

2016 ANNUAL STATISTICAL UPDATE: HIV AND AIDS

Released January, 2018

Updated May, 2018



HEALTHY MANITOBANS THROUGH AN APPROPRIATE BALANCE OF PREVENTION AND CARE.

TO MEET THE HEALTH NEEDS OF INDIVIDUALS, FAMILIES AND THEIR COMMUNITIES BY LEADING A SUSTAINABLE, PUBLICLY ADMINISTERED HEALTH SYSTEM THAT PROMOTES WELL-BEING AND PROVIDES THE RIGHT CARE, IN THE RIGHT PLACE, AT THE RIGHT TIME.

— MISSION, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING

Epidemiology & Surveillance

Public Health Branch

Public Health and Primary Health Care Division

Manitoba Health, Healthy Living and Seniors

Publication date: January 2018, updated May 2018

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Suggested citation: Government of Manitoba, Manitoba Health, Seniors and Active Living, Public Health and Primary Care Division, Epidemiology and Surveillance. (2018). 2016 Annual Statistical Update: HIV and AIDS

ABBREVIATIONS & REGIONAL HEALTH AUTHORITIES

ABBREVIATIONS

| | |
|-------|---|
| AIDS | Acquired Immunodeficiency Syndrome |
| HIV | Human Immunodeficiency Virus |
| PWID | Persons who inject drugs |
| MHSAL | Manitoba Health, Seniors and Active Living |
| MSM | Men who have sex with men |
| NIR | No identifiable risk |
| PHAC | Public Health Agency of Canada |
| BTPR | Blood transfusion product recipient (prior to 1985) |
| RHA | Regional Health Authority |

REGIONAL HEALTH AUTHORITIES

| | |
|-------|---|
| WRHA | Winnipeg Regional Health Authority (includes Churchill) |
| SH-SS | Southern Health – Santé Sud |
| IERHA | Interlake-Eastern Regional Health Authority |
| PMH | Prairie Mountain Health |
| NH | Northern Regional Health Authority |

ACKNOWLEDGEMENTS

Manitoba Health, Seniors and Active Living (MHSAL) would like to acknowledge the important efforts of public health professionals and health care providers across the province involved in the interview of new cases and reporting case-based surveillance information to the provincial surveillance system. Without these continued efforts, this report would not be possible.

We also wish to acknowledge the people in Manitoba who are living with HIV/AIDS. It is always important to remind ourselves that each “case” represents an important and valuable member of our communities.

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HIGHLIGHTS

Manitoba Health, Seniors and Active Living (MHSAL) is pleased to present the updated 2016 *Annual Statistical Update: HIV and AIDS*. This report is intended to provide Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) surveillance information to assist with on-going public health efforts in Manitoba.

Selected highlights on the population living with HIV in Manitoba include:

- ⊕ A total of 109 newly diagnosed HIV cases were reported in 2016, an increase 5 cases over the previous year.
- ⊕ Of the 109 newly identified cases of people living with HIV (PLWH), 38 (35%) were previously diagnosed with HIV outside of Manitoba. However, 2016 was the **first year that they were identified as HIV positive cases within the province** and they are counted as new cases to Manitoba.
- ⊕ In 2016, 68% of all cases (n= 74 cases) were male and 32% were female (n= 35 cases) and the average age of newly identified PLWH was 39.9 years.
- ⊕ 78% of individuals newly diagnosed with HIV reported their place of residence in Winnipeg Regional Health Authority (WRHA).
- ⊕ In 2016, of all newly diagnosed HIV infected individuals who self-reported their ethnicity, both African/Caribbean/Black and Indigenous (First Nations, Métis Nations, and Inuit) ethnic groups represented 31.2% of cases, each, while the White ethnic group comprised 18.3% of cases. The new HIV cases in the Caucasian ethnicities group was predominantly male and the African/Caribbean/Black ethnic group represented the majority of female cases.
- ⊕ The most common primary risk exposure classifications in 2016 were endemic exposure (30 cases), heterosexual contact (28 cases), and men who have sex with men (23 cases). No identifiable risk infections (NIR) remained high at 17 cases (16%).
- ⊕ In 2016, one new AIDS case and two deaths related to AIDS were reported.

HOW DOES MANITOBA COMPARE?

At the end of 2016, Manitoba had one of the highest reported diagnosis/incidence rates of new HIV cases among the provinces and territories. The rate in Manitoba was 1.26 times higher than the overall Canadian rate. In terms of absolute numbers, cases from Manitoba accounted for 4.7% of newly diagnosed cases in Canada in 2016 while people living in Manitoba make up only 3.6% of the Canadian population [1].

INTRODUCTION

MHSAL is pleased to present the *Annual Statistical Update: HIV and AIDS (2016)* report, which has been further updated as of May, 2018. This report is intended to provide surveillance information in Manitoba for new cases of Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) that are reported to the Public Health Surveillance Unit at Manitoba Health, Seniors and Active Living (MHSAL) up to December 31, 2016.

The 2016 HIV data presented here includes an examination by:

- ⊕ age and sex,
- ⊕ geographic region,
- ⊕ self-reported ethnicity, and
- ⊕ primary risk exposure category.

The analysis of AIDS data is limited due to the small number of cases reported in recent years.

SURVEILLANCE OF HIV AND AIDS IN MANITOBA

All confirmatory HIV antibody testing in Manitoba is carried out at the Cadham Provincial Laboratory (CPL). Positive HIV antibody test results are reported to the Chief Provincial Public Health Officer (CPPHO) as required by the *Reporting of Diseases and Conditions Regulations, Public Health Act* and to the Public Health Surveillance Unit at MHSAL. Upon receipt of a positive HIV lab report, the Public Health Surveillance Unit sends the *HIV Case Investigation Form for Nominal & Non-Nominal Positive Cases* (see Appendix A) to the healthcare provider who ordered the test. This form verifies whether it is a new or existing HIV case. Within the Surveillance Unit, all positive HIV test results are considered new cases unless otherwise advised by the appropriate health care professional or through public health follow-up.

