

REPORT ON HIV/AIDS IN ONTARIO

2002

Robert S. Remis, MD, MPH, University of Toronto
Carol Swantee, BSc, HIV Laboratory
Kirsten Rottensten, MD, Public Health Branch
Lorraine Schiedel, RN, BScN, Public Health Branch
Maraki Fikre Merid, BSc, University of Toronto

NOVEMBER 2003

FOREWORD

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

The work on which this report is based was made possible by funding from the AIDS Bureau of the Ontario Ministry of Health and Long-Term Care which allowed researchers at the Ontario HIV Epidemiologic Monitoring Unit (Dr. Robert Remis and Maraki Fikre) at the University of Toronto to dedicate their time to monitor the HIV/AIDS epidemic in Ontario.

We intend to continue producing an updated HIV/AIDS surveillance report every year. The report is being 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. It is also available on our website (www.phs.utoronto.ca/ohemu). We hope it will serve as an important resource for these groups, as well as for others, including the media, students, persons in other provinces and countries, etc. Though this is the sixth edition, we continue to appreciate your critical comments and suggestions for future reports.

November 2003

ACKNOWLEDGMENTS

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

Mr. Frank McGee, Coordinator, AIDS Bureau, Ontario Ministry of Health and Long-Term Care for providing core funding;

Staff of the Public Health Branch (Lorraine Schiedel and Angie Fazzino) and of the Public Health Units who transmit the AIDS data to the Ministry of Health and Long-Term Care and the physicians who report AIDS cases;

Dr. Susan King, Hospital for Sick Children, Toronto, for providing perinatal data collected by the Ontario region of the Canadian Pediatric AIDS Research Group;

Elaine Whittingham who helped to develop the methodology for adjustment of first-time HIV diagnoses and supported the production of previous reports;

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;

Paul Lee of Central East Health Information Partnership for providing Ontario population data by public health unit;

Lisa Santangelo, Laboratory Enhancement Study, HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; and

Aidarita Santiago, Department of Public Health Sciences, University of Toronto, for help in preparing the report.

EXECUTIVE SUMMARY

In our sixth HIV/AIDS Ontario Surveillance Report, we have updated the information extracted from the constituent data sources, including serodiagnostic data, AIDS cases reports and HIV-infected mothers and infants. We have also updated the estimates derived from HIV statistical model to December 2002. The present report includes results that reflect a number of areas of particular interest and concern. Our findings clearly indicate that the HIV epidemic in Ontario has not yet stabilized.

To date, 23,523 HIV infections have been diagnosed in Ontario. About 1,000 HIV infections were newly diagnosed annually for the past six years. Overall, 2,898 or 12.9% of diagnoses were among women. However, the proportion of HIV diagnoses comprised by women increased from less than 5% following the introduction of HIV testing to 20% in the late 1990s and, in 2002, to 27%. The proportion of HIV diagnoses comprised by MSM gradually decreased over the 17-year study period from 1985 to 2001 but increased slightly to 46% in 2002 from 42% in 2001. The proportion comprised by persons from HIV-endemic countries continues to increase. The relative increase among persons from HIV-endemic countries has received some attention in recent years; a situation report was produced by our unit in 1999 and was recently updated to 2002. However, the most dramatic relative increase in recent years has been among other persons infected through heterosexual contact. Overall, we estimated an increase of 68% over the previous five years, with an annual increase of 10.9%. The causes for this latter increase remain to be elucidated. We are currently in the process of examining this exposure category in more depth.

7,329 AIDS cases have been reported in Ontario since the beginning of the HIV epidemic. The number of reported AIDS cases decreased dramatically in recent years since a peak of 719 cases in 1993, although the low numbers in the last three years are likely underestimated due to delayed reporting. In fact, it appears that, after adjustment, AIDS incidence has increased since its adjusted low point of 161 in 2000. MSM accounted for 71% of all AIDS cases reported to date, though the proportion has decreased since the beginning of the epidemic. Until 1994, greater than 70% of AIDS cases were among MSM but in 2002 the proportion was 38%, the lowest ever. Though 519, or 7%, of reported AIDS cases overall were among women, women comprised 21% of AIDS cases in 2002. The lower proportion of women among AIDS cases than among HIV diagnoses is likely related to the time from HIV infection to progress to AIDS.

With respect to mother-infant HIV transmission, 430 HIV-infected women who delivered in Canada have been identified to date, to whom 114 HIV-infected infants were born. Overall, the majority of the infected infants were born to mothers who themselves were born in HIV-endemic countries. 48 HIV-infected infants born in Ontario since July 1994 have been identified to date,

indicating that prenatal HIV testing and the use of antiretroviral prophylaxis was not widespread following the release of the results of the ACTG 076 trial.

According to our model, an estimated 29,366 persons in Ontario have been infected with HIV to date; 6,770 persons have died, leaving 22,114 persons living with HIV. HIV prevalence in Ontario has continued to increase year over year since the beginning of the epidemic. In the past five years, prevalence has increased 36%, approximately 6% annually. This is in part related to the continued and, in some cases, increased HIV incidence as well as decreased mortality due to the advent of HAART in 1996. Similarly to last year, we analyzed the data using the HIV statistical model for each exposure category and for each sex separately and have presented the results in tabular and graphic format. Three groups with significant increases in HIV prevalence are particularly concerning: persons from HIV-endemic countries and other persons infected through heterosexual transmission and MSM. Among persons from HIV-endemic countries, HIV prevalence increased 90% since 1997, for an average annual increase of 14%. HIV prevalence among other persons infected by heterosexual contact increased 68% over the past five years (average annual increase 11%). These two groups, both related to heterosexual transmission, now account for 26% of HIV infected-persons in Ontario. In comparison, in 1997, these groups comprised 20% of estimated HIV infections. Finally, for MSM, HIV prevalence increased 27% since 1996, with an average annual increase of 5%. MSM remain the group most affected by the HIV epidemic Ontario, constituting 62% of HIV-infected persons in Ontario.

We also examined once again this year the estimated proportion of HIV-infected persons who have been diagnosed. Overall, we estimate that 64% of infected persons in Ontario know their serodiagnosis. Among HIV-infected persons from HIV-endemic countries, we estimate that 63% have been diagnosed and only 37% for persons infected by heterosexual transmission. Clearly, the large number of infected but yet undiagnosed persons represents a significant public health challenge.

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

2002 HIGHLIGHTS

- ? Overall, 22,114 HIV-infected persons are living in Ontario as of 2002
- ? Most affected groups by exposure category: MSM 13,630, persons from HIV-endemic regions 2,630, others infected by heterosexual transmission 3,080 and injection drug users 1,950
- ? Increase in HIV prevalence since 1997 among persons from HIV-endemic regions of 90% and

among others infected by heterosexual transmission 68%

- ⌚ 27% of new HIV diagnoses in 2002 were among women, the highest proportion ever
- ⌚ Only 64% of HIV-infected persons in Ontario have been diagnosed

TABLE OF CONTENTS

1	INTRODUCTION	1
2	METHODS	1
2.1	HIV serodiagnoses	1
2.1.1	Data source	1
2.1.2	Data analysis	2
2.1.3	Classification by exposure category	2
2.2	AIDS incidence	3
2.2.1	Data source	3
2.2.2	Data analysis	4
2.2.3	Classification by exposure category	4
2.2.4	Adjustment for reporting delays	5
2.3	HIV infection due to mother-infant transmission	5
2.3.1	Data source	5
2.3.2	Data analysis	6
2.4	HIV-associated mortality.....	6
2.4.1	Data source.....	6
2.4.2	Data analysis.....	6
2.5	Ontario HIV model	6
3	RESULTS	7
3.1	First-time HIV serodiagnoses	7
3.1.1	Number of diagnoses	7
3.1.2	Rates of first-time positive diagnoses	11
3.1.3	HIV tests	13
3.2	Reported AIDS cases	14
3.3	Mother-infant transmission	17

3.4 HIV-associated mortality.....	19
3.5 HIV statistical model	20
4 DISCUSSION	24
REFERENCES	28
PREVIOUS ONTARIO HIV/AIDS SURVEILLANCE REPORTS	29
OTHER RELEVANT PUBLICATIONS AND PRESENTATIONS	29
LIST OF TABLES	iii
1. HIV serodiagnoses	iii
2. Reported AIDS cases	v
3. HIV infection transmitted from mothers to infants	vi
4. HIV-associated mortality.....	Vii
5. HIV statistical model	viii
LIST OF FIGURES	ix
APPENDIX A	31
APPENDIX B	37

LIST OF TABLES**1. HIV serodiagnoses**

Table 1.1	Number of first-time HIV-positive diagnoses by year of diagnosis and sex, Ontario, 1985 to 2002
Table 1.2	Number and proportion of first-time HIV-positive diagnoses by exposure category and sex, Ontario, 1985 to 2002
Table 1.3	Number and proportion of first-time HIV-positive diagnoses (adjusted) by exposure category and sex, Ontario, 1985 to 2002
Table 1.3a	Number and proportion of first-time HIV-positive diagnoses (adjusted) by exposure category and sex, Ontario, 2002
Table 1.4	Number and proportion of first-time HIV-positive diagnoses by year of diagnosis and exposure category, Ontario, 1985 to 2002
Table 1.5	Number and proportion of first-time HIV-positive diagnoses (adjusted) by year of diagnosis and exposure category, Ontario, 1985 to 2002
Table 1.5a	Number and proportion of first-time HIV-positive diagnoses (adjusted) among males by year of diagnosis and exposure category, Ontario, 1985 to 2002
Table 1.5b	Number and proportion of first-time HIV-positive diagnoses (adjusted) among females by year of diagnosis and exposure category, Ontario, 1985 to 2002
Table 1.6	Number and proportion of first-time HIV-positive diagnoses by age group at diagnosis and sex, Ontario, 1985 to 2002
Table 1.7	Number and proportion of first-time HIV-positive diagnoses by age group at diagnosis and exposure category, Ontario, 1985 to 2002
Table 1.8	Mean age at first-time HIV-positive diagnosis by year of diagnosis and selected exposure category, males, Ontario, 1985 to 2002
Table 1.9	Mean age at first-time HIV-positive diagnosis by year of diagnosis and selected exposure category, females, Ontario, 1985 to 2002
Table 1.10	Single and multiple sources of exposure among first-time HIV-positive diagnoses, Ontario, 1985 to 2002

Table 1.11	Number and proportion of first-time HIV-positive diagnoses by exposure category and health region, Ontario, 1985 to 2002
Table 1.11a	Number and proportion of first-time HIV-positive diagnoses by exposure category and health region, Ontario, 1985 to 2002
Table 1.12	Number and proportion of first-time HIV-positive diagnoses by exposure category and health region, Ontario, 2002
Table 1.13	Number and proportion of first-time HIV-positive diagnoses (adjusted) by exposure category and health region, Ontario, 1985 to 2002
Table 1.13a	Number and proportion of first-time HIV-positive diagnoses (adjusted) among males by exposure category and health region, Ontario 1985 to 2002
Table 1.13b	Number and proportion of first-time HIV-positive diagnoses (adjusted) among females by exposure category and health region, Ontario 1985 to 2002
Table 1.14	Number and proportion of first-time HIV-positive diagnoses (adjusted) by exposure category and health region, Ontario, 2002
Table 1.14a	Number and proportion of first-time HIV-positive diagnoses (adjusted) among males by exposure category and health region, Ontario 2002
Table 1.14b	Number and proportion of first-time HIV-positive diagnoses (adjusted) among females by exposure category and health region, Ontario 2002
Table 1.15	Number of first-time HIV-positive diagnoses and rate (per 100,000) by public health unit and sex, Ontario, 1985 to 2002
Table 1.16	Number and proportion of first-time HIV-positive diagnoses by year of test and type of identifier, Ontario, 1985 to 2002
Table 1.17	Number and proportion of first-time HIV-positive diagnoses among males by year of test and type of identifier, Ontario, 1985 to 2002
Table 1.18	Number and proportion of first-time HIV-positive diagnoses among females by year of test and type of identifier, Ontario, 1985 to 2002
Table 1.19	Number of HIV-positive tests (p), number tested (n) and first-time HIV-positivity rates (%) by exposure category and year of HIV diagnosis, Ontario, 1992 to 2002
Table 1.20	Number of HIV-positive tests (p), number tested (n) and first-time HIV-positivity

rates (%) (adjusted) by exposure category and year of HIV diagnosis, Ontario, 1992 to 2002

- Table 1.21 Number of HIV-positive tests (p), number tested (n) and first-time HIV-positivity rates (%) by exposure category and health region, Ontario, 1992 to 2002
- Table 1.22 Number of HIV-positive tests (p), number tested (n) and first-time HIV-positivity rates (%) (adjusted) by exposure category and health region, Ontario, 1992 to 2002
- Table 1.23 Number of HIV-positive tests (p), number tested (n) and first-time HIV-positivity rates (%) (adjusted) by exposure category, sex and health region, Ontario, 1992 to 2002
- Table 1.24 Number of HIV-positive tests (p), number tested (n) and first-time HIV-positivity rates (%) by exposure category and health region, Ontario, 2002
- Table 1.25 Number of HIV-positive tests (p), number tested (n) and first-time HIV-positivity rates (%) (adjusted²) by health region, Ontario, 2002
- Table 1.26 Number of HIV-positive tests (p), number tested (n) and first-time HIV-positivity rates (%) (adjusted) by sex, exposure category and health region, Ontario, 2002
- Table 1.27 Number of HIV tests by year of test and sex, Ontario, 1992 to 2002
- Table 1.28 Number of HIV tests (adjusted) by year of test and testing rate (per 1,000), Ontario, 1992 to 2002
- Table 1.29 Number and proportion of HIV tests by exposure category and year of test, Ontario, 1992 to 2002
- Table 1.30 Number and proportion of HIV tests (adjusted) by exposure category and year of test, Ontario, 1992 to 2002
- Table 1.31 Number and proportion of HIV tests by age group and exposure category, Ontario, 1992 to 2002
- Table 1.32 Number and proportion of HIV tests by year of test and health region, Ontario, 1992 to 2002
- Table 1.33 Number of HIV tests and rate (per 1,000) by year of test and health region, Ontario, 1992 to 2002

Table 1.34 Number and proportion of HIV tests by year of test and type of identifier, Ontario, 1992 to 2002

Table 1.35 Number and proportion of HIV tests by sex, year of test and type of identifier, Ontario, 1992 to 2002

2. Reported AIDS cases

Table 2.1 Number of AIDS cases by year of diagnosis and sex, Ontario, 1981 to 2002

Table 2.2 Number and proportion of AIDS cases by exposure category and sex, Ontario, 1981 to 2002

Table 2.3 Number and proportion of AIDS cases by exposure category and year of AIDS diagnosis, Ontario, 1981 to 2002

Table 2.3a Number and proportion of AIDS cases among males by exposure category and year of AIDS diagnosis, Ontario, 1981 to 2002

Table 2.3b Number and proportion of AIDS cases among females by exposure category and year of AIDS diagnosis, Ontario, 1981 to 2002

Table 2.4 Number of AIDS cases and cumulative incidence rate (per 100,000) by age at diagnosis and sex, Ontario, 1981 to 2002

Table 2.5 Number of AIDS cases and cumulative incidence rate (per 100,000) by age at diagnosis and sex, Ontario, 2002

Table 2.6 Number and proportion of AIDS cases by age at diagnosis and exposure category, Ontario 1981 to 2002

Table 2.7 Mean age (years) at AIDS diagnosis by year of diagnosis and exposure category, males, Ontario, 1981 to 2002

Table 2.8 Mean age (years) at AIDS diagnosis by year of diagnosis and exposure category, females, Ontario, 1981 to 2002

Table 2.9 Number and proportion of AIDS cases by exposure category and health region, Ontario, 1981 to 2002

Table 2.10 Number and proportion of AIDS cases by exposure category and health region,

Ontario, 2002

- Table 2.11 Single and multiple sources of exposure among Ontario AIDS cases, 1981 to 2002
- Table 2.12 Number and proportion of AIDS cases by health region and year of diagnosis, Ontario, 1981 to 2002
- Table 2.13 Number of AIDS cases and rate (per 100,000) by health region and sex, Ontario, 1981 to 2002
- Table 2.14 Number of AIDS cases and rate (per 100,000) by public health unit and sex, Ontario, 1981 to 2002

3. HIV infection transmitted from mothers to infants

- Table 3.1a Number and proportion of children born in any country to HIV-positive mothers by year of birth and HIV infection status of the child at latest follow-up, Ontario, 1984 to 2002
- Table 3.1b Number and proportion¹ of children born in Canada² to HIV-positive mothers by year of birth and HIV infection status of the child at latest follow-up, Ontario, 1984 to 2002
- Table 3.2a Number and proportion¹ of HIV-infected mothers giving birth in any country by geographic region of the reporting health institution and mother's exposure category, Ontario, 1984 to 2002
- Table 3.2b Number and proportion of HIV-infected mothers giving birth in Canada by geographic region of the reporting health institution and mother's exposure category, Ontario, 1984 to 2002
- Table 3.3a Number and proportion¹ of infected children born to HIV-positive mothers giving birth in any country by geographic region of the reporting health institution and mother's exposure category, Ontario, 1984 to 2002
- Table 3.3b Number and proportion of infected children born in Canada to HIV-positive mothers by geographic region of the reporting health institution and mother's exposure category, Ontario, 1984 to 2002
- Table 3.4a Number and proportion¹ of HIV-positive children born in any country by exposure category of mother and period of birth, Ontario, 1984 to 2002

Table 3.4b	Number and proportion of HIV-positive children born in Canada by period of birth and exposure category of mother, Ontario, 1984 to 2002
Table 3.5	Number and proportion of HIV-positive women giving birth in Canada by exposure category, therapy during pregnancy, delivery or to the newborn and confirmed HIV status of infant, Ontario, July 1994 to December 2002
Table 3.6	Number of HIV-positive women giving birth in Canada by year of delivery, therapy received during pregnancy, delivery or to the infant and confirmed HIV status of infant, Ontario, July 1994 to December 2002

4. HIV-associated mortality

Table 4.1	Number of HIV-related deaths and mortality rate per 100,000 by year of death and sex, Ontario, 1987 to 1999
Table 4.2	Number of HIV-related deaths and proportion by age at death and sex, Ontario, 1997 to 1999
Table 4.3	Number and proportion of HIV-related deaths by health region and sex, Ontario, 1997 to 1999
Table 4.4	Number and proportion of HIV-related deaths by year of death, sex and country of birth (HIV-endemic/non-HIV-endemic), Ontario, 1987 to 1999
Table 4.5	Number and proportion of HIV-related deaths by year of death and country of birth (Caribbean, sub-Saharan Africa, non-HIV-endemic), Ontario, 1987 to 1999

5. HIV statistical model

Table 5.1	Modeled estimates of incidence, cumulative incidence, and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality, Ontario, 1977 to 2002
Table 5.1a	Modeled estimates of incidence, cumulative incidence, and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among MSM, Ontario, 1977 to 2002
Table 5.1b	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 2002

Table 5.1c	Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among IDUs, Ontario 1977 to 2002
Table 5.1d	Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among persons from endemic countries, Ontario, 1977 to 2002
Table 5.1e	Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality for persons infected through heterosexual contact, Ontario, 1977 to 2002
Table 5.2	Number and proportion of HIV-infected persons who have been diagnosed in Ontario as of December 2002
Table 5.3a	Modeled HIV prevalence by health region and exposure category, Ontario, December 2002
Table 5.3b	Modeled HIV prevalence by sex, health region and exposure category, Ontario, December 2002
Table 5.4	Modeled HIV incidence by sex, region and exposure category, Ontario, December 2002

LIST OF FIGURES

- Figure 1.1 Number of first-time HIV-positive diagnoses by year of HIV diagnosis and sex, Ontario, 1985 to 2002
- Figure 1.2 Proportion of HIV-positive diagnoses (adjusted) by period and exposure category, Ontario, 1985 to 2002
- Figure 1.3 First-time HIV positivity rates (adjusted) among MSM by year of HIV diagnosis and health region, Ontario, 1992 to 2002
- Figure 1.4 First-time HIV positivity rates (adjusted) among IDU by year of HIV diagnosis and health region, Ontario, 1992 to 2002
- Figure 2.1 Number of reported AIDS cases adjusted for reporting delays by year of HIV diagnosis and exposure category, Ontario, 1981 to 2002
- Figure 5.1 Modeled HIV incidence and prevalence among MSM, Ontario, 1977 to 2002
- Figure 5.2 Modeled HIV incidence and prevalence among MSM-IDU, Ontario, 1977 to 2002
- Figure 5.3 Modeled HIV incidence number by sex among IDU, Ontario, 1977 to 2002
- Figure 5.4 Modeled HIV prevalence number by sex among IDU, Ontario, 1977 to 2002
- Figure 5.5 Modeled HIV incidence number among persons from HIV-endemic countries, by sex, Ontario, 1977 to 2002
- Figure 5.6 Modeled HIV prevalence number among persons from HIV-endemic countries, by sex, Ontario, 1977 to 2002
- Figure 5.7 Modeled HIV incidence number among persons infected through heterosexual contact, by sex, Ontario 1977 to 2002
- Figure 5.8 Modeled HIV prevalence number among persons infected through heterosexual contact, by sex, Ontario 1977 to 2002

1. INTRODUCTION

This report summarizes the HIV/AIDS epidemic in Ontario as of December 2002 using several indicators. It includes data on HIV diagnoses from Ontario's voluntary HIV testing system, data on reported AIDS cases obtained through the Ontario AIDS reporting system, mother-infant HIV infection from the Canadian Pediatric AIDS Research Group and data on HIV-related mortality from the Ontario Vital Statistics Division. Finally, we present estimates of HIV infection in Ontario based on statistical modeling.

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 initiated by 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 sixth in a series of monographs to review and summarize what is known to date about the patterns of HIV transmission and infection in Ontario.

2. METHODS

Population estimates by year, sex, age group and public health unit were obtained from census data <1> for the calculation of annual incidence and mortality rates. Cumulative incidence rates were calculated using the 1991 population as the denominator. Annual incidence rates were calculated using the actual or interpolated population for the year of interest.

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 serodiagnoses

2.1.1 Data sources

HIV serodiagnostic data were obtained from the HIV Laboratory, Central Public Health Laboratory (CPHL) of the Ontario Ministry of Health and Long-Term Care for the years 1985 to 2002.

Almost all HIV diagnostic testing in the Province of Ontario is performed through the Public Health Laboratory System, Ontario Ministry of Health and Long-Term Care. However, HIV testing is carried out by other laboratories for the purposes of establishing eligibility for life insurance, obtaining visas for international travel and screening organ and tissue donors. Ontario blood donors are tested at the Canadian Blood Services. Finally, Ontario residents may be tested in

other provinces; persons may either have 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) 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 or indeterminate, seroconverter (positive after a negative test or "window-period" positive), first-time positive or repeat positive.

2.1.2 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 indicated that they had a previous positive test whenever possible 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 (under 1, 1-14, 15-19, 20-29, 30-39, 40-49, 50-59 and 60+), exposure category and year of diagnosis. Analyses were carried out according to major health regions; however, these were modified to better reflect the heterogeneity of the epidemic in Ontario and highlight the differences between the larger urban centers and other parts of the province. The following regional categories were used: Northern, Ottawa, Eastern other than Ottawa-Carleton (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 through 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 2002.

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 Laboratory Enhancement Study begun in October 1999 <2> and from the Ontario HIV Laboratory Project study carried out in 1995-96 <3>. This methodology was further refined by taking into account cases that were reallocated into a different exposure category based on information collected by the Laboratory Enhancement Study. Further details of the methodology are included in Appendix A.

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

We calculated "HIV-positivity rates" for cases diagnosed from 1992 to 2002, since data on negative tests have only been collected 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 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.

2.1.3 Classification by exposure category

Where more than one exposure (i.e., presumed route of HIV infection) was indicated for a patient, the case was classified according to a mutually exclusive hierarchy which assigns the case to the risk 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
- Perinatal transmission
- 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)

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

In the design of the lab requisition, blood product recipients were meant to indicate persons who received fractionated blood products. Blood transfusion, on the other hand, was meant to indicate persons who received whole blood or components of fresh blood. However, it later became 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.

2.2 AIDS incidence

2.2.1 Data source

Data on AIDS cases diagnosed to December 31, 2002 and reported to May 24, 2002 were obtained from the Public Health Branch, Ontario Ministry of Health and Long-Term Care.

AIDS cases in Ontario are reported to local public health units and forwarded to the Public Health Branch. Reporting of AIDS cases was initiated informally in 1982 and expanded into the official surveillance system (the Ontario AIDS Surveillance Program [OASP]) when AIDS became reportable in August 1983. Currently, AIDS data is managed through the Ministry's Reportable Disease Information System (RDIS) implemented in 1990. This system provides 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. All reported cases, including those ascertained retrospectively (i.e., prior to the institution of official reporting), were included in our analyses.

AIDS cases in Ontario are classified according to criteria used for epidemiologic surveillance as recommended by the Laboratory Centre for Disease Control <4>. The Laboratory Centre for Disease Control defines a case of AIDS as a person who has an illness characterized by the following: (1) one of 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 new indicator conditions were added, namely, pulmonary tuberculosis, cervical cancer (in women), and recurrent bacterial pneumonia <6,7>.

2.2.2 Data analysis

Cumulative incidence rates (1981 to 2002) were calculated using the 1996 population as denominator.

The number of AIDS cases and cumulative incidence rate per 100,000 were calculated according to sex, age at diagnosis (under 15, five-year age categories from 15 to 59, and 60+), exposure category, health region (Northern, Ottawa, Eastern other, Toronto, Central East other, Central West and Southwest) (see Section 2.1.2) and year of HIV diagnosis. In addition, we calculated the mean age at diagnosis. The date of diagnosis was defined as the date of the earliest AIDS-defining illness, if available, or the reported date of diagnosis otherwise.

We carried out analyses of trends by sex and exposure category using five mutually exclusive time intervals selected to maximize homogeneity within each interval and display trends most

effectively.

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>. Where more than one exposure category was given, a hierarchy was used to determine the most likely source of infection for 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 November 1985 or of unknown date were grouped and classified as clotting factor recipients. Persons who received a blood transfusion prior to November 1985 were considered as transfusion recipients.

Those who received clotting factor or a transfusion after November 1985 or received a transfusion of unknown date 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 Public Health Branch, the actual number of AIDS cases is likely to be underestimated, particularly in the most recent years. Therefore, delay adjustments were carried out for each major exposure category to present a more accurate picture of the annual number of diagnosed cases for the HIV statistical model (see Section 2.4 below). These adjustments were carried out using weights for AIDS cases in Ontario kindly provided by Health Canada for data to December 2001 <9>.

Dates of report for AIDS cases were available from the Public Health Branch only from the inception of RDIS (i.e., from 1990). Therefore, the reporting delay analysis was carried out using dates of report provided by Health Canada (HC) for AIDS cases reported from January 1, 1983 to December 31, 1990. In addition, the HC date of report was used for cases reported between January 1, 1991 and December 31, 1996 in which the HC date of report was earlier than the Ontario date of report. The RDIS date of report was used for the remaining AIDS cases with dates of report between January 1, 1991 and December 31, 2002. An adjustment factor of -2 months was applied to HC dates of report when they were used, based on the median difference in RDIS and HC dates of report among cases with both dates.

The following cases were excluded from the calculation of reporting delay adjustments: (1) cases in which the date of report was earlier than the date of diagnosis; (2) cases diagnosed prior to January 1, 1997 but reported in 1997; and (3) cases in the NIR and occupational exposure categories. The adjustment factors were applied to all AIDS cases in each of the exposure categories with the most cases (i.e. MSM, MSM-IDU, IDU, HIV-endemic, other heterosexual).

2.3 HIV infection due to mother-infant transmission

2.3.1 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 2002. The Ontario region of CPARG is coordinated by Dr. Susan King at the Hospital for Sick Children in Toronto. This work 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. The following hospitals have contributed cases to date: Hospital for Sick Children, Toronto; Children's Hospital in Eastern Ontario, Ottawa; McMaster University Medical Centre, Hamilton; and St. Joseph's Health Centre, London.

Solicitation for new cases and an update on the clinical status of previously reported cases is carried out 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 zidovudine 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 laboratory analysis, including HIV antibody tests, polymerase chain reaction (PCR) and viral culture.

2.3.2 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.

2.4 HIV-related mortality

2.4.1 Data source

Data on HIV-related deaths (ICD-9 codes 042, 043 or 044) occurring from 1987 to 1999 was

obtained from the Ontario Vital Statistics office of the Registrar-General.

2.4.2 Data analysis

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

We examined the distribution of deaths according to country of birth (HIV-endemic and non-HIV-endemic). Countries in sub-Saharan Africa and the Caribbean were considered to be HIV-endemic for the purpose of these analyses.

2.5 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 2002. 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, Registrar-General) and HIV infections among women who delivered a live infant (CPARG). Data from the Laboratory Enhancement study and 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, 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 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 <10> as well as in Appendix B.

3. RESULTS

3.1 First-time HIV diagnoses

3.1.1 Number of diagnoses

As seen in **Table 1.1**, 23,523 first-time HIV-positive diagnoses were made in Ontario from October 1985 to December 2002. The sex was unknown for 1,058, or 4.5%, of diagnoses. Overall, the number of first-time diagnoses increased steeply from 1986 to a peak in 1990, from about 1,400 to 2,100 diagnoses, and then gradually decreased since. The number of new HIV diagnoses was relatively stable from 900 to 1,000 for the four years from 1997 to 2000. However, in 2001, the number of new diagnoses increased to 1,018 (an increase of 6.7% over the average of the previous four years). The increase in 2002 was more dramatic, to 1,238, a further increase of 21.6% over 2001.

The proportion of diagnoses comprised by females dramatically increased, from 1.8% in 1985 to 27.0% in 2002. The increasing trend in the proportion of females (examined over three aggregate periods) was statistically significant ($p < 10^{-6}$).

Figure 1.1 displays the trends in the number of first-time HIV diagnoses from 1985 to 2002 by sex. The figure shows that, among males, the number of first-time HIV diagnoses rose to a peak of just over 1,800 in 1990 and decreased since. In 1997-2001, approximately 700 infections were diagnosed annually and, in 2002, the number of HIV diagnoses increased substantially. For females, there was a gradual increase in the number of HIV diagnoses from 1985 to 1994. From 1994 to 2000, about 180-220 new diagnoses were made each year. However, in 2001 and 2002, 254 and 326 females were diagnosed with HIV infection, respectively. In 2002, the number of new HIV diagnoses in females was the highest ever.

Table 1.2 shows the (unadjusted) distribution of first-time HIV diagnoses by exposure category and sex from 1985 to 2002. Among males, 78.1% were men who have sex with men (MSM), with the second most important group being injection drug users (IDUs) at 6.4%. Among females, three groups predominated, namely low-risk heterosexual at 27.0%, high-risk heterosexual at 24.5% and IDUs at 18.0%. Overall, 61.7% were attributable to heterosexual transmission (including high- and low-risk heterosexual and HIV-endemic).

Table 1.3 is similar to Table 1.2 after adjusting for diagnoses with unknown sex and unknown exposure category. In this analysis, the proportion assigned to the HIV-endemic exposure category was substantially higher for both sexes, increasing from 2.0% to 5.2% for males and from 10.1% to 33.1% for females. The proportion of HIV diagnoses in females assigned to the three categories representing heterosexual transmission was 65.0%.

Table 1.3a shows the distribution of first-time HIV diagnoses in 2002 alone by exposure category, adjusting for cases with unknown sex and unknown exposure category. Among males, MSM accounted for 62.4%, low risk heterosexual 10.1% and IDUs about 6.3%. The proportion of cases attributed to MSM and MSM-IDU decreased from previous years whereas cases attributed HIV-endemic, HR and LR heterosexual increased. For females, three risk categories related to heterosexual transmission accounted for the majority (79.5%) of cases;

women from HIV-endemic countries 43.8%, low-risk heterosexual 27.0% and high risk heterosexual 8.6%.

Table 1.4 displays exposure category by year of HIV diagnosis. As seen in the second column from the right, the exposure category could not be determined for 11,975, or 50.9%, of diagnoses. This proportion has not improved substantially in recent years.

Table 1.5 shows the number and proportion of first-time HIV diagnoses by year of diagnosis adjusted for unknown exposure category. There are interesting trends in the number and proportion of exposure categories over time. In the early years, MSM comprised the vast majority of first-time HIV diagnoses, accounting for 80-90% of diagnoses from 1985 to 1989. This proportion decreased almost every year until 1998. From 1998 to 2002, about 45% of first-time HIV diagnoses were among MSM.

IDUs comprised 0.4% of persons diagnosed in 1985 and gradually increased subsequently. This was highest in the period 1994 to 1999 when it varied from 10% to 14%. From 2000 until 2002, a decreasing proportion of new HIV diagnoses were among IDUs, being 7.2% in 2002. The decrease in the proportion comprised by IDUs in the years 2000-02 compared to the years 1994 to 1999 was highly statistically significant ($p < 10^{-6}$).

Figure 1.2 graphically shows the relative proportion of first-time HIV diagnoses by exposure category and two-year period of diagnosis from 1985 to 2002. This illustrates the gradual decrease in the relative importance of diagnoses among MSM and MSM-IDU and the relative increase in importance of HIV diagnoses among the HIV-endemic and low-risk heterosexual categories. The proportion assigned to IDUs increased monotonically from 1985-86 until 1999-2000 and then decreased in the latest two-year period. Though relatively stable over the last 10 years, the proportions and numbers of HIV diagnoses among high-risk heterosexuals were greater in 1993 through 2002 than earlier.

Table 1.5a shows the same analysis to that in Table 1.5 but limited to males. Among males, MSM comprised almost all (>85%) HIV diagnoses until 1991 and then gradually decreased since. IDUs, on the other hand, accounted for a gradually increasing proportion of HIV diagnoses, being less than 2% for the first three years and gradually climbing, with rates of approximately 8% to 12% since 1992. In the last three years, the proportion of males assigned to the IDU category appeared lower than previously; the decrease in the proportion of IDUs in 2000-02 was significantly lower than the proportion in 1994-99 ($p=0.002$). Not surprisingly, HIV infections acquired from clotting factors and blood transfusion accounted for 2-3% in the first few years of the epidemic but less than 2% since 1995 for blood transfusion and less than 1% since 1991 for clotting factors.

Men from HIV-endemic countries accounted for a gradually increasing proportion of first-time HIV diagnoses, from less than 2% until 1990 to 7-9% in 1996-2000, with a dramatic increase to 15.1% and 13.4% in 2001 and 2002, respectively.

Cases in both heterosexual risk categories also accounted for a gradually increasing proportion of HIV diagnoses. This was more dramatic for low-risk heterosexuals which comprised 1% or less of HIV diagnoses from 1985 through 1991 to approximately 10% of diagnoses in the previous five years. For high-risk heterosexuals, the pattern was somewhat less dramatic, accounting for less than 1% of cases until 1992 and 2-3% of cases from 1997 to 2002.

Table 1.5b shows the relative proportion of HIV diagnoses by exposure category among females from 1985 to 2002. As with males, cases associated with clotting factors and blood transfusion decreased dramatically since the beginning of the HIV epidemic. Cases attributed to injection drug use have varied somewhat but were generally from 18% to 28% of cases from 1987 to 1999 but decreased to 8-12% in 2000 to 2002. Absolute numbers of HIV diagnoses among female IDUs also decreased in the most recent two years.

In contrast, the proportion of women from HIV-endemic countries was initially low and increased steeply over the period 1985 to 1990, attaining a plateau of 25-35% from 1990 to 1999. However, they accounted for 43% of cases in the past three years. This increase was statistically significant ($p < 10^{-6}$). Low-risk heterosexual women accounted for less than 10% of cases until 1991 but increased to 26% over the last six-year period.

Table 1.6 shows the distribution of age group and sex among persons diagnosed from 1985 to 2002. For both males and females, the vast majority of diagnoses were among young adults aged 20 to 49 years. For men, 89% of diagnoses were among men 20 through 49 years, whereas 76% of diagnoses were among women 20 to 44 years of age. The mean and median ages were higher in men (35.0 and 34.0 years) than in women (30.1 and 30.0 years).

Table 1.7 presents the age distribution among first-time HIV diagnoses from 1985 to 2002 for each exposure category. The mean ages at HIV diagnosis for the MSM-IDU, HIV-endemic and heterosexual exposure categories varied from 31 to 35 years of age. As might be expected, persons infected by clotting factors were younger than MSM and IDUs, whereas those infected by blood transfusion were older.

Table 1.8 shows the trends in age at first-time HIV diagnosis by exposure category among males. Among MSM, the mean increased slightly, from about 33-34 years in 1985-88 to 36-38 years in 1998-2002. A slightly more dramatic increase was observed among IDUs, from 25-30 years in 1985-90 to 36-39 years in 1997-2002. Note that the mean age at HIV diagnosis is a function of both the age at HIV infection and the time since HIV infection and is, therefore, not easily interpretable.

