS cases by Local Health Integration Networks (LHINs) as an appendix to respond to requests for LHINs-based data. The present report includes results that reflect several areas of particular interest and concern. Our findings clearly indicate that the HIV epidemic in Ontario has not yet stabilized.

To date, 28,697 HIV infections have been diagnosed in Ontario. Though the number of HIV diagnoses increased steeply from 1986 to a peak in 1990, during the period from 2002 to 2007, the number of HIV diagnoses remained relatively stable with average at 1,100 each year. Since HIV testing began, 4,132 or 15% of diagnoses were among women. However, the proportion of diagnoses comprised by females dramatically increased and reached a plateau about 25% from 2001 to 2007. The proportion of HIV diagnoses comprised by men who have sex with men (MSM) gradually decreased over a 20-year period, from 90% when HIV testing began to about 45-50% since 1998. HIV diagnoses among MSM slightly decreased by 4% in 2007 compared to 2002. The proportion comprised by persons from HIV-endemic countries increased steadily over time, from less than 5% in the late 1980s to above 20% since 2001. However, compared to 2002, HIV diagnoses in this group decreased by 24% in 2007. HIV diagnoses among “low-risk heterosexuals” remained relatively stable from 2002 to 2007, with average 165 cases each year.

Overall, HIV testing increased by 22% in 2007 compared to 2002; 55% of tests were among females. HIV testing in three exposure categories increased as follows: HIV-endemic 34%, low-risk heterosexual 28% and MSM 21%.

8,643 AIDS cases have been reported in Ontario since the beginning of the epidemic. The number of reported AIDS cases decreased dramatically in the past decade following the peak of 741 cases in 1993. After adjustment for reporting delay, AIDS incidence reached its lowest level in 2000 but increased to a higher and variable incidence since then. In 2007, AIDS incidence reached to 323. Though there is considerable uncertainty about the true AIDS incidence in 2007, it is clear that AIDS incidence has increased since its trough in 2000.

MSM accounted for 69% of AIDS cases reported to date, with a decreasing proportion since the beginning of the epidemic. The proportion of MSM remained relatively stable at about 42% from 2002 to 2007. Though 9% of all AIDS cases reported to date were among women, women comprised 16% of AIDS cases in 2007. The lower proportion of women among AIDS cases than among HIV diagnoses is likely related to the time of progression from HIV infection to AIDS.

From 1999 to 2007, prenatal HIV test uptake in Ontario increased dramatically, from 33% in the first quarter of 1999 to 92% in 2007. 330 pregnant women, including 227 diagnosed during pregnancy, were diagnosed as HIV-infected, for an overall HIV positivity rate of 0.32 per 1,000. With respect to mother-infant HIV transmission, 772 HIV-infected women who delivered in Canada have been identified to date, on giving birth to 130 HIV-infected infants. The majority (55%) of infected infants were born to mothers from HIV-endemic countries. From July 1994 to December 2007, 64 HIV-infected infants born in Ontario have been identified, indicating that

prenatal HIV testing and antiretroviral prophylaxis was not systematic following the release of the results of the AIDS Clinical Trials Group (ACTG) 076 trial. After adjusting for delay in diagnosis and reducing the year-to-year variation through smoothing, the number of mother-infant HIV transmissions peaked at 10 per year in 1993-94 and decreased to about 2 per year in 2006-07.

Based on the detuned assay adjusted for testing bias, HIV incidence over the six-year period from 2001 to 2007 was 1.07 per 100 person-years among MSM, 1.35 among MSM-IDU, 0.18 among IDUs and 0.016 among persons through heterosexual contact. We observed a small annual decrease of about 7% for MSM and no change for the rest three exposure categories.

According to our statistical model, 35,960 persons in Ontario have been infected with HIV to date; 9,472 persons have died, leaving 26,490 persons living with HIV as of 2007. HIV prevalence in Ontario increased year over year since 1996. In the five years since 2002, HIV prevalence increased 34%, or 6.1% annually. This is in part related to the continued and, in some cases, increased HIV incidence as well as the decreased mortality due to the introduction of highly active antiretroviral therapy (HAART). Since 2002, HIV prevalence among persons from HIV-endemic countries increased 66%, with an average annual increase of 10.7% and HIV prevalence among other persons infected through heterosexual contact increased 60%, with an average annual increase of 9.8%. For MSM, HIV prevalence increased 26%, with an average annual increase of 4.8%; MSM remain the group most affected by the HIV epidemic in Ontario, constituting 58% of HIV-infected persons.

The increase in prevalent HIV infections in persons infected heterosexually (other than those from HIV-endemic regions) deserves comment. In the United States, the majority of AIDS cases among those infected heterosexually are non-IDU sexual partners of IDUs whereas, in Quebec, the majority of such cases are sexual partners of persons from HIV-endemic regions. It is not clear whether the increase observed in Ontario is closer to the U.S. or the Quebec pattern is related to other explanations. A small study carried out in Toronto revealed that recently diagnosed persons infected through heterosexual contact fell into three approximately equal groups: female sex workers, persons born in Canada and persons born elsewhere. Among those born in Canada, most had sexual contact with persons from HIV-endemic countries and were not aware of their HIV risk at the time of their exposure.

We estimated the proportion of HIV-infected persons in Ontario who have been diagnosed. Overall, we estimated that 65% of HIV-infected persons knew they were infected. However, only 48% of persons infected by heterosexual transmission and 56% of HIV-infected persons from HIV-endemic countries have been diagnosed. Clearly, the large number of infected but yet undiagnosed persons represents a significant public health challenge and opportunity.

According to our HIV model, about 1,680 persons were newly infected with HIV in Ontario in 2007. Of these, nearly half were among MSM with 760 new infections per year; incidence in this group increased about 66% since the low of 460 new infections estimated for 1996. New infections in the heterosexual and HIV-endemic exposure categories followed a somewhat different pattern, with a steady increase in incidence every year since the HIV epidemic began. These observations clearly represent a major challenge for prevention policies and programs. In contrast, we estimate 90 new infections among IDUs in 2007, about 47% of the peak annual incidence of 190 new infections in 1993.

The reasons for the increased HIV incidence among MSM observed in Ontario are complex and relate to factors associated with unprotected sexual behaviour. These factors include personal and social as well as environmental factors, including those related to the advent of HAART in the late 1990s. Given the diversity of HIV risk, HIV risk cannot be addressed by one approach to prevention; prevention programs must be tailored to specific group needs within the MSM population.

In summary, our results show that further research, including prevention research, is needed to clarify the reasons for the observed instability and to develop and maintain effective programs for both primary and secondary HIV prevention.

2007 HIGHLIGHTS

- Overall, 26,490 HIV-infected persons are living in Ontario as of 2007.
- Most affected groups by exposure category were: MSM 15,300, persons from HIV-endemic regions 4,472 and others infected by heterosexual transmission 4,023.
- We observed an 66% increase in HIV prevalence since 2002 among persons from HIV-endemic regions and 60% among others infected by heterosexual transmission.
- 23% of HIV diagnoses in 2007 were among women.
- An estimated 65% of HIV-infected persons in Ontario have been diagnosed.
- 1,680 persons were newly infected with HIV in 2007 in Ontario.
- Increases in HIV incidence were observed in the MSM, HIV-endemic and heterosexual exposure categories since 1996.

TABLE OF CONTENTS

LIST OF TABLES

1. HIV serodiagnoses

3. Prenatal HIV testing and mother-infant HIV transmission

4. HIV-associated mortality

5. HIV incidence based on the detuned assay

6. Ontario HIV model

S. Local Health Integration Network

LIST OF FIGURES

1. INTRODUCTION

This report summarizes the HIV/AIDS epidemic in Ontario as of 2007 using several indicators. It includes data on HIV diagnoses from Ontario's voluntary HIV testing system, data on reported AIDS cases from the Ontario notifiable disease system, mother-infant HIV infection from the Canadian Pediatric AIDS Research Group and data on HIV incidence from Laboratory Enhancement Study. Finally, we present estimates of HIV infection in Ontario based on statistical modeling. We also added an additional section as an Appendix on HIV diagnoses and AIDS cases by Local Health Integration Networks (LHINs) to correspond an increased demands on data for LHINs. This year, we were unable to update data on HIV-related mortality; however, we expect to be able to include this in the next report.

This report was produced by the Ontario HIV Epidemiologic Monitoring Unit, established to enhance the monitoring of the HIV/AIDS epidemics in Ontario. The unit began operation in January 1997 as an initiative of the AIDS Bureau, Ontario Ministry of Health and Long-Term Care in collaboration with the Department of Public Health Sciences, University of Toronto. The current report is the eleventh in a series of monographs to review and summarize what is known about the patterns of HIV transmission and infection in Ontario.

2. METHODS

To calculate annual incidence and mortality rates, we used population estimates by year, sex and public health unit obtained from the Health Data and Decision Support Unit, Ontario Ministry of Health and Long-Term Care (MOHLTC) and Statistics Canada. The actual or interpolated population for the year of interest were used to calculate annual incidence. Cumulative incidence rates were calculated using the 1996 population from Canada census data *<1>* as the denominator.

Where appropriate, statistical testing was carried out using the chi-square or Fisher's exact test to compare proportions and the chi-square to test for trends over time (Epi Info v. 6.04b, 1997, Centers for Disease Control and Prevention, Atlanta, USA and World Health Organization, Geneva, Switzerland).

2.1 HIV diagnoses

2.1.1 Data sources

HIV serodiagnostic data were obtained from the HIV Laboratory, Central Public Health Laboratory (CPHL) of the Ontario Agency for Health Protection and Promotion (OAHPP) for the years 1985 to 2007.

Almost all HIV diagnostic testing in the Province of Ontario is performed through the public health laboratory system of the OAHPP. This includes HIV testing at the CPHL itself and at any of the regional public health laboratories located throughout Ontario. However, limited HIV testing is carried out by other laboratories for the purposes of establishing eligibility for life insurance, screening organ and tissue donors and testing blood donations. Ontario residents may also be

tested in other provinces; persons may have either tested elsewhere before establishing residence in Ontario or traveled out of province to have an HIV test.

In Ontario, persons requesting a test from their physician or at any one of the specialized clinics established for this purpose (anonymous testing sites) are tested at no charge. Specimens are transported to the public health laboratory system for HIV testing. Specimens are first tested by enzyme immunoassay (EIA) and, if repeatedly reactive, by supplemental and confirmatory testing, including Western blot. Only rarely does this testing algorithm not provide a definitive result. In such cases, follow-up testing (e.g. repeat serology, polymerase chain reaction [PCR], p24 antigen) sometimes involving the collection of additional blood specimens is required. Since 1992, over 200,000 HIV tests have been conducted annually and less than 0.5% have been indeterminate. In recent years, fewer than 10 tests per year remain indeterminate. For the purpose of the analysis, specimens are classified as: negative (including indeterminate results), seroconverter (positive after a negative test), first-time positive (including window-period cases) or repeat positive.

2.1.2 Classification by exposure category

When more than one risk factor was reported, the case was classified according to a mutually exclusive hierarchy which assigns the case to the exposure category most likely to represent the source of HIV infection, as follows:

- Men who have sex with men (MSM)
- MSM and injection drug use (IDU)
- IDU
- Mother-to-child transmission (MTC)
- Blood product recipient prior to November 1985
- Blood transfusion recipient prior to November 1985
- Origin/residence in an HIV-endemic area
- Heterosexual transmission
    - High-risk heterosexual
    - Low-risk heterosexual
- Unknown (not indicated, NIR)

The high-risk heterosexual category refers to persons reporting a history of sexual contact with a person known to be HIV-infected or with someone at high risk of HIV infection (e.g. a bisexual male [women only], IDU, clotting factor recipient, person from an HIV-endemic region). The low-risk heterosexual category includes all other persons who have had sex with persons of the opposite sex, none of whom were reported to be HIV-infected or at increased risk of being HIV-infected.

In the design of the laboratory requisition, blood product recipients were intended to indicate persons who received fractionated blood products. Blood transfusion, on the other hand, was intended to indicate persons who received whole blood or components of fresh blood. However, it has become evident that some physicians prescribing tests used the blood product category to indicate the receipt of blood components. Since more detailed data about these cases were not available, we were not able to reclassify them.

In the annual surveillance reports prior to 2005 report, HIV-positive diagnoses in the "Perinatal transmission" category included all children with the confirmed presence of HIV antibody. Due to transplacental transmission of maternal antibody, many of these children were not actually infected. In 2006, we undertook a comprehensive review of these cases and developed an algorithm to define HIV infection status based on the results and timing of antibody, p24 antigen and PCR testing of the child. Therefore, HIV-positive diagnoses in children include only those who are classified as actively infected and the exposure has been renamed "Mother-to-child transmission (MTC)" in 2005 report and afterward. Also with respect to HIV diagnoses in young children, we deleted possible duplicate HIV-positive cases with the same birth date, gender and geographic region (public health unit, forward sortation area of institution or medical doctor). This method may result in a slight underestimation of the number of HIV-infected infants (probably <5%) due to multiple births or false matches.

2.1.3 Data analysis

To the extent possible, subsequent HIV-positive tests from the same person were eliminated to avoid duplicate counting. This was carried out by: (1) removal of HIV-positive tests from persons who indicate that they had a previous positive test and (2) matching HIV-positive tests to earlier HIV-positive tests in the database (using identifying information, e.g., names, initials, dates of birth, clinic where HIV test was carried out, etc.).

We calculated the number and proportion of first-time HIV diagnoses according to sex, age at time of first HIV-positive test (less than 1, 1-14, 15-19, 20-29, 30-39, 40-49, 50-59 and 60+ years), exposure category and year of diagnosis. Analyses were carried out by health region; however, the regions were modified to reflect the heterogeneity of the epidemic in Ontario and highlight the differences between the larger urban centres and other parts of the province. The following regional categories were used: Northern, Ottawa, Eastern other than Ottawa (Eastern, other), Toronto, Central East other than Toronto (Central East, other), Central West and Southwest. The mean age at diagnosis was also calculated. We used 1996 population estimates by health region obtained from Statistics Canada to calculate and map rates of HIV infection. Annual population estimates were used to calculate rates of HIV testing according to health region from 1992 to 2007.

To estimate the true distribution of cases by exposure category and region, we reassigned cases with missing data for several analyses. Cases with unknown sex or region of residence were allocated to these categories based on the distribution among cases observed in the Ontario HIV Laboratory Project study carried out in 1995-96 <2> and the Laboratory Enhancement Study begun in October 1999 <*3*>. Cases in some exposure categories (mainly in the low risk heterosexual category) were reallocated into other exposure categories based on information from the Laboratory Enhancement Study. Further details of this methodology are included in Appendix A.

To indicate multiple risk factors when more than one was reported, we also present in one table first-time HIV diagnoses according to single and multiple sources of exposure.

We calculated HIV-positivity rates for cases diagnosed from 1992 to 2007, since data on negative tests have been collected only since 1992. To calculate these rates, persons receiving an HIV test for the first time were included in the numerator and HIV tests conducted in the same calendar year, excluding known repeat tests, were included in the denominator. To minimize instability

where numbers were small, moving averages were used to calculate and graph HIV-positivity rates by health region and year of diagnosis within each major exposure category.

2.1.4 HIV diagnoses in real time

The present report provides detailed analyses of HIV diagnoses in Ontario to monitor trends over time. However, we also analyze and disseminate more timely data on HIV diagnoses on our web site (www.phs.utoronto.ca/ohemu). Results are generally posted with two months following the end of each six-month period.

2.2 AIDS incidence

2.2.1 Data sources

Data on AIDS cases diagnosed to December 31, 2007 and reported to January 2009 were obtained from the Public Health Division, MOHLTC.

AIDS cases in Ontario are reported to public health units and forwarded to the Public Health Division. Reporting of AIDS cases was initiated informally in 1982 and then integrated into an official surveillance system (the Ontario AIDS Surveillance Program [OASP]) when AIDS became reportable in August 1983.

AIDS cases in Ontario are classified according to criteria used for epidemiologic surveillance as recommended by the Laboratory Centre for Disease Control <*4*>. Health Canada defines a case of AIDS as a person who has an illness characterized by the following: (1) one or more of the specified indicator diseases, and (2) either a positive test for HIV infection or absence of specified causes of underlying immunodeficiency. From 1983 to 1987, approximately 20 indicator conditions, including opportunistic infections and malignancies, were used. In 1987, the list was expanded to include two syndromes, HIV wasting and HIV encephalopathy, and "presumptive diagnoses" for several of the indicator conditions <*4,5*>. Finally, in 1993, three indicator conditions were added, namely, pulmonary tuberculosis, cervical cancer in women and recurrent bacterial pneumonia <*6,7*>.

All reported AIDS cases, including those ascertained retrospectively (i.e., prior to the institution of official reporting), were included in our analyses. Until April 2005, AIDS data were maintained in the Ministry's Reportable Disease Information System (RDIS) which was implemented in 1990. This system provided for the organization of data on reportable diseases at the local health unit level and for electronic transfer to the Ministry of Health and Long-Term Care. In 2005, the new Integrated Public Health Information System (iPHIS) replaced RDIS. The transition from RDIS to iPHIS took place from April to December 2005. All data after the transition cut-off for each public health unit have been entered in iPHIS.

Due to a change in the policy for obtaining health-related data from the Ontario Ministry of Health, we were unable to obtain line data for each reported AIDS case as in previous years. The Infectious Disease Surveillance Section, Infectious Diseases Branch, MOHLTC provided us eight data sets of reported AIDS cases to allow us to produce the same tables as in the previous years. Each data set contained three to five variables without patient identifiers; thus, cases were not linkable across data sets. To ensure that results were comparable in 2007 to previous outputs,

we provided the MOHLTC with an algorithm for data verification and cleaning we had developed and used in 2006.

In the preparation of the 2006 surveillance report, to verify data quality, we compared data among cases in RDIS and iPHIS and found that some data fields in RDIS had been incompletely imported into iPHIS. No specific variables on risk factors for AIDS were yet available in iPHIS, although risk factors could be derived indirectly in some cases. Therefore, we adjusted exposure category distributions to compensate for the limited risk factor information available, especially in the most recent years (see Section 2.2.2 below).

Few cases in iPHIS included the dates of diagnosis of AIDS indicator diseases and the AIDS diagnosis date in iPHIS did not always match the date of diagnosis of AIDS in RDIS. We developed an algorithm to determine the most likely date of AIDS diagnosis: the earliest date of diagnosis of AIDS indicator conditions was used if present; otherwise, the original variables indicating the date of diagnosis in the database were used.

Due to the difficulties related to the transition to iPHIS, data in RDIS was used for this report if a case was present in both RDIS and iPHIS. These cases constituted 89.6% (7,739) of cases in this report. 0.7% (62) of cases in this report had data only in RDIS and 9.7% (842) had data only in iPHIS.

2.2.2 Data analysis

Cumulative incidence rates (1981 to 2007) were calculated using the 1996 census population as denominator.

The number of AIDS cases and cumulative incidence rate per 100,000 were calculated according to sex, age at AIDS diagnosis (under 15, five-year age categories from 15 to 59, and 60+), exposure category, health region (as described fro HIV above; see Section 2.1.2) and year of AIDS diagnosis. The date of diagnosis was defined as the date of the diagnosis of the earliest AIDS-defining illness, if available, or the reported date of diagnosis otherwise.

Due to the large proportion (3.8% in RDIS and 49.2% in iPHIS) of missing values for exposure category in recent years, especially in 2005 through 2007, we reassigned cases with missing data for several analyses based on their distribution among AIDS cases with known exposure category stratified by sex, health region and year of diagnosis.

2.2.3 Classification by exposure category

Exposure categories were defined according to Appendices C1-3 of the Guidelines for the Surveillance of AIDS in Canada <*8*>. When more than one risk factor was reported, a hierarchy was used to determine the most likely source of infection for the final classification (see Appendix A). This was carried out based on the patterns of HIV incidence and prevalence in Ontario. The underlying principle was that, for persons with multiple exposures, we assumed that the most likely source of infection was that associated with the highest HIV incidence and prevalence.

We analyzed HIV and AIDS cases according to single and multiple sources of exposure to evaluate combinations of exposure categories which are not reflected in the hierarchical exposure classification. In this analysis, persons who received clotting factors prior to July 1985 were

classified as infected through clotting factor recipients. In addition, those having received clotting factors with date unknown were classified into this exposure category only if they had no other highly predictive risk factors for HIV acquisition. Persons who received a blood transfusion prior to November 1985 or were transfused with unknown date were considered to have been infected by blood transfusion.

Those who received clotting factor July 1985 or after or a blood transfusion in November 1985 or after were attributed to the "no identified risk" (NIR) category. In this analysis, therefore, the numbers in the clotting factor, heterosexual other and transfusion categories do not necessarily reflect those in the hierarchical classification tables.

2.2.4 Adjustment for reporting delays

Due to delays between the date of diagnosis and date of report to the Ministry, the actual number of AIDS cases is likely to be underestimated, particularly in the most recent years. Therefore, delay adjustments were carried out to obtain a more accurate picture of the annual number of diagnosed cases for the HIV statistical model (see Section 2.4 below). The weight of adjustment and 95% confidence interval of these adjustments were carried out using Lawless method and S-plus program provided by Dr Ping Yan from the Public Health Agency of Canada (PHAC) <*9*>.

Dates of report for AIDS cases were available from the Public Health Division only from the inception of RDIS (i.e., from 1990). It was impossible to link the data to the database from PHAC, which contained dates of report for AIDS cases from 1983 to 1996, and the number of AIDS cases from 1981 to 1990 in the 2007 dataset remained close to the number in the data for the 2006 report. Therefore, for cases diagnosed before 1991, we used the reporting delay matrix (year of diagnosis versus year of case report) from the 2006 report. For cases diagnosed from 1991 to 2007, we used the reporting delay matrix from the 2007 data set.

2.3 Prenatal HIV testing and mother-infant HIV transmissions

2.3.1 Prenatal HIV testing

2.3.1.1 Data source

In January 1999, Ontario adopted a policy to offer HIV testing to all pregnant women. Prenatal HIV testing is conducted at the CPHL and its five regional laboratories. Data for this section were extracted from LAByrinth, an information system which links CPHL to the regional laboratories and allows access to data, including HIV results, at these laboratories. Most prenatal serologic testing is carried out using a specific requisition and test results maintained in a dedicated database. Nevertheless, for administrative reasons, some HIV testing is carried out through the routine HIV diagnostic service and kept in a separate database. Therefore, records of women having at least one test and included in the prenatal database were linked to the HIV diagnostic database using name and date of birth to determine whether an HIV test was carried out based on both databases.

2.3.1.2 Data analysis

The pregnancy (rather than subject or test) was used as the unit of analysis. If two or more tests were carried out within 258 days of each other, these tests were considered to have been carried out during the same pregnancy. This interval was based on an analysis of the 6% of records which reported the expected date of delivery. Multiple prenatal tests within a pregnancy were combined to evaluate HIV testing status for that pregnancy. We assigned the date of pregnancy as the date of the last test performed in the pregnancy. If a woman was not tested for HIV during a particular pregnancy (*current* test), we also examined whether she had been tested before the pregnancy (*prior* test).

Records of women receiving prenatal care from January 1999 to December 2007 were used to quantify the number and proportion of pregnant women tested for HIV (test result appeared in the prenatal database) or had been tested in the past through the HIV diagnostic program by quarter and health region. The number and rate of HIV-positive results were also calculated by quarter and health region.

The denominators were the number of pregnancies with at least one prenatal test. If a woman had tested for HIV both during a particular pregnancy (current test) and previously, the current test was considered more important and the pregnancy was classified as tested in the current pregnancy.

(Every three months, we update these analyses and post them on our web site (www.phs.utoronto.ca/ohemu))

2.3.2 Mother-infant HIV transmission

2.3.2.1 Data source

Data were obtained from the Canadian Pediatric AIDS Research Group (CPARG), Ontario region for infants born to HIV-infected mothers from 1984 to 2007. The Ontario region of CPARG is currently coordinated by Dr. Lindy Samson of the Children's Hospital of Eastern Ontario in Ottawa. This surveillance program was initiated in 1992 to collect information on children born to HIV-infected mothers and receiving specialized care at four hospitals in Ontario. Data is collected by staff at each participating institution from medical charts.

New cases and an update on the clinical status of previously reported cases are solicited once a year, usually in December or January. The database is maintained using spreadsheet software (Microsoft Excel). Information is collected on date of birth and sex of the infant, country of birth of the mother, risk factor for HIV infection in the mother, whether the mother received anti-retroviral prophylaxis during pregnancy and the clinical status of the infant (confirmed infected, confirmed not infected, pending/unknown/lost to follow-up). Pending cases are, for the most part, infants for whom a final decision on infection status cannot yet be made on the basis of available laboratory test results, including HIV antibody, p24 antigen and polymerase chain reaction (PCR).

2.3.2.2 Data analysis

The number and proportion of children born to HIV-infected mothers was calculated according to: (1) the year of birth and clinical status of the infant; (2) location of the institution (hospital) and exposure category; and (3) the year of birth of the infant and the presumed source of exposure of the mother among HIV-infected infants.

As some HIV-infected children are diagnosed well after birth, we analyze the annual number of cases adjusted for delay in diagnosis. The weight of adjustment and 95% confidence interval of the adjustment was carried out using Lawless method and S-plus program provided by Dr Ping Yan from PHAC <*9*>.

2.4 HIV-related mortality

2.4.1 Data source

Data on HIV-related deaths (ICD-9 codes 042, 043 or 044 for 1987 to 1999, ICD-10 codes B20, B21, B22, B23 or B24 for 2000 to 2005) occurring from 1987 to 2005 were obtained from the Vital Statistics office of the Ontario Registrar General.

2.4.2 Data analysis

We examined the distribution of HIV-related deaths according to sex, year of death and age group for cases from 1987 to 2005. We also calculated sex-specific annual mortality rates per 100,000.

We also examined the distribution of deaths according to country of birth (HIV-endemic and non-HIV-endemic) for cases from 1987 to 2005. All countries in sub-Saharan Africa and the Caribbean were considered to be HIV-endemic for the purpose of these analyses.

2.5 HIV incidence using the detuned assay

In October 1999, we initiated the Laboratory Enhancement Study (LES) to enhance laboratory-based HIV surveillance in Ontario. One of its aims was to estimate HIV incidence among persons testing for HIV using the detuned assay. This technique was first described in 1998 by Janssen et al <*10*> and permits detection of HIV infections which occurred within the four months previous to the HIV-positive test.

We initially used the standard formula as proposed by Janssen <*10*> to calculate incidence rate using the number of discordant sera as the numerator and the number of tests multiplied by the mean window period (The mean time from seroconversion was 133 days with the Vironostika assay using a standardized optical density cutoff of 0.75) for the denominator as follows:

$$\text{HIV incidence} = \frac{\text{\# HIV-positive on diagnostic EIA assay with HIV-negative on detuned}}{\text{\# HIV tests (negative + positive with negative on detuned)}} \times \frac{365}{133} \times 100 \text{ person-year}$$

Risk factor information collected through the LES was used to assign those without risk factor information to an exposure category as well as to re-allocate cases in selected exposure

categories. Where the results of the detuned assay were not available, they were apportioned based on the proportions of the discordant results of those that were done.

HIV incidence were carried out for selected exposure categories (MSM, IDU and heterosexual categories) and aggregated health regions (Toronto, Ottawa and the rest of Ontario) for each year from 2001 to 2007.

However, estimating incidence from a single serum specimen using the detuned assay may be subject to strong test bias *<11,12>.* Persons who test may not be representative of all persons in the population; HIV testing frequency may be a function of HIV risk; persons who experience isolated high risk exposures or symptoms consistent with seroconversion illness may be more likely to test in the period following infection (seroconversion effect). We calculated incidence at five values of "window period" and adjusted crude estimates using a software utility which was developed to model true incidence rate using formula taking into account bias due to seroconversion effect *<12>.*

2.6 Ontario HIV model

We wished to estimate with the greatest precision possible the incidence, cumulative incidence and prevalence of HIV infection and AIDS from 1977 to 2007. We also wished to assess annual and cumulative deaths due to HIV. To accomplish this, we used data from a variety of sources, including (with source) HIV serodiagnoses (Central Public Health Laboratory), AIDS incidence (Ontario AIDS Surveillance Program), AIDS mortality (Vital Statistics, Ontario Registrar General) and HIV infections among women who delivered a live infant (CPARG). Data from the Laboratory Enhancement study and from other studies, where available, were also used.

The detailed methodology used to derive the estimates is beyond the scope of the present report. However, further details are available upon request. A brief summary of the methodology used is described in the methods section as well as in previous reports. In essence, we derived estimates of HIV incidence, HIV diagnoses, AIDS incidence and HIV-related mortality to fit available data on serodiagnosis, seroprevalence studies (limited data), reported AIDS cases and data on HIV-related mortality.

Initial estimates for HIV incidence, AIDS incidence and HIV-related deaths were entered into a spreadsheet (Lotus 123, Lotuis Corporation) and the values of the above indicators were progressively refined in an iterative fashion so as to be consistent with the collected data, taking into account the direction and strength of biases. The initial results were compared to results from techniques used elsewhere (e.g. back-calculation) to verify the credibility of the estimates. Further details concerning the techniques used are included in the first Ontario HIV/AIDS surveillance report *<13>* as well as in Appendix B.

3. RESULTS

3.1 HIV diagnoses

3.1.1 Number of HIV diagnoses

From October 1985 to December 2007, 28,697 persons in Ontario (23,437 males, 4,132 females and 1,128 of unknown sex) were diagnosed with HIV infection (**Table 1.1** and **Figure 1.1**). The annual number of HIV diagnoses increased steeply from 1,365 in 1986 to a peak of 2,069 in 1990. Since then, the number of diagnoses gradually decreased to about 900 cases in 1999 and 2000, but has slightly increased since. In the latest six-year period from 2002 to 2007, the number of HIV diagnoses has been relatively stable with a mean of 1,130 cases each year.

1,128 cases or 3.9% of HIV diagnoses had unknown sex. Overall, males continue to account for the majority of diagnoses (77.0% in 2007); the number of HIV diagnoses rose to a peak of just over 1,800 in 1990 and decreased subsequently. In 1997 to 2001, approximately 700 infections were diagnosed annually in males. However, since 2001, about 820 infections have been diagnosed annually. The proportion of diagnoses comprised by females dramatically increased from around 2% in the early years, reaching a plateau of 23% to 30% from 2001 to 2007.

Table 1.2 presents the cumulative HIV diagnoses by exposure category and sex from 1985 to 2007. Notably, 14,719 or 51.3% of diagnoses had no information on the likely source of infection. Thus, the proportions shown are for exposure categories among men, women and total cases for whom risk factor data were available. Among males, overall, sex with men (MSM) comprised 77.0% of HIV diagnoses, followed by low-risk heterosexual (7.0%) and injection drug users (IDUs) (6.7%), 2.2% of male cases were from HIV-endemic countries. Among females, 69.9% of diagnoses were attributable to heterosexual transmission (i.e. including high-risk (21.7%) and low-risk heterosexual (33.9%) and HIV-endemic (14.3%) exposure categories) and 17.8% were IDUs.

Table 1.3 is similar to Table 1.2 but shows HIV diagnoses adjusted for unknown sex and exposure category according to proportion among the known and incorporating results of the Laboratory Enhancement Study as described in the Methods section above. This analysis revealed that approximately 17,572 MSM, 3,449 persons from HIV-endemic countries, 2,236 IDUs, and 1,102 MSM-IDU have been diagnosed with HIV to December 2007. 154 children were infected through mother-to-child transmission. In this analysis, the proportion assigned to the HIV-endemic exposure category was substantially higher than the unadjusted figures for both sexes, 6.8% for males and 41.6% for females. Inversely, the proportion assigned to the low-risk heterosexual category decreased from 7.0% to 5.4% for males and from 33.9% to 18.1% for females. The proportion of HIV diagnoses in females in the three exposure categories reflecting heterosexual transmission was 74.5%.

Table 1.3a shows the adjusted HIV diagnoses in 2007 by exposure category. Among males, the three highest proportions of exposure category were: MSM (60.0%), low-risk heterosexual (12.4%) and persons from HIV-endemic countries (10.1%). 52.4% of female cases were from HIV-endemic countries. In all, heterosexual transmission accounted for 84.7% of cases among females.

Table 1.4 displays unadjusted HIV diagnoses by exposure category and year of HIV diagnosis from 1985 to 2007. The exposure category could not be determined for 14,719 cases. The proportion of cases without data allowing the assignment of exposure category has not changed substantially in recent years (data not shown).

Table 1.5 shows the adjusted number and proportion of HIV diagnoses by year of HIV diagnosis and exposure category from 1985 to 2007. The distribution of exposure categories has changed markedly over time. In the early years of the epidemic, MSM comprised the vast majority of HIV diagnoses, accounting for 75-90% of diagnoses from 1985 to 1991. This proportion subsequently decreased and has been 40- 50% since 1998.

IDUs comprised only 0.4% of persons diagnosed in 1985 but the proportion gradually increased over the ensuing years. The proportion increased to a maximum of 10-14% in the period 1994 to 1999 and then decreased. Since 2000, the proportion and number of IDUs have been relatively stable with an average at 7% or 79 cases each year. Notably, the number and proportion of IDUs in 2006 was considerably lower.

The number and proportion of HIV diagnoses attributed to persons from an HIV-endemic country increased steadily over time, from less than 5% in the late 1980s to 20-26% in the most recent years from 2001 to 2007.

A similar increasing trend was observed in the low-risk heterosexual exposure category, from less than 1% from 1985 to 1990 to 13-18% in 2001 to 2007.

Figure 1.2 graphically displays the adjusted proportion of HIV diagnoses in each exposure category by two-year period 1985 to 2007. The graph reveals a gradual decrease in the proportion of HIV diagnoses among MSM and MSM-IDU and an increase in the proportion of HIV diagnoses among the HIV-endemic and low-risk heterosexual categories from the period 1985-87 to 2000-01. The proportion of HIV diagnoses was stable in the latest three two-year periods for these four categories. The proportion of IDUs increased gradually from 1985-87 until 1998-99 and then decreased.

Table 1.5a shows the same analysis as Table 1.5 but for males only. The number of HIV diagnoses among males increased after testing became available in October 1985 to a peak of 1,903 diagnoses in 1990. Since then, however, it decreased dramatically to a low of 701 in 2000. It then increased to about 840 cases annually from 2002 to 2007.

The number of HIV-infected MSM diagnosed was relatively stable at about 510 annually from 2002 to 2007. Compared to the period from 1999 to 2001, the average number of HIV-infected MSM increased by 21.6% (510 vs. 420).

IDUs accounted for a gradually increasing proportion of HIV diagnoses in males, from less than 2% in the first three years of HIV testing increasing gradually to 5.6% from 1988 to 1993 and to a mean of 10.7% from 1994 to 1999. It then decreased to 7.5% from 2000 to 2005 and 3.3% in 2006 and increased to 6.9% in 2007.

Men from HIV-endemic countries accounted for a gradually increasing proportion of HIV diagnoses since HIV testing began. The proportion of men from HIV-endemic countries diagnosed with HIV attained 9% to 15% from 2001 to 2007.

The number of cases in the two heterosexual risk categories increased since HIV testing became available. In the low-risk heterosexual category, there has been a gradual increase in the proportion of Ontario cases diagnosed since began from less than 1% in 1985-1991, to a plateau of 10% to 15% in 2001 through 2007. In the high-risk heterosexual category, cases from 1985 to 1992 also comprised less than 1% of cases but has varied around 2% to 3% since then.

Not surprisingly, HIV infections acquired from clotting factors and blood transfusion have decreased over the past 20 years. These routes of transmission accounted each for 2-3% in the first few years of the epidemic but less than 1% since 1996 for blood transfusion and since 1991 for clotting factors.

Table 1.5b shows the same analysis as in Table 1.5 for females only. The number of HIV diagnoses among females gradually increased until 1994 and remained relatively stable at about 200 cases per year from 1994 to 2000. It began to increase again in 2001 and peaked at 343 cases in 2006, then decreased in 2007.

The proportion of HIV diagnoses among females from HIV-endemic countries increased steadily over time and reached to 50-60% in the most recent years from 2002 to 2007.

The proportion among females in the low-risk heterosexual exposure category increased from less than 1% from 1986 to a peak of 29% in 2001 and remained about 20-24% annually after then.

Since HIV testing began, the proportion of cases attributed to IDUs among women varied somewhat but was about 24% from 1987 to 1999, decreasing to 6-14% from 2000 to 2007. The proportion of IDUs was 10.7% in 2007.

Table 1.6 shows the age distribution at time of HIV diagnosis and sex among persons diagnosed from 1985 to 2007. For both males and females, the vast majority of HIV diagnoses (89.4% for men and 86.9% for women) were among young adults aged 20 to 49 years. The mean and median ages were three years higher in men (36.0 and 35.0 years) than in women (33.2 and 32.0 years).

Table 1.7 presents the age distribution among persons diagnosed with HIV from 1985 to 2007 by exposure category. In most exposure categories, the majority of persons diagnosed with HIV were aged 20 to 44 years, comprising 84.8% of MSM, 90.8% of MSM-IDU, 87.8% of IDU, 81.8% of HIV-endemic, 80.4% of high-risk heterosexuals and 80.9% of low-risk heterosexual. The mean age at HIV diagnosis for the MSM, MSM-IDU, HIV-endemic and heterosexual exposure categories varied from 32 to 35 years of age. Persons infected by clotting factors were somewhat younger (69.1% of cases less than 35 years old) whereas those infected by blood transfusion were older (65.4% of cases 35 years of age or older).

Table 1.8 shows the mean age at HIV diagnosis by year of diagnosis and exposure category among males. Among MSM, the mean age increased slightly, from 33-36 years in 1985 to 1997 to 37-38 years in 1998 to 2007. A more dramatic increase in age was observed among IDUs, from 25-31 years in 1985 to 1992 to 36-43 years in 1997 to 2007. Note that the mean age at HIV diagnosis is a function of both the age at HIV infection and of the time from HIV infection to diagnosis and is, therefore, not easily interpreted. However, given the marked increase of age at

diagnosis among IDUs (about 10 years), it is likely that the age at HIV infection has increased in this group.

Table 1.9 shows similar data to those in Table 1.8 for women. For IDUs, the mean age at HIV diagnosis increased from 26-31 years in 1986 to 1994 to 32-39 years in 2000 to 2007. No substantial changes in age at HIV diagnosis were observed among women from HIV-endemic countries and women in both heterosexual exposure categories.

Table 1.10 shows the distribution of HIV diagnoses from 1985 to 2007 for combinations of individual risk factors. This is in contrast to the previous tables in this report where cases were classified by exposure category using a mutually exclusive hierarchy of risk factors.

Interestingly, of the 9,675 MSM, a substantial proportion (20.2%) were bisexual. This is a potentially important route of sexual transmission of HIV to women. Though the number of MSM from HIV-endemic countries appeared low (48 in all), other data suggests that, for MSM cases born in an HIV-endemic country, the country of birth may not be indicated in the HIV diagnostic database. Only 22 of the 1,144 IDUs were from an HIV-endemic country.

Table 1.11 presents the unadjusted cumulative HIV diagnoses by exposure category and health region from 1985 to 2007. 1,378 cases (4.8%) were missing information on health region. Detailed comments on the regional differences in the distribution of exposure categories are included in the discussion of Table 1.13 below which presents the adjusted analyses.

Table 1.12 shows the same analyses as Table 1.11 for 2007 alone. Detailed comments on the regional differences in the distribution of exposure categories are presented with Table 1.14 below which provides the adjusted analyses.

Table 1.13 presents a similar analysis to Table 1.11 adjusted for unknown exposure category. The distribution of exposure categories differed markedly across health regions. MSM accounted for 69.2% of HIV diagnoses in Toronto compared to only 27.0% in the Northern region. MSM comprised 58.2% of HIV diagnoses in the Southwest region and about 40-46% in the remaining regions.

The highest proportion of IDUs was in the Northern region (38.4%), followed by the Eastern, other (25.5%) and Ottawa (15.3%). The highest proportion of HIV diagnoses comprised by persons from HIV-endemic countries was in Ottawa at 20.5%, followed by the Central West (16.0%) and Central East, other (15.3%) regions. The proportion of persons infected through heterosexual contact also varied, from a low of 8-9% in Toronto and Ottawa, 13-16% in the Eastern, other, Southwest and Central West regions, 19-20% in the Central East, other and Northern regions.

Table 1.13a shows an analysis similar to that in Table 1.13, presenting row instead of column percent. This analysis permits an examination of the relative proportion of exposure categories diagnosed in each health region. Overall, 65.7% of HIV infections were diagnosed in Toronto and 11.2% in Ottawa. The vast majority (74.3%) of HIV diagnoses among MSM were in Toronto; the second highest was in Ottawa, accounting for 8.4%. For IDUs, HIV diagnoses were distributed more broadly, being highest in Toronto (38.5%) and Ottawa (21.9%) and 8-10% for the Northern, Eastern, other and Central West regions. Clearly, the majority of HIV diagnoses among persons from HIV-endemic countries were in Toronto (60.0 %) and Ottawa (19.0%). The other regions accounted for 8.3% (Central West), 6.5% (Central East, other) and 4.4% (Southwest). For the

two heterosexual categories, 57% of diagnoses were in Toronto and about 9% each from the Ottawa, Central East, other, Central West and Southwest health regions.

Table 1.13b and **Table 1.13c** show adjusted HIV diagnoses by exposure category and health region for males and females, respectively. Again, Toronto comprised the majority of HIV diagnoses in Ontario, with 67.9% of cases for males and 53.2% for females; Ottawa comprised 10.4% of cases in males and 15.5% in females (proportions not shown).

The regional distribution of exposure categories by region in males was similar to that in both sexes together shown in Table 1.13 above. Among females, IDUs accounted for 56.6% of HIV diagnoses in the Northern region, 35.7% in the Eastern, other region and 19.7% in Ottawa. Ottawa had the highest proportion (52.4%) of HIV diagnoses comprised by women from HIV-endemic countries and the Southwest region had the highest proportion (54.8%) of HIV diagnoses from persons infected through heterosexual contact.

Overall, cumulative incidence rates were 5.8-fold higher in males than in females. For males, the cumulative rate of HIV diagnoses in Toronto was twice as high as in Ottawa, whereas the rate was very similar for females in both regions.

Table 1.14 is similar to Table 1.13 showing adjusted data for 2007 only. 58.0% of the HIV diagnoses in 2007 were in Toronto. MSM accounted for 54.7% of cases in Toronto, 43.6% in the Central West region, 38.6% in Ottawa and 24-28% in the rest of regions.

Persons from HIV-endemic countries comprised about one-fifth to one-fourth of HIV diagnoses in the Ottawa, Central East, other, Southwest, Central West and Toronto regions and was lower in the other two regions.

In the Northern region, 42.1% of HIV diagnoses in 2007 were IDUs, 23.8% were MSM and 19.9% were persons infected through heterosexual transmission.

The proportion of heterosexual cases was 38.5% in the Southwest and 32.4% in the Eastern, other region and 15-24% in the remaining regions.

Table 1.14a and **Table 1.14b** show adjusted data among males and females, respectively, in 2007. HIV diagnosis rate among males was 3.4-fold higher than among females in 2007 (13.1 per 100,000 vs. 3.8 per 100,000).

With respect to Table 1.14a, MSM comprised 60.0% of male HIV diagnoses in Ontario, with the highest proportion of 68.8% in Toronto, followed by 62.7% in the Central West region and 50.4% in Ottawa and 30-40% in the remaining regions.

In Table 1.14b, overall, females from HIV-endemic countries comprised 52.7% of cases diagnosed in 2007, mainly from Toronto, Ottawa and the Central West region. Most female cases in the Northern regions were IDU (67.7%). In contrast, most female cases in the Central East, other and Southwest regions were persons from HIV-endemic countries and infected heterosexually.

Table 1.15 shows the cumulative number and rate per 100,000 persons of HIV diagnoses for 1985 to 2007 by public health unit and sex. The rate was 258.9 overall, 429.3 for males and 73.5

for females. Rates were highest in Toronto, at 732.1 per 100,000, high-intermediate in Ottawa (408.8) and Middlesex-London (295.6) and low-intermediate in Kingston (228.9), Hamilton (163.5), Windsor-Essex (143.2) and Sudbury (109.9). Rates were 15 to 88 per 100,000 in the other 19 public health units.

The ratio of the HIV diagnosis rate among males compared to that among females varied markedly by public health unit. The ratio was highest in Grey Bruce at 12.9, Chatham-Kent at 11.7, Hastings-Prince Edward at 8.1 and Toronto public health units at 7.8, compared to a low of 1.9 in Haldimand and 2.0 in the Thunder Bay, Algoma, and Eligin-St. Thomas public health units. For seven public health units in all, the ratio was less than three, i.e. women comprised more than 25% of HIV diagnoses.

Table 1.16 shows the number and proportion of HIV diagnoses by year of test and type of identifier. Note that anonymous testing programs was implemented in 1992. Since then, only 24 (0.13%) HIV-positive tests did not have the type of identifier indicated. Overall, the proportion of HIV tests with nominal identifiers steadily increased while the diagnoses with coded identifiers decreased; those tested anonymously remained relatively constant at around 10%. In 2007, 78.5% of HIV-positive tests were nominal, 11.0% coded and 10.5% were anonymous.

Table 1.17 and **Table 1.18** show analyses similar to Table 1.16 among males and females, respectively. The patterns for each sex were similar to that seen for both sexes together, with the proportion of nominal tests steadily increasing. However, the proportion of nominal tests among females was generally higher than that among males. Since 1992, 75.4% of tests among females were nominal compared to 56.9% among males. Conversely, 18.3% of HIV-positive tests among females were coded compared to 31.8% among males; however, the proportion of anonymous tests among males was approximately double that of females. In 2007, the proportions of nominal, coded, and anonymous tests were 90.5%, 4.1% and 5.4% for females, and 75.2%, 12.5% and 12.3% for males, respectively.

3.1.2 Positivity rate of HIV tests

In a second stage of analysis, we examined the number of HIV diagnoses as a proportion of tests by exposure category for each year from 1992 to 2007.

As seen in **Table 1.19**, 61.4% (3,016,831/4,911,640) of HIV tests overall and 53.1% (9,779/18,402) of HIV-positive tests had missing information on risk factors. Since adjusted data is of greater interest, the discussion of trends will be limited to the adjusted data (see Table 1.20 which follows).

Table 1.20 presents the number of HIV-positive tests, number tested, and HIV positivity rates by exposure category from 1992 to 2007 with cases with unknown exposure category reassigned using the adjustment procedure described in detail in Appendix A.

Cumulatively, excluding the mother-to-child (MTC) category (which is distinct from the other categories), the HIV positivity rate was 3.6% among MSM, 2.8% among MSM-IDUs, 2.4% among persons from HIV-endemic countries, 0.67% among IDUs, 0.30% among persons classified as high-risk heterosexual category and 0.06% among those classified as low-risk heterosexual category.

For MSM, HIV positivity rates decreased from 5-7% in 1992 to 1995 to about 3% since 1997. The positivity rate among IDUs decreased erratically from 1992 to 1999, and has been relatively stable at about 0.50-0.60 since then. The interpretation of these rates is complex since they are a function of both patterns of HIV infection and testing, both of which may differ across exposure categories and change over time.

Table 1.21 displays the unadjusted HIV positivity rates by exposure category and health region cumulatively for the period 1992 to 2007. Since adjusted data is of greater interest, the discussion of trends in HIV positivity will be limited to the adjusted data (see next table).

Table 1.22 shows HIV positivity rates for the period 1992 to 2007 with data adjusted for unknown exposure category. Regional differences in HIV positivity rate were observed for the major exposure categories.

For MSM, HIV positivity rates varied from 1.8% in the Northern region to 4.8% in Toronto. The rate in MSM-IDU varied from 1.8% in the Eastern, other and Central East, other regions to 4.9% in the Southwest region. For IDUs, the highest positivity rates were observed in the Northern region with a rate of 1.2%, followed by Ottawa with 1.1% and Toronto with 0.69%. The positivity rate in the HIV-endemic category was also the highest in Ottawa, with a rate of 3.9% followed by 3.0% in the Central West region. There were relatively minor regional differences in the positivity rate in the high-risk and low-risk heterosexual categories.

Figure 1.3 graphically presents HIV positivity rates among MSM by health region and year from 1992 to 2007. Though the trends over time are somewhat difficult to discern (in part due to small numbers and changes in HIV testing patterns), the positivity rate decreased among MSM in most regions. The most dramatic decreases were in the Southwest and Toronto regions. Notably, the positivity rate increased in the Eastern, other region from 2001 to 2006 and in the Central West region since 2002.

Figure 1.4 shows a similar graph for IDUs during the same 16-year period. Generally, Ottawa and the Northern region had the highest rates, varying around 1.0-2.0%. In Toronto, the rate was intermediate with a clear decreasing trend in HIV positivity rates. The Northern region experienced an increasing trend of the positivity rate from 2000 to 2005. Though somewhat lower in 2006 and 2007, it is still among the highest in Ontario.

Table 1.23 presents similar data to Table 1.22 stratified by sex. Overall, HIV positivity rates for male IDUs were slightly higher than among females IDUs; a similar pattern was observed in the high-risk and low-risk heterosexual categories. There were, however, some exceptions in the individual health regions. For example, the positivity rate in the high-risk heterosexual category was higher among females than among males in the Southwest region (0.37% vs. 0.29%, respectively) and in the Eastern, other region (0.21% vs. 0.11%, respectively).

For the HIV-endemic category, the overall positivity rate was 2.1% in males and 2.7% in females. However, the rates were highest in females and males in Ottawa and Central West regions. No gender difference was observed for the rest of regions. These results must be interpreted with caution due to incomplete data for persons born in HIV-endemic countries testing for HIV.

Table 1.24 shows the unadjusted HIV positivity rates by exposure category and health region for 2007 only. Again, since adjusted data is of greater interest, the discussion of HIV positivity in 2007 will be limited to the adjusted data (please see next table).

Table 1.25 shows the results of the adjusted analysis for 2007. The highest positivity rate overall was observed among MSM at 2.6%, with the highest of 3.5% in Toronto, followed by Ottawa at 3.1%. The second highest rate in Ontario was among MSM-IDU at 2.4%, with the highest of 6.0% in the Northern and 5.9% in the Central West regions. For IDUs, the overall rate was 0.49%, varying from 0.21% in the Eastern, other region to 1.2% the Northern region and 1.4% in Ottawa. The overall positivity rate among persons from HIV-endemic countries was 1.6%, highest in the Central West region at 3.8% and lowest at 0.0% (no positive results among the 202 persons tested) in the Northern region. The overall positivity rate for the high-risk heterosexual category was 0.24%, with the highest in Toronto at 0.53% and the lowest of 0.0% (no positive results among the 2,005 persons tested) in the Eastern, other region.

Table 1.26 displays similar data to Table 1.25 stratified by sex. Overall, HIV positivity rate among persons from HIV-endemic countries was slightly higher among females than among males (1.9% vs. 1.3%, respectively), with the highest rate at 8.7% among females in the Central West region. For IDUs, the overall rate among females was similar to that among males; however, the rate was much higher among males than females in Ottawa (1.8% vs. 0.69%). In contrast, the rate was higher among females than among males in Toronto (0.59% vs. 0.32%).

3.1.3 Number and rate of HIV testing

Table 1.27 presents the number of HIV tests by year of test and sex from 1992 to 2007. The annual number of tests in Ontario increased from 218,000 in 1992 to 262,000 in 1993, and was relatively stable at about 270,000 from 1993 until 2001, then gradually increased. HIV testing increased by 21.8% in 2007 compared to 2002, with an annual increase of 4.0%. During the entire period from 1992 to 2007, 55.2% of tests were among females and 3.3% (162,769) persons tested had no gender indicated on the laboratory requisition. Note that these data do not include tests carried out entirely within the dedicated prenatal screening program.

Table 1.28 shows data similar to Table 1.27 with the number of tests and testing rate per 1,000 adjusted for unknown sex. Among males, the testing rate changed little, at 20-23 per 1,000 from 1992 to 2001. However, the rate subsequently increased. The HIV testing rate increased by 19.8% in 2007 compared to 2002. During the last six years from 2001 to 2007, the testing rate increased among females by a mean of 4.6% per year.

Table 1.29 shows the unadjusted number and proportion of HIV tests by exposure category by year from 1992 to 2007**.**

Table 1.30 displays the same data as Table 1.29 adjusted for unknown exposure category. The majority (68.3%) of HIV tests during this period were among low-risk heterosexuals; they accounted for about 55% of tests in 1992 through 1994, gradually increasing to 75% in 2006-2007. The next highest number of HIV tests overall were among high-risk heterosexuals (5.4%) and followed by MSM and IDUs (both at 5.3%). Compared to 2002, the number of HIV tests in 2007 increased by 20.8% for MSM, 27.2% for MSM-IDU, 9.6% for IDU, 33.8% for HIV-endemic, 8.9% for high-risk and 28.2% for low-risk heterosexual categories.

Table 1.31 shows the unadjusted number and proportion of HIV tests by age group and exposure category. 3.5% of the cases had unknown age. The age distribution of tests overall somewhat mirrored the proportions of HIV-positive tests (Table 1.7): the majority (73.6%) were carried out among persons aged 20 to 44 years, with 76.0% for MSM, 81.2% for MSM-IDU, 80.0% for IDU, 75.5% for HIV-endemic, 74.4% for high-risk and 78.2% for low-risk heterosexuals. Interestingly, the proportion of those in the high-risk and low-risk heterosexual categories 15-19 years old was higher than in other exposure categories, at 13.6% and 11.1%, respectively.

Table 1.32 shows the number of HIV tests by year and health region from 1992 to 2007. Toronto accounted for the largest number of HIV tests, representing 36% to 43% of tests in Ontario over the 16-year period. The region with the second highest number of tests was Central East, other, with overall 17.3% of tests and an increasing trend, from 14.2% in 1992 to 20.0% in 2007. The lowest number of HIV tests was in the Northern region (4.8% overall) followed by the Eastern, other region (6.1% overall). All of the regions experienced increasing trends in the number of HIV tests. Compared to 2002, the number of HIV tests increased by a low of 11.3% in the Eastern, other region to a high of 39.7% in the Central East, other region.

Table 1.33 shows the number and HIV testing rates by year and region. Overall, Toronto had the highest testing rate at 45.1 per 1,000, followed by Ottawa at 39.9 per 1,000. The rates were substantially lower in the five other regions, varying from about 15 to 22 per 1,000. All regions showed a general increasing trend in HIV testing rates from 1992 to a peak in 1998 or 1999, followed by a 3 to 5 years plateau and then a further increase. Compared to 2002, the overall testing rate in 2007 increased 21.2%, with the highest increase of 31.0% in the Central East, other region and the lowest increase of 13.7% in the Eastern, other region.

Table 1.34 shows the number and proportion of HIV tests from 1992 to 2007 by type of identifier on the lab requisition (nominal, coded or anonymous). The proportion who tested nominally increased substantially, from 70.8% in 1992 to 93.2% in 2007. Conversely, the proportion testing coded decreased from 19.6% in 1992 to 5.4% in 2006. The proportion undergoing anonymous HIV testing represented 3.3% of tests overall but gradually decreased, from 4.4% in 1992 to 1.4% in 2007. Note that the decreased proportion in 2006 and 2007 may be related to the implementation of point-of-care testing; this data has not yet been included in the database.

Table 1.35 displays a similar analysis to Table 1.34 stratified by sex. Overall, the proportion of nominal tests was slightly lower in males than in females (82.7% and 86.5%, respectively) whereas the proportion of coded tests was slightly higher in males than females (12.7% versus 10.8%). Anonymous testing accounted for 4.4% of tests among males and 2.5% among females.

There was an increasing trend in both absolute number and proportion of nominal tests for both sexes. Nominal tests increased from 90.2% in 2002 to 94.5% in 2007 among females. Among males, nominal tests increased from 86.4% to 92.3% in the same period.

3.2 Reported AIDS cases

3.2 Reported AIDS cases

Table 2.1 presents reported AIDS cases in Ontario by year of diagnosis and sex from 1981 to 2007. Overall, 8,643 cases diagnosed to December 2007 were reported in Ontario by January 2009. The annual number of cases increased gradually during the 1980s and early 1990s to a maximum of 741 in 1993. Since then, the annual number of AIDS cases diagnosed decreased markedly, with a low of 172 cases in 2000. AIDS incidence decreased 76.8% from its peak 1993 to 2000. However, the number of newly diagnosed cases subsequently increased to about 200 cases a year from 2001 to 2005. The number of reported AIDS cases decreased to 131 in 2006 and 129 in 2007; this decrease is likely, at least in part, due to reporting delay.

The far column on the right in Table 2.1 shows the annual number of AIDS cases adjusted for reporting delay as indicated in Methods Section 2.2.4. Taking into account reporting delay, the estimated total of AIDS cases in Ontario since 1981 was 9,207. Adjusted AIDS incidence reached its lowest level in 2000 but increased significantly since then; in 2007, AIDS incidence reached a new peak of 323, the highest incidence since 1996. Though there is considerable uncertainty about the true AIDS incidence in 2007, it appears that AIDS incidence has increased since 2000.

Table 2.2 shows the distribution of cumulative reported AIDS cases by exposure category and sex. The majority of cases were among MSM, representing 64.6% of cases overall and 70.8% of cases among men. Those infected by heterosexual contact accounted for 8.5% of AIDS cases overall but comprised 32.4% of cases among women. Similarly, cases among persons from HIV-endemic countries accounted for 6.7% overall but 29.8% of cases among women. Overall, for 8.2% of AIDS cases, the exposure category was not known.

Table 2.3 is similar to Table 2.2 but shows the distribution of AIDS cases adjusted for unknown exposure category according to the proportion among known cases stratified by sex, health region and year of AIDS diagnosis. This analysis revealed AIDS cases as follows: 5,986 among MSM, 838 cases infected by heterosexual contact, 665 cases from HIV-endemic countries, 465 IDUs and 349 MSM-IDU. 59 AIDS cases reported were infected through mother-to-child transmission. MSM comprised of 69.3% of cases overall and 75.9% of cases among men. 37.0% of female cases were attributed to heterosexual transmission and 34.5% were from HIV-endemic countries.

Table 2.4 presents AIDS cases by year of diagnosis and exposure category from 1981 to 2007. The proportion of cases with unknown exposure category (NIR) has increased in the past 10 years. In 1981 to 1996, the proportion NIR was about 5%,. IT has increased steadily since then and was 21%-29% in 2005 to 2007. (This increase is related to the change in reporting system and is discussed in the Methods section above).

Generally, the proportion of MSM has gradually decreased, whereas the proportions of IDUs, persons from HIV-endemic countries and persons infected through heterosexual contact have increased over time.

Table 2.4a and **Table 2.4b** shows the distribution of AIDS cases by exposure category from 1981 to 2007 among males and females separately. In 2007, 25.9% of male cases and 28.6% of females cases had no information on exposure category. The adjusted data is discussed in more detail below.

Table 2.5 shows AIDS cases adjusted for unknown exposure category by year of AIDS diagnosis and exposure category from 1981 to 2007. The proportion constituted by MSM was greater than 80% until 1990, 73-79% from 1990 to 1994 and then decreased gradually to about 40% in 2002 to 2005. However, the proportion appeared to increase in the most recent two years and was 46.9% in 2007.

IDUs constituted only a small proportion (less than 3%) of AIDS cases until 1989; following this, the proportion gradually increased. The proportion of IDUs remained at 11-12% per year from 2000 to 2005 and then slightly decreased in 2006 (7.4%) and 2007 (9.1%).

The proportion of cases in the HIV-endemic category increased gradually, from less than 3% from 1981 to 1990 to 12-19% in 1996 to 2001 and then to 22-31% in 2002 to 2007.

The heterosexual category increased gradually, from less than 5% before 1989 to more than 10% in the mid-1990s to a peak of 22.0% in 2003; it has decreased slightly since.

Cases related to clotting factors and blood transfusion constituted 1.5% and 1.7%, respectively of all AIDS cases in Ontario. Since 2002, no cases were attributed to clotting factors and five cases to blood transfusion.

Figure 2.1 presents the number of AIDS cases for selected exposure categories by year of diagnosis from 1981 to 2007 adjusted for reporting delay and unknown exposure category. For MSM, the number of reported AIDS cases adjusted for reporting delay increased steeply from a low of 15 cases in 1983 to a peak of 563 in 1993 and decreased since; incidence was relatively stable from 2000 to 2006 but increased in 2007. AIDS incidence has increased since 2000 in the HIV-endemic category.

Table 2.5a shows a similar analysis for males only. The trend in the proportion constituted by MSM is similar to the previous table. The proportion of MSM reached a low of 51% in 2002 and 2003 and increased to 57% and 56% in 2006 and 2007, respectively.

The proportion of reported AIDS cases among IDUs gradually increased, from less than 2% from 1981 to 1988 to a peak of 12.4% in 2001. The proportion decreased somewhat to 6.2% in 2006 and increased to 10.5% in 2007.

We observed a marked increase in the proportion of AIDS cases among men from HIV-endemic countries and men infected through heterosexual transmission. Men from HIV-endemic countries constituted 17-24% of cases in 2002 to 2007 compared to less than 3% in the years before 1995. Heterosexually infected men represented 14 to 18% of cases in 2000 through 2007, except in 2006 with 10.7% compared to less than 5% before 1990.

The situation among women, shown in **Table 2.5b**, is noteworthy. Overall, AIDS cases related to heterosexual transmission constituted 37.0% of cases among women. The proportion increased from 0% to 1981 through 1985 to a high of 51.4% in 1993, then decreased. The proportion has been somewhat variable since 1999. In 2007, 28.3% of AIDS cases in women were heterosexually acquired.

Cases among women from HIV-endemic countries represented 34.5% of cases overall. Using a three-point moving average to reduce year-to-year variation, the proportion was relatively stable between 1987 and 1995 and dramatically increased since 1996. It reached a peak of 69.3% in 2007.

IDUs accounted for 15.8% of cases among females compared to 4.4% for males. The proportion fluctuated over the years with no obvious increasing or decreasing trend.

Table 2.6 shows the cumulative number and rate per 100,000 of reported AIDS cases by age group and sex from 1981 to 2007. The cumulative AIDS incidence rate in Ontario was 78.0 per 100,000. The overall rate was 10.7 times greater in males than in females. The highest rate was observed in the 30-44 year age group among males and in the 25-34 year age group among females.

Table 2.7 shows similar data to Table 2.4 for 2007. Similar to the cumulative incidence rate, the incidence rate for males in 2007 was higher than for females but less so than previously at 5.4 times greater in males. The highest rate was observed in the 40-49 year age group among males and in the 25-34 year age group among females.

Table 2.8 presents the number and proportion of AIDS cases by age group and exposure category. The distribution of age varied according to exposure category: for those infected by clotting factors, cases were younger at the time of AIDS diagnosis (35% were younger than 30 years of age compared to 16% for all other exposure categories, $p<0.0001$). Those infected through blood transfusion were, on the other hand, older (47% were 50 years of age or older compared to 12% of cases in the other exposure categories, $p<0.0001$). For most of the other exposure categories, AIDS was diagnosed mostly among persons aged 30 to 44 years.

Table 2.9 shows the cumulative AIDS cases by exposure category and health region from 1981 to 2007. The majority of reported AIDS cases in Ontario during this period were from Toronto (59.6%), followed by the Central East, other region at 9.5% and the Central West region at 9.0%.

The proportion of AIDS cases with unknown exposure category was much higher in the Eastern, other and Northern regions with 25-26%. 12% to 14% of cases in the Central East, other, Central West and Southwest regions had no information on exposure category.

Table 2.10 shows cumulative reported AIDS cases adjusted for unknown exposure category by exposure category and health region diagnosed from 1981 to 2007. MSM constituted 76.4% of cases in Toronto, 64-66% of cases in the Central West and Southwest regions and 48-59% of cases in the rest of health regions. 21.6% of cases from the Northern region and 18.7% of cases from Eastern, other region were IDUs, substantially higher than in other regions. In the Central East, other, Central West and Southwest regions, the heterosexual category constituted 14-22% of cases and represented the second highest proportion after MSM. In Ottawa, HIV-endemic AIDS cases represented the second highest category, with 16.5% of AIDS cases.

Table 2.11 shows a similar analysis to Table 2.11 for 2007. Toronto continued to report the majority (58.1%) of AIDS cases in Ontario, followed by the Central West region at 12.4%. Except in Toronto, 37%-67% of cases in all other health regions had no information on exposure category.

Table 2.12 shows a similar analysis to the previous table but adjusted for unknown exposure category using the proportion among the known cases from 2005 to 2007 stratified by sex and health region. Of the 129 diagnosed in 2007, 46.9% were among MSM, 25.4% among persons from HIV-endemic countries and 16.7% among persons infected through heterosexual contact. IDUs constituted only 9.1% of AIDS cases in Ontario, but constituted 56.3% of cases in the Northern region and 1.8% to 17.2% in the other health regions.

Table 2.13 shows the single and multiple exposures among Ontario AIDS cases since the beginning of the epidemic. Notably, 921 (15.6%) of the 5,916 AIDS cases among MSM also reported sex with women (i.e. bisexual). Also of note is that, of the 218 MSM who were from HIV-endemic countries, 73 (33.5%) were also bisexual. Thus, MSM from HIV-endemic countries were 2.3-fold more likely to be bisexual than other MSM (33.5% versus 14.9%, $p<0.0001$). MSM-IDU also reported higher rates of sex with women than MSM alone; 98 (30.1%) of 326 MSM-IDU versus 823 (14.8%) of 5,590 MSM reported sex with women ($p<0.0001$). Note that, because persons infected by clotting factors and blood transfusion are considered as two distinct groups with different levels of certainty about the source of their infection, the sums for several categories do not correspond to the numbers of persons infected classified by exposure category (e.g. Table 2.2).