Alterations to HIV antibody testing procedures in the province occurred on January 1, 2007 with the introduction of nominal (linked to the tested person's name) and November 1, 2007 with the introduction of anonymous (unlinked) testing. This was in addition to the existing non-nominal (potentially linked through coding) testing option (see glossary for detailed definitions of testing procedures). More information describing the management protocol of HIV/AIDS and its three testing options can be found on the Communicable Disease Management Protocol for HIV/AIDS (see Appendix B).

Nominal testing has steadily increased since its introduction. It should be noted that it is possible for individuals tested using a non-nominal code to have prior or subsequent HIV tests using a

different non-nominal code, by anonymous testing, or by name. For this reason, the public health surveillance system has experienced challenges in identifying the clients who may have had repeat tests. As a result, duplicate cases may be counted as independent infections.

New AIDS cases and deaths are also reported by physicians and health care professionals to the CPPHO as required by the *Reporting of Diseases and Conditions Regulations, Public Health Act*. In Manitoba, the national *HIV/AIDS Case Report Form* is used for this purpose. This report describes AIDS cases based on year of diagnosis of the first clinical AIDS defining illness (as defined by the national case definitions published by the Public Health Agency of Canada). It should be noted that this may not be the same as the year that the case was reported to the Public Health Surveillance System (at MHSAL).

Provincial HIV and AIDS case data is annually reported to the Centre for Communicable Disease and Infection Control, Public Health Agency of Canada (PHAC) for inclusion in the national surveillance reporting. Variations that might exist between provincial and national reports may be accounted for by delays in reporting as well as the continuous updating of information in the MHSAL surveillance databases.

NOTES AND LIMITATIONS

- ⊕ The number of new HIV cases reported is not a reflection of the number of new HIV infections per year (i.e. incidence) in the Manitoba population. It is possible for an individual to be tested with a non-nominal identifier and use nominal testing for a subsequent test. In this case, linkage of results can only be done when client consent is provided. In addition, cases that have tested positive in another province or country may be reported to the Public Health Surveillance System as new cases.
- ⊕ The number of new cases to Manitoba may not match other reports, as HIV case definitions may vary slightly from one organization to the next.
- ⊕ Changes in the number of HIV positive individuals as well as observed trends must be interpreted with caution. There are a number of factors that may contribute to these changes, for example, changes in testing or reporting patterns by care providers.
- ⊕ Ethnicity and risk exposure categories are self-reported, so the responses may be subject to a degree of bias leading to possible under-reporting (or alternatively, over-reporting) of certain factors.
- ⊕ The primary risk exposure categories presented in this report reflect the most likely mode of transmission for a new HIV case. An individual may report more than one risk factor or exposure on their case investigation form but will be assigned to a “primary mode of transmission” based upon an established hierarchy of risk.

- ⊕ In this report, the Winnipeg Regional Health Authority (WRHA) covers the populations and HIV counts of both Winnipeg and Churchill.
- ⊕ As an ongoing effort to continuously improve data quality and accuracy, counts and rates may vary slightly from year to year.

METHODS

CASE DEFINITIONS

An HIV case is defined as:

An individual with a positive HIV antibody or DNA test reported to the Public Health Surveillance System, Epidemiology and Surveillance, MHSAL for the first time. Only individuals who reside in Manitoba at the time of their diagnosis are included in this report.

Notes about the case definition:

- ⊕ **DNA testing** has been added to the case definition. It is recommended for children under the age of one-to-two, as antibodies may be absent due to an immature immune system or present, but transferred from the breastfeeding mother. In either case, HIV infection of the young child cannot be confirmed using antibody testing.
- ⊕ **New cases do include** individuals who reside in Manitoba and have been previously been diagnosed with HIV in another province or country. All cases considered to be “new to Manitoba” are relevant, as they can impact on the use of health programs and services within Manitoba.
- ⊕ When an individual has previously tested positive in the province using a non-nominal identifier and subsequently tests again, but nominally, both test results may be counted in the analysis **unless** that person consents to provide their previous non-nominal identifier or the health care provider indicates the test is a repeat form a previous year (see glossary for descriptions).
- ⊕ The surveillance data examined in this report was extracted in December 2017 from the MHSAL Public Health Surveillance System databases. The inclusion criteria for this report only considers cases with **specimen collection dates** between January 1, 2006 and December 31, 2016. In the case where specimen collection dates were not available, record entry date and form completion dates were used (see glossary on page 33 for date definitions). Cases that did not have recorded dates were not included in this report.

Provincial AIDS cases are reported upon clinical diagnosis of an AIDS-defining illness and meeting the case definition for HIV (see above). Date of AIDS diagnosis and date of AIDS-related death were used to identify the reporting year and year of death of the person with AIDS, respectively.

The case definitions used by Manitoba for HIV and AIDS are based on those published by PHAC (see Appendix B for links).

The Manitoba population number on June 1, 2016 was used for rate calculations. It was extracted from the Manitoba Health Population Registry, provided by Information Management and Analytics, MHSAL.

CALCULATION OF ANNUAL RATE AND DEFINITION OF STATISTICAL TERMS

Annual incidence (new case) rates were calculated using the MHSAL mid-year population count. All incidence rates are crude rates, calculated as:

$$\text{Crude rate} = \frac{\text{Number of cases}}{\text{Population of specified group in the time frame}} \times 100,000 \text{ people}$$

This produces the number of reported cases per 100,000 population. That is, the number of cases per 100,000 individuals in the population, including both people who may and may not have been exposed to HIV, in that year.

Below is a brief description of main statistics discussed in the paper.