Table 1.9 shows similar data to that in Table 1.8 for women. For IDUs, the mean age at HIV diagnosis increased from 26-31 years in 1986-1994 to 32-36 years in 1995-2002. Interestingly, there appeared to be no substantial change in age at HIV diagnosis among women from HIV-endemic countries (though cases were perhaps somewhat older in 2001 and 2002), suggesting a complex pattern reflecting possibly more recent HIV infection or decreasing age at

infection). The mean age at diagnosis for women in the HR and LR heterosexual exposure categories did not appear to increase over time.

Table 1.10 shows the distribution of first-time HIV diagnoses from 1985 to 2002 by individual risk factors; this is in contrast to other tables presented in this report where cases were classified by exposure category using a hierarchy of risk factors. Interestingly, of the 8,221 MSM, a substantial proportion (19.4%) indicated they were bisexual. This is a potentially important route of HIV transmission to women. Though the number of MSM from HIV-endemic countries appeared low (34 in all), other data suggests that the indication of origin in an HIV-endemic country is likely incomplete in the HIV diagnostic database. Only nine of the 901 IDUs were reported to be from an HIV-endemic country.

Table 1.11 presents first-time HIV positive diagnoses by exposure category and health region in Ontario from 1985 to 2002. 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 analysis.

Table 1.11a shows a similar analysis to Table 1.11 but showing row instead of column percent. This analysis permits an examination of the relative proportion of each exposure category diagnosed in each health region in Ontario. Overall, 66.9% of HIV infections were diagnosed in Toronto and 11.2% in Ottawa. For MSM, the vast majority of HIV diagnoses were in Toronto, accounting for 77.8% of diagnoses in this group. The next highest was in Ottawa, accounting for 8.7%. For IDUs, HIV diagnoses were more evenly distributed, being highest in Toronto (35.4%) and Ottawa (24.9%) and 8-11% for the Northern, Eastern other and Central West regions. The majority of HIV diagnoses among persons from HIV-endemic countries were in Toronto (55.9%) and Ottawa (25.8%). For the two heterosexual contact categories, Toronto accounted for 49.5% of diagnoses, followed by Ottawa (13.4%), Southwest (8.2%), Central East other (8.2%) and Central West (7.2%) regions.

Table 1.12 shows the same analyses as Table 1.11 for 2002 only. Detailed comments on the regional differences in the distribution of exposure categories are included in the discussion of Table 1.14 below which presents the adjusted analysis.

Table 1.13 presents a similar analysis to Table 1.11 but with adjustment of cases with unknown exposure category. The distribution of exposure categories differed markedly between health regions. In Toronto, for example, 74.1% of HIV diagnoses were among MSM, compared to 37-44% for Northern, Ottawa, Eastern other, Central East other, Central West regions. In the Southwest region, MSM constituted 65.6% of HIV diagnoses, approaching that of Toronto. The proportion comprised by IDUs also varied by region, from a low of 4.9% and 5.3% in Southwest and Toronto, respectively, to 22.5% in the Eastern other region and 27.9% in the Northern region. The proportion of persons infected through heterosexual contact also varied, from a low of 7.4% in Toronto, 10.4% in the Central West region, 13.6% in Central East other and 17.2% in the

Northern region

Table 1.13a and **Table 1.13b** show similar adjusted data for males and females, respectively. Again, Toronto comprised the majority of HIV diagnoses in Ontario, with 68.7% of cases for males and 52.4% for females. Cumulative incidence rates were substantially higher (6.9-fold for Ontario as a whole) in males than females. The rate of HIV diagnoses in Toronto was twice as high as in Ottawa for males, whereas, for females, the rate in Ottawa was slightly higher than that in Toronto.

Table 1.14 is similar to Table 1.13 but shows adjusted data for 2002 alone. Similarly to cumulative HIV diagnoses, 66% of the HIV diagnoses in 2002 were in Toronto. Again, MSM exposure category comprised a substantial proportion, at 59% of HIV diagnoses in the Toronto region followed by Ottawa and Central East other at about 49.5% of cases. Most interestingly, the proportion attributed to the LR heterosexuals in all regions is substantially higher in the year 2002 compared to the overall HIV diagnoses from 1985 to 2002. LR heterosexual cases comprised 14.7% of cases in 2002 compared to 5.9% for cases diagnosed from 1985 to 2002. Similar increases in the proportion of LR heterosexual cases was observed in each health region.

Table 1.14a and **Table 1.14b** show adjusted data among males and females respectively for the year 2002. Among females, the proportion of cases among LR heterosexual cases increased more than among males, from 2.7% to 10.1% compared to 4.1% to 10.1% for males.

Table 1.15 shows the first-time HIV diagnoses and rate per 100,000 population for 1985 to 2002 by public health unit and sex. Rates were highest in Toronto, at 608.6 per 100,000, high-intermediate in Ottawa (338.9) and London (267.4) and low-intermediate in Kingston (184.3), Hamilton (122.1) and Windsor (113.8). Rates were 14 to 76 in the other public health units.

The ratio of HIV diagnosis rate among males compared to that of females varied markedly across public health units. The ratio was highest in Kent-Chatham and Bruce-Grey public health units with 16.0 and 15.7 respectively, compared to Porcupine and Algoma public health units where the rate ratios were 1.4 and 2.3, respectively.

Table 1.16 shows the number and proportion of HIV diagnoses by year of test and type of identifier on the requisition. No specimens were tested anonymously prior to 1992 because anonymous testing programs were implemented in that year. Since 1992, only a very small proportion of tests (<1%) did not have the type of identifier indicated. Overall, the proportion of HIV tests with nominal identifiers has steadily increased. In 2002, 66.3% of HIV-positive tests were nominal, 24.9% coded and 8.7% were anonymous.

Table 1.17 and **Table 1.18** show analyses similar to that in Table 1.16 but among males and females, respectively. Among males, the proportion that were nominal varied from about 54% to

60% since 1998. In this same period, 28% to 35% of tests were coded and 10% to 13% were anonymous. The pattern among females, shown in **Table 1.18**, was somewhat different. Since 1992, a higher proportion of HIV-positive tests among women were nominal (68.8% compared to 52.2%). Conversely, 25.1% were coded compared to 36.9% for males. Finally, the overall proportion of anonymous HIV-positive tests among females was 6.1%, compared to 10.9% among males.

3.1.2 Rate of first-time HIV-positive diagnoses

In a second stage of analysis, we examined the number of HIV-positive tests among the total persons tested by exposure category for each year from 1992 to 2002.

In **Table 1.19**, those with unknown exposure category are indicated as such. Since adjusted data is of greater interest, the discussion of trends will be limited to the adjusted data (see Table 1.20 below).

Table 1.20 presents the first-time HIV-positivity rates by exposure category from 1992 to 2002, with cases with unknown exposure category reassigned using our adjustment procedure described above.

Overall, the positivity rates were the highest among MSM-IDUs (5.0%) and MSM (4.9%) excluding the perinatal category which, in many ways, is distinct from the other categories. The third highest category was persons from HIV-endemic regions at 2.2%. Overall, the rate for IDUs was 0.80%.

For MSM, HIV positivity rates decreased over time from 1992 to 1996 but have been relatively stable since; the rate was 8.5% in 1992 and 3.8% in 2002. Positivity rates among IDUs were lower since 2000 compared to previously. The interpretation of these rates is complex since they are a function of both patterns of HIV infection and of HIV diagnosis, both of which may differ across exposure categories and over time.

Table 1.21 displays the unadjusted HIV positivity rates by exposure category and health region for the period 1992 to 2002. 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 1992-2002 with data adjusted for unknown exposure category. Rates were highest among MSM at 4.9% for Ontario but varied from 2.1% in the Northern region to 6.3% in Toronto. For IDUs, the highest positivity rates were in Ottawa, with a rate of 2.0%, higher than the 1.0% in Toronto and 0.80% in the Northern region; in all other regions, the rate was 0.50% or lower. The HIV-endemic category was also highest in Toronto with a rate of 2.8%. There were relatively minor regional differences in the positivity rate in the HR and LR heterosexual categories, with the overall rate being 0.28% and 0.07% respectively.

Figure 1.3 presents first-time HIV positivity rates among MSM by health region from 1992 to 2002. Though the trends over time are difficult to discern, in part due to small numbers and changes in HIV testing patterns, the positivity rate decreased among MSM in most regions. This was most dramatic for the Southwest, Toronto and Central West regions. The rates were highest in the Toronto region but decreased about 50% in the five-year period from 1992 to 1997. In the five-year period since 1997, rates were relatively stable among MSM at about 4-5% with only a slightly decreasing trend. In the past two years, the rate among MSM in Ottawa appeared to increase. In the 2002, a similar increase was observed in the Central West region.

Figure 1.4 shows a similar graph for IDUs during the same eleven-year period. Rates were generally highest in the Ottawa region (from 1.5% to 3.0%) but showed no increasing or decreasing trend. In the Toronto region, the rates were intermediate and appeared to be decreasing. In 1996, a markedly increased rate was observed in the Northern region. A similar isolated peak was observed in the Eastern other region in 1994. In the three other regions, the rates were lower and no obvious increasing or decreasing trend was observed over the eleven-year period.

Table 1.23 presents similar data to Table 1.22 stratified by sex. HIV positivity rates among females were lower than among males for all exposure categories except for the HIV-endemic category. This trend was observed in most health regions. The rate among male IDUs was 1.3% compared to 0.85% among females. For the HIV-endemic category, the positivity rate was 2.5% in males compared to 3.5% in females. 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 the year 2002. Since adjusted data is of greater interest, the discussion of HIV positivity in 2002 will be limited to the adjusted data (please see next table).

Table 1.25 shows a similar adjusted analysis for the year 2002. The Ontario rate was 3.8% for MSM, highest in Toronto at 4.7% and lowest in Eastern other at 1.1%. The rate was 0.58% for IDUs in Ontario, highest in Ottawa at 1.5% and lowest in Central West other at 0.14%. The overall positivity rate for the HR heterosexual category was 0.36% and was highest in Toronto at 0.60% and lowest in the Northern region at 0.01%.

Table 1.26 displays similar data to Table 1.25 stratified by sex. Rates among MSM and MSM-IDU decreased for males in 2002 compared to previously. Rates among IDUs in 2002 also decreased compared to the cumulative rate from 1992 to 2002 for both males and females. However, HIV positivity rates for the HR heterosexual category increased slightly for males but decreased slightly for females. The male:female rate ratio was 8.1 during the eleven-year period but 3.4 in 2002 alone.

3.1.3 HIV tests

Table 1.27 presents the number of HIV tests by year of test and sex from 1992 to 2002. The number of tests for both sexes in Ontario increased from 218,000 in 1992 to 250,000 to 262,000 in 1993 to 1995 and then again to 262,000 to 287,000 in 1996 to 2001. There was a substantial increase (22%) in the number of tests carried out in 2002 compared to the previous six years, likely related, at least in part, to the prenatal HIV screening programs and the HIV testing of immigration applicants beginning in January 2002.

Sex was not indicated in 4.4% of the tests. The proportion of HIV tests carried out among females gradually increased over the eleven-year period, from 51-54% in 1992 to 1995 and 55-59% in the years following. This was likely due to increased testing through the prenatal HIV screening program.

Table 1.28 shows data similar to Table 1.27 with the number of tests adjusted for unknown sex and including rates. Among males, there was little change from 1992 to 2002 with testing rates of 20-23 per 1,000; however, the rate increased to 25.2 in 2002. For women, the highest testing rate ever was also observed highest in 2002.

Table 1.29 shows the number and proportion of HIV tests by exposure category by year from 1992 to 2002 using unadjusted data.

Table 1.30 displays the same data as Table 1.29 adjusted for unknown exposure category. The majority (60-70%) of HIV tests during this period were among low-risk heterosexuals. They accounted for about 60% of tests in 1992 through 1995 and increased to 74% in 2002. The next highest number of HIV tests were among HR heterosexuals and IDUs with about 5.7% each. Approximately 5% of tests from 1992 to 2002 were among MSM.

Table 1.31 shows the number and proportion of HIV tests by age group and exposure category. The age distribution somewhat mirrors the proportions of HIV-positive tests: the majority (62%) were carried out among persons aged 20 to 39 years. Interestingly, the proportion of those in the high risk and low risk heterosexual categories 15-19 years old was 14.8% and 12.1%, respectively, substantially larger than the proportion in this age group being tested in any of the other exposure categories (4-6%).

Table 1.32 shows the number of HIV tests by year and health region from 1992 to 2002. Toronto accounted for the largest number of HIV tests, 36 to 43% of all tests in Ontario over the eleven-year period. The second largest group was Central East other, with overall 15.8% of tests and an increasing trend, from 14% in 1992 to 17% in 2002.

Table 1.33 shows population-based HIV testing rates. Rates were highest in Toronto and Ottawa at about 38 per 1,000 and substantially lower in the five other regions, varying from

about 14 to 21 per 1,000. All regions showed a general increasing trend in testing from 1992 to a peak in 1998 or 1999, followed by a plateau until 2001 and then an increase in 2002. The 2002 increase was substantial in the Northern and Toronto regions.

Table 1.34 shows the number and proportion of HIV tests from 1992 to 2002 by type of identifier indicated on the test requisition i.e. nominal, coded or anonymous. The proportion tested nominally increased substantially, from 70.7% in 1992 to 87.7% in 2002. Conversely, the proportion coded decreased, from 19.6% in 1992 to 9.3% in 2002. The proportion undergoing anonymous HIV testing represented approximately 4% of tests overall, from 8,900 to 12,900 tests annually with no increasing or decreasing trend overall in absolute numbers.

Table 1.35 displays a similar analysis to Table 1.34 by sex. The proportion of nominal tests was slightly lower for males than females (78.3% and 82.5%, respectively) whereas the proportion of coded tests was higher in males compared to females (16.2% versus 14.2%). The proportion accounted for by anonymous testing was 5.2% among males and 3.0% among females; the proportion undergoing anonymous testing decreased over time for both males and females.

3.2 Reported AIDS cases

Table 2.1 presents the reported AIDS cases by year of diagnosis from 1981 to 2002. Overall, 7,329 cases have been reported in Ontario to May 2003. The annual number of cases increased gradually over the mid-to late 1980s and early 1990s to a maximum of 719 in 1993. Since then, the annual number of AIDS cases diagnosed decreased, especially markedly since 1995. The far column on the right shows the annual number of AIDS cases adjusted for reporting delay. Taking into account reporting delays, AIDS incidence appeared to reach its lowest level in 2000 and increased in 2001 and again in 2002. Thus, AIDS incidence in 2002 was 68% higher than in 2000. The proportion of AIDS cases among females has gradually increased, from 1.8% in 1985 to 21.1% in 2002.

The decrease in AIDS incidence since the mid-1990s likely reflects the impact of highly active antiretroviral therapies, including protease inhibitors, introduced in 1996.

Table 2.2 shows the distribution of reported AIDS cases by exposure category and sex. The majority of cases were among MSM, who represented 70.7% of cases overall and 76.1% of cases among men. Those infected through heterosexual contact accounted for 8.0% overall but 37.4% of AIDS cases among women.

Table 2.3 displays AIDS cases by exposure category and year of AIDS diagnosis from 1981 to 2002. MSM represented 80-85% of AIDS cases until 1988, when the proportion decreased in almost every year since. In 2002, 37.6% of AIDS cases were in MSM, the lowest proportion ever.

IDUs constituted only a small proportion (less than 3%) of AIDS cases until 1989, gradually increasing to 11.5% of cases in 2000, and then decreasing slightly since. Cases in the HIV-endemic category increased gradually from less than 3% until 1991 to more than 10% beginning in 1996 to a high of 20.2% in 2002. The heterosexual category increased gradually from less than 5% until 1989 to more than 10% in the mid-1990s and then gradually increasing to 15-20% in 2000-02. Cases related to clotting factors increased to a peak of 2.4% in 1991 and have decreased both proportionately and in absolute numbers. From 1997 to 2002, clotting factor related cases constituted less than 1% of AIDS cases.

Table 2.3a shows the distribution among males of AIDS cases by exposure category from 1981 to 2002. The proportion constituted by MSM was greater than 80% until 1991, 73-78% from 1992 to 1995 and decreased successively since then. In 2002, the proportion was 47.7%, the lowest ever. Increases in the proportion of AIDS cases among men from HIV-endemic countries and men infected through heterosexual transmission mirrored somewhat the pattern observed for all cases as noted above; substantial increases in the proportion of AIDS cases were observed in the past five years.

The situation among women, shown in **Table 2.3b**, is noteworthy. IDU accounted for 14.1% of cases. However, the proportion varied markedly from year to year without any obvious increasing or decreasing trend. Cases among women from HIV-endemic countries represented 27.0% of cases overall and varied in the range of 20% to 40% from 1992 to 1998. From 1981 to 1998, 23.2% of cases in women were from HIV-endemic countries compared to 44.1% from 1999 to 2002; this increase was statistically significant ($p=0.0007$). Cases related to heterosexual transmission were unstable and constituted 37.4% of AIDS cases among women. The proportion was higher (39.4%) in the years from 1981 to 1998 compared to 28.0% from 1999 to 2002; this increase was statistically significant ($p=0.05$).

Figure 2.1 shows the number of AIDS cases adjusted for reporting delays by year of diagnosis and exposure category from 1981 to 2002. Interestingly, AIDS incidence appears to have increased in 2001 and 2002 for the first time in many years for three exposure categories: MSM, heterosexual and HIV-endemic.

Table 2.4 shows the number and cumulative rate per 100,000 of reported AIDS cases by age group and sex from 1981 to 2002. The rates were highest among males in the 30 to 44 year age categories and for females in the 25 to 34 age categories. The overall rate was 13.5 times greater for males than for females.

Table 2.5 shows similar data to Table 2.4 for 2002 only. Though the numbers reported were small, a similar age distribution of AIDS cases was observed.

Table 2.6 presents the number and proportion of AIDS cases by exposure category and age group. The distribution of age differed by exposure category. For those infected through clotting factors, cases were younger at AIDS diagnosis (39.6% were younger than 30 years of age compared to 17.3% for all other exposure categories; $p < 10^{-6}$). Those infected through blood transfusion were, on the other hand, somewhat older (45.1% for more than 50 years compared to 11.7% of cases in other exposure categories; $p < 10^{-6}$).

Table 2.7 shows the mean age at AIDS diagnosis by year of diagnosis and exposure category among males from 1981 to 2002. For MSM, the age at AIDS diagnosis increased moderately over the last 20 years, from about 37 years in the first few years to about 43 years in the last two years.

For MSM-IDU, the overall mean age at AIDS diagnosis was 35 years and remained stable over the years; the older age of cases diagnosed from 1999 to 2001 were probably due to the smaller number of cases (three to four in each year). The mean overall age for IDUs was 36 years; the age at AIDS diagnosis gradually increased since the mid-1980s when cases were in the range of 30 years to the early 40s for the most recent three years.

Table 2.8, similarly to Table 2.7, presents the age at AIDS diagnosis among women. Female IDUs were three years younger than male IDUs (33 versus 36 years of age). Similarly, women from HIV-endemic countries were 36 years of age at time of AIDS diagnosis compared to 38 years among males. Female heterosexual AIDS cases were also younger than males; 37 compared to 42 years.

Table 2.9 shows AIDS cases by exposure category and health region from 1981 to 2002. In Toronto, MSM constituted 78.4% of cases, 65.1% of cases in the Southwest region; in the Northern, Central East other and Eastern other regions, MSM comprised less than 55% of cases. Overall, Toronto AIDS cases accounted for 60.9% of cases in Ontario, Central East other 8.9%, Central West 8.5% and Ottawa represented 8.4%. In Central East other, Central West and Southwest, the heterosexual category constituted 11-19% of cases and represented the second highest proportion after MSM. IDU was the second highest exposure category in proportion in the Eastern other and Northern regions. In Ottawa, HIV-endemic cases represented the second highest category with 11.8% of AIDS cases.

Table 2.10 shows a similar analysis to Table 2.9 for 2002. The interpretation of this analysis is limited by the small numbers of AIDS cases diagnosed in this year and reported to date. Nevertheless, of the 109 diagnosed in 2002, 37.6% were among MSM, 20.2% among persons from HIV-endemic regions and 17.4% in the heterosexual category.

Table 2.11 shows the single and multiple exposures among Ontario AIDS cases since the beginning of the epidemic. Interestingly, 851 (15.5%) of the 5,503 AIDS cases among non-IDU.

MSM also reported sex with women (bisexual exposure). Also of note is that 187 MSM were from HIV-endemic countries; 64 or (34.2%) were also bisexual. MSM from HIV-endemic countries were at 2.3-fold more likely to be bisexual compared to other MSM (34.2% versus 14.8%, $p < 10^{-6}$).

MSM-IDU also reported higher rates of sex with women than MSM alone; 92 (30.0%) of 307 reported sex with women.

Table 2.12 presents the distribution of reported AIDS cases by health region and year of diagnosis. Overall, most (60.9%) cases were from Toronto, with about 9% of cases each from Central East other, Ottawa, Central West and Southwest regions. However, the proportion of Ontario cases reported from Toronto has decreased slightly in the last five years, from 61.8% of cases diagnosed up until 1996 to 55.2% from 1997 to 2002. The proportion of Ontario cases increased correspondingly in three health regions, namely Eastern other, Central East other and Southwest.

Table 2.13 shows the number of AIDS cases and cumulative incidence rates per 100,000 population by health region and sex from 1981 to 2002. Not surprisingly, the rates were highest in Toronto at 181.2 per 100,000, intermediate in Ottawa with a rate of 83.0 and lowest in the other five regions, from 20 to 40. Rates among males were markedly higher than among females, with overall rates 13.5-fold higher. Cases among females represented 7.1% of reported AIDS cases to date.

Table 2.14 presents AIDS cases and rates by public health unit and sex. A marked variation in AIDS incidence rates was observed between public health units, varying from a low of 9.1 per 100,000 in Algoma and 9.9 in Northwestern unit to a high of 181.2 per 100,000 in Toronto. Between these two extremes were several public health units with intermediate rates including Ottawa (83.0 per 100,000), Middlesex-London (58.2) and Windsor-Essex (55.9). The incidence of AIDS in Middlesex-London was about 10% lower than the rate for Ontario as a whole whereas for HIV diagnoses (as seen in Table 1.17), the rate was 26% higher than for Ontario as a whole. In contrast, for Simcoe, Temiskaming, Oxford and Lambton public health units, the AIDS case rate was at least four times higher than the rate of first-time HIV diagnoses.

3.3 Mother-infant HIV transmission

Table 3.1a presents the number of HIV-infected mothers identified through the Canadian Pediatric AIDS Research Group (CPARG) by the infants' year of birth and HIV infection status for the period 1984 to 2002. In all, 477 HIV-infected women were identified; 149 infants born to these women were confirmed to be HIV-infected, 283 were not infected and, for 45 infants, the infection status was pending or unknown. The annual number of HIV-infected women by year of

infants' birth increased from 5 to 40 from 1984 to 1994, decreased thereafter to 32 in 1997 and, interestingly, peaked to a high of 52 in 2001 and 47 in 2003. This is despite likely delays in reporting of cases in recent years, especially for mothers with an HIV-infected infant. Similarly, the reported number of HIV-infected children increased from 5 in 1984 to a high of 18 in 1992 and after 1994 gradually decreased until 2002. Reporting delays are likely to be especially important in this group; therefore, the number of HIV-infected infants eventually reported is likely to be greater for recent years.

Table 3.1b shows data similar to Table 3.1a limited to cases in which the infant was born in Canada (we assumed for this analysis that, in addition to the 373 infants reported to have been born in Canada, the 57 infants for whom the country of birth was missing were also born in Canada). 430 such children were identified, of whom 114 were confirmed to be infected with HIV. Of note is that all of the 18 HIV-infected infants born from 1999 to 2002 were born in Canada. A similar pattern to the previous table was observed, with an increase in the number of mothers and a trend to decreasing HIV-infected infants.

Table 3.2a shows the distribution of cases for all HIV-infected mothers by geographic region of the treating institution and the mother's exposure category for 1984 to 2002. Overall, 50.3% of the infected women were from HIV-endemic countries, 31.5% others were infected by heterosexual transmission and 16.9% were IDUs. 59.7% of cases were reported from the Hospital for Sick Children in Toronto and 27.5% from the Children's Hospital of Eastern Ontario in Ottawa, accounting for 87% of Ontario cases. Compared to Toronto and Ottawa, the proportion of mothers born in HIV-endemic countries and those having injected drugs was lower and of women infected heterosexually higher in the other geographic regions. This difference was statistically significant ($p < 0.01$).

Table 3.2b shows the distribution of the 430 cases in which the infant was born in Canada to HIV-infected mothers by geographic region of the treating institution and the mother's exposure category for 1984 to 2002. Similar distributions of geographic region and mother's exposure category as for all cases was observed.

Table 3.3a shows all 149 infants who were confirmed to be HIV-infected. 64.1% were born to mothers from HIV-endemic countries and 27.5% to other mothers infected heterosexually. These two exposure categories accounted for 92% of HIV-infected infants. The distribution by geographic region of the treating institution was approximately the same as that for the mothers, with 62.4% of cases reported from Toronto.

Table 3.3b shows a similar analysis as Table 3.3a for the 114 infants born in Canada confirmed to be HIV-infected. 53.7% were born to mothers from HIV-endemic countries and 35.2% to other mothers infected by heterosexual transmission. These two exposure categories accounted for 89% of HIV-infected infants. The distribution by geographic region of treating institution was

approximately the same as that for all HIV-infected infants, with 64.0% of cases reported from Toronto.

Table 3.4a presents the trend in the distribution of exposure category over the 19-year study period for all HIV-infected infants. The proportion of infants infected by mothers who were IDUs was generally low over this period, representing 6.3% of cases overall. The proportion of women from HIV-endemic countries was higher in the period 1984-87, decreased in 1988-89 and then gradually increased since then; the proportion has been in the range of 70-80% since 1992. The proportion of HIV-positive infants of other women infected through heterosexual transmission varied considerably from period to period in the range of 20-40%, with no apparent time trend.

Table 3.4b presents the trends in exposure categories by period over the 19-year study period. For children born in Canada. The number of children infected by mothers who were IDUs was generally low over this period and represented 9% of the cases. The proportion of women from HIV-endemic countries was somewhat higher in 1984-87, decreased in 1988-89 and then gradually increased since. The proportion of HIV-positive infants of other women infected heterosexually varied considerably from period to period, with no apparent trend over time.

Table 3.5 shows an analysis of mother-infant pairs for infants born in Canada from July 1994 to December 2002 (i.e. since the results of the ACTG 076 trial were released that antiretroviral drugs could reduce mother-to-child HIV transmission) by exposure category of the mother.

Overall, mothers from HIV-endemic countries constituted half (49.8%) of the cases born in Canada. During this period, 29.6% were other women infected heterosexually and 17.9% were IDUs. HIV-infected infants born to women from HIV-endemic countries constituted a high proportion (62.5% [30/48]) of infants with known infection status compared to 29.2% (14/48) for women infected through heterosexual contact and 6.3% (3/48) for IDUs. This likely reflects the lower rate of prenatal HIV diagnosis among women from HIV-endemic countries.

The proportion of women who received therapy did not vary significantly by exposure category (analysis not shown) and constituted 75.5% of cases for whom therapy status was known.

Four of the 227 (1.8%) who received therapy during this period became infected compared to 33 of the 58 (56.9%) who did not receive treatment ($p < 10^{-6}$). Not all of the four women who gave birth to an HIV-infected infant despite therapy received the full regimen of therapy which likely explains, at least in part, these transmissions.

Table 3.6 shows the data for the same 8.5-year period after the release of the ACTG 076 trial results by the HIV infection status of the infant, whether or not therapy was received and by year of the infant's birth. (Women for whom therapy status was unknown were excluded from

this analysis). Overall, 79.6% of women received therapy. The proportion of women who received therapy increased over time. From July 1994 to 1995, about 50% of cases received therapy. From 1996 to 1999, the proportion receiving therapy increased to about 80%. In 2000-01 and 2002, 90% and 100% of women, respectively, received therapy. Delays in reporting cases not diagnosed during pregnancy might explain, in part, the increase in recent years.

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 1999. HIV-related deaths and mortality rate (per 100,000) declined dramatically among both sexes from its peak in 1995. Overall, mortality decreased 81%; the decrease was 83% in males and 41% in females. The ratio of mortality rate among males compared to females decreased markedly over the period examined, from 20-30 fold in 1987 to 1995 to 5-10 fold in 1997 through 1999.

Table 4.2 shows the number and proportion of HIV-related deaths by age group at the time of death and sex for the years from 1997 to 1999. Approximately 70% of HIV-deaths were among persons aged 31 to 50 years for both males and females and overall.

Table 4.3 presents the number and proportion of HIV-related deaths by health region and sex for the years 1997 to 1999. Note that the division of the geographic regions is different from that used elsewhere in this report; the Toronto region, however, is the same as for our other analyses.

Of deaths in the past three years, 45% occurred among residents of Toronto, in comparison to 64% for HIV diagnoses and 61% for AIDS cases. This could be due to at least two reasons: 1) persons in the terminal stage of HIV infection who were born in rural Ontario and who had migrated to Toronto may return to the region of their birth at the later stages of their disease, and 2) the lower proportion of deaths observed in Toronto compared to AIDS cases and HIV diagnoses than AIDS cases may also be due to artefact introduced by persons living in the region surrounding Toronto seeking HIV testing and medical care in Toronto. In contrast to deaths, HIV diagnoses and AIDS cases are classified by the location of the physician not the patient's residence.

Table 4.4 shows HIV-related deaths by year of death, sex and region of birth (HIV-endemic versus non-HIV-endemic). In all, 350 persons from HIV-endemic countries died from 1987 to 1999, representing 6.8% of HIV-related deaths. 24.1% of deaths among females were among persons from HIV-endemic countries compared to 5.8% of deaths among males. Overall, though the number deaths among persons from HIV-endemic countries appears to have decreased in recent years, the proportion of total deaths has increased steadily since 1991.

Table 4.5 presents the number and proportion of HIV-related deaths by year of death and HIV-endemic region (Caribbean versus sub-Saharan Africa). 71% of deaths due to HIV in persons from HIV-endemic countries were among persons from the Caribbean; there is clear increasing or decreasing trend in the proportion of deaths among persons from the Caribbean.

3.5 HIV statistical model

As in previous years, we updated our estimates of HIV incidence, prevalence, first-time HIV diagnoses, AIDS incidence and prevalence as well as HIV-related mortality for each year from 1977 to 2002 for each exposure category (i.e. MSM, MSM-IDU, IDUs, HIV-endemic, heterosexual, clotting factor and blood transfusion recipients). As for last year, we derived sex-specific estimates for each exposure category. Model outputs for Ontario as a whole as well as for the major exposure categories (MSM, MSM-IDU, IDU, HIV-endemic and heterosexual) are included in the present report. Sex-specific incidence and prevalence data for each of the five categories mentioned above are also presented as figures. More detailed outputs are available from the authors on request.

Table 5.1 shows the summary results of the HIV model including all exposure categories. We estimated that 29,366 persons in Ontario have been infected since the HIV epidemic began in the late 1970s. As of December 2002, 7,682 persons have died (including 6,770 from HIV-related causes and 912 from other causes), leaving 22,114 persons living with HIV infection. An estimated 14,165 or 64% of those living with HIV have been diagnosed. Due to the sustained and, in some groups, increasing rate of HIV infections and the decreased mortality related to HAART, HIV prevalence in Ontario began to increase sharply in 1997. In 2002, 4,822 more persons were living with HIV infection than five years previously, an increase of 36% and an average annual increase of 6.3%.

Table 5.1a displays the results of the model for MSM. As of December 2002, 13,630 persons were living with HIV infection (5,541 persons died, 5,179 from HIV-related causes), representing 62% of the persons living with HIV infection in Ontario. Of those, about 9,461 (69%) have been diagnosed. According to our model, HIV incidence in 2002 is 876 compared to 673 in 2001, an increase of 30%, whereas mortality decreased slightly since 1999. In the last five years, HIV prevalence increased 27%, with an average annual increase of 4.9%.

Table 5.1b presents the model results for the MSM-IDU exposure category. 1,099 MSM-IDU have ever been infected with HIV. As of December 2002, 632 persons were thought to be alive, representing 2.8% of the total living in Ontario. Both HIV incidence and mortality appear to have decreased among MSM-IDUs since 1999; therefore, HIV prevalence was relatively stable since then. However, in the past five years, prevalence increased 13%, with an average annual

increase of 2.4%. The proportion diagnosed remained stable at 70-73% during this period.

Table 5.1c displays the modeled results for IDU. We estimate that 2,497 IDUs have ever been infected with HIV. As of December 2002, 500 persons have died (288 from HIV-related causes) leaving 1,947 living with HIV infection; these represented 8.8% of persons with HIV infection living in Ontario. HIV prevalence increased a mean of 25% over the past five years with an average annual increase of 2.5%. The proportions of persons living with HIV infection diagnosed appeared to increase gradually over the years, from 59% in 1995 to 65% in 2002.

Table 5.1d displays the model results for persons from HIV-endemic countries. We estimated 2,944 persons from HIV-endemic countries were ever infected with HIV. Of these, 2,630 are thought to be alive as of December 2002, representing 11.8% of those living in Ontario; only 53% of them have been diagnosed with HIV. HIV incidence as well as prevalence has steadily increased in this population. Specifically, there were an estimated 200 new HIV infections in 1996 increasing to 326 new infections annually in 2002. It must be remembered that some of these infections are related to new arrivals in Canada and some to HIV infections following their arrival in Canada. HIV prevalence increased an average of 13.7% annually and a cumulative 90% over the last five years. The HIV-endemic group had the highest increase in HIV prevalence of any other exposure category.

Table 5.1e presents the results for the heterosexual exposure category. The model estimated that 3,461 persons were ever infected heterosexually (other than those from HIV-endemic countries), of whom 3,077 were living with HIV as of December 2002; this represented 13.9% of persons living with HIV in Ontario. HIV incidence continued to increase in this group, from 239 in 1996 to 278 in 2002 (an increase of 16%). Similar to the HIV-endemic category, the proportion of persons living with HIV diagnosed in this category was low, 37% in 2002. HIV prevalence also increased quite dramatically in this category in the past five years, with an average annual increase of 10.9% and a cumulative increase of 68%. This increase was the second highest after persons from HIV-endemic countries.

Figure 5.1 shows the modeled trends in HIV prevalence and incidence in MSM in Ontario from 1978 to 2002. Prevalence showed a relatively steep increase over the last six years after a lower rate of increase (9,600 to 10,300 infections) from 1992 to 1996. HIV incidence also increased in the last six years from 500 in 1996 to 870 cases in 2002.

Figure 5.2 shows similar trends in HIV prevalence and incidence for the MSM-IDU category. The number of new HIV infections in this group increased similarly to MSM from 1996 to 1999 but appeared to stabilize since then with about 630 infections in the last three years.

Figures 5.3 and 5.4 show sex-specific HIV incidence and prevalence trends, respectively, among IDUs from 1978 to 2002. Incidence trends were similar in both sexes with a steep

increase from 1991 through 1994 then a relative decrease since but with a slight increase in 1998 and 1999. The number of prevalent infections showed a regular increase for both sexes since 1991 though the slope was steeper for men.

Figures 5.5 and 5.6 display sex-specific trends for HIV incidence and prevalence respectively, of cases from HIV-endemic countries. Both figures show steep increases that are similar in the two sexes. Incidence numbers showed a steeper increase in the years 1988 through 1993.

Figure 5.7 and 5.8 similarly show sex-specific incidence and prevalence trends among cases infected through heterosexual contact. Incidence increased more steeply from 1984 through 1993 and after a decrease in 1994 has steadily increased though with a more gentle slope. HIV prevalence showed a regular increasing trend over the years.

Table 5.2 shows the distribution of HIV diagnoses as a proportion of HIV-infected persons living as of December 2002 by sex and exposure category. The vast majority of persons infected through clotting factors and blood transfusion have been diagnosed. As noted above, 65-70% of HIV-infected MSM, MSM-IDU and IDU have been diagnosed. In contrast, only 53% and 37% of persons from HIV-infected countries and other persons infected heterosexually, respectively, have been diagnosed. The proportion diagnosed is lower (41% and 31%) among males in these two categories.

According to our analyses, MSM and persons infected heterosexually comprised 74% of those still undiagnosed, 51% and 23%, respectively. Persons from HIV-endemic countries represented 15% of cases undiagnosed overall. Among females, persons infected through heterosexual contact represented a 74% of cases undiagnosed.

Table 5.3a indicates the modeled prevalence of HIV infection in Ontario by health region and exposure category as of December 2002. Overall, 13,600 or 62% of infections were among residents of Toronto, 14% in Ottawa, 7% each in Central East other and Central West regions, 5% for the Southwest and 3% each in the Eastern other and Northern regions. MSM accounted for 62% of HIV-infected persons in Ontario, followed by 14% for persons infected through heterosexual contact, 12% for persons from HIV-endemic countries and 9% for injection drug users.