Table 2.14 presents reported AIDS cases by year of AIDS diagnosis and health region. The proportion of Ontario cases reported from Toronto decreased since 1997, from an average of 63.4% of cases diagnosed from 1981 to 1996 to 54.0% from 1997 to 2007. Using a three-point moving average to reduce the year-to-year variation, the proportion of cases from Ottawa (7.7% overall) was relatively stable from 1984 to 1996 at about 7%, increased to 11% from 1997 to 2002 and then decreased to about 8% from 2003 to 2007. In the other five health regions, during the period 2002 to 2007, the proportion of cases from the Northern, Eastern, other, and Central West increased gradually. However, the proportion of cases from the Southwest and Central East, other regions decreased slightly.

Table 2.15 shows the cumulative number of AIDS cases and incidence rates per 100,000 population by heath region and sex from 1981 to 2007. The rates were highest in Toronto at 209.3 per 100,000, intermediate in Ottawa with a rate of 92.0 and lower in the other five regions, from 31 to 46 per 100,000. Female AIDS cases represented equal to or greater than 10% of AIDS in most health regions, except in Toronto. The M:F ratio for AIDS incidence varied regionally, with the highest at 15.5 in Toronto and the lowest at 5.7 in the Northern region.

Table 2.16 presents the number of AIDS cases and rate per 100,000 by public health unit and sex. We observed a marked variation in AIDS incidence rates among the public health units, varying from a low of 14.0 per 100,000 in Porcupine to a high of 209.3 in Toronto. Between these two extremes were five public health units with intermediate rates including Ottawa (92.0 per 100,000), Middlesex-London (68.3), Windsor-Essex (62.7), Hamilton-Wentworth (52.2) and Kingston-Frontenac (52.1).

3.3 Prenatal HIV testing and mother-infant HIV transmissions

3.3.1 Uptake of HIV testing in pregnancy

Table 3.1 shows HIV test uptake in pregnant women by quarter from January 1999 to December 2007. Prenatal HIV test uptake during pregnancy (i.e. "current") increased markedly over the nine-year period, from 33.3% in the first quarter of 1999 to 93.0% in the last quarter of 2007. Test uptake increased more rapidly from 1999 to 2004. Since then, HIV test uptake among pregnant women has continued to increase but at lower rate.

Table 3.2 shows the uptake of HIV testing during pregnancy by health region and public health unit in Ontario in 2007. Uptake during the current pregnancy was 91-93% for all regions. There was considerably more variation in HIV test uptake across public health units. Six public health units (Windsor-Essex, Sarnia-Lambton, Timiskaming, Chatham-Kent, Northwestern and Leeds-Grenville-Lanark) had an HIV test uptake of 95% or greater. 18 public health units had an HIV test uptake rate between 90-94.9%. Porcupine had the lowest uptake rate at 83.2%. The uptake rate was 85-89.9% for the remaining public health units.

Table 3.3 shows the number and HIV-positivity rate among pregnant women by quarter from January 1999 to December 2007. Since January 1999, we identified 330 HIV-infected pregnant women, for an overall HIV positivity rate of 0.32 per 1,000 (330/1,019,994). 227 women were diagnosed with HIV during pregnancy for the first time and 103 women in a prior pregnancy. In 1999, the HIV positivity rate was 0.19 per 1,000, increasing to 0.35 per 1,000 in 2000 and 0.53 per 1,000 in 2001. In 2005 through 2007, the rate decreased substantially to 0.22 per 1,000.

Table 3.4 presents the cumulative number and HIV positivity rate in pregnant women by health region and public health unit from January 1999 to December 2007. Over the nine years, 142 (43.0%) of the HIV-positive pregnancies were from Toronto, 55 (16.7%) from Ottawa, 53 (16.1%) from Central East, other and 39 (11.8%) from Central West regions, with a total of 12.1% in the three remaining regions.

The HIV-positivity rate varied across health regions, from 0.10 to 0.65 per 1,000. With respect to public health unit, Ottawa had the highest rate at 0.65 per 1,000. The second highest HIV-positive rate was in Toronto at 0.59 per 1,000, followed by Hamilton-Wentworth at 0.48 per 1,000. The rates ranged from 0.00 to 0.33 per 1,000 for the other 33 PHUs. Ten public health units had no HIV-positive pregnancies.

3.3.2 HIV-infected mothers and their infants

Table 3.5a presents the number of HIV-infected mothers in Ontario identified through the Canadian Pediatric AIDS Research Group (CPARG) by the year of birth from 1984 to 2007 and by HIV infection status of the infant. This table includes children born in Canada and elsewhere.

In all, 846 HIV-infected women were identified; 195 infants born to these women were confirmed HIV-infected and, of these, 41 cases (21.0%) died. 618 infants were found to be uninfected and the infection status for 33 infants was pending or unknown. The annual number of HIV-infected women included in the database generally increased over time, reaching a peak of 77 in 2006. In 2007, 65 HIV-infected mothers were identified.

The number of confirmed HIV-infected infants increased from five in 1984 to a high of 21 in 1992, and then gradually decreased to two per year in 2005 and 2006 and none in 2007. Among the 65 infants born to HIV-positive mothers in 2007, none were confirmed to be infected with HIV. Please note that most HIV-infected children are now diagnosed well after birth and therefore, the number

observed in the most recent five or so years is likely to be an underestimate of the true number of mother-infant HIV transmissions.

Table 3.5b shows an analysis similar to that in Table 3.5a limited to cases in which the infant was born in Canada. For this analysis, we assumed that the 41 infants for whom the country of birth was missing were born in Canada. Among the 772 children included, 130 (17.5%) were confirmed to be infected with HIV, of whom 35 children died from AIDS. A similar pattern to the previous table was observed, with an increase in the number of mothers and a trend to a decreasing number of HIV-infected infants in the most recent years.

Table 3.5c presents the number of HIV-infected infants born in Canada to HIV-positive mothers by year of birth adjusted for the delay in diagnosis. Only 35.4% (46/130) of infected children were diagnosed in the year of birth and 78.5% were diagnosed within 3 years after birth. Taking into account delay in diagnosis, the adjusted total number of HIV-infected children to the end of 2007 was 135 (95% confidence interval, 129-152). In this analysis, 16 infants were infants by their mother from 2002 to 2007, or approximately 2-3 annually.

After reducing the year-to-year variation through smoothing with a three-point moving average (see **Figure 3.1**), the number of mother-infant HIV transmissions peaked at 10 per year in 1993-95 and decreased to about 4 per year in the period 2001-05, to 2 per year in 2006-07. Thus, the decrease in the number of HIV-infected infants appears not to be due to artefact (See Discussion below).

Table 3.6a shows the distribution of HIV-infected mothers by geographic region of the treating institution and the mother's exposure category. Overall, 59.2% of HIV-infected women were from HIV-endemic countries, 28.6% were others infected by heterosexual contact and 11.3% were IDUs. 61.8% of cases were reported from the Hospital for Sick Children in Toronto and 23.5% from the Children's Hospital of Eastern Ontario in Ottawa, accounting together for 85.3% of Ontario cases. Compared to Toronto and Ottawa, in the other geographic regions, the proportion of mothers born in HIV-endemic countries was lower and the proportion of women infected by heterosexual transmission was higher; these differences were statistically significant ($p<0.001$ for both comparisons). The proportion of IDUs in Ottawa was higher than in other geographic regions ($p<0.05$).

Table 3.6b shows the distribution of the 772 cases as in Table 3.6a but limited to cases in which the infant was born in Canada. A similar distribution of geographic region and mother's exposure category as for all cases was observed.

Table 3.7a shows the 195 infants confirmed to be HIV-infected by geographic region of the treating institution and the mother's exposure category. 67.4% were born to mothers from HIV-endemic countries and 22.8% to other mothers infected by heterosexual transmission. These two exposure categories accounted for 90.2% of HIV-infected infants. The proportion of infants infected by mothers who were IDUs represented 7.1% of cases overall. 62.6% of cases were from Toronto and 23.6% from Ottawa. The proportions of women infected by heterosexual contact were significantly higher in the other geographic regions than in Toronto and Ottawa (all $p<0.05$). Although the proportion of women infected from HIV-endemic countries was lower in the other geographic regions than in Toronto and Ottawa, the differences were not statistically significant ($p>0.05$).

Table 3.7b shows a similar analysis as Table 3.7a for the 130 infants born in Canada and confirmed to be HIV-infected. 55.3% were born to mothers from HIV-endemic countries and 33.3% to other mothers infected by heterosexual transmission. These two exposure categories accounted for 88.6% of HIV-infected infants. Similar to the previous table, the majority of cases (63.8%) were from Toronto. The proportion of women infected from HIV-endemic countries and the proportion of women infected by heterosexual contact were not significantly different across the geographic regions.

Table 3.8a presents the trends in the distribution of the mother's exposure category during the 24-year study period for all HIV-infected infants. Generally, we observed no apparent time trend of proportion of infants born to mothers in each exposure category.

Table 3.8b presents the trends in mother's exposure categories by two-year period over the 24 years examined for HIV-infected infants born in Canada. Similarly, no apparent time trend was observed.

Table 3.9 shows an analysis of mother-infant pairs for infants born in Canada from July 1994 to December 2007 by year of birth, antiretroviral prophylaxis (yes/no) and HIV infection status of the infant (this period was selected to examine the impact of the ACTG 076 trial (the results were announced in February 1994 and published in November 1994).

Overall, 644 HIV-infected women giving birth during this period were identified. The proportion of women/infants who received prophylaxis, either during pregnancy, delivery or directly to the newborn, was 85.6% overall, with an increasing trend over time. The proportion of those received therapy since 2002 was 95%. In 2007, 98.5% received prophylaxis.

Overall, 64 (10.4%) of cases with known HIV status became infected. However, 12 (2.3%) of 527 infants with known HIV status whose mother received antiretroviral prophylaxis became infected, compared to 52 (59.1%) of 88 infants where treatment was not given. This 26-fold difference in transmission rate was statistically significant ($p<0.00001$). However, only five of the 12 received all three components of the ACTG 076 antiretroviral prophylaxis regimen.

Since there were relatively few infected cases in each year, it was difficult to detect a trend in the infection rate over time. However, when grouped into three periods, there was a decreasing trend in infection rate among those who received antiretroviral prophylaxis: the infection rate decreased from 7.4% in 1994-97 to 2.4% in 1998-2001 and 1.4% in 2002-07, this decrease was statistical significant ($p=0.023$).

Table 3.10 shows the data for the same period (i.e. the period following the ACTG 076 trial) by mother's exposure category, prophylaxis and infant's HIV status.

Mothers from HIV-endemic countries constituted over half (56.5%) of the cases; 26.9% were other women infected heterosexually and 9.6% were IDUs. Among the 644 infants, 85.6% received antiretroviral prophylaxis, either during pregnancy, delivery or directly to the newborn, with no significant variation by mother's exposure category.

3.4 HIV-related mortality

Table 4.1 presents the number and rate of HIV-related deaths by year of death and sex from 1987 to 2005. Overall, 6,162 deaths were identified during this 19-year period. HIV-related deaths and mortality rate per 100,000 increased from 1987 to a peak in 1995 and then declined dramatically thereafter. Overall, the mortality rate decreased 76% from 1995 to 1998 (a decrease of 77% in males and 32% in females), and then remained relatively stable at an average of 1.3 per 100,000 from 1998 to 2005. 93.0% of HIV-related deaths were among males. The ratio of mortality rates among males compared to females decreased markedly from an average of 22-fold in 1987 to 1996 to 7-fold in 1997 to 2005.

The trends in HIV mortality in the more recent years are in part related to changes in the new criteria replacing the ICD-9 by the ICD-10 disease classification system in 2000. This transition led to an estimated 10.1% increase in the number of reported HIV-related deaths <*14*>. Taking this into account produces a slightly different shape of the mortality curve, whereby mortality decreased dramatically from 1995 to 1997, more gradually from 1997 to 2001 and then stabilized since (**Figure 4.1**).

Table 4.2 shows the cumulative number and proportion of HIV-related deaths by age at the time of death and sex from 1987 to 2005. Overall, 67.8% of HIV deaths occurred among persons aged 30 to 49 years (68.1% of deaths in males and 64.7% of deaths in females). Overall, the median age at death was 40 years (40 years for males and 38 years for females).

Table 4.3 presents the cumulative number and proportion of HIV-related deaths by health region of residence at the time of death and sex for 1987 to 2005. 56.6% of deaths occurred among residents of Toronto (58.0% of deaths in males and 38.1% of deaths in females). Residents from the Central East, other, Central West, Ottawa and Southwest regions comprised about 8-10% each of HIV-related deaths in Ontario.

Table 4.4 shows HIV-related deaths by year of death, sex and region of birth (HIV-endemic versus other) from 1987 to 2005. In all, 473 persons from HIV-endemic countries died, representing 7.7% of HIV-related deaths. 25.4% of deaths in females were among persons from HIV-endemic countries compared to 6.4% of deaths in males. The proportion of total deaths among persons from HIV-endemic countries has increased steadily since 1993, from an average of 5.4% in 1987-93, 8.0% in 1994 -97, 11.9% in 1998-2002, and 15.4% in 2003-05.

Table 4.5 presents the number and proportion of HIV-related deaths by year of death among persons from HIV-endemic region by birth in the Caribbean versus sub-Saharan Africa and from non HIV-endemic regions. 63.4% of deaths due to HIV in persons from HIV-endemic countries were among persons from the Caribbean. The trends in mortality were different in the three groups. Among persons form the Caribbean, deaths appeared to peak in 1994 and 1995 and decreased to lower numbers since 1997. Among persons from sub-Saharan Africa, after an increase in deaths from 1987 to 1993, there has been no obvious increasing or decreasing trend subsequently. Since 2000, the proportion of deaths among persons from HIV-endemic region from Africa compared to those from the Caribbean has increased; the number of deaths was greater than among persons from the Caribbean in 2000, 2004 and 2005. For the first Among others, deaths reached a peak in 1995 and decreased sharply to 1998 and has been relatively stable since.

3.5 HIV incidence based on the detuned assay

Table 5.1 presents the number of HIV tests and HIV incidence rate calculated from the detuned assay for selected exposure categories in Ontario from 2001 to 2007. (Note that we have not included analysis of persons from HIV-endemic countries due to the fact that many of these infections are with non-B subtypes and the detuned methodology has not been fully validated for these strains.) The calculated HIV incidence rate per 100 person-years during the seven-year period was 1.92 among MSM, 2.13 among MSM-IDU, 0.24 among IDUs, 0.023 among persons infected through heterosexual contact. Since 2001, HIV incidence density generally decreased in MSM, increased in MSM-IDU and was relatively stable in the IDU and heterosexual exposure categories.

Table 5.2 presents the HIV incidence density adjusted for testing bias. The adjusted HIV incidence over the seven-year period was 1.07 among MSM, 1.34 among MSM-IDU, 0.18 among IDUs and 0.016 among persons through heterosexual contact. The crude HIV incidence rate was generally though not always overestimated. The decrease resulting from the adjustment procedure was greatest among MSM and least among IDUs.

We examined the trend in adjusted HIV incidence for each exposure by fitting to a line with a fixed annual percentage change. We observed a small annual decrease of about 7% for MSM and no change for the other three exposure categories.

Table 5.3 and **Figure 5.1** show crude and adjusted HIV incidence per 100 person-years among MSM by year and aggregated health region from 2001 and 2007. Adjusted HIV incidence in MSM over the seven-year period was higher in Toronto and Ottawa than elsewhere (1.33 and 1.36 vs. 0.59). The trend analysis revealed a modest 11.5% annual decrease in HIV incidence among MSM in Toronto and 10.5% annual decrease for Ottawa and a small annual decrease of about 1% for the rest of Ontario.

Table 5.4 and **Figure 5.2** show crude and adjusted HIV incidence among MSM-IDU. Overall, Ottawa experienced the highest adjusted HIV incidence at 2.28 per 100 person-years. The adjusted incidence was 1.28 in Toronto and 1.25 elsewhere in Ontario. The trend analysis revealed that adjusted HIV incidence among MSM-IDU decreased 57% annually for Toronto and increased 21% annually for the rest of Ontario.

Table 5.5 and **Figure 5.3** show crude and adjusted HIV incidence per 100 person-years among IDUs by region over time. Overall, Ottawa had the highest adjusted HIV incidence at 0.31, with a rate of 0.17 in the rest of Ontario and 0.12 in Toronto. For Ottawa, the trend analysis revealed a modest 5.7% annual decrease in incidence whereas, for Toronto and the rest of Ontario, HIV incidence among IDUs was essentially unchanged. Thus, though Ottawa had a higher incidence than elsewhere in 2001 through 2004, incidence was comparable in all three regions from 2005 through 2007.

Table 5.6 and **Figure 5.4** show crude and adjusted HIV incidence among persons infected through heterosexual contact. Overall, Toronto experienced the highest adjusted incidence at 0.022 per 100 person-years, compared to 0.013 in Ottawa and 0.012 elsewhere. In all three regions, adjusted HIV incidence among the heterosexual category was essentially unchanged (all annual changes <0.1%) in the seven-year period examined.

3.6 Ontario HIV model

As in previous years, we estimated HIV incidence, prevalence, HIV diagnoses, AIDS incidence and prevalence as well as HIV-related and other mortality for each year from 1977 to 2007 for each exposure category, namely MSM, MSM-IDU, IDUs, HIV-endemic, heterosexual, clotting factor and blood transfusion recipients, and for Ontario as a whole. Sex-specific incidence and prevalence data for each of first five selected exposure categories are presented as figures. More detailed outputs are available from the authors on request.

Table 6.1 presents the summary results of the Ontario HIV model which includes all exposure categories. We estimated that 35,960 persons in Ontario have been infected since the HIV epidemic began until December 2007. As of end 2007, 9,472 persons died (including 8,202 from HIV-related causes and 1,270 from other causes [data not shown]), leaving 26,490 persons living with HIV infection. An estimated 17,171, or 65%, of those living with HIV have been diagnosed.

Early in the epidemic, HIV incidence increased steeply from 79 new infections in 1977 to a peak of 1,881 in 1984. Since then, HIV incidence decreased and remained relatively stable at an average incidence of 1,080 infections per year from 1988 to 1998. Since then, HIV incidence it gradually increased to 1,683 in 2007, its highest level in recent years. During the period 1996 to 2007, HIV incidence increased 64%, for an average annual increase of 4.6%.

HIV prevalence also increased over time, due to both an increasing HIV incidence in most categories and decreasing mortality related to HAART. From 1996 to 2007, HIV prevalence in Ontario increased 84%, for an average annual increase of 5.7%. In the same period, the estimated HIV mortality decreased 63%, for an average annual decrease of 8.5%.

In the five years since 2002, HIV incidence increased 14%, for an average annual increase of 2.7% and HIV prevalence increased 34% for an average annual increase of 6.1%.

Table 6.1a presents the results of the Ontario HIV model for MSM. We estimated that 21,675 MSM were infected with HIV from 1977 to 2007. As of December 2007, 6,378 HIV-infected persons had died, of whom 5,889 died due to HIV-related causes. Thus, 15,300 persons were living with HIV infection, representing 58% of persons living with HIV infection in Ontario. Of these, 10,772 (70.4%) have been diagnosed. The estimated annual HIV incidence rate among MSM was 0.99% in 2007, with 760 persons being newly infected. From 1996 to 2007, the annual number of new HIV infections in MSM increased 66%, for an average annual increase of 4.7%. In the five years since 2002, HIV incidence remained relatively stable at about 750-760 per year and HIV prevalence increased 26%, for an average annual increase of 4.8%.

Figure 6.1 graphically depicts the modeled HIV incidence and prevalence among MSM in Ontario from 1977 to 2007. HIV prevalence appeared to follow three phases, a sharp increase from 1977 to 1989, relatively stable from 1990 to 1998 and a steep increase after 1998.

HIV incidence increased dramatically from 1977, reaching a peak of about 1,600 cases in 1984, then decreased about 50% in 1988 and continuing to decrease to its lowest point in 1996. However, since 1996, it gradually increased though it has remained relatively stable in the most recent five years.

Table 6.1b presents the modeled results for the MSM-IDU exposure category. In all, 1,152 MSM-IDU have been infected with HIV in Ontario. As of December 2007, 541 persons had died, of whom 386 from HIV-related causes. Thus, 611 persons were estimated to be living with HIV infection. The HIV incidence rate among MSM-IDU was 1.9% in 2007. Annual HIV incidence has been relatively stable at about 40 new infections each year since 1997. HIV prevalence among MSM-IDU was 25% greater in 2007 than in 2002, for an average annual increase of 4.6%.

Figure 6.2 shows trends in HIV prevalence and incidence for the MSM-IDU category. These trends were similar to those among MSM in Figure 6.1 above.

Table 6.1c displays the modeled results of the Ontario HIV for IDU. We estimated that, in all, 2,761 IDUs have been infected with HIV from 1977 to 2007. As of December 2007, 819 persons had died, of whom 415 were from HIV-related causes, leaving 1,942 living with HIV infection. HIV-infected IDUs represented 7% of persons with HIV infection living in Ontario in 2007. The HIV annual incidence rate among IDUs was 0.24% in 2007. HIV incidence gradually increased from 1981 to a peak of 186 in 1993, then decreased thereafter. However, HIV incidence appears to have increased during the last five years. HIV incidence increased by 29% from 2002 to 2007, for an average annual increase of 5.3%. HIV prevalence increased 10% during the five years from 2002 to 2007, for an average annual increase of 1.9%.

Figure 6.3 shows the sex-specific HIV incidence among IDUs from 1977 to 2007. Though incidence was about 2.3 times higher in men, the trends over time were similar in both sexes. We observed a steep increase in HIV incidence from 1982 to 1993, then a decrease from 1995 to 2002. HIV incidence increased to a slightly higher level after 2002.

Figure 6.4 presents sex-specific HIV prevalence among IDUs from 1977 to 2007. Prevalent HIV infections increased after 1982, though with a lower rate of increase from 1996 to 2007. The slope was steeper in men than in women.

Table 6.1d displays the model results for persons from HIV-endemic countries. We estimated that 5,075 persons from HIV-endemic countries were infected with HIV since the beginning of the epidemic in Ontario. Of these, 4,472 were estimated to be alive as of December 2007, representing 17% of HIV-infected persons living in Ontario. HIV incidence as well as prevalence has steadily increased in this population: in the five years since 2002, HIV incidence increased 28%, for an average annual increase of 5.1%. The increase in HIV prevalence during this same period was more dramatic, increasing 66% during the same five-year period, for an average annual increase of 10.7%.

Note some of the “incident” infections were among persons infected before their arrival in Canada and some were acquired since their arrival. A more detailed report on this population was prepared in 1998 <*15*> and updated in 2002 <*16*>.

Figure 6.5 displays sex-specific trends in HIV incidence among cases from HIV-endemic countries from 1977 to 2007. We observed a steep increase among females during this entire period. For males, HIV incidence increased steeply from 1988 to 1993 and then again in 1998 through 2001; it was relatively stable at its highest level ever from 2002 to 2007.

Figure 6.6 displays sex-specific trends in HIV prevalence among cases from HIV-endemic countries. This figure shows that, though prevalence was consistently higher in males, similar steep increases were observed in both sexes.

Table 6.1e presents the results for the heterosexual exposure category. The model estimated that 4,748 persons were infected heterosexually (other than those from HIV-endemic countries) from 1977 to 2007, of whom 4,023 were living with HIV as of December 2007. This category represented 15% of persons living with HIV in Ontario in 2007. 53% of persons living with HIV in 2007 have been diagnosed. In the five years since 2002, HIV incidence increased 14%, for an average annual increase of 2.7% and HIV prevalence increased 60%, for an average annual increase of 9.8%.

Figure 6.7 shows sex-specific trends in HIV incidence among cases infected through heterosexual contact. HIV incidence was low and stable until 1985. It increased ever year from 1984 through 2007, with the exception of the period from 1994 to 1997 when it was relatively stable.

Figure 6.8 shows sex-specific trends for HIV prevalence among cases infected through heterosexual contact. The rate of increase in HIV prevalence continued to increase over the entire period examined, approximating an exponential curve.

Table 6.2 shows the distribution of HIV diagnoses as a proportion of HIV-infected persons as of December 2007 by sex and exposure category. Almost all persons infected through the receipt of clotting factors and blood transfusions have been diagnosed. In contrast, 70% of HIV-infected MSM, 80% of HIV-infected MSM-IDU and 70% of infected IDUs living in 2007 have been diagnosed.

According to our analyses, MSM and persons infected heterosexually comprised 51% and 21%, respectively, of those undiagnosed as of 2007. Persons from HIV-endemic countries represented 30% of undiagnosed persons. Among females, persons infected through heterosexual contact represented 61% of undiagnosed infected persons.

Table 6.3a presents the modeled prevalence of HIV infection in Ontario by health region and exposure category as of December 2007. The majority (16,570 or 63%) of HIV-infected persons were from Toronto and 3,150 (12%) from Ottawa.

MSM accounted for 58% of HIV-infected persons living in Ontario, followed by 17% for persons from HIV-endemic countries and 15% for persons infected through heterosexual contact and 7% for injection drug users. The distribution of exposure category varied by region. MSM accounted for 66% of HIV-infected persons in Toronto but only 26% in the Northern region. IDUs accounted for 24-27% of infected persons in the Northern and Eastern, other regions but only 4% in Toronto. The proportion of infected persons from HIV-endemic countries varied from 4% in the Northern region to 26% in Ottawa; it was 16% in Toronto. The proportion of persons infected through heterosexual contact varied from 12% in Toronto to 35% in the Northern regions.

Table 6.3b presents the estimates of regional HIV prevalence in 2007 stratified by sex. 83% of HIV-infected persons were male and 17% female. 49% of infected females lived outside of Toronto compared to 35% of infected males who lived outside Toronto ($p<0.0001$).

In Ontario overall, the majority of cases among males were MSM; however, this varied from a low of 38% in the Northern region to a high of 76% in Toronto. The majority of cases among females were infected by heterosexual contact, with a low of 36% in Ottawa and a high of 68% in the Southwest region. Women from HIV-endemic countries accounted for 46% of infected women in Toronto and Ottawa. IDUs accounted for 33% and 32% of infected females in the Northern and the Eastern, other regions, respectively.

Table 6.4 shows modeled estimates of the number of incident HIV infections by sex, health region and exposure category in 2007. Because of the limited available data, the regions outside of Toronto and Ottawa were aggregated into one geographic category. Overall, we estimated that 1,680 new HIV infections occurred in Ontario in 2007, 1,245 (74%) among men and 435 (26%) among women. 62% of new HIV infections in Ontario occurred among residents of Toronto (63% in males and 55% in females). By exposure category, about 45% of new HIV infections were among MSM, 26% among persons from HIV-endemic countries, 21% in others infected heterosexually and 5% in injection drug users. We concluded that no persons were infected with HIV through the receipt of clotting factors or blood transfusions in 2007.

Table 6.5 shows similar modeling as in Table 6.3 and Table 6.4 but also includes the modeled populations at risk, HIV prevalence rate and HIV incidence rate by health region for selected exposure categories as of 2007. The highest HIV prevalence rate and incidence rate was in Toronto for MSM and heterosexual categories and in Ottawa for IDU and HIV-endemic categories. HIV incidence among MSM varied from 0.31% on Central East, other to 1.4% in Toronto; it was similarly high in MSM-IDU. In contrast, HIV incidence was much lower in IDUs, varying from 0.08% in Central East other to 0.71% in Ottawa.

Table 6.5a shows similar model results stratified by sex for the IDU, HIV-endemic and heterosexual categories. As in the above table, Ottawa had the highest prevalence rate and incidence rate in the IDU and HIV-endemic categories and Toronto had the highest rates in the heterosexual categories for both sexes.

4. DISCUSSION

The present report presents HIV and AIDS comprehensive surveillance data and characterizes the evolution of the HIV epidemic in Ontario since its beginning in the late 1970s. From 1985 to 2007, 28,697 HIV diagnoses and 8,643 AIDS cases have been reported in Ontario. Using a statistical model, we estimated that cumulatively 35,960 persons in Ontario have been infected with HIV as of December 2007. Of these, 9,472 persons have died, with 87% of deaths from HIV-related causes, leaving 26,490 persons living with HIV infection.

The statistical model indicated that HIV prevalence has increased significantly since 1996. In the eleven-year period from 1996 to 2007, HIV prevalence in Ontario increased 85%, with an average annual increase of 5.7%. This increase was in part related to improved survival among HIV-infected persons due to the introduction of HAART in 1996. However, it is also due to sustained or increasing HIV incidence in most exposure categories. In Ontario, the number of HIV-related deaths decreased 78% from 1995 to 2005, with a dramatic decrease from 1995 to 1997. Notably, the rules for identifying the underlying cause of death changed from the 9th revision of International Classification of Disease (ICD-9) to the 10th revision (ICD-10) implemented in 2000. This modification resulted in an estimated 10% increase in the number of HIV-related deaths <*14*>. Taking this into account, the true number of HIV-related deaths decreased 80% from 1995 to 2005.

The results in this report should be interpreted with caution due to limitations in our data and analytic methods. HIV diagnoses may not be generalizable to all persons infected with HIV since not all HIV-infected persons have been tested. Furthermore, the date of HIV diagnosis does not reflect the date of infection as persons may be diagnosed many years following infection. Although we believe the methodology used to assign exposure categories to cases without risk factors indicated and to reassign risk factors initially misclassified is valid (see Appendix A), some imprecision is unavoidable due in part to the small number of respondents in the Laboratory Enhancement Study in some exposure categories and in some health regions.

With respect to AIDS case data, this year we were unable to obtain line data for each reported AIDS case as in previous years. Instead, we obtained eight un-linkable data sets, each with three to five variables. Although, to ensure the results were comparable in 2007 to 2006, we provided the MOHLTC with an algorithm for data verification and cleaning we had used in previous years, some variation in the results obtained may have been unavoidable. As in the previous two years, we experienced some difficulties with the transition from the RDIS to the iPHIS information system in 2005 (see Methods 2.2.1). We used data from RDIS for this report if a case was present in RDIS, which constituted 90% of cases. Overall, data for 10% of cases were obtained from iPHIS; however, such cases comprised 2.7% of cases diagnosed in 1985-1992, 5.6% in 1993-1999, 18.9% in 2000-2004, 73.5% in 2005 and 100% of cases in 2006 and 2007. Overall, the proportion of cases classified as 'No identified Risk' was 8.2% (49.2% of cases from iPHIS and 3.8% of cases from RDIS without information on risk factors). Although we reassigned cases with missing data based on the distribution among cases with known exposure category stratified by sex, health region and year of diagnosis, this method may not accurately reflect the true distribution of exposure category for those cases.

Reported AIDS cases are subject to under-reporting and reporting delay; the latter is particularly a problem for cases diagnosed in the most recent years. Because of this, we adjusted for

reporting delay in our model and, after adjustment, AIDS incidence increased 80% since its low in 2000.

In January 2002, Citizenship and Immigration Canada began requiring routine HIV screening for applicants as part of the immigration medical examination and also reduced restrictions on some immigrants who would have previously been considered medically inadmissible <*17*>. Due to this change in policy, the number of HIV diagnoses in some categories increased. Also, the number of tests carried out at the Ontario HIV Laboratory for visa applications increased dramatically, from 1,294 in 2001 to 42,895 in 2007, a 32-fold increase. The annual number of HIV-positive visa applicants increased from 6 in 2001 to 110 to 140 from 2002 to 2007, except in 2006 with 220. This change likely accounted for a significant proportion of the increase in HIV diagnoses overall observed in Ontario from 2001 to 2007. The exceptional increase in the number of HIV-positive visa applicants in 2006 may have been related to the XVI International AIDS conference in Toronto in 2006. Close to 150 delegates who attended the conference claimed refugee status in Canada and most were HIV-infected women from Africa <*18*>.

Females represent a growing proportion of HIV infections in Ontario. 4,132 females were diagnosed with HIV as of December 2007, representing 15% of HIV diagnoses in Ontario. The proportion of diagnoses comprised by females was initially low at about 2% but dramatically increased subsequently and reached a plateau of about 25% from 2001 to 2007. The increase in HIV diagnoses among females may be partly attributed to the changes to policies at Citizenship and Immigration Canada noted above and the provincial HIV prenatal screening policy begun in 1999.

The Ontario HIV screening program among pregnant women has been very successful. Early detection and systematic antiretroviral prophylaxis has reduced the mother-to-child HIV transmission in Ontario. Uptake of HIV testing in pregnancy dramatically increased, from 41% in 1999 to 92% in 2007. The proportion tested is actually somewhat higher (by about 2-3%) due to our inability to match some cases in the prenatal database with women testing in the HIV diagnostic database. During these nine years, 227 pregnant women were newly diagnosed as HIV-positive during pregnancy. According to data from CPARG Ontario, the number of Ontario HIV-positive mothers giving birth in Canada increased from 37 in 1999 to 65-70 per year in the most recent four years from 2004 to 2007. Among 505 HIV-positive pregnant women identified from 1999 to 2007, 92% received antiretroviral prophylaxis. Overall, the mother-to-child transmission rate was 1.5% among HIV-infected women who received antiretroviral prophylaxis.

The CPARG Ontario surveillance system provides further evidence of the benefits of this program. According to CPARG data, 130 children born in Canada were infected with HIV from their mothers from 1984 to 2007. After adjusting for delay in diagnosis and reducing year-to-year variation through smoothing, the number of HIV-infected children increased from two cases in 1984 to a peak of10 cases every year from 1993 to 1995, then decreased to a plateau of about 4 cases per year from 2001 to 2005 with a further decrease to about two cases in 2006-07. The decrease was likely due to increased HIV screening and antiretroviral prophylaxis during pregnancy instituted after the results of the ACTG076 trial were published in 1994.

1,076 persons were newly diagnosed with HIV in Ontario in 2007; most were reported from Toronto (58%) and Ottawa (13%). The number was relative stable at an average of 1,100 cases per year from 2002 to 2007; however, the number of cases was 5.6% lower in 2007 compared to the average of 1,140 in 2002 to 2006. From 2002 to 2007, the Toronto and the Eastern, other regions

experienced a decrease in the number of HIV diagnoses (-16% and -44% decrease, respectively); Ottawa remained the same; the remaining four health regions experienced an increase in HIV diagnoses: Northern (an increase of 80%), Central West (an increase of 36%), Central East, other (an increases of 22%) and Southwest (an increase of 14%).

Similar to the overall number in Ontario, HIV diagnoses for most exposure categories were relative stable with some year-to-year variation during the last five years. However, HIV diagnoses in 2007 decreased in the HIV-endemic category by 21% (58 cases less) and MSM by 4.1% (21 cases less) compared to 2002.

The HIV epidemic in Ontario MSM is not yet under control. Although the proportion of HIV diagnoses comprised by MSM gradually decreased from 90% in the late 1980s to about 45-50% in more recent years, the increase in the absolute number of HIV diagnoses among MSM is concerning. More than 3,000 MSM were newly diagnosed with HIV since 2001. In the most recent five years from 2002 to 2007, 510 MSM were newly diagnosed annually. Compared to the period from 1999 to 2001, when annual new HIV diagnoses was about 420, the annual number of HIV diagnoses increased by 22%. This increase in HIV diagnoses could be related in part to an increase in HIV testing: the annual number of HIV tests among MSM from 2002 to 2007 (average of 19,100 annually) increased by 38% in Ontario compared to the period from 1999 to 2001 (13,800 annually). Thus, although increased HIV testing appears to account for some of the increase in diagnoses, it is likely due to an increase in HIV incidence as well.

HIV incidence among MSM in Ontario based on the detuned assay was relatively stable from 2001 to 2007 at about 1.1 per 100 person-years. However, HIV incidence among repeat testers in this group increased markedly since 1996, from 0.68 per 100 PY to 1.41 per 100 PY in 2006 *<19>.* Using Ontario data on HIV diagnoses and reported AIDS cases, Yan modeled HIV incidence using back-calculation method and showed an increased trend of HIV incidence among MSM. This increase was more pronounced on the younger age group of MSM *<20>*. The Omega study found that HIV incidence among MSM in Montreal appeared to increase from 2000 to 2003 and a statistically significant increase in risky sexual behaviours among cohort members was also observed *<21>*. Sustained increase in HIV-1 incidence since 2000 among MSM in British Columbia was also observed *<22>*. Studies in the USA also revealed that HIV incidence for MSM has been steadily increasing since the early 1990s *<23>*. According to the Ontario HIV model, HIV incidence rate among MSM was 0.99% in 2007 compared to 0.66% in 1996, an increase of 50%. Modeled annual HIV incident infections increased from 457 in 1996 to 760 in 2007, a 1.7-fold increase. Based on these sources and our analysis, we conclude that HIV incidence among MSM has increased substantially since 1996.

The increase we observed in HIV incidence among MSM is of considerable public health concern. Nevertheless, It must be remembered that the majority of MSM practice safer sexual behaviour and are at negligible or no risk of HIV infection. Most infections are probably occurring in the t 15-20% of MSM who engage in risky sexual behaviours. In this group, HIV incidence could be quite high, possibly up to 5 per 100 person-years or higher. Data from a cohort of MSM in the Omega study found that unprotected anal sex, when practiced with a serodiscordant/casual partner, was the main risk for HIV seroconversion and that the risk was greater for receptive unprotected anal sex. The number of casual sex partners also contributed to HIV transmission *<24>*.

Recently, Adam and colleagues systematically reviewed the situation among MSM in Ontario <*25*>. This review identified several factors, contexts and predispositions that may in part explain the observed increase in HIV transmission, which includes: sexual and domestic abuse, sensation-seeking personality and behaviours, personal disruption (such as loss of a job or partner), depression and social isolation, drug and alcohol use, difficulties with condom use (both physiological and symbolic), particular settings and social interactions (e.g., settings which emphasize casual or quick sex; places that emphasize a 'buyer beware' mentality), certain circuits and currents which are supportive of unprotected sex (e.g., barebacking scene) and treatment optimism. The phenomenon of "barebacking" may play a role in increased HIV transmission. In this critical review, Adam indicated that men identifying with bareback language and labels may account for a significant amount of the unprotected sex <*25*>. A survey carried out at Gay Pride Day in Toronto in 2005 found that almost half (47.5%) of HIV-positive participants and 14.1% of HIV-negative participants had either unprotected insertive or receptive anal intercourse with a partner of opposite or unknown HIV status <*26*> and half of the men who reported having unprotected sex with a casual male partner during the previous six months also indicated being part of the "bareback scene" or cruising "bareback websites" <*27*>. Another potential risk factor for HIV transmission cited by Adam is poor communication in the couple <*25*>. Condom use tends to decrease with the length of romantic relationship and some men may find it harder to negotiate safety in long-term relationships where partners assume mutual monogamy. The introduction of condoms by one partner may signal distrust or infidelity to the other partner.

The reasons for increase in high-risk sexual behaviours among MSM in Ontario are unclear. However, it may partly be explained by three factors identified in recent studies involving MSM in the United States and Western Europe: prevention, or safe sex, fatigue <*28-30*>, treatment optimism <*28, 31-34*>, and serosorting <*35-37*>. In a prospective study in multiple cities in the United States, Ostrow and colleagues found that an increased proportion of unprotected anal sexual partners among HIV-positive gay men was associated with a decreased concern about HIV because of HARRT and an increase in safe sex fatigue; among HIV-negative gay men, this increase was associated with safe sex fatigue<*28*>. In a meta-analysis of treatment optimism published in 2004 <*34*>, Crepaz concluded that the likelihood of unprotected sexual behaviour was significantly higher in persons who believed that HAART reduces HIV transmission or who were less concerned about engaging in unsafe sex given the availability of HAART (OR=1.82; 95%CI, 1.52-2.17). One group of researchers conducted three surveys among MSM at gay events in Atlanta from 1997 to 2006. Their results indicated clear and consistent increases in beliefs that HIV treatment reduce HIV transmission risk because of undetectable viral load and increases in unprotected anal intercourse <*32*>. Serosorting, the practice of choosing to have unprotected sex with HIV-concordant partners only and of selectively using condoms with HIV-discordant partners, is a new strategy adopted by MSM to deal with HIV risk. However, the extent to which serosorting protects HIV-uninfected MSM from acquiring HIV is uncertain. The effectiveness of a serosorting strategy for HIV prevention depends on the accuracy of individuals' serostatus disclosures. Recent studies have found that unprotected anal sex with partners believed to be HIV-negative was an independent risk factor for acquiring HIV <*35-37*>.

An analysis from the Ontario Polaris Seroconversion Study identified a previously unrecognized factor which may play a role in facilitating HIV transmission at another level <*38*>. In this study, MSM who reported delayed application of a condom during anal receptive intercourse (i.e. who used a condom but only after unprotected penetration before ejaculation) were at significantly and independently increased risk of HIV infection. The authors suggested that HIV transmission in this context may be due to the high infectivity of pre-ejaculate secretions.

In summary, the reasons for the increased HIV incidence in MSM in Ontario are not well understood. Thus, to enhance prevention effectiveness, more research among MSM in Ontario, including the rigorous evaluation of innovative preventive interventions, is critical. Interventions targeting MSM must address the limitations of serosorting and the realities of HIV viral concentrations and HIV transmission risks. Effective HIV prevention is a major challenge. A recent meta-analysis by the Cochrane review recently examined such these programs systematically <*39*>. Based on a review of 58 intervention meeting strict criteria, they found that interventions reduced unprotected anal sex by 27% compared to no or minimal intervention. They also found that intervention were statistically homogeneous. They concluded that HIV prevention among MSM can be effective and should be supported.

Overall in Ontario, the HIV epidemic among IDUs appears to be under relatively good control. HIV incidence among IDUs in Ontario dramatically decreased from a peak in the mid-1990s and has been relatively low and stable during the last five years. However, the issue of HIV among IDUs continues to be a serious problem in some health regions. We estimated the incidence and prevalence of HIV among IDUs in Ontario in 2007 were 0.24% and 4.9%, respectively. However, HIV incidence among IDUs was 0.71% in Ottawa, 0.47% in the Northern and Eastern, other health regions; HIV prevalence was 14.5% in Ottawa, 8.2% in the Northern and 6.9% in the Eastern, other health region. Using repeat-tester analysis in the same HIV diagnostic laboratory database, Calzavara and colleagues also found high incidence among IDUs in Ottawa <*40*>. The SurvUDI Working Group has monitored HIV and HCV and their associated risk factors among IDUs from eight cities of Quebec and Ottawa since 1995. They found that although HIV incidence decreased since 1999, HIV prevalence and incidence remained unacceptable high <*41, 42*>. According to the SurvUDI data (1995 to 2007), people who shared syringes, injected cocaine, injected frequently, were 25 years of age or older and had sex in exchange for money, drugs or other goods, were more likely to become infected with HIV <*41*>. The I-Track, an enhanced surveillance of risk behaviours among IDUs in Canada, found a high HIV prevalence in Sudbury at 12.2% <*43*>. It is critical that effective prevention programs be continued in this group and should be adapted to the specific needs of each region.

Persons born in HIV-endemic countries in Ontario are disproportionately affected with HIV infection in many industrialized countries <*44,45*>. In the United States, African-born persons accounted for 0.6% of the population and 3.8% of HIV diagnoses <*44*>. In the United Kingdom, the prevalence of diagnosed HIV in black African and black Caribbean communities in England is estimated to be 3.7% and 0.4% respectively, compared to 0.09% in the white population <*45*>. We estimate that 4,472 HIV-infected persons from HIV-endemic countries are living in Ontario as of December 2007; this represents 17% of HIV-infected persons in Ontario, whereas people from HIV-endemic countries account for 3.5% of the Ontario's population. Compared to the non-IDU heterosexual adult population in Ontario, the HIV prevalence among persons from HIV endemic countries is 23-fold higher. The number of HIV diagnoses has increased dramatically among persons from HIV-endemic countries. As well, HIV prevalence in this group increased 66% from 2002 to 2007, an average annual increase of 11%. This increase may be in part related to increased HIV testing related to the new immigration regulations, as noted above. Though this group has received growing attention in Ontario in the last few years, effective and comprehensive HIV prevention are still needed.

We observed a marked increase in modeled HIV prevalence among other persons infected heterosexually: an estimated 4,023 persons infected heterosexually (apart from persons from HIV-endemic countries) were living in Ontario as of December 2007, representing 15% of infected persons in Ontario. HIV prevalence in this population increased 60% in the five years from 2002 to 2007, for a mean annual increase of 10%. We further estimated that 345 persons were newly infected in 2007. The factors involved in this increase are uncertain. To better understand this concerning trend, in 2005, we carried out a study to examine the factors related to HIV acquisition among heterosexually infected persons not from HIV-endemic countries in Toronto <*46*>. We found that recently diagnosed persons infected through heterosexual contact fell into three approximately equal groups: female sex workers, persons born in Canada and persons born elsewhere. Among those born in Canada, most had sexual contact with persons from HIV-endemic countries and were not aware of their HIV risk at the time of their exposure. We identified several factors that may help to guide prevention efforts: no or inconsistent use of condoms, multiple sexual partners including commercial sex work, sexual contact with persons from HIV-endemic countries among Canadian-born persons and unaware of their HIV risk at the time of exposure. Effective prevention policies and programs must include a component to address this emerging challenge.

In Canada, most HIV infections are due to HIV-1 subtype B. However, like other industrial countries with large immigrant communities <*47-48*>, the proportion of non-B subtype genetic strains among newly diagnosed cases has increased. Recently, Njihia and colleague examined the distribution of HIV-1 subtypes among newly HIV diagnoses from 2003 to 2005 in Ontario and observed a high proportion of non-B subtypes among those born in an HIV-endemic country and others infected heterosexually <*47*>. They found that heterosexual females were more likely than MSM/MSM-IDU to have a non-B subtype while heterosexual males were not, suggesting that among women, heterosexually acquired HIV infection was more likely to be related to sexual contact with persons from non-B regions, either in Canada or through international travel <*47*>.

In Ontario, overall, an estimated 36% of HIV-infected persons alive as of December 2007 were unaware of their HIV status. The proportion of HIV infections undiagnosed varied by exposure category, from about 30% among MSM-IDU, 30% among MSM and IDUs, 44% among persons from HIV-endemic countries and about 52% among persons infected through heterosexual contact. This gap is an important challenge in ensuring access to treatment and preventing HIV transmission. Diagnosis late in the course of HIV infection may result in unnecessary morbidity and premature mortality, limiting the benefits of antiretroviral therapy. Persons who remain undiagnosed and unaware of their HIV infection may also be at increased risk of transmitting the virus to others. A recent meta-analysis found that the prevalence of unprotected anal or vaginal intercourse with any partner was 53% (95% confidence interval 45-60%), lower in HIV-positive persons aware of their status relative to HIV-positive persons unaware of their status <*49*>. A mathematical model estimated that the sexual transmission rate of HIV among those who were unaware of their HIV-positive status was at least 3.5 times that of those who were aware of their HIV-positive status in the United States <*50*>. A recent Ontario study of MSM carried out in 2007 among MSM (the *Lambda* study) found that 16.4% of HIV-positive men with a known HIV testing history were unaware of being infected. Compared to those who had tested HIV-positive, HIV-infected MSM who had never tested were more likely to be from Ottawa (compared to Toronto), less educated and have lower income <*51*>.

Measures to improve HIV test uptake may be targeted to persons at increased risk of HIV infection. Other approaches to access undiagnosed HIV-infected persons should also be explored. A study

published in 2005 found that screening for HIV in selected health care services, even in relatively low prevalence populations, rather than on the basis of risk factors may be cost-effective <*52,53*>. Routine HIV screening of adults and adolescents visiting health care facilities may help to detect HIV-infected patients earlier <*54*>. These studies support the new recommendations for HIV testing published by the US Centers for Disease Control in the United States in September, 2006. HIV screening in USA is now recommended for patients aged 13-64 years in all health-care settings after patients are notified that testing will be performed unless they refuse (opt-out screening) <*55*>.

Promotion of HIV testing toward care-providers should be improve the HIV testing uptake. Recently, Rank and colleagues examined the characteristics and testing frequency of physicians who prescribe HIV testing in Ontario in 2006 <*56*>. They found that 59% of Ontario physicians prescribed at least one HIV test in 2006, and physicians in the Northern and Central East, other regions, recent graduates, family/general practitioners, internist and obstetricians/gynecologists were more likely to prescribe HIV test. This finding suggests that strategies may be necessary to encourage and support HIV testing practices among care-providers on all disciplines.

In summary, the Ontario HIV epidemic has not yet stabilized and appears to be evolving in new directions. Though male-to-male sex remains the predominant mode of HIV acquisition, recent trends in HIV diagnoses have shown substantial increases in the proportion of HIV diagnoses attributed to heterosexual contact including among persons from HIV-endemic countries. The use of multiple data sources, especially the Laboratory Enhancement Study continues to provide critical insights into the evolving HIV epidemic. Continued collection of such data will allow us to obtain better estimates of the extent and trend of HIV infection in Ontario and guide prevention policies and programs in Ontario.

REFERENCES

1. *Statistics Canada. CANSIM (Canadian Socio-economic Information Management System) database, 1996: *http://www.datacentre.cahss.utoronto.ca:5680/cansim*.

2. Major C, Palmer R, Degazio T, Brown D, Galli R, Calzavara L, Fearon M. The Ontario HIV Laboratory Project: Final Report. Study carried out under contract for Health Canada, February 1997.

3. RS Remis, C Swantee, M Fikre Merid, RWH Palmer, M Fearon, M Fisher, E Whittingham, C Major. Enhancing diagnostic data for HIV surveillance: The Ontario laboratory enhancement study (LES). *15th International Conference on AIDS*, Bangkok, Thailand, July 11-16, 2004 (Abstract MoPeC3634).

4. Health Canada. Revision of the CDC surveillance case definition for Acquired Immunodeficiency Syndrome. *Canada Diseases Weekly Report* 1987; 13: 169-76.

5. Council of State and Territorial Epidemiologist; AIDS Program, Center for Infectious Diseases. Revision of the CDC surveillance case definition for Acquired Immunodeficiency Syndrome. *Morb Mortal Wkly Rep* 1987; 36(1S): 3-14S.

6. Castro KG, Ward JW, Slutsker L, Buehler JW, Jaffe HW, Berkelman RL. 1993 revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. *Morb Mortal Wkly Rep* 1992; 41(RR-17): 1-17.

7. Health Canada. Revision of the surveillance case definition for AIDS in Canada. *Canada Communicable Disease Report* 1993; 19: 116-17.

8. Remis RS. Guidelines for the surveillance of AIDS in Canada. Division of HIV/AIDS Epidemiology, Bureau of Communicable Disease Epidemiology, Laboratory Centre for Disease Control (LCDC), Health Protection Branch, Health Canada, Ottawa, 1995.

9. Lawless JF. Adjustments for reporting delays and the prediction of occurred but not reported events. Can J Statistics 1994; 22: 15-31. S-plus program provided by Yan P from Health Canada, January 2006.

10. Janssen RS, Satten GA, Stramer SL, Rawal BD, O'Brien TR, Weiblen BJ, el al. New testing strategy to detect early HIV-1 infection for use in incidence estimates and for clinical and prevention purposes. *JAMA* 1998; 280:42-8.

11. Remis RS, Palmer RWH, Raboud JM. Estimates of HIV incidence based on detuned assay results may be strongly biased. 14th International Conference on AIDS. Barcelona, Spain, July 7-12, 2002 (Abstract MoPeC3457).

12. Remis RS, Palmer RWH. Testing bias in calculating HIV incidence from the Serologic Testing Algorithm for Recent HIV Seroconversion. *AIDS*. 2009 Feb 20;23(4):493-503.

13. Remis RS, Major C, Bangura H, Wallace E and Vermeulen M. Report on the HIV/AIDS epidemic in Ontario, 1981-1996. Ontario Ministry of Health, July 1998.

14. Statistics Canada. Comparability of ICD-10 and ICD-9 for mortality statistics in Canada. Catalogue no. 84-548, 2005

15. Remis RS, Ehittingham EP. The HIV/AIDS epidemic among persons from HIV-endemic countries in Ontario, 1981-98: Situation report. Department of Public Health Sciences, University of Toronto, November 1999.

16. Remis RS. The epidemiology of HIV infection among persons from HIV-endemic countries in Ontario: Update to 2002. Presentation to the HIV Endemic Task force, Toronto, Ontario, November 13, 2003 and People to People Conference, Toronto, Ontario, November 30, 2003.

17. Citizenship and Immigration Canada. Immigration and Refugee Protection Act. Statutes of Canada 2001. Chapter 27. Also available at url: *http://www.cic.gc.ca/english/pdf/pub/C-11_4.pdf*

18. CTV.ca News Staff: Eritrean AIDS delegate, 137 others seek refuge. Updated Fri. Sep. 1 2006 11:37 PM ET. Accessed on May 21, 2009, at url: http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20060901/aids_conference_refugees_060701/20060901?hub=Canada/

19. Remis RS, Liu J. Epidemiologic trends in HIV infection among men who have sex with men in Ontario: The situation in 2007. Gay Men's HIV Prevention Summit, AIDS Bureau, Ontario Ministry of Health and Long-term Care, Toronto, February 21, 2008

20. Yan P. Estimation for HIV incidence in Ontario using back-calculation. Presentation on National HIV Estimates Consultation, University of Toronto, Public Health Agency of Canada, Ontario AIDS Bureau, May 5. 2009

21. Remis RS, Alary M, Otis J et al. and the OMEGA Study Group. Trends in HIV incidence and sexual behaviour in a cohort of men who have sex with men (MSM) Montréal, 1996-2003. Can J Infect Dis 2004;15(Suppl A):55A (Abstract 318).

22. Lampinen TM, Ogilvie G, Chan K, Miller ML, Cook D, Schechter MT, Hogg RS. Sustained increase in HIV-1 incidence since 2000 among men who have sex with men in British Columbia, Canada. J Acquir Immune Defic Syndr. 2005 Oct 1;40(2):242-4.

23. Hall HI, Song R, Rhodes P, Prejean J, An Q, Lee LM, Karon J, Brookmeyer R, Kaplan EH, McKenna MT, Janssen RS; HIV Incidence Surveillance Group. Estimation of HIV incidence in the United States. JAMA. 2008 Aug 6;300(5):520-9.

24. Lavoie E, Alary M, Remis RS, Otis J, Vincelette J, Turmel B, Lavoie R, Masse BR, Le Clerc R. Determinants of HIV seroconversion among men who have sex with men living in a low HIV incidence population in the era of highly active antiretroviral therapies. Sex Transm Dis. 2008

Jan;35(1):25-9.

25. Adam BD. Research on HIV risk among gay and bisexual men. Gay, Bi, MSM situation report. Ontario Gay Men's HIV Prevention Strategy, AIDS Bureau, Toronto, Ontario, November 2006.

26. Hart TA, James C, Myers JG, Roberts K. HAART-Related Beliefs and Unprotected Anal Intercourse with Serodiscordant or Unknown HIV Status Partners in a Canadian Sample of Men Who Have Sex with Men. Presented at the International AIDS Conference, Toronto, August, 2006.

27. Adam BD, Husbands W, Murray J, Maxwell J. Circuits, networks, and HIV risk management. AIDS Educ Prev. 2008 Oct;20(5):420-34.

28. Ostrow DG, Silverberg MJ, Cook RL, Chmiel JS, Johnson L, Li X, Jacobson LP; multicenter AIDS cohort study. Prospective study of attitudinal and relationship predictors of sexual risk in the multicenter AIDS cohort study. AIDS Behav. 2008 Jan;12(1):127-38.

29. Stolte IG, de Wit JB, Kolader M, Fennema H, Coutinho RA, Dukers NH. Association between 'safer sex fatigue' and rectal gonorrhea is mediated by unsafe sex with casual partners among HIV-positive homosexual men. Sex Transm Dis. 2006 Apr;33(4):201-8.

30. Stockman JK, Schwarcz SK, Butler LM, et al. HIV prevention fatigue among high-risk populations in San Francisco. J Acquir Immune Defic Syndr. 2004;35:432-34.

31. Schwarcz S, Scheer S, McFarland W, Katz M, Valleroy L, Chen S, Catania J. Prevalence of HIV infection and predictors of high-transmission sexual risk behaviors among men who have sex with men. Am J Public Health. 2007 Jun;97(6):1067-75.

32. Kalichman SC, Eaton L, White D, Cherry C, Pope H, Cain D, Kalichman MO. Beliefs about treatments for HIV/AIDS and sexual risk behaviors among men who have sex with men, 1997-2006. J Behav Med. 2007 Dec;30(6):497-503.

33. International Collaboration on HIV Optimism. HIV treatments optimism among gay men. J Acquir Immune Defic Syndr. 2003;32:545-50.

34. Crepaz N, Hart TA, Marks G. Highly active antiretroviral therapy and sexual risk behavior: a meta-analytic review. JAMA. 2004;292:224-36.

35. Golden MR, Stekler J, Hughes JP, Wood RW. HIV serosorting in men who have sex with men: is it safe? J Acquir Immune Defic Syndr. 2008 Oct 1;49(2):212-8.

36. Koblin BA, Husnik MJ, Colfax G, Huang Y, Madison M, Mayer K, Barresi PJ, Coates TJ, Chesney MA, Buchbinder S. Risk factors for HIV infection among men who have sex with men. AIDS. 2006 Mar 21;20(5):731-9.

37. Buchbinder SP, Vittinghoff E, Heagerty PJ, Celum CL, Seage GR 3rd, Judson FN, McKirnan D, Mayer KH, Koblin BA. Sexual risk, nitrite inhalant use, and lack of circumcision associated with HIV seroconversion in men who have sex with men in the United States. J Acquir Immune Defic Syndr. 2005 May 1;39(1):82-9.

38. Calzavara L, Burchell AN, Remis RS. Major C, Corey P, Myers T, Millson M, Wallace E. Delayed application of condoms is a risk factor for human immunodeficiency virus infection among homosexual and bisexual men. Am J Epidemiol 2003;157:210-7.

39. Johnson WD, Diaz RM, Flanders WD, Goodman M, Hill AN, Holtgrave D, Malow R, McClellan WM. Behavioral interventions to reduce risk for sexual transmission of HIV among men who have sex with men (Review). The Cochrane Collaboration. 2009 Issue 2.

40. Calzavara L, Burchell AN, Major C, et al, Polaris Study Team. Increases in HIV incidence among men who have sex with men undergoing repeat diagnostic HIV testing in Ontario, Canada. AIDS. 2002;16:1655-61.

41. Leclerc P, Morissette C, Roy E, Alary M, Parent R, Blanchette C, Claessens C, SurvUDI Working Group, HIV and HCV infection among IDUs in the SurvUDI network – 1995 to 2008. The 18th Annual Canadian Conference on HIV/AIDS Research (CAHR 2009), Vancouver, April 23-26, 2009, Abstract O090.

42. Leclerc P. Morissette C, Roy E. Le volet montréalais du Réseau SurvUDI Volume 1 – Données au 30 juin 2007. Agence de la sante et des services sociaux de montreal. 2008.

43. Public Health Agency of Canada. I-TRACK Enhanced Surveillance of Risk Behaviours among Injecting Drug Users in Canada, PHASE I REPORT August 2006. Also available at url: http://www.phac-aspc.gc.ca/i-track/sr-re-1/pdf/itrack06_e.pdf

44. Kerani RP, Kent JB, Sides T, Dennis G, Ibrahim AR, Cross H, Wiewel EW, Wood RW, Golden MR. HIV among African-born persons in the United States: a hidden epidemic? J Acquir Immune Defic Syndr. 2008 Sep 1;49(1):102-6.

45. Health Protection Agency, UK. Sexually transmitted infections in black African and black Caribbean communities in the UK: 2008 report. Also available at url: http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1225441605082?p=1158945066450

46. Remis RS, Ackery J, Shahin R, Achonu C, Liu J. Understanding HIV infection acquired by heterosexual contact in Toronto. The 17th Annual Canadian Conference on HIV/AIDS Research (CAHR 2008), Montreal, April 24-27, 2008, Abstract P224.

47. Njihia J, Rank C, Remis RS, Shah L, Swantee C, Sandstrom P, Brooks J, Jayaraman G, Archibald C. High proportion of non-B viral subtypes among persons with HIV-1 in Ontario, 2003-2005. The 16th Annual Canadian Conference on HIV/AIDS Research (CAHR 2007), Toronto, April 26-29, 2007, Abstract P246.

48. Aggarwal I, Smith M, Tatt ID, Murad S, Osner N, Geretti AM, Easterbrook PJ. Evidence for onward transmission of HIV-1 non-B subtype strains in the United Kingdom. J Acquir Immune Defic Syndr. 2006 Feb 1;41(2):201-9.

49. Marks G, Crepaz N, Senterfitt JW, Janssen RS. Meta-analysis of high-risk sexual behavior in

persons aware and unaware they are infected with HIV in the United States: implications for HIV prevention programs. J Acquir Immune Defic Syndr. 2005;39(4):446-53.

50. Marks G, Crepaz N, Janssen RS. Estimating sexual transmission of HIV from persons aware and unaware that they are infected with the virus in the USA. AIDS. 2006;20(10):1447-50.

51. Remis RS, Myers T, Husbands W, Liu J, Allman D, Paquette D, Kropp R, Archibald C and the Lamda Study Group. Characteristics of HIV-infected MSM in Ontario unaware of their serostatus. The XVII international AIDS Conference (2008), Mexico City, August 3-8, 2008, Abstract MOPE0405.

52. Sanders GD, Bayoumi AM, Sundaram V et al. Cost-effectiveness of screening for HIV in the era of highly active antiretroviral therapy. N Eng J Med. 2005;10:570-85.

53. Paltiel AD, Weinstein MC, Kimmel AD, Seage III GR, Losina E, Zhang H et al. Expanded screening for HIV in the United States - An analysis of cost-effectiveness. N Engl J Med. 2005;352:586-95.

54. CDC. Missed opportunities for earlier diagnosis of HIV infection - South Carolina, 1997-2005. MMWR 2006;55(47):1-4.

55. CDC. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. MMWR 2006;55(No.RR-14):1-18.

56. Rank C, Remis RS, Swantee C, K Wu. Patterns of HIV testing among Ontario physicians. The 18th Annual Canadian Conference on HIV/AIDS Research (CAHR 2009), Vancouver, April 23-26, 2007, Abstract O093.

PREVIOUS ONTARIO HIV/AIDS SURVEILLANCE REPORTS

Remis RS, Major C, Bangura H, Wallace E and Vermeulen M. Report on the HIV/AIDS epidemic in Ontario, 1981-1996. Ontario Ministry of Health, July 1998.

Remis RS, Major C, Wallace E, Schiedel L and Whittingham EP. Report on HIV/AIDS in Ontario, 1997-1998. Ontario Ministry of Health and Long Term Care, November 1999

Remis RS, Major C, Wallace E, Schiedel L, Whittingham EP. Report on HIV/AIDS in Ontario, 1999. Ontario Ministry of Health and Long Term Care, November 2000.

Remis RS, Major C, Wallace E, Schiedel L, Whittingham EP. Report on HIV/AIDS in Ontario, 2000. Ontario Ministry of Health and Long Term Care, December 2001.

Remis RS, Swantee C, Major C, Wallace E, Schiedel L, Merid MF. Report on HIV/AIDS in Ontario, 2001. Ontario Ministry of Health and Long Term Care, November 2002.

Remis RS, Swantee C, Schiedel L, Merid MF. Report on HIV/AIDS in Ontario, 2002. Ontario Ministry of Health and Long Term Care, November 2003.

Remis RS, Major C, Rottensten K, Schiedel L, Merid MF. Report on HIV/AIDS in Ontario, 2003. Ontario Ministry of Health and Long Term Care, December 2004.

Remis RS, Swantee C, Schiedel L, Merid MF, Liu J. Report on HIV/AIDS in Ontario, 2004. Ontario Ministry of Health and Long Term Care, February 2006.

Remis RS, Swantee C, Schiedel L, Liu J. Report on HIV/AIDS in Ontario, 2005. Ontario Ministry of Health and Long Term Care, March 2007.

OTHER RELEVANT PUBLICATIONS AND PRESENTATIONS

Remis RS, Palmer RWH. The epidemiology of transfusion-associated HIV infection in Canada, 1978-85. Laboratory Centre for Disease Control, Health Canada, Ottawa, September 30, 1994.

Remis RS, Millson M, Major C. The HIV epidemic among injection drug users in Ontario: The situation in 1997. Department of Public Health Sciences, University of Toronto, July 1997.

Remis RS, Strathdee SA, Millson M, Leclerc L, Degani N, Palmer RWH, Taylor C, Bruneau J, Hogg RS, Routledge R. Consortium to characterize injection drug users in Montreal, Toronto and Vancouver, Canada. March 31, 1998.

Remis RS, Whittingham EP. The HIV/AIDS epidemic among persons from HIV-endemic countries in Ontario, 1981-98: Situation report. Department of Public Health Sciences, University of Toronto, November 1999.

Calzavara L, Burchell A, Major C, Remis RS, Corey P, Myers T, Wallace E, Millson M and the Polaris Study Team. Increasing incidence among MSM repeat testers in Ontario, Canada, 1992-1999. XIII International AIDS Conference, Durban, South Africa, July 2000 (Abstract ThOrC718).

Remis RS, Major C, Calzavara L, Myers T, Burchell A, Whittingham EP. The HIV epidemic among men who have sex with other men: The situation in Ontario in the year 2000 [Technical report]. Department of Public Health Sciences, University of Toronto, November 2000.

Remis RS. The epidemiology of HIV infection among women in Ontario. In Stewart DE, Cheung AM, Ferris LE, Hyman I, Cohen MM, Williams JI, (eds). Ontario Women's Health Status Report. Ontario Women's Health Council, Toronto, Ontario 2003: 37-46.

APPENDIX A
EXPOSURE CATEGORY ADJUSTMENTS

Methodology used to adjust for unknown region, unknown sex, known and unknown exposure category among first-time HIV-positive diagnoses, 1985 to 2002 is described.