Table 1. Meanings of each statistic contained in the report. The coloured labels correspond to the titles of figures displaying that statistic

| TERM | DESCRIPTION |
|--|--|
| NUMBER | In this report; case count, also known as Frequency |
| PROPORTION | In this report; percent of total case count |
| CRUDE INCIDENCE RATE | Case count of new HIV diagnoses divided by the population count and multiplied by 100,000 people |
| CRUDE RATE OR CRUDE RATE OF NEW CASES | Specific to this report; new cases (incident cases added to cases that may not be new, but are introduced into the province in the same year) divided by the population count and multiplied by 100,000 people |
| PREVALENCE | Not calculated in this report, but counts of all new and existing cases, divides by population count, and multiplied by 100,000 people |
| DISTRIBUTION | The shape and spread of cases/rates/proportions when they are plotted by subgroup categories |

PRIMARY RISK EXPOSURE CATEGORY

The primary risk exposure categories presented in this report reflect the most likely mode of transmission for a new HIV case. An individual may report ever experiencing more than one risk factor or exposure on their case investigation form but will be assigned to a “primary mode of transmission” based upon an established hierarchy of the risk categories. This hierarchy has been used in previous Manitoba HIV surveillance reports, and is similar to the risk hierarchy published by PHAC in 2012¹.

The hierarchy assigns the case to a risk exposure category based on which factor is *most likely* to have been the mode of transmission of the virus (e.g. if an individual checks off MSM, endemic, and occupational as their risk factors, that person will have MSM identified as their primary risk exposure category). The hierarchy used by MHSAL is similar (but not identical) to that used by PHAC. For simplicity, the term “risk primary exposure category” is equivalent to “primary mode of transmission” in this report. Note that the terms used in Table 1 are defined below.

Table 2. Hierarchy of primary risk exposure categories of HIV in Manitoba

| RANK | MALES | FEMALES |
|------|--|--|
| 1 | Men who have sex with men and indicate injection of drugs (MSM + PWID) | Persons who inject drugs (PWID) |
| 2 | Men who have sex with men (MSM) | Endemic |
| 3 | Persons who inject drugs (PWID) | Blood transfusion product recipient (BTPR) |
| 4 | Endemic | Heterosexual contact |
| 5 | Blood transfusion product recipient (BTPR) | Occupational |
| 6 | Heterosexual contact | Perinatal |
| 7 | Occupational | No identifiable risk (NIR) |
| 8 | Perinatal | |
| 9 | No identifiable risk (NIR) | |

Challenges in obtaining completed case investigation forms have been noted in past years. The risk exposure category information is particularly susceptible to underreporting. Missing data limit our ability to interpret results; these data should be interpreted with caution. We cannot be 100% confident that the frequencies and percentages of the risk exposure categories exhibited in the surveillance dataset reflect the true distribution of risk among all new HIV cases.

¹ <https://www.canada.ca/en/public-health/services/hiv-aids/publications/population-specific-hiv-aids-status-reports/people-living-hiv-aids/chapter-2-epidemiological-profile-hiv-aids-canada.html>

PRIMARY RISK EXPOSURE CATEGORY DEFINITIONS

ENDEMIC

The endemic risk exposure category includes those persons who originated from or resided in an HIV-endemic country (see Appendix C for the full list of HIV-endemic countries). People who reported the following risk factors were included in this risk exposure category:

- ⊕ persons being born in an HIV-endemic country
- ⊕ persons having sexual contact while in an HIV endemic country

An HIV-endemic country is defined as a country where the adult (ages 15-49 years) prevalence of HIV is 1.0% or greater and one of the following is satisfied:

- ⊕ 50% or more of HIV cases are attributed to heterosexual transmission;
- ⊕ the male to female case ratio of 2:1 or less; or
- ⊕ HIV prevalence is greater than or equal to 2% in women receiving prenatal care [4].

HETEROSEXUAL CONTACT

The heterosexual contact risk exposure category includes those individuals who reported heterosexual activity with a person(s) only from the opposite sex.

PERSONS WHO INJECT DRUGS (PWID)

The persons who inject drugs (PWID) risk exposure category includes those individuals who reported any injection of drugs for non-medicinal purposes.

MEN WHO HAVE SEX WITH MEN (MSM)

The men who have sex with men (MSM) risk exposure category includes those men who reported having sex with men.

MEN WHO HAVE SEX WITH MEN AND INDICATE INJECTION OF DRUGS (MSM + PWID)

The men who have sex with men/injection drug use category includes those men who reported as MSM *and* are PWID.

NO IDENTIFIABLE RISK (NIR)

The no identifiable risk (NIR) primary risk exposure category is assigned to a case when either no risk factor information was not provided by the HIV-positive individual or the case report form was not completed. This category also includes those cases in the process of follow-up where risk data have yet to be collected or that were lost-to-follow-up where risk data were never collected.

OCCUPATIONAL

The occupational risk exposure category includes individuals who reported work-related exposure to HIV. Examples of occupational transmission include: needle stick injury or exposure to blood or bodily fluids in an occupational environment.

PERINATAL

The perinatal risk exposure category includes those cases for which the virus was transmitted from mother-to-child. This can occur at birth or through breastfeeding and most often when the mother is not treated with antiretroviral medication around the time of delivery. Typically, this information is reported by specialist physicians directly to PHAC through the sentinel surveillance system: Canadian Perinatal Surveillance System.

BLOOD TRANSFUSION PRODUCT RECIPIENT (BTPR)

The blood transfusion product recipient (BTPR) category includes PLWH who have received a blood transfusion product prior to 1985 – prior to the screening of blood/blood products for HIV – or have received blood transfusion products outside of Canada.