Table 5.3b shows the geographic distribution of modeled HIV prevalence by sex and exposure category. 86 of HIV-infected persons were male and 14 female. The distribution among women was somewhat different than that of men, with a higher proportion of infections among women being outside of Toronto; 53% of infected women versus 36% of infected men lived outside Toronto ($p < 10^{-6}$). Central East other, Southwest and Central West each constituted about 8% of HIV infections among females, followed by the Eastern other and Northern regions.

Table 5.4 shows modeled estimates of HIV incidence (in absolute numbers) by sex, region and exposure category. Given the limited observational data on incidence in Ontario, these estimates must be considered as hypotheses only.

Overall, we estimate that 1,630 new HIV infections occurred in Ontario in 2002, 1,320 (81%) of them among men and 310 (19%) among women. By exposure category, about 54% of new HIV infections were among MSM, 20% among those from HIV-endemic countries, 18% in others infected heterosexually and 7% injection drug users. We believe essentially no HIV infections were transmitted by clotting factors or through blood transfusions.

4. DISCUSSION

Based on the data and analyses included in the present report, it is clear that the Ontario HIV epidemic continues to be dynamic and is evolving in new directions. We estimate that, to date, 29,400 persons in Ontario have been infected with HIV of whom 6,800 have died of HIV-related causes. 23,523 persons have been diagnosed with HIV, of whom approximately 14,200 are still alive. Based on our HIV model, we estimate that 22,114 persons are living with HIV in Ontario as of end-2002 and that, since 1997 (i.e., five years ago), HIV prevalence has increased 36%. The average annual increase in HIV prevalence during this period was 6.3%.

The continued increase in HIV prevalence is due to both encouraging and discouraging factors with respect to the evolving HIV epidemics. The increase in prevalence is in part related to increased survival due to the introduction of HAART in 1996 resulting in improved life expectancy among HIV-infected persons. (Though we have not included the analyses in the present report, we estimate that approximately 9,000 HIV-infected persons receive antiretroviral therapy, representing about 60% of those diagnosed and 40% of those living with HIV. This is likely to be among persons with more advanced disease and therefore the impact on longevity may be greater than these proportions suggest). The other principal reason for increased HIV prevalence is more discouraging. HIV incidence in Ontario continues unabated and in fact, according to our model, is increasing. An estimated 1,600 new infections occurred in Ontario in 2002 compared to 1,200 five years ago.

Women constitute a growing part of the Ontario HIV epidemic. Approximately 3,200 women were living with HIV in Ontario as of end-2002, representing 14% of those infected. Furthermore, the average annual increase in HIV prevalence in women in the past five years was 9.8%, compared to 5.8% in males. 27% of new HIV diagnoses in 2002 were among women; this proportion has increased steadily from the first few years of HIV testing when less than 2% of HIV diagnoses were among women. Some of the increase in the proportion of HIV tests among women may be related to the provincial HIV prenatal screening program introduced in January 1999 and the HIV testing of immigrants beginning in January 2002.

In 2002, we noted for the first time in over 10 years a marked increase in the number of first-time HIV diagnoses, from approximately 1,000 per year from 1997 to 2001 to 1,238 in 2002, an increase of 22%. The possible reasons for this increase are discussed in greater detail below.

The results of our analyses suggest that, overall, 64% of persons living with HIV in Ontario have been diagnosed. This represents a major challenge and an opportunity since there is evidence that diagnosis of HIV infection and access to treatment can reduce the risk of secondary transmission and further HIV spread as well as improve the quality and quantity of life of those infected.

As noted above, we observed an increase in first-time HIV diagnoses in 2002. There were 220

more diagnoses in 2002 than in 2001. This is the first time that such an increase has been observed since the late 1980s following the introduction of HIV testing. It is important to determine whether the observed increase in HIV diagnoses is due to increased HIV incidence or to increased HIV testing (or some combination). We carried out a preliminary analysis of this observation earlier this year ^{<11>}. Since then, we have analyzed further the increasing trend in HIV diagnoses using adjusted data. Most of the increase was among residents of Toronto and in particular among MSM and persons from HIV-endemic countries. Approximately 58% of the excess cases was among MSM; the increase in HIV diagnoses in 2002 was 31% whereas HIV testing in MSM increased 15%, suggesting that increased HIV testing alone could not account for all the increase. Data from the Laboratory Enhancement Study indicates a modest, though not statistically significant, increase in HIV incidence among MSM in Toronto in the latter half of 2002 ^{<12>}. In an analysis of serial testers carried out by Calzavara ^{<13>}, an increase in HIV incidence among MSM was observed in 2002. To further help answer this question, we examined specifically HIV diagnoses reflecting new infection, namely linked seroconversions (a HIV-positive result following an HIV-negative result) and serologic results reflecting early HIV infection. We observed that new infections constituted a constant proportion of all HIV diagnoses suggesting that there has been an increase in HIV incidence. This is an important issue especially given the continuing outbreak of infectious syphilis that began among men who have sex with men in Toronto in 2002 and merits further investigation.

A further 21% of the excess cases was among persons from HIV-endemic countries: 48 more cases were diagnosed in this group in 2002 than in 2001. In this category, the number of HIV-positive cases increased 22% and the number of HIV tests increased 27%. In fact, the increase in first-time positive tests was likely at least in part related to the new policy of HIV testing of applicants for immigration status in Canada which began in January 2002. This resulted in an increase in testing for immigration from 1,300 tests in 2001 to 32,900 tests in 2002 and resulted in 8 and 120 HIV-positive tests, respectively.

The apparent increase in HIV prevalence among persons infected through heterosexual contact is of particular interest. As noted above, we estimated a 68% increase in prevalence since 1997, with an average annual increase of 10.9%. We estimated that almost 3,100 persons in Ontario living with HIV infection as of end 2002 had been infected heterosexually apart from persons born in HIV-endemic countries (see below). It is unclear based on available data whether some of this increase may not be artefactual and what factors are involved. This category is difficult to interpret because data on some cases in the HIV and AIDS databases may be either incomplete or inaccurate in this regard; minor errors in classification could lead to erroneous conclusions. Data from Laboratory Enhancement Study indicated that a substantial proportion of cases initially assigned as heterosexually acquired were in fact reassigned to other exposure categories when additional data were available. To the extent possible, we have taken this into account in the HIV model although it is difficult to know if this eliminates the problem completely.

A more detailed analysis of trends in HIV diagnoses in women help to elucidate this issue since misclassification is less of a problem and increases in heterosexual transmission would be at first most apparent in women. In fact, there were 216, 263 and 337 new HIV diagnoses in women in 2000, 2001 and 2002, respectively. In 2002, the principal exposure categories were HIV-endemic with 148 cases and other heterosexual contact with 120 cases accounting for 44% and 36% of cases, respectively. A marked increase in cases among women from HIV-endemic countries was observed from 2001 to 2002, from 106 to 148 cases. Some of this increase could be related to HIV testing among immigration applicants.

In contrast, the increase in the number of new HIV diagnoses among other women infected heterosexually was most marked in 2001 compared to 2000, with 108 compared to 69 cases. This increase cannot be explained by increases in HIV testing in these groups. This question merits further study and in particular, targeted studies and enhanced surveillance to obtain, at least on a sampled basis, better data on the likelihood of infection among persons who appear to be initially infected in this category.

This year, we focused our attention once again on HIV infection among persons from HIV-endemic countries. These are countries of sub-Saharan Africa and the Caribbean where HIV prevalence is high, sometimes as high as 20% or more in young adults, and where most infections are acquired heterosexually. This year, we analyzed once again this situation for the first time since 1999 using updated data and more refined analytic techniques. Further details on the methods used and the results are available from the authors of the present report. We found a continued increase in the extent of HIV infection in this population though the patterns and rates of increase were somewhat different from those in 1998. We believe that approximately 2,630 persons from sub-Saharan Africa and the Caribbean were infected with HIV as of end 2002. We estimate overall that HIV prevalence in this population increased 90% in the past five years, with an average annual increase of 13% during that period.

As in previous years, we carried out all analyses for each exposure category stratified on gender. To determine the distribution of HIV infection among males and females, we used the total number of HIV infections and interpolated using data on HIV diagnoses, AIDS and HIV-related mortality. Once again, we used data from the Laboratory Enhancement Study to assign exposure categories for persons for whom the risk factors were missing on the laboratory requisition and as well to reassign exposure categories from high risk and low risk heterosexual categories since the Laboratory Enhancement Study data indicated that these were not infrequently misclassified on the laboratory requisition. Both assignments and reassignments were carried out using weights obtained for each health regions (though in some cases, aggregates were used when patterns were homogeneous across regions) and also where necessary, were time-dependent, i.e., where weights varied over the span of the LES study and were not homogeneous which was aggregated according to the relevant time periods. In the final model, we also carried out reassignments from the low-risk heterosexual males as well as the males infected by blood transfusion to produce more plausible results. We have some

independent data on the numbers and gender distribution of persons infected through transfusion as well as some plausibility constraints about male and female ratios for heterosexually acquired infection. In summary, we believe that a small proportion of men who have sex with men, probably in the range of 5%, are misclassified into either of these two categories.

To date, 7,329 cases of AIDS have been reported in Ontario although the number of new AIDS cases reported continues to decrease when examined by year of diagnosis. However, we believe that the continued decrease observed in reported AIDS cases in 2001 and 2002 is artefactual, related to reporting delays. After adjustment for these reporting delays, AIDS incidence appears to be increasing since its low point in 2000: AIDS incidence was 179 in 2000 but increased to 223 and 283 in 2001 and 2002 respectively, an increase of 25% in 2001 and 58% in 2002. This warrants further investigation and scrutiny since it may reflect the limits of the impact of HAART therapy which became available in 1996-97.

There are methodologic limitations to the analyses presented in this report. Whereas we are confident that the methodology used to assign and reassign exposure categories to cases without risk factors indicated is appropriate (see Appendix A), some imprecision is unavoidable when the proportions are based on a limited number of respondents in the LES and applied across health regions and previous years. For this reason, the adjusted numbers of HIV-positive and HIV-negative diagnoses as well as estimates of the HIV model should be interpreted with caution.

In summary, the use of multiple data sources has yielded critical insights into the evolving HIV epidemics in Ontario and allowed us to obtain reasonable estimates of the extent and trends in HIV infection in Ontario. HIV prevalence continues to increase related both to ongoing HIV transmission and increased longevity associated with the availability of new and more effective antiretroviral regimens (HAART). The substantial proportion of persons with undiagnosed HIV infection represents a major challenge in the next few years.

REFERENCES

1. Statistics Canada. CANSIM (Canadian Socio-economic Information Management System) database, 1996: <http://www.datacentre.cahss.utoronto.ca:5680/cansim>
2. Remis RS, Major C, Swantee C, Palmer R, Fikre M, Whittingham E. Enhancing laboratory-based HIV surveillance in Ontario, 1999 to 2002. Report to Ontario HIV Treatment Network and Centre for Infectious Diseases Prevention and Control, Health Canada, September 2003.
3. 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.
4. Health Canada. Revision of the CDC surveillance case definition for Acquired Immunodeficiency Syndrome. *Canada Diseases Weekly Report* 1987; 13: 169-76.
5. CDC. Council of State and Territorial Epidemiologists; 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. Yan P, Schanzer D, Centre for Infectious Disease Prevention and Control, Population and Public Health Branch, Health Canada. Personal communication, June 2002.
10. 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.
11. Njihia J, Remis RS, Swantee C, Fearon M, Major C, Wu K, Fisher M. Marked increase in first-time HIV diagnoses in Ontario, 2002. 12th Annual Conference of the Canadian Association for HIV/AIDS Research, Halifax, Nova Scotia, April 10-13, 2003 (Abstract 209).

12. Remis RS, Major C, Swantee C, Fearon M, Wallace E, Whittingham E. Trends in HIV incidence in Ontario based on the detuned assay: Update to December 2002. Ontario HIV Treatment Network 4th Annual Research Day, Toronto, Ontario, November 4, 2003.
13. Calzavara L, Burchell A. HIV incidence among repeat testers (personal communication).

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.

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;

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

For males, the calculation was;

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

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;

$$84 + 19 \times [84 / (124 - 19)] = 99.2$$

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:

$$\# \text{ males} + \# \text{ unknown sex} \times [\# \text{ males} / (\# \text{ males} + \# \text{ females})]$$

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

$$653.2 + 99.2 \times [653.2 / (653.2 + 67.0)] = 743.2$$

and among females:

$$67.0 + 99.2 \times [67.0 / (653.2 + 67.0)] = 76.2$$

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, Southwest and Central West) and group 2 (Ottawa, Northern and Eastern). Female HIV-positives into group1 (Northern, Central West and Southwest) and group2 (Eastern, Central East, Toronto and Ottawa). Male HIV-negatives in group 1 (Toronto, Central East, Southwest, Central West and Northern) and group 2 (Eastern 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:

$$114.1 * 1.4\% = 1.54 \text{ cases}$$

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:

$$(114.1 * 1.4\%) + (3.0 * 0\%) + (105.7 * 0\%) = 1.54 \text{ cases}$$

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:

$$114.1 - 1.54 + 0 = 112.5 \text{ cases}$$

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 (LR 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 LR hetero was:

$$1.1 / (1,122.8 - 743.2) \times 100\% = 0.29\%$$

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

$$1.4 / (89.7 - 76.2) \times 100\% = 10.4\%$$

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:

$$\text{proportion among the known} \times (\text{LES adjustment factor} / \text{average proportion in 1999-2002})$$

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:

$$96.1\% \times (55.2\% / 77.8\%) = 68.2\%$$

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:

$$112.5 + 94.8\% \times 105.7 = 212.7 \text{ HIV-positives}$$

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 first-time 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 through 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:

1. 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 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 is 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	First-time 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.

TABLES

Legend

<i>MSM</i>	Men who have sex with men
<i>IDU</i>	Injection drug use(r)
<i>MSM_IDU</i>	Men who have sex with men and use injection drugs
<i>Clotting factor</i>	Clotting factor recipient
<i>Blood product</i>	Blood product recipient
<i>HIV_endemic</i>	HIV-endemic country of origin
<i>Transfusion</i>	Transfusion recipient
<i>Occupational</i>	Occupational exposure
<i>Perinatal</i>	Perinatal exposure
<i>LR hetero</i>	Low risk heterosexual
<i>HR hetero</i>	High risk heterosexual
<i>Heterosexual</i>	Heterosexual (other) transmission
<i>NIR</i>	No identified risk
<i>Unk</i>	Unknown exposure

Table 1.1 Number of first-time HIV-positive diagnoses by year of diagnosis and sex, Ontario, 1985 to 2002

Year of diagnosis	Males	Females	Unknown	Total
	Number	Number % female ¹	Number	Number
1985	326	6 1.8%	3	335
1986	1,287	27 2.1%	51	1,365
1987	1,464	37 2.5%	49	1,550
1988	1,333	91 6.4%	30	1,454
1989	1,543	113 6.8%	54	1,710
1990	1,831	166 8.3%	94	2,091
1991	1,550	163 9.5%	126	1,839
1992	1,541	164 9.6%	118	1,823
1993	1,255	175 12.2%	71	1,501
1994	1,064	219 17.1%	62	1,345
1995	1,080	221 17.0%	59	1,360
1996	830	187 18.4%	61	1,078
1997	711	186 20.7%	64	961
1998	744	182 19.7%	69	995
1999	709	178 20.1%	35	922
2000	686	203 22.8%	49	938
2001	733	254 25.7%	31	1,018
2002	880	326 27.0%	32	1,238
Total	19,567	2,898 12.9%	1,058	23,523

¹ Row percent of cases with known sex

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.2 Number and proportion¹ of first-time HIV-positive diagnoses by exposure category and sex, Ontario, 1985 to 2002

Exposure category	Males		Females		Unknown		Total	
	Number	%	Number	%	Number	Number	%	
MSM	7,971	78.1	0	0.0	0	7,971	69.0	
MSM-HDU	252	2.5	0	0.0	0	252	2.2	
IDU	651	6.4	229	18.0	28	908	7.9	
Clotting factor	247	2.4	30	2.4	20	297	2.6	
Transfusion	109	1.1	78	6.1	8	195	1.7	
HIV-endemic	199	2.0	129	10.1	12	340	2.9	
HR hetero	82	0.80	312	24.5	0	394	3.4	
LR hetero	520	5.1	343	27.0	0	863	7.5	
Perinatal ²	153	1.5	144	11.3	6	303	2.6	
Other ³	19	0.19	6	0.47	0	25	0.22	
Unknown	9,364		1,627		984	11,975		
Total	19,567	100.0	2,898	100.0	1,058	23,523	100.0	

1 Column percent of cases with known risk factors

2 Includes infants with maternal HIV antibodies who are not HIV- infected

3 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.3 Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) by exposure category and sex, Ontario, 1985 to 2002

Exposure category	Males		Females		Total	
	Number	%	Number	%	Number	%
MSM	15,323	74.9	0	0.0	15,323	65.1
MSM-IDU	978	4.8	0	0.0	978	4.2
IDU	1,309	6.4	550	18.0	1,859	7.9
Clotting factor	270	1.3	36	1.2	306	1.3
Transfusion	261	1.3	271	8.9	532	2.3
HIV-endemic	1,057	5.2	1,013	33.1	2,071	8.8
HR hetero	197	1.0	413	13.5	610	2.6
LR hetero	834	4.1	561	18.3	1,395	5.9
Perinatal ³	157	0.77	154	5.0	311	1.3
Other ⁴	78	0.38	60	2.0	138	0.01
Total	20,465	100.0	3,058	100.0	23,523	100

1 Column percent

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 infants with maternal HIV antibodies who are not HIV-infected

4 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.3a Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) by exposure category and sex, Ontario, 2002

Exposure category	Males		Females		Total	
	Number	%	Number	%	Number	%
MSM	563	62.4	0	0.0	563	45.5
MSM-IDU	12	1.4	0	0.0	0	1.0
IDU	57	6.3	33	9.7	89	7.2
Clotting factor	0	0.04	0	0.0	0	0.03
Transfusion	2	0.21	10	2.9	12	0.95
HIV-endemic	121	13.4	148	43.8	268	21.7
HR hetero	21	2.3	29	8.6	50	4.0
LR hetero	91	10.1	91	27.0	182	14.7
Perinatal ³	20	2.2	14	4.3	34	2.7
Other ⁴	15	1.7	12	3.7	28	2.2
Total	901	100.0	337	100.0	1,238	100.0

1 Column percent

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 LES (see text for more details); thus, totals may differ due to rounding

3 Includes infants with maternal HIV antibodies who are not HIV-infected

4 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

**Table 1.4 Number and proportion¹ of first-time HIV-positive diagnoses by year of diagnosis and exposure category
Ontario, 1985 to 2002**

Year	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		Perinatal ²		Other ³		Unknown	Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.
1985	166	88.3	5	2.7	1	0.53	10	5.3	5	2.7	0	0.0	1	0.53	0	0.0	0	0.0	0	0.0	147	335
1986	470	87.9	11	2.1	10	1.9	28	5.2	9	1.7	4	0.75	2	0.37	0	0.0	0	0.0	1	0.19	830	1,365
1987	856	86.5	18	1.8	17	1.7	47	4.7	31	3.1	9	0.91	3	0.30	7	0.71	2	0.20	0	0.0	560	1,550
1988	777	79.8	21	2.2	42	4.3	50	5.1	34	3.5	18	1.8	18	1.8	5	0.51	9	0.92	0	0.0	480	1,454
1989	893	81.8	25	2.3	60	5.5	35	3.2	20	1.8	16	1.5	24	2.2	12	1.1	7	0.64	0	0.0	618	1,710
1990	831	78.5	17	1.6	71	6.7	46	4.3	7	0.66	23	2.2	35	3.3	7	0.66	20	1.9	1	0.09	1,033	2,091
1991	428	80.3	7	1.3	37	6.9	16	3.0	1	0.19	14	2.6	15	2.8	7	1.3	8	1.5	0	0.0	1,306	1,839
1992	570	72.0	20	2.5	85	10.7	15	1.9	10	1.3	23	2.9	25	3.2	37	4.7	7	0.88	0	0.0	1,031	1,823
1993	455	63.8	26	3.6	59	8.3	16	2.2	14	2.0	18	2.5	42	5.9	67	9.4	16	2.2	0	0.0	788	1,501
1994	346	56.4	18	2.9	88	14.4	6	1.0	12	2.0	13	2.1	30	4.9	64	10.4	33	5.4	3	0.49	732	1,345
1995	359	57.3	20	3.2	74	11.8	10	1.6	9	1.4	19	3.0	29	4.6	79	12.6	25	4.0	2	0.32	734	1,360
1996	310	55.0	12	2.1	71	12.6	6	1.1	7	1.2	26	4.6	25	4.4	70	12.4	34	6.0	3	0.53	514	1,078
1997	247	54.4	9	2.0	54	11.9	5	1.1	8	1.8	12	2.6	34	7.5	74	16.3	10	2.2	1	0.22	507	961
1998	235	52.3	10	2.2	56	12.5	2	0.45	7	1.6	19	4.2	19	4.2	74	16.5	24	5.3	3	0.67	546	995
1999	238	52.3	8	1.8	69	15.2	1	0.22	5	1.1	17	3.7	22	4.8	78	17.1	15	3.3	2	0.44	467	922
2000	252	53.4	13	2.8	42	8.9	2	0.42	9	1.9	28	5.9	20	4.2	76	16.1	29	6.1	1	0.21	466	938
2001	221	47.8	8	1.7	35	7.6	2	0.43	4	0.87	36	7.8	24	5.2	99	21.4	30	6.5	3	0.65	556	1,018
2002	317	54.8	4	0.69	37	6.4	0	0.0	3	0.52	45	7.8	26	4.5	107	18.5	34	5.9	5	0.87	660	1,238
total	7,971	69.0	252	2.2	908	7.9	297	2.6	195	1.7	340	2.9	394	3.4	863	7.5	303	2.6	25	0.22	11,975	23,523

¹ Row percent of cases with known risk factors

² Includes infants with maternal antibodies who are not HIV-infected

³ Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

**Table 1.5 Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) by year of diagnosis and exposure category
Ontario, 1985 to 2002**

Year	MSM		MSM-IDU		IDU		Clotting factor		Trans-fusion		HIV-endemic		HR hetero		LR hetero		Perinatal ³		Other ⁴		Total		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.		
1985	299	89.4	12	3.5	1	0.41	14	4.2	8	2.2	0	0.07	1	0.22	0	0.0	0	0.0	0	0.0	0	0.0	335
1986	1,171	85.8	71	5.2	29	2.1	29	2.1	34	2.5	23	1.7	3	0.23	0	0.0	0	0.0	4	0.32	1,365		
1987	1,299	83.8	67	4.3	33	2.1	47	3.0	57	3.7	31	2.0	5	0.35	9	0.60	2	0.13	0	0.02	1,550		
1988	1,151	79.2	53	3.6	64	4.4	50	3.4	58	4.0	47	3.3	17	1.2	4	0.28	9	0.62	0	0.01	1,454		
1989	1,372	80.2	50	2.9	102	5.9	35	2.0	42	2.5	61	3.6	27	1.6	14	0.81	7	0.41	1	0.03	1,710		
1990	1,645	78.7	53	2.5	146	7.0	46	2.2	30	1.4	95	4.5	38	1.8	13	0.61	20	1.0	6	0.27	2,091		
1991	1,406	76.5	64	3.5	135	7.3	16	0.87	10	0.55	135	7.3	33	1.8	30	1.6	8	0.44	2	0.10	1,839		
1992	1,243	68.2	88	4.8	175	9.6	15	0.83	35	1.9	143	7.8	44	2.4	70	3.8	9	0.52	3	0.14	1,824		
1993	928	61.8	65	4.4	125	8.3	17	1.1	39	2.6	138	9.2	59	3.9	108	7.2	20	1.3	3	0.19	1,501		
1994	685	50.9	105	7.8	180	13.4	7	0.50	38	2.8	122	9.1	53	4.0	108	8.0	33	2.5	13	0.99	1,345		
1995	739	54.3	98	7.2	132	9.7	10	0.76	32	2.3	142	10.4	46	3.4	129	9.5	25	1.8	8	0.61	1,360		
1996	575	53.4	44	4.1	131	12.2	6	0.58	21	2.0	125	11.6	35	3.2	97	9.0	34	3.2	9	0.81	1,078		
1997	481	50.1	51	5.3	107	11.1	5	0.54	26	2.7	110	11.4	50	5.2	108	11.3	11	1.2	12	1.3	961		
1998	462	46.5	57	5.8	111	11.2	2	0.23	37	3.7	129	13.0	36	3.6	124	12.5	24	2.4	11	1.2	995		
1999	425	46.1	35	3.8	128	13.9	1	0.14	23	2.5	124	13.4	37	4.0	124	13.5	15	1.6	11	1.2	922		
2000	449	47.9	32	3.4	86	9.2	2	0.24	20	2.2	158	16.9	35	3.7	117	12.4	29	3.1	9	0.96	938		
2001	429	42.1	20	2.0	86	8.5	2	0.22	12	1.2	220	21.6	42	4.1	158	15.5	30	2.9	18	1.8	1,018		
2002	563	45.5	12	1.0	89	7.2	0	0.03	12	0.95	268	21.7	50	4.0	182	14.7	34	2.7	28	2.2	1,238		
Total	15,323	65.1	978	4.2	1,859	7.9	306	1.3	532	2.3	2,071	8.8	610	2.6	1,395	5.9	311	1.3	138	0.60	23,523		

¹ Row percent

² According to the proportion of known exposure that year and results of the LES (see text for more details); thus, totals may differ due to rounding

³ Includes infants with maternal antibodies who are not HIV-infected

⁴ Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.5a Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) among males by year of diagnosis and exposure category, Ontario, 1985 to 2002

Year	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		Perinatal ³		Other ⁴		Total		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.		
1985	299	91.0	12	3.6	1	0.40	10	3.0	7	2.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	329
1986	1,171	87.6	71	5.3	17	1.3	27	2.0	26	1.9	21	1.6	0	0.0	0	0.0	0	0.0	4	0.32	1,337		
1987	1,299	86.0	67	4.4	22	1.5	46	3.0	45	3.0	25	1.6	1	0.04	6	0.37	1	0.07	0	0.01	1,511		
1988	1,151	84.6	53	3.9	40	3.0	50	3.7	34	2.5	28	2.1	0	0.01	2	0.12	4	0.29	0	0.0	1,361		
1989	1,372	86.1	50	3.1	78	4.9	32	2.0	20	1.2	31	1.9	1	0.09	6	0.40	2	0.13	0	0.01	1,592		
1990	1,645	85.8	53	2.8	105	5.5	44	2.3	10	0.50	35	1.8	0	0.03	7	0.37	12	0.63	5	0.28	1,917		
1991	1,406	84.6	64	3.9	91	5.5	13	0.78	0	0.0	62	3.7	5	0.28	14	0.81	6	0.36	1	0.04	1,662		
1992	1,243	75.6	88	5.4	141	8.5	10	0.62	15	0.92	82	5.0	11	0.69	51	3.1	3	0.18	1	0.07	1,645		
1993	928	70.5	65	5.0	88	6.7	10	0.78	21	1.6	90	6.9	19	1.4	86	6.5	7	0.53	1	0.11	1,316		
1994	685	61.4	105	9.5	125	11.2	4	0.37	22	2.0	54	4.9	21	1.9	71	6.4	19	1.7	8	0.68	1,115		
1995	739	65.4	98	8.7	90	8.0	4	0.38	17	1.5	72	6.4	14	1.2	84	7.4	9	0.77	3	0.24	1,129		
1996	575	65.6	44	5.0	86	9.8	6	0.71	6	0.70	65	7.4	13	1.5	62	7.1	15	1.7	5	0.53	877		
1997	481	63.1	51	6.6	71	9.3	5	0.64	8	1.0	57	7.5	19	2.5	58	7.6	4	0.53	9	1.1	762		
1998	462	58.0	57	7.2	83	10.4	2	0.28	7	0.83	67	8.4	17	2.2	79	9.9	14	1.8	8	1.1	798		
1999	425	57.7	35	4.8	87	11.8	1	0.17	6	0.86	70	9.6	19	2.6	79	10.8	8	1.0	5	0.72	736		
2000	449	62.3	32	4.4	60	8.4	2	0.32	12	1.6	63	8.7	17	2.3	66	9.1	16	2.2	5	0.66	722		
2001	429	56.8	20	2.7	67	8.8	2	0.30	5	0.70	114	15.1	18	2.4	73	9.7	18	2.4	8	1.1	755		
2002	563	62.4	12	1.4	57	6.3	0	0.04	2	0.21	121	13.4	21	2.3	91	10.1	20	2.2	15	1.7	901		
Total	15,323	74.9	978	4.8	1,308	6.4	270	1.3	261	1.3	1,057	5.2	197	1.0	834	4.1	157	0.77	78	0.38	20,465		

¹ Row percent

² Adjusted for unknown region, sex and exposure (see text for more details); thus, totals may differ due to rounding

³ Includes infants with maternal antibodies who are not HIV-infected

⁴ Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.5b Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) among females by year of diagnosis and exposure category, Ontario, 1985 to 2002

Year	IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		Perinatal ³		Other ⁴		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	
1985	0	0.55	4	66.7	1	16.7	0	3.8	1	12.3	0	0.0	0	0.0	0	0.0	0	6
1986	12	44.0	2	7.1	8	30.1	2	7.9	3	10.9	0	0.0	0	0.0	0	0.0	0	28
1987	11	27.6	1	2.6	12	29.7	6	15.0	5	12.5	4	9.4	1	2.5	0	0.67	0	39
1988	24	26.0	0	0.0	25	26.9	19	20.6	17	18.3	2	2.7	5	5.4	0	0.16	0	93
1989	23	19.9	3	2.6	22	19.0	30	25.7	26	21.9	7	6.4	5	4.3	0	0.39	0	118
1990	40	23.3	2	1.3	20	11.5	60	34.6	37	21.4	6	3.2	8	4.6	0	0.22	0	174
1991	43	24.6	3	1.7	10	5.7	72	41.0	29	16.2	16	9.1	2	1.1	1	0.64	0	177
1992	34	19.0	5	2.8	19	10.9	61	34.0	32	18.1	19	10.7	6	3.6	1	0.78	0	179
1993	37	19.8	7	3.6	17	9.4	48	25.9	40	21.6	22	11.9	13	7.0	1	0.79	0	185
1994	56	24.2	3	1.1	16	7.0	67	29.2	32	13.9	37	15.9	14	6.2	6	2.5	0	230
1995	41	17.8	6	2.6	15	6.5	70	30.3	32	13.8	45	19.5	16	7.1	6	2.4	0	231
1996	46	22.7	0	0.0	15	7.5	60	29.8	22	10.9	35	17.6	19	9.4	4	2.0	0	201
1997	36	18.0	0	0.19	18	9.1	52	26.3	31	15.6	51	25.5	7	3.6	3	1.7	0	199
1998	28	14.2	0	0.0	30	15.2	62	31.5	19	9.4	45	23.0	10	5.1	3	1.6	0	197
1999	41	21.8	0	0.0	16	8.8	53	28.7	17	9.4	45	24.2	7	4.0	6	3.1	0	186
2000	26	11.8	0	0.0	9	4.1	96	44.2	18	8.4	51	23.4	13	6.1	4	2.0	0	216
2001	20	7.5	0	0.0	7	2.5	106	40.3	24	9.0	85	32.2	12	4.6	11	4.0	0	263
2002	33	9.7	0	0.0	10	2.9	148	43.8	29	8.6	91	27.0	14	4.3	12	3.7	0	337
Total	550	18.0	36	1.2	271	8.9	1,013	33.1	413	13.5	561	18.3	154	5.0	60	2.0	0	3,058

Row percent

¹Adjusted for unknown region, sex and exposure (see text for more details); thus, totals may differ due to rounding

²Includes infants with maternal antibodies who are not HIV-infected

³Includes needles/tattoo, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.6 Number and proportion¹ of first-time HIV-positive diagnoses by age group at HIV diagnosis and sex, Ontario, 1985 to 2002

Age group	Males		Females		Unknown		Total	
	Number	%	Number	%	Number	%	Number	%
	<1	227	1.3	208	7.5	7	1.2	442
1-14	118	0.66	62	2.2	7	1.2	187	0.88
15-19	175	1.0	97	3.5	3	0.5	275	1.3
20-24	1,338	7.5	348	12.6	40	6.6	1,726	8.1
25-29	3,299	18.5	543	19.6	113	18.7	3,955	18.6
30-34	4,075	22.8	601	21.7	131	21.7	4,807	22.7
35-39	3,489	19.5	384	13.9	130	21.5	4,003	18.9
40-44	2,382	13.3	215	7.8	86	14.2	2,683	12.6
45-49	1,300	7.3	132	4.8	36	6	1,468	6.9
50-54	689	3.9	66	2.4	18	3	773	3.6
55-59	399	2.2	48	1.7	14	2.3	461	2.2
60+	357	2.0	65	2.3	19	3.1	441	2.1
Unknown	1,719		129		454		2,302	
Total	19,567	100.0	2,898	100.0	1,058	100.0	23,523	100.0
Mean age	35.0		30.1		35.5		34.4	
Median age	34		30		35		34	

¹ Column percent of cases with known age at HIV diagnosis

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.7 Number and proportion¹ of first-time HIV-positive diagnoses by age group at HIV diagnosis and exposure category Ontario, 1985 to 2002

Age group	MSM-		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		Perinatal ²		Other ³		Unknown		Total	
	MSM		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		Perinatal ²		Other ³		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	2	0.0	0	0.0	0	0.0	0	0.0	0	0	1	0.32	0	0	0	0	245	85.7	0	0.0	194	442
14	1	0.0	0	0.0	0	0.0	54	20.0	7	4.1	1	0.32	0	0	1	0.12	41	14.3	0	0.0	82	187
15-19	60	0.82	5	2.1	15	1.7	30	11.1	5	2.9	7	2.2	17	4.6	24	2.9	0	0.0	0	0.0	112	275
20-24	596	8.1	42	17.9	99	11.5	37	13.7	8	4.7	26	8.2	52	13.9	84	10	0	0.0	1	4.0	781	1,726
25-29	1,495	20.3	56	23.9	171	19.9	34	12.6	22	12.9	61	19.3	60	16.1	149	17.7	0	0.0	2	8.0	1,905	3,955
30-34	1,810	24.6	61	26.1	218	25.4	34	12.6	22	12.9	87	27.5	103	27.6	212	25.2	0	0.0	5	20.0	2,255	4,807
35-39	1,443	19.6	41	17.5	201	23.4	17	6.3	21	12.4	54	17.1	43	11.5	142	16.9	0	0.0	5	20.0	2,036	4,003
40-44	977	13.3	14	6.0	98	11.4	10	3.7	24	14.1	27	8.5	42	11.3	107	12.7	0	0.0	4	16.0	1,380	2,683
45-49	495	6.7	10	4.3	39	4.5	17	6.3	12	7.1	27	8.5	25	6.7	63	7.5	0	0.0	5	20.0	775	1,468
50-54	247	3.4	2	0.85	14	1.6	9	3.3	11	6.5	14	4.4	17	4.6	23	2.7	0	0.0	1	4.0	435	773
55-59	132	1.8	1	0.43	3	0.35	15	5.6	13	7.6	6	1.9	6	1.6	23	2.7	0	0.0	2	8.0	260	461
60+	101	1.4	2	0.85	1	0.12	13	4.8	25	14.7	5	1.6	8	2.1	12	1.4	0	0.0	0	0.0	274	441
Unknown	612		18		49		27		25		24		21		23		17		0		1,486	2,302
Total	7,971	100.0	252	100.0	908	100.0	297	100.0	195	100.0	340	100.0	394	100.0	863	100.0	303	100.0	25	100.0	11,975	23,523
Mean	34.8		31.1		33.0		29.1		41.0		34.0		33.6		34.6		0.48		39.9		35.4	34.4
Median	34		30		32		26		39		32		32		33		0		39		34	34

Column percent of cases with known age at HIV diagnosis
 Includes infants with maternal antibodies who are not HIV-infected
 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.8 Mean age at first-time HIV-positive diagnosis by year of diagnosis and selected exposure category, males, Ontario, 1985 to 2002