Adjustments were completed using five main steps; similar steps were carried out for each modified health region then added together to obtain provincial totals. Calculations were completed using Lotus 1-2-3 Release 9 for Windows.

Step 1: Distribute diagnoses among males, females, unknown sex with unknown region among the males, females, unknown sex in the seven health regions in accordance with the proportion among the known.

i) Obtain the distribution of HIV-positives for each region, including unknown region, by sex for each year and exposure category

ii) Assign HIV-positives in males, females, unknown sex in Unknown region to the seven health regions in accordance with the distribution among the known.

Example:

In 1991, Unknown region, exposure category NIR, there were 172 diagnoses in males, 13 in females and 19 in unknown sex. That same year in Toronto, exposure category NIR, 547 cases were among males, 60 among females and 84 among unknown sex. Provincial totals for 1991, exposure category NIR, were 1,058 diagnoses among males, 125 among females and 124 in unknown sex. To allocate the appropriate number of cases by sex with unknown region to Toronto, the formula was;

$$\#\text{ Toronto, NIR} + \#\text{ Unk region, NIR} \times \frac{\#\text{ Toronto, NIR}}{(\#\text{ Ontario NIR} - \#\text{ Unk region, NIR})}$$

For males, the calculation was;

$$547 + 172 \times [\,547 / (1{,}058 - 172)\,] = 653.2$$

which was the ‘adjusted' number of HIV-positives among Toronto males in the exposure category NIR in 1991.

Similarly, the adjusted positives among females, Toronto, exposure category NIR was;

$$60 + 13 \times [\,60 / (125 - 13)\,] = 67.0$$

APPENDIX A
EXPOSURE CATEGORY ADJUSTMENTS (CONTINUED)

and for unknown sex;

84 + 19 x [84 / (124 - 19)] = 99.2

the adjusted number of HIV-positives among unknown sex, Toronto, NIR in 1991

This procedure was repeated by sex (males, females, unknown), year (1985, 1986, etc. to 2002) and exposure category (MSM, MSM-IDU, etc. Other, NIR) and in this manner, HIV-positive diagnoses in Unknown region were distributed among the seven health regions. Subsequent steps were completed within each of the seven modified health regions.

Step 2: Distribute diagnoses in unknown sex between males and females in accordance with the proportion among the known.

After allocating HIV-positives in Unknown region among males, females, unknown sex in each of the seven regions (Step 1), HIV-positives in unknown sex within each region were allocated to males or females within that region.

Example:

In 1991 in Toronto, there were 99.2 HIV-positives with unknown sex in exposure category NIR (calculated in Step 1). These were allocated to the adjusted number of males or females in 1991, exposure NIR which had already been adjusted for unknown region. For Toronto men, we used the following formula:

males + # unknown sex x [# males / (# males + # females)]

Therefore, the number of HIV-positives among Toronto males in 1991, exposure NIR, adjusted for unknown sex was:

653.2 + 99.2 x [653.2 / (653.2 + 67.0)] = 743.2

and among females:

67.0 + 99.2 x [67.0 / (653.2 + 67.0)]= 76.2

In this manner, the total number of HIV-positives in Toronto in 1991, exposure category NIR, that is, 653.2 males + 67.0 females + 99.2 unknown sex = 819.4 were adjusted to 743.2 males + 76.2 females = 819.4 HIV positives. This procedure was repeated for each year, each exposure category and each of the seven health regions.

APPENDIX A
EXPOSURE CATEGORY ADJUSTMENTS (CONTINUED)

Step 3: Reallocate diagnoses in each exposure category according to new distribution by the Laboratory enhancement study (LES).

Step 3.1 For each exposure category and sex, calculate the LES adjustment factors.

Regions for which reallocation among exposure categories are similar are aggregated. HIV-positive male cases are aggregated into group 1 (Toronto, Central East, Other, Southwest and Central West) and group 2 (Ottawa, Northern and Eastern, Other). Female HIV-positives into group1 (Northern, Central West and Southwest) and group2 (Eastern, Other, Central East, Other, Toronto and Ottawa). Male HIV-negatives in group 1 (Toronto, Central East, Other, Southwest, Central West and Northern) and group 2 (Eastern, Other and Ottawa)**.** All regions of the female HIV-negatives are grouped together.

So seven adjustment factors specific to those aggregations are calculated.

Step 3.2 For each sex, each exposure category and each year from 1985 to 2002, calculate the number of cases that are going to be taken away from that exposure category.

Example:
Among Toronto males in 1985, there were 114.1 HIV-positives in the MSM category (calculated in Step 2). The LES adjustment factor for the MSM category for that region is 1.4%. Therefore, the number of cases that will be reallocated from that category will be:

114.1 *1.4% = 1.54 cases

Step 3.3 For each sex, each exposure category and each year, calculate the number of cases that will be reallocated to that exposure category.

Example:
Among Toronto males in 1985 ,there were 114.1 cases in MSM, 3.0 in MSM-IDU and 105.7 in NIR (Step 2). In Step 3.1, we calculated that only 1.4% of MSM cases in Step 2 will be reallocated to the MSM-IDU category. Therefore, the number of cases that will be reallocated to the MSM-IDU category was:

(114.1* 1.4%)+(3.0* 0%)+ (105.7 * 0%) = 1.54 cases

Step 3.4 For each sex, each exposure category and each year, calculate the final reallocated number of cases.

APPENDIX A
EXPOSURE CATEGORY ADJUSTMENTS (CONTINUED)

Example:
The MSM category in Toronto males in 1985 has 114.1 cases (step 2), 1.54 cases will be reallocated to another category (Step3.2) and none will be reallocated to MSM itself (Step 3.3). Therefore, the total number after reallocation will be:

114.1 - 1.54 + 0 = 112.5 cases

Step 4: Allocate HIV-positives among exposure category NIR to known exposure categories.

Step 4.1 For each exposure category, for each sex (males, females) within each year, calculate the proportion of HIV-positives which had that exposure that year.

Example:
Among Toronto males in 1991, there were 1.1 HIV-positives with exposure low-risk heterosexual (low-risk hetero), 743.2 positives with exposure NIR (calculated in Step 3) and a total of 1,122.8 positives that year. Therefore, the proportion of HIV-positives in exposure low-risk hetero was:

1.1 / (1,122.8 - 743.2) x 100% = 0.29%

For Toronto females in 1991, there were 1.4 positives with exposure low-risk hetero, 76.2 positives with exposure NIR (Step 3) and a total of 89.7 positives that year. The proportion of positives in exposure low-risk hetero was:

1.4 / (89.7 - 76.2) x 100% = 10.4%

Step 4.2 For each exposure category, for each sex, list the Lab enhancement study (LES) adjustment factors. These factors were specific to males and females for the regions of Toronto, Ottawa and Other. Thus, LES adjustment factors which were calculated for Other were applied to Northern, Central East, Other, Eastern, Other, Southwest and Central West regions. LES adjustment factors were 0.0% for exposures of Clotting factor and Perinatal.

Step 4.3 For each exposure, each sex, for the years 1999 and 2002 only, calculate the average of the proportion among the known (Step 4.1).

Example:
In Toronto males in 1999, the proportion of HIV-positives with exposure MSM was 78.6% and in 2000, was 79.1%, and 75.8% in 2002, giving an average proportion for the three years of 77.8%.

APPENDIX A
EXPOSURE CATEGORY ADJUSTMENTS (CONTINUED)

Step 4.4 For each year for each sex and each exposure category, calculate the "scaled-back" proportion of HIV-positives in that exposure category that year using the formula:

proportion among the known x (LES adjustment factor / average proportion in 1999-2002)
component 1 *component 2* *component 3*

Component 1 of the formula takes into account the fact that the proportion of HIV-positives by exposure category has shifted over time, for example, early in the epidemic, most HIV-positives were in the exposure category of MSM but new diagnoses in this group has declined over time. *Component 2* takes into account the inappropriateness of applying in isolation the LES adjustment factors, based on data collected in 1999 and 2002, to HIV-positives diagnosed 10 to 15 years earlier. Component 3 of the formula incorporates data on HIV-positives which may or may not have contributed to the LES adjustment factors (study questionnaire was not returned).

Example:
In Toronto males in 1985, the proportion of HIV-positives among MSM was 96.1% (proportion among the known as calculated in Step 4.1), the LES adjustment factor for Toronto males, MSM was 55.2% (Step 4.2) and the average proportion among the known for 1999 to 2002 was 77.8% (Step 4.3). Using the formula in Step 4.4, the scaled-back adjustment factor for 1985 was:

96.1% x (55.2% / 77.8%) = 68.2%

This step was repeated for each year, each sex and each exposure category. In the event that the LES adjustment factor was 0.0%, we used the proportion among the known, unless the exposure category was Clotting factor or Perinatal, in which cases the adjustment factor remained 0.0% (no HIV-positives from NIR were to be assigned to these two categories).

Step 4.5 The scaled-back adjustment factors for each exposure category within each year were then standardized to sum to 1.0 since the sum of the proportions calculated in Step 4.4 in each exposure category in each year did not necessarily add to 100%.

Example:
In 1985 in Toronto, the sum of the scaled-back proportions calculated in Step 4.4 for males was 68.2%. The proportions in each exposure category were "normalized to 1.0" by dividing the proportion in that exposure category by the sum of the proportions that year. For MSM in Toronto males that year, the calculation was;

68.2% / 71.9% = 94.8%

APPENDIX A
EXPOSURE CATEGORY ADJUSTMENTS (CONTINUED)

The process was repeated for each exposure category for each sex for each year and in this manner, final adjustment factors were generated for the health region.

Step 5: Calculate the final number of diagnoses, adjusted for unknown region, sex, known and unknown exposure, for each year for each sex in each exposure category.

To calculate the adjusted number of diagnoses for males or females for a given exposure category in a given year, the final adjustment factor calculated in Step 4.5 was multiplied by the number of HIV-positive with unknown exposure that year and added to the HIV-positive tests with known exposure.

Example:

In Toronto males in 1985, exposure category MSM, the final adjustment factor was 94.8% (Step 4.5), there were 112.5 HIV-positives among MSM that year (adjusted for unknown region, unknown sex and reallocated exposure category) and 105.7 HIV-positives in exposure NIR. Therefore, the adjusted number of HIV-positives among Toronto males in 1985 was:

112.5 + 94.8% x 105.7 = 212.7 HIV-positives

This calculation was repeated for each exposure category for each year for HIV-positives among males and females. Ontario totals for each sex by year and exposure category (as seen in Table 1.5), were obtained by summation across the regions.

The same methodology was used to assign HIV-negative diagnoses of unknown region, unknown sex and unknown exposure category for each year 1992 to 2002 to the seven health regions. Regionally adjusted HIV-negative tests per exposure category were summed to provide provincial totals. HIV positivity rates for each modified health region by year of diagnosis (1992, 1993, etc., 2002) and exposure category were calculated using adjusted figures such that the number of HIV tests (adjusted) was the sum of HIV-positives + HIV-negative diagnoses adjusted as described above.

APPENDIX B
METHODOLOGY, ONTARIO HIV MODEL

Our approach to this modelling exercise was to obtain the best possible estimates of the extent and distribution of HIV infection in Ontario using several independent data sources. In particular, we were interested in estimating the fundamental epidemiologic indicators, including incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses and AIDS from 1978 to December 2002. We also assessed annual and cumulative deaths due to AIDS and, for the first time for most groups, mortality due to other causes over the same period. This year, all modelling was carried out specifically for each exposure category and, in a second stage, interpolated for males and females separately. The Ontario estimates were derived by summing across exposure categories. The model for persons from HIV-endemic countries relied heavily on specific analyses carried out using a different modelling approach carried out in 1999 <*1*>.

There are a number of additional refinements introduced this year. For the first time, for estimates of incidence, we relied heavily on data from the laboratory enhancement study, in particular, the results of the detuned assay <*2*> and analyses of HIV incidence among repeat testers <*3*>. For this purpose, we also attempted to take into account substantial selection biases associated with HIV testing patterns <*4*>.

To estimate the number of HIV diagnoses, we first adjusted for possible duplicates and then assigned exposure categories for those with missing risk factor information based on the results of the Laboratory Enhancement Study, as outlined in Appendix A. This year, in addition we also took into account the small proportion of cases that were reassigned from their initial exposure category using additional information collected in the supplementary questionnaire. In addition, a proportion of HIV diagnoses among males initially classified as acquired though transfusion and heterosexual contact were reclassified as MSM based on the results of an independent HIV transfusion model <*5*> and a small validation study carried out in Toronto earlier this year <*6*>.

Initial estimates related to HIV infection, AIDS incidence and AIDS-associated deaths were entered in a spreadsheet (Lotus 1-2-3, Version 4.0) and indicators estimated based on the following formulas:

Annual HIV incidence in the current and preceding years was summed to estimate cumulative HIV incidence to the end of each year;

b. Similarly, annual AIDS incidence in the current and preceding years was summed to determine to cumulative AIDS incidence at the end of each year;
c. Annual AIDS mortality in the current and preceding years sums to cumulative mortality at the end of each year;
d. HIV prevalence was derived by subtracting cumulative mortality from cumulative HIV incidence;
e. Cumulative AIDS incidence less cumulative mortality yielded AIDS prevalence;
f. The number of HIV-infected persons diagnosed was derived from HIV test data from the Ontario HIV serodiagnostic laboratory.

APPENDIX B
METHODOLOGY, ONTARIO HIV MODEL (CONTINUED)

The specific derivation for each of the parameters used in the models in shown on Table 1.

Table 1	
Parameter	Derivation
Annual HIV incidence	Literature review Detuned assay results Incidence among repeat testers Adjusted to fit cumulative HIV incidence
Cumulative HIV incidence	Previous HIV models based on extrapolations and interpolations back-calculations, Quebec and Canada Cumulative HIV diagnoses and estimates of proportion of infections diagnosed
HIV prevalence	Cumulative HIV incidence less cumulative AIDS mortality Component model
HIV diagnosis	HIV diagnoses from HIV Laboratory adjusted for duplicate results
Cumulative HIV diagnoses	Sum of HIV diagnoses from 1978 to current year
AIDS incidence	Reported cases from the Ontario AIDS Surveillance Program, with adjustments for reporting delays (provided by CIDPC, Health Canada) and under reporting
Cumulative AIDS incidence	Sum of annual AIDS incidence
AIDS prevalence	Cumulative AIDS incidence less AIDS mortality
Annual AIDS deaths	Data from the Office of the Registrar General, corrected for under ascertainment Survival following AIDS
Cumulative AIDS mortality	Sum of annual AIDS deaths

References

1. Remis RS, Whittingham EP. The HIV/AIDS epidemic among persons from HIV-endemic countries in Ontario, 1981-98: Situation report. 62 pp. Department of Public Health Sciences, University of Toronto, November 1999.

2. Remis RS, Major C, Swantee C, Fearon M, Wallace E, Whittingham E. Trends in HIV incidence in Ontario based on the STARHS assay: Update to July 2002. *11th Annual Conference of the Canadian Association for HIV/AIDS Research*, Winnipeg, Manitoba, April 25-28, 2002. *Can J Infect Dis* 2002; 13(Supp A):66A (Abstract 372P).

3. Calzavara L, Burchell AN, Major C**,** Remis RS, Corey P, Myers T, Millson P, Wallace E and the Polaris Study Team. Increases in HIV incidence among MSM undergoing repeat diagnostic testing in Ontario, Canada. *AIDS* 2002; 16:1655-61.

4. Remis RS, Palmer RWH, Raboud J. Estimates of HIV incidence based on detuned assay results may be strongly biased: Evidence from a simulation study. *14th International Conference on AIDS*, Barcelona, Spain, July 7-12, 2002 (Abstract MoPeC3457).

5. Remis RS, Palmer RWH. The epidemiology of transfusion-associated HIV infection in Canada, 1978-85. 67 pp. Laboratory Centre for Disease Control, Ottawa, September 1994.

6. Remis RS, Fikre M, Ackery J. Report on the review of case reports among residents of Toronto classified in the heterosexual transmission category - Phase I. Unpublished report, Department of Public Health Sciences, University of Toronto.

Appendix C HIV diagnoses and AIDS cases by Local Health Integration Network (LHIN) region, Ontario

1. Introduction

In March 2006, the Ontario government changed the organization of the delivery of health care services through the establishment of 14 Local Health Integration Networks (LHINs) and the Local Health System Integration Act, 2006. LHINs are a critical part of the evolution of health care services in Ontario from a collection of services to a rationalized system that is patient-focused, results-driven, integrated, and sustainable. The legislation places decision-making power at the community level and focuses the local health system on the community's needs, aiming to improve health results for patients in every part of the province.

Many programs in Ontario providing HIV-related services have expressed the need for data and analyses stratified by LHIN. To meet this need, we used available data to carry out a sub-analysis of HIV diagnoses, AIDS and modeled HIV prevalence stratified by LHINs.

2. Methods

HIV serodiagnostic data were obtained from the HIV Laboratory, Central Public Health Laboratory (CPHL) of the Ontario Ministry of Health and Long-Term Care. Two methods were used to determine the distribution of cases by LHIN region: 1) Since 1998, the postal code has been collected for HIV testers on the HIV requisition. LHIN region was derived from the Statistics Canada Postal Code Conversion Files (PCCF + Version 4J) released on January 2007. 2) For those without postal code, we calculated the number of HIV diagnoses or tests by public health unit (PHU), then derived it to LHIN region. However,10 PHUs straddle more than one LHIN regions (eight PHUs across two LHIN regions, one across three LHIN regions and one across five LHIN regions). We used two health region to 2001 census dissemination area correspondence files in Ontario (PHU and LHIN) from Statistic Canada (http://www.statcan.ca/english/freepub/82-402-XIE/2007001/corr-en.htm, accessed Jan 22, 2008) to obtain the proportion of a LHIN region population in 2001 census in a split PHU using SAS program. We then used this proportion to derive the total number of HIV diagnoses or tests in LHIN regions. In this supplement, we presents the data adjusted for unknown LHIN region, sex and exposure category using same technique described in Appendix A in this report. The weight of reallocation of known exposure category and allocation of unknown exposure category for the seven health regions in the original report was used for the 14 LHIN regions.

Data on AIDS cases were obtained from the Public Health Division, Ontario Ministry of Health and Long-Term Care. Since no postal code data were available for reported AIDS cases, LHIN region was derived from PHU using the same technique as for the HIV diagnostic data. In this supplement, we present the data adjusted for unknown exposure category according to the known cases stratified by sex, LHIN region and year of diagnosis.

In this supplement, we present the cumulative number of HIV diagnoses from 1985 to 2007 and AIDS cases from 1981 to 2007 by LHIN region and exposure category stratified by sex, as well data in 2007 only. We also presents cumulative incidence rate per 100,000 of HIV diagnoses and AIDS cases by LHIN region and sex, as well as modeled HIV prevalence by LHIN region and sex.

Due to the limitations of the data, the results should be interpreted with caution.

3. Results

Table S-1 presents the number and proportion of HIV diagnoses by LHIN region and exposure category from 1985 to 2007 adjusted for unknown LHIN region, sex and exposure category. 37.3% of HIV infections were diagnosed in the Toronto Central, followed by 13.5% in the Central, 12.1% in the Central East and 11.8% in the Champlain LHIN region. The South West, Central West, Mississauga Halton, and Hamilton Niagara Haldimand Brant LHIN regions each comprised about 4-5% of HIV diagnoses. Together, the remaining six LHIN regions comprised less than 8% of HIV diagnoses.

The distribution of exposure categories differed markedly across LHIN regions. MSM accounted for greater than 60% of HIV diagnoses in the Toronto Central, Central, Central East, Central West and Mississauga Halton LHIN regions, compared to 27-29% in the North East and North West LHIN regions.

The North East and North West regions had the highest proportion of IDUs (nearly 40%), followed by the South East (25.2%), Waterloo Wellington (16.8%) and Champlain (15.0%) regions. The highest proportion of HIV diagnoses comprised by persons from HIV-endemic countries was in Champlain at 20.5%, followed by the Waterloo Wellington (17.9%) and North Simcoe Muskoka (15.1%) LHIN regions.

The proportion of persons infected through heterosexual contact (including low risk and high risk) also varied, from a low of 8.8% in the Champlain and Central East regions to 25.4% in North West LHIN regions, with 10-15% in most of the LHIN regions.

Table S-1a and **Table S-1b** show data stratified by sex. Again, Toronto Central had the highest proportion of HIV diagnoses in Ontario, with 38.5% of cases in males and 30.6% in females followed by in the Central, Central East and Champlain LHIN regions.

The distribution of exposure categories by region in males was similar to that in both sexes together shown in Table S-1. However, among females, IDUs accounted for 66.1% of HIV diagnoses in the North East and 51.7% in the North West, 29.7% in the South East, 19.1% in the Champlain LHIN regions, 4-5% in the North Simcoe Muskoka and Eire St. Clair and 10-16% in the rest of LHIN regions. The proportion of persons from HIV-endemic countries was as high as about 50% in the Champlain and Toronto Central LHIN regions and as low as 3-5% in the North East and North West LHIN regions; the proportion of persons infected through heterosexual contact was about 40-55% in most LHIN regions, except in the Champlain (15.4%), North East (23.6%) and Toronto Central (33.5%) LHIN regions.

Table S-2 presents the same analysis for 2007 alone. 80% of HIV infections were diagnosed in the following five LHIN regions: Toronto Central, Champlain, Hamilton Niagara Haldimand Brant, Central and Central East. MSM accounted for 57.1% of HIV diagnoses in the Toronto Central , followed by Hamilton Niagara Haldimand Brant (45.5%), Mississauga Halton (41.8%) and Waterloo Wellington (40.1%) LHIN regions. IDUs comprised the highest proportion in the North West LHIN region. Persons from HIV-endemic countries accounted for the highest proportion of

HIV diagnoses in the Erie St. Clair LHIN region. Finally, persons infected through heterosexual contact accounted for the highest proportion in the North Simcoe Muskoka, Central and Central East LHIN regions.

Table S-2a and **Table S-2b** show the data stratified by sex. 81% of male and 76% of female diagnoses were in the Toronto Central, Champlain, Hamilton Niagara Haldimand Brant, Central and Central East LHIN regions. Among males, MSM comprised a substantial proportion of diagnoses in most regions, except the North West, North Simcoe Muskoka and Erie St. Clair LHIN regions; IDU comprised the highest proportion in the North West LHIN region; persons infected through heterosexual contact comprised the highest proportion of HIV diagnoses in the North Simcoe Muskoka and Erie St. Clair LHIN regions.

Among females, 55-100% of HIV diagnoses in the Erie St. Clair, Champlain, Waterloo Wellington, Toronto Central and Mississauga Halton LHIN regions were persons from HIV-endemic countries. Persons infected through heterosexual contact comprised most cases in the South West, Central, Central East, South East and North Simcoe Muskoka LHIN regions. Persons from HIV-endemic countries and persons infected through heterosexual contact comprised the same proportion of HIV diagnoses in the Central West (48%) and Hamilton Niagara Haldimand Brant (44%) LHIN regions. IDUs comprised the majority of cases in the North East and North West LHIN regions.

Table S-3 shows the number and rate per 100,000 population of HIV diagnoses for 1985 to 2007 by LHIN region and sex. The population according to 2001 census was used in this analysis; therefore, the overall diagnosis rate in Ontario was slightly different from that in Table 1.15 in this report in which 1996 census population was used. The rate was highest in the Toronto Central, at 978.8 per 100,000, high-intermediate in the Champlain (308.7), Central (286.9), Central East (256.8) and low-intermediate in the Central West (187.0), South West (161.8), Mississauga (131.0), and South East (112.1) LHIN regions. Rates were 32 to 104 per 100,000 in the six other regions.

The ratio of the HIV diagnosis rate among males compared to that among females was the lowest in the North West at 2.3 and highest in the Central East at 8.3.

Table S-4 presents the number and proportion of cumulative reported AIDS cases by LHIN region and exposure category from 1981 to 2007 adjusted for unknown exposure category according to the known cases stratified by sex, LHIN region and period of diagnosis. 26.3% of AIDS cases were diagnosed in the Toronto Central, followed by 16.1% in the Central, 15.7% in the Central East, 8.8% in the Champlain LHIN region, and 1-6% each in the remaining regions. MSM constituted the majority of AIDS cases in all region, although the proportion varied from lowest in the North West at 34.1% to the highest in Toronto Central at 76.4%. About 20-25% of cases from the South East, North West and North East LHIN regions were IDUs, substantially higher than in other regions. In the Champlain, HIV-endemic cases represented the second highest category, with 15.6% of AIDS cases. AIDS cases in the heterosexual category constituted 13-25% of cases in the following 8 LHIN regions: Erie St. Clair, South West, Waterloo Wellington, Hamilton Niagara Haldimand Brant, Mississauga Halton, North Simcoe Muskoka and North West LHIN regions.

Table S-4a and **Table S-4b** show the cumulative number of AIDS cases stratified by sex. The regional distribution of exposure categories in males was similar to that in both sexes together shown in Table S-4. Among females, IDUs comprised the highest proportion of AIDS cases in the North East (66.1%), North West (47.9%) and South East (40.4%) LHIN regions. Persons from

HIV-endemic countries constituted the highest proportion of AIDS cases in the Champlain, Toronto Central, Central and Central East regions. Persons infected through heterosexual contact comprised the highest proportion of AIDS cases in the remaining regions.

Table S-5 presents the same analysis for 2007 alone. 72.8% of reported AIDS cases were reported in the Toronto Central, Central, Central East, Hamilton Niagara Haldimand Brant and Champlain LHIN regions. Overall 26.4% of AIDS cases in Ontario, more than half of cases from the South West, South East, North West, North Simcoe Muskoka, Hamilton Niagara Haldimand Brant and Champlain regions had no information on exposure category and the adjustment in 2007 was based on the proportion of exposure category among cumulative known cases from 2005 to 2007. Therefore, the data in this table and Table 5a and Table 5b should be interpreted with caution.

Table S-5a and **Table S-5b** show data stratified by sex in 2007. 67.3% of male AIDS cases were in the Toronto Central, Central, Central East and Hamilton Niagara Haldimand Brant LHIN regions. 21 female cases were in the following nine LHIN regions: Toronto Central, Central, Central East, Waterloo Wellington, Champlain, South West, Hamilton Niagara Haldimand Brant, Mississauga Halton and Central West.

Table S-6 shows the number and rate per 100,000 population of reported AIDS cases for 1981 to 2007 by LHIN region and sex. The population from the 2001 census was used in this analysis; therefore, the total overall diagnosis rate in Ontario was slightly different from that in Table 2.16 in this report, in which 1996 census population was used. AIDS incidence rates varied from a low of 25.6 per 100,000 in the Waterloo Wellington region to a high of 207.7 in the Toronto Central region. Between these two extremes were several LHINs with intermediate rates including Central (102.6 per 100,000), Central East (101.0), Central West (69.9) and Champlain (68.8).

Table S-7 presents the modeled prevalence of HIV infection in Ontario by LHIN region and exposure category as of December 2007. 73% of HIV-infected persons in Ontario were from following four LHIN regions: Toronto Central (28%), Central (16%), Central East (16%) and Champlain (13%). MSM accounted for 59% of HIV-infected persons living in Ontario, followed by 16% for persons from HIV-endemic countries and 14% for persons infected through heterosexual contact and 7.3% for injection drug users.

The distribution of exposure category varied by LHIN region. MSM accounted for more than 60% of HIV-infected persons in Toronto Central, Central and Central East LHIN regions, but only 27-29% in the North East and North West LHIN regions. IDUs accounted for 21-28% of infected persons in the North East, North West and South East regions but only 4% in Toronto Central, Central and Central East regions. The proportion of infected persons from HIV-endemic countries varied from 4-5% in the North East and North West to 25% in Champlain; it was about 15% in most of the other LHIN regions. The proportion of persons infected through heterosexual contact varied from 11% in Toronto Central to 33-37% in the North East and North West regions.

Table S-7a and **Table S-7b** presents the regional modeled HIV prevalence estimates in 2007 stratified by sex. 83% of HIV-infected persons were male and 17% female. 74% of infected males and 67% of infected females were from Toronto Central, Central, Central East and Champlain LHIN regions.

MSM comprised the highest proportion of HIV infections among males in each region. However, this varied from a low of about 40% in the North East and North West regions to a high of over 70% in Toronto Central, Central, Central East, South West, Erie St. Clair and Central West regions. The majority of cases among females were infected by heterosexual contact, with a low of 35% in Champlain and a high of 70% in the South West region. Women from HIV-endemic countries accounted for 48% of HIV-infected women in Toronto Central, 46% in Champlain, 42% in Central East and 41% in Central. IDUs accounted for 36% of infected females in the North East and North West regions and 31% in the South East region.

TABLES

Legend

MSM	Men who have sex with men
IDU	Injection drug use(r)
MSM-IDU	Men who have sex with men and use injection drugs
Clotting factor	Clotting factor recipient
HIV-endemic	HIV-endemic country of origin
Transfusion	transfusion recipient
Occupational	Occupational exposure
MTC	Mother-to-child exposure
LR hetero	Low risk heterosexual
HR hetero	High risk heterosexual
Heterosexual	Heterosexual (other) transmission
NIR	No identified risk

Table 1.1 Number of HIV diagnoses by year of diagnosis and sex Ontario, 1985 to 2007

Year of diagnosis	Males	Females		Unknown	Total
	Number	Number	% female[1]	Number	Number
1985	327	6	1.8%	3	336
1986	1,287	27	2.1%	51	1,365
1987	1,463	35	2.3%	49	1,547
1988	1,328	86	6.1%	30	1,444
1989	1,541	110	6.7%	54	1,705
1990	1,817	158	8.0%	94	2,069
1991	1,546	159	9.3%	124	1,829
1992	1,534	160	9.4%	118	1,812
1993	1,245	171	12.1%	72	1,488
1994	1,045	206	16.5%	61	1,312
1995	1,065	201	15.9%	58	1,324
1996	814	168	17.1%	59	1,041
1997	700	171	19.6%	62	933
1998	724	170	19.0%	64	958
1999	697	169	19.5%	34	900
2000	667	181	21.3%	46	894
2001	701	230	24.7%	31	962
2002	831	281	25.3%	27	1,139
2003	792	296	27.2%	16	1,104
2004	861	298	25.7%	18	1,177
2005	838	271	24.4%	15	1,124
2006	803	336	29.5%	19	1,158
2007	811	242	23.0%	23	1,076
Total	23,437	4,132	15.0%	1,128	28,697

1 Row percent of cases with known sex

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.2 Number and proportion[1] of HIV diagnoses by exposure category and sex, Ontario, 1985 to 2007

Exposure category	Males		Females		Unknown	Total	
	Number	%	Number	%	Number	Number	%
MSM	9,397	77.0%	--	--	--	9,397	67.2%
MSM-IDU	278	2.3%	--	--	--	278	2.0%
IDU	812	6.7%	303	17.8%	29	1,144	8.2%
Clotting factor	253	2.1%	29	1.7%	20	302	2.2%
Transfusion	114	0.93%	91	5.3%	8	213	1.5%
HIV-endemic	272	2.2%	243	14.3%	13	528	3.8%
HR hetero	105	0.86%	369	21.7%	0	474	3.4%
LR hetero	852	7.0%	578	33.9%	0	1,430	10.2%
MTC[2]	69	0.57%	79	4.6%	6	154	1.1%
Other[3]	46	0.38%	11	0.65%	1	58	0.41%
Unknown	11,239		2,429		1,051	14,719	
Total	23,437	100%	4,132	100%	1,128	28,697	100%

1 Column percent of cases with known source of exposure
2 Includes only HIV-infected infants
3 Includes needle-stick, acupuncture, tattoo, etc.

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.3 Number and proportion[1] of HIV diagnoses (adjusted[2]) by exposure category and sex, Ontario, 1985 to 2007

Exposure category	Males		Females		Total	
	Number	%	Number	%	Number	%
MSM	17,572	72.1%	--	--	17,572	61.2%
MSM-IDU	1,102	4.5%	--	--	1,102	3.8%
IDU	1,584	6.5%	653	15.1%	2,236	7.8%
Clotting factor	271	1.1%	31	0.72%	302	1.1%
Transfusion	322	1.3%	241	5.6%	563	2.0%
HIV-endemic	1,653	6.8%	1,796	41.6%	3,449	12.0%
HR hetero	323	1.3%	634	14.7%	957	3.3%
LR hetero	1,321	5.4%	782	18.1%	2,103	7.3%
MTC[3]	71	0.29%	83	1.9%	154	0.54%
Other[4]	166	0.68%	93	2.2%	259	0.90%
Total	24,385	100%	4,312	100%	28,697	100%

1 Column percent of cases with known source of exposure
2 Unknown sex assigned according to the distribution of those with known sex; unknown exposure category assigned according to proportion among the known and results of the Lab Enhancement Study (see text for more details);, thus, totals may differ due to rounding
3 Includes only HIV-infected infants
4 Includes needle-stick, acupuncture, tattoo, etc.

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.3a Number and proportion[1] of HIV diagnoses (adjusted[2]) by exposure category and sex, Ontario, 2007

Exposure category	Males		Females		Total	
	Number	%	Number	%	Number	%
MSM	496	60.0%	--	--	496	46.1%
MSM-IDU	34	4.1%	--	--	34	3.1%
IDU	57	6.9%	27	10.7%	83	7.7%
Clotting factor	0	0.0%	0	0.0%	0	0.0%
Transfusion	14	1.7%	3	1.4%	18	1.6%
HIV-endemic	84	10.1%	131	52.7%	214	19.9%
HR hetero	14	1.6%	25	10.2%	39	3.6%
LR hetero	102	12.4%	54	21.8%	156	14.5%
MTC[3]	2	0.24%	1	0.40%	3	0.28%
Other[4]	25	3.0%	7	2.9%	32	3.0%
Total	827	100%	249	100%	1,076	100%

1 Column percent of cases with known source of exposure
2 Unknown sex assigned according to the distribution of those with known sex; unknown exposure category assigned according to proportion among the known and results of the Lab Enhancement Study (see text for more details); thus, totals may differ due to rounding
3 Includes only HIV-infected infants
4 Includes needle-stick, acupuncture, tattoo, etc.

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.4 Number and proportion[1] of HIV diagnoses by year of diagnosis and exposure category Ontario, 1985 to 2007

Year	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[2]		Other[3]		Unk.	Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.
1985	166	87.8%	5	2.6%	1	0.53%	10	5.3%	5	2.6%	0	0.0%	1	0.53%	0	0.0%	1	0.53%	0	0.0%	147	336
1986	470	87.5%	11	2.0%	10	1.9%	28	5.2%	9	1.7%	4	0.74%	2	0.37%	0	0.0%	2	0.37%	1	0.19%	828	1,365
1987	856	86.6%	18	1.8%	17	1.7%	47	4.8%	31	3.1%	9	0.91%	3	0.30%	7	0.71%	1	0.10%	0	0.0%	558	1,547
1988	777	80.2%	22	2.3%	42	4.3%	50	5.2%	34	3.5%	18	1.9%	18	1.9%	6	0.62%	2	0.21%	0	0.0%	475	1,444
1989	892	81.8%	25	2.3%	60	5.5%	35	3.2%	20	1.8%	16	1.5%	24	2.2%	12	1.1%	6	0.55%	0	0.0%	615	1,705
1990	831	79.6%	18	1.7%	70	6.7%	47	4.5%	7	0.67%	23	2.2%	35	3.4%	7	0.67%	5	0.48%	1	0.10%	1,025	2,069
1991	431	80.3%	8	1.5%	36	6.7%	16	3.0%	1	0.19%	14	2.6%	15	2.8%	8	1.5%	8	1.5%	0	0.0%	1,292	1,829
1992	573	72.2%	20	2.5%	84	10.6%	14	1.8%	10	1.3%	23	2.9%	25	3.1%	38	4.8%	6	0.76%	1	0.13%	1,018	1,812
1993	455	63.3%	26	3.6%	60	8.3%	16	2.2%	14	1.9%	18	2.5%	42	5.8%	68	9.5%	18	2.5%	2	0.28%	769	1,488
1994	347	58.2%	18	3.0%	88	14.8%	6	1.0%	12	2.0%	13	2.2%	32	5.4%	63	10.6%	13	2.2%	4	0.67%	716	1,312
1995	360	58.5%	20	3.3%	75	12.2%	9	1.5%	9	1.5%	19	3.1%	30	4.9%	77	12.5%	13	2.1%	3	0.49%	709	1,324
1996	312	56.7%	12	2.2%	72	13.1%	6	1.1%	7	1.3%	26	4.7%	24	4.4%	69	12.5%	19	3.5%	3	0.55%	491	1,041
1997	246	54.8%	8	1.8%	56	12.5%	5	1.1%	9	2.0%	12	2.7%	32	7.1%	73	16.3%	6	1.3%	2	0.45%	484	933
1998	238	54.7%	10	2.3%	57	13.1%	2	0.46%	7	1.6%	19	4.4%	19	4.4%	73	16.8%	7	1.6%	3	0.69%	523	958
1999	239	53.2%	8	1.8%	69	15.4%	1	0.22%	5	1.1%	17	3.8%	23	5.1%	79	17.6%	6	1.3%	2	0.45%	451	900
2000	251	56.2%	13	2.9%	45	10.1%	2	0.45%	9	2.0%	30	6.7%	18	4.0%	76	17.0%	2	0.45%	1	0.22%	447	894
2001	222	50.2%	7	1.6%	38	8.6%	2	0.45%	4	0.90%	36	8.1%	24	5.4%	98	22.2%	8	1.8%	3	0.68%	520	962
2002	313	55.9%	4	0.71%	41	7.3%	0	0.0%	3	0.54%	49	8.8%	26	4.6%	113	20.2%	6	1.1%	5	0.89%	579	1,139
2003	266	52.1%	5	0.98%	38	7.4%	2	0.39%	3	0.59%	47	9.2%	17	3.3%	125	24.5%	3	0.59%	5	0.98%	593	1,104
2004	311	56.8%	7	1.3%	52	9.5%	2	0.36%	2	0.36%	34	6.2%	22	4.0%	109	19.9%	3	0.55%	6	1.1%	629	1,177
2005	291	56.2%	1	0.19%	57	11.0%	1	0.19%	6	1.2%	34	6.6%	13	2.5%	103	19.9%	10	1.9%	2	0.39%	606	1,124
2006	276	54.8%	4	0.79%	24	4.8%	1	0.20%	2	0.40%	45	8.9%	17	3.4%	124	24.6%	6	1.2%	5	0.99%	654	1,158
2007	274	56.4%	8	1.6%	52	10.7%	0	0.0%	4	0.82%	22	4.5%	12	2.5%	102	21.0%	3	0.62%	9	1.9%	590	1,076
Total	9,397	67.2%	278	2.0%	1,144	8.2%	302	2.2%	213	1.5%	528	3.8%	474	3.4%	1,430	10.2%	154	1.1%	58	0.41%	14,719	28,697

1 Row percent of cases with known exposure category
2 Includes only HIV-infected infants
3 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.5 Number and proportion[1] of HIV diagnoses (adjusted[2]) by year of diagnosis and exposure category Ontario, 1985 to 2007

Year	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[3]		Other[4]		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1985	298	88.8%	16	4.7%	1	0.38%	10	3.0%	8	2.4%	1	0.29%	1	0.19%	0	0.0%	1	0.30%	0	0.0%	336
1986	1,182	86.6%	58	4.3%	30	2.2%	28	2.1%	29	2.1%	29	2.1%	3	0.24%	0	0.0%	2	0.15%	3	0.25%	1,365
1987	1,300	84.0%	57	3.7%	30	2.0%	47	3.0%	63	4.1%	33	2.1%	6	0.36%	9	0.60%	1	0.06%	1	0.0%	1,547
1988	1,134	78.6%	61	4.3%	64	4.4%	50	3.5%	62	4.3%	46	3.2%	18	1.2%	5	0.35%	2	0.14%	1	0.0%	1,444
1989	1,345	78.9%	72	4.2%	94	5.5%	35	2.1%	49	2.9%	57	3.4%	32	1.9%	14	0.81%	6	0.35%	1	0.05%	1,705
1990	1,605	77.6%	79	3.8%	142	6.9%	47	2.3%	30	1.5%	101	4.9%	43	2.1%	13	0.63%	5	0.24%	4	0.18%	2,069
1991	1,382	75.5%	69	3.8%	135	7.4%	16	0.87%	7	0.39%	133	7.3%	45	2.5%	32	1.8%	8	0.44%	2	0.13%	1,829
1992	1,216	67.1%	87	4.8%	178	9.8%	14	0.77%	42	2.3%	142	7.9%	55	3.0%	66	3.6%	6	0.33%	7	0.39%	1,812
1993	895	60.2%	82	5.5%	118	7.9%	16	1.1%	39	2.6%	144	9.7%	68	4.6%	99	6.7%	18	1.2%	9	0.64%	1,488
1994	679	51.8%	76	5.8%	181	13.8%	6	0.46%	34	2.6%	142	10.9%	62	4.7%	101	7.7%	13	0.99%	18	1.3%	1,312
1995	730	55.2%	74	5.6%	136	10.2%	9	0.68%	27	2.1%	146	11.0%	62	4.7%	116	8.8%	13	0.98%	11	0.83%	1,324
1996	550	52.9%	44	4.3%	130	12.5%	6	0.58%	23	2.2%	128	12.3%	40	3.9%	91	8.7%	19	1.8%	10	1.0%	1,041
1997	471	50.5%	33	3.5%	109	11.7%	5	0.54%	26	2.8%	120	12.8%	54	5.8%	97	10.4%	6	0.64%	11	1.2%	933
1998	456	47.6%	41	4.3%	118	12.4%	2	0.21%	27	2.8%	128	13.4%	49	5.1%	115	12.0%	7	0.73%	14	1.4%	958
1999	419	46.6%	32	3.5%	129	14.3%	1	0.11%	13	1.5%	134	14.9%	45	5.0%	111	12.4%	6	0.67%	10	1.2%	900
2000	434	48.5%	39	4.4%	87	9.7%	2	0.22%	20	2.2%	155	17.4%	38	4.3%	106	11.8%	2	0.22%	11	1.3%	894
2001	408	42.4%	30	3.1%	82	8.5%	2	0.21%	10	1.1%	214	22.2%	48	5.0%	141	14.7%	8	0.83%	19	2.0%	962
2002	518	45.5%	22	1.9%	80	7.0%	0	0.0%	5	0.45%	273	24.0%	60	5.3%	156	13.7%	6	0.53%	19	1.7%	1,139
2003	461	41.7%	24	2.2%	73	6.6%	2	0.18%	9	0.84%	288	26.1%	48	4.3%	174	15.7%	3	0.27%	23	2.1%	1,104
2004	568	48.3%	32	2.7%	94	8.0%	2	0.17%	4	0.34%	237	20.1%	55	4.7%	160	13.6%	3	0.25%	21	1.8%	1,177
2005	552	49.1%	18	1.6%	97	8.6%	1	0.09%	12	1.1%	246	21.9%	39	3.5%	137	12.2%	10	0.89%	11	1.0%	1,124
2006	472	40.7%	20	1.8%	45	3.8%	1	0.09%	5	0.45%	337	29.1%	48	4.1%	204	17.6%	6	0.52%	21	1.8%	1,158
2007	496	46.1%	34	3.1%	83	7.7%	0	0.0%	18	1.6%	214	19.9%	39	3.6%	156	14.5%	3	0.28%	32	3.0%	1,076
Total	17,572	61.2%	1,102	3.8%	2,236	7.8%	302	1.1%	563	2.0%	3,449	12.0%	957	3.3%	2,103	7.3%	154	0.54%	259	0.90%	28,697

1 Row percent of cases with known exposure category
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.5a Number and proportion[1] of HIV diagnoses (adjusted[2]) among males by year of diagnosis and exposure category, Ontario, 1985 to 2007

Year	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[3]		Other[4]		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1985	298	90.4%	16	4.7%	1	0.39%	7	2.1%	6	1.9%	1	0.18%	0	0.0%	0	0.0%	1	0.30%	0	0.0%	330
1986	1,182	88.4%	58	4.4%	18	1.4%	27	2.0%	20	1.5%	26	1.9%	0	0.0%	0	0.0%	2	0.15%	3	0.25%	1,337
1987	1,300	86.1%	57	3.8%	21	1.4%	46	3.0%	51	3.4%	27	1.8%	1	0.05%	6	0.39%	1	0.07%	0	0.0%	1,510
1988	1,134	83.6%	61	4.5%	40	3.0%	50	3.7%	39	2.9%	26	1.9%	0	0.0%	2	0.17%	2	0.15%	0	0.0%	1,356
1989	1,345	84.6%	72	4.5%	73	4.6%	32	2.0%	27	1.7%	31	1.9%	1	0.09%	7	0.42%	3	0.19%	0	0.01%	1,590
1990	1,605	84.4%	79	4.1%	106	5.6%	45	2.4%	15	0.80%	40	2.1%	1	0.0%	7	0.36%	2	0.11%	3	0.15%	1,903
1991	1,382	83.4%	69	4.2%	95	5.7%	13	0.78%	0	0.0%	70	4.2%	5	0.30%	16	0.96%	6	0.36%	1	0.05%	1,657
1992	1,216	74.1%	87	5.3%	141	8.6%	10	0.60%	30	1.8%	89	5.4%	13	0.77%	52	3.1%	2	0.12%	2	0.11%	1,640
1993	895	68.5%	82	6.3%	83	6.3%	10	0.76%	23	1.8%	94	7.2%	23	1.8%	81	6.2%	6	0.48%	8	0.61%	1,306
1994	679	62.1%	76	6.9%	129	11.8%	4	0.36%	22	2.0%	68	6.2%	23	2.1%	76	6.9%	7	0.61%	11	0.98%	1,095
1995	730	65.6%	74	6.7%	94	8.5%	4	0.36%	19	1.7%	79	7.1%	21	1.9%	81	7.2%	6	0.56%	4	0.39%	1,113
1996	550	64.0%	44	5.2%	87	10.1%	6	0.70%	12	1.4%	71	8.3%	14	1.7%	61	7.1%	8	0.93%	5	0.63%	860
1997	471	62.9%	33	4.4%	79	10.6%	5	0.62%	11	1.5%	65	8.7%	19	2.5%	56	7.5%	3	0.40%	7	0.93%	750
1998	456	59.0%	41	5.3%	90	11.6%	2	0.26%	3	0.34%	70	9.1%	26	3.3%	75	9.6%	1	0.13%	10	1.3%	774
1999	419	57.9%	32	4.4%	85	11.7%	1	0.14%	5	0.74%	79	10.9%	24	3.3%	72	9.9%	3	0.41%	5	0.62%	724
2000	434	61.9%	39	5.6%	61	8.8%	2	0.29%	11	1.6%	67	9.6%	17	2.4%	64	9.1%	1	0.14%	4	0.62%	701
2001	408	56.4%	30	4.1%	66	9.1%	2	0.28%	4	0.54%	111	15.3%	19	2.7%	71	9.9%	3	0.41%	9	1.3%	723
2002	518	60.9%	22	2.6%	54	6.4%	0	0.0%	1	0.06%	128	15.1%	23	2.7%	89	10.5%	4	0.47%	11	1.3%	850
2003	461	57.4%	24	3.0%	55	6.9%	2	0.25%	1	0.06%	121	15.1%	21	2.6%	102	12.7%	0	0.0%	16	2.0%	803
2004	568	65.1%	32	3.7%	60	6.9%	2	0.23%	1	0.07%	81	9.3%	20	2.3%	92	10.5%	1	0.15%	15	1.7%	873
2005	552	65.0%	18	2.2%	60	7.0%	1	0.12%	5	0.54%	95	11.2%	18	2.2%	88	10.3%	4	0.47%	9	1.0%	849
2006	472	57.9%	20	2.5%	27	3.3%	1	0.12%	3	0.32%	130	15.9%	21	2.6%	122	15.0%	2	0.25%	18	2.2%	815
2007	496	60.0%	34	4.1%	57	6.9%	0	0.0%	14	1.7%	84	10.1%	14	1.6%	102	12.4%	2	0.24%	25	3.0%	827
Total	17,572	72.1%	1,102	4.5%	1,584	6.5%	271	1.1%	322	1.3%	1,653	6.8%	323	1.3%	1,321	5.4%	71	0.29%	166	0.68%	24,385

1 Row percent of cases with known exposure category
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.5b Number and proportion[1] of HIV diagnoses (adjusted[2]) among females by year of diagnosis and exposure category, Ontario, 1985 to 2007

Year	IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[3]		Other[4]		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1985	0	0.20%	3	50.0%	2	33.3%	0	6.1%	1	10.4%	0	0.0%	0	0.0%	0	0.0%	6
1986	11	40.5%	1	3.5%	9	33.1%	3	11.2%	3	11.5%	0	0.09%	0	0.0%	0	0.0%	28
1987	9	24.1%	1	2.8%	12	33.5%	6	16.2%	5	13.1%	3	9.2%	0	0.0%	0	1.2%	37
1988	24	27.1%	0	0.0%	23	26.2%	20	22.6%	18	20.3%	3	3.2%	0	0.0%	1	0.58%	88
1989	22	18.9%	3	2.7%	22	19.0%	27	23.4%	31	26.7%	7	6.3%	3	2.6%	1	0.59%	115
1990	36	21.7%	2	1.3%	15	8.9%	61	36.6%	42	25.5%	6	3.7%	3	1.8%	1	0.50%	166
1991	39	22.9%	3	1.7%	7	4.1%	63	36.4%	40	23.3%	16	9.5%	2	1.2%	2	0.9%	172
1992	38	21.8%	4	2.4%	12	6.7%	54	31.3%	42	24.3%	14	8.1%	4	2.3%	5	3.0%	172
1993	35	19.3%	6	3.3%	16	8.6%	49	27.2%	45	24.8%	18	9.6%	12	6.4%	1	0.8%	182
1994	52	23.9%	2	0.95%	12	5.4%	74	34.1%	39	17.9%	25	11.6%	6	2.9%	7	3.2%	217
1995	41	19.6%	5	2.4%	8	4.0%	67	31.7%	41	19.3%	35	16.8%	7	3.2%	7	3.2%	211
1996	43	23.6%	0	0.0%	11	5.9%	57	31.3%	26	14.2%	29	16.2%	11	6.1%	5	2.7%	181
1997	30	16.3%	0	0.20%	15	8.3%	55	29.9%	35	19.3%	41	22.1%	3	1.6%	4	2.3%	183
1998	28	15.3%	0	0.0%	24	13.1%	58	31.5%	24	12.8%	40	21.9%	6	3.3%	4	2.1%	184
1999	44	24.8%	0	0.0%	8	4.6%	56	31.5%	21	11.9%	39	22.2%	3	1.7%	6	3.3%	176
2000	25	13.2%	0	0.0%	8	4.4%	88	45.7%	21	11.0%	42	21.7%	1	0.52%	7	3.5%	193
2001	16	6.8%	0	0.0%	6	2.6%	103	43.1%	29	12.1%	70	29.3%	5	2.1%	10	4.0%	239
2002	25	8.8%	0	0.0%	5	1.6%	144	50.0%	38	13.0%	66	23.0%	2	0.69%	9	3.0%	289
2003	18	6.0%	0	0.0%	9	2.9%	166	55.2%	26	8.7%	72	23.9%	3	1.0%	7	2.3%	301
2004	34	11.3%	0	0.0%	3	1.1%	155	51.1%	35	11.5%	69	22.5%	2	0.54%	6	1.9%	304
2005	37	13.6%	0	0.0%	8	2.8%	151	55.0%	21	7.6%	49	18.0%	6	2.2%	3	0.91%	275
2006	18	5.2%	0	0.0%	3	0.77%	207	60.4%	27	7.8%	82	23.8%	4	1.2%	3	0.84%	343
2007	27	10.7%	0	0.0%	3	1.4%	131	52.7%	25	10.2%	54	21.8%	1	0.40%	7	2.9%	249
Total	653	15.1%	31	0.72%	241	5.6%	1,796	41.6%	634	14.7%	782	18.1%	83	1.9%	93	2.2%	4,312

1 Row percent of cases with known exposure category
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.6 Number and proportion[1] of HIV diagnoses by age group at diagnosis and sex, Ontario, 1985 to 2007

Age group (year)	Males		Females		Unknown		Total	
	Number	%	Number	%	Number	%	Number	%
< 1	2	0.0%	6	0.15%	0	0.0%	8	0.0%
1-9	100	0.46%	81	2.0%	6	0.94%	187	0.71%
10-14	41	0.19%	12	0.30%	3	0.47%	56	0.21%
15-19	216	1.0%	131	3.3%	4	0.63%	351	1.3%
20-24	1,630	7.5%	487	12.2%	42	6.6%	2,159	8.2%
25-29	3,734	17.2%	813	20.3%	114	17.9%	4,661	17.7%
30-34	4,776	22.0%	909	22.7%	136	21.4%	5,821	22.1%
35-39	4,325	19.9%	639	16.0%	138	21.7%	5,102	19.4%
40-44	3,169	14.6%	406	10.1%	95	14.9%	3,670	13.9%
45-49	1,767	8.1%	227	5.7%	42	6.6%	2,036	7.7%
50-54	932	4.3%	116	2.9%	22	3.5%	1,070	4.1%
55-59	511	2.4%	80	2.0%	16	2.5%	607	2.3%
60+	487	2.2%	97	2.4%	19	3.0%	603	2.3%
Unknown	1,747		128		491		2,366	
Total	23,437	100%	4,132	100%	1,128	100%	28,697	100%
Mean age	36.0		33.2		35.9		35.6	
Median age	35		32		35		34	

1 Column percent of cases with known age at diagnosis

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.7 Number and proportion[1] of HIV diagnoses by age group at diagnosis and exposure category Ontario, 1985 to 2007

Age Group (year)	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[2]		Other[3]		Unk.	Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.
<1	2	0.02%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.20%	0	0.0%	0	0.0%	5	3.2%	0	0.0%	0	8
1-9	2	0.02%	0	0.0%	0	0.0%	28	10.2%	5	2.7%	2	0.40%	0	0.0%	1	0.07%	149	96.8%	0	0.0%	0	187
10-14	0	0.0%	0	0.0%	0	0.0%	26	9.5%	2	1.1%	3	0.60%	0	0.0%	1	0.1%	0	0.0%	0	0.0%	24	56
15-19	80	0.91%	5	1.9%	17	1.6%	30	10.9%	5	2.7%	12	2.4%	20	4.4%	28	2.0%	0	0.0%	1	1.7%	153	351
20-24	732	8.3%	42	16.2%	111	10.1%	38	13.8%	8	4.3%	40	8.0%	65	14.3%	129	9.2%	0	0.0%	1	1.7%	993	2,159
25-29	1,679	19.1%	59	22.7%	186	17.0%	34	12.4%	22	11.7%	105	20.9%	73	16.1%	239	17.0%	0	0.0%	8	13.8%	2,256	4,661
30-34	2,056	23.4%	67	25.8%	263	24.0%	34	12.4%	23	12.2%	134	26.6%	117	25.8%	329	23.4%	0	0.0%	13	22.4%	2,785	5,821
35-39	1,730	19.7%	45	17.3%	247	22.6%	19	6.9%	25	13.3%	80	15.9%	59	13.0%	251	17.9%	0	0.0%	8	13.8%	2,638	5,102
40-44	1,236	14.1%	23	8.8%	153	14.0%	10	3.6%	28	14.9%	49	9.7%	50	11.0%	189	13.4%	0	0.0%	7	12.1%	1,925	3,670
45-49	629	7.2%	13	5.0%	77	7.0%	19	6.9%	14	7.4%	40	8.0%	31	6.8%	125	8.9%	0	0.0%	10	17.2%	1,078	2,036
50-54	326	3.7%	3	1.15%	30	2.7%	9	3.3%	13	6.9%	18	3.6%	19	4.2%	49	3.5%	0	0.0%	3	5.2%	600	1,070
55-59	169	1.9%	1	0.38%	8	0.73%	14	5.1%	15	8.0%	8	1.6%	8	1.8%	39	2.8%	0	0.0%	5	8.6%	340	607
60+	129	1.5%	2	0.77%	2	0.18%	14	5.1%	28	14.9%	11	2.2%	11	2.4%	26	1.8%	0	0.0%	2	3.4%	378	603
Unk.	627		18		50		27		25		25		21		24		0		0		1,549	2,366
Total	9,397	100%	278	100%	1,144	100%	302	100%	213	100%	528	100%	474	100%	1,430	100%	154	100%	58	100%	14,719	28,697
Mean age	35.2		32.2		34.3		29.4		41.6		34.4		34.0		35.5		4.2		39.6		36.4	
Median age	34		31		34		26		41		33		32		34		3		37		35	

1 Column percent of cases with known age at diagnosis
2 Includes only HIV-infected infants
3 Includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.8 Mean age at HIV diagnosis among males by year of diagnosis and selected exposure category Ontario, 1985 to 2007

Year	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero	
	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean
1985	105	33.1	5	25.8	1	28.0	6	25.7	4	34.5	0		0	--	0	--
1986	426	34.1	11	27.0	6	25.3	25	21.4	3	40.3	2	42.0	0	--	0	--
1987	760	33.8	18	30.6	11	30.7	39	24.7	21	50.1	9	41.3	0	--	4	28.0
1988	706	33.8	18	27.5	23	30.5	45	20.3	15	30.2	10	32.5	0	--	3	26.0
1989	788	34.6	22	28.5	41	29.9	25	28.6	9	39.7	9	35.9	1	39.0	5	38.0
1990	781	34.5	14	29.2	45	30.4	40	34.1	3	35.0	7	37.3	0	--	3	34.3
1991	386	34.7	8	28.8	21	31.1	13	28.4	0	--	7	32.6	1	50.0	4	33.0
1992	547	34.8	17	31.2	60	30.6	7	26.9	5	35.4	12	35.1	3	39.0	27	33.4
1993	432	35.4	26	31.5	40	31.0	9	39.0	8	36.1	12	38.0	6	36.3	47	35.5
1994	337	34.5	17	32.5	65	34.9	3	43.3	7	47.3	6	29.3	8	38.1	41	35.4
1995	351	34.5	20	34.6	50	33.9	4	56.3	5	42.8	9	38.7	5	38.0	49	34.5
1996	295	35.8	12	34.7	45	33.2	5	24.6	2	43.0	14	30.1	6	29.3	43	35.8
1997	234	35.5	8	30.4	39	37.4	3	40.7	3	31.7	9	35.7	8	33.5	34	37.1
1998	224	37.5	9	34.8	42	39.2	2	37.5	1	38.0	10	35.3	7	34.4	45	37.0
1999	229	36.5	8	34.3	44	36.4	1	42.0	3	36.3	10	40.3	9	34.9	48	38.0
2000	243	36.7	11	34.7	32	39.1	2	28.5	5	41.0	12	35.0	7	39.6	45	39.4
2001	216	37.6	7	32.9	32	35.5	2	36.5	1	64.0	22	36.6	8	36.4	47	36.3
2002	309	36.5	4	45.8	29	36.1	0	--	0	--	29	36.0	8	38.3	65	35.7
2003	265	37.0	5	34.2	29	39.1	2	44.0	0	--	23	35.8	7	35.6	73	37.3
2004	308	37.9	7	37.4	34	39.9	2	39.0	0	--	11	35.9	7	40.9	63	38.4
2005	288	36.9	1	33.0	35	39.3	1	46.0	2	38.0	13	27.8	5	31.6	64	38.1
2006	271	37.1	4	44.8	16	43.3	1	48.0	1	40.0	17	37.5	5	43.8	68	38.4
2007	269	35.7	8	39.4	36	42.4	0	--	2	40.5	7	48.0	1	24.0	58	40.1

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.9 Mean age at HIV diagnosis among females by year of diagnosis and selected exposure category, Ontario, 1985 to 2007

Year	IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero	
	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean
1985	0	--	2	27.5	1	38.0	0	--	0	--	0	--
1986	4	29.0	1	19.0	1	26.0	0	--	2	25.0	0	--
1987	2	27.5	1	23.0	5	64.0	0	--	2	22.5	2	32.0
1988	14	26.4	0	--	12	45.1	3	35.7	15	31.4	3	32.3
1989	10	27.8	2	29.5	9	43.8	3	32.3	22	33.0	6	30.2
1990	17	26.6	2	34.5	4	36.5	13	29.8	32	32.0	3	32.3
1991	8	28.6	3	45.3	0	--	6	30.3	10	27.5	3	37.3
1992	14	30.8	3	26.3	4	39.0	8	31.1	22	32.7	9	34.6
1993	17	29.3	5	40.0	5	33.2	3	17.3	31	34.7	19	26.8
1994	21	28.8	2	38.5	4	42.3	5	31.2	24	33.8	18	36.2
1995	20	34.0	5	48.0	3	33.7	8	29.1	25	35.6	28	32.3
1996	22	31.8	0	--	3	52.0	11	29.6	18	35.8	25	29.1
1997	17	33.4	0	--	5	27.2	3	28.3	24	33.5	37	32.7
1998	11	35.9	0	--	6	33.2	8	33.0	11	32.5	27	33.1
1999	22	31.5	0	--	1	53.0	5	35.0	12	34.3	29	33.6
2000	10	33.0	0	--	3	36.3	17	31.8	11	30.3	29	32.9
2001	5	32.4	0	--	2	46.0	13	35.9	16	33.3	51	31.4
2002	11	33.0	0	--	3	45.3	20	40.3	18	34.5	46	32.6
2003	9	37.1	0	--	3	53.3	24	29.6	10	31.8	51	33.8
2004	18	35.6	0	--	2	58.5	22	33.6	15	30.9	45	32.7
2005	22	36.5	0	--	4	44.3	20	33.9	8	37.6	39	38.1
2006	8	38.9	0	--	1	55.0	28	32.1	12	34.2	56	34.5
2007	15	36.3	0	--	2	57.0	14	33.4	11	35.3	44	33.2

Legend: IDU=injection drug user, HR=high risk, LR=low risk

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.10 Single and multiple sources of exposure among HIV diagnoses Ontario, 1985 to 2007

	Number	%[1]
Men who have sex with men (MSM)	7,478	52.3
MSM/IDU	150	1.0
MSM/IDU/HIV-endemic	4	0.03
MSM/IDU/HIV-endemic/Bisexual	2	0.01
MSM/IDU/bisexual	117	0.82
MSM/IDU/Transfusion	4	0.03
MSM/IDU/Clotting factor	1	0.01
MSM/Clotting factor	20	0.14
MSM/HIV-endemic	22	0.15
MSM/HIV-endemic/Bisexual	20	0.14
MSM/Bisexual	1,819	12.7
MSM/Transfusion	23	0.16
MSM/others	15	0.10
SUB-TOTAL	**9,675**	**67.6**
IDU	605	4.2
IDU/HIV-endemic	4	0.03
IDU/HIV-endemic/Heterosexual	18	0.13
IDU/Heterosexual	502	3.5
IDU/others	15	0.10
SUB-TOTAL	**1,144**	**8.0**
Clotting factor	223	1.6
Clotting factor/Transfusion	62	0.43
Clotting factor/others	17	0.12
SUB-TOTAL	**302**	**2.1**
HIV-endemic	229	1.6
HIV-endemic/Heterosexual	298	2.1
HIV-endemic/others	15	0.10
SUB-TOTAL	**542**	**3.8**
Heterosexual	**2,230**	**15.6**
Heterosexual/Transfusion	**32**	**0.22**
SUB-TOTAL	**2,262**	**15.8**
Transfusion	**167**	**1.2**
MTC[2]	**154**	**1.1**
Occupational	**58**	**0.41**
Unknown	**14,393**	
GRAND TOTAL	**28,697**	

1 Percent of cases with known source of exposure
2 Includes only HIV-infected infants

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.11 Number and proportion[1] of HIV diagnoses by exposure category and health region Ontario, 1985 to 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Unk.[2]		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	100	29.4%	804	53.2%	156	40.5%	7,054	77.6%	242	42.7%	319	47.2%	451	55.9%	271	45.1%	9,397	67.2%
MSM-IDU	7	2.1%	38	2.5%	8	2.1%	159	1.7%	13	2.3%	11	1.6%	18	2.2%	24	4.0%	278	2.0%
IDU	132	38.8%	251	16.6%	113	29.4%	333	3.7%	58	10.2%	86	12.7%	49	6.1%	122	20.3%	1,144	8.2%
Clotting factor	15	4.4%	24	1.6%	22	5.7%	119	1.3%	9	1.6%	19	2.8%	64	7.9%	30	5.0%	302	2.2%
Transfusion	4	1.2%	27	1.8%	10	2.6%	90	1.0%	25	4.4%	21	3.1%	24	3.0%	12	2.0%	213	1.5%
HIV-endemic	8	2.4%	115	7.6%	8	2.1%	275	3.0%	33	5.8%	40	5.9%	26	3.2%	23	3.8%	528	3.8%
HR hetero	21	6.2%	48	3.2%	18	4.7%	209	2.3%	38	6.7%	47	7.0%	55	6.8%	38	6.3%	474	3.4%
LR hetero	51	15.0%	171	11.3%	49	12.7%	734	8.1%	135	23.8%	118	17.5%	109	13.5%	63	10.5%	1,430	10.2%
MTC[3]	2	0.59%	23	1.5%	0	0.0%	94	1.0%	9	1.6%	12	1.8%	8	1.0%	6	1.00%	154	1.1%
Other[4]	0	0.0%	11	0.73%	1	0.26%	23	0.25%	5	0.88%	3	0.44%	3	0.37%	12	2.0%	58	0.41%
Unknown	215		1,519		324		8,917		833		1,042		1,092		777		14,719	
Total	555	100%	3,031	100%	709	100%	18,007	100%	1,400	100%	1,718	100%	1,899	100%	1,378	100%	28,697	100%