SURVEILLANCE DATA

NUMBER OF NEW HIV CASES

109 cases in 2016: A continued upward trend in new HIV cases in Manitoba

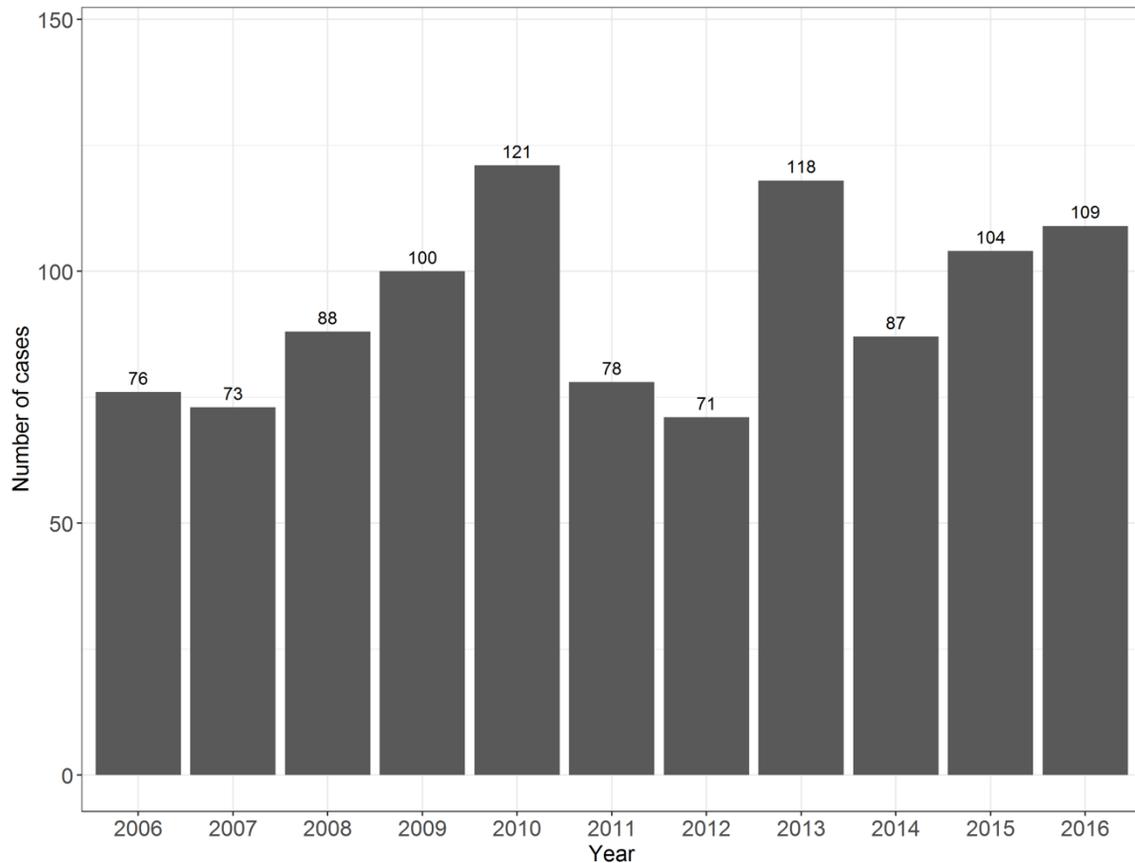


Figure 1. Number of HIV Cases that are New to Manitoba by Year (2006-2016).

Note: Diagnostic results of cases previously tested with a non-nominal identifier and re-tested nominally are both included in the analysis unless the non-nominal identifier is provided by the client or the health care provider indicates the test as a repeat (see glossary for descriptions).

In Manitoba, between January 1st and December 31st, 2016, a total of 109 new HIV cases were reported based on laboratory-positive HIV antibody and DNA tests. This represents a 5% over 2015 and a 25% increase over 2014. From 2006-2016, the average number of new HIV cases per year is 93, indicating that, with an average of 105 cases per year, the most recent four years have above average new infection counts for the period. Although there is noticeable variability in counts between 2006 and 2016, 2016 contributes to a recent upward trend in the annual number of new cases for the 11-year period (an average of 2.5 additional cases per year).

8.1 new HIV cases/100,000 people in 2016: Manitoba's crude rate of new HIV cases continues to surpass Canada's crude rate.