Year	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero	
	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n
1985	33.1	105	25.8	5	28.0	1	25.7	6	34.5	4	--	0	--	0	--	0
1986	34.1	426	27.0	11	25.3	6	21.4	25	40.3	3	42.0	2	--	0	--	0
1987	33.8	760	30.6	18	30.7	11	24.7	39	50.1	21	41.3	9	--	0	28.0	4
1988	33.8	706	27.4	17	30.5	23	20.3	45	30.2	15	32.5	10	--	0	27.5	2
1989	34.6	789	28.5	22	29.9	41	28.6	25	39.7	9	35.9	9	39.0	1	38.0	5
1990	34.5	781	29.2	13	30.4	45	34.2	39	35.0	3	37.3	7	--	0	34.3	3
1991	34.7	383	27.9	7	30.7	22	28.4	13	0.0	0	32.6	7	50.0	1	29.3	3
1992	34.8	544	31.2	17	31.3	61	27.1	8	35.4	5	35.1	12	39.0	3	32.0	26
1993	35.4	432	31.5	26	31.2	39	39.0	9	36.1	8	38.0	12	36.3	6	35.5	47
1994	34.5	336	32.5	17	34.9	65	43.3	3	47.3	7	29.3	6	38.1	8	35.4	41
1995	34.5	350	34.7	20	33.8	50	56.3	4	42.8	5	38.7	9	38.0	5	34.4	49
1996	35.8	293	34.7	12	33.2	45	24.6	5	43.0	2	30.1	14	29.3	6	35.8	44
1997	35.3	235	30.9	9	37.7	36	40.7	3	31.7	3	35.7	9	32.3	9	37.1	34
1998	37.4	221	34.8	9	39.3	41	37.5	2	38.0	1	35.3	10	34.4	7	37.1	46
1999	36.5	228	34.3	8	36.4	44	42.0	1	36.3	3	40.3	10	34.3	8	37.8	48
2000	36.6	243	34.7	11	38.9	30	28.5	2	41.0	5	35.0	12	39.8	8	39.0	46
2001	37.6	214	31.9	8	36.1	29	36.5	2	64.0	1	36.6	22	36.4	8	36.5	45
2002	36.8	313	45.8	4	36.1	26	--	0	--	0	36.1	27	38.4	9	35.5	61

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.9 Mean age at first-time HIV-positive diagnosis by year of diagnosis and selected exposure category, females, Ontario, 1985 to 2002

Year	IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero	
	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n
1985	--	0	27.5	2	38.0	1	--	0	--	0	--	0
1986	29.0	4	19.0	1	26.0	1	--	0	25.0	2	--	0
1987	27.5	2	23.0	1	64.0	5	--	0	22.5	2	32.0	2
1988	26.4	14	--	0	45.1	12	35.7	3	31.4	15	32.3	3
1989	27.8	10	29.5	2	43.8	9	32.3	3	33.1	22	30.2	6
1990	26.2	18	34.5	2	36.5	4	29.9	13	32.0	32	32.3	3
1991	28.6	8	45.3	3	--	0	30.3	6	27.5	10	37.3	3
1992	30.8	14	26.3	3	39.0	4	31.1	8	32.7	22	34.6	9
1993	29.3	17	40.0	5	33.2	5	17.3	3	34.7	31	26.9	18
1994	28.8	21	38.5	2	42.3	4	31.2	5	33.8	22	36.0	19
1995	34.3	19	49.3	5	33.7	3	29.1	8	35.7	24	33.0	30
1996	32.1	21	--	0	52.0	3	29.6	11	35.2	19	29.1	25
1997	33.2	18	--	0	25.0	4	28.0	2	33.5	25	32.5	38
1998	35.9	11	--	0	33.2	6	33.0	8	32.5	11	33.4	27
1999	31.5	22	--	0	53.0	1	35.0	5	34.3	12	33.7	28
2000	34.6	9	--	0	36.3	3	31.9	15	30.6	12	32.4	28
2001	32.4	5	--	0	46.0	2	35.9	12	33.3	16	31.7	53
2002	32.3	10	--	0	45.3	3	40.5	18	35.2	17	32.2	44

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.10 Single and multiple sources of exposure among first-time HIV-positive diagnoses, Ontario, 1985 to 2002

	Number	% ¹
Men who have sex with men (MSM)	6,389	53.9
MSM/IDU	138	1.2
MSM/IDU/HIV-endemic	4	0.03
MSM/IDU/HIV-endemic/bisexual	1	0.01
MSM/IDU/bisexual	98	0.83
MSM/IDU/transfusion	4	0.03
MSM/blood product	10	0.08
MSM/HIV-endemic	15	0.13
MSM/HIV-endemic/bisexual	14	0.12
MSM/bisexual	1,494	12.6
MSM/transfusion	21	0.18
MSM and others	33	0.28
SUB-TOTAL	8,221	69.4
IDU	502	4.2
IDU/HIV-endemic	2	0.02
IDU/HIV-endemic/heterosexual	7	0.06
IDU/heterosexual	349	2.9
IDU and others	41	0.35
SUB-TOTAL	901	7.6
Blood product	222	1.9
Blood product/transfusion	15	0.13
Blood product and others	60	0.51
SUB-TOTAL	297	2.5
HIV-endemic	187	1.6
HIV-endemic/heterosexual	144	1.2
HIV-endemic and others	15	0.13
SUB-TOTAL	346	2.9
Heterosexual	1,572	13.3
Heterosexual/transfusion	25	0.21
SUB-TOTAL	1,597	13.5
Transfusion	156	1.3
Transfusion/perinatal	1	0.01
SUB-TOTAL	157	1.3
Perinatal²	310	2.6
Occupational	24	0.20
Unknown	11,670	
GRAND TOTAL	23,523	

¹ Percent of cases with known risk factors

² Includes infants with maternal antibodies who are not HIV tested

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

**Table 1.11 Number and proportion¹ of first-time HIV-positive diagnoses by exposure category and health region
Ontario, 1985 to 2002**

Exposure category	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Unknown ²		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	83	33.1	678	53.2	124	40.0	6,035	78.8	191	46.7	254	50.1	392	58.3	214	45.4	7,971	69.0
MSM-IDU	5	2.0	32	2.5	7	2.3	150	2.0	12	2.9	9	1.8	18	2.7	19	4.0	252	2.2
IDU	83	33.1	204	16	91	29.4	290	3.8	44	10.8	68	13.4	39	5.8	89	18.9	908	7.9
Clotting factor	16	6.4	22	1.7	23	7.4	123	1.6	9	2.2	19	3.7	64	9.5	21	4.5	297	2.6
Transfusion	3	1.2	27	2.1	9	2.9	82	1.1	23	5.6	19	3.7	22	3.3	10	2.1	195	1.7
HIV-endemic	7	2.8	83	6.5	6	1.9	180	2.4	14	3.4	17	3.4	15	2.2	18	3.8	340	2.9
HR hetero	17	6.8	44	3.5	15	4.8	176	2.3	28	6.8	41	8.1	45	6.7	28	5.9	394	3.4
LR hetero	26	10.4	125	9.8	28	9.0	446	5.8	75	18.3	50	9.9	58	8.6	55	11.7	863	7.5
Perinatal ³	11	4.4	54	4.2	6	1.9	166	2.2	10	2.4	29	5.7	17	2.5	10	2.1	303	2.6
Other ⁴	0	0.0	5	0.39	1	0.32	6	0.08	3	0.73	1	0.20	2	0.30	7	1.5	25	0.22
Unknown	183		1,244		273		7,333		590		738		974		640		11,975	
Total	434	100.0	2,518	100.0	583	100.0	14,987	100.0	999	100.0	1,245	100.0	1,646	100.0	1,111	100.0	23,523	100.0

1 Column percent of cases with known risk factors

2 Includes out of province

3 Includes infants with maternal antibodies who are not HIV-infected

4 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

**Table 1.11a Number and proportion¹ of first-time HIV-positive diagnoses by exposure category and health region
Ontario, 1985 to 2002**

Exposure category	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Total Unk. ²	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.
MSM	83	1.1	678	8.7	124	1.6	6,035	77.8	191	2.5	254	3.3	392	5.1	214	7,971
MSM-IDU	5	2.1	32	13.7	7	3.0	150	64.4	12	5.2	9	3.9	18	7.7	19	252
IDU	83	10.1	204	24.9	91	11.1	290	35.4	44	5.4	68	8.3	39	4.8	89	908
Clotting factor	16	5.8	22	8.0	23	8.3	123	44.6	9	3.3	19	6.9	64	23.2	21	297
Transfusion	3	1.6	27	14.6	9	4.9	82	44.3	23	12.4	19	10.3	22	11.9	10	195
HIV-endemic	7	2.2	83	25.8	6	1.9	180	55.9	14	4.3	17	5.3	15	4.7	18	340
HR hetero	17	4.6	44	12.0	15	4.1	176	48.1	28	7.7	41	11.2	45	12.3	28	394
LR hetero	26	3.2	125	15.5	28	3.5	446	55.2	75	9.3	50	6.2	58	7.2	55	863
Perinatal ³	11	3.8	54	18.4	6	2.0	166	56.7	10	3.4	29	9.9	17	5.8	10	303
Other ⁴	0	0.0	5	27.8	1	5.6	6	33.3	3	16.7	1	5.6	2	11.1	7	25
Unknown	183	1.6	1,244	11.0	273	2.4	7,333	64.7	590	5.2	738	6.5	974	8.6	640	11,975
Total	434	1.9	2,518	11.2	583	2.6	14,987	66.9	999	4.5	1,245	5.6	1,646	7.3	1,111	23,523

1 Row percent of cases with known region

2 Includes out of province

3 Includes infants with maternal antibodies who are not HIV-infected

4 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

**Table 1.12 Number and proportion¹ of first-time HIV-positive diagnoses by exposure category and health region
Ontario, 2002**

Exposure category	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Unknown ²		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	5	20.8	37	55.2	2	13.3	242	61.3	7	24.1	15	45.5	9	39.1	0	0.0	317	54.8
MSM-IDU	0	0.0	0	0.0	0	0.0	4	1.0	0	0.0	0	0.0	0	0.0	0	0.0	4	0.69
IDU	4	16.7	7	10.4	7	46.7	12	3.0	4	13.8	1	3.0	2	8.7	0	0.0	37	6.4
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	0.0
Transfusion	0	4.2	0	0.0	0	0.0	3	0.76	0	0.0	0	0.0	0	0.0	0	0.0	3	0.52
HIV-endemic	1	0.0	4	6.0	0	0.0	32	8.1	3	10.3	4	12.1	1	4.3	0	0.0	45	7.8
HR hetero	0	12.5	1	1.5	2	13.3	16	4.1	3	10.3	1	3.0	3	13.0	0	0.0	26	4.5
LR hetero	3	4.2	11	16.4	4	26.7	65	16.5	10	34.5	7	21.2	5	21.7	2	100.0	107	18.5
Perinatal ³	1	0.0	6	9.0	0	0.0	18	4.6	1	3.4	5	15.2	3	13.0	0	0.0	34	5.9
Other ⁴	0	41.7	1	1.5	0	0.0	3	0.76	1	3.5	0	0.0	0	0.0	0	0.0	5	0.87
Unknown	10		97		15		414		41		51		30		2		660	
Total	24	100.0	164	100.0	30	100.0	809	100.0	70	100.0	84	100.0	53	100.0	4	100.0	1,238	100.0

1 Column percent of cases with known source of exposure

2 Includes out of province

3 Includes infants with maternal antibodies who are not HIV-infected

4 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

**Table 1.13 Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) by exposure category and health region
Ontario, 1985 to 2002**

Exposure category	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	171	37.1	1,169	44.0	263	42.5	11,613	74.1	461	43.7	500	38.1	1,146	65.6	15,323	65.1
MSM-IDU	9	1.9	165	6.2	76	12.3	332	2.1	106	10.0	253	19.3	37	2.1	978	4.2
IDU	129	27.9	404	15.2	139	22.5	836	5.3	100	9.5	165	12.6	86	4.9	1,859	7.9
Clotting factor	21	4.6	25	0.94	25	4.0	136	0.87	10	1.0	21	1.6	68	3.9	306	1.3
Transfusion	15	3.3	162	6.1	15	2.4	186	1.2	72	6.8	44	3.3	38	2.2	532	2.3
HIV-endemic	24	5.1	414	15.6	21	3.4	1,167	7.4	140	13.2	142	10.8	164	9.4	2,071	8.8
HR hetero	29	6.2	62	2.3	28	4.5	329	2.1	49	4.7	46	3.5	67	3.8	610	2.6
LR hetero	51	11.0	176	6.6	33	5.3	837	5.3	94	8.9	91	6.9	114	6.5	1,395	5.9
Perinatal ³	13	2.9	56	2.1	13	2.0	172	1.1	10	0.97	29	2.2	17	1.0	311	1.3
Other ⁴	0	0.06	26	0.97	7	1.1	63	0.40	13	1.2	20	1.5	10	0.57	138	0.59
Total	461	100.0	2,659	100.0	618	100.0	15,671	100.0	1,055	100.0	1,311	100.0	1,748	100.0	23,523	100.0
Rate per 100,000	50.8		357.9		79.1		636.4		40.5		61.9		117.7		211.9	

1 Column percent

2 According to the proportion of known region, known exposure and results of the LES (see text for more details); thus, totals may differ due to rounding

3 Includes infants with maternal antibodies who are not HIV-infected

4 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; Statistics Canada (1996 census)

Table 1.13a Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) among males by exposure category and health region, Ontario, 1985 to 2002

Exposure category	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	171	49.4	1,169	55.4	263	50.0	11,613	82.5	461	55.8	500	46.0	1,146	76.3	15,322	74.9
MSM-IDU	9	2.5	165	7.8	76	14.5	332	2.4	106	12.8	253	23.3	37	2.5	978	4.8
IDU	82	23.6	301	14.3	111	21.1	556	4.0	57	6.9	135	12.4	67	4.5	1,309	6.4
Clotting factor	18	5.2	20	0.95	24	4.5	118	0.84	8	0.90	17	1.6	66	4.4	270	1.3
Transfusion	0	0.0	55	2.6	13	2.4	116	0.83	40	4.8	16	1.5	22	1.5	261	1.3
HIV-endemic	7	2.1	240	11.4	14	2.6	589	4.2	71	8.6	73	6.7	63	4.2	1,057	5.2
HR hetero	12	3.5	18	0.87	7	1.3	123	0.90	14	1.7	11	1.0	11	0.73	197	1.0
LR hetero	42	12.1	104	4.9	13	2.4	496	3.5	54	6.6	50	4.6	75	5.0	834	4.1
Perinatal ³	5	1.5	26	1.2	4	0.80	93	0.66	7	0.84	15	1.4	7	0.47	157	0.80
Other ⁴	0	0.0	11	0.50	2	0.46	33	0.23	9	1.10	16	1.5	7	0.44	78	0.38
Total	346	100.0	2,109	100.0	526	100.0	14,069	100.0	826	100.0	1,087	100.0	1,502	100.0	20,465	100.0
Rate per 100,000	76.4		578.0		135.9		1,177.3		63.9		103.9		205.2		374.1	

1 Column percent
2 According to the proportion of known region, known exposure and results of the LES (see text for more details); thus, totals may differ due to rounding
3 Includes infants with maternal antibodies who are not HIV-infected
4 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; Statistics Canada (1996 census)

Table 1.13b Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) among females by exposure category and health region, Ontario, 1985 to 2002

Exposure category	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MSM-IDU	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
DU	47	13.6	103	4.9	28	5.3	280	2.0	44	5.3	29	2.7	19	1.2	550	2.7
Clotting factor	3	0.90	5	0.24	1	0.21	18	0.13	3	0.31	4	0.38	2	0.10	36	0.18
Transfusion	15	4.4	108	5.1	2	0.43	70	0.49	32	3.9	28	2.5	16	1.1	271	1.3
HIV-endemic	16	4.7	173	8.2	7	1.4	578	4.1	69	8.3	69	6.4	101	6.7	1,013	5.0
HR hetero	16	4.7	44	2.1	21	4.0	206	1.5	35	4.2	35	3.2	56	3.7	413	2.0
LR hetero	9	2.5	72	3.4	20	3.8	341	2.4	39	4.8	40	3.7	40	2.6	561	2.7
Perinatal ³	8	2.3	30	1.4	8	1.6	79	0.56	3	0.40	15	1.3	10	0.68	154	0.75
Other ⁴	0	0.0	15	0.72	4	0.79	30	0.21	3	0.40	4	0.33	3	0.23	60	0.29
Total	115	33.2	550	26.1	92	17.5	1,602	11.4	229	27.7	224	20.6	246	16.4	3,058	14.9
Rate per 100,000	25.3		145.5		23.4		126.4		17.5		20.9		32.7		54.3	

¹ Column percent

² According to the proportion of known region, known exposure and results of the LES (see text for more details); thus, totals may differ due to rounding

³ Includes infants with maternal antibodies who are not HIV-infected

⁴ Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; Statistics Canada (1996 census)

Table 1.14 Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) by exposure category and health region Ontario, 2002

Exposure category	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
ISM	7	29.8	75	45.6	7	24.3	402	49.5	19	26.5	30	35.6	23	43.2	563	45.5
ISM-IDU	0	0.0	1	0.30	1	4.0	8	1.0	1	1.0	2	2.4	0	0.12	12	1.0
DU	7	30.7	17	10.3	11	37.1	35	4.4	11	15.9	3	3.4	4	8.1	89	7.2
Clotting factor	0	0.0	0	0.02	0	0.04	0	0.0	0	0.06	0	0.02	0	0.04	0	0.03
Transfusion	1	3.5	1	0.90	0	0.22	8	1.0	0	0.46	1	0.79	0	0.18	12	0.95
HIV-endemic	2	9.3	36	21.8	1	4.5	175	21.5	17	24.6	26	31.4	10	19.5	268	21.7
IR hetero	0	0.43	3	1.6	3	11.0	31	3.9	7	9.3	1	1.6	4	8.1	50	4.0
R hetero	5	22.1	21	0.1	5	16.5	116	14.3	12	17.0	15	17.3	8	14.6	182	14.7
Perinatal ³	1	0.0	6	3.6	0	0.0	18	2.2	1	1.4	5	5.9	3	5.6	34	2.7
Other ⁴	0	0.11	5	2.9	1	2.3	18	2.2	3	3.7	1	1.5	0	0.55	28	2.2
Total	24	100.0	165	100.0	30	100.0	812	100.0	70	100.0	84	100.0	53	100.0	1,238	100.0
Rate per 100,000	2.7		20.8		3.7		31.2		2.3		3.7		3.5		10.3	

Column percent

¹According to the proportion of known region, known exposure and results of the LES (see text for more details); thus, totals may differ due to rounding

²Includes infants with maternal antibodies who are not HIV-infected

³Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; Statistics Canada (1999 population estimates)

Table 1.14a Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) among males by exposure category and health region, Ontario, 2002

Exposure category	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	7	44.6	75	60.5	7	33.1	402	66.4	19	44.5	30	53.3	23	64.0	563	62.4
MSM-IDU	0	0.0	1	0.40	1	5.5	8	1.3	1	1.7	2	3.7	0	0.17	12	1.4
IDU	2	15.4	13	10.7	11	49.9	26	4.2	3	6.3	1	1.5	1	2.4	57	6.3
Clotting factor	0	0.0	0	0.03	0	0.06	0	0.04	0	0.09	0	0.03	0	0.05	0	0.04
Transfusion	0	0.0	1	0.42	0	0.24	1	0.17	0	0.55	0	0.10	0	0.16	2	0.20
HIV-endemic	1	9.2	16	12.6	1	2.6	81	13.4	8	18.4	11	19.5	3	8.7	121	13.4
HR hetero	0	0.0	2	1.7	0	1.0	12	2.0	2	5.4	1	1.8	3	8.1	21	2.3
LR hetero	4	24.5	12	9.4	2	7.5	57	9.4	6	15.3	6	10.4	5	13.5	91	10.1
Perinatal ³	1	6.2	1	0.81	0	0.0	11	1.7	1	2.4	5	8.9	1	2.8	20	2.2
Other ⁴	0	0.0	4	3.4	0	0.12	8	1.3	2	5.2	0	0.83	0	0.11	15	1.7
Total	16	100.0	124	100.0	22	100.0	605	100.0	42	100.0	56	100.0	36	100.0	901	100.0
Rate per 100,000	3.6		31.7		5.5		47.9		2.7		5.0		4.7		15.3	

1 Column percent

2 According to the proportion of known region, known exposure and results of the LES (see text for more details); thus, totals may differ due to rounding

3 Includes infants with maternal antibodies who are not HIV-infected

4 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; Statistics Canada (2001 population estimates)

Table 1.14b Number and proportion¹ of first-time HIV-positive diagnoses (adjusted²) among females by exposure category and health region, Ontario, 2002

Exposure category	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
MSM-IDU	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
IDU	5	30.5	4	3.0	0	0.61	10	1.6	9	20.4	2	3.6	3	9.6	33	3.6
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	1	5.2	1	0.77	0	0.06	7	1.2	0	0.22	1	1.1	0	0.10	10	1.1
HIV-endemic	1	4.7	20	16.4	1	3.5	93	15.4	10	22.8	16	27.6	7	20.3	148	16.4
HR hetero	0	0.64	1	0.45	3	14.0	19	3.2	4	10.2	0	0.52	1	3.8	29	3.2
LR hetero	1	8.5	10	7.7	3	15.0	59	9.8	6	13.3	9	15.5	3	8.2	91	10.1
Perinatal ³	0	0.0	5	4.0	0	0.0	7	1.2	0	0.0	0	0.0	2	5.6	14	1.6
Other ⁴	0	0.17	1	0.43	1	3.0	10	1.6	0	1.0	1	1.5	0	0.71	12	1.4
Total	8	49.7	41	32.7	8	36.2	206	34.1	28	67.9	28	49.8	17	48.2	337	37.4
Rate per 100,000	1.8		10.1		2.0		15.5		1.8		2.4		2.2		5.6	

1 Column percent

2 According to the proportion of known region, known exposure and results of the LES (see text for more details); thus, totals may differ due to rounding

3 Includes infants with maternal antibodies who are not HIV-infected

4 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; Statistics Canada (2001 population estimates)

Table 1.15 Number of first-time HIV-positive diagnoses and rate (per 100,000) by public health unit and sex, Ontario, 1985 to 2002

Public health unit	Males		Females		Unknown	Total	
	Number	Rate	Number	Rate	Number	Number	Rate
Algoma	25	38.4	11	16.6	4	40	30.4
Muskoka	28	60.3	5	10.7	1	34	36.5
North Bay	39	91.2	4	9.0	1	44	50.5
Northwestern	21	45.4	8	17.8	4	33	36.1
Porcupine	7	14.4	5	10.6	4	16	16.7
Sudbury	109	105.7	36	34.5	13	158	76.1
Thunder Bay	74	90.6	29	35.7	1	104	63.8
Timiskaming	4	20.7	1	5.1	0	5	12.9
Northern	307	67.7	99	21.8	28	434	47.8
Ottawa	1,940	531.7	488	129.1	90	2,518	338.9
Eastern Ontario	106	111.5	21	21.8	7	134	69.9
Hastings-Prince Edward	39	53.2	5	6.6	0	44	29.5
Kingston-Frontenac	250	278.4	42	46.2	41	333	184.3
Leeds-Grenville	46	58.1	6	7.4	0	52	32.4
Renfrew	16	32.4	4	8.0	0	20	20.2
Eastern, Other	457	118.1	78	19.8	48	583	74.6
Toronto	12,868	1076.8	1,411	111.2	709	14,987	608.6
Durham	122	51.9	28	11.8	7	157	33.2
Haliburton	24	28.5	5	5.9	1	30	17.7
Peel	420	95.6	120	27.1	18	558	63.3
Peterborough	38	61.8	9	13.8	0	47	37.1
Simcoe	33	19.6	9	5.3	7	49	14.4
York Region	122	40.1	33	10.7	3	158	25.8
Central East, Other	759	58.7	204	15.6	36	999	38.4
Brant	28	46.2	9	14.3	0	37	30.0
Haldimand	12	22.7	4	7.5	1	17	16.0
Halton	129	74.3	15	8.5	1	145	41.4
Hamilton-Wentworth	466	197.1	94	38.5	28	588	122.1
Niagara	157	77.3	35	16.5	13	205	49.4
Waterloo	105	50.6	23	10.9	2	130	31.1
Wellington-Dufferin	96	86.0	24	21.4	3	123	55.0
Central West	993	95.0	204	19.0	48	1,245	58.8
Bruce Grey-Owen Sound	31	39.6	2	2.5	0	33	20.9
Elgin-St Thomas	14	34.8	5	12.2	0	19	23.4
Huron	9	29.3	2	6.5	1	12	19.4
Kent-Chatham	31	55.9	2	3.5	0	33	29.3
Lambton	16	24.3	4	5.9	1	21	15.8
Middlesex-London	895	454.0	154	74.6	30	1,079	267.4
Oxford	13	26.3	4	7.9	0	17	17.0
Perth	19	51.8	2	5.4	0	21	28.3
Windsor-Essex	342	192.0	50	27.3	19	411	113.8
Southwest	1,370	187.2	225	29.8	51	1,646	110.8
TOTAL	19,567	357.7	2,898	51.5	1,058	23,523	211.9

Total includes 873 cases among males, 190 among females, 48 unknown sex for whom public health unit was not stated;

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; Statistics Canada (1996 census)

Table 1.16 Number and proportion¹ of first-time HIV-positive diagnoses by year of test and type of identifier, Ontario, 1985 to 2002

Year	Nominal		Coded		Anonymous		Unknown		Total
	Number	%	Number	%	Number	%	Number	%	Number
1985	277	82.7	57	17.0	0	0.0	1	0.30	335
1986	742	54.4	623	45.6	0	0.0	0	0.0	1,365
1987	803	51.8	747	48.2	0	0.0	0	0.0	1,550
1988	643	44.2	809	55.6	0	0.0	2	0.14	1,454
1989	672	39.3	1,034	60.5	0	0.0	4	0.23	1,710
1990	761	36.4	1,312	62.7	0	0.0	18	0.86	2,091
1991	405	22.0	672	36.5	0	0.0	762	41.4	1,839
1992	849	46.6	770	42.2	204	11.2	0	0.0	1,823
1993	741	49.4	627	41.8	133	8.9	0	0.0	1,501
1994	721	53.6	529	39.3	95	7.1	0	0.0	1,345
1995	668	49.1	570	41.9	122	9.0	0	0.0	1,360
1996	561	52.0	411	38.1	105	9.7	1	0.09	1,078
1997	501	52.1	358	37.3	101	10.5	1	0.10	961
1998	572	57.5	327	32.9	92	9.2	4	0.40	995
1999	522	56.6	305	33.1	94	10.2	1	0.11	922
2000	567	60.4	259	27.6	105	11.2	7	0.75	938
2001	640	62.9	261	25.6	108	10.6	9	0.88	1,018
2002	821	66.3	308	24.9	108	8.7	1	0.08	1,238
Total²	11,466	48.7	9,979	42.4	1,267	5.4	811	3.4	23,523

1 Row percent

2 Total includes 1,003 HIV-positives among unknown sex, of whom 290 tested nominally, 627 coded, 12 anonymously and 74 unknown

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.17 Number and proportion¹ of first-time HIV-positive diagnoses among males by year of test and type of identifier, Ontario, 1985 to 2002

Year	Nominal		Coded		Anonymous		Unknown		Total
	Number	%	Number	%	Number	%	Number	%	Number
1985	269	82.5	56	17.2	0	0.0	1	0.31	326
1986	722	56.1	565	43.9	0	0.0	0	0.0	1,287
1987	767	52.4	697	47.6	0	0.0	0	0.0	1,464
1988	575	43.1	756	56.7	0	0.0	2	0.15	1,333
1989	593	38.4	946	61.3	0	0.0	4	0.26	1,543
1990	672	36.7	1,144	62.5	0	0.0	15	0.82	1,831
1991	320	20.6	588	37.9	0	0.0	642	41.4	1,550
1992	697	45.2	651	42.2	193	12.5	0	0.0	1,541
1993	608	48.4	523	41.7	124	9.9	0	0.0	1,255
1994	556	52.3	422	39.7	86	8.1	0	0.0	1,064
1995	518	48.0	454	42.0	108	10.0	0	0.0	1,080
1996	425	51.2	315	38.0	89	10.7	1	0.12	830
1997	356	50.1	267	37.6	87	12.2	1	0.14	711
1998	423	56.9	242	32.5	79	10.6	0	0.0	744
1999	385	54.3	249	35.1	75	10.6	0	0.0	709
2000	401	58.5	195	28.4	90	13.1	0	0.0	686
2001	437	59.6	207	28.2	89	12.1	0	0.0	733
2002	534	60.7	255	29.0	91	10.3	0	0.0	880
Total	9,258	47.3	8,532	43.6	1,111	5.7	666	3.4	19,567

1 Row percent

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.18 Number and proportion¹ of first-time HIV-positive diagnoses among females by year of test and type of identifier, Ontario, 1985 to 2002

Year	Nominal		Coded		Anonymous		Unknown		Total
	Number	%	Number	%	Number	%	Number	%	Number
1985	5	83.3	1	16.7	0	0.0	0	0.0	6
1986	20	74.1	7	25.9	0	0.0	0	0.0	27
1987	28	75.7	9	24.3	0	0.0	0	0.0	37
1988	66	72.5	25	27.5	0	0.0	0	0.0	91
1989	73	64.6	40	35.4	0	0.0	0	0.0	113
1990	79	47.6	86	51.8	0	0.0	1	0.60	166
1991	58	35.6	45	27.6	0	0.0	60	36.8	163
1992	104	63.4	51	31.1	9	5.5	0	0.0	164
1993	97	55.4	70	40.0	8	4.6	0	0.0	175
1994	136	62.1	74	33.8	9	4.1	0	0.0	219
1995	132	59.7	77	34.8	12	5.4	0	0.0	221
1996	111	59.4	61	32.6	15	8.0	0	0.0	187
1997	122	65.6	52	28.0	12	6.5	0	0.0	186
1998	124	68.1	46	25.3	12	6.6	0	0.0	182
1999	122	68.5	39	21.9	17	9.6	0	0.0	178
2000	157	77.3	32	15.8	14	6.9	0	0.0	203
2001	197	77.6	38	15.0	19	7.5	0	0.0	254
2002	277	85.0	35	10.7	14	4.3	0	0.0	326
Total	1,908	65.8	788	27.2	141	4.9	61	2.1	2,898

1 Row percent

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.19 Number of HIV-positive tests (p), number tested (n)¹ and first-time HIV-positivity rates (%) by exposure category and year of HIV diagnosis, Ontario, 1992 to 2002

Exposure category	Year of diagnosis																	
	1992			1993			1994			1995			1996			1997		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
ISM	570	8,320	6.9	455	8,498	5.4	346	8,219	4.2	359	8,903	4	310	8,997	3.4	247	8,575	2.9
ISM-IDU	20	326	6.1	26	452	5.8	18	438	4.1	20	433	4.6	12	451	2.7	9	412	2.2
IU	86	5,785	1.5	59	6,283	0.94	88	5,553	1.6	74	6,061	1.2	71	6,387	1.1	54	6,181	0.87
lotting factor	15	3,732	0.4	16	10,292	0.16	6	9,973	0.06	10	5,473	0.18	6	3,616	0.17	5	1,778	0.28
ransfusion	10	1,809	0.55	14	14,822	0.09	12	17,185	0.07	9	8,654	0.10	7	5,217	0.13	8	2,776	0.29
IV-endemic	23	1,038	2.2	18	929	1.9	13	855	1.5	19	918	2.1	26	934	2.8	12	792	1.5
R hetero	25	6,477	0.39	42	7,715	0.54	30	71,355	0.42	29	8,446	0.34	25	9,627	0.26	34	7,824	0.43
R hetero	37	33,271	0.1	67	56,121	0.12	64	55,688	0.11	79	65,917	0.12	70	75,891	0.09	74	73,064	0.10
erinatal ²	7	58	12.1	16	76	21.1	33	138	23.9	25	133	18.8	34	138	24.6	10	63	15.9
ther ³	0	557	0.0	0	722	0.0	3	974	0.31	2	4,472	0.04	3	6,582	0.05	1	6,145	0.02
nknown	1,031	152,747	0.67	788	155,913	0.50	732	144,185	0.51	734	143,661	0.51	514	161,852	0.32	507	161,228	0.31
total	1,823	218,120	0.84	1,501	261,823	0.57	1,345	250,363	0.54	1,360	253,071	0.54	1,078	279,692	0.39	961	268,838	0.36
	1998			1999			2000			2001			2002			TOTAL		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
	ISM	235	8,216	2.9	238	8,015	3.0	252	8,210	3.1	221	8,469	2.6	317	9,112	0.03	3,550	93,534
ISM-IDU	10	413	2.4	8	461	1.7	13	462	2.8	8	404	2.0	4	375	1.1	148	4,627	3.2
IU	56	6,596	0.85	69	6,323	1.1	42	6,097	0.69	35	5,906	0.59	37	5,556	0.67	670	66,728	1.0
lotting factor	2	1,515	0.13	1	860	0.12	2	587	0.34	2	506	0.40	0	492	0.0	65	38,824	0.17
ransfusion	7	2,925	0.24	5	2,612	0.19	9	1,709	0.53	4	1,551	0.26	3	1,440	0.21	88	60,700	0.14
IV-endemic	19	909	2.1	17	943	1.8	28	1,022	2.7	36	1,094	3.3	45	1,166	3.9	256	10,600	2.4
R hetero	19	7,115	0.27	22	5,789	0.38	20	5,144	0.39	24	4,769	0.50	26	4,540	0.57	296	74,601	0.40
R hetero	74	75,666	0.10	78	75,874	0.10	76	72,487	0.10	99	74,767	0.13	107	78,999	0.14	825	741,745	0.11
erinatal ²	24	72	33.3	15	69	21.7	29	108	26.9	30	87	34.5	34	108	31.5	257	1,050	24.5
ther ³	3	7,147	0.04	2	9,030	0.02	1	9,420	0.01	3	10,269	0.03	5	11,317	0.04	23	66,635	0.03
nknown	546	176,576	0.31	467	168,508	0.28	466	157,003	0.30	556	171,666	0.32	660	223,637	0.30	7,001	1,816,976	0.39
total	995	287,150	0.35	922	278,487	0.33	938	262,249	0.36	1,018	279,488	0.36	1,238	336,742	0.37	13,179	2,976,020	0.44

Persons identified as having had more than one test within the same year are counted only once
 Includes infants with maternal antibodies who are not HIV-infected
 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)
 Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.20 Number of HIV-positive tests (p), number tested (n)¹ and first-time HIV-positivity rates (%) (adjusted²) by exposure category and year of HIV diagnosis, Ontario, 1992 to 2002

Exposure category	Year of diagnosis																	
	1992			1993			1994			1995			1996			1997		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
ISM	1242.94	14,569	8.5	928	13,116	7.1	685	12,276	5.6	739	13,189	5.6	575	13,370	4.3	481	12,852	3.7
ISM-IDU	88.2307	1,169	7.5	65	1,211	5.4	105	1,170	9.0	98	1,123	8.7	44	1,146	3.8	51	1,082	4.7
IU	174.554	17,294	1.0	125	15,175	0.82	180	13,079	1.4	132	14,264	0.92	131	15,691	0.84	107	15,480	0.69
lotting factor	15.1625	12,746	0.12	17	24,868	0.07	7	22,436	0.03	10	11,622	0.09	6	7,922	0.08	5	4,264	0.12
ransfusion	34.6084	6,678	0.52	39	35,206	0.11	38	38,217	0.10	32	20,517	0.16	21	13,256	0.16	26	7,870	0.33
IV-endemic	142.6	7,941	1.8	138	5,977	2.3	122	5,406	2.3	142	5,568	2.6	125	5,952	2.1	110	5,741	1.9
R hetero	43.6823	16,944	0.26	59	16,359	0.36	53	14,773	0.36	46	17,200	0.26	35	20,483	0.17	50	17,762	0.28
R hetero	70.0046	135,513	0.05	108	144,224	0.07	108	136,856	0.08	129	157,302	0.08	97	185,612	0.05	108	188,205	0.06
erinatal ³	9.4028	365	2.6	20	168	11.8	33	371	9.0	25	643	3.9	34	394	8.6	11	253	4.4
ther ⁴	2.56116	4,900	0.05	3	5,517	0.05	13	5,780	0.23	8	11,643	0.07	9	15,866	0.06	12	15,327	0.08
total	1,824	218,121	0.84	1,501	261,823	0.57	1,345	250,363	0.54	1,360	253,071	0.54	1,078	279,692	0.39	961	268,838	0.36
	1998			1999			2000			2001			2002			TOTAL		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
ISM	462	12,270	3.8	425	11,788	3.6	449	12,101	3.7	429	12,734	3.4	563	14,676	3.8	6,979	142,940	4.9
ISM-IDU	57	1,082	5.3	35	1,182	3.0	32	1,172	2.7	20	1,041	2.1	12	873	1.4	609	12,251	5.0
IU	111	16,512	0.67	128	15,419	0.83	86	14,722	0.58	86	14,624	0.59	89	15,506	0.58	1,350	167,766.97	0.80
lotting factor	2	3,893	0.06	1	2,224	0.06	2	1,464	0.16	2	1,295	0.18	0	1,502	0.03	69	94236.64	0.07
ransfusion	37	8,646	0.42	23	7,701	0.29	20	5,262	0.39	12	5,023	0.24	12	5,395	0.22	293	153771.01	0.19
IV-endemic	129	6,324	2.0	124	6,212	2.0	158	6,464	2.4	220	7,171	3.1	268	9,124	2.9	1,679	71881.3	2.3
R hetero	36	17,044	0.21	37	14,249	0.26	35	12,777	0.27	42	12,654	0.33	50	13,764	0.36	485	174009.06	0.28
R hetero	124	203,775	0.06	124	199,425	0.06	117	187,466	0.06	158	201,552	0.08	182	247,792	0.07	1,326	1987723.98	0.07
erinatal ³	24	146	16.6	15	150	9.9	29	324	9.0	30	613	4.9	34	444	7.7	265	3869.9	6.8
ther ⁴	11	17,459	0.07	11	20,134	0.05	9	20,497	0.04	18	22,781	0.08	28	27,665	0.10	125	167570.51	0.07
total	995	287,150	0.35	922	278,484	0.33	938	262,249	0.36	1,018	279,488	0.36	1,238	336,742	0.37	13,180	2,976,021	0.44