1 Column percent of cases with known region
2 Includes out of province
3 Includes only HIV-infected infants
4 Includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.12 Number and proportion[1] of HIV diagnoses by exposure category and health region, Ontario, 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Unk.[2]		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	8	25.8%	26	44.8%	2	20.0%	205	68.6%	9	30.0%	18	51.4%	6	26.1%	0	--	274	56.4%
MSM-IDU	2	6.5%	0	0.0%	0	0.0%	4	1.34%	0	0.0%	2	5.7%	0	0.0%	0	--	8	1.6%
IDU	12	38.7%	15	25.9%	2	20.0%	16	5.4%	4	13.3%	1	2.9%	2	8.7%	0	--	52	10.7%
Clotting factor	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	--	0	0.0%
Transfusion	0	0.0%	0	0.0%	0	0.0%	3	1.0%	1	3.3%	0	0.0%	0	0.0%	0	--	4	0.82%
HIV-endemic	0	0.0%	2	3.4%	0	0.0%	14	4.7%	4	13.3%	1	2.9%	1	4.3%	0	--	22	4.5%
HR hetero	0	0.0%	1	1.7%	0	0.0%	8	2.7%	0	0.0%	2	5.7%	1	4.3%	0	--	12	2.5%
LR hetero	8	25.8%	12	20.7%	6	60.0%	41	13.7%	12	40.0%	10	28.6%	13	56.5%	0	--	102	21.0%
MTC[3]	1	3.2%	0	0.0%	0	0.0%	1	0.33%	0	0.0%	1	2.9%	0	0.0%	0	--	3	0.62%
Other[4]	0	0.0%	2	3.4%	0	0.0%	7	2.3%	0	0.0%	0	0.0%	0	0.0%	0	--	9	1.9%
Unknown	9		87		6		325		56		73		33		1		590	
Total	40	100%	145	100%	16	100%	624	100%	86	100%	108	100%	56	100%	1		1,076	100%

1 Column percent of cases with known region
2 Includes out of province
3 Includes only HIV-infected infants
4 Includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.13 Number and proportion (column percent) of HIV diagnoses (adjusted[1]) by exposure category and health region Ontario, 1985 to 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	158	27.0%	1,469	45.9%	298	39.5%	13,050	69.2%	615	41.9%	803	44.6%	1,178	58.2%	17,572	61.2%
MSM-IDU	44	7.5%	151	4.7%	77	10.3%	573	3.0%	47	3.2%	94	5.2%	116	5.7%	1,102	3.8%
IDU	225	38.4%	490	15.3%	190	25.2%	861	4.6%	116	7.9%	220	12.2%	133	6.6%	2,236	7.8%
Clotting factor	17	2.9%	27	0.84%	24	3.2%	133	0.71%	10	0.69%	21	1.2%	70	3.5%	302	1.1%
Transfusion	8	1.4%	83	2.6%	17	2.3%	219	1.2%	125	8.5%	48	2.7%	62	3.1%	563	2.0%
HIV-endemic	17	2.9%	655	20.5%	43	5.7%	2,068	11.0%	225	15.3%	288	16.0%	153	7.5%	3,449	12.0%
HR hetero	54	9.2%	75	2.3%	46	6.1%	456	2.4%	97	6.6%	81	4.5%	147	7.3%	957	3.3%
LR hetero	61	10.4%	189	5.9%	52	6.9%	1,278	6.8%	184	12.5%	201	11.1%	137	6.8%	2,103	7.3%
MTC[2]	2	0.34%	24	0.76%	0	0.0%	97	0.52%	9	0.63%	13	0.70%	9	0.42%	154	0.54%
Other[3]	0	0.0%	40	1.3%	5	0.72%	121	0.64%	39	2.7%	34	1.9%	20	0.97%	259	0.90%
Total	586	100%	3,204	100%	754	100%	18,857	100%	1,468	100%	1,803	100%	2,025	100%	28,697	100%
Cumulative rate[4] per 100,000	60.7		411.7		94.6		739.8		53.3		80.1		132.7		248.8	

1 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
2 Includes only HIV-infected infants
3 Includes needle-stick, acupuncture, tattoo, etc.
4 Using 1999 census population

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data sources: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion
1996 census population provided by Statistics Canada

Table 1.13a Number and proportion (row percent) of HIV diagnoses (adjusted[1]) by exposure category and health region Ontario, 1985 to 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
MSM	158	0.90%	1,469	8.4%	298	1.7%	13,050	74.3%	615	3.5%	803	4.6%	1,178	6.7%	17,572
MSM-IDU	44	4.0%	151	13.7%	77	7.0%	573	52.0%	47	4.2%	94	8.5%	116	10.6%	1,102
IDU	225	10.1%	490	21.9%	190	8.5%	861	38.5%	116	5.2%	220	9.9%	133	5.9%	2,236
Clotting factor	17	5.6%	27	8.9%	24	8.0%	133	44.1%	10	3.3%	21	6.9%	70	23.2%	302
Transfusion	8	1.5%	83	14.7%	17	3.1%	219	39.0%	125	22.3%	48	8.5%	62	11.0%	563
HIV-endemic	17	0.49%	655	19.0%	43	1.2%	2,068	60.0%	225	6.5%	288	8.3%	153	4.4%	3,449
HR hetero	54	5.6%	75	7.8%	46	4.8%	456	47.7%	97	10.1%	81	8.5%	147	15.4%	957
LR hetero	61	2.9%	189	9.0%	52	2.5%	1,278	60.8%	184	8.7%	201	9.5%	137	6.5%	2,103
MTC[2]	2	1.3%	24	15.8%	0	0.0%	97	63.1%	9	6.0%	13	8.2%	9	5.5%	154
Other[3]	0	0.0%	40	15.5%	5	2.1%	121	46.6%	39	15.2%	34	13.1%	20	7.5%	259
Total	586	2.0%	3,204	11.2%	754	2.6%	18,857	65.7%	1,468	5.1%	1,803	6.3%	2,025	7.1%	28,697

1 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
2 Includes only HIV-infected infants
3 Includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.13b Number and proportion[1] of HIV diagnoses (adjusted[2]) among males by exposure category and health region, Ontario, 1985 to 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	158	36.4%	1,469	58.0%	298	46.7%	13,050	78.8%	615	54.9%	803	57.6%	1,178	69.3%	17,572	72.1%
MSM-IDU	44	10.1%	151	5.9%	77	12.1%	573	3.5%	47	4.2%	94	6.7%	116	6.8%	1,102	4.5%
IDU	140	32.1%	358	14.1%	149	23.3%	600	3.6%	70	6.3%	164	11.7%	103	6.1%	1,584	6.5%
Clotting factor	16	3.6%	23	0.93%	23	3.6%	116	0.70%	8	0.67%	17	1.3%	68	4.0%	271	1.1%
Transfusion	0	0.0%	20	0.78%	15	2.4%	124	0.75%	102	9.1%	20	1.4%	41	2.4%	322	1.32%
HIV-endemic	11	2.4%	305	12.0%	26	4.0%	997	6.0%	109	9.8%	141	10.1%	65	3.8%	1,653	6.8%
HR hetero	24	5.4%	32	1.3%	10	1.5%	187	1.1%	35	3.1%	12	0.89%	23	1.4%	323	1.3%
LR hetero	42	9.6%	144	5.7%	35	5.4%	788	4.8%	111	9.9%	119	8.5%	83	4.9%	1,321	5.4%
MTC[3]	2	0.46%	8	0.31%	0	0.0%	47	0.28%	2	0.20%	6	0.43%	6	0.32%	71	0.29%
Other[4]	0	0.0%	24	0.94%	5	0.86%	81	0.49%	21	1.9%	19	1.3%	16	0.94%	166	0.68%
Total	436	100%	2,534	100%	638	100%	16,563	100%	1,120	100%	1,395	100%	1,699	100%	24,385	100%
Cumulative rate[5] per 100,000	96.2		694.6		164.9		1,385.9		86.6		133.4		232.2		445.8	

1 Column percent
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Includes needle-stick, acupuncture, tattoo, etc.
5 Using 1999 census population

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data sources: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion
1996 census population provided by Statistics Canada

Table 1.13c Number and proportion[1] of HIV diagnoses (adjusted[2]) among females by exposure category and health region, Ontario, 1985 to 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
IDU	85	56.6%	132	19.7%	41	35.7%	262	11.4%	46	13.3%	57	13.9%	30	9.2%	653	15.1%
Clotting factor	1	0.7%	3	0.50%	1	0.95%	17	0.76%	3	0.74%	3	0.83%	2	0.62%	31	0.72%
Transfusion	8	5.4%	63	9.4%	2	1.9%	95	4.2%	23	6.7%	28	6.8%	21	6.4%	241	5.6%
HIV-endemic	6	4.2%	351	52.4%	17	15.1%	1,071	46.7%	116	33.2%	147	36.1%	88	27.0%	1,796	41.6%
HR hetero	31	20.2%	43	6.4%	36	31.2%	269	11.7%	62	17.8%	69	16.9%	124	38.2%	634	14.7%
LR hetero	19	12.9%	45	6.7%	18	15.1%	491	21.4%	73	21.0%	82	20.2%	54	16.7%	782	18.1%
MTC[3]	0	0.0%	16	2.5%	0	0.0%	50	2.2%	7	2.0%	7	1.6%	3	0.92%	83	1.9%
Other[4]	0	0.0%	16	2.4%	0	0.0%	40	1.7%	18	5.3%	15	3.8%	4	1.1%	93	2.2%
Total	151	100%	670	100%	116	100%	2,295	100%	348	100%	408	100%	325	100%	4,312	100%
Cumulative rate[5] per 100,000	33.1		177.1		29.4		181.1		26.6		38.0		43.1		76.6	

1 Column percent
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Includes needle-stick, acupuncture, tattoo, etc.
5 Using 1999 census population

Legend: IDU=injection drug user, HR=high risk, LR=low risk, MTC=mother to child transmission

Data sources: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion
1996 census population provided by Statistics Canada

Table 1.14 Number and proportion[1] of HIV diagnoses (adjusted[2]) by exposure category and health region, Ontario, 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	10	23.8%	56	38.6%	4	25.4%	342	54.7%	22	25.9%	47	43.6%	15	27.5%	496	46.1%
MSM-IDU	5	11.8%	2	1.4%	1	5.7%	16	2.6%	1	1.1%	9	8.2%	0	0.49%	34	3.1%
IDU	17	42.1%	23	15.7%	3	21.7%	24	3.8%	7	8.3%	5	4.5%	4	7.7%	83	7.7%
Clotting factor	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Transfusion	0	0.0%	0	0.0%	0	0.0%	5	0.82%	11	13.0%	0	0.0%	1	2.4%	18	1.6%
HIV-endemic	0	0.0%	37	25.5%	2	12.9%	120	19.2%	20	23.1%	23	20.9%	13	22.8%	214	19.9%
HR hetero	0	1.1%	7	4.9%	0	0.0%	19	3.0%	4	4.7%	4	3.4%	5	9.2%	39	3.6%
LR hetero	8	18.8%	15	10.5%	5	32.4%	76	12.2%	17	19.5%	19	17.7%	16	29.3%	156	14.5%
MTC[3]	1	2.5%	0	0.0%	0	0.0%	1	0.16%	0	0.0%	1	0.92%	0	0.0%	3	0.28%
Other[4]	0	0.0%	5	3.5%	0	1.9%	22	3.5%	4	4.3%	1	0.73%	0	0.51%	32	3.0%
Total	40	100%	145	100%	16	100%	625	100%	86	100%	108	100%	56	100%	1,076	100%
Rate per 100,000	5.0		17.2		2.0		23.6		2.3		4.4		3.5		8.4	

1 Column percent
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data sources: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion
2007 population estimates provided by Statistics Canada

Table 1.14a Number and proportion[1] of HIV diagnoses (adjusted[2]) among males by exposure category and health region, Ontario, 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	10	30.7%	56	50.4%	4	33.9%	342	68.8%	22	36.5%	47	62.7%	15	38.5%	496	60.0%
MSM-IDU	5	15.1%	2	1.8%	1	7.6%	16	3.3%	1	1.5%	9	11.7%	0	0.69%	34	4.1%
IDU	11	34.7%	19	16.8%	3	25.8%	13	2.6%	5	8.5%	4	5.2%	2	5.3%	57	6.9%
Clotting factor	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Transfusion	0	0.0%	0	0.0%	0	0.0%	2	0.46%	11	17.8%	0	0.0%	1	2.9%	14	1.7%
HIV-endemic	0	0.0%	17	15.5%	0	3.2%	48	9.7%	8	12.4%	3	4.5%	7	16.8%	84	10.1%
HR hetero	0	0.0%	3.1	2.8%	0	0.0%	4	0.89%	3	4.8%	1	1.3%	2	5.4%	14	1.6%
LR hetero	5	16.3%	11	9.6%	3	27.0%	52	10.4%	9	15.3%	10	13.5%	12	30.4%	102	12.4%
MTC[3]	1	3.2%	0	0.0%	0	0.0%	1	0.20%	0	0.0%	0	0.0%	0	0.0%	2	0.24%
Other[4]	0	0.0%	3	3.1%	0	2.5%	18	3.7%	2	3.2%	1	1.0%	0	0.0%	25	3.0%
Total	31	100%	111	100%	12	100%	497	100%	61	100%	75	100%	40	100%	827	100%
Rate per 100,000	7.8		26.8		3.0		38.5		3.4		6.2		5.1		13.1	

1 Column percent
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data sources: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion
2007 population estimates provided by Statistics Canada

Table 1.14b Number and proportion[1] of HIV diagnoses (adjusted[2]) among females by exposure category and health region, Ontario, 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
IDU	6	67.7%	4	12.2%	0	9.4%	11	8.5%	2	7.6%	1	2.9%	2	13.8%	27	10.7%
Clotting factor	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Transfusion	0	0.0%	0	0.0%	0	0.0%	3	2.2%	0	1.3%	0	0.0%	0	1.3%	3	1.4%
HIV-endemic	0	0.0%	20	58.1%	2	41.7%	72	56.3%	12	49.5%	19	58.3%	6	37.9%	131	52.7%
HR hetero	0	4.9%	4	11.7%	0	0.0%	14	11.1%	1	4.4%	3	8.3%	3	18.6%	25	10.2%
LR hetero	2	27.4%	5	13.3%	2	48.9%	24	19.2%	7	29.9%	9	27.5%	4	26.6%	54	21.8%
MTC[3]	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	3.0%	0	0.0%	1	0.40%
Other[4]	0	0.0%	2	4.8%	0	0.0%	3	2.7%	2	7.2%	0	0.0%	0	1.8%	7	2.9%
Total	9	100%	34	100%	4	100%	128	100%	25	100%	33	100%	16	100%	249	100%
Rate per 100,000	2.2		7.9		0.96		9.4		1.3		2.7		2.0		3.8	

1 Column percent
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Includes needle-stick, acupuncture, tattoo, etc.

Legend: IDU=injection drug user, HR=high risk, LR=low risk, MTC=mother to child transmission

Data sources: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion
2007 population estimates provided by Statistics Canada

Table 1.15 Number of HIV diagnoses and rate[1] per 100,000 by public health unit and sex, Ontario, 1985 to 2007

Public health unit	Males		Females		Unknown	Total	
	Number	Rate	Number	Rate	Number	Number	Rate
Algoma	31	48.2	16	24.4	4	51	39.2
North Bay Parry Sound	62	100.0	9	14.2	2	73	58.2
Northwestern	30	70.5	8	19.2	4	42	49.8
Porcupine	15	29.5	4	8.1	4	23	23.0
Sudbury	160	155.4	50	47.9	18	228	109.9
Thunder Bay	87	104.0	44	52.8	1	132	79.0
Timiskaming	5	25.1	1	5.0	0	6	15.0
Northern	**390**	**91.5**	**132**	**30.8**	**33**	**555**	**65.0**
Ottawa	**2,339**	**642.7**	**598**	**158.4**	**94**	**3,031**	**408.8**
Eastern Ontario	125	131.4	29	30.0	7	161	84.0
Hastings and Prince Edward	47	60.9	6	7.6	0	53	33.9
Kinston, Frontenac and Lennox & Addington	319	355.9	53	58.4	41	413	228.9
Leeds, Grenville and Lanark	50	63.2	8	9.9	0	58	36.2
Renfrew	20	39.9	4	7.9	0	24	23.9
Eastern, other	**561**	**143.4**	**100**	**25.1**	**48**	**709**	**89.8**
Toronto	**15,184**	**1,272.5**	**2,061**	**162.7**	**762**	**18,007**	**732.1**
Durham	149	63.6	34	14.3	8	191	40.5
Haliburton, Kawartha, Pine Ridge	33	41.0	7	8.6	1	41	25.3
Peel	568	129.7	187	42.4	21	776	88.3
Peterborough	54	87.9	16	24.5	2	72	56.8
Simcoe Muskoka	68	35.1	15	7.6	7	90	23.0
York Region	167	55.1	58	18.9	5	230	37.7
Central East, other	**1,039**	**79.3**	**317**	**23.9**	**44**	**1,400**	**53.0**
Brant	35	57.4	14	22.1	0	49	39.5
Haldimand-Norfolk	17	32.3	9	17.0	0	26	24.7
Halton	160	92.5	32	18.1	2	194	55.5
Hamilton	593	251.3	166	67.8	27	786	163.5
Niagara	231	113.9	76	35.9	13	320	77.2
Waterloo	138	66.8	54	25.7	3	195	46.7
Wellington-Dufferin-Guelph	113	101.5	32	28.6	3	148	66.3
Central West	**1,287**	**123.4**	**383**	**35.8**	**48**	**1,718**	**81.2**
Chatham-Kent	34	61.3	3	5.2	0	37	32.9
Elgin-St. Thomas	16	39.8	8	19.4	0	24	29.5
Grey Bruce	38	48.5	3	3.8	0	41	26.0
Huron	9	29.3	3	9.6	1	13	21.0
Lambton	23	35.0	5	7.4	1	29	21.8
Middlesex-London	980	498.2	180	87.3	31	1,191	295.6
Oxford	15	30.4	5	9.9	0	20	20.0
Perth	23	62.7	4	10.7	1	28	37.8
Windsor-Essex	410	231.0	88	48.1	18	516	143.2
Southwest	**1,548**	**211.8**	**299**	**39.7**	**52**	**1,899**	**128.0**
Unknown	**1,089**		**242**		**47**	**1,378**	
Total	**23,437**	**429.3**	**4,132**	**73.5**	**1,128**	**28,697**	**258.9**

Data sources: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion
Population provided by Health Data and Decision Support Unit, Knowledge Management Branch, Ontario Ministry of Health and Long-Term Care

Table 1.16 Number and proportion[1] of HIV diagnoses by year of test and type of identifier, Ontario, 1985 to 2007

Year	Nominal		Coded		Anonymous		Unknown		Total
	Number	%	Number	%	Number	%	Number	%	Number
1985	278	82.7%	57	17.0%	0	--	1	0.30%	336
1986	743	54.4%	622	45.6%	0	--	0	0.0%	1,365
1987	802	51.8%	745	48.2%	0	--	0	0.0%	1,547
1988	638	44.2%	804	55.7%	0	--	2	0.14%	1,444
1989	668	39.2%	1,033	60.6%	0	--	4	0.23%	1,705
1990	760	36.7%	1,291	62.4%	0	--	18	0.87%	2,069
1991	402	22.0%	668	36.5%	0	--	759	41.5%	1,829
1992	846	46.7%	762	42.1%	204	11.3%	0	0.0%	1,812
1993	732	49.2%	623	41.9%	133	8.9%	0	0.0%	1,488
1994	706	53.8%	511	38.9%	95	7.2%	0	0.0%	1,312
1995	652	49.2%	550	41.5%	122	9.2%	0	0.0%	1,324
1996	545	52.4%	390	37.5%	105	10.1%	1	0.10%	1,041
1997	486	52.1%	346	37.1%	100	10.7%	1	0.11%	933
1998	543	56.7%	319	33.3%	92	9.6%	4	0.42%	958
1999	504	56.0%	301	33.4%	94	10.4%	1	0.11%	900
2000	525	58.7%	257	28.7%	105	11.7%	7	0.78%	894
2001	592	61.5%	254	26.4%	107	11.1%	9	0.94%	962
2002	731	64.2%	299	26.3%	108	9.5%	1	0.09%	1,139
2003	751	68.0%	241	21.8%	112	10.1%	0	0.0%	1,104
2004	825	70.1%	231	19.6%	121	10.3%	0	0.0%	1,177
2005	801	71.3%	211	18.8%	112	10.0%	0	0.0%	1,124
2006	910	78.6%	142	12.3%	106	9.2%	0	0.0%	1,158
2007	845	78.5%	118	11.0%	113	10.5%	0	0.0%	1,076
Total[2]	15,285	53.3%	10,775	37.5%	1,829	6.4%	808	2.8%	28,697

1 Row percent

2 Total includes 1,128 HIV-positives among unknown sex, of whom 330 tested nominally, 699 coded, 17 anonymously and 82 unknown

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.17 Number and proportion[1] of HIV diagnoses among males by year of test and type of identifier, Ontario, 1985 to 2007

Year	Nominal		Coded		Anonymous		Unknown		Total
	Number	%	Number	%	Number	%	Number	%	Number
1985	270	82.6%	56	17.1%	0	--	1	0.31%	327
1986	723	56.2%	564	43.8%	0	--	0	0.0%	1,287
1987	767	52.4%	696	47.6%	0	--	0	0.0%	1,463
1988	572	43.1%	754	56.8%	0	--	2	0.15%	1,328
1989	592	38.4%	945	61.3%	0	--	4	0.26%	1,541
1990	673	37.0%	1,129	62.1%	0	--	15	0.83%	1,817
1991	319	20.6%	586	37.9%	0	--	641	41.5%	1,546
1992	694	45.2%	647	42.2%	193	12.6%	0	0.0%	1,534
1993	604	48.5%	517	41.5%	124	10.0%	0	0.0%	1,245
1994	549	52.5%	410	39.2%	86	8.2%	0	0.0%	1,045
1995	511	48.0%	446	41.9%	108	10.1%	0	0.0%	1,065
1996	418	51.4%	306	37.6%	89	10.9%	1	0.12%	814
1997	351	50.1%	262	37.4%	86	12.3%	1	0.14%	700
1998	405	55.9%	240	33.1%	79	10.9%	0	0.0%	724
1999	377	54.1%	245	35.2%	75	10.8%	0	0.0%	697
2000	383	57.4%	194	29.1%	90	13.5%	0	0.0%	667
2001	412	58.8%	201	28.7%	88	12.6%	0	0.0%	701
2002	491	59.1%	248	29.8%	91	11.0%	1	0.12%	831
2003	498	62.9%	201	25.4%	93	11.7%	0	0.0%	792
2004	577	67.0%	190	22.1%	94	10.9%	0	0.0%	861
2005	571	68.1%	169	20.2%	98	11.7%	0	0.0%	838
2006	592	73.7%	118	14.7%	93	11.6%	0	0.0%	803
2007	610	75.2%	101	12.5%	100	12.3%	0	0.0%	811
Total	11,959	51.0%	9,225	39.4%	1,587	6.8%	666	2.8%	23,437

1 Row percent

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.18 Number and proportion[1] of HIV diagnoses among females by year of test and type of identifier, Ontario, 1985 to 2007

Year	Nominal		Coded		Anonymous		Unknown		Total
	Number	%	Number	%	Number	%	Number	%	Number
1985	5	83.3%	1	16.7%	0	--	0	0.0%	6
1986	20	74.1%	7	25.9%	0	--	0	0.0%	27
1987	27	77.1%	8	22.9%	0	--	0	0.0%	35
1988	64	74.4%	22	25.6%	0	--	0	0.0%	86
1989	70	63.6%	40	36.4%	0	--	0	0.0%	110
1990	77	48.7%	80	50.6%	0	--	1	0.63%	158
1991	56	35.2%	44	27.7%	0	--	59	37.1%	159
1992	104	65.0%	47	29.4%	9	5.6%	0	0%	160
1993	92	53.8%	71	41.5%	8	4.7%	0	0%	171
1994	129	62.6%	68	33.0%	9	4.4%	0	0%	206
1995	123	61.2%	66	32.8%	12	6.0%	0	0%	201
1996	103	61.3%	50	29.8%	15	8.9%	0	0%	168
1997	114	66.7%	45	26.3%	12	7.0%	0	0%	171
1998	116	68.2%	42	24.7%	12	7.1%	0	0%	170
1999	113	66.9%	39	23.1%	17	10.1%	0	0%	169
2000	136	75.1%	31	17.1%	14	7.7%	0	0%	181
2001	174	75.7%	37	16.1%	19	8.3%	0	0%	230
2002	233	82.9%	34	12.1%	14	5.0%	0	0%	281
2003	249	84.1%	28	9.5%	19	6.4%	0	0%	296
2004	242	81.2%	31	10.4%	25	8.4%	0	0%	298
2005	223	82.3%	34	12.5%	14	5.2%	0	0%	271
2006	307	91.4%	16	4.8%	13	3.9%	0	0%	336
2007	219	90.5%	10	4.1%	13	5.4%	0	0%	242
Total	2,996	72.5%	851	20.6%	225	5.4%	60	1.5%	4,132

1 Row percent

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.19 Number of HIV-positive tests (p), number tested (n)[1] and HIV-positivity rates (%) by exposure category and year of HIV diagnosis, Ontario, 1992 to 2007[2]

Exposure category	Year of diagnosis																							
	1993			1994			1995			1996			1997			1998			1999			2000		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
MSM	455	8,655	5.3%	347	8,371	4.1%	360	9,136	3.9%	312	9,240	3.4%	246	8,827	2.8%	238	8,489	2.8%	239	8,317	2.9%	251	8,616	2.9%
MSM-IDU	26	485	5.4%	18	462	3.9%	20	466	4.3%	12	486	2.5%	8	461	1.7%	10	474	2.1%	8	531	1.5%	13	541	2.4%
IDU	60	6,609	0.91%	88	5,834	1.5%	75	6,403	1.2%	72	6,835	1.1%	56	6,659	0.84%	57	7,151	0.80%	69	6,856	1.0%	45	6,721	0.67%
Clotting factor	16	10,275	0.16%	6	9,962	0.06%	9	5,443	0.17%	6	3,609	0.17%	5	1,765	0.28%	2	1,510	0.13%	1	860	0.12%	2	582	0.34%
Transfusion	14	14,864	0.09%	12	17,221	0.07%	9	8,687	0.10%	7	5,271	0.13%	9	2,828	0.32%	7	2,982	0.23%	5	2,660	0.19%	9	1,770	0.51%
HIV-endemic	18	956	1.9%	13	888	1.5%	19	965	2.0%	26	981	2.7%	12	868	1.4%	19	973	2.0%	17	1,014	1.7%	30	1,134	2.6%
HR hetero	42	7,781	0.54%	32	7,233	0.44%	30	8,515	0.35%	24	9,700	0.25%	32	7,935	0.40%	19	7,246	0.26%	23	5,971	0.39%	18	5,366	0.34%
LR hetero	68	57,479	0.12%	63	57,083	0.11%	77	67,596	0.11%	69	78,071	0.09%	73	75,643	0.10%	73	78,633	0.09%	79	79,189	0.10%	76	76,214	0.10%
MTC[3]	18	2,004	0.90%	13	1,816	0.72%	13	2,230	0.58%	19	1,957	0.97%	6	1,560	0.38%	7	2,002	0.35%	6	2,684	0.22%	2	2,569	0.08%
Other[4]	2	959	0.21%	4	1,207	0.33%	3	4,717	0.06%	3	6,794	0.04%	2	6,366	0.03%	3	7,401	0.04%	2	9,186	0.02%	1	9,595	0.01%
Unknown	769	151,803	0.51%	716	140,350	0.51%	709	138,954	0.51%	491	156,807	0.31%	484	155,929	0.31%	523	170,333	0.31%	451	161,250	0.28%	447	149,169	0.30%
Total	1,488	261,870	0.57%	1,312	250,427	0.52%	1,324	253,112	0.52%	1,041	279,751	0.37%	933	268,841	0.35%	958	287,194	0.33%	900	278,518	0.32%	894	262,277	0.34%

Exposure category	2001			2002			2003			2004			2005			2006			2007			Total		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
MSM	222	8,944	2.5%	313	9,760	3.2%	266	9,795	2.7%	311	10,850	2.9%	291	11,329	2.6%	276	10,193	2.7%	274	9,414	2.9%	4,974	148,395	3.4%
MSM-IDU	7	477	1.5%	4	453	0.88%	5	466	1.1%	7	463	1.5%	1	444	0.23%	4	399	1.0%	8	404	2.0%	171	7,374	2.3%
IDU	38	6,590	0.58%	41	6,353	0.65%	38	6,224	0.61%	52	6,573	0.79%	57	6,574	0.87%	24	6,303	0.38%	52	6,342	0.82%	908	104,112	0.87%
Clotting factor	2	504	0.40%		491	0.0%	2	399	0.50%	2	388	0.52%	1	353	0.28%	1	333	0.30%		366	0.0%	69	40,567	0.17%
Transfusion	4	1,617	0.25%	3	1,518	0.20%	3	1,252	0.24%	2	1,246	0.16%	6	1,184	0.51%	2	1,180	0.17%	4	1,185	0.34%	106	67,312	0.16%
HIV-endemic	36	1,221	2.9%	49	1,351	3.6%	47	1,432	3.3%	34	1,436	2.4%	34	1,530	2.2%	45	1,606	2.8%	22	1,708	1.3%	444	19,122	2.3%
HR hetero	24	5,030	0.48%	26	4,911	0.53%	17	4,480	0.38%	22	4,429	0.50%	13	4,233	0.31%	17	4,148	0.41%	12	3,751	0.32%	376	97,290	0.39%
LR hetero	98	79,631	0.12%	113	85,793	0.13%	125	84,877	0.15%	109	91,754	0.12%	103	98,879	0.10%	124	100,749	0.12%	102	98,278	0.10%	1,390	1,248,475	0.11%
MTC[3]	8	3,251	0.25%	6	3,443	0.17%	3	3,475	0.09%	3	3,700	0.08%	10	2,249	0.44%	6	2,482	0.24%	3	2,446	0.12%	129	39,122	0.33%
Other[4]	3	10,507	0.03%	5	11,673	0.04%	5	11,054	0.05%	6	11,014	0.05%	2	11,154	0.02%	5	10,512	0.05%	9	10,143	0.09%	56	123,040	0.05%
Unknown	520	161,787	0.32%	579	211,112	0.27%	593	223,329	0.27%	629	241,063	0.26%	606	254,132	0.24%	654	275,174	0.24%	590	276,225	0.21%	9,779	3,016,831	0.32%
Total	962	279,559	0.34%	1,139	336,858	0.34%	1,104	346,783	0.32%	1,177	372,916	0.32%	1,124	392,061	0.29%	1,158	413,079	0.28%	1,076	410,262	0.26%	18,402	4,911,640	0.37%

1 Persons identified as having had more than one test within the same year are counted only once
2 Only data from 1993 to 2007 are shown due to lack of space but total reflects numbers from 1992 to 2007
3 Includes only HIV-infected infants
4 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.20 Number of HIV-positive tests (p), number tested (n)[1] and HIV-positivity rates (%) (adjusted[2]) by exposure category and year of HIV diagnosis, Ontario, 1992 to 2007[3]

Exposure category	Year of diagnosis																							
	1993			1994			1995			1996			1997			1998			1999			2000		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
MSM	895	14,543	6.2%	679	13,447	5.1%	730	14,628	5.0%	550	14,965	3.7%	471	14,423	3.3%	456	13,860	3.3%	419	13,358	3.1%	434	13,715	3.2%
MSM-IDU	82	1,838	4.5%	76	1,687	4.5%	74	1,610	4.6%	44	1,613	2.7%	33	1,613	2.0%	41	1,498	2.8%	32	1,590	2.0%	39	1,532	2.5%
IDU	118	16,004	0.74%	181	13,765	1.3%	136	14,539	0.93%	130	15,918	0.82%	109	15,922	0.69%	118	16,985	0.70%	129	16,006	0.80%	87	15,412	0.56%
Clotting factor	16	10,293	0.16%	6	9,980	0.06%	9	5,463	0.16%	6	3,632	0.17%	5	1,786	0.28%	2	1,533	0.13%	1	882	0.11%	2	605	0.33%
Transfusion	39	40,351	0.10%	34	42,753	0.08%	27	23,165	0.12%	23	14,808	0.15%	26	8,492	0.31%	27	8,671	0.31%	13	7,588	0.18%	20	5,326	0.37%
HIV-endemic	144	6,046	2.4%	142	5,558	2.6%	146	5,565	2.6%	128	5,841	2.2%	120	5,738	2.1%	128	6,464	2.0%	134	6,494	2.1%	155	6,748	2.3%
HR hetero	68	19,510	0.35%	62	17,415	0.35%	62	19,725	0.31%	40	22,986	0.17%	54	20,184	0.27%	49	19,250	0.25%	45	15,829	0.28%	38	14,233	0.27%
LR hetero	99	144,200	0.07%	101	136,660	0.07%	116	151,994	0.08%	91	178,911	0.05%	97	180,521	0.05%	115	195,833	0.06%	111	190,451	0.06%	106	178,571	0.06%
MTC[4]	18	2,004	0.90%	13	1,816	0.72%	13	2,230	0.58%	19	1,957	0.97%	6	1,560	0.38%	7	2,002	0.35%	6	2,684	0.22%	2	2,569	0.08%
Other[5]	9	7,081	0.13%	18	7,346	0.24%	11	14,192	0.08%	10	19,119	0.05%	11	18,600	0.06%	14	21,097	0.06%	10	23,636	0.04%	11	23,566	0.05%
Total	1,488	261,870	0.57%	1,312	250,427	0.52%	1,324	253,112	0.52%	1,041	279,751	0.37%	933	268,841	0.35%	958	287,194	0.33%	900	278,518	0.32%	894	262,277	0.34%
Exposure category	**2001**			**2002**			**2003**			**2004**			**2005**			**2006**			**2007**			**Total**		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
MSM	408	14,452	2.8%	518	15,630	3.3%	461	18,486	2.5%	568	20,329	2.8%	552	21,399	2.6%	472	19,912	2.4%	496	18,882	2.6%	9,326	258,397	3.6%
MSM-IDU	30	1,403	2.1%	22	1,119	2.0%	24	1,499	1.6%	32	1,387	2.3%	18	1,349	1.4%	20	1,341	1.5%	34	1,424	2.4%	689	24,438	2.8%
IDU	82	15,465	0.53%	80	15,383	0.52%	73	16,165	0.45%	94	17,220	0.55%	97	17,274	0.56%	45	17,614	0.25%	83	16,857	0.49%	1,740	258,908	0.67%
Clotting factor	2	528	0.38%	0	518	0.0%	2	425	0.47%	2	417	0.48%	1	382	0.26%	1	365	0.27%	0	397	0.0%	69	40,945	0.17%
Transfusion	10	4,988	0.20%	5	4,932	0.10%	9	4,635	0.20%	4	4,949	0.08%	12	4,750	0.26%	5	4,941	0.11%	18	5,083	0.35%	314	193,006	0.16%
HIV-endemic	214	7,351	2.9%	273	9,812	2.8%	288	9,766	2.9%	237	10,050	2.4%	246	10,726	2.3%	337	11,677	2.9%	214	13,133	1.6%	3,049	128,879	2.4%
HR hetero	48	13,995	0.34%	60	14,611	0.41%	48	12,716	0.37%	55	13,015	0.42%	39	12,801	0.31%	48	13,054	0.37%	39	15,912	0.24%	809	266,303	0.30%
LR hetero	141	192,054	0.07%	156	239,993	0.06%	174	250,965	0.07%	160	272,444	0.06%	137	290,915	0.05%	204	311,549	0.07%	156	307,654	0.05%	2,029	3,356,118	0.06%
MTC[4]	8	3,251	0.25%	6	3,443	0.17%	3	3,475	0.09%	3	3,700	0.08%	10	2,249	0.44%	6	2,482	0.24%	3	2,446	0.12%	129	39,122	0.33%
Other[5]	19	26,071	0.07%	19	31,418	0.06%	23	28,650	0.08%	21	29,406	0.07%	11	30,215	0.04%	21	30,144	0.07%	32	28,474	0.11%	248	345,524	0.07%
Total	962	279,559	0.34%	1,139	336,858	0.34%	1,104	346,783	0.32%	1,177	372,916	0.32%	1,124	392,061	0.29%	1,158	413,079	0.28%	1,076	410,262	0.26%	18,402	4,911,640	0.37%

1 Persons identified as having had more than one test within the same year are counted only once
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Only data from 1993 to 2007 are shown due to lack of space but total reflects numbers from 1992 to 2007
4 Includes only HIV-infected infants
5 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.21 Number of HIV-positive tests (p), number tested (n)[1] and HIV-positivity rates (%) by exposure category and health region, Ontario, 1992 to 2007

Exposure category	Region																							
	Northern			Ottawa			Eastern, other			Toronto			Central East, other			Central West			Southwest			Unknown			Total		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
MSM	65	3,852	1.7%	454	20,511	2.2%	95	4,649	2.0%	3,675	79,069	4.6%	144	7,977	1.8%	201	10,027	2.0%	204	9,666	2.1%	136	12,644	1.1%	4,974	148,395	3.4%
MSM-IDU	7	444	1.6%	30	658	4.6%	6	906	0.66%	88	1,916	4.6%	9	654	1.4%	8	818	0.98%	11	653	1.7%	12	1,325	0.91%	171	7,374	2.3%
IDU	123	9,616	1.3%	226	8,946	2.5%	95	14,009	0.68%	225	20,055	1.1%	46	10,749	0.43%	68	13,687	0.50%	38	10,098	0.38%	87	16,952	0.51%	908	104,112	0.87%
Clotting factor	4	3,287	0.12%	7	5,062	0.14%	2	3,098	0.06%	30	9,693	0.31%	4	6,520	0.06%	7	5,022	0.14%	4	3,633	0.11%	11	4,252	0.26%	69	40,567	0.17%
Transfusion	4	6,015	0.07%	13	5,659	0.23%	5	5,682	0.09%	46	14,078	0.33%	12	11,886	0.10%	10	9,744	0.10%	7	7,844	0.09%	9	6,404	0.14%	106	67,312	0.16%
HIV-endemic	7	898	0.78%	78	3,249	2.4%	8	959	0.83%	244	7,574	3.2%	31	2,083	1.5%	36	1,787	2.0%	21	1,314	1.6%	19	1,258	1.5%	444	19,122	2.3%
HR hetero	20	9,639	0.21%	38	7,752	0.49%	15	6,832	0.22%	164	22,161	0.74%	33	13,497	0.24%	43	13,684	0.31%	33	10,417	0.32%	30	13,308	0.23%	376	97,290	0.39%
LR hetero	50	72,976	0.07%	168	157,317	0.11%	49	82,082	0.06%	716	356,227	0.20%	129	191,339	0.07%	115	149,528	0.08%	109	140,822	0.08%	54	98,184	0.05%	1,390	1,248,475	0.11%
MTC[2]	1	1,200	0.08%	21	4,689	0.45%	0	1,387	0.0%	80	14,584	0.55%	7	10,677	0.07%	9	3,164	0.28%	5	2,465	0.20%	6	956	0.63%	129	39,122	0.33%
Other[3]	0	11,634	0.0%	11	11,462	0.10%	1	11,440	0.0%	23	30,734	0.07%	5	16,534	0.0%	3	16,154	0.02%	3	18,723	0.02%	10	6,359	0.16%	56	123,040	0.0%
Unknown	172	97,989	0.18%	1,157	272,002	0.43%	249	148,034	0.17%	5,628	1,259,060	0.45%	642	518,068	0.12%	764	324,710	0.24%	721	223,548	0.32%	446	173,420	0.26%	9,779	3,016,831	0.32%
Total[4]	453	217,550	0.21%	2,203	497,307	0.44%	525	279,078	0.19%	10,919	1,815,151	0.60%	1,062	789,984	0.13%	1,264	548,325	0.23%	1,156	429,183	0.27%	820	335,062	0.24%	18,402	4,911,640	0.37%

1 Persons identified as having had more than one test within the same year are counted only once
2 Includes only HIV-infected infants
3 Other exposure includes needle-stick, acupuncture, tattoo, etc.
4 Total includes 1,128 HIV-positive tests (p) and 162,046 tests (n) of unknown sex, which represent 3.9% and 3.3% of the totals, respectively

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.22 Number of HIV-positive tests (p), number tested (n)[1] and HIV-positivity rates (%) (adjusted[2]) by exposure category and health region, Ontario, 1992 to 2007

Exposure category	Region																					
	Northern			Ottawa			Eastern, other			Toronto			Central East, other			Central West			Southwest			Total		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
MSM	95	5,365	1.8%	864	30,429	2.8%	186	9,751	1.9%	6,692	140,688	4.8%	390	24,686	1.6%	495	19,220	2.6%	603	28,258	2.1%	9,326	258,397	3.6%
MSM-IDU	33	979	3.4%	110	5,726	1.9%	55	2,993	1.8%	314	8,872	3.5%	32	1,772	1.8%	66	2,472	2.7%	79	1,625	4.9%	689	24,438	2.8%
IDU	211	18,011	1.2%	442	40,735	1.1%	160	31,190	0.51%	563	81,091	0.69%	89	25,996	0.34%	175	37,312	0.47%	99	24,572	0.40%	1,740	258,908	0.67%
Clotting factor	5	3,662	0.13%	8	5,729	0.14%	2	3,485	0.06%	38	10,776	0.35%	5	7,636	0.06%	8	5,601	0.13%	5	4,056	0.11%	69	40,945	0.17%
Transfusion	8	13,285	0.06%	45	27,047	0.17%	9	21,474	0.04%	125	40,990	0.30%	73	31,956	0.23%	23	22,012	0.10%	32	36,243	0.09%	314	193,006	0.16%
HIV-endemic	12	1,720	0.68%	539	13,994	3.9%	43	5,018	0.86%	1,852	77,467	2.4%	210	15,193	1.4%	251	8,394	3.0%	141	7,092	2.0%	3,049	128,879	2.4%
HR hetero	51	24,297	0.21%	66	37,647	0.18%	42	24,196	0.17%	391	79,105	0.49%	86	33,620	0.26%	72	38,040	0.19%	101	29,398	0.34%	809	266,303	0.30%
LR hetero	60	141,241	0.04%	187	328,044	0.06%	52	172,788	0.03%	1,226	1,378,999	0.09%	177	635,164	0.03%	190	412,670	0.05%	137	287,212	0.05%	2,029	3,356,118	0.06%
MTC[3]	1	1,242	0.08%	22	4,829	0.46%	0	1,432	0.0%	83	15,031	0.55%	7	10,788	0.07%	10	3,264	0.30%	6	2,536	0.22%	129	39,122	0.33%
Other[4]	0	27,311	0.0%	39	46,752	0.08%	5	30,720	0.0%	114	103,696	0.11%	38	52,945	0.07%	32	40,656	0.08%	19	43,445	0.04%	248	345,524	0.07%
Total[5]	477	237,113	0.20%	2,322	540,932	0.43%	555	303,046	0.18%	11,399	1,936,715	0.59%	1,106	839,755	0.13%	1,320	589,641	0.22%	1,222	464,438	0.26%	18,402	4,911,640	0.37%

1 Persons identified as having had more than one test within the same year are counted only once
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Other exposure includes needle-stick, acupuncture, tattoo, etc.
5 Total includes 1,128 HIV-positive tests (p) and 162,046 tests (n) of unknown sex, which represent 3.9% and 3.3% of the totals, respectively

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.23 Number of HIV-positive tests (p), number tested (n)[1] and HIV-positivity rates (%) (adjusted[2]) by sex, exposure category and health region, Ontario, 1992 to 2007

Exposure category	Region																							
	Northern			Ottawa			Eastern, other			Toronto			Central East, other			Central West			Southwest			Total		
Males	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**
MSM	95	5,365	1.8%	864	30,429	2.8%	186	9,751	1.9%	6,692	140,688	4.8%	390	24,686	1.6%	495	19,220	2.6%	603	28,258	2.1%	9,326	258,397	3.6%
MSM-IDU	33	979	3.4%	110	5,726	1.9%	55	2,993	1.8%	314	8,872	3.5%	32	1,772	1.8%	66	2,472	2.7%	79	1,625	4.9%	689	24,438	2.8%
IDU	131	9,814	1.3%	327	23,956	1.4%	131	20,990	0.63%	390	50,708	0.77%	56	18,511	0.30%	122	24,808	0.49%	71	15,779	0.45%	1,228	164,566	0.75%
Clotting factor	5	1,411	0.33%	6	2,108	0.30%	2	1,368	0.14%	26	4,937	0.52%	3	2,999	0.10%	5	2,043	0.25%	5	1,552	0.29%	51	16,419	0.31%
Transfusion	0	4,159	0.0%	5	10,388	0.05%	9	9,043	0.10%	54	12,996	0.41%	59	12,176	0.48%	12	9,941	0.12%	25	17,183	0.14%	163	75,888	0.22%
HIV-endemic	6	941	0.60%	237	8,800	2.7%	26	3,814	0.67%	891	41,264	2.2%	103	6,936	1.5%	110	3,790	2.9%	60	3,227	1.9%	1,433	68,773	2.1%
HR hetero	24	4,164	0.57%	31	14,703	0.21%	10	9,374	0.11%	180	24,593	0.73%	35	8,273	0.42%	12	10,548	0.12%	23	8,106	0.29%	315	79,762	0.40%
LR hetero	42	63,939	0.07%	142	125,404	0.11%	35	69,608	0.05%	764	584,179	0.13%	110	247,393	0.04%	108	172,487	0.06%	83	103,225	0.08%	1,283	1,366,236	0.09%
MTC[3]	1	595	0.17%	6	2,447	0.24%	0	769	0.0%	38	8,088	0.47%	2	4,961	0.05%	3	1,638	0.18%	4	1,335	0.26%	54	19,834	0.27%
Other[4]	0	7,961	0.0%	23	13,871	0.17%	5	9,328	0.06%	77	47,630	0.16%	21	14,990	0.14%	17	14,093	0.12%	15	14,725	0.10%	158	122,597	0.13%
Total	336	99,330	0.34%	1,751	237,832	0.74%	459	137,038	0.34%	9,425	923,955	1.0%	811	342,698	0.24%	950	261,041	0.36%	968	195,015	0.50%	14,701	2,196,909	0.67%
Females	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**
IDU	80	8,197	0.98%	115	16,779	0.69%	29	10,200	0.28%	173	30,383	0.57%	33	7,485	0.44%	53	12,504	0.42%	28	8,793	0.32%	512	94,342	0.54%
Clotting factor	0	2,251	0.0%	1	3,621	0.04%	0	2,116	0.0%	12	5,839	0.21%	2	4,637	0.03%	2	3,558	0.07%	0	2,504	0.0%	18	24,525	0.07%
Transfusion	8	9,126	0.09%	40	16,658	0.24%	0	12,431	0.0%	71	27,994	0.25%	14	19,779	0.07%	11	12,070	0.09%	7	19,059	0.04%	151	117,118	0.13%
HIV-endemic	6	779	0.77%	302	5,194	5.8%	17	1,204	1.4%	961	36,204	2.7%	107	8,256	1.3%	141	4,604	3.1%	81	3,865	2.1%	1,616	60,106	2.7%
HR hetero	28	20,133	0.14%	35	22,944	0.15%	32	14,822	0.21%	211	54,512	0.39%	51	25,347	0.20%	60	27,491	0.22%	78	21,293	0.37%	494	186,541	0.26%
LR hetero	18	77,302	0.02%	45	202,640	0.02%	18	103,180	0.02%	463	794,820	0.06%	67	387,771	0.02%	82	240,183	0.03%	54	183,988	0.03%	746	1,989,882	0.04%
MTC[3]	0	647	0.0%	16	2,382	0.69%	0	663	0.0%	45	6,942	0.65%	5	5,826	0.09%	7	1,627	0.41%	2	1,201	0.17%	75	19,288	0.39%
Other[4]	0	19,350	0.0%	16	32,881	0.05%	0	21,391	0.0%	37	56,066	0.07%	17	37,955	0.04%	15	26,563	0.06%	4	28,720	0.01%	89	222,927	0.04%
Total	141	137,784	0.10%	571	303,100	0.19%	96	166,008	0.06%	1,974	1,012,759	0.19%	295	497,057	0.06%	370	328,601	0.11%	254	269,422	0.09%	3,701	2,714,731	0.14%

1 Persons identified as having had more than one test within the same year are counted only once
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.24 Number of HIV-positive tests (p), number tested (n)[1] and HIV-positivity rates (%) by exposure category and health region, Ontario, 2007

Exposure category	Region																							
	Northern			Ottawa			Eastern, other			Toronto			Central East, other			Central West			Southwest			Unknown			Total		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
MSM	8	294	2.7%	26	1,644	1.6%	2	376	0.53%	205	4,810	4.3%	9	657	1.4%	18	965	1.9%	6	655	0.92%	0	13	0.0%	274	9,414	2.9%
MSM-IDU	2	44	4.5%	0	38	0.0%	0	49	0.0%	4	143	2.8%	0	22	0.0%	2	56	3.6%	0	48	0.0%	0	4	0.0%	8	404	2.0%
IDU	12	946	1.3%	15	488	3.1%	2	976	0.20%	16	1,291	1.2%	4	767	0.52%	1	992	0.10%	2	832	0.24%	0	50	0.0%	52	6,342	0.82%
Clotting factor	0	31	0.0%	0	29	0.0%	0	29	0.0%	0	112	0.0%	0	91	0.0%	0	40	0.0%	0	30	0.0%	0	4	0.0%	0	366	0.0%
Transfusion	0	138	0.0%	0	69	0.0%	0	85	0.0%	3	386	0.78%	1	225	0.44%	0	138	0.0%	0	139	0.0%	0	5	0.0%	4	1,185	0.34%
HIV-endemic	0	117	0.0%	2	221	0.90%	0	61	0.0%	14	838	1.7%	4	197	2.0%	1	161	0.62%	1	107	0.93%	0	6	0.0%	22	1,708	1.3%
HR hetero	0	445	0.0%	1	285	0.35%	0	316	0.0%	8	930	0.86%	0	611	0.0%	2	601	0.33%	1	448	0.22%	0	115	0.0%	12	3,751	0.32%
LR hetero	8	6,424	0.12%	12	12,145	0.10%	6	6,205	0.10%	41	31,080	0.13%	12	15,590	0.08%	10	14,077	0.07%	13	12,231	0.11%	0	526	0.0%	102	98,278	0.10%
MTC[2]	1	78	1.3%	0	312	0.0%	0	104	0.0%	1	1,155	0.09%	0	292	0.0%	1	263	0.38%	0	233	0.0%	0	9	0.0%	3	2,446	0.12%
Other[3]	0	898	0.0%	2	1,027	0.19%	0	986	0.0%	7	2,688	0.26%	0	1,577	0.0%	0	1,372	0.0%	0	1,570	0.0%	0	25	0.0%	9	10,143	0.09%
Unknown	9	7,217	0.12%	87	25,149	0.35%	6	11,553	0.05%	325	118,337	0.27%	56	61,570	0.09%	73	30,644	0.24%	33	19,369	0.17%	1	2,386	0.04%	590	276,225	0.21%
Total[4]	40	16,632	0.24%	145	41,407	0.35%	16	20,740	0.08%	624	161,770	0.39%	86	81,599	0.11%	108	49,309	0.22%	56	35,662	0.16%	1	3,143	0.03%	1,076	410,262	0.26%

1 Persons identified as having had more than one test within the same year are counted only once
2 Includes only HIV-infected infants
3 Other exposure includes needle-stick, acupuncture, tattoo, etc.
4 Total includes 23 HIV-positive tests (p) and 9,225 tests (n) of unknown sex, which represent 2.1% and 2.2% of the totals, respectively

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.25 Number of HIV-positive tests (p), number tested (n)[1] and HIV-positivity rates (%) (adjusted[2]) by exposure category and health region, Ontario, 2007

Exposure category	Region																					
	Northern			Ottawa			Eastern, other			Toronto			Central East, other			Central West			Southwest			Total		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
MSM	10	395	2.4%	56	1,826	3.1%	4	465	0.88%	342	9,860	3.5%	22	2,526	0.88%	47	1,781	2.6%	15	2,028	0.76%	496	18,882	2.6%
MSM-IDU	5	78	6.0%	2	88	2.3%	1	105	0.87%	16	793	2.0%	1	104	0.90%	9	148	5.9%	0	109	0.25%	34	1,424	2.4%
IDU	17	1,362	1.2%	23	1,616	1.4%	3	1,669	0.21%	24	5,944	0.40%	7	2,079	0.34%	5	2,275	0.22%	4	1,911	0.23%	83	16,857	0.49%
Clotting factor	0	31	0.0%	0	29	0.0%	0	29	0.0%	0	113	0.0%	0	123	0.0%	0	41	0.0%	0	30	0.0%	0	397	0.0%
Transfusion	0	256	0.0%	0	576	0.0%	0	343	0.0%	5	1,538	0.33%	11	913	1.2%	0	560	0.0%	1	898	0.15%	18	5,083	0.35%
HIV-endemic	0	202	0.0%	37	1,805	2.1%	2	637	0.32%	120	7,568	1.6%	20	1,715	1.2%	23	592	3.8%	13	614	2.1%	214	13,133	1.6%
HR hetero	0	652	0.07%	7	4,742	0.15%	0	2,005	0.0%	19	3,496	0.53%	4	2,056	0.20%	4	1,630	0.23%	5	1,331	0.39%	39	15,912	0.24%
LR hetero	8	11,689	0.06%	15	27,361	0.06%	5	13,290	0.0%	76	124,643	0.06%	17	66,509	0.0%	19	39,126	0.0%	16	25,035	0.07%	156	307,654	0.05%
MTC[3]	1	78	1.3%	0	313	0.0%	0	104	0.0%	1	1,159	0.09%	0	293	0.0%	1	264	0.38%	0	234	0.0%	3	2,446	0.12%
Other[4]	0	2,011	0.0%	5	3,362	0.15%	0	2,249	0.0%	22	7,910	0.27%	4	5,936	0.06%	1	3,269	0.0%	0	3,736	0.01%	32	28,474	0.11%
Total[5]	40	16,756	0.24%	145	41,718	0.35%	16	20,897	0.08%	625	163,024	0.38%	86	82,254	0.10%	108	49,686	0.22%	56	35,926	0.16%	1,076	410,262	0.26%

1 Persons identified as having had more than one test within the same year are counted only once
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Other exposure includes needle-stick, acupuncture, tattoo, etc.
5 Total includes 23 HIV-positive tests (p) and 9,225 tests (n) of unknown sex, which represent 2.1% and 2.2% of the totals, respectively

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.26 Number of HIV-positive tests (p), number tested (n)[1] and HIV-positivity rates (%) (adjusted[2]) by sex, exposure category and health region, Ontario, 2007

Exposure category	Region																							
	Northern			Ottawa			Eastern, other			Toronto			Central East, other			Central West			Southwest			Total		
Males	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**
MSM	10	395	2.4%	56	1,826	3.1%	4	465	0.88%	342	9,860	3.5%	22	2,526	0.88%	47	1,781	2.6%	15	2,028	0.76%	496	18,882	2.6%
MSM-IDU	5	78	6.0%	2	88	2.3%	1	105	0.87%	16	793	2.0%	1	104	0.90%	9	148	5.9%	0	109	0.25%	34	1,424	2.4%
IDU	11	765	1.4%	19	1,016	1.8%	3	1,061	0.29%	13	4,094	0.32%	5	1,481	0.35%	4	1,663	0.24%	2	1,280	0.17%	57	11,361	0.50%
Clotting factor	0	12	0.0%	0	12	0.0%	0	13	0.0%	0	46	0.0%	0	78	0.0%	0	12	0.0%	0	10	0.0%	0	183	0.0%
Transfusion	0	86	0.0%	0	212	0.0%	0	168	0.0%	2	576	0.40%	11	326	3.3%	0	232	0.0%	1	573	0.20%	14	2,172	0.66%
HIV-endemic	0	117	0.0%	17	706	2.4%	0	277	0.14%	48	3,823	1.3%	8	789	1.0%	3	370	0.92%	7	293	2.3%	84	6,375	1.3%
HR hetero	0	207	0.0%	3	863	0.36%	0	509	0.0%	4	882	0.50%	3	592	0.49%	1	588	0.16%	2	469	0.47%	14	4,110	0.33%
LR hetero	5	5,315	0.09%	11	11,906	0.09%	3	6,604	0.0%	52	53,821	0.10%	9	28,013	0.0%	10	17,182	0.06%	12	9,439	0.13%	102	132,281	0.08%
MTC[3]	1	34	2.9%	0	139	0.0%	0	52	0.0%	1	583	0.17%	0	149	0.0%	0	115	0.0%	0	128	0.0%	2	1,200	0.17%
Other[4]	0	614	0.0%	3	1,152	0.30%	0	809	0.0%	18	3,202	0.57%	2	1,858	0.10%	1	1,312	0.06%	0	1,443	0.0%	25	10,390	0.24%
Total	31	7,623	0.41%	111	17,922	0.62%	12	10,063	0.12%	497	77,680	0.64%	61	35,916	0.17%	75	23,404	0.32%	40	15,772	0.25%	827	188,379	0.44%
Females	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**	**p**	**n**	**%**
IDU	6	597	1.0%	4	600	0.69%	0	608	0.06%	11	1,850	0.59%	2	598	0.32%	1	612	0.16%	2	631	0.35%	27	5,496	0.48%
Clotting factor	0	19	0.0%	0	17	0.0%	0	16	0.0%	0	67	0.0%	0	45	0.0%	0	29	0.0%	0	20	0.0%	0	214	0.0%
Transfusion	0	170	0.0%	0	364	0.0%	0	175	0.0%	3	962	0.29%	0	588	0.06%	0	328	0.0%	0	325	0.06%	3	2,912	0.12%
HIV-endemic	0	86	0.0%	20	1,099	1.8%	2	360	0.46%	72	3,745	1.9%	12	926	1.3%	19	221	8.7%	6	321	1.9%	131	6,757	1.9%
HR hetero	0	445	0.10%	4	3,879	0.10%	0	1,496	0.0%	14	2,614	0.54%	1	1,464	0.07%	3	1,042	0.26%	3	863	0.34%	25	11,802	0.22%
LR hetero	2	6,374	0.0%	5	15,455	0.03%	2	6,687	0.03%	24	70,822	0.03%	7	38,496	0.02%	9	21,944	0.04%	4	15,595	0.03%	54	175,373	0.03%
MTC[3]	0	44	0.0%	0	174	0.0%	0	52	0.0%	0	576	0.0%	0	144	0.0%	1	149	0.67%	0	105	0.0%	1	1,246	0.08%
Other[4]	0	1,397	0.0%	2	2,210	0.07%	0	1,440	0.0%	3	4,708	0.07%	2	4,078	0.04%	0	1,957	0.0%	0	2,293	0.01%	7	18,084	0.04%
Total	9	9,133	0.10%	34	23,796	0.14%	4	10,834	0.04%	128	85,344	0.15%	25	46,339	0.05%	33	26,282	0.13%	16	20,154	0.08%	249	221,883	0.11%

1 Persons identified as having had more than one test within the same year are counted only once
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Includes only HIV-infected infants
4 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.27 Number of HIV tests by year of test and sex, Ontario, 1992 to 2007

Year of diagnosis	Male	Female		Unknown	Total
	Number	Number	% female[1]	Number	Number
1992	100,807	104,988	51.0%	12,337	218,132
1993	119,107	132,459	52.7%	10,304	261,870
1994	111,639	127,985	53.4%	10,803	250,427
1995	113,771	130,687	53.5%	8,654	253,112
1996	120,592	149,017	55.3%	10,142	279,751
1997	112,852	145,862	56.4%	10,127	268,841
1998	112,777	162,582	59.0%	11,835	287,194
1999	110,442	155,268	58.4%	12,808	278,518
2000	110,673	140,569	55.9%	11,035	262,277
2001	117,736	150,649	56.1%	11,174	279,559
2002	144,776	182,855	55.8%	9,227	336,858
2003	149,248	189,364	55.9%	8,171	346,783
2004	161,725	202,284	55.6%	8,907	372,916
2005	173,647	210,144	54.8%	8,270	392,061
2006	182,012	221,317	54.9%	9,750	413,079
2007	184,207	216,830	54.1%	9,225	410,262
Total	2,126,011	2,622,860	55.2%	162,769	4,911,640

1 Percent of cases with known sex

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.28 Number of HIV tests (adjusted[1]) and testing rate per 1,000 by year of Test and sex, Ontario, 1992 to 2007

Year of diagnosis	Male		Female		Total	
	Number	Rate	Number	Rate	Number	Rate
1992	106,798	20.5	111,334	20.8	218,132	20.6
1993	123,949	23.5	137,921	25.5	261,870	24.5
1994	116,621	21.9	133,806	24.4	250,427	23.1
1995	117,743	21.8	135,369	24.4	253,112	23.1
1996	125,075	22.9	154,676	27.5	279,751	25.2
1997	117,167	21.2	151,674	26.7	268,841	23.9
1998	117,399	20.9	169,795	29.5	287,194	25.3
1999	115,487	20.3	163,031	28.0	278,518	24.2
2000	115,330	20.0	146,947	24.8	262,277	22.4
2001	122,472	20.8	157,087	26.1	279,559	23.5
2002	148,746	24.9	188,112	30.8	336,858	27.9
2003	152,716	25.2	194,067	31.3	346,783	28.3
2004	165,535	27.0	207,381	33.1	372,916	30.1
2005	177,216	28.6	214,845	33.9	392,061	31.3
2006	186,276	29.8	226,803	35.4	413,079	32.6
2007	188,379	29.8	221,883	34.2	410,262	33.7
Total	2,196,909		2,714,731		4,911,640	

1 Cases with unknown sex reassigned according to the sex distribution among testers that year

Data sources: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion
1992-2007 population estimates provided by Statistics Canada

Table 1.29 Number and proportion[1] of HIV tests by exposure category and year of test, Ontario, 1992 to 2007[2]

Exposure category	Year of test															
	1993		1994		1995		1996		1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	8,655	7.9%	8,371	7.6%	9,136	8.0%	9,240	7.5%	8,827	7.8%	8,489	7.3%	8,317	7.1%	8,616	7.6%
MSM-IDU	485	0.44%	462	0.42%	466	0.41%	486	0.40%	461	0.41%	474	0.41%	531	0.45%	541	0.48%
IDU	6,609	6.0%	5,834	5.3%	6,403	5.6%	6,835	5.6%	6,659	5.9%	7,151	6.1%	6,856	5.8%	6,721	5.9%
Clotting factor	10,275	9.3%	9,962	9.1%	5,443	4.8%	3,609	2.9%	1,765	1.6%	1,510	1.3%	860	0.73%	582	0.51%
Transfusion	14,864	13.5%	17,221	15.6%	8,687	7.6%	5,271	4.3%	2,828	2.5%	2,982	2.6%	2,660	2.3%	1,770	1.6%
HIV-endemic	956	0.87%	888	0.81%	965	0.85%	981	0.80%	868	0.77%	973	0.83%	1,014	0.86%	1,134	1.0%
HR hetero	7,781	7.1%	7,233	6.6%	8,515	7.5%	9,700	7.9%	7,935	7.0%	7,246	6.2%	5,971	5.1%	5,366	4.7%
LR hetero	57,479	52.2%	57,083	51.9%	67,596	59.2%	78,071	63.5%	75,643	67.0%	78,633	67.3%	79,189	67.5%	76,214	67.4%
MTC[3]	2,004	1.8%	1,816	1.6%	2,230	2.0%	1,957	1.6%	1,560	1.4%	2,002	1.7%	2,684	2.3%	2,569	2.3%
Other[4]	959	0.87%	1,207	1.1%	4,717	4.1%	6,794	5.5%	6,366	5.6%	7,401	6.3%	9,186	7.8%	9,595	8.5%
Unknown	151,803		140,350		138,954		156,807		155,929		170,333		161,250		149,169	
Total	261,870	100%	250,427	100%	253,112	100%	279,751	100%	268,841	100%	287,194	100%	278,518	100%	262,277	100%
	2001		2002		2003		2004		2005		2006		2007		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	8,944	7.6%	9,760	7.8%	9,795	7.9%	10,850	8.2%	11,329	8.2%	10,193	7.4%	9,414	7.0%	148,395	7.8%
MSM-IDU	477	0.41%	453	0.36%	466	0.38%	463	0.35%	444	0.32%	399	0.29%	404	0.30%	7,374	0.39%
IDU	6,590	5.6%	6,353	5.1%	6,224	5.0%	6,573	5.0%	6,574	4.8%	6,303	4.6%	6,342	4.7%	104,112	5.5%
Clotting factor	504	0.43%	491	0.39%	399	0.32%	388	0.29%	353	0.26%	333	0.24%	366	0.27%	40,567	2.1%
Transfusion	1,617	1.4%	1,518	1.2%	1,252	1.0%	1,246	0.94%	1,184	0.86%	1,180	0.86%	1,185	0.88%	67,312	3.6%
HIV-endemic	1,221	1.0%	1,351	1.1%	1,432	1.2%	1,436	1.1%	1,530	1.1%	1,606	1.2%	1,708	1.3%	19,122	1.0%
HR hetero	5,030	4.3%	4,911	3.9%	4,480	3.6%	4,429	3.4%	4,233	3.1%	4,148	3.0%	3,751	2.8%	97,290	5.1%
LR hetero	79,631	67.6%	85,793	68.2%	84,877	68.8%	91,754	69.6%	98,879	71.7%	100,749	73.1%	98,278	73.3%	1,248,475	65.9%
MTC[3]	3,251	2.8%	3,443	2.7%	3,475	2.8%	3,700	2.8%	2,249	1.6%	2,482	1.8%	2,446	1.8%	39,122	2.1%
Other[4]	10,507	8.9%	11,673	9.3%	11,054	9.0%	11,014	8.4%	11,154	8.1%	10,512	7.6%	10,143	7.6%	123,040	6.5%
Unknown	161,787		211,112		223,329		241,063		254,132		275,174		276,225		3,016,831	
Total	279,559	100%	336,858	100%	346,783	100%	372,916	100%	392,061	100%	413,079	100%	410,262	100%	4,911,640	100%