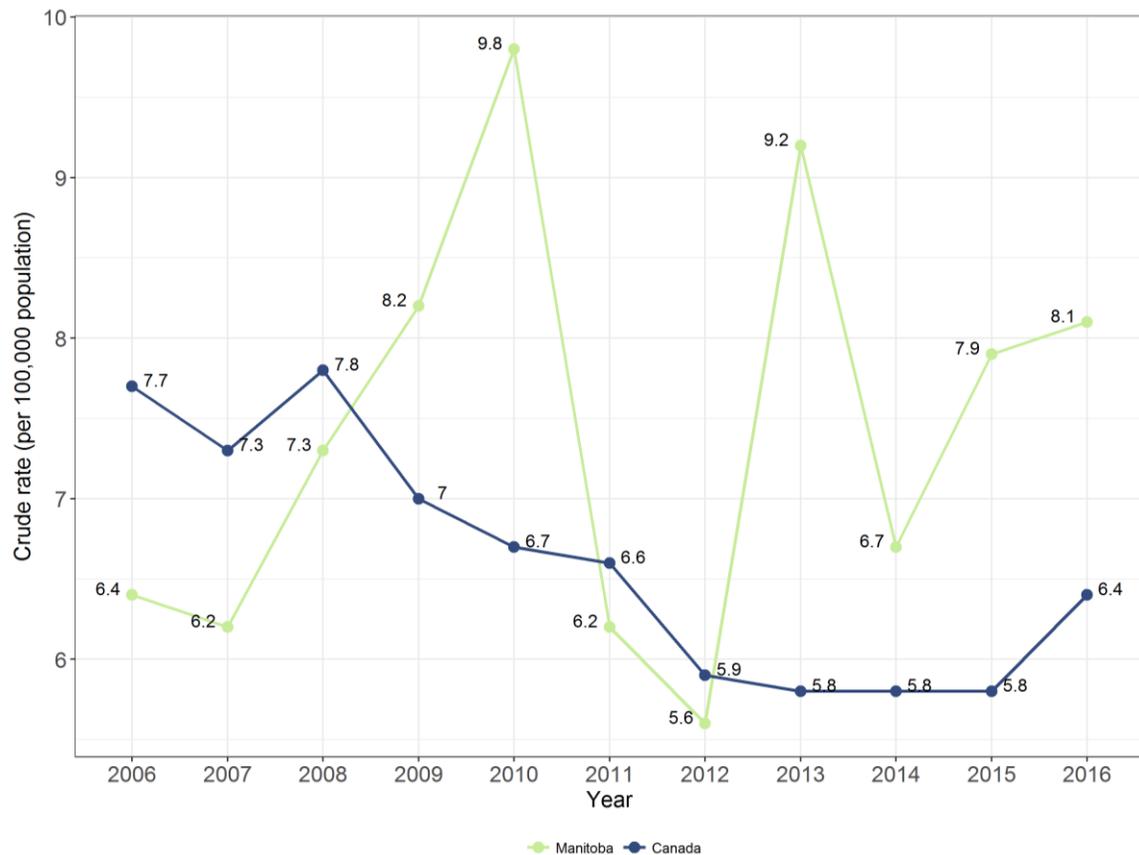


Figure 2. Crude Rates of New HIV Cases in Manitoba and *Canada* by Year (2006-2016).

Like the HIV case count data from Figure 1, the crude rate of new HIV cases per 100,000 Manitobans has been highly variable, with multiple peaks and valleys in the last 11 years. In 2016, the Manitoba rate of 8.1 per 100,000 Manitobans. This rate is a 27% increase over the national rate of 6.4 new HIV cases per 100,000 Canadians. In fact, though rates in Manitoba have been unstable in the 11-year period, the provincial rate of new HIV cases has been consistently higher than the national rate for the last four years.

PREVIOUSLY TESTED HIV CASES

In 2016, two out of three new cases of HIV in Manitoba are likely newly diagnosed HIV infections

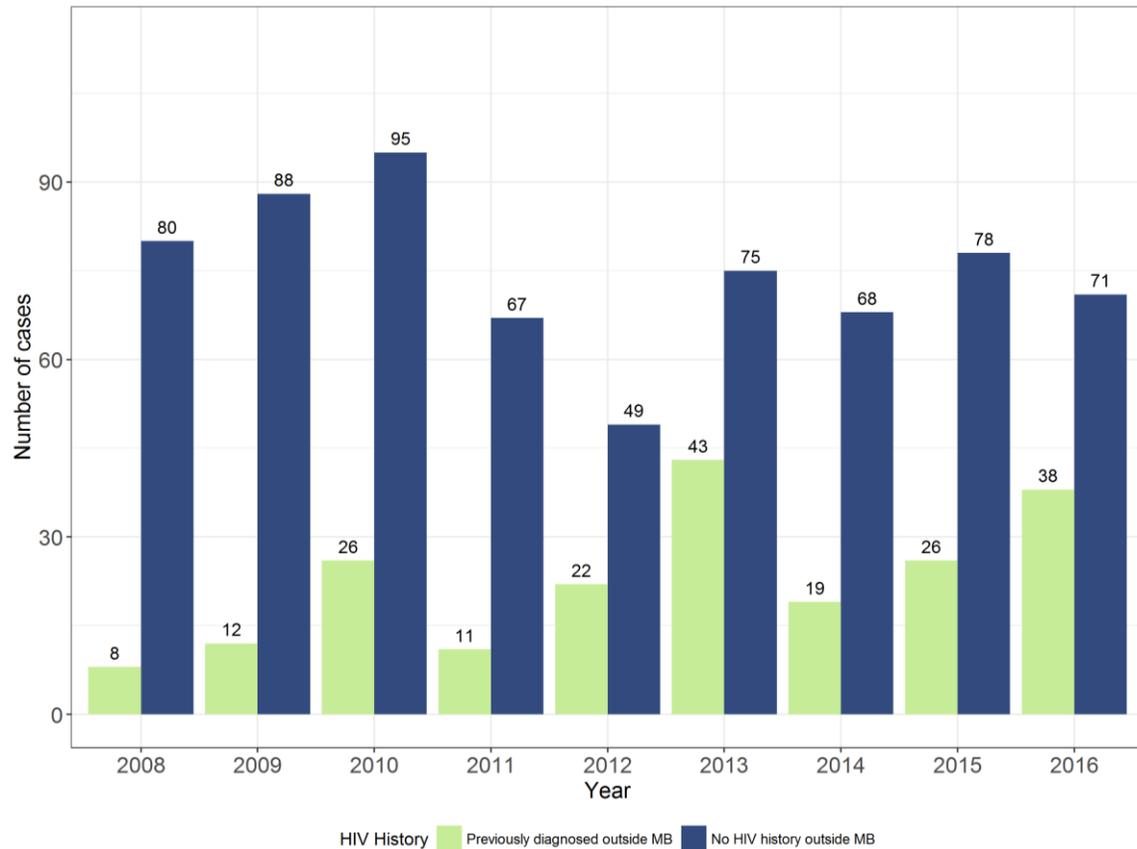


Figure 3. Number of New HIV Cases in Manitoba by *HIV History* and *Year* (2008-2016). The data for this field were not collected prior to 2008.

The bulk of HIV cases newly identified to MHSAL are new HIV diagnoses, representing newly discovered HIV transmission events in Manitoba. This represents a concerning proportion of new cases, and can be examined further to identify Manitoban populations that continue to be at-risk for HIV infection and should be focus of the province's prevention efforts. Conversely, just over 1 in 3 cases (38 cases, or 35% of all new cases) had previously tested positive for HIV out-of-province, confirming that not all newly reported HIV cases necessarily represent a new HIV transmission event, nor a new infection from 2016. However, these cases are included in the total new case numbers for this report as these cases impact public health programs and health care services within Manitoba. Interestingly, the increase in new HIV cases in Manitoba over the past 3 years (and a high crude rate of 8.1 cases per 100,000 Manitobans in 2016; Figure 2) corresponds

with a doubling of new cases imported into to Manitoba between 2014 (19 cases) and 2016 (38 cases).