¹ Persons identified as having had more than one test within the same year are counted only once

² According to the proportion of known exposure that year and results of the LES (see text for more details); thus, totals may differ due to rounding

³ Includes infants with maternal antibodies who are not HIV-infected

⁴ Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.21 Number of HIV-positive tests (p), number tested (n)¹ and first-time HIV-positivity rates (%) by exposure category and health region, Ontario, 1992 to 2002

Exposure category	Region																													
	Northern			Ottawa			Eastern, Other			Toronto			Central East, Other			Central West			Southwest			Unknown			Total					
TOTAL ²	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
SM	46	2,481	1.9	326	12,916	2.5	63	2,736	2.3	2,642	49,290	5.4	93	4,549	2.0	134	5,707	2.4	143	5,813	2.5	103	10,042	1.0	3,550	93,534	3.8			
SM-IDU	5	273	1.8	24	440	5.5	5	474	1.1	79	1,173	6.7	8	424	1.9	6	476	1.3	11	375	2.9	10	992	1.0	148	4,627	3.2			
U	74	5,865	1.3	178	6,407	2.8	72	8,622	0.84	177	13,461	1.3	32	6,216	0.51	49	8,263	0.59	27	5,883	0.46	61	12,011	0.51	670	66,728	1.0			
otting factor	4	3,543	0.11	5	5,029	0.10	2	3,054	0.07	33	9,333	0.35	4	5,975	0.07	6	4,924	0.12	3	3,582	0.08	8	3,384	0.24	65	38,824	0.17			
ransfusion	2	5,821	0.0	13	5,301	0.25	4	5,300	0.08	38	12,289	0.31	11	10,796	0.10	8	9,258	0.09	5	7,251	0.07	7	4,684	0.15	88	60,700	0.14			
V-endemic	6	497	1.2	46	2,169	2.1	6	590	1.0	147	3,819	3.8	12	991	1.2	13	979	1.3	10	740	1.4	16	815	2.0	256	10,600	2.4			
R hetero	16	7,650	0.21	34	6,382	0.53	12	5,212	0.23	130	16,754	0.78	22	10,051	0.22	37	10,615	0.35	22	7,937	0.28	23	10,000	0.23	296	74,601	0.40			
t hetero	25	47,604	0.05	122	102,564	0.12	28	49,931	0.06	428	194,146	0.22	69	111,255	0.06	47	84,418	0.06	58	82,342	0.07	48	69,485	0.07	825	741,745	0.11			
rinatal ³	11	81	13.6	48	149	32.2	6	53	11.3	135	409	33.0	8	93	8.6	26	134	19.4	13	64	20.3	10	67	14.9	257	1,050	24.5			
her ⁴	0	6,911	0.0	5	5,886	0.08	1	6,345	0.02	6	15,866	0.04	3	7,909	0.04	1	8,401	0.01	2	11,077	0.02	5	4,240	0.12	23	66,635	0.03			
iknown	130	72,239	0.18	874	166,832	0.52	197	100,910	0.20	4,015	733,258	0.55	401	272,425	0.15	451	194,893	0.23	594	147,362	0.40	339	129,057	0.26	7,001	1,816,976	0.39			
Total	319	152,965	0.21	1,675	314,075	0.53	396	183,227	0.22	7,830	1,049,798	0.75	663	430,684	0.15	778	328,068	0.24	888	272,426	0.33	630	244,777	0.26	13,179	2,976,020	0.44			

Persons identified as having had more than one test within the same year are counted only once
 Total includes 595 HIV-positive tests (p) and 103,720 tests (n) of unknown sex, which represent 5.4% and 4.4% of the totals, respectively
 Perinatal exposure includes infants with maternal antibodies who are not HIV-infected
 Other exposure Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.22 Number of HIV-positive tests (p), number tested (n)¹ and first-time HIV-positivity rates (%) (adjusted^d) by exposure category and health region, Ontario, 1992 to 2002

Exposure category	Region																							
	Northern			Ottawa			Eastern, Other			Toronto			Central East, Other			Central West			Southwest			Total		
TOTAL	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
SM	87	4,140	2.1	592	19,591	3.0	141	6,461	2.2	5,125	81,676	6.3	242	9,347	2.6	263	10,030	2.6	528	11,695	4.5	6,979	142,940	4.9
SM-IDU	9	636	1.4	114	1,242	9.1	61	1,865	3.3	180	4,726	3.8	67	1,239	5.4	152	1,575	9.6	26	969	2.7	609	12,251	5.0
IDU	116	14,516	0.80	358	17,895	2.0	110	22,576	0.49	526	53,459	1.0	70	22,993	0.31	108	21,432	0.50	62	14,897	0.41	1,350	167,767	0.80
Bleeding factor	5	7,032	0.07	6	10,497	0.05	2	4,726	0.04	41	33,451	0.12	5	16,459	0.03	6	12,997	0.05	4	9,074	0.04	69	94,237	0.07
Transfusion	13	13,890	0.09	99	13,540	0.73	8	21,725	0.04	101	40,007	0.25	41	26,227	0.16	20	22,114	0.09	12	16,267	0.07	293	153,771	0.19
IV-endemic	19	1,605	1.2	304	11,473	2.6	21	2,723	0.8	973	35,108	2.8	123	7,702	1.6	110	6,036	1.8	130	7,234	1.8	1,679	71,881	2.3
R heteroc	27	15,051	0.18	52	17,884	0.29	24	17,855	0.13	263	60,078	0.44	41	24,119	0.17	39	20,937	0.19	39	18,086	0.22	485	174,009	0.28
R heteroc	50	98,726	0.05	173	236,453	0.07	33	111,022	0.03	787	769,039	0.10	88	332,872	0.03	80	241,793	0.03	114	197,818	0.06	1,326	1,987,724	0.07
Perinatal ³	13	150	8.8	50	257	19.3	13	1,674	0.80	141	1,102	12.8	8	254	3.3	26	309	8.6	13	125	10.8	265	3,870	6.8
Other ⁴	0	12,203	0.0	25	16,848	0.15	6	10,085	0.06	57	60,554	0.09	12	24,994	0.05	15	20,970	0.07	10	21,917	0.04	125	167,571	0.07
Total	339	167,950	0.20	1,772	345,680	0.51	418	200,712	0.21	8,195	1,139,200	0.72	698	466,205	0.15	819	358,192	0.23	938	298,081	0.31	13,180	2,976,021	0.40

Persons who undergo more than one test within the same year have been counted only once
 According to the proportion of known region and results of the LES (see text for more details); thus, totals may differ due to rounding
 Includes infants with maternal antibodies who are not HIV-infected
 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.23 Number of HIV-positive tests (p), number tested (n)¹ and first-time HIV-positivity rates (%) (adjusted²) by exposure category, sex and health region, Ontario, 1992 to 2002

Exposure	Northern			Ottawa			Eastern, Other			Toronto			Central E, Other			Central West			Southwest			Total					
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%			
IALES																											
ISM	171	4,140	0.04	1,169	19,591	0.06	263	6,461	0.04	11,613	81,676	0.14	461	9,347	0.05	500	10,030	0.05	1,146	11,695	0.10	15,323	142,940	0.11			
ISM-IDU	9	636	0.01	165	1,242	0.13	76	1,865	0.04	332	4,726	0.07	106	1,239	0.09	253	1,575	0.16	37	969	0.04	978	12,251	0.08			
IDU	82	7,371	0.01	301	10,891	0.03	111	14,428	0.01	556	33,085	0.02	57	14,507	0.00	135	14,139	0.01	67	8,817	0.01	1,309	103,237	0.01			
lotting factor	18	2,857	0.01	20	3,734	0.01	24	2,685	0.01	118	14,800	0.01	8	6,017	0.00	17	4,897	0.00	66	3,554	0.02	270	38,544	0.01			
ransfusion	0	3,329	0.00	55	4,241	0.01	13	6,679	0.00	116	13,558	0.01	40	8,963	0.00	16	7,719	0.00	22	4,898	0.00	261	49,387	0.01			
IV-endemic	7	1,144	0.01	240	6,720	0.04	14	2,242	0.01	589	22,768	0.03	71	2,998	0.02	73	2,643	0.03	63	4,112	0.02	1,057	42,627	0.02			
R hetero	12	2,676	0.00	18	5,505	0.00	7	4,947	0.00	123	22,948	0.01	14	5,150	0.00	11	5,330	0.00	11	5,339	0.00	197	51,895	0.00			
R hetero	42	42,698	0.00	104	92,177	0.00	13	44,524	0.00	496	325,559	0.00	54	127,633	0.00	50	101,325	0.00	75	74,237	0.00	834	808,153	0.00			
erinatal ³	5	69	0.07	26	135	0.19	4	71	0.06	93	647	0.14	7	134	0.05	15	159	0.09	7	51	0.14	157	1,266	0.12			
ther ⁴	0	4,268	0.00	11	8,022	0.00	2	4,355	0.00	33	31,442	0.00	9	10,752	0.00	16	9,103	0.00	7	7,863	0.00	78	75,804	0.00			
total	346	69,187	0.01	2,109	152,258	0.01	526	88,256	0.01	14,069	551,209	0.03	826	186,740	0.00	1,087	156,919	0.01	1,502	121,535	0.01	20,465	1,326,104	0.02			
EMALES																											
IDU	47	7,145	0.01	103	7,005	0.01	28	8,149	0.00	280	20,374	0.01	44	8,486	0.01	29	7,292	0.00	19	6,079	0.31	550	64,530	0.85			
lotting factor	3	4,175	0.00	5	6,763	0.00	1	2,042	0.00	18	18,650	0.00	3	10,442	0.00	4	8,101	0.06	2	5,521	0.00	36	55,693	0.00			
ransfusion	15	10,561	0.00	108	9,299	0.01	2	15,046	0.00	70	26,449	0.00	32	17,264	0.00	28	14,396	0.00	16	11,369	0.00	271	104,384	0.00			
IV-endemic	16	461	0.04	173	4,753	0.04	7	481	0.02	578	12,340	0.05	69	4,704	0.01	69	3,393	0.00	101	3,122	0.03	1,013	29,255	0.03			
R hetero	16	12,375	0.00	44	12,379	0.00	21	12,908	0.00	206	37,130	0.01	35	18,969	0.00	35	15,607	0.01	56	12,746	0.00	413	122,114	0.00			
R hetero	9	56,029	0.00	72	144,275	0.00	20	66,498	0.00	341	443,480	0.00	39	205,239	0.00	40	140,468	0.00	40	123,581	0.00	561	1,179,571	0.00			
erinatal ³	8	82	0.10	30	122	0.25	8	1,602	0.01	79	455	0.17	3	119	0.03	15	150	0.02	10	74	0.14	154	2,604	0.06			
ther ⁴	0	7,935	0.00	15	8,826	0.00	4	5,730	0.00	30	29,112	0.00	3	14,242	0.00	4	11,866	0.02	3	14,054	0.00	60	91,767	0.00			
total	115	98,763	0.00	550	193,422	0.00	92	112,456	0.00	1,602	587,992	0.00	229	279,466	0.00	224	201,273	0.00	246	176,546	0.00	3,058	1,649,917	0.19			

¹Persons identified as having had more than one test within the same year are counted only once

²According to the proportion of known region and results of the LES (see text for more details); thus, totals may differ due to rounding

³Includes infants with maternal antibodies who are not HIV-infected

⁴Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.24 Number of HIV-positive tests (p), number tested (n)¹ and first-time HIV-positivity rates (%) by exposure category and health region, Ontario, 2002

Exposure category	Region																													
	Northern			Ottawa			Eastern, Other			Toronto			Central East, Other			Central West			Southwest			Unknown			Total					
TOTAL ²	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
ISM	5	247	2.0	37	1,227	3.0	2	324	0.62	242	5,442	4.4	7	543	1.3	15	655	2.3	9	649	1.4	0	25	0.0	317	9,112	3.5			
ISM-IDU	0	32	0.0	0	29	0.0	0	61	0.0	4	115	3.5	0	42	0.0	0	52	0.0	0	43	0	0	1	0.0	4	375	1.1			
DU	4	669	0.60	7	388	1.8	7	997	0.70	12	1,254	1.0	4	611	0.65	1	928	0.11	2	681	0.29	0	28	0.0	37	5,556	0.67			
Injection	0	36	0.0	0	28	0.0	0	28	0.0	0	205	0.0	0	79	0.0	0	64	0.0	0	50	0.0	0	2	0.0	0	492	0.0			
Transfusion	0	176	0.0	0	84	0.0	0	127	0.0	3	430	0.70	0	256	0.0	0	190	0.0	0	172	0.0	0	5	0.0	3	1,440	0.21			
IV-ndemic	1	67	1.5	4	186	2.2	0	44	0	32	527	6.1	3	132	2.3	4	120	3.3	1	87	1.1	0	3	0.0	45	1,166	3.9			
IR heteroc	0	12	8.3	1	292	0.34	2	413	0.48	16	1,148	1.4	3	654	0.46	1	725	0.14	3	610	0.49	0	114	0.0	26	4,540	0.57			
R heteroc	3	5	0.06	11	9,520	0.12	4	5,827	0.07	65	24,340	0.27	10	13,093	0.08	7	10,180	0.07	5	10,178	0.05	2	693	0.29	107	78,999	0.14			
Perinatal ³	0	12	8.3	6	9	66.7	0	4	0.0	18	40	45.0	1	13	7.7	5	15	33.3	3	15	20.0	0	0	0	34	108	31.5			
Other ⁴	0	1	0.0	1	1,236	0.08	0	1,007	0.0	3	3,032	0.10	1	1,552	0.06	0	1,499	0.0	0	1,830	0.0	0	28	0.0	5	11,317	0.04			
Unknown	10	6,529	0.15	97	20,868	0.46	15	9,740	0.15	414	106,468	0.39	41	40,452	0.10	51	24,512	0.21	30	13,623	0.22	2	1,445	0.14	660	223,637	0.30			
total	24	14,653	0.16	164	33,867	0.48	30	18,572	0.16	809	143,001	0.57	70	57,427	0.12	84	38,940	0.22	53	27,938	0.19	4	2,344	0.17	1,238	336,742	0.37			

¹Persons who undergo more than one test within the same year have been counted only once

²Total includes 31 HIV-positive tests (p) and 12500 tests (n) of unknown sex, which represent 3.0% and 4.5% of the totals, respectively

³Includes infants with maternal antibodies who are not HIV-infected

⁴Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.25 Number of HIV-positive tests (p), number tested (n)¹ and first-time HIV-positivity rates (%) (adjusted²) by health region Ontario, 2002

Exposure category	Region																							
	Northern			Ottawa			Eastern, Other			Toronto			Central East, Other			Central West			Southwest			Total		
TOTAL	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
ISM	7	359	2.0	75	1,819	4.1	7	677	1.1	402	8,541	4.7	19	1,137	1.6	30	1,069	2.8	23	1,074	2.1	563	14,676	3.8
ISM-IDU	0	59	0.0	1	70	0.72	1	198	0.61	8	406	2.0	1	43	1.6	2	54	3.8	0	43	0.14	12	873	1.4
DU	7	1,333	0.55	17	1,163	1.5	11	2,185	0.51	35	5,019	0.71	11	2,362	0.47	3	2,098	0.14	4	1,345	0.32	89	15,506	0.58
lotting factor	0	65	0.0	0	71	0.05	0	35	0.04	0	792	0.03	0	268	0.0	0	172	0.01	0	99	0.02	0	1,502	0.03
ransfusion	1	448	0.19	1	434	0.34	0	625	0.01	8	1,936	0.43	0	944	0.03	1	599	0.11	0	409	0.02	12	5,395	0.22
IV-endemic	2	168	1.3	36	1,172	3.1	1	216	0.60	175	5,060	3.5	17	1,090	1.6	26	730	3.6	10	688	1.5	268	9,124	2.9
IR heterc	0	1,057	0.01	3	1,197	0.22	3	1,398	0.24	31	5,242	0.60	7	2,006	0.33	1	1,552	0.09	4	1,312	0.33	50	13,764	0.36
R heterc	5	9,541	0.06	21	25,280	0.08	5	11,770	0.04	116	106,055	0.11	12	45,473	0.03	15	29,579	0.05	8	20,094	0.04	182	247,792	0.07
erinatal ³	1	21	4.8	6	14	43.0	0	205	0.0	18	104	17.2	1	42	2.4	5	31	15.9	3	26	11.3	34	444	7.7
ther ⁴	0	1,717	0.0	5	2,884	0.17	1	1,397	0.05	18	10,806	0.16	3	4,476	0.06	1	3,335	0.04	0	3,050	0.01	28	27,665	0.10
total	24	14,767	0.16	165	34,104	0.48	30	18,706	0.16	812	143,962	0.56	70	57,842	0.12	84	39,220	0.21	53	28,141	0.19	1,238	336,742	0.37

Persons who undergo more than one test within the same year have been counted only once
 According to the proportion of known region and results of the LES (see text for more details); thus, totals may differ due to rounding
 Includes infants with maternal antibodies who are not HIV-infected
 Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.26 Number of HIV-positive tests (p), number tested (n)¹ and first-time HIV-positivity rates (%) (adjusted²) by sex, exposure category and health region, Ontario, 2002

Exposure	Northern			Ottawa			Eastern, Other			Toronto			Central E, Other			Central West			Southwest			Total			
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	
IALES																									
ISM	7	359	0.02	75	1,819	0.04	7	677	0.01	402	8,541	0.05	19	1,137	0.02	30	1,069	0.03	23	1,074	0.02	563	14,676	0.04	
ISM-IDU	0	59	0.00	1	70	0.01	1	198	0.01	8	406	0.02	1	43	0.02	2	54	0.04	0	43	0.00	12	873	0.01	
DU	2	673	0.00	13	714	0.02	11	1,395	0.01	26	3,046	0.01	3	1,463	0.00	1	1,338	0.00	1	813	0.00	57	9,441	0.01	
Donating factor	0	22	0.00	0	41	0.00	0	14	0.00	0	433	0.00	0	97	0.00	0	50	0.00	0	65	0.00	0	721	0.00	
Transfusion	0	116	0.00	1	115	0.00	0	230	0.00	1	664	0.00	0	307	0.00	0	241	0.00	0	135	0.00	2	1,808	0.00	
IV-endemic	1	110	0.01	16	657	0.02	1	170	0.00	81	3,231	0.03	8	423	0.02	11	302	0.04	3	439	0.01	121	5,332	0.02	
IR hetero	0	242	0.00	2	422	0.00	0	468	0.00	12	2,162	0.01	2	500	0.00	1	447	0.00	3	418	0.01	21	4,660	0.00	
R hetero	4	4,124	0.00	12	9,507	0.00	2	4,817	0.00	57	43,634	0.00	6	17,169	0.00	6	11,838	0.00	5	7,862	0.00	91	98,951	0.00	
Perinatal ³	1	8	0.12	1	3	0.30	0	4	0.00	11	46	0.23	1	11	0.09	5	23	0.21	1	13	0.08	20	109	0.18	
Other ⁴	0	576	0.00	4	1,241	0.00	0	581	0.00	8	5,409	0.00	2	1,695	0.00	0	1,379	0.00	0	1,069	0.00	15	11,951	0.00	
Total	16	6,289	0.00	124	14,589	0.01	22	8,553	0.00	605	67,572	0.01	42	22,845	0.00	56	16,742	0.00	36	11,931	0.00	901	148,521	0.01	
EMALES																									
DU	5	660	0.01	4	450	0.01	0	791	0.00	10	1,973	0.01	9	900	0.01	2	760	0.00	3	532	0.01	33	6,066	0.54	
Donating factor	0	43	0.00	0	31	0.00	0	21	0.00	0	359	0.00	0	172	0.00	0	122	0.00	0	34	0.00	0	781	0.00	
Transfusion	1	332	0.00	1	319	0.00	0	395	0.00	7	1,272	0.01	0	636	0.00	1	358	0.00	0	274	0.00	10	3,587	0.00	
IV-endemic	1	58	0.01	20	514	0.04	3	46	0.06	93	1,830	0.05	10	667	0.01	16	428	0.04	7	249	0.03	149	3,792	0.04	
IR hetero	0	815	0.00	1	774	0.00	0	930	0.00	19	3,080	0.01	4	1,506	0.00	0	1,105	0.00	1	894	0.00	26	9,105	0.00	
R hetero	1	5,417	0.00	10	15,773	0.00	4	6,953	0.00	59	62,422	0.00	6	28,304	0.00	9	17,740	0.00	3	12,232	0.00	91	148,841	0.00	
Perinatal ³	0	12	0.00	5	11	0.47	0	201	0.00	7	58	0.13	0	32	0.00	0	8	0.00	2	13	0.15	14	335	0.04	
Other ⁴	0	1,141	0.00	1	1,643	0.00	1	817	0.00	10	5,397	0.00	0	2,781	0.00	1	1,956	0.00	0	1,980	0.00	13	15,715	0.00	
Total	8	8,478	0.00	41	19,515	0.00	8	10,153	0.00	206	76,390	0.00	28	34,997	0.00	28	22,477	0.00	17	16,210	0.00	336	188,221	0.00	

¹ Persons identified as having had more than one test within the same year are counted only once

² According to the proportion of known region and results of the LES (see text for more details); thus, totals may differ due to rounding

³ Includes infants with maternal antibodies who are not HIV-infected

⁴ Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Table 1.27 Number of HIV tests by year of test and sex, Ontario, 1992 to 2002

Year of diagnosis	Males	Females	Unknown	Total
	Number	Number	% female ¹	Number
1992	100,654	104,868	51.0	12,598
1993	119,036	132,370	52.7	10,417
1994	111,518	127,878	53.4	10,967
1995	113,666	130,601	53.5	8,804
1996	120,464	148,891	55.3	10,337
1997	112,706	145,708	56.4	10,424
1998	112,468	162,262	59.1	12,420
1999	110,093	154,817	58.4	13,574
2000	110,317	140,189	56.0	11,743
2001	117,268	150,147	56.1	12,073
2002	144,217	182,296	55.8	10,229
Total	1,272,407	1,580,027	55.4	123,586

¹ Percent of cases with known sex

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.28 Number of HIV tests (adjusted)¹ by year of test and testing rate (per 1,000), Ontario, 1992 to 2002

Year of HIV test	Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate
	1992	106,782	20.5	111,338	20.8	218,121
1993	123,944	23.5	137,879	25.5	261,823	24.5
1994	116,583	21.8	133,781	24.4	250,363	23.1
1995	117,722	21.8	135,349	24.4	253,071	23.1
1996	125,041	22.9	154,651	27.5	279,692	25.2
1997	117,164	21.1	151,674	26.6	268,838	23.9
1998	117,344	20.9	169,806	29.4	287,150	25.2
1999	115,424	20.3	163,060	27.9	278,484	24.2
2000	115,273	20.0	146,976	24.9	262,249	22.5
2001	122,305	20.3	157,183	25.4	279,488	22.9
2002	148,521	25.2	188,221	31.0	336,742	28.1
Total	1,326,104		1,649,917		2,976,021	

¹ According to the proportion of known sex that year and results of the LES (see text for more details); thus, totals may differ due to rounding

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; Statistics Canada (population estimates)

Table 1.29 Number and proportion¹ of HIV tests by exposure category and year of test, Ontario, 1992 to 2002

Exposure category	1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
ISM	8,320	12.7	8,498	8.0	8,219	7.7	8,903	8.1	8,997	7.6	8,575	8.0	8,216	7.4	8,015	7.3	8,210	7.8	8,469	7.9	9,112	8.1	93,534	8.1
ISM-IDU	326	0.50	452	0.43	438	0.41	433	0.40	451	0.38	412	0.38	413	0.37	461	0.42	462	0.44	404	0.37	375	0.33	4,627	0.4
IU	5,785	8.9	6,283	5.9	5,553	5.2	6,061	5.5	6,387	5.4	6,181	5.7	6,596	6.0	6,323	5.8	6,097	5.8	5,906	5.5	5,556	4.9	66,728	5.8
Injection factor	3,732	5.7	10,292	9.7	9,973	9.4	5,473	5.0	3,616	3.1	1,778	1.7	1,515	1.4	860	0.78	587	0.56	506	0.47	492	0.43	38,824	3.4
Transfusion	1,809	2.8	14,822	14.0	17,185	16.2	8,654	7.9	5,217	4.4	2,776	2.6	2,925	2.7	2,612	2.4	1,709	1.6	1,551	1.4	1,440	1.3	60,700	5.2
IV-endemic	1,038	1.6	929	0.88	855	0.81	918	0.84	934	0.79	792	0.74	909	0.82	943	0.86	1,022	0.97	1,094	1.0	1,166	1.0	10,600	0.91
HR hetero	6,477	9.9	7,715	7.3	7,155	6.7	8,446	7.7	9,627	8.2	7,824	7.3	7,115	6.4	5,789	5.3	5,144	4.9	4,769	4.4	4,540	4.0	74,601	6.4
RR hetero	37,271	57.0	56,121	53.0	55,688	52.5	65,917	60.3	75,891	64.4	73,064	67.9	75,666	68.4	75,874	69.0	72,487	68.9	74,767	69.3	78,999	69.9	741,745	64.0
Perinatal ²	58	0.09	76	0.07	138	0.13	133	0.12	138	0.12	63	0.1	72	0.07	69	0.06	108	0.1	87	0.1	108	0.1	1,050	0.1
Other ³	557	0.85	722	0.68	974	0.92	4,472	4.1	6,582	5.6	6,145	5.7	7,147	6.5	9,030	8.2	9,420	9.0	10,269	9.5	11,317	10.0	66,635	5.8
Unknown	152,747		155,913		144,185		143,661		161,852		161,228		176,576		168,508		157,003		171,666		223,637		1,816,976	
Total	218,120	100.0	261,823	100.0	250,363	100.0	253,071	100.0	279,692	100.0	268,838	100.0	287,150	100.0	278,484	100.0	262,249	100.0	279,488	100.0	336,742	100.0	2,976,020	100.0

¹Column percent of cases with known risk factors

Includes infants with maternal antibodies who are not HIV-infected

Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.30 Number and proportion¹ of HIV tests (adjusted²) by exposure category and year of test, Ontario, 1992 to 2002

Exposure category	1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
M	14,569	6.7	13,116	5.0	12,276	4.9	13,189	5.2	13,370	4.8	12,852	4.8	12,270	4.3	11,788	4.2	12,101	4.6	12,734	4.6	14,676	4.4	142,940	4.8
M-IDU	1,169	0.50	1,211	0.46	1,170	0.47	1,123	0.44	1,146	0.41	1,082	0.40	1,082	0.38	1,182	0.42	1,172	0.45	1,041	0.37	873	0.26	12,251	0.41
J	17,294	7.9	15,175	5.8	13,079	5.2	14,264	5.6	15,691	5.6	15,480	5.8	16,512	5.8	15,419	5.5	14,722	5.6	14,624	5.2	15,506	4.6	167,767	5.6
Smoking factor	12,746	5.8	24,868	9.5	22,436	9.0	11,622	4.6	7,922	2.8	4,264	1.6	3,893	1.4	2,224	0.80	1,464	0.56	1,295	0.46	1,502	0.5	94,237	3.2
Transfusion	6,678	3.1	35,206	13.4	38,217	15.3	20,517	8.1	13,256	4.7	7,870	2.9	8,646	3.0	7,701	2.8	5,262	2.0	5,023	1.8	5,395	1.6	153,771	5.2
Non-endemic	7,941	3.6	5,977	2.3	5,406	2.2	5,568	2.2	5,952	2.1	5,741	2.1	6,324	2.2	6,212	2.2	6,464	2.5	7,171	2.6	9,124	2.7	71,881	2.4
hetero	16,944	7.8	16,359	6.2	14,773	5.9	17,200	6.8	20,483	7.3	17,762	6.6	17,044	5.9	14,249	5.1	12,777	4.9	12,654	4.5	13,764	4.1	174,009	5.8
hetero	135,513	62.1	144,224	55.1	136,856	54.7	157,302	62.2	185,612	66.4	188,205	70.0	203,775	71	199,425	71.6	187,466	71.5	201,552	72.1	247,792	73.6	1,987,724	66.8
Perinatal ³	365	0.17	168	0.06	371	0.15	643	0.25	394	0.14	253	0.09	146	0.05	150	0.05	324	0.12	613	0.22	444	0.13	3,870	0.13
Other ⁴	4,900	2.2	5,517	2.1	5,780	2.3	11,643	4.6	15,866	5.7	15,327	5.7	17,459	6.1	20,134	7.2	20,497	7.8	22,781	8.2	27,665	8.2	167,571	5.6
Total	218,121	100.0	261,823	100.0	250,363	100.0	253,071	100.0	279,692	100.0	268,838	100.0	287,150	100.0	278,484	100.0	262,249	100.0	279,488	100.0	336,742	100.0	2,976,020	100.0

¹Column percent

²According to the proportion of known region that year and results of the LES (see text for more details); thus, totals may differ due to rounding

³Includes infants with maternal antibodies who are not HIV-infected

⁴Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.31 Number and proportion¹ of HIV tests by age group and exposure category, Ontario, 1992 to 2002

Age group	MSM		MSM-IDU		IDU		Clotting factor		Transfusion		HIV-endemic		HR hetero		LR hetero		Perinatal ²		Other ³		Unk.	Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.
<1	30	0.03	1	0.02	30	0.05	60	0.16	29	0.05	43	0.42	26	0.04	265	0.04	393	39.9	91	0.15	8,547	9,515
1-4	276	0.31	5	0.11	356	0.55	3,230	8.7	3,723	6.3	215	2.1	679	0.93	3,536	0.49	593	60.1	629	1.0	27,724	40,966
5-19	3,747	4.1	231	5.1	4,109	6.3	1,471	4.0	2,258	3.8	643	6.3	10,731	14.8	87,795	12.1	0	0.0	981	1.6	125,800	237,766
20-24	11,785	13.0	610	13.5	8,194	12.6	1,551	4.2	2,644	4.5	1,663	16.4	15,084	20.7	182,270	25.1	0	0.0	4,055	6.5	269,706	497,562
25-29	16,451	18.2	936	20.7	10,762	16.6	2,080	5.6	3,220	5.5	2,072	20.4	12,802	17.6	143,222	19.7	0	0.0	7,332	11.8	304,667	503,544
30-34	18,262	20.2	989	21.9	13,581	20.9	3,244	8.7	4,918	8.3	1,720	16.9	11,160	15.3	110,765	15.3	0	0.0	8,561	13.8	303,685	476,885
35-39	14,469	16	807	17.8	12,743	19.6	4,080	11.0	6,618	11.2	1,332	13.1	8,986	12.4	79,899	11.0	0	0.0	8,782	14.1	235,434	373,150
40-44	9,501	10.5	501	11.1	8,667	13.4	4,293	11.6	6,323	10.7	883	8.7	6,100	8.4	51,170	7.1	0	0.0	8,673	14.0	153,548	249,659
45-49	6,659	7.4	267	5.9	4,260	6.6	3,420	9.2	5,639	9.6	620	6.1	3,576	4.9	31,666	4.4	0	0.0	7,833	12.6	101,693	165,633
50-54	4,324	4.8	118	2.6	1,383	2.1	2,651	7.1	4,574	7.8	409	4.0	1,885	2.6	17,094	2.4	0	0.0	6,006	9.7	65,762	104,206
55-59	2,417	2.7	40	0.88	426	0.66	2,527	6.8	4,127	7.0	216	2.1	788	1.1	8,700	1.2	0	0.0	3,451	5.6	42,608	65,300
60+	2,478	2.7	18	0.40	381	0.59	8,556	23.0	14,862	25.2	340	3.3	910	1.3	9,412	1.3	0	0.0	5,681	9.2	88,680	131,318
Unk	3,135		104		1,836		1,661		1,765		444		1,874		15,951		64		4,560		89,122	120,516
Total	93,534	100.0	4,627	100.0	66,728	100	38,824	100.0	60,700	100.0	10,600	100.0	74,601	100.0	741,745	100.0	1,050	100.0	66,635	100.0	1,816,976	2,976,020

¹ Column percent of cases with known age

² Includes infants with maternal antibodies who are not HIV-infected

³ Includes needlestick, acupuncture, tattoo, etc. (source of HIV infection not validated in this database)

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.32 Number and proportion¹ of HIV tests by year of test and health region, Ontario, 1992 to 2002

Year	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Unknown ²	Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.
1992	10,410	5.5	23,922	12.6	10,721	5.7	75,462	39.9	26,654	14.1	23,019	12.2	19,093	10.1	28,839	218,120
1993	13,174	5.8	27,306	12.1	14,553	6.4	83,621	36.9	33,225	14.7	29,393	13.0	25,138	11.1	35,413	261,823
1994	12,336	5.7	27,661	12.7	14,054	6.5	82,729	38.1	32,425	14.9	28,034	12.9	19,803	9.1	33,321	250,363
1995	12,544	5.9	27,763	13.2	16,953	8.0	76,258	36.1	29,160	13.8	26,000	12.3	22,290	10.6	42,103	253,071
1996	13,491	6.0	27,208	12.0	17,656	7.8	84,117	37.2	33,987	15.0	26,473	11.7	23,352	10.3	53,408	279,692
1997	14,247	6.2	27,298	11.9	15,748	6.9	85,641	37.3	34,268	14.9	27,143	11.8	25,466	11.1	39,027	268,838
1998	17,589	6.2	29,293	10.3	20,270	7.2	107,743	38.1	45,838	16.2	32,138	11.4	30,258	10.7	4,021	287,150
1999	15,711	5.7	30,510	11.0	19,346	7.0	105,182	38.1	45,399	16.4	32,376	11.7	27,842	10.1	2,118	278,484
2000	14,005	5.4	28,724	11.0	17,773	6.8	99,360	38.2	44,109	17.0	30,809	11.8	25,356	9.7	2,113	262,249
2001	14,805	5.3	30,523	11.0	17,581	6.3	106,684	38.5	48,192	17.4	33,743	12.2	25,890	9.3	2,070	279,488
2002	14,653	4.4	33,867	10.1	18,572	5.6	143,001	42.8	57,427	17.2	38,940	11.6	27,938	8.4	2,344	336,742
Total	152,965	5.6	314,075	11.5	183,227	6.7	1,049,798	38.4	430,684	15.8	328,068	12.0	272,426	10.0	244,777	2,976,020

¹ Row percent of cases with known region of residence

² Includes out of province

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.33 Number of HIV tests and rate (per 1,000) by year of test and health region, Ontario, 1992 to 2002

Year	Northern		Ottawa		Eastern, Other		Toronto		Central East, Other		Central West		Southwest		Total ¹	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1992	10,410	11.5	23,922	33.6	10,721	14.0	75,462	32.0	26,654	11.3	23,019	11.3	19,093	13.2	189,281	17.9
1993	13,174	14.5	27,306	37.7	14,553	18.8	83,621	35.4	33,225	13.8	29,393	14.3	25,138	17.3	226,410	21.2
1994	12,336	13.6	27,661	37.8	14,054	18.0	82,729	34.5	32,425	13.1	28,034	13.5	19,803	13.5	217,042	20.0
1995	12,544	13.8	27,763	37.7	16,953	21.6	76,258	31.4	29,160	11.5	26,000	12.4	22,290	15.1	210,968	19.2
1996	13,491	14.9	27,208	36.6	17,656	22.3	84,117	34.2	33,987	13.1	26,473	12.5	23,352	15.7	226,284	20.4
1997	14,247	15.8	27,298	36.4	15,748	19.9	85,641	34.4	34,268	12.8	27,143	12.7	25,466	17.0	229,811	20.4
1998	17,589	19.6	29,293	38.7	20,270	25.5	107,743	42.9	45,838	16.6	32,138	14.8	30,258	20.1	283,129	24.9
1999	15,711	17.6	30,510	39.7	19,346	24.3	105,182	41.7	45,399	16.0	32,376	14.8	27,842	18.4	276,366	24.0
2000	14,005	15.8	28,724	36.9	17,773	22.2	99,360	39.1	44,109	15.1	30,809	13.9	25,356	16.7	260,136	22.3
2001	14,805	11.3	30,523	39.0	17,581	21.8	106,684	41.4	48,192	16.1	33,743	15.0	25,890	17.0	277,418	22.7
2002	14,653	16.2	33,867	42.8	18,572	22.9	143,001	55.0	57,427	18.7	38,940	17.1	27,938	18.2	334,398	27.9
Total	152,965	15.5	314,075	37.9	183,227	21.1	1,049,798	38.5	430,684	14.5	328,068	13.9	272,426	16.6	2,731,243	22.1

¹ Cases with known region of residence only

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care; Statistics Canada (population estimates)