1 Column percent of cases with known source of exposure
2 Only data from 1993 to 2007 are shown due to lack of space but total reflects numbers from 1992 to 2007
3 Includes only HIV-infected infants
4 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.30 Number and proportion[1] of HIV tests (adjusted[2]) by exposure category and year of test, Ontario, 1992 to 2007[3]

Exposure category	Year of test															
	1993		1994		1995		1996		1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	14,543	5.6%	13,447	5.4%	14,628	5.8%	14,965	5.3%	14,423	5.4%	13,860	4.8%	13,358	4.8%	13,715	5.2%
MSM-IDU	1,838	0.70%	1,687	0.67%	1,610	0.64%	1,613	0.58%	1,613	0.60%	1,498	0.52%	1,590	0.57%	1,532	0.58%
IDU	16,004	6.1%	13,765	5.5%	14,539	5.7%	15,918	5.7%	15,922	5.9%	16,985	5.9%	16,006	5.7%	15,412	5.9%
Clotting factor	10,293	3.9%	9,980	4.0%	5,463	2.2%	3,632	1.3%	1,786	0.66%	1,533	0.53%	882	0.32%	605	0.23%
Transfusion	40,351	15.4%	42,753	17.1%	23,165	9.2%	14,808	5.3%	8,492	3.2%	8,671	3.0%	7,588	2.7%	5,326	2.0%
HIV-endemic	6,046	2.3%	5,558	2.2%	5,565	2.2%	5,841	2.1%	5,738	2.1%	6,464	2.3%	6,494	2.3%	6,748	2.6%
HR hetero	19,510	7.5%	17,415	7.0%	19,725	7.8%	22,986	8.2%	20,184	7.5%	19,250	6.7%	15,829	5.7%	14,233	5.4%
LR hetero	144,200	55.1%	136,660	54.6%	151,994	60.0%	178,911	64.0%	180,521	67.1%	195,833	68.2%	190,451	68.4%	178,571	68.1%
MTC[4]	2,004	0.77%	1,816	0.73%	2,230	0.88%	1,957	0.70%	1,560	0.58%	2,002	0.70%	2,684	0.96%	2,569	0.98%
Other[5]	7,081	2.7%	7,346	2.9%	14,192	5.6%	19,119	6.8%	18,600	6.9%	21,097	7.3%	23,636	8.5%	23,566	9.0%
Total	261,870	100%	250,427	100%	253,112	100%	279,751	100%	268,841	100%	287,194	100%	278,518	100%	262,277	100%
	2001		2002		2003		2004		2005		2006		2007		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	14,452	5.2%	15,630	4.6%	18,486	5.3%	20,329	5.5%	21,399	5.5%	19,912	4.8%	18,882	4.6%	258,397	5.3%
MSM-IDU	1,403	0.50%	1,119	0.33%	1,499	0.43%	1,387	0.37%	1,349	0.34%	1,341	0.32%	1,424	0.35%	24,438	0.50%
IDU	15,465	5.5%	15,383	4.6%	16,165	4.7%	17,220	4.6%	17,274	4.4%	17,614	4.3%	16,857	4.1%	258,908	5.3%
Clotting factor	528	0.19%	518	0.2%	425	0.12%	417	0.11%	382	0.10%	365	0.09%	397	0.10%	40,945	0.83%
Transfusion	4,988	1.8%	4,932	1.5%	4,635	1.3%	4,949	1.3%	4,750	1.2%	4,941	1.2%	5,083	1.2%	193,006	3.9%
HIV-endemic	7,351	2.6%	9,812	2.9%	9,766	2.8%	10,050	2.7%	10,726	2.7%	11,677	2.8%	13,133	3.2%	128,879	2.6%
HR hetero	13,995	5.0%	14,611	4.3%	12,716	3.7%	13,015	3.5%	12,801	3.3%	13,054	3.2%	15,912	3.9%	266,303	5.4%
LR hetero	192,054	68.7%	239,993	71.2%	250,965	72.4%	272,444	73.1%	290,915	74.2%	311,549	75.4%	307,654	75.0%	3,356,118	68.3%
MTC[4]	3,251	1.2%	3,443	1.0%	3,475	1.0%	3,700	0.99%	2,249	0.57%	2,482	0.60%	2,446	0.60%	39,122	0.80%
Other[5]	26,071	9.3%	31,418	9.3%	28,650	8.3%	29,406	7.9%	30,215	7.7%	30,144	7.3%	28,474	6.9%	345,524	7.0%
Total	279,559	100%	336,858	100%	346,783	100%	372,916	100%	392,061	100%	413,079	100%	410,262	100%	4,911,640	100%

1 Column percent of cases with known source of exposure
2 Adjusted for unknown region, sex and exposure category (see text for more details); thus, total may differ due to rounding
3 Only data from 1993 to 2007 are shown due to lack of space but total reflects numbers from 1992 to 2007
4 Includes only HIV-infected infants
5 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.31 Number and proportion[1] of HIV tests by age group and exposure category, Ontario, 1992 to 2007

Age group (year)	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[2]		Other[3]		Unk.	Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.
<1	35	0.02%	1	0.01%	33	0.03%	61	0.16%	29	0.04%	58	0.31%	28	0.03%	315	0.03%	15,971	40.9%	0	0.0%	13	16,544
1-9	71	0.05%	1	0.01%	66	0.06%	1,338	3.4%	1,355	2.1%	246	1.3%	61	0.06%	356	0.03%	21,855	56.0%	0	0.0%	3	25,352
10-14	289	0.20%	15	0.21%	437	0.43%	1,924	4.9%	2,488	3.8%	144	0.78%	768	0.81%	5,060	0.41%	713	1.8%	419	0.36%	18,282	30,539
15-19	6,603	4.6%	397	5.5%	6,249	6.1%	1,556	4.0%	2,492	3.8%	1,230	6.6%	12,985	13.6%	136,585	11.1%	357	0.91%	1,939	1.7%	198,191	368,584
20-24	20,170	14.0%	1,002	13.8%	12,782	12.5%	1,757	4.5%	3,295	5.0%	3,342	18.0%	19,175	20.1%	304,033	24.8%	154	0.39%	8,178	7.0%	448,201	822,089
25-29	24,395	16.9%	1,355	18.7%	16,060	15.8%	2,244	5.8%	3,866	5.9%	3,668	19.8%	16,849	17.7%	242,514	19.8%	0	0.0%	14,094	12.1%	511,908	836,953
30-34	25,863	17.9%	1,415	19.5%	19,075	18.7%	3,355	8.6%	5,497	8.4%	2,958	15.9%	14,384	15.1%	185,208	15.1%	0	0.0%	15,342	13.2%	506,025	779,122
35-39	22,468	15.5%	1,235	17.0%	18,965	18.6%	4,237	10.9%	7,286	11.1%	2,374	12.8%	11,810	12.4%	135,620	11.1%	0	0.0%	15,723	13.5%	399,354	619,072
40-44	16,974	11.7%	884	12.2%	14,606	14.3%	4,471	11.5%	7,097	10.8%	1,681	9.1%	8,601	9.0%	91,212	7.4%	0	0.0%	15,820	13.6%	271,838	433,184
45-49	11,312	7.8%	549	7.6%	8,337	8.2%	3,641	9.4%	6,431	9.8%	1,089	5.9%	5,232	5.5%	56,535	4.6%	0	0.0%	14,156	12.2%	177,600	284,882
50-54	7,322	5.1%	254	3.5%	3,458	3.4%	2,850	7.3%	5,189	7.9%	690	3.7%	2,811	3.0%	31,283	2.6%	0	0.0%	11,685	10.0%	116,189	181,731
55-59	4,550	3.1%	108	1.5%	1,135	1.11%	2,679	6.9%	4,614	7.0%	425	2.3%	1,288	1.4%	17,158	1.4%	0	0.0%	7,186	6.2%	78,831	117,974
60+	4,495	3.1%	42	0.58%	667	0.65%	8,789	22.6%	15,860	24.2%	664	3.6%	1,218	1.3%	20,035	1.6%	0	0.0%	11,888	10.2%	161,067	224,725
Unk.	3,848		116		2,242		1,665		1,813		553		2,080		22,561		72		6,610		129,329	170,889
Total	148,395	100%	7,374	100%	104,112	100%	40,567	100%	67,312	100%	19,122	100%	97,290	100%	1,248,475	100%	39,122	100%	123,040	100%	3,016,831	4,911,640

1 Column percent of cases with known age
2 Includes only HIV-infected infants
3 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, HR=high risk, LR=low risk, MTC=mother to child transmission

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.32 Number and proportion[1] of HIV tests by year of test and health region, Ontario, 1992 to 2007

Year	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Unk.[2]	Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.
1992	9,396	5.3%	22,693	12.7%	10,148	5.7%	71,221	39.8%	25,492	14.2%	21,774	12.2%	18,206	10.2%	39,202	218,132
1993	11,880	5.5%	26,377	12.3%	13,914	6.5%	78,525	36.6%	31,925	14.9%	27,846	13.0%	23,975	11.2%	47,428	261,870
1994	11,065	5.4%	26,990	13.2%	13,418	6.5%	77,217	37.7%	31,028	15.1%	26,446	12.9%	18,872	9.2%	45,391	250,427
1995	11,153	5.7%	26,163	13.3%	15,895	8.1%	70,472	35.9%	27,491	14.0%	24,132	12.3%	20,960	10.7%	56,846	253,112
1996	11,916	5.7%	25,461	12.2%	16,446	7.9%	77,294	36.9%	31,861	15.2%	24,493	11.7%	21,721	10.4%	70,559	279,751
1997	13,406	6.1%	26,137	11.9%	15,179	6.9%	81,453	37.1%	33,152	15.1%	26,022	11.8%	24,379	11.1%	49,113	268,841
1998	16,817	6.0%	28,904	10.2%	20,247	7.2%	107,806	38.2%	46,570	16.5%	32,120	11.4%	30,055	10.6%	4,675	287,194
1999	14,906	5.4%	30,524	11.0%	19,370	7.0%	105,186	38.1%	46,131	16.7%	32,383	11.7%	27,850	10.1%	2,168	278,518
2000	13,259	5.1%	28,730	11.0%	17,812	6.8%	99,371	38.2%	44,757	17.2%	30,831	11.9%	25,370	9.8%	2,147	262,277
2001	13,958	5.0%	30,560	11.0%	17,601	6.3%	106,714	38.5%	48,967	17.6%	33,770	12.2%	25,899	9.3%	2,090	279,559
2002	13,613	4.1%	33,906	10.1%	18,637	5.6%	143,065	42.8%	58,424	17.5%	38,972	11.6%	27,947	8.4%	2,294	336,858
2003	13,628	4.0%	34,253	9.9%	18,370	5.3%	146,891	42.6%	62,304	18.1%	40,469	11.7%	28,665	8.3%	2,203	346,783
2004	14,399	3.9%	35,772	9.7%	20,004	5.4%	155,947	42.1%	69,232	18.7%	43,631	11.8%	31,535	8.5%	2,396	372,916
2005	15,150	3.9%	38,781	10.0%	20,658	5.3%	163,064	41.9%	71,869	18.5%	46,576	12.0%	33,423	8.6%	2,540	392,061
2006	16,372	4.0%	40,649	9.9%	20,639	5.0%	169,155	41.2%	79,182	19.3%	49,551	12.1%	34,664	8.5%	2,867	413,079
2007	16,632	4.1%	41,407	10.2%	20,740	5.1%	161,770	39.7%	81,599	20.0%	49,309	12.1%	35,662	8.8%	3,143	410,262
Total	217,550	4.8%	497,307	10.9%	279,078	6.1%	1,815,151	39.7%	789,984	17.3%	548,325	12.0%	429,183	9.4%	335,062	4,911,640

1 Row percent of cases with known region of residence
2 Unknown includes out of province

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.33 Number of HIV tests (unadjusted) and rate per 1,000 by year of test and health region, Ontario, 1992 to 2007

	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
Year	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**
1992	9,396	11.0	22,693	31.9	10,148	13.3	71,221	30.2	25,492	10.6	21,774	10.7	18,206	12.6	218,132	20.6
1993	11,880	13.9	26,377	36.4	13,914	17.9	78,525	33.2	31,925	13.0	27,846	13.6	23,975	16.5	261,870	24.5
1994	11,065	12.9	26,990	36.9	13,418	17.2	77,217	32.2	31,028	12.3	26,446	12.8	18,872	12.9	250,427	23.1
1995	11,153	13.0	26,163	35.5	15,895	20.2	70,472	29.0	27,491	10.6	24,132	11.5	20,960	14.2	253,112	23.1
1996	11,916	14.0	25,461	34.3	16,446	20.8	77,294	31.4	31,861	12.1	24,493	11.6	21,721	14.6	279,751	25.2
1997	13,406	15.8	26,137	35.0	15,179	19.2	81,453	32.7	33,152	12.2	26,022	12.1	24,379	16.3	268,841	23.9
1998	16,817	20.0	28,904	38.2	20,247	25.6	107,806	43.0	46,570	16.7	32,120	14.8	30,055	20.0	287,194	25.3
1999	14,906	17.9	30,524	39.7	19,370	24.4	105,186	41.6	46,131	16.1	32,383	14.7	27,850	18.4	278,518	24.2
2000	13,259	16.1	28,730	36.5	17,812	22.3	99,371	39.0	44,757	15.1	30,831	13.8	25,370	16.6	262,277	22.4
2001	13,958	17.0	30,560	37.9	17,601	21.9	106,714	41.2	48,967	16.0	33,770	14.9	25,899	16.8	279,559	23.5
2002	13,613	16.7	33,906	41.5	18,637	23.0	143,065	54.7	58,424	18.3	38,972	16.9	27,947	18.0	336,858	27.8
2003	13,628	16.8	34,253	41.5	18,370	22.5	146,891	56.2	62,304	18.9	40,469	17.4	28,665	18.3	346,783	28.3
2004	14,399	17.8	35,772	43.1	20,004	24.4	155,947	59.7	69,232	20.3	43,631	18.5	31,535	20.1	372,916	30.1
2005	15,150	18.8	38,781	46.6	20,658	25.1	163,064	62.5	71,869	20.5	46,576	19.5	33,423	21.2	392,061	31.3
2006	16,372	20.9	40,649	50.1	20,639	26.0	169,155	67.6	79,182	23.3	49,551	21.2	34,664	22.6	413,079	34.0
2007	16,632	20.8	41,407	48.9	20,740	25.3	161,770	61.0	81,599	22.2	49,309	20.3	35,662	22.5	410,262	32.0
Total	217,550	16.4	497,307	39.9	279,078	21.9	1,815,151	45.1	789,984	16.6	548,325	15.4	429,183	17.7	4,911,640	26.4

Data sources: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion
1992-2005 population estimates provided by Health Data and Decision Support Unit, Knowledge Management Branch, Ontario Ministry of Health and Long-Term Care
2006 census and 2007 population estimates provided by Statistics Canada

Table 1.34 Number and proportion[1] of HIV tests by year of test and type of identifier, Ontario, 1992 to 2007

Year	Nominal		Coded		Anonymous		Unknown		Total
	No.	%	No.	%	No.	%	No.	%	No.
1992	154,383	70.8%	42,690	19.6%	9,683	4.4%	11,376	5.2%	218,132
1993	199,198	76.1%	52,276	20.0%	10,379	4.0%	17	0.01%	261,870
1994	192,870	77.0%	48,630	19.4%	8,909	3.6%	18	0.01%	250,427
1995	190,581	75.3%	51,133	20.2%	11,305	4.5%	93	0.04%	253,112
1996	213,306	76.2%	53,417	19.1%	12,854	4.6%	174	0.06%	279,751
1997	208,877	77.7%	48,053	17.9%	11,458	4.3%	453	0.17%	268,841
1998	230,371	80.2%	45,138	15.7%	11,457	4.0%	228	0.08%	287,194
1999	228,487	82.0%	40,001	14.4%	9,942	3.6%	88	0.03%	278,518
2000	217,447	82.9%	35,072	13.4%	9,676	3.7%	82	0.03%	262,277
2001	236,327	84.5%	33,393	11.9%	9,664	3.5%	175	0.06%	279,559
2002	295,566	87.7%	31,290	9.3%	9,830	2.9%	172	0.05%	336,858
2003	308,016	88.8%	29,043	8.4%	9,671	2.8%	53	0.02%	346,783
2004	333,127	89.3%	29,327	7.9%	10,458	2.8%	4	0.0%	372,916
2005	351,084	89.5%	29,813	7.6%	11,156	2.8%	8	0.0%	392,061
2006	379,101	91.8%	25,248	6.1%	8,714	2.1%	16	0.0%	413,079
2007	382,487	93.2%	22,107	5.4%	5,644	1.4%	24	0.0%	410,262
Total[2]	4,121,228	83.9%	616,631	12.6%	160,800	3.3%	12,981	0.26%	4,911,640

1 Row percent
2 Total includes unknown sex, of whom 93,451 tested nominally, 62,440 coded, 3,479 anonymously and 3,399 unknown

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 1.35 Number and proportion[1] of HIV tests by sex, year of test and type of identifier, Ontario, 1992 to 2007

Year	Nominal		Coded		Anonymous		Unknown		Total
Males	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**
1992	71,251	70.7%	19,732	19.6%	5,731	5.7%	4,093	4.1%	100,807
1993	89,994	75.6%	23,163	19.4%	5,945	5.0%	5	0.0%	119,107
1994	84,942	76.1%	21,608	19.4%	5,082	4.6%	7	0.01%	111,639
1995	84,777	74.5%	22,565	19.8%	6,412	5.6%	17	0.01%	113,771
1996	91,013	75.5%	22,525	18.7%	7,001	5.8%	53	0.04%	120,592
1997	86,348	76.5%	20,046	17.8%	6,333	5.6%	125	0.11%	112,852
1998	88,405	78.4%	18,038	16.0%	6,262	5.6%	72	0.06%	112,777
1999	88,775	80.4%	15,959	14.5%	5,675	5.1%	33	0.03%	110,442
2000	90,792	82.0%	14,253	12.9%	5,617	5.1%	11	0.01%	110,673
2001	97,980	83.2%	14,107	12.0%	5,602	4.8%	47	0.04%	117,736
2002	125,124	86.4%	13,658	9.4%	5,930	4.1%	64	0.04%	144,776
2003	130,312	87.3%	13,065	8.8%	5,862	3.9%	9	0.01%	149,248
2004	141,817	87.7%	13,648	8.4%	6,259	3.9%	1	0.0%	161,725
2005	152,682	87.9%	14,174	8.2%	6,789	3.9%	2	0.0%	173,647
2006	164,794	90.5%	12,152	6.7%	5,062	2.8%	4	0.0%	182,012
2007	170,015	92.3%	11,013	6.0%	3,176	1.7%	3	0.0%	184,207
Total	1,759,021	82.7%	269,706	12.7%	92,738	4.4%	4,546	0.21%	2,126,011
Females									
1992	77,720	74.0%	18,913	18.0%	3,910	3.7%	4,445	4.2%	104,988
1993	104,359	78.8%	23,691	17.9%	4,404	3.3%	5	0.0%	132,459
1994	102,090	79.8%	22,074	17.2%	3,819	3.0%	2	0.0%	127,985
1995	102,047	78.1%	23,862	18.3%	4,747	3.6%	31	0.02%	130,687
1996	117,152	78.6%	26,163	17.6%	5,633	3.8%	69	0.05%	149,017
1997	117,847	80.8%	23,004	15.8%	4,863	3.3%	148	0.10%	145,862
1998	135,877	83.6%	21,851	13.4%	4,747	2.9%	107	0.07%	162,582
1999	132,367	85.3%	18,980	12.2%	3,875	2.5%	46	0.03%	155,268
2000	120,642	85.8%	16,155	11.5%	3,755	2.7%	17	0.01%	140,569
2001	131,787	87.5%	15,108	10.0%	3,698	2.5%	56	0.04%	150,649
2002	164,986	90.2%	14,180	7.8%	3,607	2.0%	82	0.04%	182,855
2003	172,716	91.2%	13,142	6.9%	3,484	1.8%	22	0.01%	189,364
2004	185,375	91.6%	13,040	6.4%	3,869	1.9%	0	0.0%	202,284
2005	192,408	91.6%	13,566	6.5%	4,168	2.0%	2	0.0%	210,144
2006	206,448	93.3%	11,279	5.1%	3,588	1.6%	2	0.0%	221,317
2007	204,935	94.5%	9,477	4.4%	2,416	1.1%	2	0.0%	216,830
Total	2,268,756	86.5%	284,485	10.8%	64,583	2.5%	5,036	0.19%	2,622,860

1 Row percent

Data source: HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 2.1 Number of AIDS cases by year of AIDS diagnosis and sex, Ontario, 1981 to 2007

Year of diagnosis	Males	Females		Total	Total (adjusted[2])	95% Confidence interval[3]	
	No.	No.	% females[1]	No.	No.	Lower	Upper
1981	2	1	33.3%	3	3	3	3
1982	8	0	0.0%	8	8	8	8
1983	20	0	0.0%	20	20	20	20
1984	58	1	1.7%	59	59	59	59
1985	160	2	1.2%	162	162	162	162
1986	259	4	1.5%	263	264	261	267
1987	399	18	4.3%	417	419	415	423
1988	452	16	3.4%	468	470	465	474
1989	524	19	3.5%	543	545	540	550
1990	614	30	4.7%	644	647	641	653
1991	595	36	5.7%	631	635	629	642
1992	696	40	5.4%	736	744	736	753
1993	702	39	5.3%	741	751	742	760
1994	629	52	7.6%	681	694	685	703
1995	607	53	8.0%	660	680	669	691
1996	392	61	13.5%	453	471	461	480
1997	240	33	12.1%	273	287	279	295
1998	202	43	17.6%	245	260	251	268
1999	183	33	15.3%	216	231	223	240
2000	146	26	15.1%	172	187	179	195
2001	168	36	17.6%	204	224	215	234
2002	152	34	18.3%	186	208	198	218
2003	167	46	21.6%	213	245	233	257
2004	148	41	21.7%	189	226	212	239
2005	153	43	21.9%	196	251	234	267
2006	100	31	23.7%	131	192	174	211
2007	108	21	16.3%	129	323	279	368
Total	**7,884**	**759**	**8.8%**	**8,643**	**9,207**	**8,972**	**9,441**

1 Row percent
2 Number of AIDS cases adjusted for reporting delays
3 95% confidence interval on adjusted total

Data source: Ontario Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.2 Number and proportion[1] of AIDS cases by exposure category and sex, Ontario, 1981 to 2007

Exposure category	Males		Females		Total	
	No.	%	No.	%	No.	%
MSM	5583	70.8%	--	--	5,583	64.6%
MSM-IDU	321	4.1%	--	--	321	3.7%
IDU	297	3.8%	101	13.3%	398	4.6%
HIV-endemic	356	4.5%	226	29.8%	582	6.7%
Heterosexual	488	6.2%	246	32.4%	734	8.5%
Clotting factor	109	1.4%	9	1.2%	118	1.4%
Transfusion	83	1.1%	49	6.5%	132	1.5%
MTC	28	0.36%	31	4.1%	59	0.68%
Occupational	5	0.06%	2	0.26%	7	0.08%
NIR	614	7.8%	95	12.5%	709	8.2%
Total	**7,884**	**100%**	**759**	**100%**	**8,643**	**100%**

1 Column percent

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission, NIR=no identified risk, including “other” and “ unknown “

Data source: Ontario Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.3 Number and proportion[1] of AIDS cases (adjusted[2]) by exposure category and sex, Ontario, 1981 to 2007

Exposure category	Males		Females		Total	
	No.	%	No.	%	No.	%
MSM	5,986	75.9%	--	--	5,986	69.3%
MSM-IDU	349	4.4%	--	--	349	4.0%
IDU	345	4.4%	120	15.8%	465	5.4%
HIV-endemic	402	5.1%	262	34.5%	665	7.7%
Heterosexual	557	7.1%	281	37.0%	838	9.7%
Clotting factor	121	1.5%	10	1.3%	131	1.5%
Transfusion	90	1.1%	54	7.1%	144	1.7%
MTC	28	0.36%	31	4.1%	59	0.68%
Occupational	5	0.07%	2	0.27%	7	0.09%
Total	**7,884**	**100%**	**759**	**100%**	**8,643**	**100%**

1 Column percent
2 Adjusted unknown exposure category based on proportion among the known cases stratified by sex, health region and year of Diagnosis; thus, total may differ slightly due to rounding

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs

Data source: Ontario Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.4 Number and proportion[1] of AIDS cases by year of AIDS diagnosis and exposure category, Ontario, 1981 to 2007

Year of AIDS diagnosis	MSM		MSM-IDU		IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		NIR		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1981	2	66.7%	0	0.0%	0	0.0%	1	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
1982	6	75.0%	0	0.0%	0	0.0%	0	0.0%	1	12.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	12.5%	8
1983	14	70.0%	3	15.0%	0	0.0%	1	5.0%	0	0.0%	1	5.0%	0	0.0%	0	0.0%	0	0.0%	1	5.0%	20
1984	48	81.4%	4	6.8%	1	1.7%	1	1.7%	2	3.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	5.1%	59
1985	137	84.6%	6	3.7%	1	0.62%	3	1.9%	2	1.2%	2	1.2%	3	1.9%	0	0.0%	0	0.0%	8	4.9%	162
1986	219	83.3%	9	3.4%	1	0.38%	6	2.3%	1	0.38%	2	0.76%	5	1.9%	0	0.0%	0	0.0%	20	7.6%	263
1987	331	79.4%	18	4.3%	8	1.9%	7	1.7%	10	2.4%	5	1.2%	18	4.3%	1	0.24%	0	0.0%	19	4.6%	417
1988	375	80.1%	18	3.8%	7	1.5%	5	1.1%	17	3.6%	6	1.3%	19	4.1%	4	0.85%	0	0.0%	17	3.6%	468
1989	428	78.8%	20	3.7%	16	2.9%	12	2.2%	28	5.2%	4	0.74%	13	2.4%	1	0.18%	1	0.18%	20	3.7%	543
1990	484	75.2%	21	3.3%	18	2.8%	18	2.8%	43	6.7%	16	2.5%	6	0.93%	1	0.16%	1	0.16%	36	5.6%	644
1991	462	73.2%	21	3.3%	21	3.3%	21	3.3%	34	5.4%	18	2.9%	9	1.4%	3	0.48%	0	0.0%	42	6.7%	631
1992	521	70.8%	32	4.3%	32	4.3%	22	3.0%	56	7.6%	16	2.2%	15	2.0%	5	0.68%	0	0.0%	37	5.0%	736
1993	513	69.2%	31	4.2%	25	3.4%	24	3.2%	63	8.5%	12	1.6%	8	1.1%	6	0.81%	1	0.13%	58	7.8%	741
1994	464	68.1%	37	5.4%	32	4.7%	25	3.7%	53	7.8%	9	1.3%	8	1.2%	6	0.88%	0	0.0%	47	6.9%	681
1995	422	63.9%	36	5.5%	37	5.6%	29	4.4%	71	10.8%	11	1.7%	8	1.2%	10	1.5%	0	0.0%	36	5.5%	660
1996	264	58.3%	20	4.4%	30	6.6%	51	11.3%	53	11.7%	4	0.88%	3	0.66%	5	1.1%	1	0.22%	22	4.9%	453
1997	152	55.7%	6	2.2%	18	6.6%	32	11.7%	31	11.4%	6	2.2%	3	1.1%	2	0.73%	1	0.37%	22	8.1%	273
1998	123	50.2%	6	2.4%	19	7.8%	33	13.5%	37	15.1%	3	1.2%	2	0.82%	2	0.82%	1	0.41%	19	7.8%	245
1999	107	49.5%	6	2.8%	18	8.3%	30	13.9%	19	8.8%	0	0.0%	3	1.4%	2	0.93%	0	0.0%	31	14.4%	216
2000	75	43.6%	6	3.5%	17	9.9%	19	11.0%	29	16.9%	2	1.2%	3	1.7%	2	1.2%	0	0.0%	19	11.0%	172
2001	81	39.7%	3	1.5%	19	9.3%	37	18.1%	36	17.6%	1	0.49%	2	0.98%	1	0.49%	1	0.49%	23	11.3%	204
2002	66	35.5%	2	1.1%	16	8.6%	40	21.5%	25	13.4%	0	0.0%	2	1.1%	1	0.54%	0	0.0%	34	18.3%	186
2003	73	34.3%	5	2.3%	18	8.5%	40	18.8%	36	16.9%	0	0.0%	1	0.47%	1	0.47%	0	0.0%	39	18.3%	213
2004	66	34.9%	6	3.2%	15	7.9%	34	18.0%	29	15.3%	0	0.0%	1	0.53%	2	1.1%	0	0.0%	36	19.0%	189
2005	57	29.1%	2	1.0%	14	7.1%	36	18.4%	27	13.8%	0	0.0%	0	0.0%	3	1.5%	0	0.0%	57	29.1%	196
2006	47	35.9%	1	0.76%	7	5.3%	31	23.7%	16	12.2%	0	0.0%	0	0.0%	1	0.76%	0	0.0%	28	21.4%	131
2007	46	35.7%	2	1.6%	8	6.2%	24	18.6%	15	11.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	34	26.4%	129
Total	**5,583**	**64.6%**	**321**	**3.7%**	**398**	**4.6%**	**582**	**6.7%**	**734**	**8.5%**	**118**	**1.4%**	**132**	**1.5%**	**59**	**0.68%**	**7**	**0.08%**	**709**	**8.2%**	**8,643**

1 Row percent

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission, NIR=no identified risk, including “other” and “ unknown “

Data source: Ontario Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.4a Number and proportion[1] of AIDS cases among males by year of AIDS diagnosis and exposure category, Ontario, 1981 to 2007

Year of AIDS diagnosis	MSM		MSM-IDU		IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		NIR		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1981	2	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2
1982	6	75.0%	0	0.0%	0	0.0%	0	0.0%	1	12.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	12.5%	8
1983	14	70.0%	3	15.0%	0	0.0%	1	5.0%	0	0.0%	1	5.0%	0	0.0%	0	0.0%	0	0.0%	1	5.0%	20
1984	48	82.8%	4	6.9%	0	0.0%	1	1.7%	2	3.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	5.2%	58
1985	137	85.6%	6	3.8%	1	0.63%	2	1.3%	2	1.3%	2	1.3%	2	1.3%	0	0.0%	0	0.0%	8	5.0%	160
1986	219	84.6%	9	3.5%	1	0.39%	5	1.9%	1	0.39%	1	0.39%	5	1.9%	0	0.0%	0	0.0%	18	6.9%	259
1987	331	83.0%	18	4.5%	7	1.8%	4	1.0%	7	1.8%	4	1.0%	11	2.8%	0	0.0%	0	0.0%	17	4.3%	399
1988	375	83.0%	18	4.0%	5	1.1%	4	0.88%	13	2.9%	6	1.3%	12	2.7%	3	0.66%	0	0.0%	16	3.5%	452
1989	428	81.7%	20	3.8%	13	2.5%	9	1.7%	22	4.2%	3	0.57%	8	1.5%	0	0.0%	1	0.19%	20	3.8%	524
1990	484	78.8%	21	3.4%	14	2.3%	11	1.8%	33	5.4%	16	2.6%	2	0.33%	0	0.0%	0	0.0%	33	5.4%	614
1991	462	77.6%	21	3.5%	17	2.9%	13	2.2%	20	3.4%	17	2.9%	4	0.67%	1	0.17%	0	0.0%	40	6.7%	595
1992	521	74.9%	32	4.6%	23	3.3%	14	2.0%	42	6.0%	15	2.2%	12	1.7%	3	0.43%	0	0.0%	34	4.9%	696
1993	513	73.1%	31	4.4%	21	3.0%	18	2.6%	45	6.4%	12	1.7%	4	0.57%	3	0.43%	1	0.14%	54	7.7%	702
1994	464	73.8%	37	5.9%	24	3.8%	15	2.4%	30	4.8%	8	1.3%	7	1.1%	2	0.32%	0	0.0%	42	6.7%	629
1995	422	69.5%	36	5.9%	28	4.6%	21	3.5%	47	7.7%	10	1.6%	3	0.49%	4	0.66%	0	0.0%	36	5.9%	607
1996	264	67.3%	20	5.1%	22	5.6%	27	6.9%	28	7.1%	4	1.0%	2	0.51%	4	1.0%	1	0.26%	20	5.1%	392
1997	152	63.3%	6	2.5%	15	6.3%	20	8.3%	19	7.9%	4	1.7%	1	0.42%	2	0.83%	1	0.42%	20	8.3%	240
1998	123	60.9%	6	3.0%	10	5.0%	21	10.4%	20	9.9%	3	1.5%	2	0.99%	0	0.0%	0	0.0%	17	8.4%	202
1999	107	58.5%	6	3.3%	12	6.6%	15	8.2%	14	7.7%	0	0.0%	1	0.55%	1	0.55%	0	0.0%	27	14.8%	183
2000	75	51.4%	6	4.1%	12	8.2%	15	10.3%	19	13.0%	2	1.4%	3	2.1%	0	0.0%	0	0.0%	14	9.6%	146
2001	81	48.2%	3	1.8%	18	10.7%	18	10.7%	27	16.1%	1	0.60%	1	0.60%	0	0.0%	1	0.60%	18	10.7%	168
2002	66	43.4%	2	1.3%	12	7.9%	23	15.1%	20	13.2%	0	0.0%	1	0.66%	1	0.66%	0	0.0%	27	17.8%	152
2003	73	43.7%	5	3.0%	13	7.8%	24	14.4%	24	14.4%	0	0.0%	1	0.60%	0	0.0%	0	0.0%	27	16.2%	167
2004	66	44.6%	6	4.1%	9	6.1%	21	14.2%	16	10.8%	0	0.0%	1	0.68%	1	0.68%	0	0.0%	28	18.9%	148
2005	57	37.3%	2	1.3%	8	5.2%	22	14.4%	17	11.1%	0	0.0%	0	0.0%	2	1.3%	0	0.0%	45	29.4%	153
2006	47	47.0%	1	1.0%	4	4.0%	19	19.0%	8	8.0%	0	0.0%	0	0.0%	1	1.0%	0	0.0%	20	20.0%	100
2007	46	42.6%	2	1.9%	8	7.4%	13	12.0%	11	10.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	28	25.9%	108
Total	**5,583**	**70.8%**	**321**	**4.1%**	**297**	**3.8%**	**356**	**4.5%**	**488**	**6.2%**	**109**	**1.4%**	**83**	**1.1%**	**28**	**0.36%**	**5**	**0.06%**	**614**	**7.8%**	**7,884**

1 Row percent

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission, NIR=no identified risk, including “other” and “ unknown “

Data source: Ontario Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.4b Number and proportion[1] of AIDS cases among females by year of AIDS diagnosis and exposure category, Ontario, 1981 to 2007

Year of AIDS diagnosis	IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		NIR		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1981	0	0.0%	1	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
1982	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
1983	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
1984	1	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
1985	0	0.0%	1	50.0%	0	0.0%	0	0.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	2
1986	0	0.0%	1	25.0%	0	0.0%	1	25.0%	0	0.0%	0	0.0%	0	0.0%	2	50.0%	4
1987	1	5.6%	3	16.7%	3	16.7%	1	5.6%	7	38.9%	1	5.6%	0	0.0%	2	11.1%	18
1988	2	12.5%	1	6.3%	4	25.0%	0	0.0%	7	43.8%	1	6.3%	0	0.0%	1	6.3%	16
1989	4	18.2%	3	13.6%	7	31.8%	1	4.5%	5	22.7%	1	4.5%	0	0.0%	1	4.5%	22
1990	4	13.3%	7	23.3%	10	33.3%	0	0.0%	5	16.7%	1	3.3%	1	3.3%	2	6.7%	30
1991	4	11.4%	8	22.9%	14	40.0%	1	2.9%	4	11.4%	2	5.7%	0	0.0%	2	5.7%	35
1992	9	23.1%	8	20.5%	13	33.3%	1	2.6%	3	7.7%	2	5.1%	0	0.0%	3	7.7%	39
1993	3	7.9%	6	15.8%	18	47.4%	0	0.0%	4	10.5%	3	7.9%	0	0.0%	4	10.5%	38
1994	8	14.8%	10	18.5%	24	44.4%	1	1.9%	2	3.7%	4	7.4%	0	0.0%	5	9.3%	54
1995	10	18.5%	9	16.7%	24	44.4%	1	1.9%	4	7.4%	6	11.1%	0	0.0%	0	0.0%	54
1996	7	11.9%	24	40.7%	24	40.7%	0	0.0%	1	1.7%	1	1.7%	0	0.0%	2	3.4%	59
1997	4	11.8%	11	32.4%	13	38.2%	2	5.9%	2	5.9%	0	0.0%	0	0.0%	2	5.9%	34
1998	8	19.5%	12	29.3%	16	39.0%	0	0.0%	0	0.0%	2	4.9%	1	2.4%	2	4.9%	41
1999	6	17.6%	15	44.1%	6	17.6%	0	0.0%	2	5.9%	1	2.9%	0	0.0%	4	11.8%	34
2000	5	18.5%	5	18.5%	9	33.3%	0	0.0%	0	0.0%	2	7.4%	0	0.0%	6	22.2%	27
2001	1	2.9%	18	52.9%	9	26.5%	0	0.0%	1	2.9%	1	2.9%	0	0.0%	4	11.8%	34
2002	5	13.2%	18	47.4%	6	15.8%	0	0.0%	1	2.6%	0	0.0%	0	0.0%	8	21.1%	38
2003	4	9.5%	15	35.7%	11	26.2%	0	0.0%	0	0.0%	1	2.4%	0	0.0%	11	26.2%	42
2004	7	16.7%	13	31.0%	13	31.0%	0	0.0%	0	0.0%	1	2.4%	0	0.0%	8	19.0%	42
2005	5	11.6%	14	32.6%	10	23.3%	0	0.0%	0	0.0%	1	2.3%	0	0.0%	13	30.2%	43
2006	3	10.0%	12	40.0%	8	26.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	7	23.3%	30
2007	0	0.0%	11	52.4%	4	19.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	6	28.6%	21
Total	**101**	**13.3%**	**226**	**29.8%**	**246**	**32.4%**	**9**	**1.2%**	**49**	**6.5%**	**31**	**4.1%**	**2**	**0.26%**	**95**	**12.5%**	**759**

1 Row percent

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission, NIR=no identified risk, including “other” and “ unknown “

Data source: Ontario Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.5 Number and proportion[1] of AIDS cases (adjusted[2]) by year of AIDS diagnosis and exposure category, Ontario, 1981 to 2007

Year of AIDS diagnosis	MSM		MSM-IDU		IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1981	2	66.7%	0	0.0%	0	0.0%	1	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
1982	7	85.7%	0	0.56%	0	0.22%	0	0.32%	1	13.0%	0	0.07%	0	0.10%	0	0.0%	0	0.0%	8
1983	15	73.2%	3	15.4%	0	0.72%	1	5.0%	0	0.22%	1	5.3%	0	0.22%	0	0.0%	0	0.0%	20
1984	50	85.4%	4	7.0%	1	1.9%	1	1.8%	2	3.7%	0	0.12%	0	0.05%	0	0.0%	0	0.0%	59
1985	143	88.4%	6	3.9%	1	0.84%	3	2.0%	2	1.5%	2	1.3%	3	1.9%	0	0.0%	0	0.0%	162
1986	233	88.7%	10	3.8%	2	0.89%	7	2.6%	3	1.0%	2	0.92%	6	2.2%	0	0.0%	0	0.0%	263
1987	344	82.5%	19	4.6%	9	2.2%	8	1.9%	12	2.8%	6	1.3%	19	4.5%	1	0.24%	0	0.0%	417
1988	387	82.7%	19	4.0%	8	1.7%	5	1.2%	19	4.0%	7	1.4%	19	4.2%	4	0.85%	0	0.0%	468
1989	444	81.3%	21	3.9%	18	3.3%	13	2.3%	30	5.6%	4	0.82%	13	2.5%	1	0.18%	1	0.18%	546
1990	510	79.1%	23	3.5%	20	3.1%	19	2.9%	46	7.2%	17	2.6%	8	1.2%	1	0.16%	1	0.16%	644
1991	492	78.2%	23	3.7%	23	3.7%	22	3.5%	37	5.9%	19	3.1%	9	1.4%	3	0.48%	0	0.0%	630
1992	547	74.4%	34	4.6%	34	4.6%	24	3.3%	58	7.9%	17	2.3%	16	2.2%	5	0.68%	0	0.0%	735
1993	555	75.0%	34	4.6%	27	3.7%	26	3.5%	68	9.2%	14	1.8%	9	1.3%	6	0.81%	1	0.14%	740
1994	497	72.7%	39	5.8%	34	5.0%	27	4.0%	59	8.6%	10	1.5%	10	1.5%	6	0.88%	0	0.0%	683
1995	449	68.0%	38	5.8%	40	6.0%	31	4.6%	73	11.1%	12	1.9%	8	1.2%	10	1.5%	0	0.0%	661
1996	279	61.9%	21	4.6%	30	6.7%	52	11.5%	55	12.1%	5	1.0%	4	0.83%	5	1.1%	1	0.23%	451
1997	164	59.9%	7	2.4%	22	8.1%	33	12.1%	35	12.9%	6	2.3%	3	1.2%	2	0.73%	1	0.38%	274
1998	132	54.5%	7	2.7%	21	8.5%	35	14.4%	40	16.3%	3	1.4%	2	0.94%	2	0.82%	1	0.42%	243
1999	122	56.2%	7	3.2%	22	10.2%	34	15.4%	26	12.1%	1	0.37%	3	1.5%	2	0.92%	0	0.0%	217
2000	84	48.5%	7	3.8%	20	11.7%	23	13.4%	32	18.5%	2	1.2%	3	1.9%	2	1.2%	0	0.0%	173
2001	91	45.2%	4	1.8%	22	11.0%	39	19.2%	40	19.8%	1	0.68%	2	1.1%	1	0.50%	1	0.51%	202
2002	77	40.7%	4	2.0%	22	11.7%	49	25.7%	35	18.2%	0	0.0%	2	1.2%	1	0.53%	0	0.0%	190
2003	85	40.4%	7	3.1%	22	10.6%	47	22.6%	46	22.0%	0	0.0%	1	0.72%	1	0.48%	0	0.0%	209
2004	77	40.8%	8	4.1%	20	10.7%	42	22.3%	38	20.2%	0	0.0%	2	0.80%	2	1.1%	0	0.0%	190
2005	80	41.0%	3	1.4%	23	11.6%	50	25.5%	37	19.0%	0	0.0%	0	0.0%	3	1.5%	0	0.0%	196
2006	57	44.1%	1	0.90%	10	7.4%	40	31.0%	21	15.8%	0	0.0%	0	0.0%	1	0.77%	0	0.0%	130
2007	61	46.9%	2	1.8%	12	9.1%	33	25.4%	22	16.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	129
Total	**5,986**	**69.3%**	**349**	**4.0%**	**465**	**5.4%**	**665**	**7.7%**	**838**	**9.7%**	**131**	**1.5%**	**144**	**1.7%**	**59**	**0.68%**	**7**	**0.09%**	**8,643**

1 Row percent
2 Adjusted unknown exposure category based on proportion among the known cases stratified by sex, health region and year of diagnosis; thus, totals may differ due to rounding
Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission

Data source: Ontario Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.5a Number and proportion[1] of AIDS cases (adjusted[2]) among males by year of AIDS diagnosis and exposure category, Ontario, 1981 to 2007

Year of AIDS diagnosis	MSM		MSM-IDU		IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1981	2	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2
1982	7	85.7%	0	0.56%	0	0.22%	0	0.32%	1	13.0%	0	0.07%	0	0.10%	0	0.0%	0	0.0%	8
1983	15	73.2%	3	15.4%	0	0.72%	1	5.0%	0	0.22%	1	5.3%	0	0.22%	0	0.0%	0	0.0%	20
1984	50	86.9%	4	7.1%	0	0.22%	1	1.8%	2	3.8%	0	0.12%	0	0.05%	0	0.0%	0	0.0%	58
1985	143	89.6%	6	4.0%	1	0.85%	2	1.4%	2	1.5%	2	1.4%	2	1.3%	0	0.0%	0	0.0%	160
1986	233	90.0%	10	3.8%	2	0.63%	5	2.1%	2	0.82%	1	0.55%	5	2.1%	0	0.0%	0	0.0%	259
1987	344	86.2%	19	4.8%	8	1.9%	4	1.1%	8	2.0%	5	1.1%	11	2.8%	0	0.0%	0	0.0%	399
1988	387	85.7%	19	4.2%	6	1.2%	4	0.96%	14	3.1%	7	1.4%	12	2.7%	3	0.66%	0	0.0%	452
1989	444	84.7%	21	4.0%	14	2.6%	9	1.8%	23	4.4%	3	0.66%	8	1.6%	0	0.0%	1	0.19%	524
1990	510	83.0%	23	3.7%	15	2.5%	12	1.9%	35	5.7%	17	2.8%	3	0.43%	0	0.0%	0	0.0%	614
1991	492	82.7%	23	3.9%	19	3.2%	14	2.3%	23	3.8%	18	3.1%	5	0.80%	1	0.17%	0	0.0%	595
1992	547	78.6%	34	4.9%	24	3.5%	15	2.1%	44	6.3%	16	2.3%	12	1.8%	3	0.43%	0	0.0%	696
1993	555	79.1%	34	4.8%	23	3.3%	19	2.7%	48	6.9%	14	1.9%	5	0.70%	3	0.43%	1	0.15%	702
1994	497	78.9%	39	6.3%	26	4.1%	16	2.5%	33	5.2%	9	1.5%	8	1.2%	2	0.32%	0	0.0%	629
1995	449	74.0%	38	6.3%	30	4.9%	22	3.6%	49	8.1%	11	1.9%	4	0.61%	4	0.66%	0	0.0%	607
1996	279	71.2%	21	5.3%	23	5.8%	27	7.0%	30	7.6%	5	1.2%	2	0.62%	4	1.0%	1	0.26%	392
1997	164	68.4%	7	2.8%	17	7.2%	22	9.1%	22	9.0%	4	1.8%	1	0.49%	2	0.83%	1	0.43%	240
1998	132	65.6%	7	3.2%	12	6.1%	22	11.1%	23	11.3%	3	1.7%	2	1.1%	0	0.0%	0	0.01%	202
1999	122	66.7%	7	3.8%	15	8.3%	17	9.3%	19	10.3%	1	0.42%	1	0.67%	1	0.55%	0	0.0%	183
2000	84	57.4%	7	4.5%	14	9.5%	17	11.3%	20	13.7%	2	1.4%	3	2.1%	0	0.0%	0	0.0%	146
2001	91	54.4%	4	2.2%	21	12.4%	19	11.4%	29	17.5%	1	0.80%	1	0.66%	0	0.0%	1	0.61%	168
2002	77	50.9%	4	2.5%	15	9.9%	28	18.2%	26	17.1%	0	0.0%	1	0.77%	1	0.66%	0	0.0%	152
2003	85	50.6%	7	3.9%	16	9.6%	28	16.9%	31	18.3%	0	0.0%	1	0.67%	0	0.0%	0	0.0%	167
2004	77	52.4%	8	5.2%	12	8.3%	26	17.4%	22	15.2%	0	0.0%	1	0.86%	1	0.68%	0	0.0%	148
2005	80	52.5%	3	1.7%	14	9.2%	30	19.6%	24	15.6%	0	0.0%	0	0.0%	2	1.3%	0	0.0%	153
2006	57	57.4%	1	1.2%	6	6.2%	24	23.6%	11	10.7%	0	0.0%	0	0.0%	1	1.0%	0	0.0%	100
2007	61	56.1%	2	2.2%	11	10.5%	18	16.8%	16	14.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	108
Total	**5,986**	**75.9%**	**349**	**4.4%**	**345**	**4.4%**	**402**	**5.1%**	**557**	**7.1%**	**121**	**1.5%**	**90**	**1.1%**	**28**	**0.36%**	**5**	**0.07%**	**7,884**

1 Row percent
2 Adjusted unknown exposure category based on proportion among the known cases stratified by sex, health region and year of diagnosis; thus, totals may differ due to rounding
Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission

Data source: Ontario Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to September 2007)

Table 2.5b Number and proportion[1] of AIDS cases (adjusted[2]) among females by year of AIDS diagnosis and exposure category, Ontario, 1981 to 2007

Year of AIDS diagnosis	IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1981	0	0.0%	1	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
1982	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
1983	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
1984	1	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
1985	0	0.0%	1	50.0%	0	0.0%	0	0.0%	1	50.0%	0	0.0%	0	0.0%	2
1986	1	17.7%	1	34.4%	1	14.1%	1	25.0%	0	8.9%	0	0.0%	0	0.0%	4
1987	1	8.3%	4	19.9%	4	20.2%	1	5.6%	7	40.4%	1	5.6%	0	0.0%	18
1988	2	13.3%	1	6.8%	5	28.3%	0	0.51%	7	44.9%	1	6.3%	0	0.0%	16
1989	4	19.9%	3	14.2%	7	33.2%	1	4.5%	5	23.6%	1	4.5%	0	0.0%	22
1990	4	14.2%	7	23.8%	11	37.3%	0	0.27%	5	17.7%	1	3.3%	1	3.3%	30
1991	4	12.3%	8	24.1%	15	42.6%	1	3.1%	4	12.2%	2	5.7%	0	0.0%	35
1992	9	24.2%	9	23.7%	14	35.8%	1	2.6%	3	8.5%	2	5.1%	0	0.14%	39
1993	4	10.0%	7	18.4%	20	51.4%	0	0.3%	5	12.0%	3	7.9%	0	0.0%	38
1994	9	16.4%	11	20.5%	26	48.8%	1	1.9%	3	5.0%	4	7.4%	0	0.1%	54
1995	10	18.5%	9	16.7%	24	44.4%	1	1.9%	4	7.4%	6	11.1%	0	0.0%	54
1996	7	12.4%	24	41.4%	25	42.2%	0	0.16%	1	2.2%	1	1.7%	0	0.0%	59
1997	5	14.1%	11	33.3%	14	40.7%	2	5.9%	2	6.0%	0	0.0%	0	0.0%	34
1998	8	20.2%	13	30.7%	17	41.4%	0	0.0%	0	0.40%	2	4.9%	1	2.4%	41
1999	7	20.8%	16	48.3%	7	21.7%	0	0.09%	2	6.2%	1	2.9%	0	0.0%	34
2000	6	23.4%	7	24.7%	12	44.0%	0	0.11%	0	0.40%	2	7.4%	0	0.0%	27
2001	1	4.0%	20	58.1%	11	31.5%	0	0.09%	1	3.4%	1	2.9%	0	0.0%	34
2002	7	18.7%	21	55.6%	9	22.7%	0	0.0%	1	3.0%	0	0.0%	0	0.0%	38
2003	6	14.8%	19	45.3%	15	36.7%	0	0.0%	0	0.89%	1	2.4%	0	0.0%	42
2004	8	19.3%	17	39.6%	16	38.1%	0	0.0%	0	0.60%	1	2.4%	0	0.0%	42
2005	9	20.3%	20	46.2%	13	31.1%	0	0.0%	0	0.0%	1	2.3%	0	0.0%	43
2006	3	11.6%	17	55.6%	10	32.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	30
2007	0	2.4%	15	69.3%	6	28.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	21
Total	**120**	**15.8%**	**262**	**34.5%**	**281**	**37.0%**	**10**	**1.3%**	**54**	**7.1%**	**31**	**4.1%**	**2**	**0.27%**	**759**

1 Row percent
2 Adjusted unknown exposure category based on proportion among the known cases stratified by sex, health region and year of diagnosis; thus, totals may differ due to rounding
Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission

Data source: Ontario Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.6 Number of AIDS cases and cumulative incidence rate (per 100,000) by age at diagnosis and sex, Ontario, 1981 to 2007

Age group (years)	Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate
<15	50	4.3	44	4.0	94	4.2
15-19	18	4.9	7	2.0	25	3.5
20-24	229	60.8	38	10.3	267	35.8
25-29	933	227.4	130	31.5	1,063	129.1
30-34	1,665	334.0	168	34.1	1,833	184.8
35-39	1,695	350.6	120	24.6	1,815	186.8
40-44	1,394	328.1	103	23.4	1,497	173.2
45-49	888	227.0	52	13.1	940	119.1
50-54	482	159.8	26	8.5	508	83.5
55-59	268	108.6	29	11.4	297	59.3
60-64	145	64.5	15	6.4	160	34.9
65-69	71	34.6	12	5.3	83	19.3
70+	41	11.1	15	2.7	56	6.1
Unknown	5		0		5	
Total	**7,884**	**144.4**	**759**	**13.5**	**8,643**	**78.0**

Data sources: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)
Statistics Canada (1996 census)

Table 2.7 Number of AIDS cases and incidence rate per 100,000 by age at AIDS diagnosis and sex, Ontario, 2007

Age group (years)	Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate
<15	1	0.09	0	0.00	1	0.05
15-19	0	0.00	0	0.00	0	0.00
20-24	1	0.25	1	0.25	2	0.25
25-29	2	0.55	5	1.30	7	0.94
30-34	9	2.36	5	1.22	14	1.77
35-39	14	3.25	4	0.88	18	2.04
40-44	31	6.11	4	0.76	35	3.39
45-49	19	3.91	0	0.00	19	1.92
50-54	14	3.31	0	0.00	14	1.61
55-59	8	2.11	2	0.51	10	1.29
60-64	3	1.06	0	0.00	3	0.52
65-69	4	1.80	0	0.00	4	0.86
70+	2	0.40	0	0.00	2	0.17
Total	**108**	**1.82**	**21**	**0.34**	**129**	**1.06**

Data sources: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)
Statistics Canada (2006 census)

Table 2.8 Number and proportion[1] of AIDS cases by age at diagnosis and exposure category, Ontario, 1981 to 2007

Age group (years)	MSM		MSM-IDU		IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		NIR		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<15	0	0.0%	0	0.0%	0	0.0%	5	0.86%	0	0.0%	5	4.2%	7	5.3%	59	100%	0	0.0%	18	2.5%	94	1.1%
15-19	7	0.13%	1	0.31%	1	0.25%	3	0.52%	1	0.14%	5	4.2%	4	3.0%	0	0.0%	0	0.0%	3	0.42%	25	0.29%
20-24	137	2.5%	16	5.0%	18	4.5%	21	3.6%	23	3.1%	14	11.9%	7	5.3%	0	0.0%	0	0.0%	31	4.4%	267	3.1%
25-29	649	11.6%	68	21.3%	61	15.3%	86	14.8%	92	12.5%	17	14.4%	8	6.1%	0	0.0%	0	0.0%	82	11.6%	1,063	12.3%
30-34	1,213	21.7%	89	27.8%	109	27.4%	137	23.5%	135	18.4%	13	11.0%	15	11.4%	0	0.0%	0	0.0%	122	17.3%	1,833	21.2%
35-39	1,262	22.6%	66	20.6%	90	22.6%	124	21.3%	119	16.2%	19	16.1%	10	7.6%	0	0.0%	2	28.6%	123	17.4%	1,815	21.0%
40-44	1,016	18.2%	46	14.4%	65	16.3%	94	16.2%	129	17.6%	8	6.8%	12	9.1%	0	0.0%	1	14.3%	126	17.8%	1,497	17.3%
45-49	646	11.6%	18	5.6%	35	8.8%	55	9.5%	86	11.7%	15	12.7%	7	5.3%	0	0.0%	1	14.3%	77	10.9%	940	10.9%
50-54	328	5.9%	9	2.8%	14	3.5%	30	5.2%	57	7.8%	7	5.9%	8	6.1%	0	0.0%	1	14.3%	54	7.6%	508	5.9%
55-59	185	3.3%	4	1.3%	3	0.75%	13	2.2%	42	5.7%	5	4.2%	11	8.3%	0	0.0%	1	14.3%	33	4.7%	297	3.4%
60-64	93	1.7%	2	0.63%	2	0.50%	3	0.52%	26	3.5%	4	3.4%	13	9.8%	0	0.0%	0	0.0%	17	2.4%	160	1.9%
65-69	33	0.59%	1	0.31%	0	0.0%	8	1.4%	11	1.5%	1	0.85%	17	12.9%	0	0.0%	1	14.3%	11	1.6%	83	0.96%
70+	13	0.23%	0	0.0%	0	0.0%	3	0.52%	13	1.8%	5	4.2%	13	9.8%	0	0.0%	0	0.0%	9	1.3%	56	0.65%
Unknown	1		1		0		0		0		0		0		0		0		3		5	
Total	**5,583**	**100%**	**321**	**100%**	**398**	**100%**	**582**	**100%**	**734**	**100%**	**118**	**100%**	**132**	**100%**	**59**	**100%**	**7**	**100%**	**709**	**100%**	**8,643**	**100%**

1 Column percent of case with known age

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission, NIR=no identified risk, including “other” and “ unknown “

Data source: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.9 Number and proportion[1] of AIDS cases by exposure category and health region, Ontario, 1981 to 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	102	37.4%	380	55.7%	101	38.8%	3,781	73.4%	388	47.2%	438	56.4%	393	57.7%	5,583	64.6%
MSM-IDU	16	5.9%	22	3.2%	12	4.6%	195	3.8%	20	2.4%	22	2.8%	34	5.0%	321	3.7%
IDU	39	14.3%	59	8.7%	37	14.2%	140	2.7%	37	4.5%	48	6.2%	38	5.6%	398	4.6%
HIV-endemic	11	4.0%	97	14.2%	6	2.3%	365	7.1%	44	5.4%	44	5.7%	15	2.2%	582	6.7%
Heterosexual	21	7.7%	41	6.0%	17	6.5%	331	6.4%	150	18.2%	95	12.2%	79	11.6%	734	8.5%
Clotting factor	10	3.7%	12	1.8%	9	3.5%	26	0.50%	27	3.3%	18	2.3%	16	2.3%	118	1.4%
Transfusion	3	1.1%	9	1.3%	9	3.5%	52	1.0%	33	4.0%	14	1.8%	12	1.8%	132	1.5%
MTC	1	0.37%	10	1.5%	1	0.38%	33	0.64%	7	0.85%	5	0.64%	2	0.29%	59	0.68%
Occupational	0	0.0%	2	0.29%	0	0.0%	4	0.08%	1	0.12%	0	0.0%	0	0.0%	7	0.08%
NIR	70	25.6%	50	7.3%	68	26.2%	222	4.3%	115	14.0%	92	11.9%	92	13.5%	709	8.2%
Total	**273**	**100%**	**682**	**100%**	**260**	**100%**	**5,149**	**100%**	**822**	**100%**	**776**	**100%**	**681**	**100%**	**8,643**	**100%**

1 Column percent

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission, NIR=no identified risk, including “other” and “ unknown “

Data source: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.10 Number and proportion[1] of AIDS cases (adjusted[2]) by exposure category and health region, Ontario, 1981 to 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	130	47.7%	400	58.6%	132	50.9%	3,932	76.4%	446	54.3%	496	63.9%	450	66.0%	5,986	69.3%
MSM-IDU	20	7.4%	23	3.3%	17	6.6%	203	3.9%	23	2.8%	25	3.2%	39	5.7%	349	4.0%
IDU	59	21.6%	66	9.7%	49	18.7%	148	2.9%	42	5.1%	55	7.1%	46	6.8%	465	5.4%
HIV-endemic	15	5.6%	113	16.5%	13	4.8%	396	7.7%	56	6.8%	52	6.7%	20	3.0%	665	7.7%
Heterosexual	31	11.3%	46	6.8%	28	10.8%	352	6.8%	179	21.8%	109	14.0%	92	13.6%	838	9.7%
Clotting factor	12	4.6%	12	1.8%	10	4.0%	27	0.52%	30	3.7%	20	2.6%	18	2.7%	131	1.5%
Transfusion	4	1.4%	9	1.4%	10	3.9%	54	1.1%	37	4.6%	15	2.0%	14	2.0%	144	1.7%
MTC	1	0.37%	10	1.5%	1	0.38%	33	0.64%	7	0.85%	5	0.64%	2	0.29%	59	0.68%
Occupational	0	0.0%	2	0.31%	0	0.0%	4	0.08%	1	0.14%	0	0.0%	0	0.0%	7	0.09%
Total	**273**	**100%**	**682**	**100%**	**260**	**100%**	**5,149**	**100%**	**822**	**100%**	**776**	**100%**	**681**	**100%**	**8,643**	**100%**

1 Column percent
2 Adjusted unknown exposure category based on proportion among the known cases stratified by sex, health region and year of diagnosis; thus, total may differ slightly due to rounding

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission

Data source: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.11 Number and proportion[1] of AIDS cases by exposure category and health region, Ontario, 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	2	25.0%	1	14.3%	0	0.0%	36	48.0%	3	27.3%	4	25.0%	0	0.0%	46	35.7%
MSM-IDU	0	0.0%	0	0.0%	0	0.0%	2	2.7%	0	0.0%	0	0.0%	0	0.0%	2	1.6%
IDU	3	37.5%	0	0.0%	0	0.0%	2	2.7%	1	9.1%	1	6.3%	1	11.1%	8	6.2%
HIV-endemic	0	0.0%	2	28.6%	0	0.0%	15	20.0%	1	9.1%	3	18.8%	3	33.3%	24	18.6%
Heterosexual	0	0.0%	0	0.0%	1	33.3%	11	14.7%	1	9.1%	1	6.3%	1	11.1%	15	11.6%
Clotting factor	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Transfusion	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
MTC	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Occupational	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
NIR	3	37.5%	4	57.1%	2	66.7%	9	12.0%	5	45.5%	7	43.8%	4	44.4%	34	26.4%
Total	**8**	**100%**	**7**	**100%**	**3**	**100%**	**75**	**100%**	**11**	**100%**	**16**	**100%**	**9**	**100%**	**129**	**100%**

1 Column percent

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission, NIR=no identified risk, including “other” and “ unknown “

Data source: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.12 Number and proportion[1] of AIDS cases (adjusted[2]) by exposure category and health region, Ontario, 2007

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	3	37.5%	2	25.0%	1	33.3%	41	54.5%	6	51.5%	7	44.0%	1	13.3%	61	46.9%
MSM-IDU	0	0.0%	0	0.0%	0	0.0%	2	2.9%	0	1.5%	0	0.0%	0	0.0%	2	1.8%
IDU	5	56.3%	0	1.8%	0	11.1%	2	3.2%	1	10.6%	2	10.6%	2	17.2%	12	9.1%
HIV-endemic	1	6.3%	5	66.7%	0	11.1%	17	23.0%	2	13.6%	4	27.3%	4	45.6%	33	25.4%
Heterosexual	0	0.0%	0	6.5%	1	44.4%	12	16.3%	3	22.7%	3	18.1%	2	23.9%	22	16.7%
Clotting factor	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Transfusion	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
MTC	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Occupational	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	**8**	**100%**	**7**	**100%**	**3**	**100%**	**75**	**100%**	**11**	**100%**	**16**	**100%**	**9**	**100%**	**129**	**100%**

1 Column percent
2 Adjusted unknown exposure category based on proportion among the known cases stratified by sex, health region and year of diagnosis; thus, total may differ slightly due to rounding

Notes: 1 Assignment to exposure categories based on mutually exclusive hierarchy of risks
2 Modes of transmission were not independently validated

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission

Data source: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.13 Single and multiple sources of exposure among AIDS cases, Ontario, 1981 to 2007

	Number	%[1]
Men who have sex with men (MSM)	4,456	56.0%
MSM/IDU	209	2.6%
MSM/IDU/bisexual	98	1.2%
MSM/IDU/others	19	0.24%
MSM/clotting factor	6	0.08%
MSM/clotting factor/other	10	0.13%
MSM/HIV-endemic	145	1.8%
MSM/HIV-endemic/bisexual	73	0.92%
MSM/bisexual	722	9.1%
MSM/bisexual/transfusion	23	0.29%
MSM/bisexual/transfusion/occupational	1	0.01%
MSM/bisexual/occupational	4	0.05%
MSM/transfusion	94	1.2%
MSM/occupational	56	0.70%
SUB-TOTAL	**5,916**	**74.4%**
IDU	128	1.6%
IDU/HIV-endemic/heterosexual other	11	0.14%
IDU/heterosexual other	255	3.2%
IDU/others	5	0.06%
SUB-TOTAL	**399**	**5.0%**
Clotting factor	81	1.0%
Clotting factor/heterosexual other	22	0.28%
Clotting factor/heterosexual other/transfusion	6	0.08%
Clotting factor/heterosexual other/transfusion/occupational	4	0.05%
Clotting factor/transfusion	8	0.10%
SUB-TOTAL	**121**	**1.5%**
HIV-endemic	138	1.7%
HIV-endemic/heterosexual other	434	5.5%
HIV-endemic/others	10	0.13%
SUB-TOTAL	**582**	**7.3%**
Heterosexual	689	8.7%
Heterosexual other/transfusion	72	0.91%
Heterosexual other/transfusion/occupational	4	0.05%
Heterosexual/occupational	10	0.13%
SUB-TOTAL	**775**	**9.7%**
Transfusion	93	1.2%
Transfusion/occupational	1	0.01%
SUB-TOTAL	**94**	**1.2%**
Mother-child transmission	**59**	0.74%
Occupational	**6**	0.08%
Unknown	**691**	
GRAND TOTAL	**8,643**	100%

1 Percent of cases with known source of exposure

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs, MTC=mother to child transmission, NIR=no identified risk, including “other” and “ unknown “

Data source: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.14 Number and proportion[1] of AIDS cases by year of AIDS diagnosis and health region, Ontario, 1981 to 2007