SEX AND AGE DISTRIBUTION OF HIV CASES

Males continue test positive for HIV at greater rates than females (zero cases were reported in the transgender population of Manitoba in 2016)

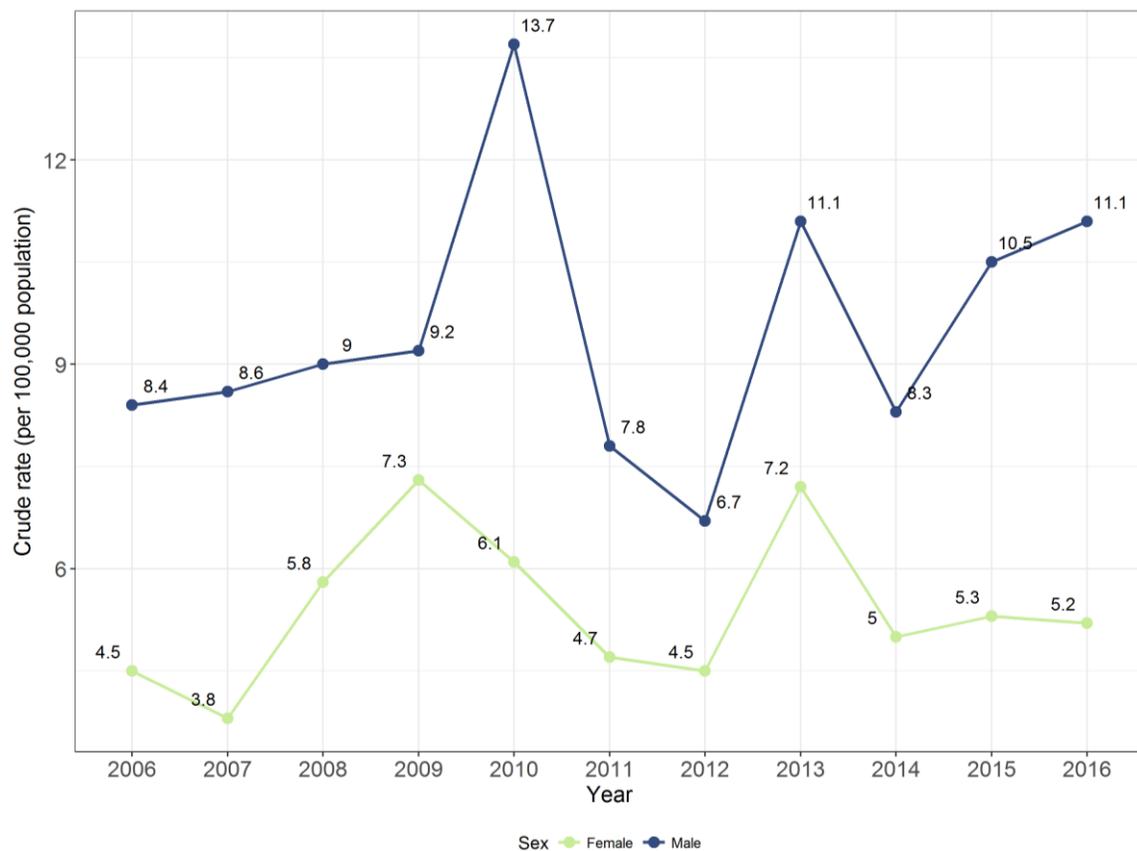


Figure 4. Crude Rates of New HIV Cases to Manitoba by Sex and Year (2006-2016).

Over the last 11 years, the rate of newly reported HIV cases in Manitoba is consistently higher in men (Figure 4). The overall male and female trends showed a fluctuating pattern with the male HIV infection rate being approximately double that of the female rate in 2016 (11.1 and 5.2, respectively). Starting in 2010, and into 2012, the rate of new HIV infections in both males and females dropped sharply, however, in 2013, it had rebounded to 11.1 and 7.2 new HIV cases per 100,000 population for males and females, respectively. A notable drop in annual HIV case rates was observed in 2014 for both sexes. From 2014 onwards, annual HIV case rates for males and females have increased consistently.

From Figure 4, it appears as though the timing of the peak rates in 2010 and 2013 correspond to peaks in numbers of new diagnoses in 2010 (95 new HIV infections) and imported cases in 2013 (43 new cases identified by MHSAL) that we saw in the previous bar graph (Figure 3).

58% of new male HIV cases were in men over the age of 40, while 71% of female cases were in women between 30 and 49 years old