Table 1.34 Number and proportion¹ of HIV tests by year of test and type of identifier, Ontario, 1992 to 2002

Year	Nominal		Coded		Anonymous		Unknown		Total
	Number	%	Number	%	Number	%	Number	%	Number
1992	154,217	70.7	42,671	19.6	9,683	4.4	11,549	5.3	218,120
1993	199,192	76.1	52,235	20.0	10,379	4.0	17	0.01	261,823
1994	192,838	77.0	48,598	19.4	8,909	3.6	18	0.01	250,363
1995	190,567	75.3	51,105	20.2	11,305	4.5	94	0.04	253,071
1996	213,272	76.3	53,390	19.1	12,854	4.6	176	0.06	279,692
1997	208,865	77.7	48,058	17.9	11,459	4.3	456	0.17	268,838
1998	230,326	80.2	45,136	15.7	11,457	4.0	231	0.08	287,150
1999	228,452	82.0	40,002	14.4	9,942	3.6	88	0.03	278,484
2000	217,417	82.9	35,074	13.4	9,676	3.7	82	0.03	262,249
2001	236,260	84.5	33,391	11.9	9,664	3.5	173	0.06	279,488
2002	295,453	87.7	31,286	9.3	9,830	2.9	173	0.05	336,742
Total²	2,366,859	79.5	480,946	16.2	115,158	3.9	13,057	0.44	2,976,020

1 Row percent

2 Includes unknown sex, of whom 54,397 tested nominally, 44,052 coded, 1,867 anonymously and 3,404 unknown

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

Table 1.35 Number and proportion¹ of HIV tests by sex, year of test and type of identifier, Ontario, 1992 to 2002

Year	Nominal		Coded		Anonymous		Unknown		Total
	Number	%	Number	%	Number	%	Number	%	Number
Males									
1992	71,073	70.6	19,718	19.6	5,731	5.7	4,132	4.1	100,654
1993	89,946	75.6	23,140	19.4	5,945	5.0	5	0.00	119,036
1994	84,842	76.1	21,587	19.4	5,082	4.6	7	0.01	111,518
1995	84,692	74.5	22,544	19.8	6,412	5.6	18	0.02	113,666
1996	90,902	75.5	22,507	18.7	7,001	5.8	54	0.04	120,464
1997	86,198	76.5	20,048	17.8	6,334	5.6	126	0.11	112,706
1998	88,103	78.3	18,030	16.0	6,262	5.6	73	0.06	112,468
1999	88,429	80.3	15,957	14.5	5,674	5.2	33	0.03	110,093
2000	90,446	82.0	14,245	12.9	5,615	5.1	11	0.01	110,317
2001	97,521	83.2	14,100	12.0	5,600	4.8	47	0.04	117,268
2002	124,598	86.4	13,627	9.4	5,928	4.1	64	0.04	144,217
Total	996,750	78.3	205,503	16.2	65,584	5.2	4,570	0.36	1,272,407
Females									
1992	77,564	74.0	18,909	18.0	3,910	3.7	4,485	4.3	104,868
1993	104,289	78.8	23,672	17.9	4,404	3.3	5	0.00	132,370
1994	101,996	79.8	22,061	17.3	3,819	3.0	2	0.00	127,878
1995	101,970	78.1	23,853	18.3	4,747	3.6	31	0.02	130,601
1996	117,040	78.6	26,148	17.6	5,633	3.8	70	0.05	148,891
1997	117,693	80.8	23,002	15.8	4,863	3.3	150	0.10	145,708
1998	135,568	83.5	21,839	13.5	4,747	2.9	108	0.07	162,262
1999	131,926	85.2	18,970	12.3	3,875	2.5	46	0.03	154,817
2000	120,272	85.8	16,145	11.5	3,755	2.7	17	0.01	140,189
2001	131,299	87.4	15,094	10.1	3,698	2.5	56	0.04	150,147
2002	164,453	90.2	14,155	7.8	3,606	2.0	82	0.04	182,296
Total	1,304,070	82.5	223,848	14.2	47,057	3.0	5,052	0.32	1,580,027

¹ Row percent

Source of data: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

**Table 2.1 Number of AIDS cases by year of diagnosis and sex
Ontario, 1981 to 2002**

Year of diagnosis	Males		Females	Total	Total (adjusted ²)
	Number	Number	% female ¹	Number	Number
1981	1	1	50.0	2	2
1982	7	0	0.0	7	7
1983	18	0	0.0	18	18
1984	59	0	0.0	59	59
1985	164	3	1.8	167	167
1986	278	6	2.1	284	284
1987	428	18	4.0	446	446
1988	457	20	4.2	477	477
1989	522	24	4.4	546	546
1990	612	32	5.0	644	657
1991	554	39	6.6	593	608
1992	673	38	5.3	711	732
1993	678	41	5.7	719	744
1994	575	44	7.1	619	647
1995	559	46	7.6	605	640
1996	359	45	11.1	404	433
1997	227	29	11.3	256	280
1998	168	40	19.2	208	232
1999	148	26	14.9	174	200
2000	114	17	13.0	131	161
2001	123	27	18.0	150	211
2002	86	23	21.1	109	269
Total	6,810	519	7.1	7,329	7,820

¹ Row percent

² Number of AIDS cases adjusted for reporting delays

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.2 Number and proportion¹ of AIDS cases by exposure category and sex, Ontario, 1981 to 2002

Exposure category	Males		Females		Total	
	No.	%	No.	%	No.	%
MSM	5,183	76.1	0	0.0	5,183	70.7
MSM-HDU	294	4.3	0	0.0	294	4.0
IDU	244	3.6	73	14.1	317	4.3
HIV-endemic	236	3.5	140	27.0	376	5.1
Heterosexual	392	5.8	194	37.4	586	8.0
Clotting factor	101	1.5	10	1.9	111	1.5
Transfusion	93	1.4	49	9.4	142	1.9
Perinatal	23	0.34	29	5.6	52	0.71
Occupational	7	0.10	1	0.19	8	0.11
NIR	237	3.5	23	4.4	260	3.5
Total	6,810	100.0	519	100.0	7,329	100.0

1 Column percent

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.3 Number and proportion¹ of AIDS cases by year of AIDS diagnosis and exposure category, Ontario, 1981 to 2002

Year of AIDS diagnosis	MSM		MSM-IDU		IDU		HIV-endemic		Hetero		Clot factor		Transfusion		Perinatal		Occupational		NIR		Total		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.		
1981	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2
1982	7	1.0	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	0.0	0	0.0	7
1983	13	72.2	2	11.1	0	0.0	1	5.6	0	0.0	1	5.6	0	0.0	0	0.0	0	0.0	1	5.6	1	5.6	18
1984	48	81.4	4	6.8	0	0.0	1	1.7	3	5.1	0	0.0	0	0.0	0	0.0	0	0.0	3	5.1	3	5.1	59
1985	142	85.0	5	3.0	1	0.60	4	2.4	3	1.8	3	1.8	5	3.0	0	0.0	0	0.0	4	2.4	4	2.4	167
1986	237	83.5	9	3.2	3	1.1	7	2.5	3	1.1	4	1.4	12	4.2	0	0.0	0	0.0	9	3.2	9	3.2	284
1987	359	80.5	20	4.5	10	2.2	7	1.6	13	2.9	7	1.6	21	4.7	1	0.22	0	0.0	8	1.8	8	1.8	446
1988	382	80.1	19	4.0	7	1.5	6	1.3	21	4.4	6	1.3	22	4.6	4	0.84	1	0.21	9	1.9	9	1.9	477
1989	424	77.7	21	3.8	20	3.7	12	2.2	33	6.0	5	0.92	14	2.6	2	0.37	1	0.18	14	2.6	14	2.6	546
1990	492	76.4	21	3.3	16	2.5	17	2.6	51	7.9	14	2.2	9	1.4	2	0.31	0	0.0	22	3.4	22	3.4	644
1991	445	75.0	20	3.4	21	3.5	19	3.2	37	6.2	14	2.4	8	1.3	4	0.67	0	0.0	25	4.2	25	4.2	593
1992	509	71.6	30	4.2	34	4.8	27	3.8	55	7.7	16	2.3	13	1.8	5	0.70	0	0.0	22	3.1	22	3.1	711
1993	517	71.9	33	4.6	29	4.0	23	3.2	63	8.8	11	1.5	7	0.97	5	0.70	1	0.14	30	4.2	30	4.2	719
1994	450	72.7	33	5.3	24	3.9	22	3.6	49	7.9	7	1.1	5	0.81	6	0.97	0	0.0	23	3.7	23	3.7	619
1995	405	66.9	31	5.1	32	5.3	26	4.3	64	10.6	11	1.8	9	1.5	7	1.2	0	0.0	20	3.3	20	3.3	605
1996	241	59.7	19	4.7	31	7.7	46	11.4	42	10.4	3	0.74	4	1.0	3	0.74	1	0.25	14	3.5	14	3.5	404
1997	149	58.2	7	2.7	18	7.0	28	10.9	30	11.7	5	2.0	5	2.0	3	1.2	1	0.39	10	3.9	10	3.9	256
1998	110	52.9	7	3.4	19	9.1	31	14.9	28	13.5	1	0.48	1	0.48	3	1.4	0	0.0	8	3.8	8	3.8	208
1999	89	51.1	3	1.7	16	9.2	27	15.5	21	12.1	1	0.57	3	1.72	1	0.57	0	0.0	13	7.5	13	7.5	174
2000	61	46.6	4	3.1	15	11.5	19	14.5	22	16.8	1	0.76	2	1.5	3	2.3	0	0.0	4	3.1	4	3.1	131
2001	61	40.7	3	2.0	11	7.3	30	20.0	29	19.3	1	0.67	2	1.3	1	0.67	2	1.3	10	6.7	10	6.7	150
2002	41	37.6	3	2.8	10	9.2	22	20.2	19	17.4	0	0.0	0	0.0	2	1.8	1	0.92	11	0.10	11	0.10	109
total	5,183	70.7	294	4.0	317	4.3	376	5.1	586	8.0	111	1.5	142	1.9	52	0.71	8	0.11	260	3.5	260	3.5	7,329

Row percent

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.3a Number and proportion¹ of AIDS cases among males by year of AIDS diagnosis and exposure category
Ontario, 1981 to 2002

Year of AIDS diagnosis	MSM		MSM-IDU		IDU		HIV-endemic		Hetero		Clot factor		Transfusion		Perinatal		Occupational		NIR		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	
1981	1	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	0.0	0	1
1982	7	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	0.0	0	7
1983	13	72.2	2	11.1	0	0.0	1	5.6	0	0.0	1	5.6	0	0.0	0	0.0	0	0.0	1	5.6	1	18
1984	48	81.4	4	6.8	0	0.0	1	1.7	3	5.1	0	0.0	0	0.0	0	0.0	0	0.0	3	5.1	1	59
1985	142	86.6	5	3.0	1	0.61	3	1.8	2	1.2	3	1.8	4	2.4	0	0.0	0	0.0	4	2.4	1	164
1986	237	85.3	9	3.2	2	0.72	6	2.2	2	0.72	3	1.1	11	4.0	0	0.0	0	0.0	8	2.9	1	278
1987	359	83.9	20	4.7	9	2.1	4	0.93	9	2.1	6	1.4	13	3.0	0	0.0	0	0.0	8	1.9	1	428
1988	382	83.6	19	4.2	4	0.88	5	1.1	15	3.3	6	1.3	15	3.3	3	0.66	0	0.0	8	1.8	1	457
1989	424	81.2	21	4.0	18	3.4	8	1.5	23	4.4	4	0.80	8	1.5	1	0.19	1	0.19	14	2.7	1	522
1990	492	80.4	21	3.4	13	2.1	11	1.8	35	5.7	14	2.3	4	0.65	0	0.0	0	0.0	22	3.6	1	612
1991	445	80.3	20	3.6	16	2.9	12	2.2	20	3.6	12	2.2	4	0.72	2	0.36	0	0.0	23	4.2	1	554
1992	509	75.6	30	4.5	26	3.9	18	2.7	40	5.9	15	2.2	11	1.6	3	0.45	0	0.0	21	3.1	1	673
1993	517	76.3	33	4.9	24	3.5	15	2.2	43	6.3	11	1.6	4	0.59	2	0.29	1	0.15	28	4.1	1	678
1994	450	78.3	33	5.7	20	3.5	13	2.3	29	5.0	5	0.87	4	0.70	2	0.35	0	0.0	19	3.3	1	575
1995	405	72.5	31	5.5	25	4.5	18	3.2	43	7.7	11	2.0	4	0.72	3	0.54	0	0.0	19	3.4	1	559
1996	241	67.1	19	5.3	22	6.1	28	7.8	27	7.5	3	0.84	3	0.84	3	0.84	1	0.28	12	3.3	1	359
1997	149	65.6	7	3.1	14	6.2	17	7.5	20	8.8	3	1.3	3	1.3	3	1.3	1	0.44	10	4.4	1	227
1998	110	65.5	7	4.2	8	4.8	19	11.3	16	9.5	1	0.60	1	0.60	0	0.0	0	0.0	6	3.6	1	168
1999	89	60.1	3	2.0	12	8.1	14	9.5	16	10.8	1	0.68	1	0.68	0	0.0	0	0.0	12	8.1	1	148
2000	61	53.5	4	3.5	13	11.4	14	12.3	14	12.3	1	0.88	2	1.8	1	0.9	0	0.0	4	3.5	1	114
2001	61	49.6	3	2.4	11	8.9	15	12.2	21	17.1	1	0.81	1	0.81	0	0.0	2	1.6	8	6.5	1	123
2002	41	47.7	3	3.5	6	7.0	14	16.3	14	16.3	0	0.0	0	0.0	0	0.0	1	1.2	7	8.1	1	86
Total	5,183	76.1	294	4.3	244	3.6	236	3.5	392	5.8	101	1.5	93	1.4	23	0.34	7	0.10	237	3.5	6,810	

Row percent

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

**Table 2.3b Number and proportion¹ of AIDS cases among females by year of AIDS diagnosis and exposure category
Ontario, 1981 to 2002**

Year of AIDS diagnosis	IDU		HIV- endemic		Heterosexual		Clotting Factor		Transfusion		Perinatal		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	0.0	0	0.0
1982	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	0
1983	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	0
1984	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	0
1985	0	0.0	1	33.3	1	33.3	0	0.0	1	33.3	0	0.0	0	0.0	0	0.0	0	0.0	3
1986	1	16.7	1	16.7	1	16.7	1	16.7	1	16.7	0	0.0	0	0.0	1	16.7	1	16.7	6
1987	1	5.6	3	16.7	4	22.2	1	5.6	8	44.4	1	5.6	0	0.0	0	0.0	0	0.0	18
1988	3	15.0	1	5.0	6	30.0	0	0.0	7	35.0	1	5.0	1	5.0	1	5.0	1	5.0	20
1989	2	8.3	4	16.7	10	41.7	1	4.2	6	25.0	1	4.2	0	0.0	0	0.0	0	0.0	24
1990	3	9.4	6	18.8	16	50.0	0	0.0	5	15.6	2	6.3	0	0.0	0	0.0	0	0.0	32
1991	5	12.8	7	17.9	17	43.6	2	5.1	4	10.3	2	5.1	0	0.0	2	5.1	2	5.1	39
1992	8	21.1	9	23.7	15	39.5	1	2.6	2	5.3	2	5.3	0	0.0	1	2.6	1	2.6	38
1993	5	12.2	8	19.5	20	48.8	0	0.0	3	7.3	3	7.3	0	0.0	2	4.9	2	4.9	41
1994	4	9.1	9	20.5	20	45.5	2	4.6	1	2.3	4	9.1	0	0.0	4	9.1	4	9.1	44
1995	7	15.2	8	17.4	21	45.7	0	0.0	5	10.8	4	8.7	0	0.0	1	2.2	1	2.2	46
1996	9	20.0	18	40.0	15	33.3	0	0.0	1	2.2	0	0.0	0	0.0	2	4.4	2	4.4	45
1997	4	13.8	11	37.9	10	34.5	2	6.9	2	6.9	0	0.0	0	0.0	0	0.0	0	0.0	29
1998	11	27.5	12	30.0	12	30.0	0	0.0	0	0.0	3	7.5	0	0.0	2	5.0	2	5.0	40
1999	4	15.4	13	50.0	5	19.2	0	0.0	2	7.7	1	3.8	0	0.0	1	3.8	1	3.8	26
2000	2	11.8	5	29.4	8	47.1	0	0.0	0	0.0	2	11.8	0	0.0	0	0.0	0	0.0	17
2001	0	0.0	15	55.6	8	29.6	0	0.0	1	3.7	1	3.7	0	0.0	2	7.4	2	7.4	27
2002	4	17.4	8	34.8	5	21.7	0	0.0	0	0.0	2	8.7	0	0.0	4	17.4	4	17.4	23
Total	73	14.1	140	27.0	194	37.4	10	1.9	49	9.4	29	5.6	1	0.20	23	4.4	23	4.4	519

¹ Row percent

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.4 Number of AIDS cases and cumulative incidence rate (per 100,000) by age at AIDS diagnosis and sex, Ontario, 1981 to 2002

Age group (years)	Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate
<15	38	1.7	35	1.6	73	3.2
15-19	16	4.3	5	1.4	21	2.9
20-24	202	53.4	26	7.0	228	30.5
25-29	871	211.4	98	23.7	969	117.3
30-34	1,470	293.6	134	27.1	1,604	161.2
35-39	1,489	307.1	72	14.7	1,561	160.4
40-44	1,133	266.2	63	14.3	1,196	138.2
45-49	751	191.7	20	5.0	771	97.6
50-54	390	129.2	16	5.2	406	66.7
55-59	230	93.1	19	7.5	249	49.7
60+	218	27.3	31	3.1	249	13.7
Unknown	2		0		2	
Total	6,810	124.5	519	9.2	7,329	66.0

Sources of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003); Statistics Canada (1996 census)

Table 2.5 Number of AIDS cases and incidence rate (per 100,000) by age at AIDS diagnosis and sex, Ontario, 2002

Age group (years)	Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate
<15	0	0.0	2	0.1	2	0.1
15-19	0	0.0	0	0.0	0	0.0
20-24	2	0.5	0	0.0	2	0.3
25-29	4	1.0	1	0.2	5	0.6
30-34	14	2.8	11	2.2	25	2.5
35-39	21	4.3	3	0.6	24	2.5
40-44	20	4.7	2	0.5	22	2.5
45-49	7	1.8	2	0.5	9	1.1
50-54	9	3.0	1	0.3	10	1.6
55-59	7	2.8	0	0.0	7	1.4
60+	2	0.3	1	0.1	3	0.2
Total	86	1.6	23	0.4	109	1.0

Sources of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003); Statistics Canada (1996 census)

Table 2.6 Number and proportion¹ of AIDS cases by age at AIDS diagnosis and exposure category, Ontario 1981 to 2002

Age group (years)	MSM		MSM-IDU		IDU		HIV-endemic		Hetero		Clotting factor		Transfusion		Perinatal		Occupational		NIR		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
15	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	5.4	10	7.0	52	100.0	0	0.0	5	1.9	73	1.0
5-19	2	0.00	1	0.30	3	0.90	2	0.50	2	0.30	7	6.3	4	2.8	0	0.0	0	0.0	0	0.0	21	0.29
20-24	130	2.5	15	5.1	19	6.0	11	2.9	23	3.9	16	14.4	6	4.2	0	0.0	0	0.0	8	3.1	228	3.1
5-29	639	12.3	67	22.8	54	17.0	66	17.6	81	13.8	15	13.5	11	7.7	0	0.0	0	0.0	36	13.8	969	13.2
30-34	1,145	22.1	89	30.3	89	28.1	99	26.3	115	19.6	11	9.9	15	10.6	0	0.0	0	0.0	41	15.8	1,604	21.9
5-39	1,192	23.0	51	17.3	73	23.0	82	21.8	93	15.9	13	11.7	11	7.7	0	0.0	2	25.0	44	16.9	1,561	21.3
40-44	906	17.5	38	12.9	44	13.9	52	13.8	96	16.4	9	8.1	13	9.2	0	0.0	1	12.5	37	14.2	1,196	16.3
5-49	595	11.5	19	6.5	21	6.6	27	7.2	62	10.6	12	10.8	8	5.6	0	0.0	1	12.5	26	10.0	771	10.5
50-54	286	5.5	9	3.1	9	2.8	17	4.5	40	6.8	6	5.4	9	6.3	0	0.0	2	25.0	28	10.8	406	5.5
5-59	161	3.1	3	1.0	3	0.95	8	2.1	39	6.7	6	5.4	16	11.3	0	0.0	1	12.5	12	4.6	249	3.4
60+	125	2.4	2	0.68	2	0.63	12	3.2	35	6.0	10	9.0	39	27.5	0	0.0	1	12.5	23	8.8	249	3.4
Unknown	2	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	0.00
Total	5,183	100.0	294	100.0	317	100.0	376	100.0	586	100.0	111	100.0	142	100.0	52	100.0	8	100.0	260	100.0	7,329	100.0

Column percent of cases with known age

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.7 Mean age (years) at AIDS diagnosis by year of diagnosis and exposure category, among males, Ontario, 1981 to 2002

Year	MSM		MSM-IDU		IDU		HIV-endemic		Hetero		Clotting factor		Trans.		Occup.		Perinatal		NIR		TOTAL	
	Mea n	n	Mea n	n	Mea n	n	Mean	n	Mea n	n	Mea n	n	Mea n	n	Mea n	n	Mea n	n	Mea n	n	n	
1981	42.3	1		0		0		0		0		0		0		0		0		0.0	0	1
1982	34.3	7		0		0		0		0		0		0		0		0		0.0	0	7
1983	37.6	13	38.0	2		0	52.9	1		0	24.2	1		0		0		0	28.8	1	18	
1984	39.5	48	30.7	4		0	34.2	1	34.8	3	0.0	0		0		0		0	39.8	3	59	
1985	37.3	142	31.0	5	30.0	1	36.4	3	56.0	2	49.1	3	51.7	4		0		0	38.6	4	164	
1986	37.6	237	30.5	9	33.5	2	35.2	6	41.8	2	18.0	3	41.5	11		0		0	35.1	8	278	
1987	38.3	359	35.6	20	36.3	9	39.5	4	39.3	9	34.0	6	61.2	13		0		0	46.3	8	428	
1988	37.4	382	32.8	19	36.1	4	37.3	5	40.6	15	36.2	6	43.8	15		0	1.6	3	37.2	8	457	
1989	37.4	424	34.6	21	29.7	18	38.5	8	41.2	23	25.1	4	44.7	8	41.5	1	3.7	1	33.8	14	522	
1990	38.6	492	34.4	21	30.4	13	33.7	11	38.9	35	38.1	14	38.1	4		0	0.4	2	43.2	22	614	
1991	39.0	445	33.0	20	33.3	16	37.3	12	41.5	20	43.4	12	42.1	4		0	0.7	3	39.6	23	555	
1992	38.2	509	35.7	30	35.5	26	36.6	18	40.4	40	35.8	15	40.2	11		0	0.7	2	44.6	21	672	
1993	39.4	517	34.5	33	34.4	24	39.0	15	43.2	43	36.9	11	35.0	4	51.4	1	3.8	2	40.0	28	678	
1994	39.5	450	35.2	33	34.8	20	37.3	13	37.6	29	33.1	5	44.3	4		0	0.7	3	43.5	19	576	
1995	39.6	405	36.8	31	36.4	25	42.1	18	45.3	43	34.3	11	48.8	4		0	4.2	3	39.9	19	559	
1996	40.1	241	36.8	19	35.9	22	35.9	28	41.3	27	31.4	3	51.0	3	37.5	1	0.8	3	44.4	12	359	
1997	41.5	149	31.9	7	40.1	14	38.9	17	43.5	20	33.0	3	53.5	3	59.4	1	2.2	1	45.6	10	225	
1998	40.9	110	35.1	7	38.7	8	37.4	19	41.2	16	43.9	1	32.5	1		0		0	50.4	6	168	
1999	41.2	89	47.4	3	36.2	12	42.4	14	48.4	16	18.8	1	63.1	1		0		0	44.6	12	148	
2000	41.2	61	42.2	4	41.5	13	43.0	14	43.7	14	73.7	1	47.9	2		0		0	39.9	4	113	
2001	43.4	61	40.6	3	45.0	11	37.1	15	44.8	21	23.1	1	33.3	1	42.2	2		0	43.6	8	123	
2002	42.1	41	34.1	3	42.3	6	39.7	14	43.7	14	0.0	0	0.0	0	50.7	1		0	43.2	7	86	
Total	38.9	5,183	35.0	294	35.9	244	38.3	236	42.1	392	36.0	101	46.1	93	46.4	7	1.7	23	41.6	237	6,810	

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term care (cases reported to May 2003)

Table 2.8 Mean age (years) at AIDS diagnosis by year of diagnosis and exposure category, among females, Ontario, 1981 to 2002

Year	IDU		HIV-endemic		Hetero		Clotting factor		Trans.		Occup.		Perinatal		NIR		TOTAL
	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	n
1981	0.0	0	52.2	1	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		0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0
1983	0.0	0	0.0	0	0.0		0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0
1984	0.0	0	0.0	0	0.0		0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0
1985	0.0	0	36.7	1	30.1	1	0.0	0	53.0	1	0.0	0	0.0	0	0.0	0	3
1986	20.4	1	29.2	1	50.4	1	56.1	1	12.1	1	0.0	0	0.0	0	28.2	1	6
1987	32.3	1	35.1	3	28.3	4	24.4	1	54.5	8	0.0	0	0.2	1	0.0	0	18
1988	30.4	3	26.5	1	27.4	6	0.0	0	49.7	7	68.0	1	0.3	1	63.7	1	20
1989	32.8	2	34.2	4	37.8	10	30.4	1	46.5	6	0.0	0	0.6	1	0.0	0	24
1990	33.7	3	34.1	6	36.0	16	0.0	0	41.1	5	0.0	0	2.3	2	0.0	0	34
1991	32.3	5	40.2	7	40.0	17	61.3	2	37.2	4	0.0	0	1.1	2	25.7	2	38
1992	31.1	8	32.5	9	35.6	15	75.7	1	33.8	2	0.0	0	0.4	2	28.9	1	37
1993	31.0	5	35.0	8	34.0	20	0.0	0	43.3	3	0.0	0	0.6	3	45.7	2	41
1994	29.9	4	40.0	9	37.3	20	32.8	2	51.7	1	0.0	0	3.6	4	29.8	4	44
1995	35.5	7	31.4	8	37.4	21	0.0	0	36.9	5	0.0	0	2.5	4	0.4	1	46
1996	35.2	9	32.9	18	37.4	15	0.0	0	42.1	1	0.0	0	0.0	0	21.1	2	45
1997	29.6	4	32.9	11	36.1	10	36.8	2	61.2	2	0.0	0	0.0	0	38.3	2	31
1998	33.6	11	40.3	12	40.9	12	0.0	0	0.0	0	0.0	0	1.4	3	29.7	1	39
1999	37.0	4	43.5	13	40.3	5	0.0	0	38.7	2	0.0	0	0.3	1	0.0	0	25
2000	34.1	2	36.0	5	34.0	8	0.0	0	0.0	0	0.0	0	0.3	2	56.0	2	19
2001	0.0	0	35.7	15	38.2	8	0.0	0	56.4	1	0.0	0	0.4	1	35.4	4	29
2002	37.7	4	33.7	8	45.1	5	0.0	0	0.0	0	0.0	0	3.3	2	0.0		19
Total	33.1	73	36.0	140	37.0	194	44.9	10	45.2	49	68.0	1	1.6	29	34.1	23	519

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.9 Number and proportion¹ of AIDS cases by exposure category and health region, Ontario, 1981 to 2002

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	104	54.5	376	60.9	95	47.5	3,501	78.4	331	50.8	398	63.6	378	65.1	5,183	70.7
MSM-IDU	14	7.3	24	3.9	11	5.5	176	3.9	18	2.8	22	3.5	29	5.0	294	4.0
IDU	22	11.5	56	9.1	34	17.0	114	2.6	31	4.8	34	5.4	26	4.5	317	4.3
HIV-endemic	8	4.2	73	11.8	3	1.5	237	5.3	25	3.8	21	3.4	9	1.5	376	5.1
Heterosexual	18	9.4	35	5.7	14	7.0	257	5.8	121	18.6	76	12.1	65	11.2	586	8.0
Clotting factor	12	6.3	6	1.0	9	4.5	26	0.58	25	3.8	17	2.7	16	2.8	111	1.5
Transfusion	7	3.7	11	1.8	11	5.5	49	1.1	36	5.5	18	2.9	10	1.7	142	1.9
Perinatal	1	0.52	11	1.8	1	0.50	27	0.60	7	1.1	3	0.50	2	0.34	52	0.71
Occupational	0	0.0	3	0.49	0	0.0	4	0.09	1	0.20	0	0.0	0	0.0	8	0.11
NIR	5	2.6	22	3.6	22	11.0	72	1.6	56	8.6	37	5.9	46	7.9	260	3.5
Total	191	100.0	617	100.0	200	100.0	4,463	100.0	651	100.0	626	100.0	581	100.0	7,329	100.0

¹ Column percent

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.10 Number and proportion¹ of AIDS cases by exposure category and health region, Ontario, 2002

Exposure category	Northern		Ottawa		Eastern, other		Toronto		Central East, other		Central West		Southwest		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
MSM	1	25.0	5	31.2	0	0.0	25	41.0	3	25.0	4	44.4	3	60.0	41	37.6
MSM-IDU	0	0.0	0	0.0	0	0.0	2	3.3	0	0.0	1	11.1	0	0.0	3	2.8
IDU	1	25.0	4	25.0	0	0.0	3	4.9	0	0.0	1	11.1	1	20.0	10	9.2
HIV-endemic	0	0.0	2	12.5	0	0.0	18	29.5	2	16.7	0	0.0	0	0.0	22	20.2
Heterosexual	1	25.0	3	18.8	1	50.0	6	9.8	4	33.3	3	33.3	1	20.0	19	17.4
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
Perinatal	0	0.0	1	6.2	0	0.0	1	1.6	0	0.0	0	0.0	0	0.0	2	1.8
Occupational	0	0.0	1	6.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.90
NIR	1	25.0	0	0.0	1	50.0	6	9.8	3	25.0	0	0.0	0	0.0	11	10.1
Total	4	100.0	16	100.0	2	100.0	61	100.0	12	100.0	9	100.0	5	100.0	109	100.0

¹ Column percent

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.11 Single and multiple sources of exposure among Ontario AIDS cases, 1981 to 2002

	Number	% ¹
MSM	4,097	58.0
MSM/IDU	194	2.7
MSM/IDU/bisexual	92	1.3
MSM/IDU/others	21	0.30
MSM/clotting factor	7	0.10
MSM/clotting factor/other	8	0.11
MSM/HIV-endemic	123	1.7
MSM/HIV-endemic/bisexual	64	0.91
MSM/bisexual	647	9.2
MSM/bisexual/transfusion	22	0.31
MSM/bisexual/transfusion/occupational	1	0.01
MSM/bisexual/occupational	5	0.07
MSM/bisexual/others	20	0.28
MSM/transfusion	92	1.3
MSM/occupational	55	0.78
MSM and others	55	0.78
SUB-TOTAL	5,503	77.8
IDU	104	1.5
IDU/HIV-endemic/heterosexual other	11	0.16
IDU/heterosexual other	190	2.7
IDU and others	5	0.07
SUB-TOTAL	310	4.4
Clotting factor	74	1.0
Clotting factor/heterosexual other	23	0.33
Clotting factor/heterosexual other/transfusion	8	0.11
Clotting factor/heterosexual other/transfusion/occupational	1	0.01
Clotting factor/transfusion	8	0.11
SUB-TOTAL	114	1.6
HIV-endemic	67	0.95
HIV-endemic/heterosexual other	290	4.1
HIV-endemic and others	19	0.27
SUB-TOTAL	376	5.3
Heterosexual	532	7.5
Heterosexual other/transfusion	68	1.0
Heterosexual other/transfusion/occupational	4	0.06
Heterosexual/occupational	8	0.11
SUB-TOTAL	612	8.7
Transfusion	93	1.3
Transfusion/occupational	1	0.01
SUB-TOTAL	94	1.3
Perinatal	52	0.70
Occupational	8	0.10
Unknown	260	
GRAND TOTAL	7,329	100.0

¹ Percent of cases with known source of exposure
Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.12 Number and proportion¹ of AIDS cases by year of diagnosis and health region, Ontario, 1981 to 2002

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	50.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	50.0	2
1982	0	0.0	0	0.0	0	0.0	3	42.9	0	0.0	2	28.6	2	28.6	7
1983	1	5.6	2	11.1	1	5.6	12	66.7	0	0.0	2	11.1	0	0.0	18
1984	0	0.0	1	1.7	1	1.7	48	81.4	2	3.4	3	5.1	4	6.8	59
1985	2	1.2	15	9.0	4	2.4	109	65.3	12	7.2	10	6.0	15	9.0	167
1986	12	4.2	17	6.0	8	2.8	171	60.2	30	10.6	21	7.4	25	8.8	284
1987	13	2.9	36	8.1	11	2.5	278	62.3	44	9.9	31	7.0	33	7.4	446
1988	11	2.3	32	6.7	14	2.9	291	61.0	57	11.9	33	6.9	39	8.2	477
1989	13	2.4	38	7.0	15	2.7	344	63.0	44	8.1	44	8.1	48	8.8	546
1990	14	2.2	45	7.0	19	3.0	398	61.8	59	9.2	59	9.2	50	7.8	644
1991	16	2.7	59	9.9	16	2.7	336	56.7	51	8.6	53	8.9	62	10.5	593
1992	23	3.2	44	6.2	26	3.7	441	62.0	50	7.0	74	10.4	53	7.5	711
1993	18	2.5	42	5.8	14	1.9	449	62.4	74	10.3	64	8.9	58	8.1	719
1994	16	2.6	52	8.4	12	1.9	383	61.9	57	9.2	43	6.9	56	9.0	619
1995	19	3.1	49	8.1	24	4.0	380	62.8	40	6.6	55	9.1	38	6.3	605
1996	6	1.5	41	10.1	7	1.7	253	62.6	30	7.4	36	8.9	31	7.7	404
1997	4	1.6	32	12.5	7	2.7	145	56.6	22	8.6	27	10.5	19	7.4	256
1998	7	3.4	34	16.3	5	2.4	117	56.2	15	7.2	20	9.6	10	4.8	208
1999	7	4.0	23	13.2	3	1.7	99	56.9	13	7.5	16	9.2	13	7.5	174
2000	1	0.80	21	16.0	4	3.1	75	57.3	15	11.5	11	8.4	4	3.1	131
2001	3	2.0	18	12.0	7	4.7	70	46.7	24	16.0	13	8.7	15	10.0	150
2002	4	3.7	16	14.7	2	1.8	61	56.0	12	11.0	9	8.3	5	4.6	109
Total	191	2.6	617	8.4	200	2.7	4,463	60.9	651	8.9	626	8.5	581	7.9	7,329

¹ Row percent

Source of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003)

Table 2.13 Number of AIDS cases and rate (per 100,000) by health region and sex, Ontario, 1981 to 2002

health region	Males		Females			Total	
	No.	Rate	No.	Rate	% female ¹	No.	Rate
Northern	168	37.1	23	5.1	12.0	191	21.0
Ottawa	549	150.5	68	18.0	11.0	617	83.0
Eastern, Other	178	46.0	22	5.6	11.0	200	25.6
Toronto	4,243	355.0	220	17.4	4.9	4,463	181.2
Central East, Other	562	43.5	89	6.8	13.7	651	25.0
Central West	576	55.1	50	4.7	8.0	626	29.6
Southwest	534	73.0	47	6.2	8.1	581	39.1
Ontario	6,810	124.5	519	9.2	7.1	7,329	66.0

¹ Row percent

Sources of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003); Statistics Canada (1996 census)

Table 2.14 Number of AIDS cases and rate (per 100,000) by public health unit and sex, Ontario, 1981 to 2002