Year of diagnosis	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1981	1	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	33.3%	1	33.3%	3
1982	0	0.0%	0	0.0%	0	0.0%	5	62.5%	0	0.0%	2	25.0%	1	12.5%	8
1983	1	5.0%	2	10.0%	1	5.0%	13	65.0%	0	0.0%	2	10.0%	1	5.0%	20
1984	0	0.0%	1	1.7%	1	1.7%	48	81.4%	2	3.4%	3	5.1%	4	6.8%	59
1985	1	0.62%	12	7.4%	5	3.1%	108	66.7%	13	8.0%	9	5.6%	14	8.6%	162
1986	8	3.0%	13	4.9%	6	2.3%	169	64.3%	23	8.7%	21	8.0%	23	8.7%	263
1987	12	2.9%	28	6.7%	11	2.6%	271	65.0%	38	9.1%	33	7.9%	24	5.8%	417
1988	13	2.8%	28	6.0%	14	3.0%	289	61.8%	53	11.3%	32	6.8%	39	8.3%	468
1989	14	2.6%	37	6.8%	14	2.6%	351	64.6%	41	7.6%	41	7.6%	45	8.3%	543
1990	9	1.4%	46	7.1%	18	2.8%	409	63.5%	51	7.9%	61	9.5%	50	7.8%	644
1991	17	2.7%	64	10.1%	18	2.9%	350	55.5%	60	9.5%	60	9.5%	62	9.8%	631
1992	25	3.4%	43	5.8%	26	3.5%	440	59.8%	64	8.7%	74	10.1%	64	8.7%	736
1993	18	2.4%	49	6.6%	15	2.0%	460	62.1%	79	10.7%	58	7.8%	62	8.4%	741
1994	22	3.2%	53	7.8%	12	1.8%	419	61.5%	60	8.8%	57	8.4%	58	8.5%	681
1995	19	2.9%	45	6.8%	26	3.9%	394	59.7%	59	8.9%	59	8.9%	58	8.8%	660
1996	11	2.4%	41	9.1%	9	2.0%	265	58.5%	49	10.8%	39	8.6%	39	8.6%	453
1997	7	2.6%	36	13.2%	6	2.2%	150	54.9%	28	10.3%	27	9.9%	19	7.0%	273
1998	16	6.5%	34	13.9%	5	2.0%	128	52.2%	21	8.6%	27	11.0%	14	5.7%	245
1999	14	6.5%	22	10.2%	6	2.8%	116	53.7%	18	8.3%	21	9.7%	19	8.8%	216
2000	5	2.9%	16	9.3%	6	3.5%	100	58.1%	19	11.0%	18	10.5%	8	4.7%	172
2001	5	2.5%	25	12.3%	10	4.9%	101	49.5%	29	14.2%	18	8.8%	16	7.8%	204
2002	8	4.3%	27	14.5%	9	4.8%	101	54.3%	20	10.8%	8	4.3%	13	7.0%	186
2003	12	5.6%	11	5.2%	10	4.7%	116	54.5%	25	11.7%	27	12.7%	12	5.6%	213
2004	6	3.2%	16	8.5%	9	4.8%	105	55.6%	22	11.6%	22	11.6%	9	4.8%	189
2005	18	9.2%	10	5.1%	13	6.6%	94	48.0%	30	15.3%	21	10.7%	10	5.1%	196
2006	3	2.3%	16	12.2%	7	5.3%	72	55.0%	7	5.3%	19	14.5%	7	5.3%	131
2007	8	6.2%	7	5.4%	3	2.3%	75	58.1%	11	8.5%	16	12.4%	9	7.0%	129
Total	**273**	**3.2%**	**682**	**7.9%**	**260**	**3.0%**	**5,149**	**59.6%**	**822**	**9.5%**	**776**	**9.0%**	**681**	**7.9%**	**8,643**

1 Row percent

Data source: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)

Table 2.15 Number of AIDS cases and rate (per 100,000) by health region and sex Ontario, 1981 to 2007

Health region	Males		Females			Total	
	No.	Rate	No.	Rate	% female[1]	No.	Rate
Northern	232	54.4	41	9.6	15.0%	273	32.0
Ottawa	592	162.7	90	23.8	13.2%	682	92.0
Eastern, other	231	59.1	29	7.3	11.2%	260	32.9
Toronto	4,819	403.9	330	26.1	6.4%	5,149	209.3
Central East, other	707	53.9	115	8.7	14.0%	822	31.1
Central West	690	66.1	86	8.0	11.1%	776	36.7
Southwest	613	83.9	68	9.0	10.0%	681	45.9
Ontario	**7,884**	**144.4**	**759**	**13.5**	**8.8%**	**8,643**	**78.0**

1 Row percent

Data sources: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care (cases reported to January 2009)
Statistics Canada (1996 census)

Table 2.16 Number of AIDS cases and rate per 100,000 by public health unit, health region, and sex, Ontario 1981 to 2007

Public Health Unit	Males		Females		Total	
	No.	Rate	No.	Rate	No.	Rate
Algoma	21	32.7	2	3.0	23	17.7
North Bay Parry Sound	49	79.0	4	6.3	53	42.3
Northwestern	13	30.6	8	19.2	21	24.9
Porcupine	11	21.7	3	6.1	14	14.0
Sudbury	82	79.6	9	8.6	91	43.9
Thunder Bay	45	53.8	14	16.8	59	35.3
Timiskaming	11	55.2	1	5.0	12	30.0
Northern	**232**	**54.4**	**41**	**9.6**	**273**	**32.0**
Ottawa	**592**	**162.7**	**90**	**23.8**	**682**	**92.0**
Eastern Ontario	35	36.8	5	5.2	40	20.9
Hastings and Prince Edward	49	63.5	4	5.0	53	33.9
Kinston, Frontenac and Lennox & Addington	80	89.3	14	15.4	94	52.1
Leeds, Grenville and Lanark	49	62.0	3	3.7	52	32.4
Renfrew	18	35.9	3	5.9	21	20.9
Eastern, other	**231**	**59.1**	**29**	**7.3**	**260**	**32.9**
Toronto	**4,819**	**403.9**	**330**	**26.1**	**5,149**	**209.3**
Durham	118	50.4	17	7.2	135	28.6
Haliburton, Kawartha, Pine Ridge	24	29.8	4	4.9	28	17.3
Peel	288	65.8	51	11.6	339	38.6
Peterborough	33	53.7	1	1.5	34	26.8
Simcoe Muskoka	116	59.9	21	10.6	137	35.1
York Region	128	42.2	21	6.8	149	24.4
Central East, other	**707**	**53.9**	**115**	**8.7**	**822**	**31.1**
Brant	45	73.8	13	20.6	58	46.7
Haldimand-Norfolk	22	41.9	4	7.6	26	24.7
Halton	101	58.4	10	5.7	111	31.8
Hamilton	232	98.3	19	7.8	251	52.2
Niagara	136	67.1	17	8.0	153	36.9
Waterloo	87	42.1	13	6.2	100	24.0
Wellington-Dufferin-Guelph	67	60.2	10	8.9	77	34.5
Central West	**690**	**66.1**	**86**	**8.0**	**776**	**36.7**
Chatham-Kent	34	61.3	0	0.0	34	30.2
Elgin-St. Thomas	12	29.8	6	14.6	18	22.1
Grey Bruce	28	35.7	3	3.8	31	19.6
Huron	13	42.3	1	3.2	14	22.6
Lambton	23	35.0	6	8.9	29	21.8
Middlesex-London	248	126.1	27	13.1	275	68.3
Oxford	28	56.8	3	5.9	31	31.1
Perth	21	57.3	2	5.3	23	31.0
Windsor-Essex	206	116.0	20	10.9	226	62.7
Southwest	**613**	**83.9**	**68**	**9.0**	**681**	**45.9**
Total	**7,884**	**144.4**	**759**	**13.5**	**8,643**	**78.0**

Data sources: Ontario AIDS Surveillance Program, Public Health Branch, Ministry of Health and Long-Term Care
(cases reported to January 2009)
Statistics Canada (1996 census)

Table 3.1 Prenatal HIV testing by quarter in Ontario, 1999 to 2007

Quarter	Not tested	Tested		Any test	Total	% Tested		
		Current	Prior			Current	Prior	Total
1999Q1	19,097	10,405	1,757	12,162	31,259	33.3%	5.6%	38.9%
1999Q2	16,112	12,409	1,769	14,178	30,290	41.0%	5.8%	46.8%
1999Q3	16,925	13,766	1,799	15,565	32,490	42.4%	5.5%	47.9%
1999Q4	16,639	15,041	2,027	17,068	33,707	44.6%	6.0%	50.6%
1999	**68,773**	**51,621**	**7,352**	**58,973**	**127,746**	**40.4%**	**5.8%**	**46.2%**
2000Q1	17,155	15,289	2,252	17,541	34,696	44.1%	6.5%	50.6%
2000Q2	16,033	14,985	2,036	17,021	33,054	45.3%	6.2%	51.5%
2000Q3	16,728	16,825	2,435	19,260	35,988	46.8%	6.8%	53.5%
2000Q4	16,350	17,015	2,591	19,606	35,956	47.3%	7.2%	54.5%
2000	**66,266**	**64,114**	**9,314**	**73,428**	**139,694**	**45.9%**	**6.7%**	**52.6%**
2001Q1	16,672	19,018	2,882	21,900	38,572	49.3%	7.5%	56.8%
2001Q2	14,695	17,879	2,851	20,730	35,425	50.5%	8.0%	58.5%
2001Q3	13,705	19,742	2,690	22,432	36,137	54.6%	7.4%	62.1%
2001Q4	9,934	24,082	2,198	26,280	36,214	66.5%	6.1%	72.6%
2001	**55,006**	**80,721**	**10,621**	**91,342**	**146,348**	**55.2%**	**7.3%**	**62.4%**
2002Q1	9,688	25,532	2,227	27,759	37,447	68.2%	5.9%	74.1%
2002Q2	8,572	24,919	2,192	27,111	35,683	69.8%	6.1%	76.0%
2002Q3	7,742	26,148	2,035	28,183	35,925	72.8%	5.7%	78.4%
2002Q4	7,476	26,530	2,151	28,681	36,157	73.4%	5.9%	79.3%
2002	**33,478**	**103,129**	**8,605**	**111,734**	**145,212**	**71.0%**	**5.9%**	**76.9%**
2003Q1	7,418	29,305	2,240	31,545	38,963	75.2%	5.7%	81.0%
2003Q2	6,513	27,657	2,232	29,889	36,402	76.0%	6.1%	82.1%
2003Q3	6,153	28,946	2,095	31,041	37,194	77.8%	5.6%	83.5%
2003Q4	4,987	30,769	1,734	32,503	37,490	82.1%	4.6%	86.7%
2003	**25,071**	**116,677**	**8,301**	**124,978**	**150,049**	**77.8%**	**5.5%**	**83.3%**
2004Q1	4,739	32,780	1,861	34,641	39,380	83.2%	4.7%	88.0%
2004Q2	4,067	30,710	1,710	32,420	36,487	84.2%	4.7%	88.9%
2004Q3	4,124	31,400	1,880	33,280	37,404	83.9%	5.0%	89.0%
2004Q4	3,804	31,561	1,933	33,494	37,298	84.6%	5.2%	89.8%
2004	**16,734**	**126,451**	**7,384**	**133,835**	**150,569**	**84.0%**	**4.9%**	**88.9%**
2005Q1	3,730	33,343	2,101	35,444	39,174	85.1%	5.4%	90.5%
2005Q2	3,349	31,609	1,927	33,536	36,885	85.7%	5.2%	90.9%
2005Q3	3,446	30,930	1,999	32,929	36,375	85.0%	5.5%	90.5%
2005Q4	3,192	31,368	1,938	33,306	36,498	85.9%	5.3%	91.3%
2005	**13,717**	**127,250**	**7,965**	**135,215**	**148,932**	**85.4%**	**5.3%**	**90.8%**
2006Q1	3,250	35,208	2,079	37,287	40,537	86.9%	5.1%	92.0%
2006Q2	2,686	32,213	1,851	34,064	36,750	87.7%	5.0%	92.7%
2006Q3	2,389	32,646	1,667	34,313	36,702	88.9%	4.5%	93.5%
2006Q4	2,109	33,906	1,603	35,509	37,618	90.1%	4.3%	94.4%
2006	**10,434**	**133,973**	**7,200**	**141,173**	**151,607**	**88.4%**	**4.7%**	**93.1%**
2007Q1	2,021	38,840	1,585	40,425	42,446	91.5%	3.7%	95.2%
2007Q2	1,692	35,553	1,455	37,008	38,700	91.9%	3.8%	95.6%
2007Q3	1,651	35,254	1,365	36,619	38,270	92.1%	3.6%	95.7%
2007Q4	1,401	34,363	1,205	35,568	36,969	93.0%	3.3%	96.2%
2007	**6,765**	**144,010**	**5,610**	**149,620**	**156,385**	**92.1%**	**3.6%**	**95.7%**

Table 3.2 Prenatal HIV testing rates by health region and public health unit in Ontario, 2007

Public Health Unit	Not tested	Tested		Any test	Total	Proportion tested			Current Rank
		Current	Prior			Current	Prior	Total	
Algoma	60	1,225	52	1,277	1,337	91.6%	3.9%	95.5%	22
North Bay Parry Sound	68	1,210	73	1,283	1,351	89.6%	5.4%	95.0%	27
Northwestern	23	1,339	28	1,367	1,390	96.3%	2.0%	98.3%	5
Porcupine	111	775	45	820	931	83.2%	4.8%	88.1%	36
Sudbury	131	1,907	122	2,029	2,160	88.3%	5.6%	93.9%	33
Thunder Bay	36	1,367	44	1,411	1,447	94.5%	3.0%	97.5%	8
Timiskaming	8	356	4	360	368	96.7%	1.1%	97.8%	3
Northern	**437**	**8,179**	**368**	**8,547**	**8,984**	**91.0%**	**4.1%**	**95.1%**	
Ottawa	**485**	**11,468**	**494**	**11,962**	**12,447**	**92.1%**	**4.0%**	**96.1%**	17
Eastern Ontario	131	3,543	149	3,692	3,823	92.7%	3.9%	96.6%	14
Hastings and Prince Edward	55	1,599	45	1,644	1,699	94.1%	2.6%	96.8%	9
Kinston, Frontenac and Len. & Add.	199	3,598	175	3,773	3,972	90.6%	4.4%	95.0%	24
Leeds, Grenville and Lanark	36	1,345	29	1,374	1,410	95.4%	2.1%	97.4%	6
Renfrew	50	1,007	40	1,047	1,097	91.8%	3.6%	95.4%	20
Eastern, other	**471**	**11,092**	**438**	**11,530**	**12,001**	**92.4%**	**3.6%**	**96.1%**	
Toronto	**1,693**	**34,877**	**1,249**	**36,126**	**37,819**	**92.2%**	**3.3%**	**95.5%**	16
Durham	222	6,171	225	6,396	6,618	93.2%	3.4%	96.6%	12
Haliburton, Kawartha, Pine Ridge	40	1,312	52	1,364	1,404	93.4%	3.7%	97.2%	10
Peel	530	16,586	419	17,005	17,535	94.6%	2.4%	97.0%	7
Peterborough	82	1,113	64	1,177	1,259	88.4%	5.1%	93.5%	31
Simcoe Muskoka	193	2,516	177	2,693	2,886	87.2%	6.1%	93.3%	35
York Regional	495	8,844	421	9,265	9,760	90.6%	4.3%	94.9%	23
Central East, other	**1,562**	**36,542**	**1,358**	**37,900**	**39,462**	**92.6%**	**3.4%**	**96.0%**	
Brant	57	1,429	53	1,482	1,539	92.9%	3.4%	96.3%	13
Haldimand-Norfolk	34	715	29	744	778	91.9%	3.7%	95.6%	19
Halton	259	5,255	190	5,445	5,704	92.1%	3.3%	95.5%	18
Hamilton	266	5,534	232	5,766	6,032	91.7%	3.8%	95.6%	21
Niagara	325	3,693	205	3,898	4,223	87.4%	4.9%	92.3%	34
Waterloo	197	4,372	168	4,540	4,737	92.3%	3.5%	95.8%	15
Wellington-Dufferin-Guelph	190	3,081	156	3,237	3,427	89.9%	4.6%	94.5%	25
Central West	**1,328**	**24,079**	**1,033**	**25,112**	**26,440**	**91.1%**	**3.9%**	**95.0%**	
Chatham-Kent	21	1,315	26	1,341	1,362	96.5%	1.9%	98.5%	4
Elgin-St.Thomas	67	1,039	59	1,098	1,165	89.2%	5.1%	94.2%	29
Grey Bruce	98	1,469	78	1,547	1,645	89.3%	4.7%	94.0%	28
Huron	17	516	20	536	553	93.3%	3.6%	96.9%	11
Lambton	22	1,270	20	1,290	1,312	96.8%	1.5%	98.3%	2
Middlesex-London	351	4,841	264	5,105	5,456	88.7%	4.8%	93.6%	30
Oxford	80	1,117	47	1,164	1,244	89.8%	3.8%	93.6%	26
Perth	76	980	53	1,033	1,109	88.4%	4.8%	93.1%	32
Windsor-Essex	31	4,623	73	4,696	4,727	97.8%	1.5%	99.3%	1
Southwest	**763**	**17,170**	**640**	**17,810**	**18,573**	**92.4%**	**3.4%**	**95.9%**	
Unknown/out-of-province	26	603	30	633	659	91.5%	4.6%	96.1%	
Grand Total	**6,765**	**144,010**	**5,610**	**149,620**	**156,385**	**92.1%**	**3.6%**	**95.7%**	

Table 3.3 Number and rate (per 1,000) of HIV-positive tests in pregnant women by quarter in Ontario, 1999 to 2007

Quarter	HIV result			Total tested	Positivity rate (per 1,000)	Time of testing	
	Pos	Neg	N/A			Current	Prior
1999Q1	2	12,158	2	12,160	0.16	2	0
1999Q2	3	14,174	1	14,177	0.21	3	0
1999Q3	3	15,558	4	15,561	0.19	3	0
1999Q4	3	17,062	3	17,065	0.18	1	2
1999	**11**	**58,952**	**10**	**58,963**	**0.19**	**9**	**2**
2000Q1	5	17,534	2	17,539	0.29	4	1
2000Q2	6	17,013	2	17,019	0.35	5	1
2000Q3	8	19,243	9	19,251	0.42	7	1
2000Q4	7	19,590	9	19,597	0.36	4	3
2000	**26**	**73,380**	**22**	**73,406**	**0.35**	**20**	**6**
2001Q1	14	21,882	4	21,896	0.64	13	1
2001Q2	13	20,710	7	20,723	0.63	8	5
2001Q3	8	22,412	12	22,420	0.36	5	3
2001Q4	13	26,256	11	26,269	0.49	8	5
2001	**48**	**91,260**	**34**	**91,308**	**0.53**	**34**	**14**
2002Q1	10	27,729	20	27,739	0.36	8	2
2002Q2	7	27,090	14	27,097	0.26	5	2
2002Q3	11	28,167	5	28,178	0.39	9	2
2002Q4	8	28,663	10	28,671	0.28	7	1
2002	**36**	**111,649**	**49**	**111,685**	**0.32**	**29**	**7**
2003Q1	11	31,515	19	31,526	0.35	8	3
2003Q2	14	29,866	9	29,880	0.47	10	4
2003Q3	17	31,017	7	31,034	0.55	15	2
2003Q4	19	32,476	8	32,495	0.58	17	2
2003	**61**	**124,874**	**43**	**124,935**	**0.49**	**50**	**11**
2004Q1	13	34,607	21	34,620	0.38	11	2
2004Q2	15	32,386	19	32,401	0.46	11	4
2004Q3	16	33,257	7	33,273	0.48	13	3
2004Q4	12	33,472	10	33,484	0.36	10	2
2004	**56**	**133,722**	**57**	**133,778**	**0.42**	**45**	**11**
2005Q1	7	35,427	10	35,434	0.20	4	3
2005Q2	0	33,528	8	33,528	0.00	0	0
2005Q3	8	32,911	10	32,919	0.24	4	4
2005Q4	13	33,287	6	33,300	0.39	4	9
2005	**28**	**135,153**	**34**	**135,181**	**0.21**	**12**	**16**
2006Q1	13	37,271	3	37,284	0.35	5	8
2006Q2	6	34,051	7	34,057	0.18	1	5
2006Q3	6	34,305	2	34,311	0.17	4	2
2006Q4	7	35,493	9	35,500	0.20	2	5
2006	**32**	**141,120**	**21**	**141,152**	**0.23**	**12**	**20**
2007Q1	6	40,409	10	40,415	0.15	3	3
2007Q2	10	36,993	5	37,003	0.27	5	5
2007Q3	7	36,602	10	36,609	0.19	3	4
2007Q4	9	35,550	9	35,559	0.25	5	4
2007	**32**	**149,554**	**34**	**149,586**	**0.21**	**16**	**16**
Grand total	**330**	**1,019,664**	**304**	**1,019,994**	**0.32**	**227**	**103**

Table 3.4 Number and rate (per 1,000) of HIV-positive tests in pregnant women by health region and public health unit in Ontario, 1999 to 2007

Public Health Unit	Tested	Positive	Rate (per 1,000)	Rank
Algoma	9,176	2	0.22	12
North Bay Parry Sound	9,126	0	0.00	27
Northwestern	10,072	3	0.30	7
Porcupine	5,435	0	0.00	27
Sudbury	14,379	3	0.21	13
Thunder Bay	12,414	4	0.32	5
Timiskaming	2,602	0	0.00	27
Northern	**63,204**	**12**	**0.19**	
Ottawa	**84,696**	**55**	**0.65**	1
Eastern Ontario	26,704	3	0.11	23
Hastings and Prince Edward	12,237	0	0.00	27
Kinston, Frontenac and Len. & Add.	25,888	5	0.19	17
Leeds, Grenville and Lanark	10,740	0	0.00	27
Renfrew	7,292	0	0.00	27
Eastern, other	**82,861**	**8**	**0.10**	
Toronto	**240,194**	**142**	**0.59**	2
Durham	45,528	5	0.11	24
Haliburton, Kawartha, Pine Ridge	8,447	2	0.24	11
Peel	110,435	34	0.31	6
Peterborough	8,538	1	0.12	22
Simcoe Muskoka	18,122	1	0.06	26
York Regional	62,368	10	0.16	19
Central East, other	**253,438**	**53**	**0.21**	
Brant	10,676	0	0.00	27
Haldimand-Norfolk	5,294	0	0.00	27
Halton	35,244	5	0.14	20
Hamilton	37,379	18	0.48	3
Niagara	25,084	5	0.20	16
Waterloo	29,091	5	0.17	18
Wellington-Dufferin-Guelph	20,753	6	0.29	8
Central West	**163,521**	**39**	**0.24**	
Chatham-Kent	8,199	1	0.12	21
Elgin-St.Thomas	7,336	2	0.27	10
Grey Bruce	9,839	2	0.20	15
Huron	4,139	0	0.00	27
Lambton	9,085	3	0.33	4
Middlesex-London	33,747	7	0.21	14
Oxford	6,978	2	0.29	9
Perth	7,082	0	0.00	27
Windsor-Essex	42,032	3	0.07	25
Southwest	**128,437**	**20**	**0.16**	
Unknown/out-of-province	3,643	1	0.27	
Grand Total	**1,019,994**	**330**	**0.32**	

Table 3.5a Number and proportion of children born in any country to HIV-positive mothers by year of birth and infection status of the child at latest follow-up, Ontario, 1984 to 2007

Year of birth	Confirmed HIV-positive				Confirmed HIV-negative		Pending / unknown[4]	Total
	No.	%[1]	*DA*[2]	% DA[3]	No.	%[1]	No.	
1984	5	100%	3	60.0%	0	0.0%	0	5
1985	3	100%	1	33.3%	0	0.0%	0	3
1986	6	75.0%	5	83.3%	2	25.0%	0	8
1987	4	57.1%	1	25.0%	3	42.9%	0	7
1988	8	66.7%	4	50.0%	4	33.3%	0	12
1989	12	80.0%	2	16.7%	3	20.0%	0	15
1990	10	45.5%	4	40.0%	12	54.5%	0	22
1991	11	61.1%	5	45.5%	7	38.9%	0	18
1992	21	75.0%	2	9.5%	7	25.0%	0	28
1993	17	51.5%	5	29.4%	16	48.5%	0	33
1994	19	47.5%	5	26.3%	21	52.5%	1	41
1995	12	31.6%	1	8.3%	26	68.4%	0	38
1996	11	33.3%	2	18.2%	22	66.7%	2	35
1997	4	26.7%	0	0.0%	11	73.3%	1	16
1998	8	20.5%	0	0.0%	31	79.5%	2	41
1999	12	30.8%	1	8.3%	27	69.2%	0	39
2000	3	9.1%	0	0.0%	30	90.9%	1	34
2001	10	18.2%	0	0.0%	45	81.8%	0	55
2002	7	13.2%	0	0.0%	46	86.8%	0	53
2003	4	6.5%	0	0.0%	58	93.5%	3	65
2004	4	6.1%	0	0.0%	62	93.9%	4	70
2005	2	3.2%	0	0.0%	60	96.8%	4	66
2006	2	3.0%	0	0.0%	64	97.0%	11	77
2007	0	0.0%	0	--	61	100.0%	4	65
Total	195	24.0%	41	21.0%	618	76.0%	33	846

1 Proportion of cases with known infection status
2 Died of AIDS
3 Proportion of AIDS-related deaths among confirmed HIV-positive infants born that year
4 Lost to follow-up: 1(1996), 1(1997), 1(1998), 3(2003), 1(2005)
Died, cause unknown: 1(1994), 1(1996), 2(2004)
HIV status pending: 1(1998), 1(2000), 2(2004), 3(2005), 11(2006), 4(2007)

Data source: Dr. Lindy Samson, Ontario Region, Canadian Pediatric AIDS Research Group

Table 3.5b Number and proportion of children born in Canada[1] to HIV-positive mothers by year of birth and infection status of the child at latest follow-up, Ontario, 1984 to 2007

Year of birth	Confirmed HIV-positive				Confirmed HIV-negative		Pending / unknown[5]	Total
	No.	%[2]	*DA*[3]	% DA[4]	No.	%[2]	No.	
1984	2	100.0%	2	100.0%	0	0.0%	0	2
1985	1	100.0%	0	0.0%	0	0.0%	0	1
1986	5	83.3%	4	80.0%	1	16.7%	0	6
1987	4	57.1%	1	25.0%	3	42.9%	0	7
1988	6	60.0%	4	66.7%	4	40.0%	0	10
1989	10	76.9%	2	20.0%	3	23.1%	0	13
1990	6	35.3%	2	33.3%	11	64.7%	0	17
1991	8	53.3%	5	62.5%	7	46.7%	0	15
1992	11	61.1%	2	18.2%	7	38.9%	0	18
1993	10	38.5%	5	50.0%	16	61.5%	0	26
1994a[6]	3	23.1%	1	33.3%	10	76.9%	0	13
1994b[6]	8	42.1%	3	37.5%	11	57.9%	1	20
1995	10	27.8%	1	10.0%	26	72.2%	0	36
1996	8	26.7%	2	25.0%	22	73.3%	2	32
1997	1	8.3%	0	0.0%	11	91.7%	1	13
1998	6	16.2%	0	0.0%	31	83.8%	1	38
1999	10	27.0%	1	10.0%	27	73.0%	0	37
2000	2	6.5%	0	0.0%	29	93.5%	0	31
2001	6	11.8%	0	0.0%	45	88.2%	0	51
2002	3	6.3%	0	0.0%	45	93.8%	0	48
2003	2	3.4%	0	0.0%	57	96.6%	3	62
2004	4	6.1%	0	0.0%	62	93.9%	2	68
2005	2	3.2%	0	0.0%	60	96.8%	4	66
2006	2	3.0%	0	0.0%	64	97.0%	11	77
2007	0	0.0%	0	--	61	100.0%	4	65
Total	130	17.5%	35	26.9%	613	82.5%	29	772

1 Assumed that 41 infants with missing birthplace information were also born in Canada.
2 proportion of cases with known infection status
3 Died of AIDS
4 proportion of AIDS-related deaths among confirmed HIV-positive infants born that year
5 Lost to follow-up: 1(1996), 1(1997), 1(1998), 1(1999), 3(2003), 1(2005)
Died, cause unknown: 1(1994), 1(1996), 2(2004)
HIV status pending: 3(2005), 11(2006), 4(2007)
6 1994a: January 1994 to June 1994; 1994b: July 1994 to December 1994

Data source: Dr. Lindy Samson, Ontario Region, Canadian Pediatric AIDS Research Group

Table 3.5c Number of HIV-infected children born in Canada[1] to HIV-positive mothers by year of birth with adjustment for delay in diagnosis, Ontario, 1984 to 2007

Year of birth	Unadjusted total	Adjusted total	95% Confidence interval	
			Lower	Upper
1984	2	2	2	2
1985	1	1	1	1
1986	5	5	5	5
1987	4	4	4	4
1988	6	6	6	6
1989	10	10	10	10
1990	6	6	6	6
1991	8	8	8	8
1992	11	11	11	11
1993	10	9	9	9
1994	11	11	11	11
1995	10	10	10	10
1996	8	8	8	8
1997	1	1	1	1
1998	6	6	6	7
1999	10	11	10	12
2000	2	2	2	3
2001	6	7	6	9
2002	3	3	3	5
2003	2	2	2	4
2004	4	5	4	8
2005	2	3	2	5
2006	2	3	2	7
2007	0	0	0	0
Total	130	135	129	152

1 Assumed that 16 infants with missing birthplace information were also born in Canada

Data source: Dr. Lindy Samson, Ontario Region, Canadian Pediatric AIDS Research Group

Table 3.6a Number and proportion of HIV-infected mothers giving birth in any country by geographic region of the reporting health institution and maternal exposure category, Ontario, 1984 to 2007

Geographic region of the treating institution	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total	
	No.	%[1]	No.	%[1]	No.	%[1]	No.	%[1]	No.	No.	%[2]
Toronto	39	8.1%	319	65.9%	122	25.2%	4	0.83%	39	523	61.8%
Ottawa	39	20.1%	113	58.2%	39	20.1%	3	1.5%	5	199	23.5%
Other	11	9.7%	36	31.9%	65	57.5%	1	0.88%	11	124	14.7%
London	*1*	*3.0%*	*8*	*24.2%*	*23*	*69.7%*	*1*	*3.0%*	*6*	*39*	*4.6%*
Hamilton	*8*	*13.8%*	*21*	*36.2%*	*29*	*50.0%*	*0*	*0.0%*	*5*	*63*	*7.4%*
Sudbury	*2*	*33.3%*	*0*	*0.0%*	*4*	*66.7%*	*0*	*0.0%*	*0*	*6*	*0.71%*
Windsor	*0*	*0.0%*	*6*	*42.9%*	*8*	*57.1%*	*0*	*0.0%*	*0*	*14*	*1.7%*
Kingston	*0*	*0.0%*	*1*	*50.0%*	*1*	*50.0%*	*0*	*0.0%*	*0*	*2*	*0.24%*
Total	89	11.3%	468	59.2%	226	28.6%	8	1.0%	55	846	100%

1 Row percent of cases with known exposure
2 Column percent of total

Data source: Dr. Lindy Samson, Ontario Region, Canadian Pediatric AIDS Research Group

Table 3.6b Number and proportion of HIV-infected mothers giving birth in Canada [1] by geographic region of the reporting health institution and maternal exposure category, Ontario, 1984 to 2007

Geographic region of the treating institution	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total	
	No.	%[2]	No.	%[2]	No.	%[2]	No.	%[2]	No.	No.	%[3]
Toronto	37	8.4%	283	63.9%	121	27.3%	2	0.45%	36	479	62.0%
Ottawa	38	22.5%	89	52.7%	39	23.1%	3	1.8%	5	174	22.5%
Other	11	10.1%	32	29.4%	65	59.6%	1	0.92%	10	119	15.4%
London	*1*	*3.0%*	*8*	*24.2%*	*23*	*69.7%*	*1*	*3.0%*	*6*	*39*	*5.1%*
Hamilton	*8*	*14.8%*	*17*	*31.5%*	*29*	*53.7%*	*0*	*0.0%*	*4*	*58*	*7.5%*
Sudbury	*2*	*33.3%*	*0*	*0.0%*	*4*	*66.7%*	*0*	*0.0%*	*0*	*6*	*0.78%*
Windsor	*0*	*0.0%*	*6*	*42.9%*	*8*	*57.1%*	*0*	*0.0%*	*0*	*14*	*1.8%*
Kingston	*0*	*0.0%*	*1*	*50.0%*	*1*	*50.0%*	*0*	*0.0%*	*0*	*2*	*0.26%*
Total	86	11.9%	404	56.0%	225	31.2%	6	0.83%	51	772	100%

1 Assumed that 41 infants with missing birthplace information were also born in Canada.
2 Row percent of cases with known exposure
3 Column percent of total

Data source: Dr. Lindy Samson, Ontario Region, Canadian Pediatric AIDS Research Group

Table 3.7a Number and proportion of infected children born in any country to HIV-positive mothers by geographic region of reporting health institution and maternal exposure category, Ontario, 1984 to 2007

Geographic region of the treating institution	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total	
	No.	%[1]	No.	%[1]	No.	%[1]	No.	%[1]	No.	No.	%[2]
Toronto	9	7.8%	79	68.7%	25	21.7%	2	1.7%	7	122	62.6%
Ottawa	3	6.8%	33	75.0%	6	13.6%	2	4.5%	2	46	23.6%
Other	1	4.0%	12	48.0%	11	44.0%	1	4.0%	2	27	13.8%
London	*1*	*11.1%*	*2*	*22.2%*	*5*	*55.6%*	*1*	*11.1%*	*0*	*9*	*4.6%*
Hamilton	*0*	*0.0%*	*8*	*61.5%*	*5*	*38.5%*	*0*	*0.0%*	*2*	*15*	*7.7%*
Sudbury	*0*	*0.0%*	*0*	*0.0%*	*0*	*0.0%*	*0*	*0.0%*	*0*	*0*	*0.0%*
Windsor	*0*	*0.0%*	*1*	*50.0%*	*1*	*50.0%*	*0*	*0.0%*	*0*	*2*	*1.0%*
Kingston	*0*	*0.0%*	*1*	*100.0%*	*0*	*0.0%*	*0*	*0.0%*	*0*	*1*	*0.51%*
Total	13	7.1%	124	67.4%	42	22.8%	5	2.7%	11	195	100%

1 Row percent of cases with known exposure
2 Column percent of Total

Data source: Dr. Lindy Samson, Ontario Region, Canadian Pediatric AIDS Research Group

Table 3.7b Number and proportion of infected children born in Canada[1] to HIV-positive mothers by geographic region of reporting health institution and maternal exposure category, Ontario, 1984 to 2007

Geographic region of the treating institution	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total	
	No.	%[2]	No.	%[2]	No.	%[2]	No.	%[2]	No.	No.	%[3]
Toronto	7	8.9%	48	60.8%	24	30.4%	0	0.0%	4	83	63.8%
Ottawa	3	13.6%	11	50.0%	6	27.3%	2	9.1%	2	24	18.5%
Other	1	4.5%	9	40.9%	11	50.0%	1	4.5%	1	23	17.7%
London	*1*	*11.1%*	*2*	*22.2%*	*5*	*55.6%*	*1*	*11.1%*	*0*	*9*	*6.9%*
Hamilton	*0*	*0.0%*	*5*	*50.0%*	*5*	*50.0%*	*0*	*0.0%*	*1*	*11*	*8.5%*
Sudbury	*0*	*0.0%*	*0*	*0.0%*	*0*	*0.0%*	*0*	*0.0%*	*0*	*0*	*0.0%*
Windsor	*0*	*0.0%*	*1*	*50.0%*	*1*	*50.0%*	*0*	*0.0%*	*0*	*2*	*1.5%*
Kingston	*0*	*0.0%*	*1*	*100.0%*	*0*	*0.0%*	*0*	*0.0%*	*0*	*1*	*0.77%*
Total	11	8.9%	68	55.3%	41	33.3%	3	2.4%	7	130	100%

1 Assumed that 16 infants with missing birthplace information were also born in Canada.
2 Row percent of cases with known exposure
3 Column percent of Total

Data source: Dr. Lindy Samson, Ontario Region, Canadian Pediatric AIDS Research Group

Table 3.8a Number and proportion[1] of HIV-positive children born in any country by period of birth and maternal exposure category, Ontario, 1984 to 2007

Period of birth	Maternal Exposure Category											
	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total		
	No.	%	No.	%	No.	%	No.	%	No.	No.		
1984-85	0	0.0%	6	85.7%	0	0.0%	1	14.3%	1	8		
1986-87	1	10.0%	7	70.0%	2	20.0%	0	0.0%	0	10		
1988-89	3	16.7%	5	27.8%	8	44.4%	2	11.1%	2	20		
1990-91	0	0.0%	11	61.1%	6	33.3%	1	5.6%	3	21		
1992-93	2	5.7%	26	74.3%	7	20.0%	0	0.0%	3	38		
1994-95	3	9.7%	22	71.0%	6	19.4%	0	0.0%	0	31		
1996-97	0	0.0%	14	93.3%	1	6.7%	0	0.0%	0	15		
1998-89	1	5.0%	12	60.0%	7	35.0%	0	0.0%	0	20		
2000-01	1	7.7%	9	69.2%	3	23.1%	0	0.0%	0	13		
2002-03	1	9.1%	9	81.8%	0	0.0%	1	9.1%	0	11		
2004-05	1	20.0%	2	40.0%	2	40.0%	0	0.0%	1	6		
2006-07	0	0.0%	1	100.0%	0	0.0%	0	0.0%	1	2		
Total	13	7.1%	124	67.4%	42	22.8%	5	2.7%	11	195		

1 Row percent of cases with known exposure category

Data source: Dr. Lindy Samson, Ontario Region, Canadian Pediatric AIDS Research Group

Table 3.8b Number and proportion[1] of HIV-positive children born in Canada[2] by period of birth and maternal exposure category, Ontario, 1984 to 2007

Period of birth	Maternal Exposure Category											
	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total		
	No.	%	No.	%	No.	%	No.	%	No.	No.		
1984-85	0	0.0%	1	50.0%	0	0.0%	1	50.0%	1	3		
1986-87	1	11.1%	6	66.7%	2	22.2%	0	0.0%	0	9		
1988-89	3	20.0%	3	20.0%	8	53.3%	1	6.7%	1	16		
1990-91	0	0.0%	6	46.2%	6	46.2%	1	7.7%	1	14		
1992-93	2	10.5%	11	57.9%	6	31.6%	0	0.0%	2	21		
1994-95	3	14.3%	12	57.1%	6	28.6%	0	0.0%	0	21		
1996-97	0	0.0%	8	88.9%	1	11.1%	0	0.0%	0	9		
1998-89	1	6.3%	8	50.0%	7	43.8%	0	0.0%	0	16		
2000-01	0	0.0%	5	62.5%	3	37.5%	0	0.0%	0	8		
2002-03	0	0.0%	5	100.0%	0	0.0%	0	0.0%	0	5		
2004-05	1	20.0%	2	40.0%	2	40.0%	0	0.0%	1	6		
2006-07	0	0.0%	1	100.0%	0	0.0%	0	0.0%	1	2		
Total	11	8.9%	68	55.3%	41	33.3%	3	2.4%	7	130		

1 Row percent of cases with known exposure category
2 Assumed that 16 infants with missing birthplace information were also born in Canada.

Data source: Dr. Lindy Samson, Ontario Region, Canadian Pediatric AIDS Research Group

Table 3.9 Number of HIV-positive women given birth in Canada[1] by year of delivery, antiretroviral prophylaxis received during pregnancy, delivery or to the infant and HIV status of infant, Ontario, July 1994 to December 2007

Year of delivery	Therapy received					No therapy received					Total			
	Infected	Not infected	Unk.	Total	%[2]	Infected	Not infected	Unk.	Total	%[2]	Infected	Not infected	Unk.	Total
Jul-Dec 1994	2	6	1	9	45.0%	6	5	0	11	55.0%	8	11	1	20
1995	2	18	0	20	55.6%	8	8	0	16	44.4%	10	26	0	36
1996	0	18	2	20	62.5%	8	4	0	12	37.5%	8	22	2	32
1997	0	8	1	9	69.2%	1	3	0	4	30.8%	1	11	1	13
1998	1	28	0	29	76.3%	5	3	1	9	23.7%	6	31	1	38
1999	1	24	0	25	67.6%	9	3	0	12	32.4%	10	27	0	37
2000	0	28	0	28	90.3%	2	1	0	3	9.7%	2	29	0	31
2001	1	43	0	44	86.3%	5	2	0	7	13.7%	6	45	0	51
2002	0	45	0	45	93.8%	3	0	0	3	6.3%	3	45	0	48
2003	0	56	2	58	93.5%	2	1	1	4	6.5%	2	57	3	62
2004	3	61	0	64	94.1%	1	1	2	4	5.9%	4	62	2	68
2005	0	58	3	61	92.4%	2	2	1	5	7.6%	2	60	4	66
2006	2	62	11	75	97.4%	0	2	0	2	2.6%	2	64	11	77
2007	0	60	4	64	98.5%	0	1	0	1	1.5%	0	61	4	65
Total	12	515	24	551	85.6%	52	36	5	93	14.4%	64	551	29	644

1 Only cases born in Canada (Assumed that 15 infants with missing birthplace information were also born in Canada)
2 Row percent of cases that received therapy or not

Data source: Dr. Lindy Samson, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.10 Number and proportion of HIV infected women giving birth in Canada[1] by maternal exposure category, antiretroviral prophylaxis during pregnancy, delivery or to the infant[2] and HIV status of infant, Ontario, July 1994 to December 2007

Maternal Exposure category	Prophylaxis during pregnancy, delivery or to the newborn	HIV status of infant						
		Infected	%[3]	Not infected	%[3]	Unknown	Total	%[4]
IDU	No	3	23.1%	10	76.9%	0	13	21.0%
	Yes	1	2.2%	44	97.8%	4	49	79.0%
	Sub-total	4	6.9%	54	93.1%	4	62	9.6%
HIV-endemic	No	34	66.7%	17	33.3%	1	52	14.3%
	Yes	5	1.6%	300	98.4%	7	312	85.7%
	Sub-total	39	11.0%	317	89.0%	8	364	56.5%
Heterosexual	No	15	71.4%	6	28.6%	0	21	12.1%
	Yes	4	2.9%	136	97.1%	12	152	87.9%
	Sub-total	19	11.8%	142	88.2%	12	173	26.9%
Transfusion	No	0	0.0%	1	100%	0	1	33.3%
	Yes	0	0.0%	2	100%	0	2	66.7%
	Sub-total	0	0.0%	3	100%	0	3	0.47%
Unknown	No	0	0.0%	2	100%	4	6	14.3%
	Yes	2	5.7%	33	94.3%	1	36	85.7%
	Sub-total	2	5.4%	35	94.6%	5	42	6.5%
Total	No	52	59.1%	36	40.9%	5	93	14.4%
	Yes	12	2.3%	515	97.7%	24	551	85.6%
	Total	64	10.4%	551	89.6%	29	644	100%

1 Only cases born in Canada (Assumed that 15 infants with missing birthplace information were also born in Canada)
2 Therapy during pregnancy only, 30
during delivery only, 2
to the newborn only, 36
during pregnancy and delivery, 3
during pregnancy and to the newborn, 228
during delivery and to the newborn, 4
during pregnancy, delivery and to the newborn, 248
3 Row percent of known cases
4 Column percent of known cases in each exposure category, column percent of sub-total

Data source: Dr. Lindy Samson, Ontario region, Canadian Pediatric AIDS Research Group

Table 4.1 Number of HIV-related deaths and mortality rate per 100,000 by year of death and sex, Ontario, 1987 to 2005

Year	Males		Females		Total	
	No.	Rate	No.	Rate	No.	Rate
1987	203	4.3	10	0.21	213	2.2
1988	245	5.0	8	0.16	253	2.6
1989	313	6.3	15	0.29	328	3.2
1990	359	7.1	14	0.27	373	3.6
1991	482	9.4	22	0.42	504	4.8
1992	555	10.6	26	0.49	581	5.5
1993	599	11.4	24	0.44	623	5.8
1994	563	10.6	40	0.73	603	5.6
1995	654	12.1	37	0.67	691	6.3
1996	454	8.3	30	0.53	484	4.4
1997	201	3.6	27	0.47	228	2.0
1998	151	2.7	25	0.43	176	1.5
1999	130	2.3	27	0.46	157	1.4
2000	157	2.7	20	0.34	177	1.5
2001	141	2.4	20	0.33	161	1.4
2002	116	1.9	18	0.29	134	1.1
2003	144	2.4	24	0.39	168	1.4
2004	131	2.1	23	0.37	154	1.2
2005	134	2.2	20	0.31	154	1.2
Total	5,732	5.5	430	0.40	6,162	2.9

Data sources: Vital Statistics, Registrar-General, Ontario
Statistics Canada (population estimates)

Table 4.2 Number and proportion[1] of HIV-related deaths by age at death and sex, Ontario, 1987 to 2005

Age group	Males		Females		Total	
	No.	%	No.	%	No.	%
< 1	8	0.14%	4	0.93%	12	0.19%
1-4	8	0.14%	8	1.9%	16	0.26%
5-9	3	0.05%	4	0.93%	7	0.11%
10-14	6	0.10%	3	0.70%	9	0.15%
15-19	8	0.14%	2	0.47%	10	0.16%
20-24	56	0.98%	8	1.9%	64	1.0%
25-29	466	8.1%	47	10.9%	513	8.3%
30-34	1,047	18.3%	80	18.6%	1,127	18.3%
35-39	1,221	21.3%	85	19.8%	1,306	21.2%
40-44	1,168	20.4%	66	15.3%	1,234	20.0%
45-49	789	13.8%	39	9.1%	828	13.4%
50-54	430	7.5%	25	5.8%	455	7.4%
55-59	249	4.3%	17	4.0%	266	4.3%
60-64	145	2.5%	16	3.7%	161	2.6%
65-69	77	1.3%	13	3.0%	90	1.5%
70+	51	0.89%	13	3.0%	64	1.0%
Total	5,732	100%	430	100%	6,162	100%

1. Column percent of cases

Data source: Vital Statistics, Registrar-General, Ontario

Table 4.3 Number and proportion[1] of HIV-related deaths by health region and sex, Ontario, 1987 to 2005

Health region	Males		Females		Total	
	No.	%	No.	%	No.	%
Northern	163	2.8%	22	5.1%	185	3.0%
Ottawa	439	7.7%	60	14.0%	499	8.1%
Eastern, other	177	3.1%	20	4.7%	197	3.2%
Toronto	3,322	58.0%	164	38.1%	3,486	56.6%
Central East, other	536	9.4%	67	15.6%	603	9.8%
Central West	509	8.9%	53	12.3%	562	9.1%
Southwest	465	8.1%	36	8.4%	501	8.1%
Unknown	121	2.1%	8	1.9%	129	2.1%
Total	5,732	100%	430	100%	6,162	100%

1. Column percent of cases with known health region

Data source: Vital Statistics, Registrar-General, Ontario

Table 4.4 Number and proportion[1] of HIV-related deaths by year of death, sex and country of birth[2] (HIV-endemic/non HIV-endemic), Ontario, 1987 to 2005

	Males					Females					Both sexes				
	HIV-endemic		Non HIV-endemic		Subtotal	HIV-endemic		Non HIV-endemic		Subtotal	HIV-endemic		Non HIV-endemic		Total
Year	No.	%	No.	%		No.	%	No.	%		No.	%	No.	%	
1987	14	6.9%	189	93.1%	203	4	40.0%	6	60.0%	10	18	8.5%	195	91.5%	213
1988	7	2.9%	236	97.1%	243	1	12.5%	7	87.5%	8	8	3.2%	243	96.8%	251
1989	16	5.2%	294	94.8%	310	4	26.7%	11	73.3%	15	20	6.2%	305	93.8%	325
1990	12	3.4%	344	96.6%	356	4	30.8%	9	69.2%	13	16	4.3%	353	95.7%	369
1991	17	3.6%	460	96.4%	477	4	18.2%	18	81.8%	22	21	4.2%	478	95.8%	499
1992	27	4.9%	527	95.1%	554	5	19.2%	21	80.8%	26	32	5.5%	548	94.5%	580
1993	30	5.0%	566	95.0%	596	5	20.8%	19	79.2%	24	35	5.6%	585	94.4%	620
1994	40	7.1%	521	92.9%	561	4	10.0%	36	90.0%	40	44	7.3%	557	92.7%	601
1995	40	6.2%	610	93.8%	650	8	21.6%	29	78.4%	37	48	7.0%	639	93.0%	687
1996	35	7.7%	418	92.3%	453	9	31.0%	20	69.0%	29	44	9.1%	438	90.9%	482
1997	15	7.5%	184	92.5%	199	4	14.8%	23	85.2%	27	19	8.4%	207	91.6%	226
1998	9	6.0%	140	94.0%	149	15	60.0%	10	40.0%	25	24	13.8%	150	86.2%	174
1999	11	8.6%	117	91.4%	128	6	23.1%	20	76.9%	26	17	11.0%	137	89.0%	154
2000	18	11.5%	138	88.5%	156	5	25.0%	15	75.0%	20	23	13.1%	153	86.9%	176
2001	13	9.3%	127	90.7%	140	5	25.0%	15	75.0%	20	18	11.3%	142	88.8%	160
2002	11	9.5%	105	90.5%	116	3	16.7%	15	83.3%	18	14	10.4%	120	89.6%	134
2003	19	13.4%	123	86.6%	142	8	33.3%	16	66.7%	24	27	16.3%	139	83.7%	166
2004	16	12.6%	111	87.4%	127	6	26.1%	17	73.9%	23	22	14.7%	128	85.3%	150
2005	15	11.5%	116	88.5%	131	8	42.1%	11	57.9%	19	23	15.3%	127	84.7%	150
Total	365	6.4%	5,326	93.6%	5,691	108	25.4%	318	74.6%	426	473	7.7%	5,644	92.3%	6,117

1. Sex-specific row percent of deaths that year
2. Excludes 45 deaths (41 males and 4 females) for which country of birth was unknown

Data source: Vital Statistics, Registrar-General, Ontario

Table 4.5 Number and proportion[1] of HIV-related deaths by year of death and region of birth (Caribbean, sub-Saharan Africa, non HIV-endemic), Ontario, 1987 to 2005

Year	Caribbean		sub-Saharan Africa		Non HIV-endemic		Total
	No.	%	No.	%	No.	%	No.
1987	15	7.0%	3	1.4%	195	91.5%	213
1988	5	2.0%	3	1.2%	245	96.8%	253
1989	12	3.7%	8	2.4%	308	93.9%	328
1990	12	3.2%	4	1.1%	357	95.7%	373
1991	19	3.8%	2	0.4%	483	95.8%	504
1992	25	4.3%	7	1.2%	549	94.5%	581
1993	22	3.5%	13	2.1%	588	94.4%	623
1994	33	5.5%	11	1.8%	559	92.7%	603
1995	32	4.6%	16	2.3%	643	93.1%	691
1996	28	5.8%	16	3.3%	440	90.9%	484
1997	15	6.6%	4	1.8%	209	91.7%	228
1998	14	8.0%	10	5.7%	152	86.4%	176
1999	12	7.6%	5	3.2%	140	89.2%	157
2000	9	5.1%	14	7.9%	154	87.0%	177
2001	9	5.6%	9	5.6%	143	88.8%	161
2002	7	5.2%	7	5.2%	120	89.6%	134
2003	14	8.3%	13	7.7%	141	83.9%	168
2004	10	6.5%	12	7.8%	132	85.7%	154
2005	7	4.5%	16	10.4%	131	85.1%	154
Total	300	4.9%	173	2.8%	5,689	92.3%	6,162

1. Row percent
2. Includes 45 deaths for which country of birth was unknown

Data source: Vital Statistics, Registrar-General, Ontario

Table 5.1 Number of HIV tests and HIV incidence rate (per 100 person-years) (crude[1]) by year for selected exposure categories, Laboratory Enhancement Study, Ontario, 2001 to 2007

	MSM		MSM-IDU		IDU		Heterosexual	
	Number of tests	**Crude incidence** (per 100 py)	**Number of tests**	**Crude incidence** (per 100 py)	**Number of tests**	**Crude incidence** (per 100 py)	**Number of tests**	**Crude incidence** (per 100 py)
2001	13,980	2.20	1,035	1.78	14,786	0.28	207,773	0.017
2002	15,004	2.34	521	3.11	15,312	0.12	256,768	0.021
2003	17,690	1.85	1,089	1.60	16,383	0.25	265,027	0.029
2004	19,305	1.96	1,120	1.72	16,944	0.30	287,156	0.032
2005	20,798	1.79	1,153	2.13	17,884	0.29	302,988	0.022
2006	20,420	1.79	1,157	2.82	18,480	0.17	321,912	0.023
2007	19,896	1.71	1,172	2.21	18,600	0.28	319,697	0.016
Total	127,093	1.92	7,248	2.13	118,389	0.24	1,961,323	0.023

1 HIV incidence based on the detuned assay

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs

Data sources: Laboratory Enhancement Study, HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 5.2 HIV incidence rate (per 100 person-years) (crude[1] and adjusted[2]) by year for selected exposure categories, Laboratory Enhancement Study, Ontario, 2001 to 2007

	MSM		MSM-IDU		IDU		Heterosexual	
	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted
	(per 100 py)		(per 100 py)		(per 100 py)		(per 100 py)	
2001	2.20	1.14	1.78	1.57	0.28	0.23	0.017	0.015
2002	2.34	1.57	3.11	1.60	0.12	0.14	0.021	0.014
2003	1.85	0.94	1.60	0.97	0.25	0.17	0.029	0.020
2004	1.96	1.14	1.72	0.90	0.30	0.19	0.032	0.022
2005	1.79	1.11	2.13	1.51	0.29	0.17	0.022	0.014
2006	1.79	1.00	2.82	1.68	0.17	0.09	0.023	0.019
2007	1.71	0.76	2.21	1.34	0.28	0.22	0.016	0.011
Total	1.92	1.07	2.13	1.35	0.24	0.18	0.023	0.016

1 HIV incidence based on the detuned assay
2 Adjusted for testing bias (seroconversion effect); see Method, Section 2.5

Legend: MSM=men who have sex with men, IDU=injection drug user, MSM-IDU=men who have sex with men and use injection drugs

Data sources: Laboratory Enhancement Study, HIV Laboratory, Central Public Health Laboratory, Ontario Agency for Health Protection and Promotion

Table 5.3 HIV incidence rate (per 100 person-years) (crude[1] and adjusted[2]) among MSM by year and health region, Ontario, 2001 to 2007

	Toronto		Ottawa		Rest of Ontario [3]	
	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted
	(per 100 py)		(per 100 py)		(per 100 py)	
2001	3.04	1.61	2.51	0.87	0.92	0.59
2002	3.24	2.06	3.06	2.28	0.78	0.64
2003	2.25	1.12	3.19	1.72	0.73	0.39
2004	2.18	1.22	3.85	1.91	1.06	0.79
2005	2.20	1.33	1.63	1.01	1.13	0.74
2006	2.11	1.18	2.97	1.40	1.02	0.63
2007	2.37	1.05	1.68	0.71	0.82	0.38
Total	2.42	1.33	2.67	1.36	0.93	0.59

1 HIV incidence based on the detuned assay
2 Adjusted for testing bias (seroconversion effect); see Method, Section 2.5
3 Rest of Ontario, i.e. other than Toronto and Ottawa

Legend: MSM=men who have sex with men

Data sources: Laboratory Enhancement Study, HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 5.4 HIV incidence rate (per 100 person-years) (crude[1] and adjusted[2]) among MSM-IDU by year and health region, Ontario, 2001 to 2007

	Toronto		Ottawa		Rest of Ontario [3]	
	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted
	(per 100 py)		(per 100 py)		(per 100 py)	
2001	10.68	5.72	0.53	0.31	0.41	0.77
2002	7.26	3.11	3.76	3.44	1.42	0.82
2003	1.34	0.45	14.76	16.31	0.87	0.43
2004	1.56	0.79	9.91	3.45	0.93	0.80
2005	1.41	1.27	8.31	3.02	2.86	1.81
2006	2.75	1.50	7.85	3.30	2.54	1.96
2007	1.12	1.18	15.72	3.05	3.12	1.54
Total	2.14	1.28	4.31	2.28	1.63	1.25

1 HIV incidence based on the detuned assay
2 Adjusted for testing bias (seroconversion effect); see Method, Section 2.5
3 Rest of Ontario, i.e. other than Toronto and Ottawa

Legend: MSM-IDU=men who have sex with men and use injection drugs

Data sources: Laboratory Enhancement Study, HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 5.5 HIV incidence rate (per 100 person-years) (crude[1] and adjusted[2]) among IDU by year and health region, Ontario, 2001 to 2007

	Toronto		Ottawa		Rest of Ontario [3]	
	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted
	(per 100 py)		(per 100 py)		(per 100 py)	
2001	0.14	0.17	0.56	0.39	0.26	0.19
2002	0.07	0.11	0.29	0.29	0.12	0.13
2003	0.13	0.07	0.77	0.69	0.21	0.11
2004	0.34	0.09	0.51	0.31	0.23	0.22
2005	0.27	0.13	0.49	0.14	0.26	0.20
2006	0.06	0.04	0.09	0.05	0.25	0.13
2007	0.19	0.18	0.45	0.20	0.30	0.22
Total	0.17	0.12	0.45	0.31	0.24	0.17

1 HIV incidence based on the detuned assay
2 Adjusted for testing bias (seroconversion effect); see Method, Section 2.5
3 Rest of Ontario, i.e. other than Toronto and Ottawa

Legend: IDU=injection drug user

Data sources: Laboratory Enhancement Study, HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 5.6 HIV incidence rate (per 100 person-years) (crude [1] and adjusted[2]) among other persons[3] infected through heterosexual contact by year and health region, Ontario, 2001 to 2007

	Toronto		Ottawa		Rest of Ontario[4]	
	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted
	(per 100 py)		(per 100 py)		(per 100 py)	
2001	0.030	0.020	0.015	0.019	0.008	0.009
2002	0.030	0.019	0.023	0.011	0.012	0.011
2003	0.033	0.025	0.045	0.019	0.022	0.015
2004	0.033	0.028	0.010	0.007	0.035	0.018
2005	0.024	0.016	0.024	0.012	0.020	0.012
2006	0.029	0.029	0.011	0.009	0.019	0.013
2007	0.020	0.012	0.009	0.010	0.014	0.010
Total	0.028	0.022	0.019	0.013	0.019	0.012

1 HIV incidence based on the detuned assay
2 Adjusted for testing bias (seroconversion effect); see Method, Section 2.5
3 Excludes persons from HIV-endemic countries
4 Rest of Ontario, i.e. other than Toronto and Ottawa

Data sources: Laboratory Enhancement Study, HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 6.1 Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality, Ontario, 1977 to 2007

Year	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality annual	Other-cause mortality annual	Total mortality annual	HIV-related mortality cumulative	Total mortality cumulative
1977	79	79	79	0	0	79	0.0%	0	0	0	0	0	0	0	0	0
1978	162	241	240	0	0	241	0.0%	0	0	0	0	0	0	0	0	1
1979	288	529	528	0	0	529	0.0%	0	0	0	0	0	1	1	0	2
1980	436	966	962	0	0	966	0.0%	0	0	0	0	0	1	1	0	3
1981	716	1,681	1,674	4	4	1,678	0.15%	3	4	4	3	1	3	4	1	7
1982	1,202	2,883	2,867	9	12	2,871	0.26%	8	9	12	8	4	5	9	5	16
1983	1,383	4,265	4,230	23	35	4,230	0.48%	20	23	35	21	10	10	20	15	35
1984	1,881	6,147	6,069	65	101	6,046	0.94%	57	65	101	58	28	15	42	42	78
1985	1,743	7,890	7,712	436	525	7,365	5.0%	389	180	281	161	77	23	100	119	178
1986	1,457	9,347	8,976	1,240	1,777	7,570	16.1%	1,449	296	576	294	162	31	194	282	372
1987	1,207	10,554	9,866	1,399	3,176	7,379	25.8%	2,546	470	1,046	483	281	35	316	563	688
1988	1,050	11,605	10,511	1,303	4,478	7,126	32.9%	3,461	521	1,567	636	368	37	405	931	1,093
1989	1,073	12,677	11,165	1,546	6,024	6,653	41.2%	4,605	618	2,186	875	380	39	419	1,311	1,512
1990	1,103	13,780	11,791	1,881	7,905	5,875	51.1%	6,028	734	2,920	1,174	435	41	477	1,747	1,989
1991	1,127	14,908	12,407	1,670	9,575	5,333	58.1%	7,206	717	3,637	1,422	468	43	511	2,214	2,500
1992	1,098	16,005	12,896	1,650	11,225	4,781	64.1%	8,268	845	4,482	1,705	563	46	609	2,777	3,109
1993	1,134	17,139	13,331	1,338	12,563	4,577	67.0%	8,927	848	5,330	1,901	652	48	700	3,429	3,808
1994	1,085	18,225	13,654	1,175	13,737	4,487	68.6%	9,361	784	6,114	1,974	712	50	762	4,140	4,570
1995	1,065	19,290	13,972	1,194	14,931	4,359	70.3%	9,828	758	6,872	2,035	696	52	748	4,836	5,318
1996	1,024	20,314	14,359	929	15,860	4,455	70.6%	10,141	528	7,400	1,979	584	53	637	5,421	5,955
1997	1,036	21,350	14,868	839	16,699	4,651	70.5%	10,476	323	7,723	1,830	472	54	527	5,893	6,482
1998	1,096	22,447	15,532	860	17,559	4,888	70.3%	10,926	289	8,011	1,742	376	56	433	6,269	6,915
1999	1,228	23,675	16,384	818	18,377	5,298	69.5%	11,391	262	8,273	1,686	318	58	376	6,587	7,291
2000	1,312	24,987	17,371	804	19,181	5,806	68.5%	11,895	211	8,483	1,632	265	61	325	6,852	7,616
2001	1,396	26,383	18,496	860	20,041	6,342	67.6%	12,509	250	8,733	1,673	208	63	271	7,060	7,887
2002	1,476	27,859	19,742	1,022	21,063	6,796	67.5%	13,330	246	8,979	1,756	163	66	229	7,223	8,116
2003	1,538	29,397	21,037	985	22,048	7,349	67.0%	14,101	273	9,253	1,855	174	69	243	7,398	8,360
2004	1,587	30,984	22,367	1,054	23,102	7,882	66.7%	14,930	255	9,507	1,925	185	72	257	7,583	8,616
2005	1,628	32,611	23,723	1,006	24,108	8,503	66.2%	15,698	281	9,788	2,009	197	75	272	7,779	8,888
2006	1,666	34,277	25,107	1,032	25,140	9,137	65.7%	16,484	216	10,004	2,021	204	78	282	7,983	9,170
2007	1,683	35,960	26,490	950	26,090	9,870	64.8%	17,171	380	10,384	2,182	219	81	300	8,202	9,470

Table 6.1a Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among MSM, Ontario, 1977 to 2007

Year	HIV incidence rate	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV prevalence (%)	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality annual	HIV-related mortality cumulative
1977	0.13%	76	76	75	0.13%	0	0	76	0.0%	0	0	0	0	0	0
1978	0.25%	153	228	228	0.38%	0	0	228	0.0%	0	0	0	0	0	0
1979	0.45%	271	499	498	0.82%	0	0	499	0.0%	0	0	0	0	0	0
1980	0.64%	391	890	887	1.4%	0	0	890	0.0%	0	0	0	0	0	0
1981	1.0%	630	1,520	1,515	2.4%	2	2	1,517	0.11%	2	2	2	2	1	1
1982	1.7%	1,025	2,545	2,534	4.0%	8	10	2,535	0.26%	7	8	10	7	3	3
1983	1.8%	1,101	3,646	3,623	5.6%	17	27	3,619	0.43%	16	17	27	16	8	11
1984	2.5%	1,567	5,213	5,160	7.9%	56	82	5,131	0.94%	49	56	82	49	22	34
1985	2.4%	1,434	6,647	6,517	9.9%	393	476	6,172	5.8%	376	159	241	141	66	100
1986	2.0%	1,233	7,880	7,595	11.3%	1,086	1,562	6,318	17.4%	1,320	259	500	258	142	242
1987	1.5%	928	8,808	8,269	12.1%	1,203	2,765	6,043	27.6%	2,284	382	882	401	239	481
1988	1.2%	744	9,552	8,690	12.4%	1,048	3,813	5,739	34.8%	3,026	430	1,312	525	306	787
1989	1.1%	721	10,273	9,081	12.7%	1,239	5,052	5,221	43.5%	3,953	498	1,811	711	312	1,099
1990	1.1%	693	10,965	9,406	12.9%	1,474	6,526	4,439	54.0%	5,077	572	2,383	934	349	1,449
1991	1.0%	665	11,631	9,684	12.9%	1,268	7,794	3,837	61.7%	5,976	552	2,935	1,117	369	1,818
1992	0.89%	583	12,214	9,814	13.1%	1,132	8,926	3,288	68.0%	6,674	620	3,555	1,303	434	2,252
1993	0.83%	548	12,762	9,848	12.9%	843	9,769	2,993	71.3%	7,023	629	4,185	1,438	495	2,747
1994	0.76%	512	13,275	9,806	12.7%	644	10,413	2,861	72.7%	7,132	563	4,748	1,467	535	3,281
1995	0.73%	494	13,769	9,765	12.5%	691	11,105	2,664	74.8%	7,308	509	5,257	1,461	515	3,796
1996	0.66%	457	14,225	9,780	12.4%	520	11,625	2,601	75.7%	7,406	318	5,575	1,356	422	4,219
1997	0.69%	481	14,707	9,908	12.4%	446	12,071	2,636	75.9%	7,519	188	5,763	1,210	334	4,553
1998	0.74%	524	15,230	10,152	12.6%	435	12,506	2,724	75.8%	7,695	152	5,915	1,103	259	4,812
1999	0.83%	592	15,823	10,512	12.9%	401	12,907	2,915	75.0%	7,884	142	6,056	1,033	212	5,024
2000	0.88%	639	16,462	10,960	13.2%	414	13,322	3,140	74.2%	8,128	99	6,155	961	170	5,194
2001	0.93%	680	17,142	11,495	13.6%	391	13,712	3,430	73.0%	8,395	108	6,263	945	124	5,318
2002	0.97%	720	17,862	12,106	14.1%	495	14,207	3,655	72.7%	8,804	94	6,357	954	85	5,403
2003	0.99%	747	18,609	12,740	14.6%	445	14,652	3,956	71.9%	9,161	105	6,462	970	88	5,491
2004	1.02%	760	19,369	13,383	15.3%	541	15,193	4,175	71.8%	9,610	99	6,560	977	92	5,584
2005	1.02%	772	20,141	14,032	15.7%	526	15,720	4,421	71.6%	10,040	109	6,669	989	96	5,680
2006	1.02%	775	20,915	14,679	16.3%	461	16,180	4,735	70.9%	10,401	89	6,758	979	100	5,780
2007	0.99%	760	21,675	15,300	16.8%	481	16,661	5,014	70.4%	10,772	167	6,926	1,037	109	5,889