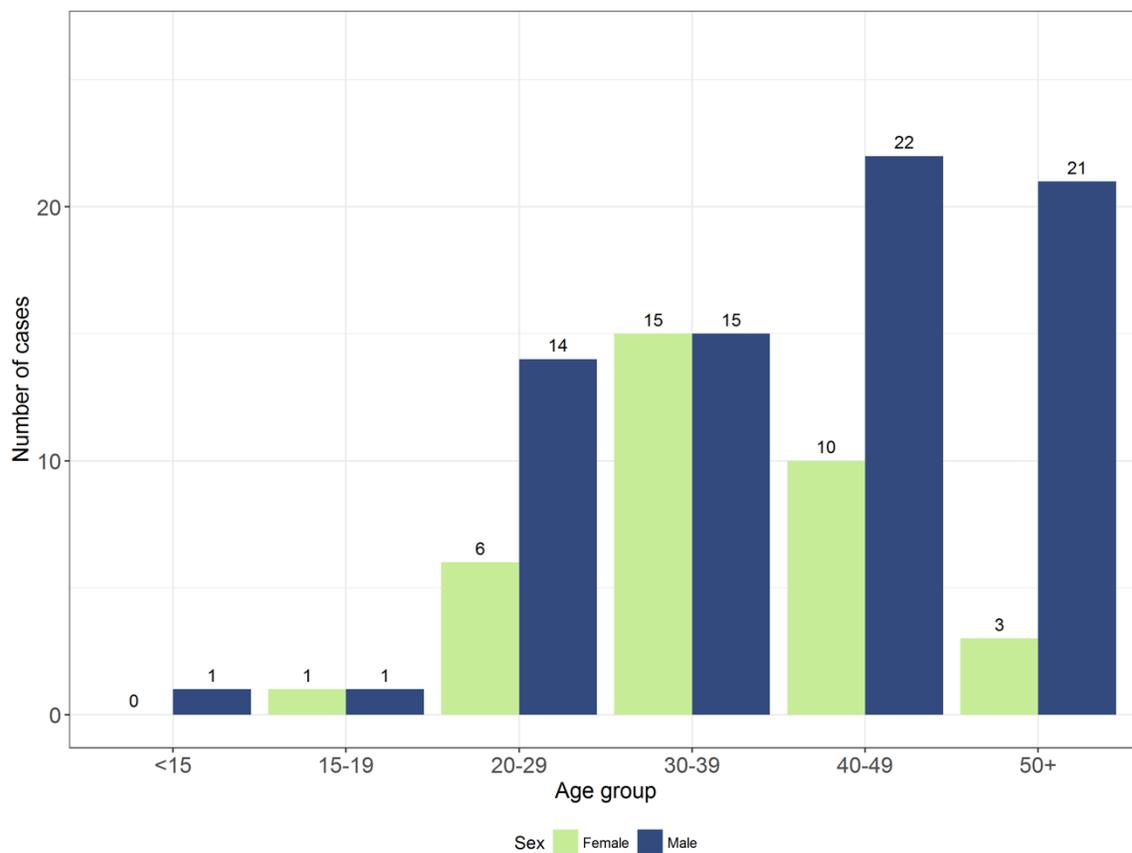


Figure 5. Number of New HIV Cases Manitoba by Age and Sex, in 2016.

Approximately 2 in 3 new HIV cases in Manitoba in 2016 were in males (67.9%) and 1 in 3 were in females (32.1%). The average age of new HIV cases in 2016 was 39.9. The average age of previously positive PLWH was 38.6 years of age and of newly diagnosed PLWH was 41.9 (median ages 44.2 and 38.2, respectively). The HIV infection numbers were highest in the 40-49 years age group, which accounted for 29% of all new HIV cases in 2016. Males accounted for 68% (74 cases) of all new HIV cases in Manitoba in 2016. Of the 32 cases in the 40-49 years age group, 22 (69%) were male.

In 2016, the HIV case number by age group pattern appears to be different between sexes. Males aged 40 or over accounted for 43 (58%) of the 74 total male cases, while females between the ages 30-49 accounted for 25 (71%) of the 35 cases in women in 2016. On average, HIV-infected males were 3.3 years older than females (average ages of 41.8 and 38.5, respectively).

People in their forties have the highest rates of new HIV cases and in people in their thirties saw their rate increase by 30% from the previous year

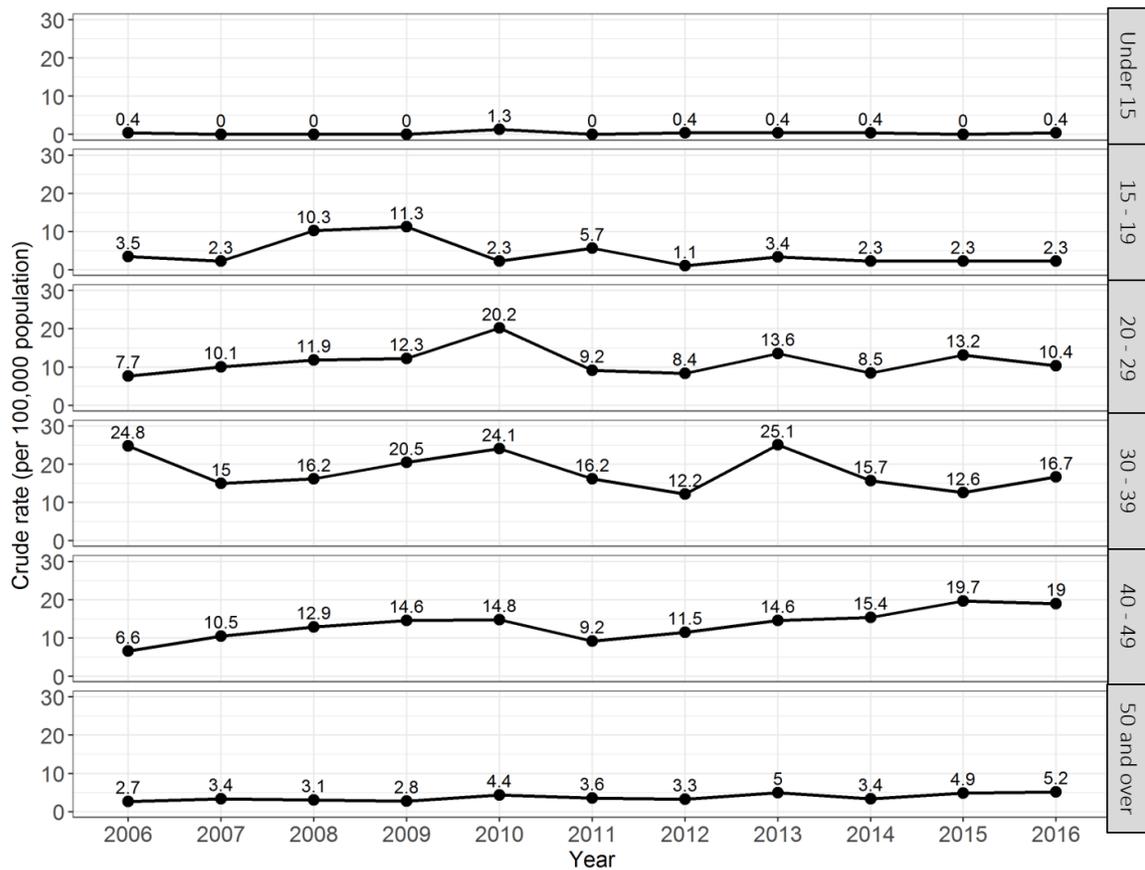


Figure 6. Crude Rates of New HIV Cases in Manitoba by Age Group and Year (2006-2016).