Public health unit	Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate
Igoma	10	15.4	2	3.0	12	9.1
Ipswich	15	32.3	1	2.1	16	17.2
North Bay	30	70.1	1	2.3	31	35.6
Northwestern	5	10.8	4	8.9	9	9.9
Orillia	8	16.5	3	6.3	11	11.5
Orton	62	60.1	4	3.8	66	31.8
Parry Sound	30	36.7	7	8.6	37	22.7
Perth	8	41.5	1	5.1	9	23.2
Northern	168	37.1	23	5.1	191	21.0
Ottawa	549	150.5	68	18.0	617	83.0
Eastern Ontario	28	29.4	4	4.1	32	16.7
St. Catharines-Prince Edward	47	64.1	3	4.0	50	33.5
Kingston-Frontenac	63	70.1	10	11.0	73	40.4
Madoc-Grenville	26	32.8	2	2.5	28	17.5
North Grenville	14	28.3	3	6.0	17	17.1
Eastern, Other	178	46.0	22	5.6	200	25.6
Toronto	4,243	355.0	220	17.4	4,463	181.2
Whitby	97	41.3	13	5.5	110	23.3
Whitton	16	19.0	2	2.4	18	10.6
Wellington	235	53.5	39	8.8	274	31.1
Waterloo	34	55.3	1	1.5	35	27.6
Windsor	68	40.4	13	7.6	81	23.8
York Region	112	36.8	21	6.8	133	21.7
Central East, Other	562	43.5	89	6.8	651	25.0
Brant	29	47.9	3	4.8	32	25.9
Brantford	18	34.0	3	5.6	21	19.8
Cambridge	85	49.0	6	3.4	91	26.0
Hamilton-Wentworth	192	81.2	14	5.7	206	42.8
Simcoe	125	61.6	11	5.2	136	32.8
Waterloo	77	37.1	9	4.3	86	20.6
Wellington-Dufferin	50	44.8	4	3.6	54	24.1
Central West	576	55.1	50	4.7	626	29.6
Bruce Grey-Owen Sound	25	31.9	2	2.5	27	17.1
King-St. Thomas	9	22.4	4	9.7	13	16.0
London	10	32.5	1	3.2	11	17.8
North Chatham	25	45.1	0	0.0	25	22.2
Northampton	22	33.5	6	8.9	28	21.0
Middlesex-London	218	110.6	17	8.2	235	58.2
Oxford	20	40.5	2	4.0	22	22.0
Perth	17	46.3	1	2.7	18	24.3
Windsor-Essex	188	105.6	14	7.6	202	55.9
Southwest	534	73.0	47	6.2	581	39.1
TOTAL	6,810	124.5	519	9.2	7,329	66.0

Sources of data: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to May 2003); Statistics Canada

Table 3.1a Number and proportion of children born in any country to HIV-positive mothers by year of birth and HIV infection status of the child at latest follow-up, Ontario, 1984 to 2002

Year of birth	Confirmed HIV-positive				Confirmed HIV-negative		Pending/unknown ⁴	Total
	No.	% ¹	DA ²	% ³	No.	% ¹	No.	
1984	5	100.0	3	60.0	0	0.0	0	5
1985	3	100.0	1	33.3	0	0.0	0	3
1986	6	75.0	4	66.7	2	25.0	0	8
1987	4	57.1	1	25.0	3	42.9	0	7
1988	7	58.3	4	57.1	5	41.7	0	12
1989	10	76.9	2	20.0	3	23.1	1	14
1990	9	42.9	3	33.3	12	57.1	0	21
1991	9	56.3	5	55.6	7	43.8	1	17
1992	18	72.0	2	11.1	7	28.0	0	25
1993	13	46.4	5	38.5	15	53.6	2	30
1994	18	50.0	5	27.8	18	50.0	5	41
1995	11	30.6	1	9.1	25	69.4	1	37
1996	9	31.0	2	22.2	20	69.0	6	35
1997	2	15.4	0	0.0	11	84.6	1	14
1998	7	20.0	1	14.3	28	80.0	5	40
1999	8	22.9	1	12.5	27	77.1	1	36
2000	2	6.9	0	0.0	27	93.1	4	33
2001	6	12.5	0	0.0	42	87.5	4	52
2002	2	6.1	0	0.0	31	93.9	14	47
Total	149	34.5	40	26.8	283	65.5	45	477

1 Proportion of cases of known infection status

2 Died of AIDS

3 Proportion of HIV-related deaths among confirmed HIV-positive infants born that year

4 Lost to follow-up: 1(89), 2(93), 3(94), 1(95), 4(96), 1(97), 4(98), 1(99), 2(00), 4(02)

Died, cause unknown: 1(91), 2(94), 1(96)

HIV status pending: 1(96), 1(98), 2(00), 4(01), 10(02)

Source of data: Dr. Susan M. King, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.1b Number and proportion¹ of children born in Canada² to HIV-positive mothers by year of birth and HIV infection status of the child at latest follow-up, Ontario, 1984 to 2002

Year of birth	Confirmed HIV-positive				Confirmed HIV-negative		Pending/unknown ⁵	Total
	No.	%	DA ³	% ⁴	No.	%	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	3	60.0	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	40.0	5	50.0	15	60.0	2	27
1994-1	3	27.3	1	33.3	8	72.7	2	13
1994-2	6	37.5	3	50.0	10	62.5	3	19
1995	9	26.5	1	11.1	25	73.5	1	35
1996	8	28.6	2	25.0	20	71.4	5	33
1997	1	8.3	0	100.0	11	91.7	1	13
1998	7	20.0	1	14.3	28	80.0	4	39
1999	8	22.9	1	12.5	27	77.1	1	36
2000	2	7.4	0	0.0	25	92.6	3	30
2001	5	10.6	0	0.0	42	89.4	3	50
2002	2	6.3	0	0.0	30	93.8	14	46
Total	114	29.2	35	30.7	277	70.8	39	430

1 Proportion of cases of known infection status
2 57 infants with missing birthplace information were assumed to have been born in Canada
3 Died of AIDS
4 Proportion of HIV-related deaths among confirmed HIV-positive infants born that year
5 Lost to follow-up: 2(93), 3(94), 1(95), 3(96), 1(97), 42(98), 1(99), 2(00), 4(02)
Died, cause unknown: 2(94b), 1(96)
HIV status pending: 1(96), 1(00), 3(01), 10(02)

Source of data: Dr. Susan M. King, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.2a Number and proportion¹ of HIV-infected mothers giving birth in any country by geographic region of the reporting health institution and mother's exposure category, Ontario, 1984 to 2002

Geographic region of the treating institution	Exposure category										
	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total	
	No.	%	No.	%	No.	%	No.	%	No.	No.	% ²
Toronto	37	13.4	156	56.5	81	29.3	2	0.72	9	285	59.7
Ottawa	36	27.9	60	46.5	30	23.3	3	2.3	2	131	27.5
<i>Other</i>	5	8.9	16	28.6	34	60.7	1	1.8	5	61	12.8
<i>London</i>	0	0.0	4	22.2	13	72.2	1	5.6	2	20	4.2
<i>Hamilton</i>	4	15.4	11	42.3	11	42.3	0	0.0	2	28	5.9
<i>Sudbury</i>	1	16.7	0	0.0	5	83.3	0	0.0	0	6	1.3
<i>Windsor</i>	0	0.0	0	0.0	4	100.0	0	0.0	0	4	0.84
<i>Kingston</i>	0	0.0	1	50.0	1	50.0	0	0.0	1	3	0.63
Total	78	16.9	232	50.3	145	31.5	6	1.3	16	477	100.0

1 Row percent of cases with known exposure category

2 Column percent of Total

Source of data: Dr. Susan M. King, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.2b Number and proportion¹ of HIV-infected mothers giving birth in Canada² by geographic region of the reporting health institution and mother's exposure category, Ontario, 1984 to 2002

Geographic region of the treating institution	Exposure category										
	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total	
	No.	%	No.	%	No.	%	No.	%	No.	No.	% ³
Toronto	36	14.5	132	53.0	80	32.1	1	0.40	8	257	59.8
Ottawa	35	31.5	44	39.6	29	26.1	3	2.7	2	113	26.3
<i>Other</i>	5	9.1	15	27.3	34	61.8	1	1.8	5	60	14.0
<i>London</i>	0	0.0	4	22.2	13	72.2	1	5.6	2	20	4.7
<i>Hamilton</i>	4	16.0	10	40.0	11	44.0	0	0.0	2	27	6.3
<i>Sudbury</i>	1	16.7	0	0.0	5	83.3	0	0.0	0	6	1.4
<i>Windsor</i>	0	0.0	0	0.0	4	100.0	0	0.0	0	4	0.93
<i>Kingston</i>	0	0.0	1	50.0	1	50.0	0	0.0	1	3	0.70
Total	76	18.3	191	46.0	143	34.5	5	1.2	15	430	100.0

1 Row percent of cases with known exposure category

2 57 infants with missing birthplace information were assumed to have been born in Canada

3 Column percent of Total

Source of data: Dr. Susan M. King, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.3a Number and proportion¹ of infected children born to HIV-positive mothers giving birth in any country by geographic region of the reporting health institution and mother's exposure category, Ontario, 1984 to 2002

Geographic region of the treating institution	Exposure category										
	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total	
	No.	%	No.	%	No.	%	No.	%	No.	No.	% ²
Toronto	7	7.8	60	66.7	23	25.6	0	0.0	3	93	62.4
Ottawa	2	5.6	24	66.7	8	22.2	2	5.6	2	38	25.5
<i>Other</i>	0	0.0	7	43.8	8	50.0	1	6.3	2	18	12.1
<i>London</i>	0	0.0	2	28.6	4	57.1	1	14.3	0	7	4.7
<i>Hamilton</i>	0	0.0	4	57.1	3	42.9	0	0.0	1	8	5.4
<i>Sudbury</i>	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0.0
<i>Windsor</i>	0	0.0	0	0.0	1	100.0	0	0.0	0	1	0.67
<i>Kingston</i>	0	0.0	1	100.0	0	0.0	0	0.0	1	2	1.3
Total	9	6.3	91	64.1	39	27.5	3	2.1	7	149	100.0

¹ Row percent of cases with known exposure category

² Column percent of Total

Source of data: Dr. Susan M. King, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.3b Number and proportion¹ of infected children born in Canada² to HIV-positive mothers by geographic region of the reporting health institution and mother's exposure category, Ontario, 1984 to 2002

Geographic region of the treating institution	Exposure category										
	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total	
	No.	%	No.	%	No.	%	No.	%	No.	No.	% ³
Toronto	7	9.9	42	59.2	22	31.0	0	0.0	2	73	64.0
Ottawa	2	9.1	10	45.5	8	36.4	2	9.1	2	24	21.1
<i>Other</i>	0	0.0	6	40.0	8	53.3	1	6.7	2	17	4.0
<i>London</i>	0	0.0	2	28.6	4	57.1	1	14.3	0	7	6.1
<i>Hamilton</i>	0	0.0	3	50.0	3	50.0	0	0.0	1	7	6.1
<i>Sudbury</i>	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0.0
<i>Windsor</i>	0	0.0	0	0.0	1	100.0	0	0.0	0	1	0.88
<i>Kingston</i>	0	0.0	1	100.0	0	0.0	0	0.0	1	2	1.8
Total	9	8.3	58	53.7	38	35.2	3	2.8	6	114	100.0

1 Row percent of cases with known exposure category

2 57 infants with missing birthplace information were assumed to have been born in Canada

3 Column percent of Total

Source of data: Dr. Susan M. King, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.4a Number and proportion¹ of HIV-positive children born in any country by exposure category of mother and period of birth, Ontario , 1984 to 2002

Period of birth	Exposure category									
	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total
	No.	%	No.	%	No.	%	No.	%	No.	No.
1984-87	1	5.9	12	70.6	3	17.6	1	5.9	1	18
1988-89	3	18.8	4	25.0	8	50.0	1	6.3	1	17
1990-91	0	0.0	9	56.3	6	37.5	1	6.3	2	18
1992-93	1	3.4	20	69.0	8	27.6	0	0.0	2	31
1994-95	3	10.3	22	75.9	4	13.8	0	0.0	0	29
1996-97	0	0.0	9	81.8	2	18.2	0	0.0	0	11
1998-99	1	7.1	7	50.0	6	42.9	0	0.0	1	15
2000-02	0	0.0	8	80.0	2	20.0	0	0.0	0	10
Total	9	6.3	91	64.1	39	27.5	3	2.1	7	149

¹ Row percent of cases with known exposure category

Source of data: Dr. Susan M. King, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.4b Number and proportion¹ of HIV-positive children born in Canada² by period of birth and exposure category of mother, Ontario, 1984 to 2002

Period of birth	Exposure category									
	IDU		HIV-endemic		Heterosexual		Transfusion		Unknown	Total
	No.	%	No.	%	No.	%	No.	%	No.	No.
1984-87	1	9.1	6	54.5	3	27.3	1	9.1	1	12
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	1	5.3	11	57.9	7	36.8	0	0.0	2	21
1994-95	3	16.7	11	61.1	4	22.2	0	0.0	0	18
1996-97	0	0.0	7	77.8	2	22.2	0	0.0	0	9
1998-99	1	7.1	7	50.0	6	42.9	0	0.0	1	15
2000-02	0	0.0	7	77.8	2	22.2	0	0.0	0	9
Total	9	8.3	58	53.7	38	35.2	3	2.8	6	114

1 Row percent of cases with known exposure category

2 57 infants with missing birthplace information were assumed to have been born in Canada

Source of data: Dr. Susan M. King, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.5 Number and proportion² of HIV-positive women giving birth in Canada¹ by exposure category, therapy during pregnancy, delivery or to the newborn³ and HIV infection status of infant, Ontario, July 1994 to December 2002

Exposure category	Therapy during pregnancy, delivery or to the newborn	HIV infection status of infant							
		Infected	%	Not infected	%	Unknown	%	Total	%
IDU	No	3	6.3	7	3.2	0	0.0	10	3.3
	Yes	0	0.0	39	17.9	3	8.6	42	14.0
	Unknown	0	0.0	2	0.92	0	0.0	2	0.66
	Sub-total	3	6.3	48	22.0	3	8.6	54	17.9
HIV-endemic	No	20	41.7	12	5.5	0	0.0	32	10.6
	Yes	1	2.1	93	42.7	13	37.1	107	35.5
	Unknown	9	18.8	1	0.46	1	2.9	11	3.7
	Sub-total	30	62.5	106	48.6	14	40.0	150	49.8
Heterosexual	No	9	18.8	4	1.8	1	2.9	14	4.7
	Yes	3	6.3	53	24.3	16	45.7	72	23.9
	Unknown	2	4.2	1	0.46	0	0.0	3	1.0
	Sub-total	14	29.2	58	26.6	17	48.6	89	29.6
Transfusion	No	0	0.0	1	0.46	0	0.0	1	0.33
	Yes	0	0.0	1	0.46	0	0.0	1	0.33
	Sub-total	0	0.0	2	0.92	0	0.0	2	0.66
Unknown	No	1	2.1	0	0.0	0	0.0	1	0.33
	Yes	0	0.0	4	1.8	1	2.9	5	1.7
	Sub-total	1	2.1	4	1.8	1	2.9	6	2.0
Total	No	33	68.8	24	11.0	1	2.9	58	19.3
	Yes	4	8.3	190	87.2	33	94.3	227	75.4
	Unknown	11	22.9	4	1.8	1	2.9	16	5.3
Total		48	100.0	218	100.0	35	100.0	301	100.0

¹ Only cases born in Canada (Assumed that infants with missing birthplace information were also born in Canada)

² Column percent of cases

³ Therapy during pregnancy only:1 ; delivery only: 0 ; to the newborn only: 10 ; during pregnancy and delivery:24 ; during pregnancy and to the newborn: 1 ; during delivery and to the newborn: 0 ; during pregnancy, delivery and to the newborn: 191.

Source of data: Dr. Susan M. King, Ontario region, Canadian Pediatric AIDS Research Group

Table 3.6 Number of HIV-positive women giving birth in Canada¹ by year of delivery, therapy received during pregnancy, delivery or to the infant and confirmed HIV section status of infant Ontario, July 1994 to December 2002

Year of delivery	Therapy received					No therapy received					Total ²			
	Infected	Not infected	Unknown	Total	% ³	Infected	Not infected	Unknown	Total	% ³	Infected	Not infected	Unknown	Total
Jul-Dec 1994	1	5	2	8	42.1	5	5	1	11	57.9	6	10	3	19
1995	0	17	1	18	52.9	8	8	0	16	47.1	8	25	1	34
1996	0	16	5	21	84.0	3	1	0	4	16.0	3	17	5	25
1997	0	8	1	9	81.8	0	2	0	2	18.2	0	10	1	11
1998	1	26	3	30	78.9	6	2	0	8	21.1	7	28	3	38
1999	1	24	1	26	74.3	6	3	0	9	25.7	7	27	1	35
2000	0	24	3	27	90.0	2	1	0	3	10.0	2	25	3	30
2001	1	40	3	44	89.8	3	2	0	5	10.2	4	42	3	49
2002	0	30	14	44	100.0	0	0	0	0	0.0	0	30	14	44
Total	4	190	33	227	79.6	33	24	1	58	20.4	37	214	34	285

1 Only cases born in Canada (57 infants with missing birthplace information were assumed to have been born in Canada)

2 16 cases with unknown treatment were not included:

11 HIV+: 1(95), 5(96), 1(97), 1(99), 1(01), 2(02)

4 HIV-: 3(96), 1(97)

1 Unknown status: 1(98)

3 Row percent of cases that received therapy or not

Source of data: Dr. Susan M. King, 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 1999**

Year	Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate
1987	204	4.3	10	0.20	214	2.2
1988	245	5.0	8	0.16	253	2.6
1989	314	6.3	15	0.29	329	3.2
1990	359	7.0	15	0.29	374	3.6
1991	471	9.1	21	0.40	492	4.7
1992	554	10.6	27	0.50	581	5.5
1993	599	11.4	24	0.44	623	5.8
1994	563	10.5	40	0.73	603	5.6
1995	653	12.1	37	0.67	690	6.3
1996	446	8.2	29	0.52	475	4.3
1997	202	3.6	26	0.46	228	2.0
1998	146	2.6	23	0.40	169	1.5
1999	108	1.9	22	0.38	130	1.1
Total	4,864		297		5,161	

Sources of data: Vital Statistics, Registrar-General, Ontario (deaths reported to 1999); Statistics Canada (population estimates)

Table 4.2 Number of HIV-related deaths and proportion¹ by age at death and sex, Ontario, 1997 to 1999

Age group	Males		Females		Total	
	No.	%	No.	%	No.	%
? 10	1	0.22	0	0.00	1	0.19
37944	0	0.00	1	1.4	1	0.19
21-30	42	9.2	10	14.1	52	9.9
31-40	183	40.1	32	45.1	215	40.8
41-50	144	31.6	18	25.4	162	30.7
51-60	53	11.6	5	7.0	58	11.0
61-70	29	6.4	3	4.2	32	6.1
71-85	4	0.88	2	2.8	6	1.1
Total	456	100.0	71	100.0	527	100.0

¹ Column percent of cases

Sources of data: Vital Statistics, Registrar-General, Ontario (deaths reported to 1999)

Table 4.3 Number and proportion¹ of HIV-related deaths by health region and sex, Ontario, 1997 to 1999

Health region	Males		Females		Total	
	Number	%	Number	%	Number	%
Central East	44	9.8	13	19.1	57	11.0
Central South	35	7.8	5	7.4	40	7.7
Central West	42	9.3	8	11.8	50	9.7
East	57	12.7	13	19.1	70	13.5
North	22	4.9	5	7.4	27	5.2
South West	36	8.0	3	4.4	39	7.5
Toronto	214	47.6	21	30.9	235	45.4
Out of province	6		3		9	
Total	456	100.0	71	100.0	527	100.0

¹ Column percent of cases with known health region

Sources of data: Vital Statistics, Registrar-General, Ontario (deaths reported to 1999); Statistics Canada (population estimates)

Table 4.4 Number and proportion¹ of HIV-related deaths by year of death, sex and country of birth²
(HIV-endemic/non-HIV-endemic), Ontario, 1987 to 1999

Year	Males			Females			Total		
	HIV-endemic		Non-HIV-endemic	HIV-endemic		Non-HIV-endemic	HIV-endemic		Non-HIV-endemic
	n	%	n	n	%	n	n	%	n
1987	14	6.9	190	4	40.0	6	18	8.4	196
1988	7	2.9	236	1	12.5	7	8	3.2	243
1989	16	5.1	295	4	26.7	11	20	6.1	306
1990	13	3.7	343	4	28.6	10	17	4.6	353
1991	20	4.3	447	4	19.0	17	24	4.9	464
1992	29	5.2	524	5	18.5	22	34	5.9	546
1993	33	5.5	563	5	20.8	19	38	6.1	582
1994	40	7.1	521	4	10.0	36	44	7.3	557
1995	41	6.3	608	8	21.6	29	49	7.1	637
1996	33	7.4	412	9	32.1	19	42	8.9	431
1997	15	7.5	185	4	15.4	22	19	8.4	207
1998	9	6.3	135	14	60.9	9	23	13.8	144
1999	9	8.4	98	5	23.8	16	14	10.9	114
Total	279	5.8	4,557	71	24.1	223	350	6.8	4,780

1 Sex-specific row percent of HIV-related deaths that year

2 Excludes 33 deaths (30 males and 3 females) for which country of birth was unknown

Source of data: Vital Statistics, Registrar-General, Ontario (deaths reported to 1999)

Table 4.5 Number and proportion¹ of HIV-related deaths by year of death and country of birth (Caribbean, sub-Saharan Africa, non-HIV-endemic), Ontario, 1987 to 1999

Year	Caribbean		Sub-Saharan Africa		Non-HIV-endemic ²		Total
	Number	%	Number	%	Number	%	Number
1987	15	7.0	3	1.4	196	91.6	214
1988	5	2.0	3	1.2	245	96.8	253
1989	12	3.6	8	2.4	309	93.9	329
1990	13	3.5	4	1.1	357	95.5	374
1991	22	4.5	2	0.4	468	95.1	492
1992	27	4.0	7	1.2	547	94.1	581
1993	24	3.9	14	2.2	585	93.9	623
1994	33	5.5	11	1.8	559	92.7	603
1995	33	4.8	16	2.3	641	92.9	690
1996	27	5.7	15	3.2	433	91.2	475
1997	15	6.6	4	1.8	209	91.7	228
1998	14	8.3	9	5.3	146	86.4	169
1999	10	7.7	4	3.1	116	89.2	130
Total	250	4.8	100	1.9	4,811	93.2	5,161

¹ Row percent

² Includes 33 deaths for which country of birth was unknown

Sources of data: Vital Statistics, Registrar-General, Ontario (deaths reported to 1999)

Table 5.1 Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality, Ontario, 1977 to 2002

Year	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	Ever HIV infected diagnosed	Living, HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality, annual	HIV-related mortality, cumulative
1977	31	31	31	0	0	31	0.0%	0.0%	0	0	0	0	0	0
1978	93	124	124	0	0	124	0.0%	0.0%	0	0	0	0	0	0
1979	268	392	392	0	0	392	0.0%	0.0%	0	0	0	0	0	0
1980	549	941	941	0	0	941	0.0%	0.0%	0	0	0	0	0	0
1981	752	1,694	1,692	2	2	1,691	0.1%	0.1%	2	2	2	2	1	1
1982	1,177	2,871	2,866	8	10	2,861	0.4%	0.2%	7	8	10	7	3	4
1983	1,522	4,393	4,376	20	30	4,363	0.7%	0.4%	15	20	30	15	8	12
1984	1,950	6,343	6,294	62	92	6,252	1.4%	0.8%	48	62	92	48	25	37
1985	1,505	7,848	7,712	442	533	7,315	6.8%	5.1%	397	184	276	150	76	113
1986	1,179	9,027	8,708	1,254	1,788	7,240	19.8%	16.9%	1,469	311	587	287	167	280
1987	1,064	10,091	9,461	1,413	3,201	6,890	31.7%	27.2%	2,571	493	1,080	476	294	574
1988	1,035	11,126	10,087	1,316	4,517	6,610	40.6%	34.5%	3,478	521	1,601	595	391	965
1989	1,090	12,216	10,709	1,557	6,073	6,142	49.7%	42.6%	4,567	608	2,209	741	449	1,414
1990	1,139	13,355	11,306	1,894	7,967	5,388	59.7%	52.3%	5,918	711	2,920	915	523	1,937
1991	1,176	14,531	11,919	1,683	9,650	4,880	66.4%	59.1%	7,038	662	3,581	1,017	543	2,479
1992	1,345	15,876	12,635	1,665	11,315	4,561	71.3%	63.9%	8,074	795	4,376	1,188	607	3,086
1993	1,484	17,360	13,408	1,357	12,671	4,688	73.0%	65.0%	8,720	801	5,178	1,281	686	3,772
1994	1,458	18,818	14,122	1,196	13,868	4,950	73.7%	64.9%	9,172	705	5,883	1,245	717	4,489
1995	1,249	20,067	14,751	1,221	15,089	4,978	75.2%	66.3%	9,773	692	6,575	1,319	591	5,080
1996	1,063	21,130	15,399	952	16,041	5,089	75.9%	67.0%	10,310	485	7,059	1,391	383	5,464
1997	1,204	22,334	16,287	861	16,902	5,432	75.7%	66.6%	10,855	309	7,369	1,387	283	5,747
1998	1,274	23,608	17,292	876	17,778	5,830	75.3%	66.3%	11,462	257	7,626	1,377	236	5,983
1999	1,492	25,100	18,534	825	18,603	6,497	74.1%	64.9%	12,037	215	7,841	1,343	215	6,198
2000	1,270	26,370	19,575	831	19,434	6,936	73.7%	64.6%	12,639	179	8,020	1,294	192	6,390
2001	1,390	27,760	20,747	897	20,332	3,842	73.2%	64.2%	13,318	223	8,243	1,301	180	6,570
2002	1,606	29,366	22,114	1,086	21,418	4,169	72.9%	64.1%	14,165	283	8,526	1,346	200	6,770

Table 5.1a Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among MSM, Ontario, 1977 to 2002

Year	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	Ever HIV infected diagnosed	Living HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality, annual	HIV-related mortality, cumulative
1977	24	24	24	0	0	24	0.0%	0.0%	0	0	0	0	0	0
1978	81	105	105	0	0	105	0.0%	0.0%	0	0	0	0	0	0
1979	245	349	349	0	0	349	0.0%	0.0%	0	0	0	0	0	0
1980	492	841	841	0	0	841	0.0%	0.0%	0	0	0	0	0	0
1981	656	1,497	1,497	1	1	1,496	0.1%	0.1%	1	1	1	1	0	0
1982	987	2,485	2,482	8	9	2,476	0.4%	0.3%	6	8	9	6	2	3
1983	1,233	3,717	3,707	14	23	3,694	0.6%	0.4%	14	14	23	14	7	10
1984	1,638	5,355	5,324	53	77	5,278	1.4%	0.9%	46	53	77	46	21	30
1985	1,216	6,571	6,475	396	472	6,098	7.2%	5.8%	377	159	236	140	65	96
1986	972	7,543	7,305	1,083	1,556	5,987	20.6%	18.0%	1,318	264	500	262	142	238
1987	819	8,361	7,878	1,211	2,767	5,594	33.1%	29.0%	2,284	400	899	416	245	483
1988	747	9,109	8,304	1,069	3,836	5,273	42.1%	36.5%	3,031	428	1,327	522	322	805
1989	765	9,874	8,702	1,267	5,103	4,771	51.7%	45.2%	3,931	486	1,813	641	366	1,172
1990	734	10,608	9,016	1,512	6,615	3,993	62.4%	55.7%	5,023	566	2,379	787	420	1,592
1991	741	11,348	9,324	1,292	7,907	3,442	69.7%	63.1%	5,882	520	2,899	875	432	2,024
1992	725	12,073	9,577	1,163	9,069	3,004	75.1%	68.6%	6,573	590	3,489	993	472	2,496
1993	833	12,906	9,886	890	9,960	2,946	77.2%	70.2%	6,939	609	4,098	1,078	524	3,020
1994	685	13,591	10,021	663	10,623	2,968	78.2%	70.4%	7,053	538	4,637	1,067	549	3,569
1995	561	14,152	10,132	714	11,337	2,815	80.1%	72.2%	7,318	487	5,123	1,104	450	4,020
1996	477	14,628	10,322	552	11,889	2,740	81.3%	73.5%	7,582	303	5,426	1,120	287	4,307
1997	603	15,232	10,720	465	12,353	2,878	81.1%	73.1%	7,841	192	5,618	1,106	205	4,512
1998	637	15,868	11,191	455	12,808	3,060	80.7%	72.7%	8,131	144	5,762	1,085	165	4,677
1999	773	16,642	11,818	421	13,229	3,413	79.5%	71.1%	8,405	120	5,882	1,059	146	4,823
2000	618	17,260	12,311	440	13,669	3,591	79.2%	70.8%	8,721	90	5,972	1,024	125	4,948
2001	673	17,933	12,874	422	14,091	3,842	78.6%	70.2%	9,032	102	6,075	1,016	111	5,059
2002	876	18,809	13,630	549	14,640	4,169	77.8%	69.4%	9,461	131	6,206	1,026	120	5,179

Table 5.1b 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 2002

Year	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	Ever HIV infected diagnosed	Living, HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality, annual	HIV-related mortality, cumulative
1977	2	2	2	0	0	2	0.0%	0.0%	0	0	0	0	0	0
1978	5	7	7	0	0	7	0.0%	0.0%	0	0	0	0	0	0
1979	16	23	23	0	0	23	0.0%	0.0%	0	0	0	0	0	0
1980	32	55	55	0	0	55	0.0%	0.0%	0	0	0	0	0	0
1981	43	98	98	0	0	98	0.0%	0.0%	0	0	0	0	0	0
1982	64	162	162	0	0	162	0.0%	0.0%	0	0	0	0	0	0
1983	78	240	237	3	3	238	1.0%	-0.2%	(1)	3	3	2	1	1
1984	102	342	334	5	8	335	2.2%	-0.4%	(1)	5	8	5	2	3
1985	74	417	399	15	23	394	5.5%	1.3%	5	6	14	7	4	7
1986	59	475	445	65	88	387	18.5%	12.9%	57	11	25	11	7	14
1987	49	524	474	61	149	375	28.5%	20.9%	99	25	50	24	13	26
1988	45	569	494	48	198	371	34.8%	24.8%	123	24	74	29	18	44
1989	46	614	512	46	244	371	39.7%	27.5%	141	27	101	36	20	65
1990	44	658	525	49	293	365	44.5%	30.4%	159	27	127	40	23	87
1991	44	702	539	59	352	350	50.1%	35.0%	189	26	153	44	22	109
1992	45	747	550	81	433	314	58.0%	43.0%	237	39	192	57	25	135
1993	43	789	553	60	493	296	62.5%	46.4%	257	43	234	68	32	166
1994	38	827	546	97	590	237	71.4%	56.6%	309	43	277	74	37	203
1995	33	860	538	90	680	179	79.1%	66.6%	359	41	318	83	32	235
1996	32	891	541	41	721	171	80.9%	68.5%	370	25	344	88	21	256
1997	42	933	560	47	767	166	82.2%	70.3%	394	10	353	83	15	271
1998	45	979	585	53	820	159	83.8%	72.9%	426	10	363	80	12	283
1999	57	1,036	622	32	852	183	82.3%	70.5%	439	4	367	73	11	294
2000	26	1,061	629	29	882	179	83.1%	71.5%	450	6	374	70	9	303
2001	21	1,082	632	19	901	181	83.2%	71.3%	451	5	379	68	8	311
2002	17	1,099	632	11	912	187	83.0%	70.4%	445	9	388	69	8	320

Table 5.1c Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality among IDUs, Ontario, 1977 to 2002

Year	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	Ever HIV infected diagnosed	Living, HIV infected diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality, annual	HIV-related mortality, cumulative
1977	2	2	2	0	0	2	0.0%	0.0%	0	0	0	0	0	0
1978	2	5	5	0	0	5	0.0%	0.0%	0	0	0	0	0	0
1979	2	7	7	0	0	7	0.0%	0.0%	0	0	0	0	0	0
1980	5	12	12	0	0	12	0.0%	0.0%	0	0	0	0	0	0
1981	5	17	17	0	0	17	0.0%	0.0%	0	0	0	0	0	0
1982	12	29	29	0	0	29	0.0%	0.0%	0	0	0	0	0	0
1983	25	54	54	0	0	54	0.0%	0.0%	0	0	0	0	0	0
1984	38	91	91	0	0	91	0.0%	0.0%	0	0	0	0	0	0
1985	51	142	140	2	2	140	1.3%	0.2%	0	1	1	1	0	0
1986	64	206	201	28	30	176	14.6%	12.4%	25	4	5	3	1	2
1987	79	285	272	32	62	223	21.8%	18.0%	49	13	18	11	5	7
1988	93	378	353	62	124	254	32.8%	28.1%	99	9	26	12	8	14
1989	109	488	446	99	223	265	45.7%	40.7%	182	26	52	26	11	26
1990	125	613	548	142	365	248	59.5%	54.8%	300	20	72	30	16	42
1991	140	753	662	131	496	257	65.8%	61.1%	405	27	99	39	18	60
1992	276	1,029	903	170	665	363	64.7%	59.8%	540	44	143	58	25	85
1993	186	1,215	1,044	121	787	428	64.7%	59.0%	616	38	180	64	31	116
1994	273	1,488	1,270	175	961	527	64.6%	58.5%	742	31	212	63	33	149
1995	173	1,661	1,396	128	1,089	572	65.6%	59.0%	824	42	254	78	27	176
1996	116	1,777	1,472	127	1,216	561	68.4%	61.9%	912	41	296	101	19	195
1997	117	1,895	1,552	104	1,320	574	69.7%	63.0%	977	25	320	109	16	211
1998	148	2,043	1,662	108	1,428	615	69.9%	63.0%	1,047	26	347	121	15	226
1999	159	2,202	1,781	124	1,552	650	70.5%	63.5%	1,131	23	370	129	15	241
2000	79	2,280	1,818	83	1,635	645	71.7%	64.5%	1,173	23	393	137	15	255
2001	108	2,388	1,883	83	1,719	669	72.0%	64.5%	1,214	19	412	141	15	271
2002	109	2,497	1,947	86	1,805	692	72.3%	64.5%	1,255	31	443	155	17	288

Table 5.1d 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 2002

Year	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	Ever HIV infected diagnosed	Living, 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	6	1	1	5	19.9%	15.7%	1	1	1	1	0	0
1982	8	14	14	0	1	13	9.2%	3.4%	0	0	1	0	1	1
1983	8	22	21	1	3	19	12.0%	5.8%	1	1	3	1	1	1
1984	18	40	37	1	4	36	10.0%	3.9%	1	1	4	1	1	3
1985	19	59	55	4	8	51	13.8%	6.4%	4	5	9	5	2	5
1986	26	86	76	20	29	57	33.4%	25.0%	19	9	19	9	5	10
1987	57	143	126	27	55	88	38.6%	30.3%	38	9	28	11	7	17
1988	58	201	176	40	95	107	47.1%	39.6%	70	8	36	11	8	25
1989	76	277	243	50	145	132	52.4%	45.7%	111	16	52	18	9	34
1990	110	387	339	77	222	165	57.4%	51.4%	174	23	75	28	13	47
1991	122	508	444	110	332	176	65.4%	60.3%	268	26	101	37	17	64
1992	152	661	573	119	451	209	68.3%	63.5%	364	37	139	51	23	87
1993	190	850	736	117	569	282	66.9%	61.7%	454	32	170	56	28	115
1994	160	1,011	867	99	668	343	66.1%	60.5%	525	31	201	57	29	144
1995	180	1,190	1,022	117	785	405	66.0%	60.4%	617	37	238	69	25	168
1996	200	1,390	1,204	103	889	502	63.9%	58.3%	702	66	303	117	18	187
1997	199	1,589	1,385	91	980	609	61.7%	56.0%	776	41	344	140	17	204
1998	199	1,787	1,566	107	1,087	701	60.8%	55.2%	865	46	390	168	18	222
1999	237	2,025	1,783	103	1,190	835	58.8%	53.2%	949	41	432	190	20	241
2000	279	2,304	2,042	128	1,318	986	57.2%	51.7%	1,056	31	463	200	21	262
2001	315	2,619	2,333	182	1,500	1,119	57.3%	52.1%	1,215	56	519	233	23	286
2002	326	2,944	2,630	219	1,720	1,225	58.4%	53.4%	1,406	72	591	277	28	314

Table 5.1e Modeled estimates of incidence, cumulative incidence and prevalence of HIV infection, HIV diagnoses, AIDS incidence and HIV-related mortality for persons infected through heterosexual contact, Ontario, 1977 to 2002