Table 6.1b Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among MSM-IDU, Ontario, 1977 to 2007

Year	HIV incidence rate	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV prevalence (%)	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality annual	HIV-related mortality cumulative
1977	0.07%	1	1	1	0.07%	0	0	1	0.0%	0	0	0	0	0	0
1978	0.24%	4	5	5	0.30%	0	0	5	0.0%	0	0	0	0	0	0
1979	0.71%	13	18	18	1.0%	0	0	18	0.0%	0	0	0	0	0	0
1980	1.4%	26	44	44	2.4%	0	0	44	0.0%	0	0	0	0	0	0
1981	1.9%	35	79	78	4.1%	0	0	79	0.0%	0	0	0	0	0	0
1982	2.8%	52	130	128	6.7%	0	0	130	0.0%	0	0	0	0	0	0
1983	3.5%	64	194	189	9.8%	4	4	190	1.6%	3	4	4	3	1	1
1984	4.7%	83	277	266	13.6%	5	9	268	1.9%	5	5	9	5	3	4
1985	3.5%	61	338	318	16.1%	20	29	308	3.1%	10	8	16	8	5	8
1986	2.8%	48	385	354	17.6%	53	82	303	14.4%	51	13	29	13	8	16
1987	2.4%	40	425	375	18.3%	52	135	290	22.6%	85	24	53	23	13	29
1988	2.1%	36	462	388	18.5%	56	191	271	30.3%	118	24	76	30	17	47
1989	2.1%	37	499	403	18.7%	66	257	242	40.0%	161	27	103	39	17	64
1990	2.0%	36	535	413	18.8%	73	330	205	50.5%	209	29	132	49	19	83
1991	2.0%	37	571	424	18.9%	63	393	178	58.1%	247	29	161	59	19	102
1992	2.0%	37	608	430	19.1%	80	473	134	68.7%	295	43	204	77	25	127
1993	1.9%	35	643	428	18.7%	75	549	94	78.1%	334	43	248	90	31	157
1994	1.6%	31	674	416	18.0%	70	619	55	86.8%	362	50	297	104	36	193
1995	1.4%	27	701	400	17.1%	68	687	14	96.6%	386	48	346	115	37	231
1996	1.3%	26	727	389	16.5%	40	727	0	100%	390	27	373	111	31	262
1997	1.8%	35	762	395	16.5%	30	758	5	98.8%	390	9	382	96	24	286
1998	1.9%	38	801	408	16.8%	38	795	5	98.7%	403	9	391	87	19	304
1999	2.2%	46	846	432	17.6%	29	825	21	95.1%	411	9	400	80	16	320
2000	1.8%	36	883	448	18.0%	36	861	22	95.2%	427	9	409	75	13	334
2001	1.6%	34	917	466	18.4%	28	888	28	93.9%	437	5	415	71	10	344
2002	1.7%	36	953	489	19.0%	20	909	44	90.9%	445	5	420	70	6	350
2003	1.7%	37	990	512	19.5%	22	931	59	88.4%	452	10	430	73	7	357
2004	1.8%	39	1,029	535	20.4%	29	960	69	87.2%	467	12	441	77	8	364
2005	1.9%	40	1,069	560	20.9%	17	977	92	83.5%	468	5	446	74	8	372
2006	1.9%	41	1,110	586	21.7%	18	995	115	80.3%	471	2	448	69	7	379
2007	1.9%	41	1,152	611	22.4%	31	1,026	125	79.5%	486	6	454	68	7	386

Table 6.1c Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among IDU, Ontario, 1977 to 2007

Year	HIV incidence rate	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV prevalence (%)	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality annual	HIV-related mortality cumulative
1977	0.0%	0	0	0	0.0%	0	0	0	--	0	0	0	0	0	0
1978	0.0%	0	0	0	0.0%	0	0	0	--	0	0	0	0	0	0
1979	0.0%	0	0	0	0.0%	0	0	0	--	0	0	0	0	0	0
1980	0.0%	0	0	0	0.0%	0	0	0	--	0	0	0	0	0	0
1981	0.01%	3	3	3	0.0%	0	0	3	0.0%	0	0	0	0	0	0
1982	0.04%	12	15	15	0.05%	0	0	15	0.0%	0	0	0	0	0	0
1983	0.12%	34	49	49	0.18%	0	0	49	0.0%	0	0	0	0	0	0
1984	0.22%	62	110	110	0.39%	1	1	109	1.1%	1	1	1	1	0	0
1985	0.26%	75	185	183	0.64%	2	3	182	0.38%	1	1	3	1	1	1
1986	0.29%	82	268	261	0.90%	29	32	235	9.8%	26	3	5	3	1	3
1987	0.33%	96	364	349	1.2%	29	61	303	13.3%	47	11	16	10	4	7
1988	0.37%	111	475	448	1.5%	62	123	352	21.5%	96	10	26	13	7	14
1989	0.41%	124	599	556	1.8%	91	215	385	30.9%	172	23	49	26	9	23
1990	0.46%	143	742	678	2.1%	138	352	390	42.4%	288	25	74	38	13	36
1991	0.53%	167	909	818	2.5%	131	483	426	48.0%	392	29	103	51	16	53
1992	0.56%	177	1,086	961	3.0%	173	656	430	55.2%	530	43	147	72	22	75
1993	0.58%	186	1,272	1,105	3.4%	114	770	502	54.6%	603	34	181	79	27	102
1994	0.57%	184	1,456	1,241	3.7%	176	946	510	58.9%	731	43	224	91	31	133
1995	0.52%	167	1,623	1,357	4.0%	132	1,078	545	59.8%	811	51	275	109	33	166
1996	0.44%	144	1,767	1,450	4.3%	126	1,204	563	61.2%	887	38	314	118	30	196
1997	0.39%	127	1,894	1,529	4.4%	106	1,310	584	61.8%	946	28	342	121	26	222
1998	0.34%	114	2,007	1,598	4.6%	114	1,424	583	63.5%	1,015	27	369	125	22	244
1999	0.31%	104	2,111	1,657	4.7%	125	1,549	562	66.1%	1,095	29	398	133	21	265
2000	0.26%	90	2,201	1,703	4.8%	84	1,634	567	66.7%	1,136	26	425	141	19	284
2001	0.24%	84	2,285	1,744	4.8%	80	1,713	572	67.2%	1,172	29	454	153	18	301
2002	0.20%	70	2,355	1,771	4.8%	78	1,791	564	68.2%	1,208	30	484	167	16	317
2003	0.21%	75	2,430	1,802	4.8%	71	1,862	568	68.5%	1,235	31	515	180	17	335
2004	0.22%	79	2,509	1,836	4.9%	91	1,953	556	69.7%	1,280	29	544	190	18	353
2005	0.22%	81	2,589	1,869	4.9%	94	2,047	542	71.0%	1,327	35	579	206	20	373
2006	0.22%	81	2,670	1,902	4.9%	44	2,091	580	69.5%	1,322	18	596	203	20	393
2007	0.24%	90	2,761	1,942	4.9%	81	2,171	590	69.6%	1,353	37	633	218	22	415

Table 6.1d Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among persons from HIV-endemic countries, Ontario, 1977 to 2007

Year	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV prevalence (%)	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality annual	HIV-related mortality cumulative
1977	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0	0	0
1978	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0	0	0
1979	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0	0	0
1980	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0	0	0
1981	7	7	7	0.0%	1	1	6	15.0%	1	1	1	1	0	0
1982	8	15	14	0.01%	0	1	14	3.3%	0	0	1	0	1	1
1983	8	23	22	0.01%	1	3	20	5.6%	1	1	3	1	1	1
1984	18	42	39	0.02%	1	4	38	3.8%	1	1	4	1	1	3
1985	20	62	57	0.03%	4	8	54	6.4%	4	4	8	4	2	4
1986	28	89	80	0.04%	28	36	53	33.7%	27	9	17	9	4	9
1987	60	149	133	0.06%	31	67	82	38.3%	51	11	28	12	7	16
1988	61	210	185	0.08%	41	108	102	45.4%	84	7	35	11	8	24
1989	79	289	255	0.11%	52	160	129	50.0%	128	18	52	20	8	32
1990	114	403	358	0.14%	88	248	155	57.0%	204	26	78	34	12	44
1991	127	530	468	0.17%	119	366	163	65.6%	307	30	107	48	15	59
1992	159	689	606	0.21%	130	496	192	68.8%	417	33	140	61	20	79
1993	198	887	779	0.25%	131	627	259	67.3%	524	35	175	72	24	103
1994	167	1,054	917	0.28%	126	753	301	67.8%	622	37	212	81	28	131
1995	187	1,241	1,073	0.31%	131	883	358	67.4%	724	42	254	95	29	160
1996	208	1,449	1,250	0.35%	115	998	451	64.7%	809	71	325	136	30	190
1997	207	1,656	1,425	0.39%	107	1,106	551	62.2%	887	45	371	152	29	219
1998	207	1,864	1,602	0.43%	115	1,220	643	60.8%	974	48	419	173	27	246
1999	247	2,111	1,820	0.48%	122	1,342	769	58.8%	1,070	47	466	194	26	272
2000	291	2,402	2,083	0.53%	136	1,478	924	56.7%	1,181	32	499	202	25	297
2001	321	2,723	2,375	0.59%	191	1,668	1,054	56.7%	1,347	56	555	233	25	322
2002	348	3,071	2,691	0.66%	240	1,908	1,162	58.0%	1,559	71	626	277	27	349
2003	358	3,429	3,011	0.72%	251	2,159	1,269	59.1%	1,779	70	696	315	32	381
2004	377	3,806	3,349	0.78%	203	2,362	1,444	58.2%	1,947	65	760	345	34	415
2005	397	4,203	3,701	0.84%	213	2,576	1,627	57.4%	2,123	82	842	389	38	453
2006	426	4,629	4,077	0.91%	292	2,868	1,761	58.2%	2,372	75	917	421	42	496
2007	446	5,075	4,472	0.98%	187	3,055	2,021	56.3%	2,516	109	1,026	487	43	538

Table 6.1e Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among persons infected through heterosexual contact, Ontario, 1977 to 2007

Year	HIV incidence rate	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV prevalence (%)	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality annual	HIV-related mortality cumulative
1977	0.0004%	2	2	2	0.0%	0	0	2	0.0%	0	0	0	0	0	0
1978	0.0004%	2	5	5	0.0%	0	0	5	0.0%	0	0	0	0	0	0
1979	0.0004%	2	7	7	0.0%	0	0	7	0.0%	0	0	0	0	0	0
1980	0.0007%	5	12	12	0.0%	0	0	12	0.0%	0	0	0	0	0	0
1981	0.0007%	5	17	17	0.0%	0	0	17	0.0%	0	0	0	0	0	0
1982	0.0019%	13	30	30	0.0%	1	1	29	2.6%	1	1	1	1	0	0
1983	0.0019%	13	43	42	0.01%	0	1	42	0.66%	0	0	1	0	0	1
1984	0.0037%	26	69	67	0.01%	2	3	66	2.5%	2	2	3	2	1	2
1985	0.0056%	40	109	105	0.01%	3	7	102	3.0%	3	2	6	2	2	3
1986	0.0093%	67	176	170	0.02%	5	11	165	3.1%	5	3	9	4	2	5
1987	0.011%	82	258	247	0.03%	13	24	234	5.1%	13	13	22	12	5	11
1988	0.013%	98	356	334	0.04%	21	45	311	7.0%	23	21	43	22	10	21
1989	0.014%	112	468	431	0.06%	42	88	380	11.8%	51	34	77	42	15	35
1990	0.015%	117	585	525	0.07%	52	139	446	15.0%	79	52	129	70	23	58
1991	0.016%	132	717	628	0.08%	70	209	508	19.1%	120	43	171	85	28	86
1992	0.017%	142	859	732	0.09%	104	313	546	25.5%	186	66	237	114	36	123
1993	0.020%	168	1,026	851	0.10%	142	454	572	32.8%	279	77	314	144	47	170
1994	0.023%	191	1,217	986	0.12%	139	593	624	36.7%	362	67	381	156	55	225
1995	0.023%	190	1,407	1,119	0.13%	152	745	662	40.8%	457	83	464	183	56	281
1996	0.022%	189	1,597	1,256	0.15%	111	856	741	41.0%	515	63	526	196	50	331
1997	0.022%	185	1,782	1,397	0.16%	132	987	795	43.1%	602	41	568	194	43	374
1998	0.025%	214	1,996	1,572	0.18%	141	1,128	867	44.8%	705	46	614	204	36	410
1999	0.027%	239	2,235	1,776	0.20%	133	1,261	973	45.2%	803	30	644	201	33	443
2000	0.029%	256	2,490	1,999	0.22%	123	1,385	1,106	44.7%	894	38	681	209	30	473
2001	0.030%	277	2,767	2,246	0.25%	164	1,549	1,218	45.8%	1,028	48	729	230	27	499
2002	0.033%	302	3,069	2,522	0.27%	186	1,735	1,334	47.1%	1,187	43	772	248	24	523
2003	0.034%	321	3,390	2,812	0.30%	188	1,924	1,467	47.8%	1,345	57	828	279	27	550
2004	0.035%	332	3,722	3,110	0.33%	186	2,109	1,613	48.1%	1,497	49	877	298	29	579
2005	0.035%	338	4,060	3,412	0.36%	148	2,258	1,803	47.2%	1,610	50	928	317	31	610
2006	0.035%	342	4,402	3,718	0.38%	213	2,471	1,931	52.0%	1,786	33	960	318	32	642
2007	0.035%	345	4,748	4,023	0.41%	163	2,634	2,113	52.5%	1,910	60	1,021	344	34	676

Table 6.2 Number and proportion of HIV-infected persons who have been diagnosed in Ontario as of December 2007

	HIV prevalence	HIV diagnosed	Proportion diagnosed	Number HIV undiagnosed	Proportion Ontario undiagnosed
Both sexes					
MSM	15,300	10,772	70.4%	5,014	50.8%
MSM-IDU	611	486	79.5%	125	1.3%
IDU	1,942	1,353	69.6%	590	6.0%
HIV-endemic	4,472	2,516	56.3%	2,021	20.5%
Heterosexual	4,023	1,910	47.5%	2,113	21.4%
Clotting factor	126	119	94.8%	6	0.07%
Transfusion	16	15	95.7%	1	0.0%
Total	26,490	17,171	64.8%	9,870	100%
Male					
MSM	15,300	10,772	70.4%	5,014	62.8%
MSM-IDU	611	486	79.5%	125	1.6%
IDU	1,332	932	70.0%	399	5.0%
HIV-endemic	2,723	1,247	45.8%	1,476	18.5%
Heterosexual	1,825	860	47.1%	966	12.1%
Clotting factor	122	116	94.9%	6	0.08%
Transfusion	12	11	97.2%	0	0.0%
Total	21,924	14,424	65.8%	7,987	100%
Female					
IDU	611	420	68.8%	191	10.1%
HIV-endemic	1,749	1,269	72.6%	545	28.9%
Heterosexual	2,198	1,051	47.8%	1,148	60.9%
Clotting factor	3	3	91.5%	0	0.01%
Transfusion	4	4	92.0%	0	0.02%
Total	4,565	2,747	60.2%	1,884	100%

Table 6.3a Modeled HIV prevalence by health region and exposure category, Ontario, December 2007

Heath region	MSM	MSM-IDU	IDU	HIV-endemic	Heterosexual	Clotting factor	Transfusion	Total[1]	Proportion[2]
Toronto	10,880	320	670	2,630	1,990	75	15	16,570	62.5%
Ottawa	1,210	85	480	830	520	10	0	3,150	11.9%
Central East, other	850	45	120	360	460	10	0	1,840	6.9%
Eastern, other	270	25	160	90	120	5	0	670	2.5%
Central West	1,010	65	210	310	350	10	0	1,950	7.4%
Southwest	900	35	110	220	350	10	0	1,630	6.2%
Northern	180	35	190	30	240	5	0	690	2.6%
Total	15,300	610	1,940	4,470	4,020	125	15	26,490	100%
Proportion[3]	57.8%	2.3%	7.3%	16.9%	15.2%	0.47%	0.06%		

1 Cells may not add up total due to rounding
2 Column percent
3 Row percent

Table 6.3b Modeled HIV prevalence by sex, health region and exposure category Ontario, December 2007

	Heath Region	MSM	MSM-IDU	IDU	HIV-endemic	Heterosexual	Clotting factor	Transfusion	Total[1]	Proportion[2]
Males	Toronto	10,880	320	450	1,570	960	70	10	14,250	64.9%
	Ottawa	1,210	85	340	490	250	10	0	2,390	10.9%
	Central East, other	850	45	80	250	230	10	0	1,470	6.7%
	Eastern, other	270	25	120	70	40	5	0	530	2.4%
	Central West	1,010	65	160	200	120	10	0	1,560	7.1%
	Southwest	900	35	70	140	100	10	0	1,260	5.7%
	Northern	180	35	120	10	130	5	0	480	2.2%
	Total	15,300	610	1,330	2,720	1,830	120	10	21,920	100%
	Proportion[3]	69.8%	2.8%	6.1%	12.4%	8.4%	0.55%	0.05%		
Females	Toronto			220	1060	1035	5	5	2,310	50.7%
	Ottawa			145	350	270	0	0	760	16.7%
	Central East, other			40	110	230	0	0	380	8.3%
	Eastern, other			45	20	75	0	0	140	3.1%
	Central West			50	110	225	0	0	390	8.6%
	Southwest			40	80	250	0	0	370	8.1%
	Northern			70	20	115	0	0	210	4.6%
	Total			610	1,750	2,200	5	5	4,570	100%
	Proportion[3]			13.4%	38.3%	48.2%	0.11%	0.11%		

1 Cells may not add up total due to rounding
2 Column percent
3 Row percent

Table 6.4 Modeled HIV incidence by sex, region and exposure category Ontario, 2007

		MSM	MSM-IDU	IDU	HIV-endemic	Heterosexual	Clotting factor	Transfusion	Total[1]	Proportion[2]
Males	Toronto	530	25	25	130	85	0	0	790	63.2%
	Ottawa	80	5	15	40	30	0	0	180	14.4%
	Other	150	10	25	45	50	0	0	280	22.4%
	Total	760	41	65	215	165	0	0	1,245	100%
Females	Toronto			10	140	90	0	0	240	55.2%
	Ottawa			5	50	15	0	0	70	16.1%
	Other			10	40	75	0	0	125	28.7%
	Total			25	230	180	0	0	435	100%
Both sexes	Toronto	530	25	35	270	175	0	0	1,035	61.6%
	Ottawa	80	5	20	90	45	0	0	240	14.3%
	Other	150	10	35	85	125	0	0	405	24.1%
	Total	760	40	90	445	345	0	0	1,680	100%
	Proportion[3]	45.2%	2.4%	5.4%	26.5%	20.5%	0.0%	0.0%		

1 Cells may not add up total due to rounding
2 Column percent
3 Row percent

Table 6.5 Modeled population at risk, HIV prevalence and incidence by health region for selected exposure categories, Ontario, 2007

Health region	Population at risk	HIV prevalent number	HIV prevalence rate (%)	Annual HIV incident number	Annual HIV incidence rate (%)
MSM					
Toronto	48,300	10,800	22.4%	530	1.4%
Ottawa	10,500	1,210	11.5%	80	0.86%
Central East, other	12,100	850	7.0%	35	0.31%
Eastern, other	2,700	270	10.0%	15	0.62%
Central West	8,000	1,010	12.6%	45	0.64%
Southwest	6,500	900	13.8%	45	0.80%
Northern	3,000	180	6.0%	10	0.35%
Ontario, total	91,100	15,300	16.8%	760	1.0%
MSM-IDU					
Toronto	1,430	320	22.4%	23	2.1%
Ottawa	350	85	24.3%	6	2.4%
Central East, other	290	45	15.5%	2	0.93%
Eastern, other	100	25	25.0%	2	2.2%
Central West	270	65	24.1%	4	2.1%
Southwest	190	35	18.4%	3	1.7%
Northern	100	35	35.0%	1	1.3%
Ontario, total	2,730	610	22.3%	40	1.9%
IDU					
Toronto	16,140	670	4.2%	35	0.23%
Ottawa	3,310	480	14.5%	20	0.71%
Central East, other	6,510	120	1.8%	5	0.08%
Eastern, other	2,310	160	6.9%	10	0.47%
Central West	4,810	210	4.4%	5	0.11%
Southwest	3,910	110	2.8%	5	0.13%
Northern	2,310	190	8.2%	10	0.47%
Ontario, total	39,300	1,940	4.9%	90	0.24%
HIV-endemic					
Toronto	202,100	2,630	1.3%	270	0.14%
Ottawa	28,800	830	2.9%	90	0.32%
Central East, other	167,500	360	0.21%	25	0.01%
Eastern, other	3,200	90	2.8%	5	0.16%
Central West	39,600	310	0.78%	30	0.08%
Southwest	12,900	220	1.7%	20	0.16%
Northern	1,900	30	1.6%	5	0.27%
Ontario, total	456,000	4,470	0.98%	445	0.10%
Heterosexual					
Toronto	1,820,000	1,990	0.109%	175	0.0096%
Ottawa	615,000	520	0.085%	45	0.0073%
Central East, other	2,678,000	460	0.017%	35	0.0013%
Eastern, other	625,000	120	0.019%	15	0.0024%
Central West	1,830,000	350	0.019%	35	0.0019%
Southwest	1,197,000	350	0.029%	30	0.0025%
Northern	609,000	240	0.039%	10	0.0016%
Ontario, total	9,375,000	4,020	0.043%	345	0.0037%

Table 6.5a Modeled population at risk, HIV prevalence and incidence by health region and sex for selected exposure categories, Ontario, December 2007

Health region	Males					Females				
	Population at risk	HIV prevalent number	HIV prevalence rate (%)	Annual HIV incident number	Annual HIV incidence rate (%)	Population at risk	HIV prevalent number	HIV prevalence rate (%)	Annual HIV incident number	Annual HIV incidence rate (%)
IDU										
Toronto	11,300	445	3.9%	23	0.21%	4,840	220	4.5%	10	0.22%
Ottawa	2,320	340	14.7%	17	0.86%	990	145	14.6%	6	0.71%
Central East, other	4,560	80	1.8%	2	0.04%	1,950	40	2.1%	3	0.16%
Eastern, other	1,620	120	7.4%	7	0.47%	690	45	6.5%	1	0.16%
Central West	3,370	160	4.7%	5	0.16%	1,440	50	3.5%	2	0.14%
Southwest	2,740	70	2.6%	2	0.07%	1,170	40	3.4%	1	0.09%
Northern	1,620	115	7.1%	7	0.47%	690	70	10.1%	3	0.48%
Ontario, total	27,530	1,330	4.8%	65	0.25%	11,770	610	5.2%	25	0.22%
HIV-endemic										
Toronto	92,160	1,570	1.7%	130	0.14%	109,940	1,060	1.0%	140	0.13%
Ottawa	13,130	490	3.7%	40	0.32%	15,670	350	2.2%	50	0.33%
Central East, other	76,380	250	0.33%	14	0.02%	91,120	110	0.12%	10	0.01%
Eastern, other	1,480	70	4.7%	2	0.14%	1,760	20	1.1%	2	0.13%
Central West	18,040	200	1.11%	15	0.08%	21,520	110	0.51%	17	0.08%
Southwest	5,890	140	2.4%	13	0.23%	7,030	80	1.1%	9	0.13%
Northern	860	10	1.2%	1	0.12%	1,020	20	2.0%	1	0.12%
Ontario, total	207,940	2,720	1.31%	215	0.10%	248,060	1,750	0.71%	230	0.09%
Heterosexual										
Toronto	861,000	960	0.111%	85	0.0099%	959,000	1,035	0.108%	90	0.0094%
Ottawa	296,000	250	0.084%	30	0.0101%	319,000	270	0.085%	15	0.0047%
Central East, other	1,326,000	230	0.017%	17	0.0013%	1,352,000	230	0.017%	19	0.0014%
Eastern, other	307,000	40	0.013%	4	0.0013%	317,000	75	0.024%	9	0.0028%
Central West	901,000	120	0.013%	13	0.0014%	929,000	225	0.024%	23	0.0025%
Southwest	589,000	100	0.017%	10	0.0017%	608,000	250	0.041%	19	0.0031%
Northern	300,000	130	0.043%	7	0.0023%	309,000	115	0.037%	5	0.0016%
Ontario, total	4,580,000	1,830	0.040%	165	0.0036%	4,793,000	2,200	0.046%	180	0.0038%

Table S-1 Number and proportion[1] of HIV diagnoses (adjusted[2]) by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 1985 to 2007

LHIN region	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[4]		Other[5]		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	357	58.1%	40	6.6%	35	5.7%	6	0.99%	14	2.3%	62	10.0%	40	6.6%	53	8.5%	0	0.0%	7	1.1%	615
South West	831	59.0%	65	4.6%	109	7.7%	64	4.5%	25	1.8%	95	6.7%	102	7.3%	95	6.7%	9	0.60%	14	1.0%	1,409
Waterloo Wellington	140	38.1%	15	4.1%	62	16.8%	1	0.27%	8	2.1%	66	17.9%	23	6.1%	45	12.1%	3	0.81%	6	1.6%	368
Hamilton Niagara Haldimand Brant	618	47.3%	67	5.1%	144	11.0%	20	1.5%	44	3.4%	182	14.0%	52	4.0%	145	11.1%	10	0.74%	24	1.9%	1,306
Central West	747	63.7%	33	2.8%	67	5.7%	10	0.87%	25	2.1%	110	9.4%	61	5.2%	90	7.7%	8	0.70%	20	1.7%	1,172
Mississauga Halton	709	60.2%	42	3.6%	86	7.3%	7	0.62%	32	2.7%	128	10.9%	47	4.0%	103	8.8%	5	0.42%	18	1.5%	1,178
Toronto Central	7,252	67.8%	308	2.9%	458	4.3%	61	0.57%	101	0.95%	1,290	12.1%	267	2.5%	818	7.6%	52	0.49%	92	0.86%	10,700
Central	2,704	69.7%	125	3.2%	153	3.9%	31	0.80%	47	1.2%	359	9.3%	150	3.9%	242	6.2%	21	0.55%	49	1.3%	3,882
Central East	2,532	73.2%	111	3.2%	142	4.1%	33	0.96%	43	1.3%	244	7.1%	139	4.0%	166	4.8%	19	0.55%	29	0.84%	3,459
South East	201	39.6%	48	9.6%	128	25.2%	19	3.8%	11	2.2%	31	6.1%	33	6.5%	31	6.1%	0	0.0%	4	0.83%	507
Champlain	1,560	45.9%	148	4.3%	510	15.0%	31	0.92%	87	2.5%	695	20.5%	86	2.5%	214	6.3%	25	0.75%	41	1.2%	3,397
North Simcoe Muskoka	59	49.1%	3	2.3%	11	9.2%	0	0.0%	2	1.8%	18	15.1%	11	8.8%	14	11.9%	0	0.0%	2	1.8%	121
North East	114	28.7%	35	8.9%	153	38.2%	13	3.2%	5	1.1%	17	4.2%	24	6.0%	38	9.4%	1	0.25%	0	0.0%	399
North West	51	27.3%	6	3.0%	72	39.1%	4	2.3%	1	0.54%	3	1.7%	23	12.6%	24	12.8%	1	0.54%	0	0.0%	185
Total	17,876	62.3%	1,047	3.6%	2,132	7.4%	302	1.1%	445	1.6%	3,300	11.5%	1,058	3.7%	2,077	7.2%	154	0.54%	307	1.1%	28,697

1 Row percent
2 Adjusted for unknown LHIN region, sex and exposure category (see text for more details), thus, total may differ due to rounding;
the total adjusted number by exposure category was different from the number adjusted by health region, since weights of allocation of unknown exposure category
for the 14 LHIN regions were the weights from seven health regions
3 LHIN derived from public health unit (PHU) for 62.4% of cases; the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region
4 Includes only HIV-infected infants
5 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-1a Number and proportion[1] of HIV diagnoses (adjusted[2]) among males by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 1985 to 2007

LHIN region	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[4]		Other[5]		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	357	69.6%	40	7.9%	30	5.9%	6	1.2%	8	1.5%	25	4.8%	11	2.1%	31	5.9%	0	0.0%	6	1.1%	513
South West	831	70.0%	65	5.5%	87	7.4%	62	5.2%	10	0.86%	40	3.4%	15	1.2%	60	5.0%	6	0.46%	12	0.99%	1,187
Waterloo Wellington	140	51.5%	15	5.6%	48	17.6%	1	0.37%	5	1.8%	28	10.1%	4	1.4%	28	10.1%	1	0.37%	3	1.2%	273
Hamilton Niagara Haldimand Brant	618	60.9%	67	6.6%	98	9.6%	16	1.6%	29	2.8%	81	8.0%	7	0.69%	79	7.8%	5	0.49%	15	1.4%	1,014
Central West	747	76.5%	33	3.4%	41	4.2%	9	0.95%	15	1.5%	51	5.3%	21	2.1%	47	4.8%	2	0.23%	9	0.96%	976
Mississauga Halton	709	71.2%	42	4.2%	62	6.2%	7	0.66%	21	2.1%	65	6.5%	19	1.9%	62	6.2%	2	0.21%	8	0.76%	995
Toronto Central	7,252	77.3%	308	3.3%	336	3.6%	54	0.57%	51	0.54%	653	7.0%	119	1.3%	525	5.6%	27	0.28%	59	0.63%	9,384
Central	2,704	81.7%	125	3.8%	98	3.0%	26	0.79%	28	0.83%	146	4.4%	39	1.2%	119	3.6%	9	0.28%	17	0.51%	3,311
Central East	2,532	82.3%	111	3.6%	100	3.3%	28	0.91%	30	0.97%	112	3.6%	41	1.3%	100	3.2%	9	0.29%	12	0.40%	3,075
South East	201	45.8%	48	11.1%	107	24.5%	19	4.4%	10	2.3%	21	4.7%	5	1.3%	22	5.0%	0	0.0%	4	0.96%	438
Champlain	1,560	58.1%	148	5.5%	374	13.9%	27	1.0%	29	1.1%	324	12.1%	38	1.4%	152	5.7%	8	0.29%	25	0.93%	2,686
North Simcoe Muskoka	59	57.9%	3	2.7%	10	10.2%	0	0.0%	0	0.11%	12	11.3%	6	6.2%	11	10.4%	0	0.0%	1	1.2%	102
North East	114	37.2%	35	11.5%	92	30.0%	13	4.1%	0	0.0%	12	3.9%	14	4.6%	26	8.4%	1	0.32%	0	0.0%	308
North West	51	39.4%	6	4.4%	43	33.5%	3	2.4%	0	0.0%	2	1.3%	7	5.2%	17	13.0%	1	0.78%	0	0.0%	129
Total	17,876	73.3%	1,047	4.3%	1,527	6.3%	271	1.1%	234	0.96%	1,571	6.4%	345	1.4%	1,277	5.2%	71	0.29%	171	0.70%	24,391

1 Row percent
2 Adjusted for unknown LHIN region, sex and exposure category (see text for more details), thus, total may differ due to rounding;
the total adjusted number by exposure category was different from the number adjusted by health region, since weights of allocation of unknown exposure category
for the 14 LHIN regions were the weights from seven health regions
3 LHIN derived from public health unit (PHU) for 62.4% of cases; the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region
4 Includes only HIV-infected infants
5 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-1b Number and proportion[1] of HIV diagnoses (adjusted[2]) among females by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 1985 to 2007

LHIN region	IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[4]		Other[5]		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	5	4.9%	0	0.0%	7	6.6%	37	36.4%	30	29.3%	22	21.7%	0	0.0%	1	1.1%	102
South West	21	9.7%	2	0.92%	15	6.6%	55	24.8%	88	39.7%	35	15.9%	3	1.4%	2	1.1%	221
Waterloo Wellington	14	14.8%	0	0.0%	3	3.0%	38	40.0%	19	19.6%	17	17.8%	2	2.1%	3	2.7%	95
Hamilton Niagara Haldimand Brant	47	15.9%	3	1.2%	16	5.3%	101	34.6%	45	15.4%	66	22.6%	5	1.6%	10	3.3%	292
Central West	27	13.6%	1	0.49%	10	5.1%	59	30.0%	40	20.2%	43	22.0%	6	3.1%	11	5.6%	196
Mississauga Halton	25	13.5%	1	0.40%	12	6.3%	63	34.7%	28	15.4%	41	22.6%	3	1.6%	10	5.5%	183
Toronto Central	122	9.3%	8	0.58%	51	3.8%	636	48.3%	149	11.3%	293	22.2%	25	1.9%	32	2.5%	1,316
Central	55	9.7%	5	0.89%	19	3.3%	213	37.3%	111	19.5%	123	21.5%	12	2.1%	32	5.7%	571
Central East	42	10.9%	5	1.4%	13	3.5%	132	34.4%	98	25.5%	66	17.3%	10	2.6%	17	4.4%	384
South East	20	29.7%	0	0.0%	1	2.1%	10	15.1%	27	39.6%	9	13.5%	0	0.0%	0	0.0%	69
Champlain	136	19.1%	4	0.62%	58	8.2%	371	52.1%	48	6.7%	61	8.6%	17	2.5%	16	2.2%	711
North Simcoe Muskoka	1	4.0%	0	0.0%	2	10.9%	7	36.5%	4	23.5%	4	20.5%	0	0.0%	1	4.7%	18
North East	60	66.1%	0	0.0%	5	5.0%	5	5.3%	10	10.7%	12	12.9%	0	0.0%	0	0.0%	91
North West	29	51.7%	1	2.3%	1	1.8%	1	2.6%	17	29.3%	7	12.3%	0	0.0%	0	0.0%	57
Total	604	14.0%	31	0.72%	211	4.9%	1,729	40.2%	712	16.5%	799	18.6%	83	1.9%	136	3.1%	4,306

1 Row percent
2 Adjusted for unknown LHIN region, sex and exposure category (see text for more details), thus, total may differ due to rounding;
the total adjusted number by exposure category was different from the number adjusted by health region, since weights of allocation of unknown exposure category for the 14 LHIN regions were the weights from seven health regions
3 LHIN derived from public health unit (PHU) for 62.4% of cases; the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region
4 Includes only HIV-infected infants
5 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-2 Number and proportion[1] of HIV diagnoses (adjusted[2]) by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 2007

LHIN region	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[4]		Other[5]		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	5	20.3%	0	0.0%	0	0.0%	0	0.0%	1	3.3%	11	48.2%	2	6.6%	5	21.5%	0	0.0%	0	0.0%	23
South West	11	34.2%	0	1.1%	3	9.0%	0	0.0%	1	2.5%	6	18.4%	3	10.0%	8	24.2%	0	0.0%	0	0.52%	33
Waterloo Wellington	10	40.1%	1	2.2%	1	2.4%	0	0.0%	0	0.0%	6	23.9%	1	3.0%	5	22.6%	1	4.2%	0	1.6%	24
Hamilton Niagara Haldimand Brant	36	45.5%	8	10.6%	5	5.9%	0	0.0%	0	0.0%	12	15.6%	6	7.3%	12	14.5%	0	0.0%	0	0.52%	80
Central West	13	38.5%	1	1.7%	3	10.1%	0	0.0%	3	7.9%	4	12.7%	1	2.9%	5	14.4%	0	0.0%	4	11.7%	33
Mississauga Halton	20	41.8%	0	0.77%	1	1.8%	0	0.0%	0	0.24%	15	31.6%	2	4.2%	8	16.4%	0	0.0%	2	3.2%	47
Toronto Central	280	57.1%	13	2.6%	17	3.4%	0	0.0%	4	0.91%	99	20.1%	14	3.0%	51	10.3%	1	0.20%	11	2.3%	491
Central	22	29.2%	2	2.8%	14	18.0%	0	0.0%	0	0.54%	6	7.6%	6	8.3%	20	25.9%	0	0.0%	6	7.6%	76
Central East	19	28.8%	1	1.6%	9	14.0%	0	0.0%	0	0.42%	13	19.5%	6	9.3%	14	21.1%	0	0.0%	4	5.3%	66
South East	4	33.9%	1	6.3%	2	16.9%	0	0.0%	0	0.0%	1	10.0%	0	0.0%	3	30.9%	0	0.0%	0	2.0%	11
Champlain	52	35.8%	3	1.7%	25	17.4%	0	0.0%	0	0.0%	36	24.9%	8	5.4%	17	11.7%	0	0.0%	5	3.1%	146
North Simcoe Muskoka	0	5.9%	0	0.0%	0	3.5%	0	0.0%	0	1.0%	1	17.9%	1	8.8%	3	50.4%	0	0.0%	1	12.6%	6
North East	9	33.2%	4	15.6%	7	28.7%	0	0.0%	0	0.0%	0	0.0%	0	1.5%	5	21.0%	0	0.0%	0	0.0%	26
North West	0	2.5%	0	2.5%	10	69.3%	0	0.0%	0	0.0%	0	0.0%	0	0.89%	2	17.6%	1	7.1%	0	0.0%	14
Total	481	44.7%	34	3.2%	97	9.0%	0	0.0%	10	0.88%	211	19.6%	50	4.7%	158	14.7%	3	0.28%	32	3.0%	1,076

1 Row percent
2 Adjusted for unknown LHIN region, sex and exposure category (see text for more details), thus, total may differ due to rounding; the total adjusted number by exposure category was different from the number adjusted by health region, since weights of allocation of unknown exposure category for the 14 LHIN regions were the weights from seven health regions
3 LHIN derived from postal code
4 Includes only HIV-infected infants
5 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-2a Number and proportion[1] of HIV diagnoses (adjusted[2]) among males by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 2007

LHIN region	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[4]		Other[5]		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	5	31.2%	0	0.0%	0	0.0%	0	0.0%	1	5.1%	3	20.6%	2	10.2%	5	32.9%	0	0.0%	0	0.0%	15
South West	11	45.2%	0	1.5%	2	6.6%	0	0.0%	1	2.7%	4	17.2%	1	5.4%	5	21.4%	0	0.0%	0	0.0%	25
Waterloo Wellington	10	64.1%	1	3.6%	0	2.3%	0	0.0%	0	0.0%	1	5.3%	0	0.0%	3	22.1%	0	0.0%	0	2.6%	15
Hamilton Niagara Haldimand Brant	36	62.8%	8	14.6%	4	6.4%	0	0.0%	0	0.0%	2	3.4%	1	1.7%	6	10.3%	0	0.0%	0	0.7%	58
Central West	13	53.4%	1	2.4%	3	13.2%	0	0.0%	2	10.1%	0	0.58%	0	1.7%	1	5.5%	0	0.0%	3	13.1%	24
Mississauga Halton	20	57.1%	0	1.1%	1	2.1%	0	0.0%	0	0.0%	6	18.2%	1	4.2%	5	14.7%	0	0.0%	1	2.6%	35
Toronto Central	280	70.1%	13	3.2%	9	2.1%	0	0.0%	2	0.46%	45	11.2%	4	0.99%	38	9.4%	1	0.25%	9	2.2%	400
Central	22	43.1%	2	4.1%	10	19.7%	0	0.0%	0	0.0%	2	3.0%	4	7.3%	9	17.2%	0	0.0%	3	5.5%	51
Central East	19	39.1%	1	2.1%	7	15.0%	0	0.0%	0	0.0%	10	21.2%	3	5.3%	7	13.8%	0	0.0%	2	3.4%	49
South East	4	41.4%	1	7.8%	2	18.8%	0	0.0%	0	0.0%	0	3.1%	0	0.0%	2	26.5%	0	0.0%	0	2.5%	9
Champlain	52	46.6%	3	2.3%	21	18.8%	0	0.0%	0	0.0%	16	14.2%	4	3.7%	13	11.9%	0	0.0%	3	2.5%	112
North Simcoe Muskoka	0	8.8%	0	0.0%	0	3.6%	0	0.0%	0	0.0%	1	15.3%	0	9.6%	2	49.2%	0	0.0%	1	13.6%	4
North East	9	41.1%	4	19.3%	5	22.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4	17.1%	0	0.0%	0	0.0%	21
North West	0	3.6%	0	3.5%	7	65.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	17.1%	1	10.0%	0	0.0%	10
Total	481	58.2%	34	4.1%	70	8.4%	0	0.0%	6	0.69%	90	10.9%	21	2.5%	102	12.4%	2	0.24%	22	2.6%	827

1 Row percent
2 Adjusted for unknown LHIN region, sex and exposure category (see text for more details), thus, total may differ due to rounding;
the total adjusted number by exposure category was different from the number adjusted by health region, since weights of allocation of unknown exposure category for the 14 LHIN regions were the weights from seven health regions
3 LHIN derived from postal code
4 Includes only HIV-infected infants
5 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-2b Number and proportion[1] of HIV diagnoses (adjusted[2]) among females by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 2007

LHIN region	IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		MTC[4]		Other[5]		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	0	0.0%	0	0.0%	0	0.0%	8	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	8
South West	1	16.6%	0	0.0%	0	1.8%	2	22.3%	2	24.3%	3	32.9%	0	0.0%	0	2.1%	8
Waterloo Wellington	0	2.5%	0	0.0%	0	0.0%	5	54.9%	1	8.0%	2	23.5%	1	11.1%	0	0.0%	9
Hamilton Niagara Haldimand Brant	1	4.7%	0	0.0%	0	0.0%	11	47.8%	5	22.1%	6	25.5%	0	0.0%	0	0.0%	22
Central West	0	2.2%	0	0.0%	0	2.1%	4	44.2%	1	6.2%	3	37.4%	0	0.0%	1	8.0%	9
Mississauga Halton	0	1.0%	0	0.0%	0	0.91%	9	68.0%	1	4.2%	3	21.0%	0	0.0%	1	4.9%	13
Toronto Central	8	9.1%	0	0.0%	3	2.9%	54	59.3%	11	11.6%	13	14.4%	0	0.0%	3	2.8%	91
Central	4	14.4%	0	0.0%	0	1.7%	4	17.4%	3	10.3%	11	44.2%	0	0.0%	3	12.0%	25
Central East	2	11.2%	0	0.0%	0	1.6%	3	14.7%	4	20.4%	7	41.4%	0	0.0%	2	10.7%	17
South East	0	8.5%	0	0.0%	0	0.0%	1	40.8%	0	0.0%	1	50.7%	0	0.0%	0	0.0%	2
Champlain	4	12.7%	0	0.0%	0	0.0%	21	60.5%	4	10.8%	4	10.9%	0	0.0%	2	5.1%	34
North Simcoe Muskoka	0	3.2%	0	0.0%	0	3.0%	0	23.1%	0	7.2%	1	52.7%	0	0.0%	0	10.8%	2
North East	3	54.6%	0	0.0%	0	0.0%	0	0.0%	0	7.8%	2	37.6%	0	0.0%	0	0.0%	5
North West	3	78.1%	0	0.0%	0	0.0%	0	0.0%	0	3.1%	1	18.8%	0	0.0%	0	0.0%	4
Total	27	10.9%	8	3.2%	4	1.5%	112	45.2%	30	11.9%	56	22.5%	1	0.40%	11	4.3%	249

1 Row percent
2 Adjusted for unknown LHIN region, sex and exposure category (see text for more details), thus, total may differ due to rounding;
the total adjusted number by exposure category was different from the number adjusted by health region, since weights of allocation of unknown exposure category for the 14 LHIN regions were the weights from seven health regions
3 LHIN derived from postal code
4 Includes only HIV-infected infants
5 Other exposure includes needle-stick, acupuncture, tattoo, etc.

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-3 Number of HIV diagnoses (adjusted[1]) and rate[2] per 100,000 by Local Health Integration Network (LHIN) region[3] and sex, Ontario, 1985 to 2007

LHIN region	Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate
Erie St. Clair	513	169.5	102	33.1	615	100.8
South West	1,187	276.4	221	50.2	1,409	161.8
Waterloo Wellington	273	86.5	95	30.0	368	58.1
Hamilton Niagara Haldimand Brant	1,014	162.9	292	45.6	1,306	103.5
Central West	976	313.3	196	62.3	1,172	187.0
Mississauga Halton	995	222.8	183	40.4	1,178	131.0
Toronto Central	9,384	1,759.8	1,316	235.0	10,700	978.8
Central	3,311	496.0	571	83.2	3,882	286.9
Central East	3,075	464.2	384	56.1	3,459	256.8
South East	438	195.9	69	30.1	507	112.1
Champlain	2,686	494.4	711	127.6	3,397	308.7
North Simcoe Muskoka	102	54.5	18	9.7	121	32.0
North East	308	112.3	91	32.7	399	72.1
North West	129	110.0	57	48.7	185	79.4
Total	24,391	432.7	4,306	74.6	28,697	251.5

1 Adjusted for unknown sex
2 Using 2001 census population (Statistics Canada)
3 LHIN derived from public health unit (PHU) for 62.4% of cases; the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care;
Statistics Canada (2001 census)

Table S-4 Number and proportion[1] of AIDS cases (adjusted[2]) by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 1981 to 2007

LHIN region	MSM		MSM-IDU		IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	187	64.9%	18	6.3%	26	8.8%	9	3.3%	40	13.9%	6	2.1%	1	0.42%	1	0.35%	0	0.0%	289
South West	262	66.7%	21	5.2%	22	5.6%	9	2.4%	53	13.5%	12	3.1%	13	3.2%	1	0.29%	0	0.0%	393
Waterloo Wellington	101	62.2%	1	0.70%	12	7.4%	16	9.6%	22	13.9%	4	2.3%	5	3.3%	1	0.62%	0	0.0%	162
Hamilton Niagara Haldimand Brant	341	64.3%	22	4.1%	36	6.9%	29	5.5%	76	14.3%	15	2.8%	8	1.5%	3	0.62%	0	0.0%	529
Central West	294	67.1%	16	3.5%	14	3.2%	34	7.9%	60	13.7%	8	1.8%	8	1.9%	3	0.78%	0	0.06%	438
Mississauga Halton	308	64.3%	17	3.5%	17	3.6%	37	7.8%	74	15.5%	10	2.1%	11	2.3%	4	0.90%	0	0.0%	479
Toronto Central	1,734	76.4%	89	3.9%	65	2.9%	175	7.7%	155	6.8%	12	0.52%	24	1.1%	15	0.64%	2	0.08%	2,271
Central	1,023	73.7%	52	3.7%	45	3.3%	103	7.4%	121	8.7%	10	0.73%	24	1.7%	8	0.60%	2	0.15%	1,388
Central East	1,011	74.3%	51	3.7%	45	3.3%	109	8.0%	102	7.5%	13	0.99%	20	1.5%	7	0.55%	1	0.07%	1,361
South East	89	48.3%	14	7.4%	35	19.1%	14	7.4%	17	9.1%	8	4.1%	8	4.1%	1	0.54%	0	0.0%	184
Champlain	441	58.2%	25	3.3%	78	10.3%	118	15.6%	56	7.4%	15	2.0%	12	1.6%	10	1.3%	2	0.28%	757
North Simcoe Muskoka	72	60.1%	4	3.4%	9	7.9%	1	0.83%	22	18.2%	4	3.3%	5	4.2%	3	2.2%	0	0.0%	119
North East	103	53.2%	18	9.5%	39	20.4%	9	4.5%	9	4.5%	12	6.0%	4	2.0%	0	0.0%	0	0.0%	193
North West	27	34.1%	2	2.9%	20	25.4%	8	9.7%	20	25.2%	1	1.5%	0	0.0%	1	1.3%	0	0.0%	80
Total	5,992	69.3%	349	4.0%	466	5.4%	670	7.8%	827	9.6%	129	1.5%	143	1.7%	59	0.68%	7	0.09%	8,643

1 Row percent
2 Adjusted for unknown exposure category according to proportion among the known cases stratified by sex, LHIN region and year of diagnosis
3 LHIN derived from public health unit (PHU); the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-4a Number and proportion[1] of AIDS cases (adjusted[2]) among males by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 1981 to 2007

LHIN region	MSM		MSM-IDU		IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	187	71.3%	18	6.9%	21	8.0%	6	2.4%	23	8.7%	6	2.3%	1	0.46%	0	0.0%	0	0.0%	263
South West	262	74.7%	21	5.9%	15	4.2%	5	1.5%	28	7.9%	12	3.5%	7	2.0%	1	0.29%	0	0.0%	350
Waterloo Wellington	101	71.5%	1	0.81%	9	6.7%	10	6.7%	13	9.4%	4	2.6%	2	1.6%	1	0.71%	0	0.0%	141
Hamilton Niagara Haldimand Brant	341	72.0%	22	4.6%	29	6.2%	16	3.3%	46	9.8%	15	3.1%	3	0.67%	1	0.30%	0	0.0%	473
Central West	294	74.2%	16	3.9%	10	2.5%	23	5.7%	40	10.2%	7	1.7%	5	1.4%	2	0.44%	0	0.07%	396
Mississauga Halton	308	71.7%	17	3.9%	13	3.0%	24	5.6%	50	11.6%	8	1.8%	7	1.7%	2	0.57%	0	0.0%	429
Toronto Central	1,734	81.6%	89	4.2%	48	2.3%	109	5.1%	108	5.1%	10	0.49%	16	0.78%	7	0.35%	2	0.09%	2,125
Central	1,023	79.6%	52	4.0%	33	2.6%	62	4.9%	86	6.7%	9	0.72%	14	1.1%	4	0.33%	2	0.16%	1,286
Central East	1,011	80.0%	51	4.0%	36	2.8%	65	5.1%	71	5.6%	12	0.92%	14	1.1%	4	0.30%	1	0.08%	1,264
South East	89	54.2%	14	8.3%	27	16.4%	9	5.7%	11	6.9%	8	4.6%	5	3.2%	1	0.61%	0	0.0%	164
Champlain	441	66.9%	25	3.8%	63	9.5%	65	9.9%	39	5.9%	14	2.1%	9	1.3%	3	0.46%	0	0.0%	659
North Simcoe Muskoka	72	70.9%	4	4.0%	6	6.1%	1	0.98%	11	11.2%	3	2.9%	3	3.0%	1	0.85%	0	0.0%	101
North East	103	59.1%	18	10.5%	27	15.4%	6	3.5%	7	4.2%	12	6.6%	1	0.70%	0	0.0%	0	0.0%	174
North West	27	47.0%	2	4.1%	10	17.0%	5	8.6%	12	21.3%	1	2.0%	0	0.0%	0	0.0%	0	0.0%	58
Total	5,992	76.0%	349	4.4%	347	4.4%	407	5.2%	547	6.9%	120	1.5%	89	1.1%	28	0.36%	5	0.07%	7,884

1 Row percent
2 Adjusted for unknown exposure category according to proportion among the known cases stratified by sex, LHIN region and year of diagnosis
3 LHIN derived from public health unit (PHU); the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-4b Number and proportion[1] of AIDS cases (adjusted[2]) among females by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 1981 to 2007

LHIN region	IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	4	16.9%	3	12.3%	17	66.9%	0	0.0%	0	0.0%	1	3.8%	0	0.0%	26
South West	7	17.2%	4	9.4%	25	59.9%	0	0.0%	6	13.3%	0	0.29%	0	0.0%	42
Waterloo Wellington	3	12.5%	6	28.9%	9	44.1%	0	0.0%	3	14.5%	0	0.0%	0	0.0%	21
Hamilton Niagara Haldimand Brant	7	12.7%	13	23.4%	29	52.0%	0	0.0%	5	8.6%	2	3.3%	0	0.0%	57
Central West	4	10.7%	12	28.2%	20	46.5%	2	3.6%	3	7.0%	2	4.0%	0	0.0%	42
Mississauga Halton	4	8.4%	13	26.8%	24	49.1%	2	4.0%	4	8.1%	2	3.7%	0	0.0%	49
Toronto Central	18	12.0%	65	44.9%	47	32.2%	1	0.96%	7	5.1%	7	4.8%	0	0.0%	146
Central	12	11.7%	40	39.8%	35	34.3%	1	0.88%	9	9.2%	4	4.0%	0	0.0%	102
Central East	10	9.9%	44	45.7%	31	32.3%	2	1.9%	6	6.5%	4	3.7%	0	0.0%	97
South East	8	40.4%	4	21.6%	5	27.1%	0	0.0%	2	11.0%	0	0.0%	0	0.0%	20
Champlain	16	15.8%	53	53.4%	17	17.2%	1	1.1%	3	3.3%	7	7.1%	2	2.2%	99
North Simcoe Muskoka	3	17.8%	0	0.0%	10	56.7%	1	5.3%	2	10.7%	2	9.5%	0	0.0%	18
North East	13	66.1%	3	13.5%	1	6.8%	0	0.0%	3	13.6%	0	0.0%	0	0.0%	19
North West	10	47.6%	3	12.4%	8	35.5%	0	0.0%	0	0.0%	1	4.5%	0	0.0%	22
Total	119	15.7%	264	34.8%	280	36.9%	10	1.3%	53	7.0%	31	4.1%	2	0.28%	759

1 Row percent
2 Adjusted for unknown exposure category according to proportion among the known cases stratified by sex, LHIN region and year of diagnosis
3 LHIN derived from public health unit (PHU); the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-5 Number and proportion[1] of AIDS cases (adjusted[2]) by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 2007

LHIN region	MSM		MSM-IDU		IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	0	11.1%	0	0.0%	0	0.0%	2	77.8%	0	11.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
South West	1	17.9%	0	0.0%	2	28.8%	2	24.5%	2	28.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	6
Waterloo Wellington	0	0.0%	0	0.0%	0	0.0%	2	57.2%	1	42.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
Hamilton Niagara Haldimand Brant	7	61.2%	0	0.0%	2	15.3%	1	7.7%	2	15.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	11
Central West	2	43.6%	0	2.2%	0	2.4%	1	25.8%	1	26.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	5
Mississauga Halton	3	46.9%	0	1.7%	0	3.2%	1	25.1%	1	23.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	6
Toronto Central	18	54.5%	1	2.9%	1	3.2%	8	23.0%	5	16.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	33
Central	11	54.7%	1	2.8%	1	3.2%	4	22.7%	3	16.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	19
Central East	12	53.9%	1	2.6%	2	7.4%	5	23.2%	3	12.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	22
South East	0	36.8%	0	0.0%	0	26.4%	0	36.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
Champlain	2	24.9%	0	0.0%	0	2.2%	5	54.6%	2	18.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	9
North Simcoe Muskoka	2	90.5%	0	0.0%	0	0.0%	0	0.0%	0	9.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
North East	3	41.7%	0	0.0%	4	58.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	6
North West	0	0.0%	0	0.0%	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2
Total	61	47.1%	2	1.8%	12	9.3%	33	25.4%	21	16.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	129

1 Row percent
2 Adjusted for unknown exposure category according to proportion among the known cases stratified by sex, LHIN region and year of diagnosis
3 LHIN derived from public health unit (PHU); the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-5a Number and proportion[1] of AIDS cases (adjusted[2]) among males by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 2007

LHIN region	MSM		MSM-IDU		IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	0	11.1%	0	0.0%	0	0.0%	2	77.8%	0	11.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
South West	1	26.5%	0	0.0%	2	36.7%	0	0.0%	2	36.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4
Waterloo Wellington	0	0.0%	0	0.0%	0	0.0%	1	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
Hamilton Niagara Haldimand Brant	7	70.5%	0	0.0%	1	15.7%	0	0.0%	1	13.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	9
Central West	2	54.1%	0	2.7%	0	2.9%	1	17.0%	1	23.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4
Mississauga Halton	3	58.6%	0	2.1%	0	4.0%	0	9.5%	1	25.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4
Toronto Central	18	64.9%	1	3.5%	1	3.7%	4	13.8%	4	14.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	28
Central	11	64.2%	1	3.3%	1	3.6%	2	14.2%	2	14.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	16
Central East	12	61.5%	1	3.0%	2	8.4%	3	16.4%	2	10.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	19
South East	0	36.8%	0	0.0%	0	26.4%	0	36.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
Champlain	2	32.0%	0	0.0%	0	2.9%	3	46.4%	1	18.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	7
North Simcoe Muskoka	2	90.5%	0	0.0%	0	0.0%	0	0.0%	0	9.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
North East	3	41.7%	0	0.0%	4	58.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	6
North West	0	0.0%	0	0.0%	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2
Total	61	56.3%	2	2.1%	11	10.6%	18	16.9%	15	14.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	108

1 Row percent
2 Adjusted for unknown exposure category according to proportion among the known cases stratified by sex, LHIN region and year of diagnosis
3 LHIN derived from public health unit (PHU); the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-5b Number and proportion[1] of AIDS cases (adjusted[2]) among females by Local Health Integration Network (LHIN) region[3] and exposure category, Ontario, 2007

LHIN region	IDU		HIV-endemic		Heterosexual		Clotting factor		Transfusion		MTC		Occupational		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Erie St. Clair	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
South West	0	12.5%	2	75.0%	0	12.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2
Waterloo Wellington	0	0.0%	1	44.1%	1	55.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
Hamilton Niagara Haldimand Brant	0	12.0%	1	58.7%	0	29.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
Central West	0	0.21%	1	62.9%	0	36.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
Mississauga Halton	0	0.11%	1	87.5%	0	12.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
Toronto Central	0	0.66%	4	71.3%	1	28.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	5
Central	0	0.66%	2	71.3%	1	28.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
Central East	0	0.59%	2	71.7%	1	27.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3
South East	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
Champlain	0	0.0%	2	83.3%	0	16.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2
North Simcoe Muskoka	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
North East	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
North West	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
Total	0	2.3%	15	69.1%	6	28.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	21

1 Row percent
2 Adjusted for unknown exposure category according to proportion among the known cases stratified by sex, LHIN region and year of diagnosis
3 LHIN derived from public health unit (PHU); the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table S-6 Number of AIDS cases (adjusted[1]) and rate[2] per 100,000 by Local Health Integration Network (LHIN) region[3] and sex, Ontario, 1981 to 2007

LHIN region	Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate
Erie St. Clair	263	86.9	26	8.5	289	47.4
South West	350	81.6	42	9.6	393	45.1
Waterloo Wellington	141	44.7	21	6.6	162	25.6
Hamilton Niagara Haldimand Brant	473	76.0	57	8.8	529	42.0
Central West	396	127.2	42	13.3	438	69.9
Mississauga Halton	429	96.1	49	10.9	479	53.2
Toronto Central	2,125	398.6	146	26.0	2,271	207.7
Central	1,286	192.7	102	14.8	1,388	102.6
Central East	1,264	190.8	97	14.1	1,361	101.0
South East	164	73.3	20	8.8	184	40.7
Champlain	659	121.2	99	17.7	757	68.8
North Simcoe Muskoka	101	53.9	18	9.6	119	31.7
North East	174	63.6	19	6.8	193	34.9
North West	58	49.6	22	18.9	80	34.3
Total	7,884	139.9	759	13.1	8,643	75.7

1 Adjusted for unknown sex
2 Using 2001 census population (Statistics Canada)
3 LHIN derived from public health unit (PHU); the proportion of LHIN region population in 2001 census in a split PHU was applied, if the PHU is across more than one LHIN region

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care;
Statistics Canada (2001 census)

Table S-7 Modeled HIV prevalence by Local Health Integration Network (LHIN) region and exposure category, Ontario, December 2007

Heath region	MSM	MSM-IDU	IDU	HIV-endemic	Heterosexual	Clotting factor	Transfusion	Total[1]	Proportion[2]
Erie St. Clair	350	10	40	90	120	5	0	615	2.3%
South West	600	20	70	130	230	5	0	1,055	4.0%
Waterloo Wellington	265	15	55	85	95	0	0	515	1.9%
Hamilton Niagara Haldimand Brant	600	40	135	215	225	10	0	1,225	4.6%
Central West	730	25	60	205	225	5	0	1,250	4.7%
Mississauga Halton	715	25	75	220	240	5	0	1,280	4.8%
Toronto Central	4,930	145	295	1,180	840	50	10	7,450	28.1%
Central	2,670	90	190	700	595	10	0	4,255	16.1%
Central East	2,650	85	185	690	585	10	0	4,205	15.9%
South East	205	15	95	50	80	5	0	450	1.7%
Champlain	1,330	100	535	860	535	15	5	3,380	12.8%
North Simcoe Muskoka	70	5	15	15	25	0	0	130	0.49%
North East	130	25	135	20	160	5	0	475	1.8%
North West	55	10	55	10	75	0	0	205	0.77%
Total	15,300	610	1,940	4,470	4,030	125	15	26,490	
Proportion[3]	57.8%	2.3%	7.3%	16.9%	15.2%	0.47%	0.06%		

1 The cells may not add up to the row and column totals due to rounding
2 Column percent
3 Row percent

Table S-7a Modeled HIV prevalence among males by Local Health Integration Network (LHIN) region and exposure category, Ontario, December 2007

Heath region	MSM	MSM-IDU	IDU	HIV-endemic	Heterosexual	Clotting factor	Transfusion	Total[1]	Proportion[2]
Erie St. Clair	350	10	25	55	35	5	0	480	2.2%
South West	600	20	45	80	55	5	0	805	3.7%
Waterloo Wellington	265	15	40	55	35	0	0	410	1.9%
Hamilton Niagara Haldimand Brant	600	40	90	125	70	10	0	935	4.3%
Central West	730	25	40	130	110	5	0	1,040	4.7%
Mississauga Halton	715	25	55	140	115	5	0	1,055	4.8%
Toronto Central	4,930	145	195	705	430	45	5	6,455	29.4%
Central	2,670	90	130	435	275	10	0	3,610	16.5%
Central East	2,650	85	125	425	275	10	0	3,570	16.3%
South East	205	15	70	40	35	5	0	370	1.7%
Champlain	1,330	100	385	505	260	15	5	2,600	11.9%
North Simcoe Muskoka	70	5	10	10	10	0	0	105	0.48%
North East	130	25	85	10	80	5	0	335	1.5%
North West	55	10	35	5	45	0	0	150	0.68%
Total	15,300	610	1,330	2,720	1,830	120	10	21,920	
Proportion[3]	69.8%	2.8%	6.1%	12.4%	8.3%	0.55%	0.05%		

1 The cells may not add up to the row and column totals due to rounding
2 Column percent
3 Row percent

Table S-7b Modeled HIV prevalence among females by Local Health Integration Network (LHIN) region and exposure category, Ontario, December 2007

Heath region	IDU	HIV-endemic	Heterosexual	Clotting factor	Transfusion	Total[1]	Proportion[2]
Erie St. Clair	15	35	85	0	0	135	3.0%
South West	25	50	175	0	0	250	5.5%
Waterloo Wellington	15	30	60	0	0	105	2.3%
Hamilton Niagara Haldimand Brant	45	90	155	0	0	290	6.3%
Central West	20	75	115	0	0	210	4.6%
Mississauga Halton	20	80	125	0	0	225	4.9%
Toronto Central	100	475	410	5	5	995	21.8%
Central	60	265	320	0	0	645	14.1%
Central East	60	265	310	0	0	635	13.9%
South East	25	10	45	0	0	80	1.8%
Champlain	150	355	275	0	0	780	17.1%
North Simcoe Muskoka	5	5	15	0	0	25	0.55%
North East	50	10	80	0	0	140	3.1%
North West	20	5	30	0	0	55	1.2%
Total	610	1,750	2,200	5	5	4,570	
Proportion[3]	13.3%	38.3%	48.1%	0.11%	0.11%		

1 The cells may not add up to the row and column totals due to rounding
2 Column percent
3 Row percent

Figure 1.1 Number of HIV diagnoses by year of HIV diagnosis and sex, Ontario, 1985 to 2007

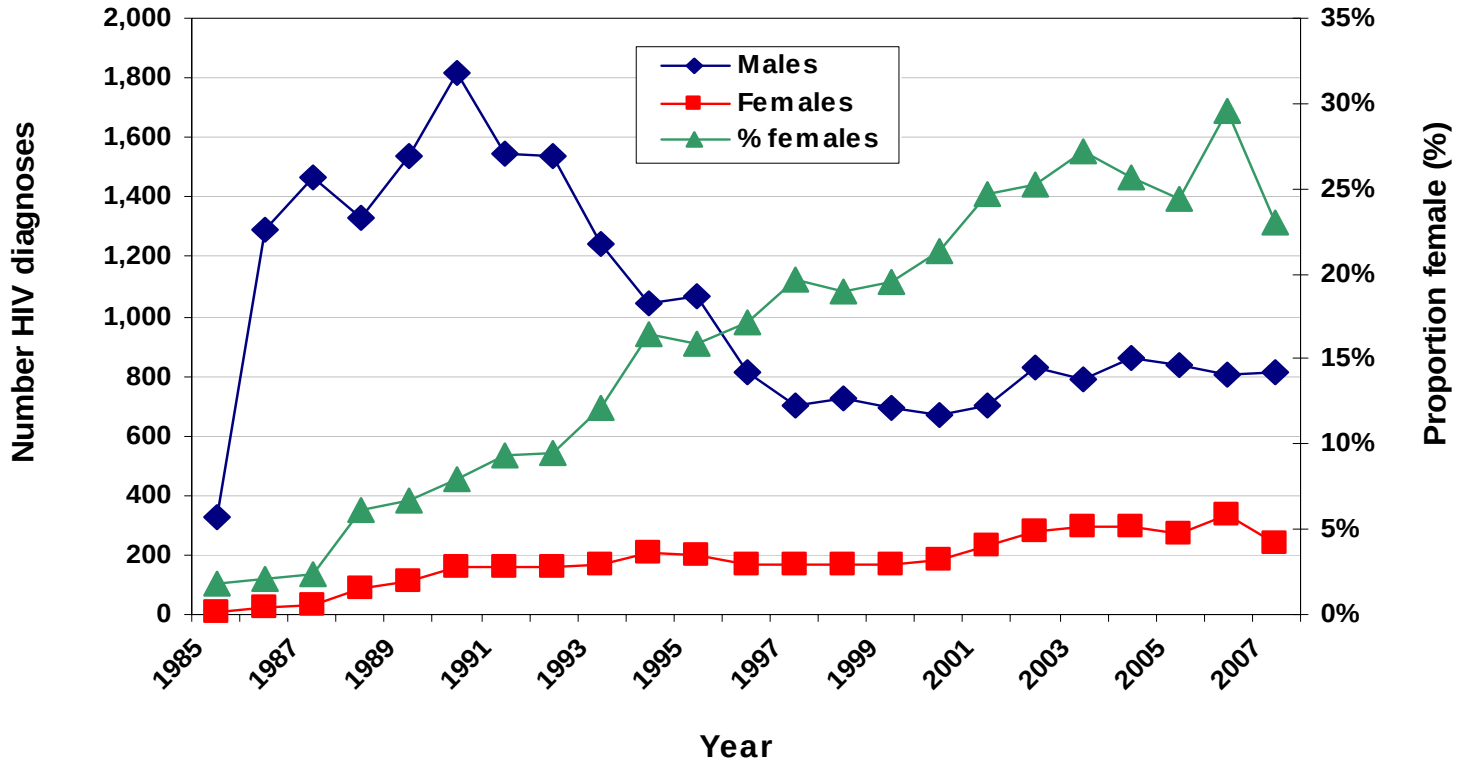


Figure 1.2 Proportion of HIV-diagnoses (adjusted) by period and exposure category, Ontario, 1985 to 2007

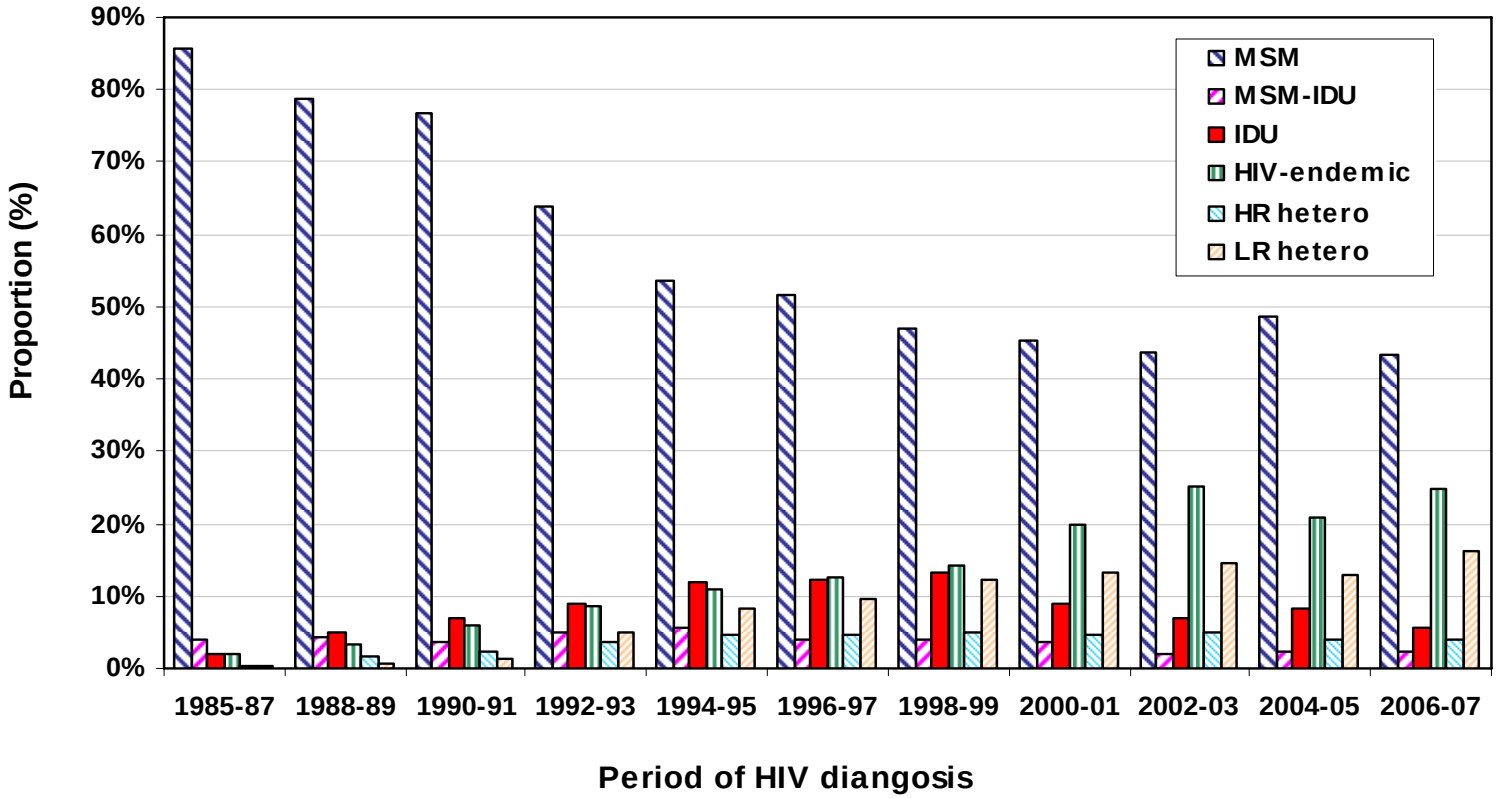


Figure 1.3 HIV positivity rates (adjusted) among MSM by year of HIV diagnosis and health region, Ontario, 1992 to 2007

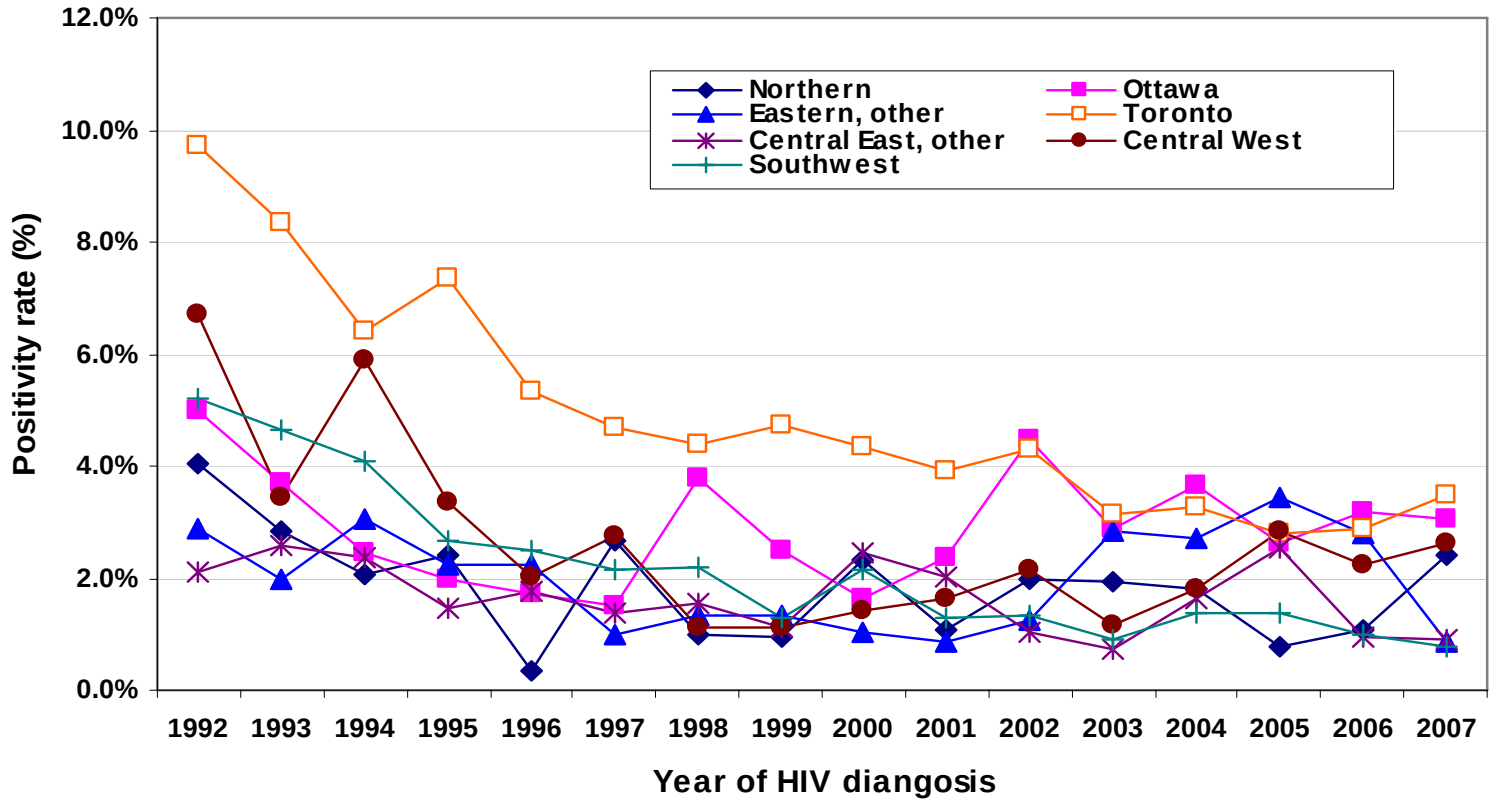


Figure 1.4 HIV positivity rates (adjusted) among IDU by year of HIV diagnosis and health region, Ontario, 1992 to 2007

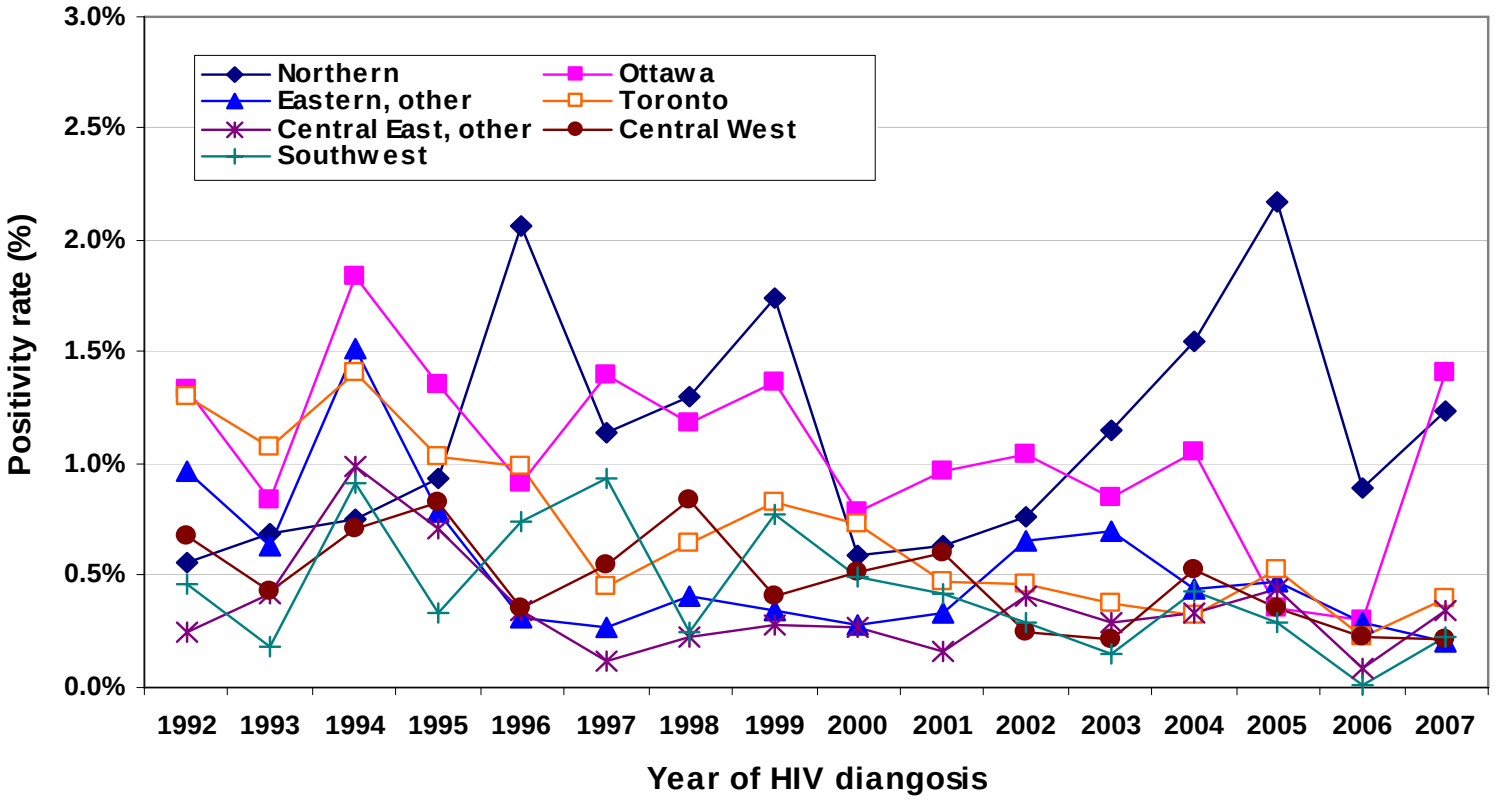


Figure 2.1 Number of reported AIDS cases adjusted for reporting delays and unknown exposure category by year of AIDS diagnosis and exposure category, Ontario, 1981 to 2007

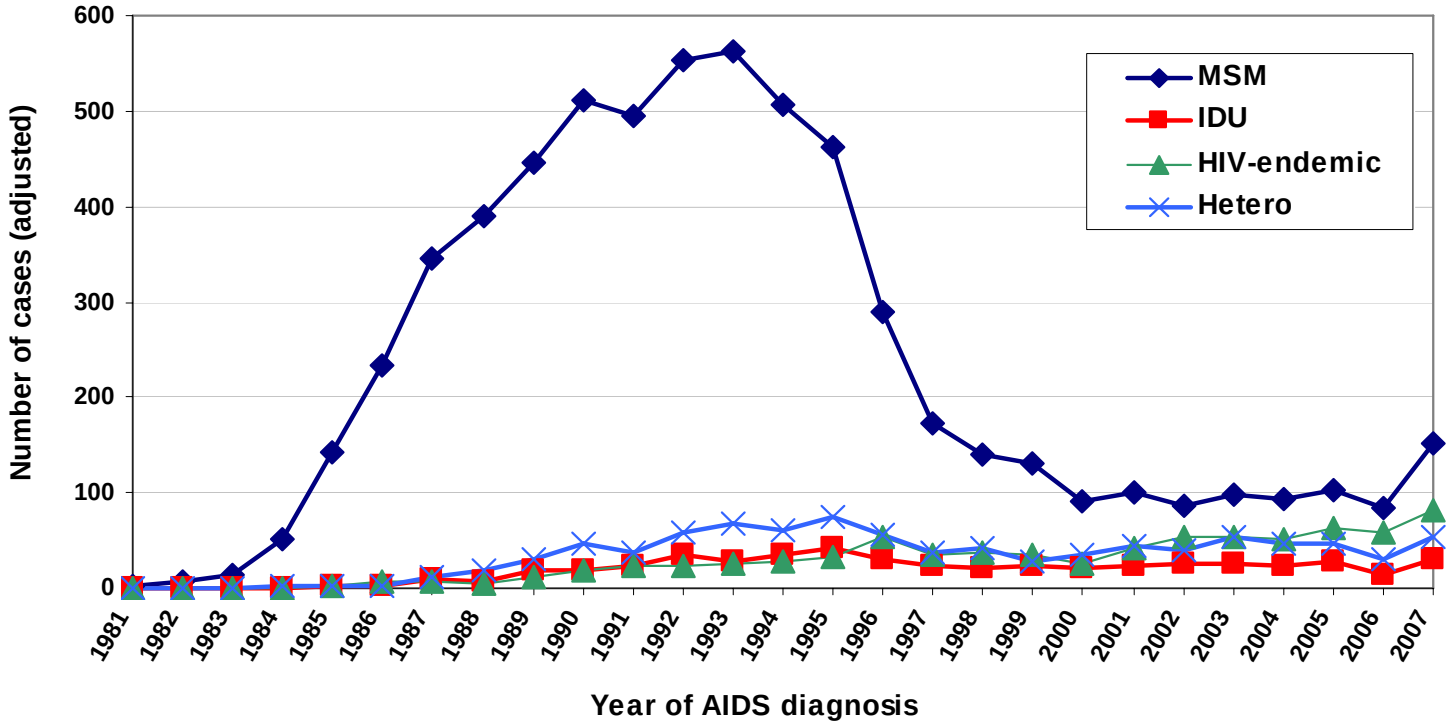
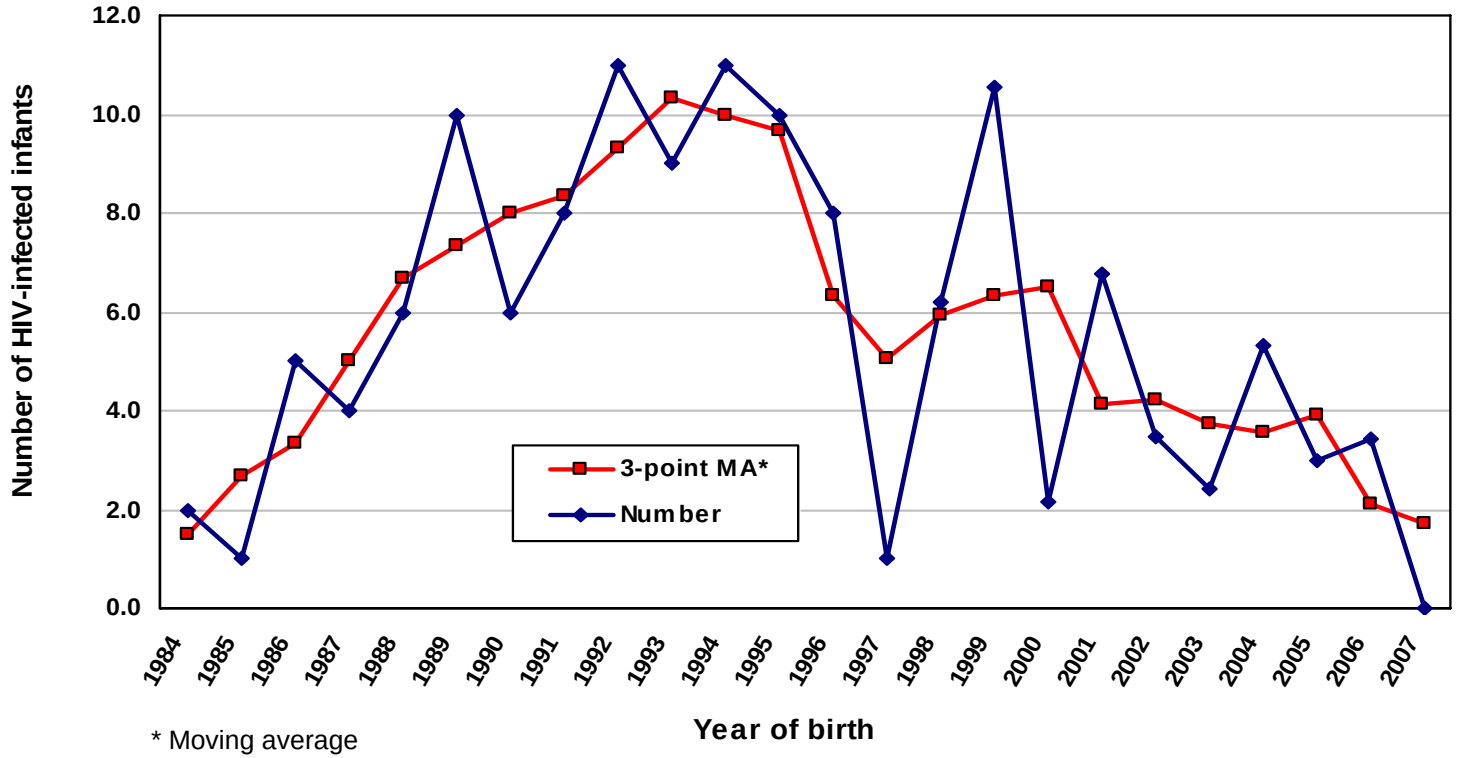
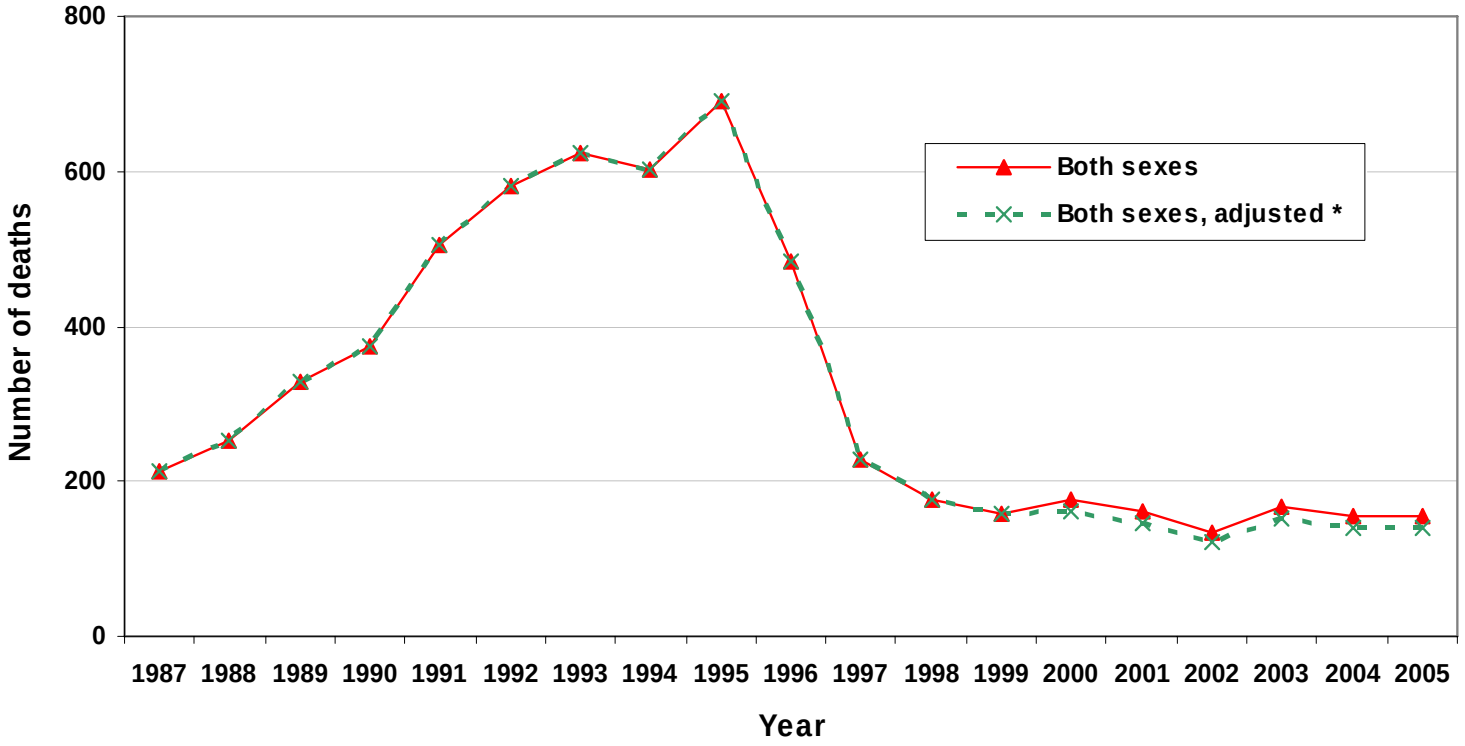


Figure 3.1 Number of HIV-infected infants born in Canada adjusted for delay in diagnosis, Ontario, 1984 to 2007



* Moving average

Figure 4.1 HIV-related deaths, Ontario, 1987 to 2005



* Adjusted for the comparability ratio of ICD-10 and ICD-9

Figure 5.1 HIV incidence rate (adjusted) among MSM by health region, LES, Ontario, 2001 to 2007

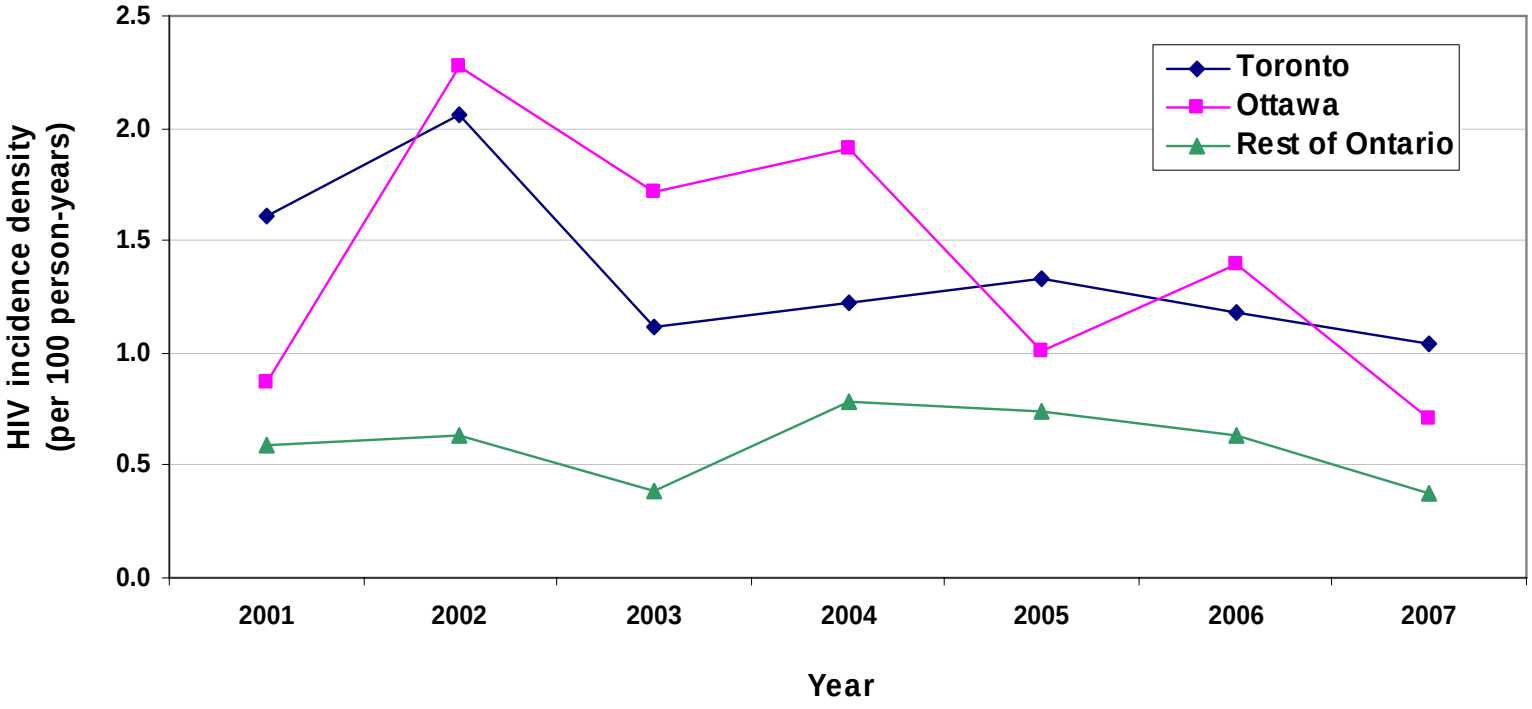


Figure 5.2 HIV incidence rate (adjusted) among MSM-IDU by health region, LES, Ontario, 2001 to 2007

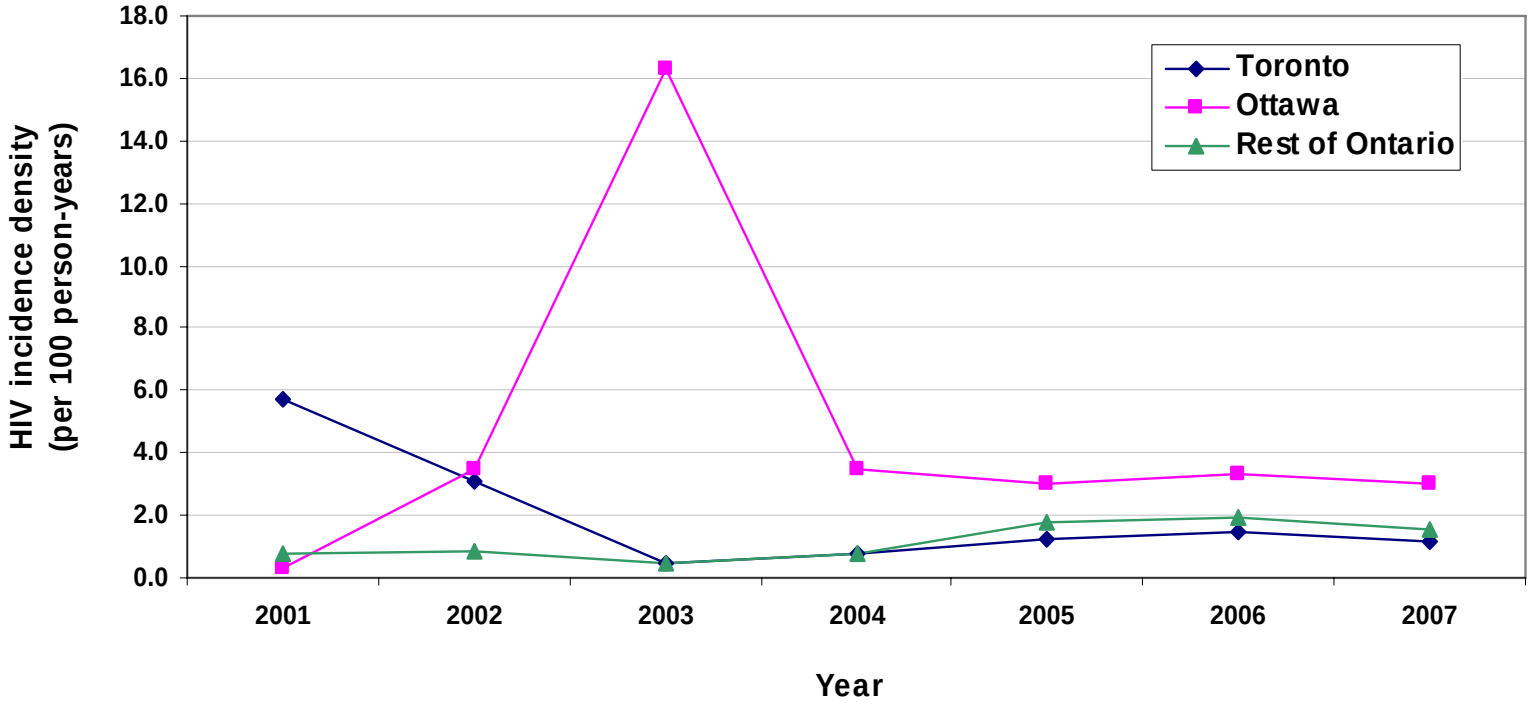


Figure 5.3 HIV incidence rate (adjusted) among IDU by health region, LES, Ontario, 2001 to 2007

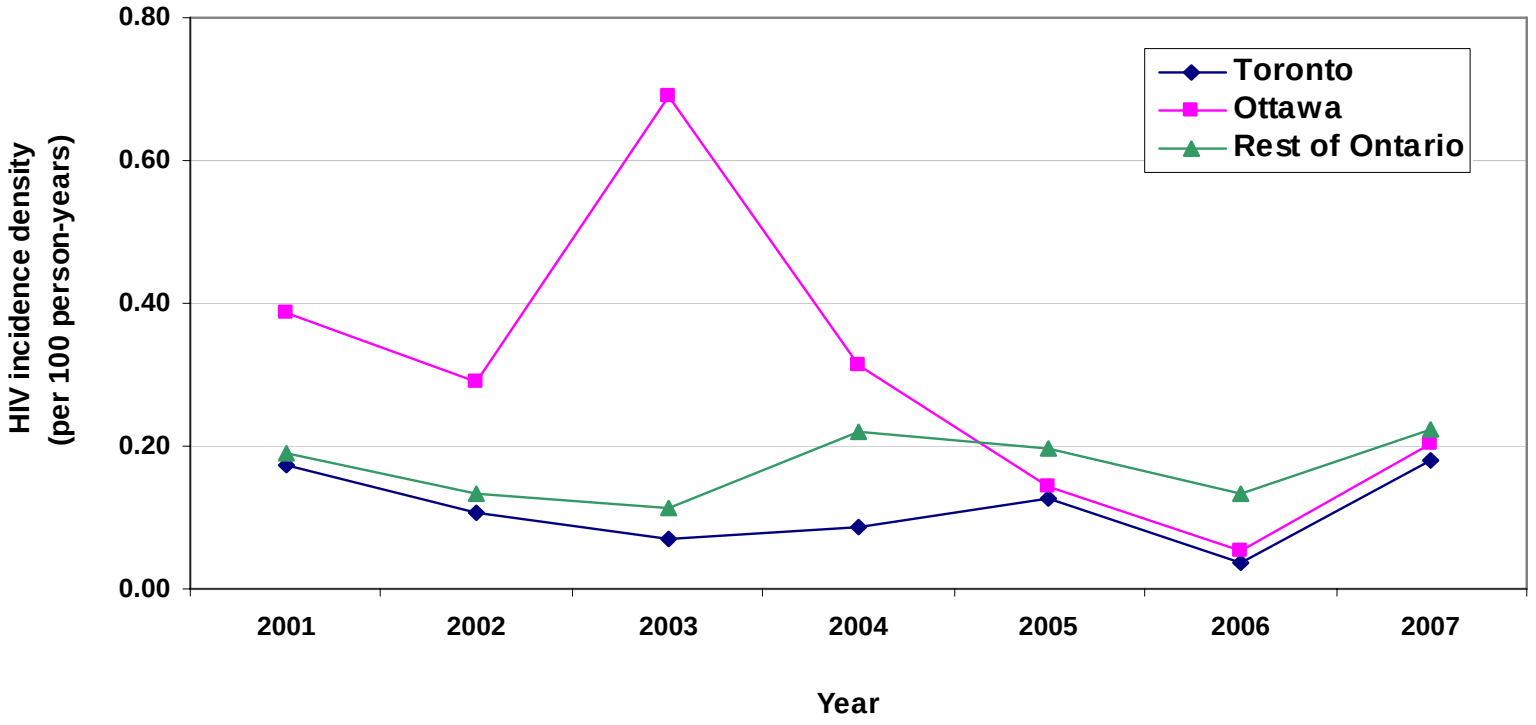


Figure 5.4 HIV incidence rate (adjusted) among persons infected through heterosexual contact by health region, LES, Ontario, 2001 to 2007

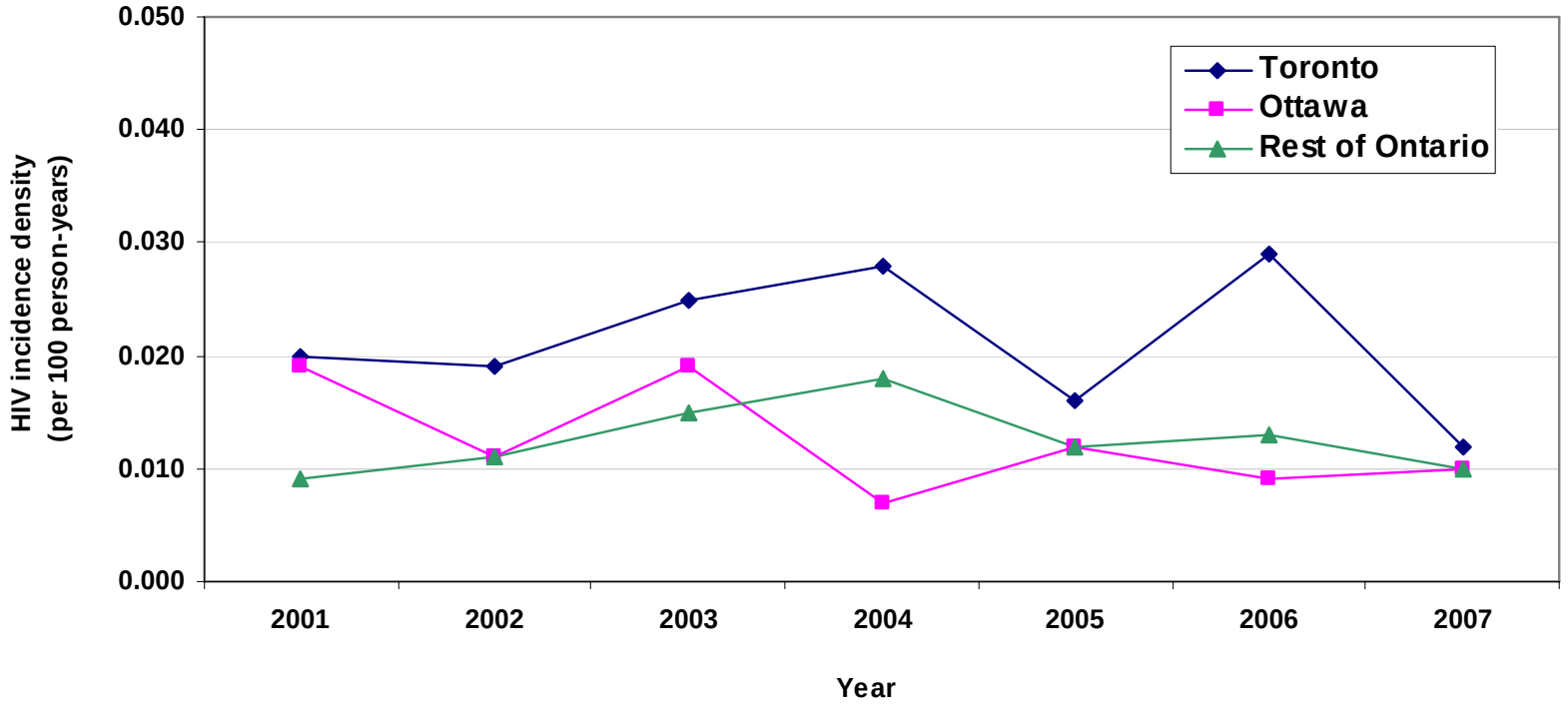


Figure 6.1 Modeled HIV incidence and prevalence among MSM Ontario, 1977 to 2007

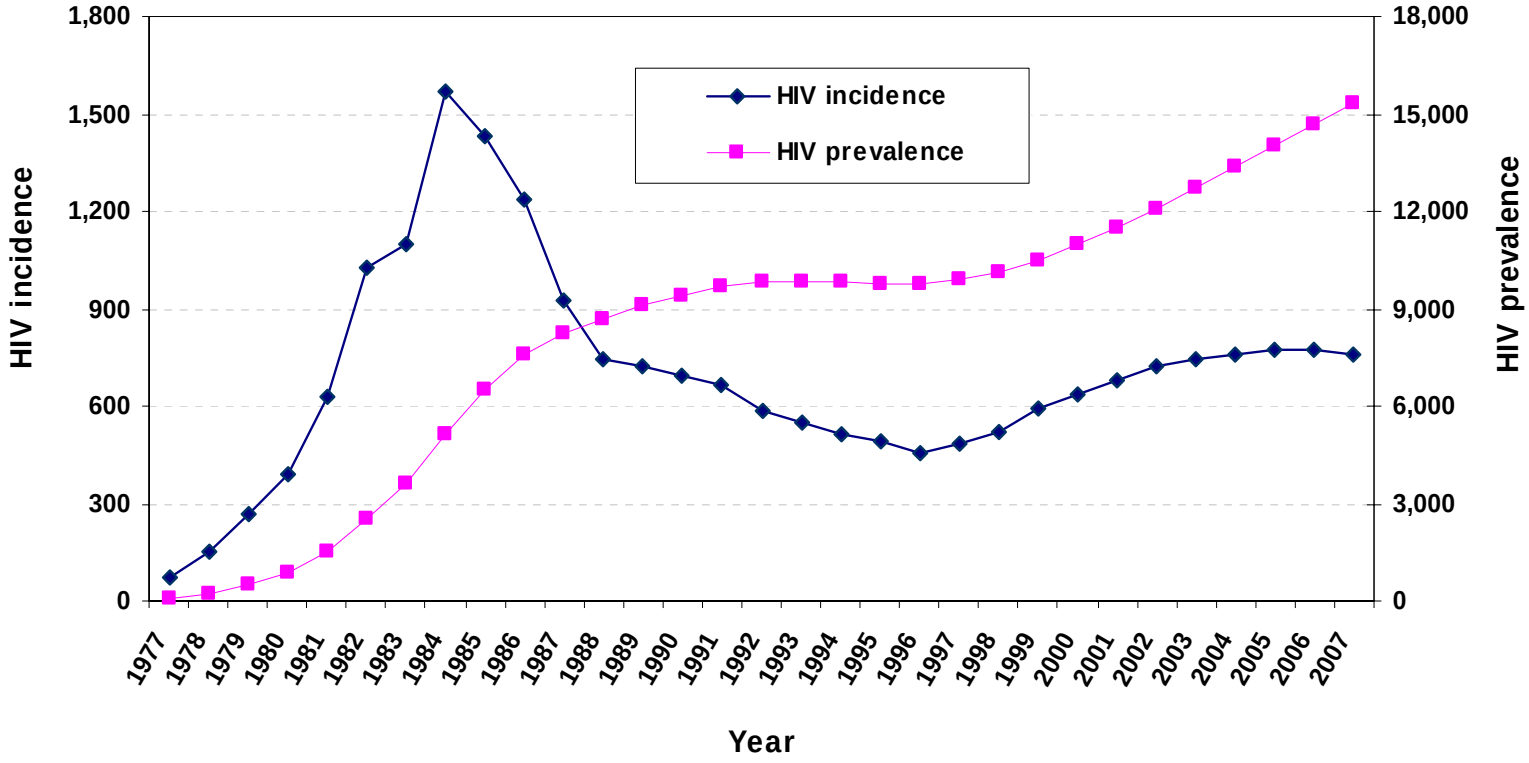


Figure 6.2 Modeled HIV incidence and prevalence among MSM-IDU Ontario, 1977 to 2007

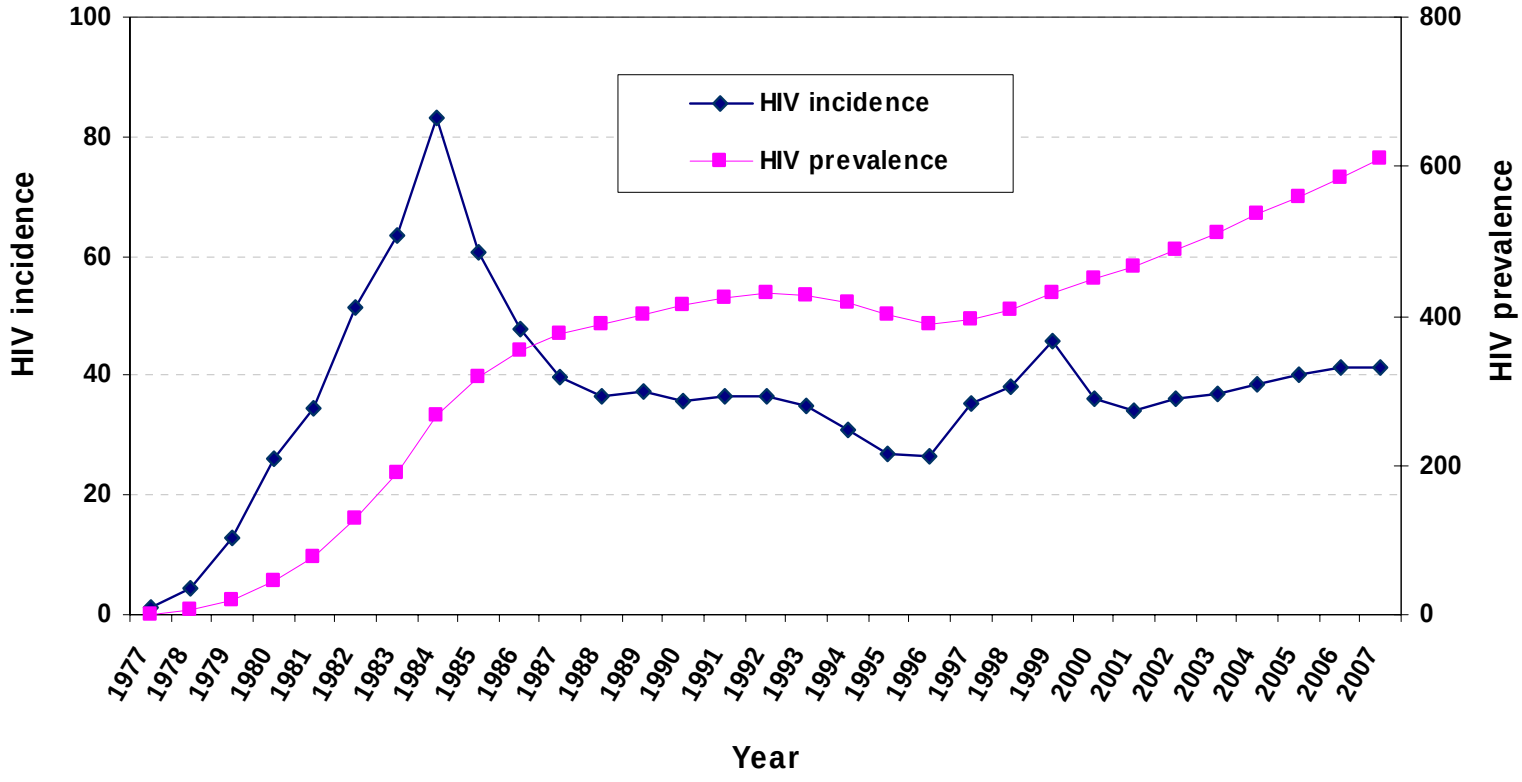


Figure 6.3 Modeled HIV incidence among IDU, by sex
Ontario, 1977 to 2007

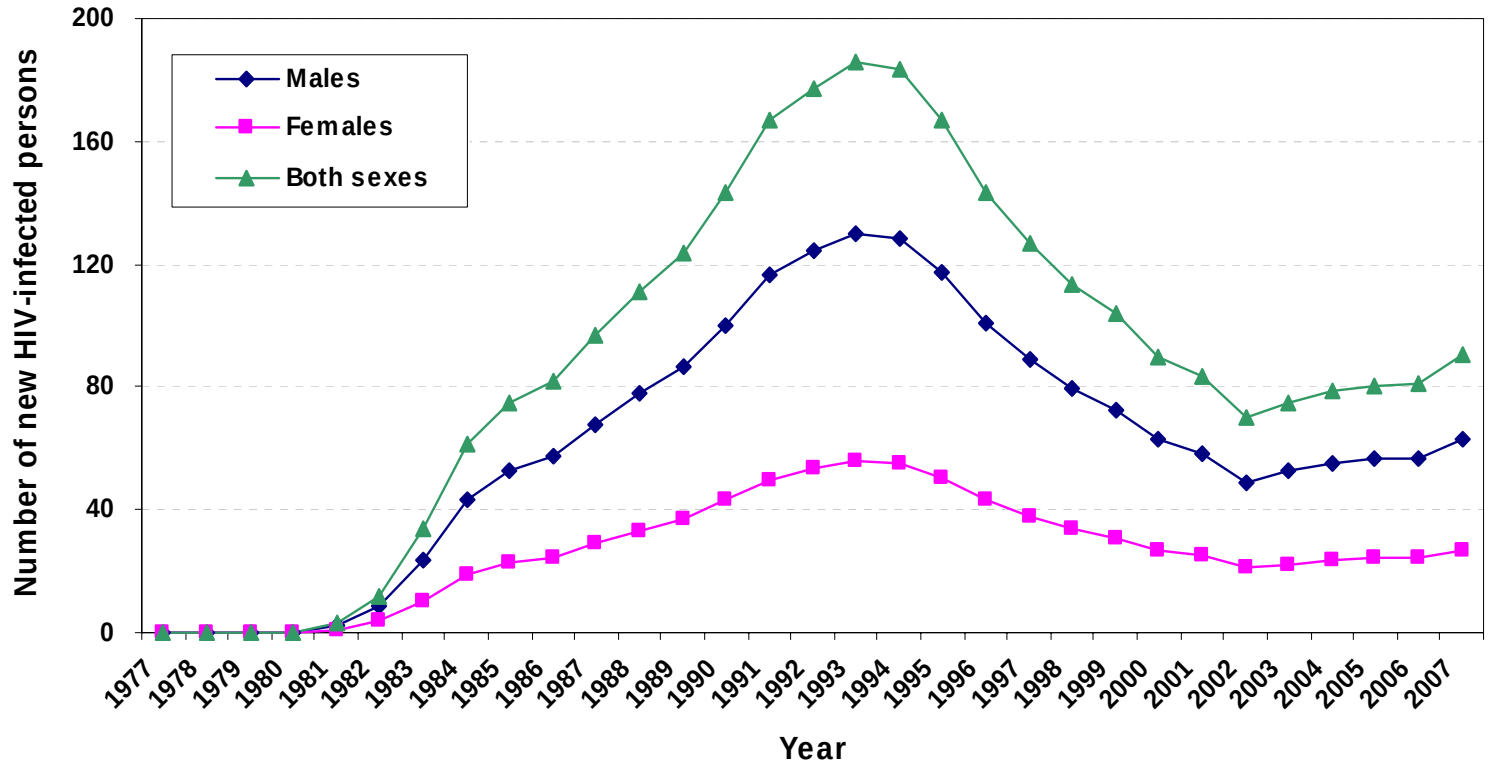


Figure 6.4 Modeled HIVprevalence among IDU, by sex Ontario, 1977 to 2007

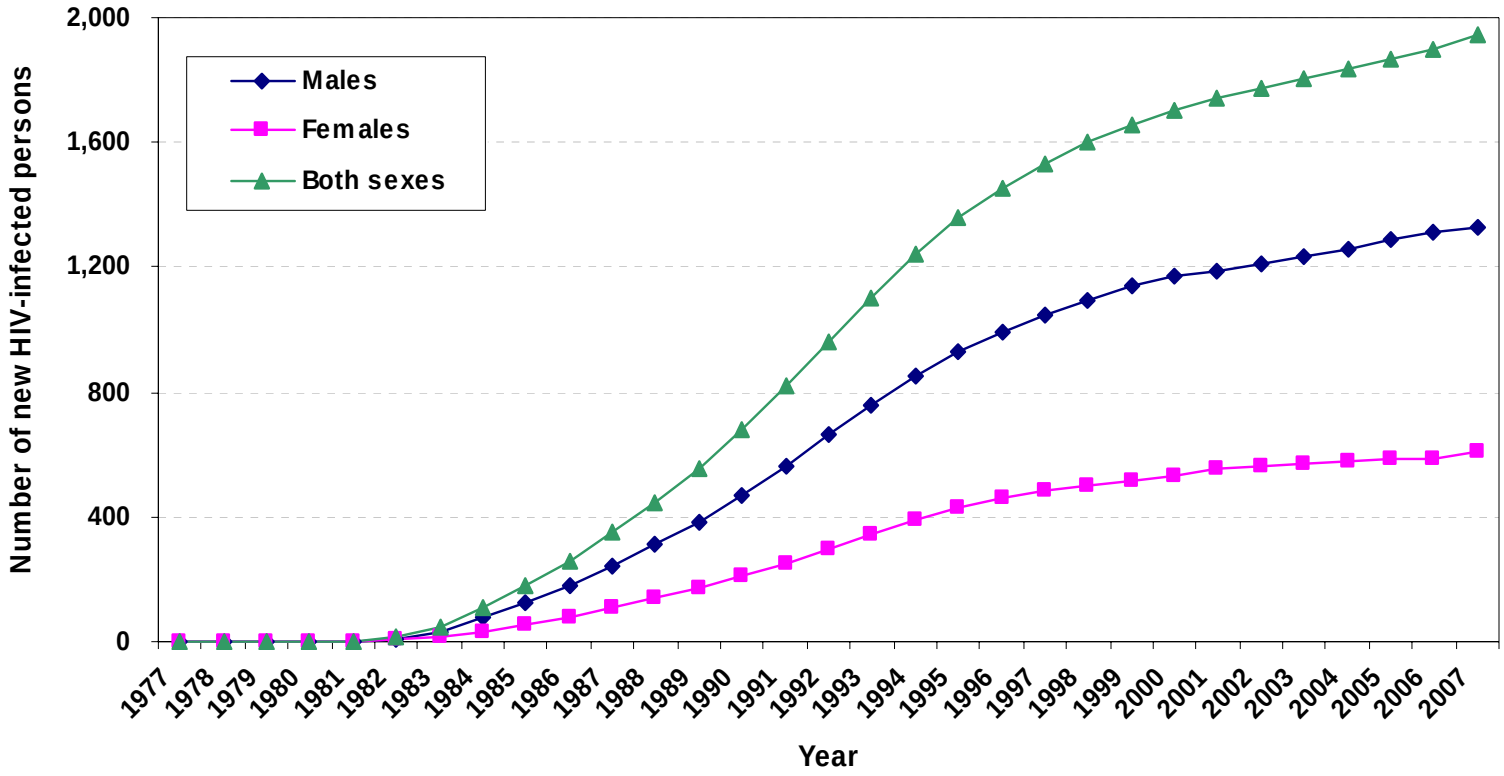


Figure 6.5 Modeled HIV incidence among persons from HIV-endemic countries, by sex, Ontario, 1977 to 2007

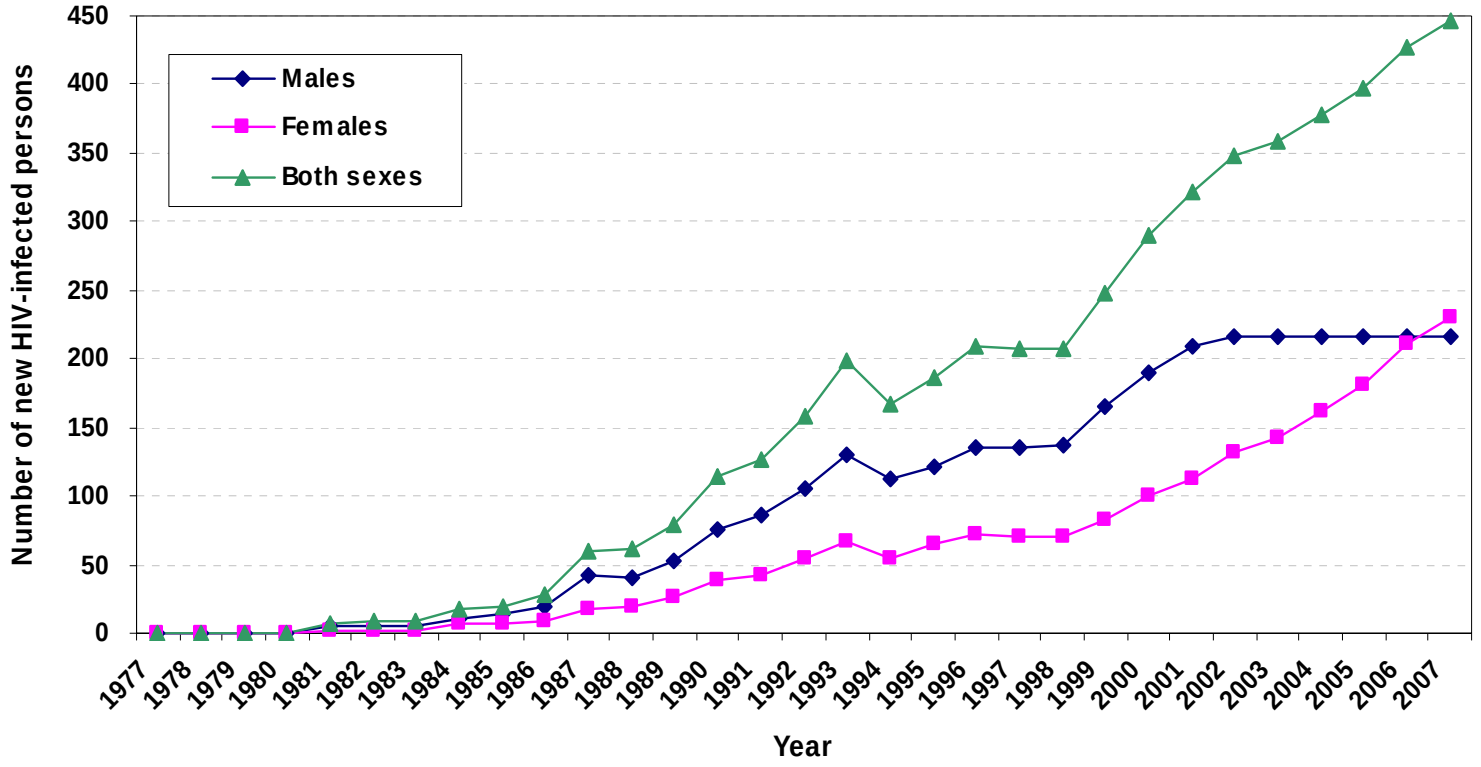


Figure 6.6 Modeled HIV prevalence among persons from HIV-endemic countries, by sex, Ontario, 1977 to 2007

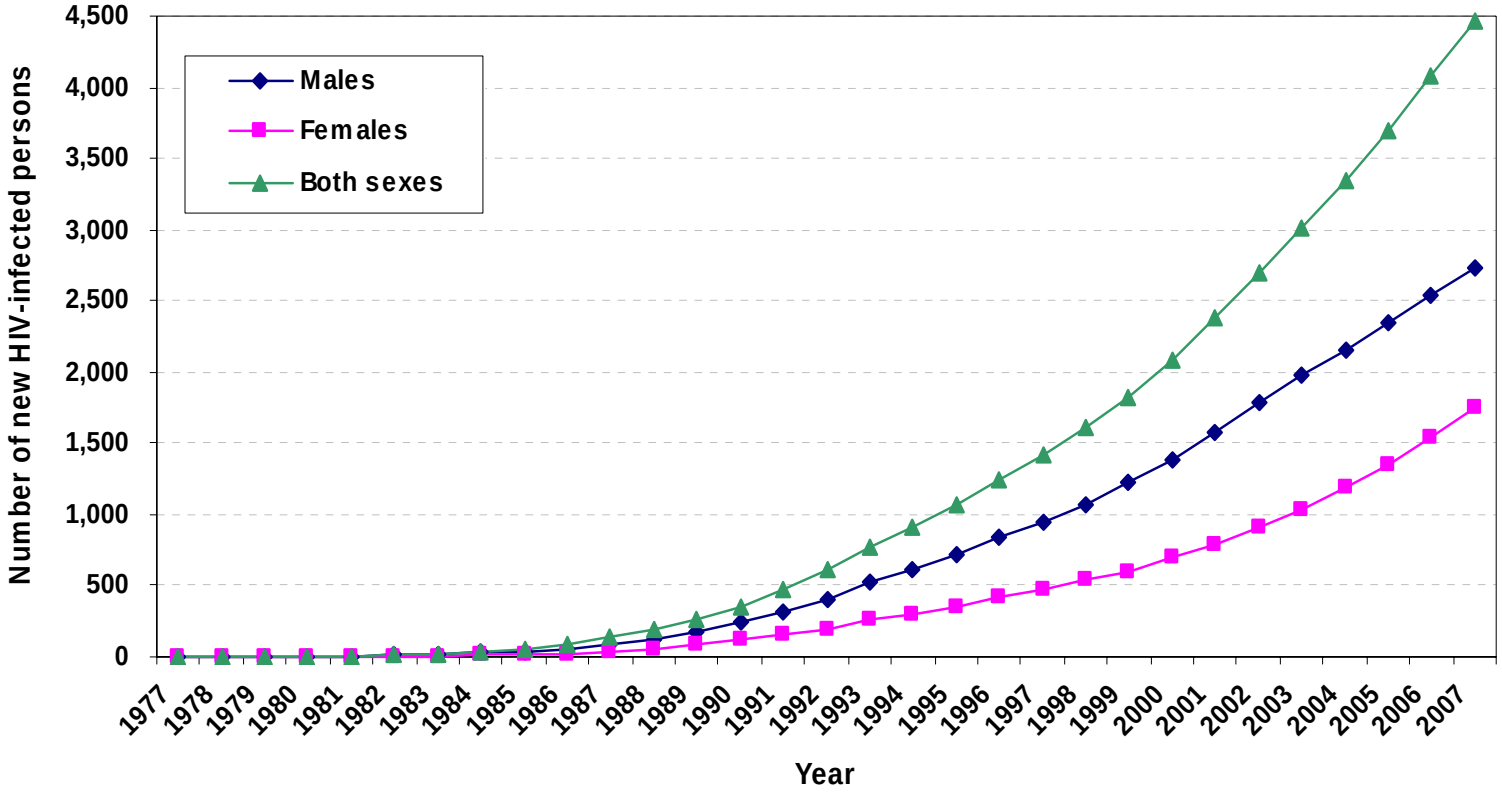


Figure 6.7 Modeled HIV incidence among persons infected through heterosexual contact, by sex, Ontario, 1977 to 2007

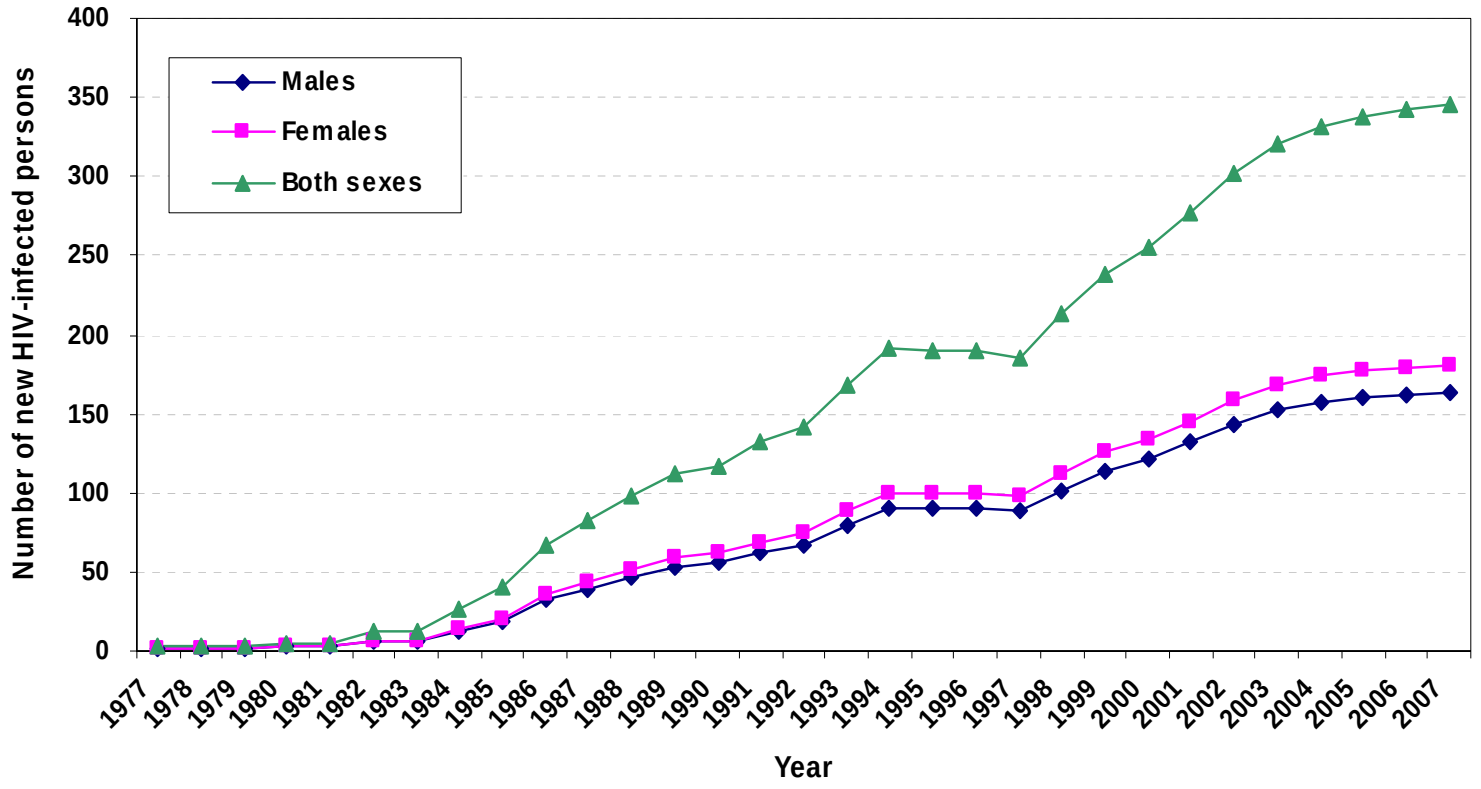


Figure 6.8 Modeled HIV prevalence among persons infected through heterosexual contact, by sex, Ontario, 1977 to 2007