Year	HIV incidence number	HIV cumulative incidence	HIV prevalence	HIV diagnoses	HIV diagnoses cumulative	HIV infected undiagnosed	Ever HIV infected diagnosed	Living, HIV infections diagnosed	HIV diagnoses prevalence	AIDS incidence	AIDS cumulative incidence	AIDS prevalence	HIV-related mortality, annual	HIV-related mortality, cumulative
1977	3	3	3	0	0	3	0.0%	0.0%	0	0	0	0	0	0
1978	3	5	5	0	0	5	0.0%	0.0%	0	0	0	0	0	0
1979	3	8	8	0	0	8	0.0%	0.0%	0	0	0	0	0	0
1980	5	13	13	0	0	13	0.0%	0.0%	0	0	0	0	0	0
1981	5	19	19	0	0	19	0.0%	0.0%	0	0	0	0	0	0
1982	14	33	33	0	0	33	0.0%	0.0%	0	0	0	0	0	0
1983	14	47	47	0	0	47	0.0%	0.0%	0	0	0	0	0	0
1984	28	75	74	2	2	73	3.0%	2.3%	2	2	2	2	1	1
1985	29	104	102	3	5	98	5.1%	3.1%	3	3	5	3	2	2
1986	58	162	158	4	9	153	5.7%	3.1%	5	3	8	3	2	4
1987	60	222	213	11	21	201	9.4%	5.5%	12	11	19	10	5	9
1988	91	313	295	19	40	273	12.6%	7.3%	22	18	37	19	9	18
1989	94	407	374	35	75	332	18.4%	11.2%	42	29	66	33	15	33
1990	127	534	477	43	118	416	22.1%	12.8%	61	45	111	54	24	57
1991	129	663	576	53	171	492	25.7%	14.6%	84	35	146	59	30	87
1992	147	810	690	85	256	554	31.6%	19.7%	136	48	194	74	34	121
1993	233	1,043	881	121	377	666	36.2%	24.4%	215	57	251	89	41	162
1994	302	1,345	1,137	122	499	846	37.1%	25.6%	291	46	297	89	46	208
1995	304	1,648	1,402	129	628	1,021	38.1%	27.2%	382	59	356	110	39	246
1996	239	1,887	1,615	98	726	1,161	38.5%	28.1%	454	40	396	123	26	272
1997	242	2,130	1,837	124	850	1,280	39.9%	30.3%	557	29	424	132	20	293
1998	245	2,374	2,063	118	968	1,407	40.8%	31.8%	657	28	453	141	18	311
1999	266	2,640	2,311	118	1,086	1,554	41.1%	32.7%	757	20	473	144	18	329
2000	269	2,909	2,563	115	1,200	1,709	41.3%	33.3%	855	24	497	151	17	346
2001	274	3,183	2,820	156	1,356	1,827	42.6%	35.2%	993	35	532	168	17	363
2002	278	3,461	3,077	176	1,532	1,929	44.3%	37.3%	1,148	40	571	188	20	384

Table 5.2 Modeled number and proportion of HIV-infected persons who have been diagnosed, Ontario, December 2002

	HIV prevalence	HIV diagnosed	Proportion diagnosed	Number HIV undiagnosed	Proportion Ontario undiagnosed
Both sexes					
MSM	13,630	9,461	69.4%	4,169	50.8%
MSM-IDU	632	445	70.4%	187	2.3%
IDU	1,947	1,255	64.5%	692	8.4%
HIV-endemic	2,630	1,406	53.4%	1,225	14.9%
Heterosexual	3,077	1,148	37.3%	1,929	23.5%
Clotting	161	159	99.0%	2	0.02%
Transfusion	37	27	73.3%	10	0.12%
Total	22,114	13,901	62.9%	8,213	100.0%
Male					
MSM	13,630	9,461	69.4%	4,169	60.9%
MSM-IDU	632	445	70.4%	187	2.7%
IDU	1,358	849	62.5%	509	7.4%
HIV-endemic	1,792	738	41.2%	1,054	15.4%
Heterosexual	1,329	411	30.9%	918	13.4%
Clotting	148	146	99.0%	1	0.02%
Transfusion	6	4	63.5%	2	0.03%
Total	18,894	12,053	63.8%	6,841	100.0%
Female					
IDU	589	406	68.9%	183	13.3%
HIV-endemic	838	668	79.7%	170	12.4%
Heterosexual	1,719	708	41.2%	1,011	73.7%
Clotting	10	10	98.9%	0	0.00%
Transfusion	31	23	75.4%	8	0.55%
Total	3,187	1,815	56.9%	1,372	100.0%

Table 5.3a Modeled HIV prevalence by health region and exposure category, Ontario, December 2002

Health region	MSM	MSM-IDU	IDU	HIV-endemic	Heterosexual	Clotting	Transfusion	Total	Proportion
Toronto	9,500	340	620	1,710	1,380	80	15	13,600	62%
Ottawa	1,350	100	580	500	460	30	15	3,000	14%
Central East,	950	50	120	150	350	10	5	1,650	7.4%
Eastern, other	200	30	220	50	140	5	0	670	2.9%
Central West	930	50	170	80	270	15	5	1,550	6.9%
Southwest	550	30	80	100	300	10	0	1,050	4.8%
Northern	150	30	160	40	150	10	0	570	2.4%
Total	13,630	630	1,950	2,630	3,050	160	40	22,100	100.0%
Proportion	62%	2.9%	8.8%	12%	14%	0.7%	0.2%		

**Table 5.3b Modeled HIV prevalence by sex, health region and exposure category
Ontario, December 2002**

Health region	MSM	MSM-IDU	IDU	HIV- endemic	Heterosexual	Clotting	Transfusio n	Total ¹	Proportion
Males									
Toronto	9,500	340	430	1,160	630	75	5	12,100	64%
Ottawa	1,350	100	400	360	200	25	5	2,400	13%
Central East, other	950	50	90	100	180	10	0	1,400	7.3%
Eastern, other	200	30	160	30	50	5	0	500	2.5%
Central West	930	50	130	50	100	15	0	1,300	6.7%
Southwest	550	30	50	70	110	10	0	800	4.3%
Northern	150	30	100	20	60	10	0	400	2.0%
Ontario	13,630	630	1,360	1,790	1,330	150	10	18,900	86%
Females									
Toronto			190	550	750	5	10	1,500	47%
Ottawa			180	140	260	5	10	600	19%
Central East, other			30	50	170	0	5	250	8.0%
Eastern, other			60	20	90	0	0	170	5.3%
Central West			40	30	170	0	5	250	7.7%
Southwest			30	30	190	0	0	250	7.8%
Northern			60	20	90	0	0	170	5.3%
Ontario			590	840	1,720	10	30	3,200	14%

Cells may not add up to total due to rounding

**Table 5.4 Modeled HIV incidence by sex, region and exposure category
Ontario, December 2002**

		MSM	MSM-IDU	IDU	HIV- endemic	Heterosexual	Clotting	Transfusion	Total	Proportion
Males	Toronto	650	10	30	130	80	0	0	900	68%
	Ottawa	100	5	20	40	20	0	0	190	14%
	Other	120	5	30	50	25	0	0	230	17%
	Ontario	870	20	80	220	125	0	0	1,320	81%
Females	Toronto			20	70	100	0	0	190	61%
	Ottawa			10	20	20	0	0	50	16%
	Other			10	20	40	0	0	70	23%
	Ontario			40	110	160	0	0	310	19%
Both sexes	Toronto	650	10	50	200	180	0	0	1,090	67%
	Ottawa	100	5	30	60	40	0	0	240	14%
	Other	120	5	40	70	65	0	0	300	18%
	Ontario	870	20	120	330	285	0	0	1,630	100%
	Proportion	54%	1.2%	7.4%	20%	18%	0.0%	0.0%	100.0%	

Figure 1.1 Number of first-time HIV-positive diagnoses by year of HIV diagnosis and sex, Ontario, 1985 to 2002

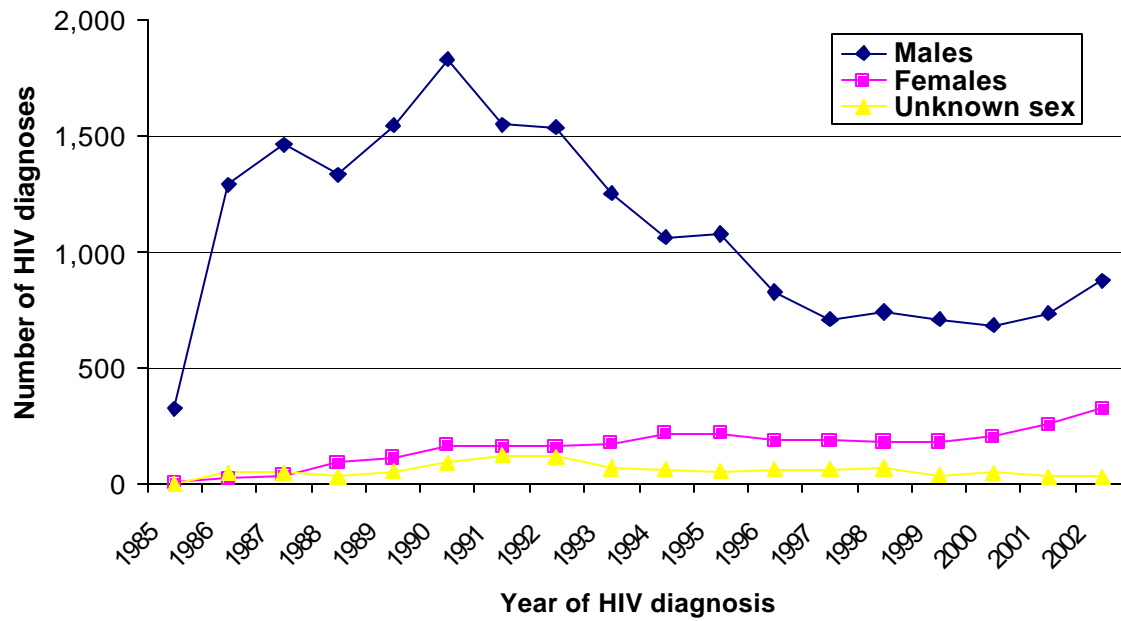


Figure 1.2 Proportion of HIV-diagnoses (adjusted) by period and exposure category, Ontario, 1985 to 2002

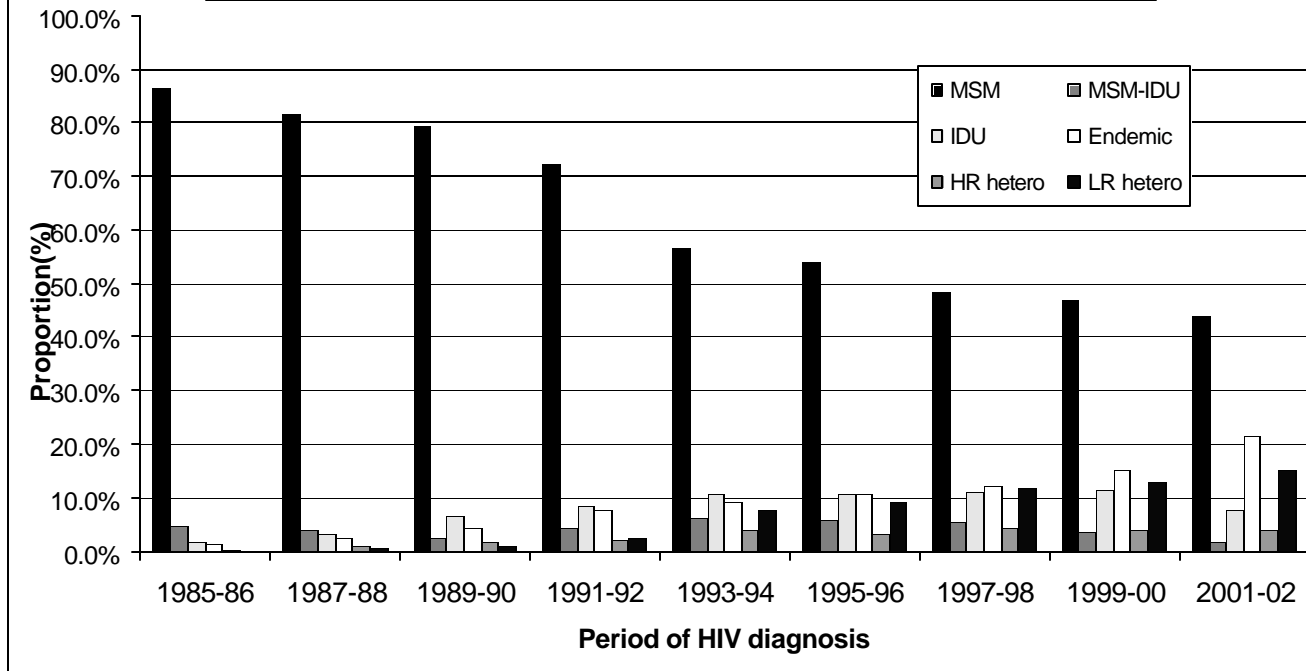


Figure 1.3 First-time HIV positivity rates (adjusted) among MSM by year of HIV diagnosis and health region, Ontario 1992 to 2002

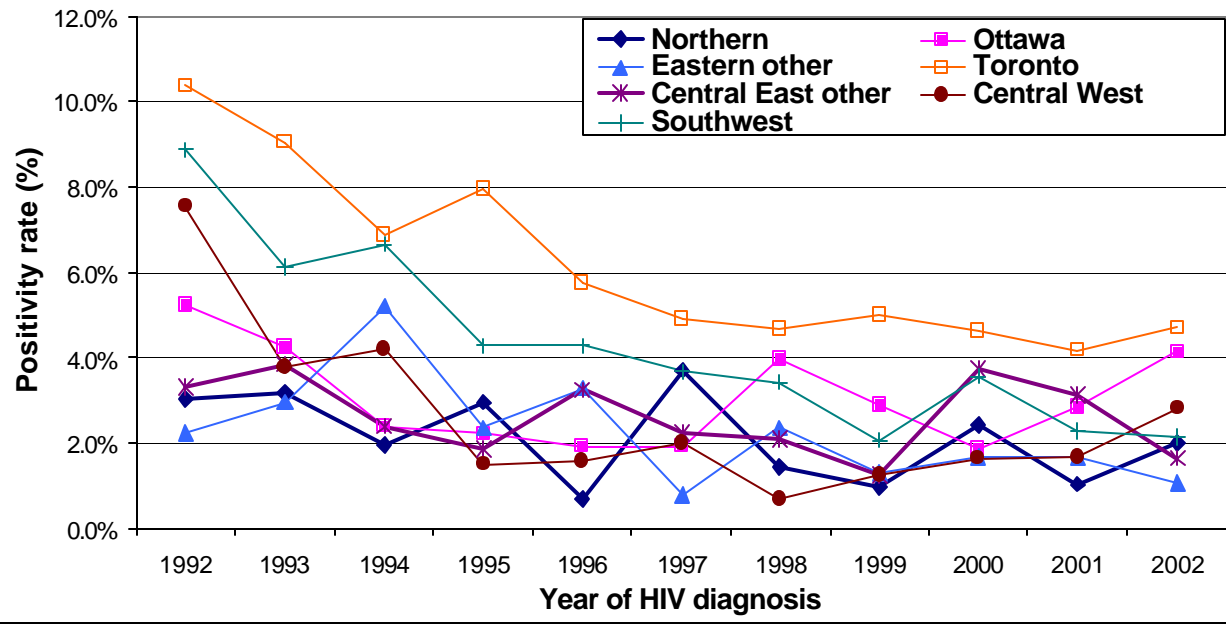


Figure 1.4 First-time HIV positivity rates (adjusted) among IDU by year of HIV diagnosis and health region, Ontario, 1992 to 2002

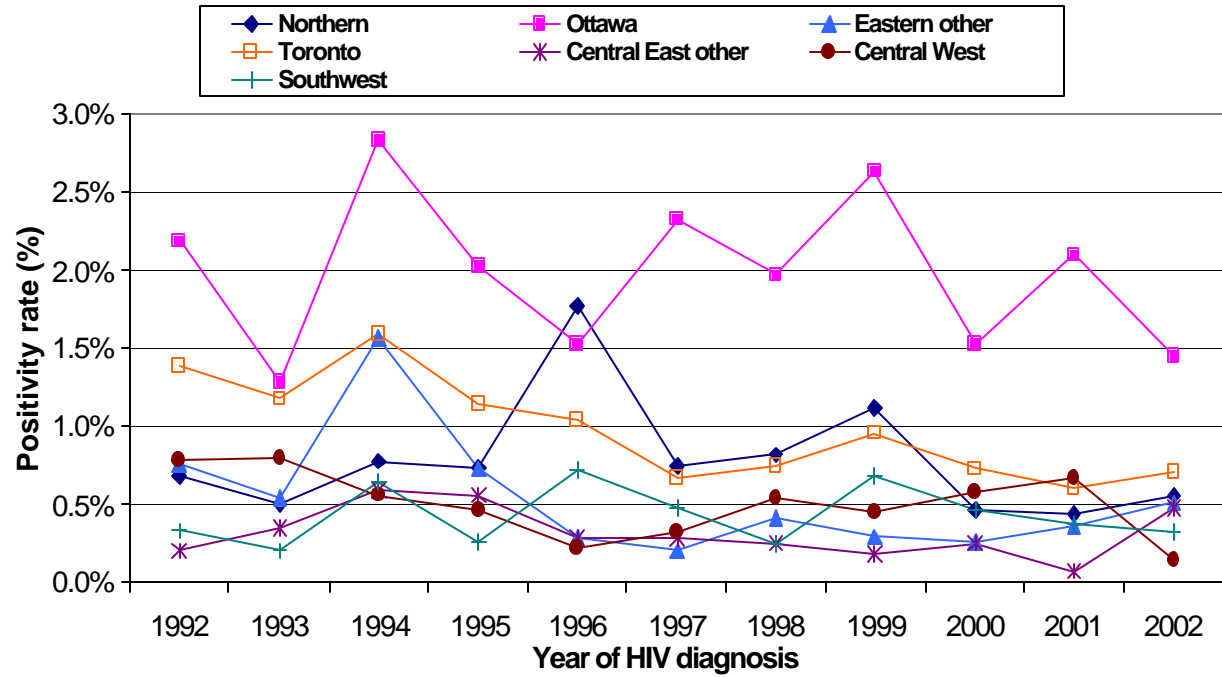


Figure 2.1 Number of reported AIDS cases adjusted for reporting delays by year of AIDS diagnosis and exposure category, Ontario, 1981 to 2002

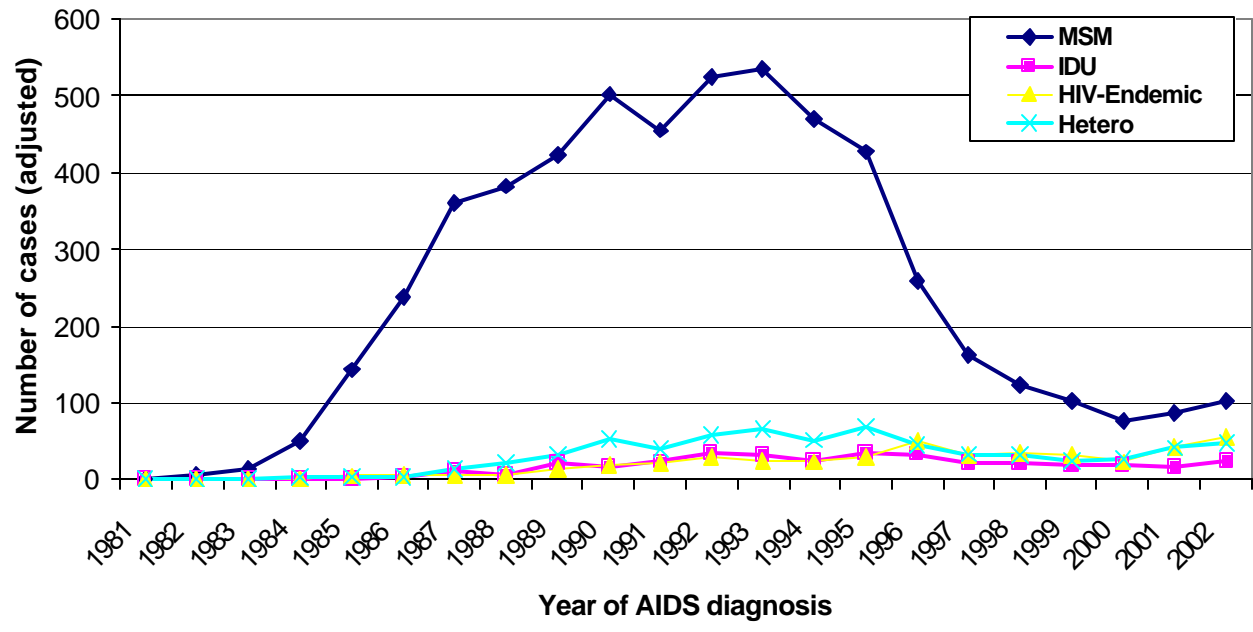


Figure 5.1 Modeled HIV incidence and prevalence among MSM
Ontario, 1977 to 2002

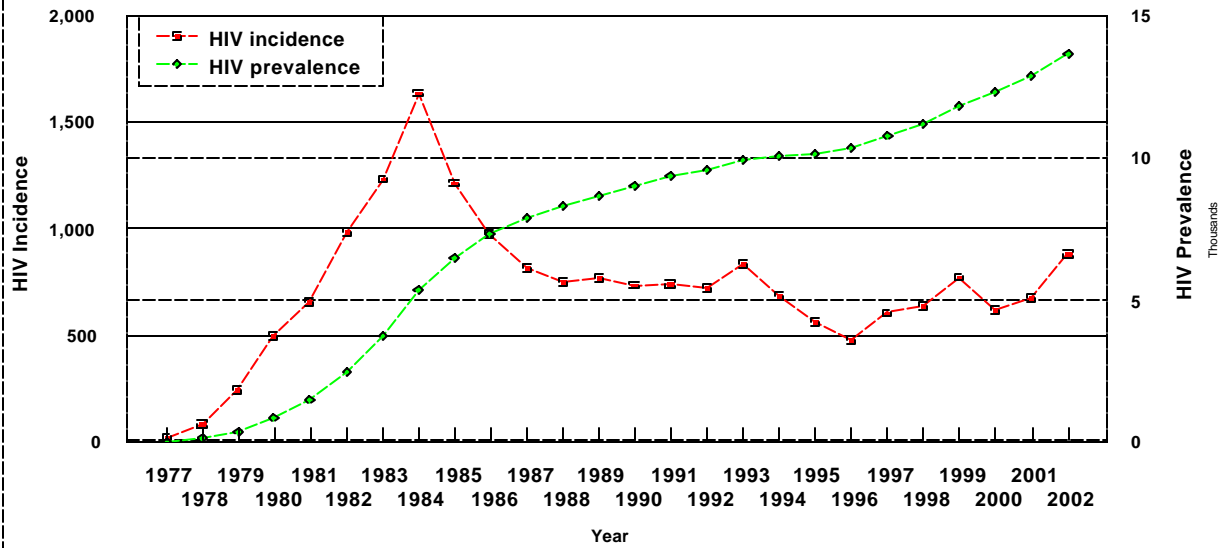
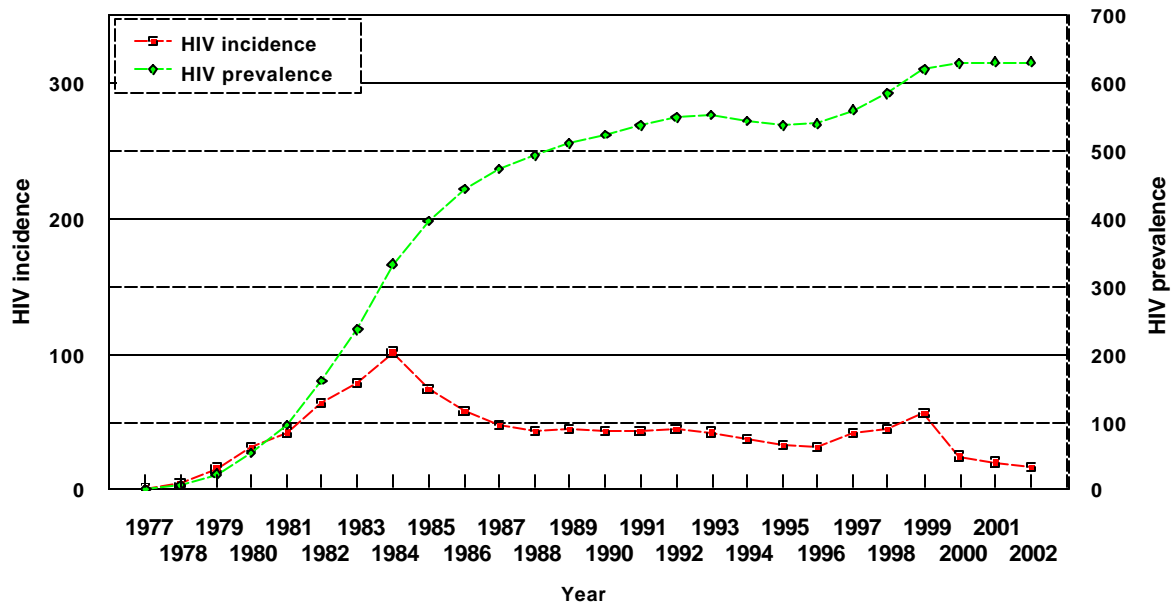


Figure 5.2 Modeled HIV incidence and prevalence among MSM-IDU Ontario, 1977 to 2002



**Figure 5.3 Modeled HIV incidence by sex among IDU
Ontario, 1977 to 2002**

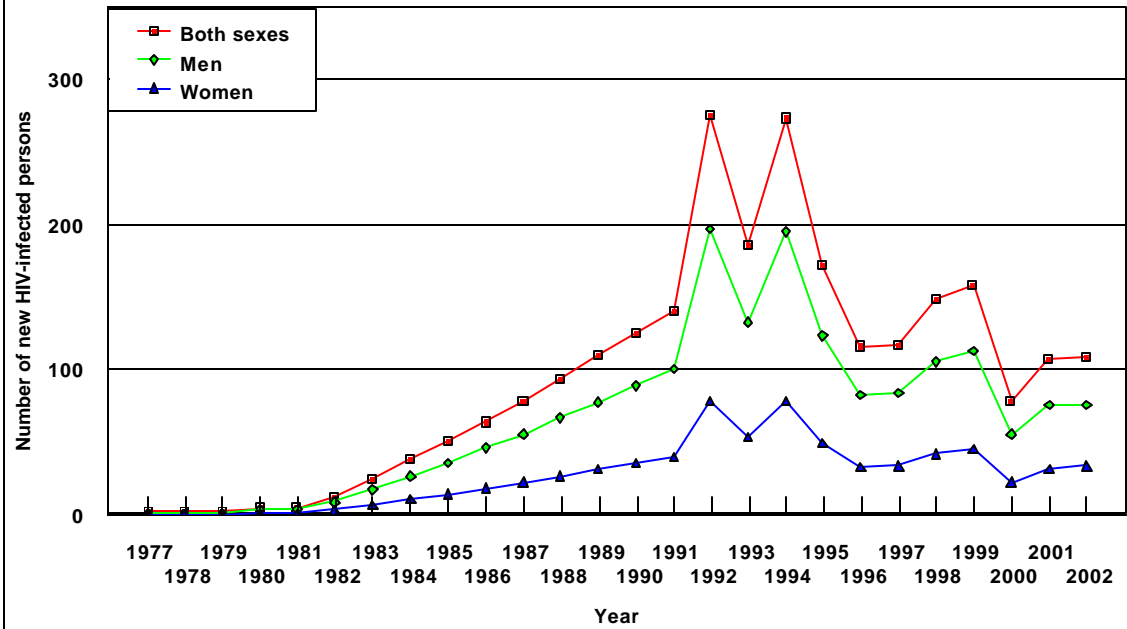


Figure 5.4 Modeled HIV prevalence by sex among IDU
Ontario, 1977 to 2002

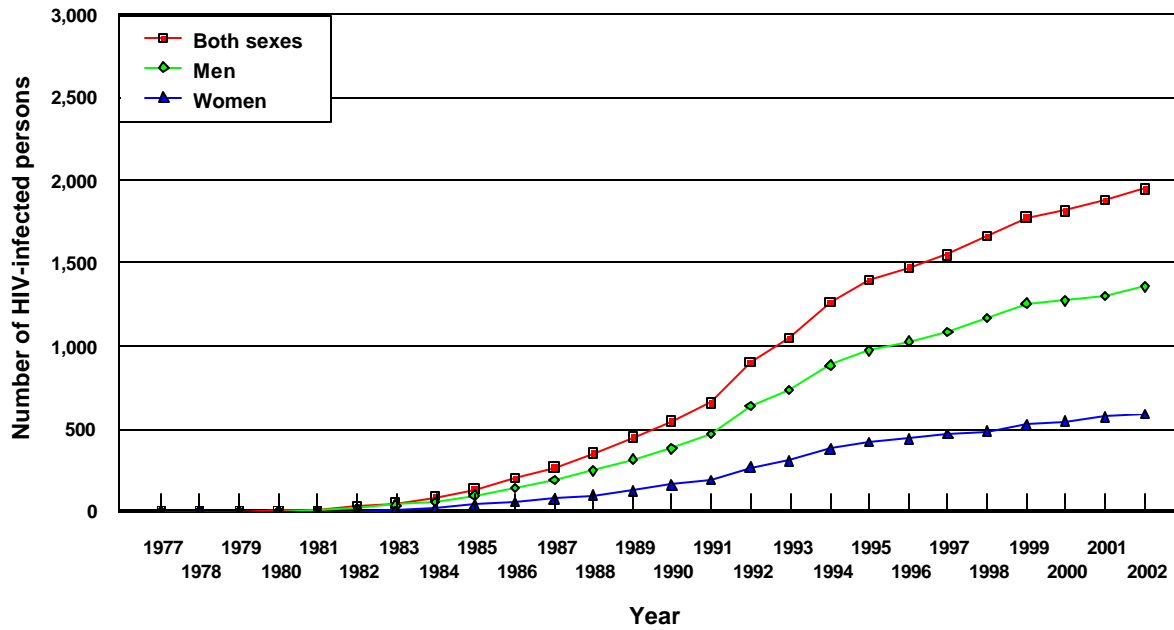


Figure 5.5 Modeled HIV incidence among persons from HIV-endemic countries, by sex, Ontario, 1977 to 2002

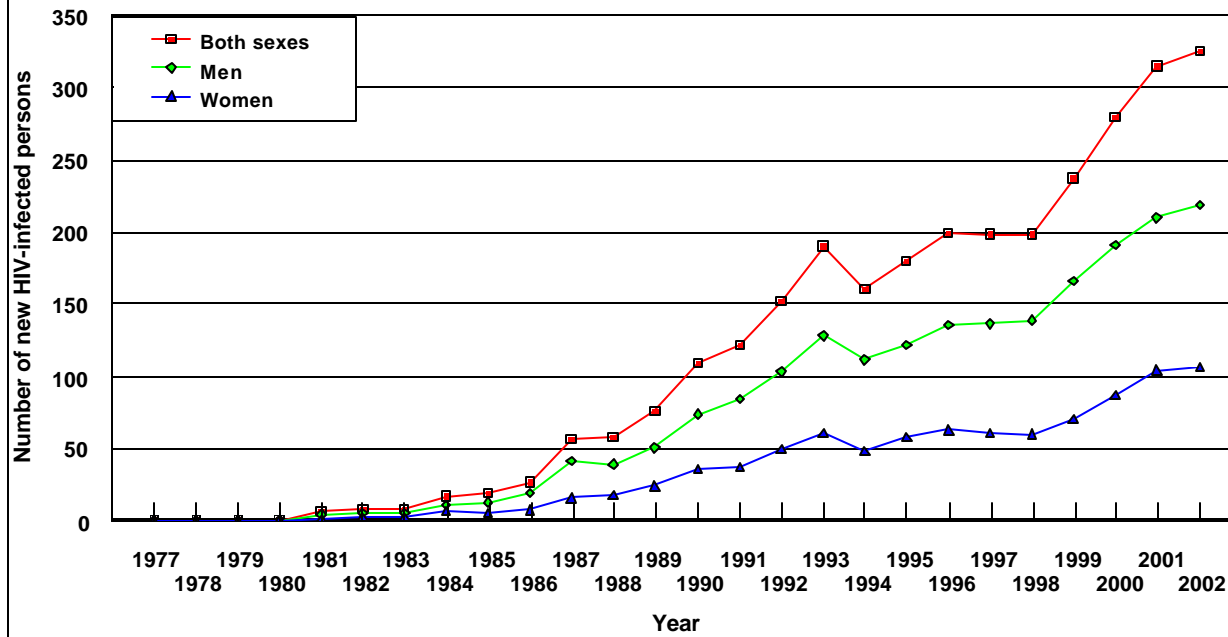


Figure 5.6 Modeled HIV prevalence among persons from HIV-endemic countries, by sex, Ontario, 1977 to 2002

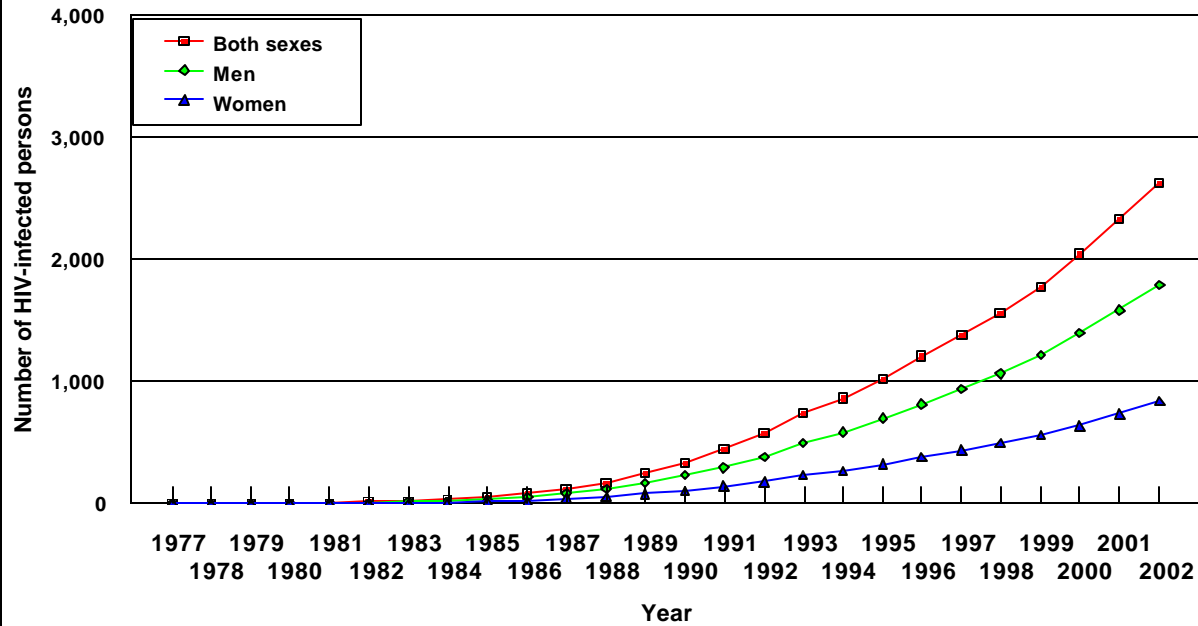


Figure 5.7 Modeled HIV incidence among persons infected through heterosexual contact, by sex, Ontario, 1977 to 2002

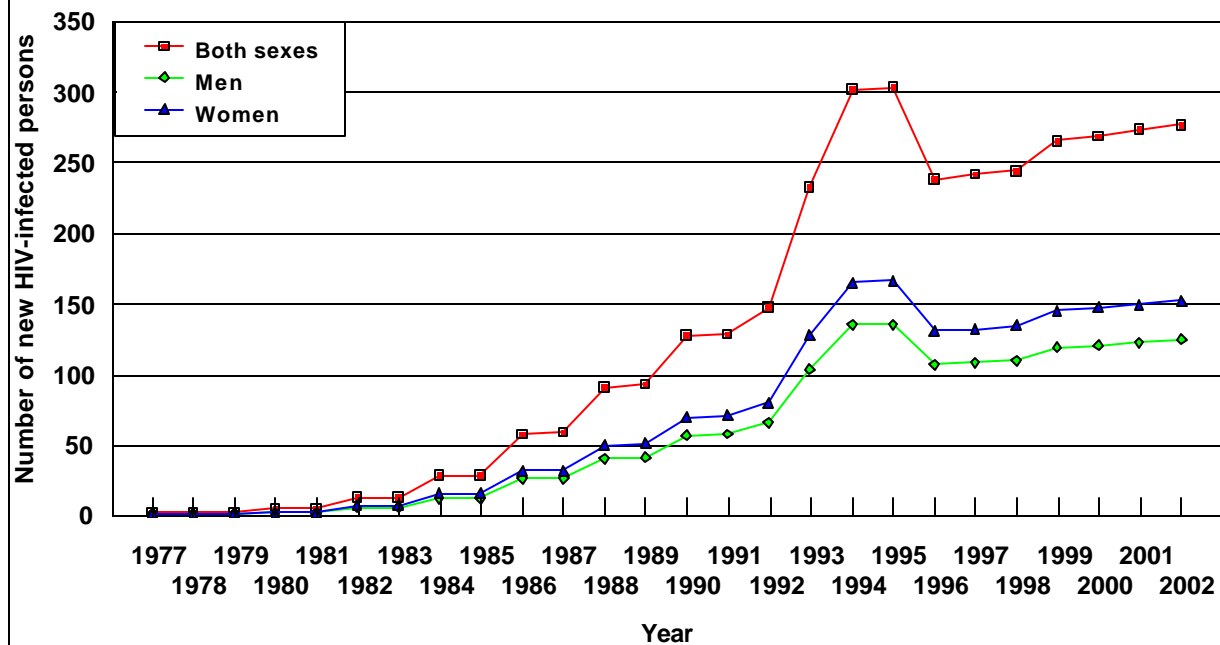


Figure 5.8 Modeled HIV prevalence among persons infected through heterosexual contact, by sex, Ontario, 1977 to 2002