Between 2006 and 2016, three age groups had rates of new infection that were higher than the provincial average (7.4 new cases per 100,000). Over the same 11 years, 20 to 29-year-olds averaged 11.4 cases per 100,000 and 40 to 49-year-olds averaged 13.5 cases per 100,000 people in the same age ranges. The highest rates of newly reported HIV cases occurred in the 30-39 years age group (average crude rate of 18.1 per 100,000).

During the same period, in the 40-49 years age group, crude rates increased in most years, peaking in 2015 at 19.7 per 100,000 population, surpassing the 30-39 years age group in rates for 2015 and 2016.

HIV BY REGIONAL HEALTH AUTHORITY

Winnipeg continues to be the home of the majority of people newly identified as HIV-positive, though in one year, the % of cases in the Southern Health/Santé Sud Region more than doubled

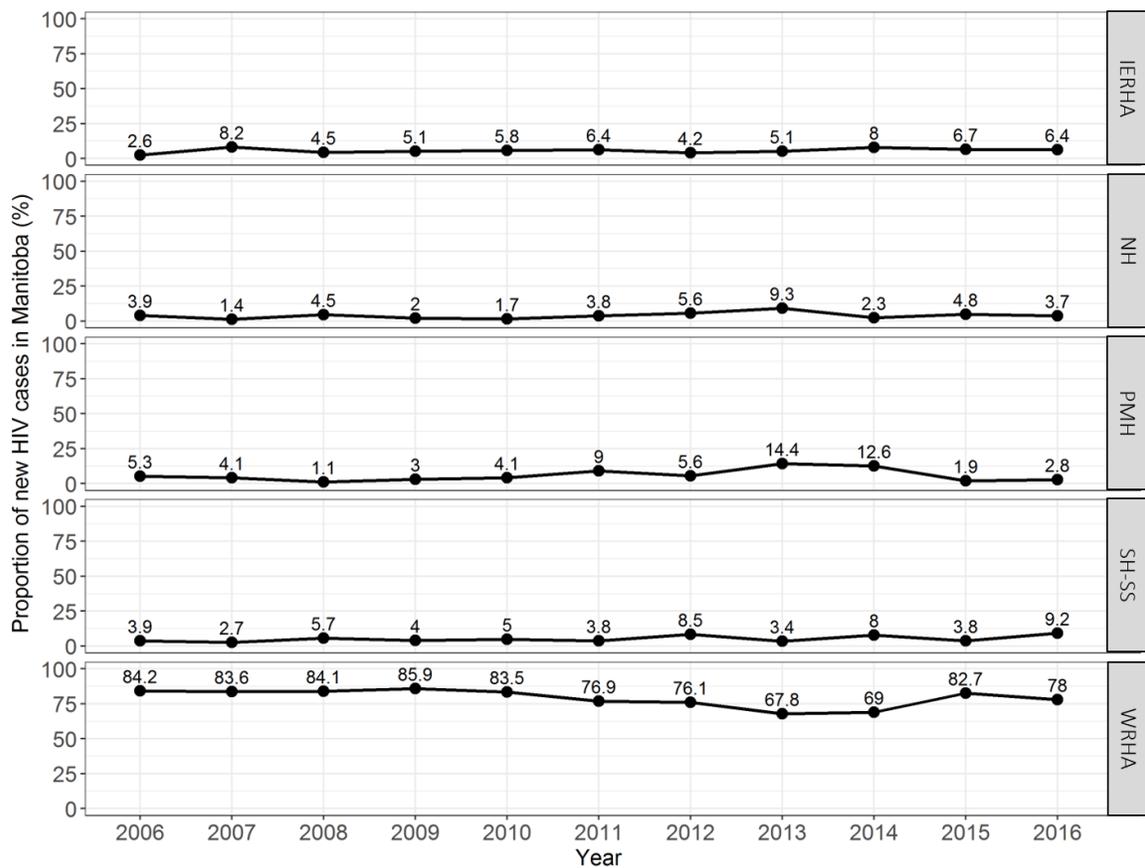


Figure 7. Proportion (%) of New HIV Cases in Manitoba by Regional Health Authority (RHA) and Year (2006-2016).

During the 2006-2016 period, the highest proportions of new HIV cases in Manitoba were reported by the Winnipeg Regional Health Authority (WRHA). Across the provincial RHAs, the distribution of HIV cases appears to be stable, with the exception of 2013-2014 in Prairie Mountain Health (PMH). These general trends in the distribution of HIV cases were also noted since 1985.

In 2016, Southern Health – Santé Sud (SH-SS) experienced an increase in the proportion of new HIV cases to Manitoba (9.2% in 2016), approximately 2.4 times greater compared to 2015 (3.8%). As a result, SH-SS has the second highest proportion of new HIV cases in Manitoba, surpassing the Interlake-Eastern Regional Health Authority (IERHA; 6.4%) in 2016.

The rate of HIV cases in the population continues to be highest in Winnipeg, and like above, the rate of cases in the Southern Health/Santé Sud Region more than doubled

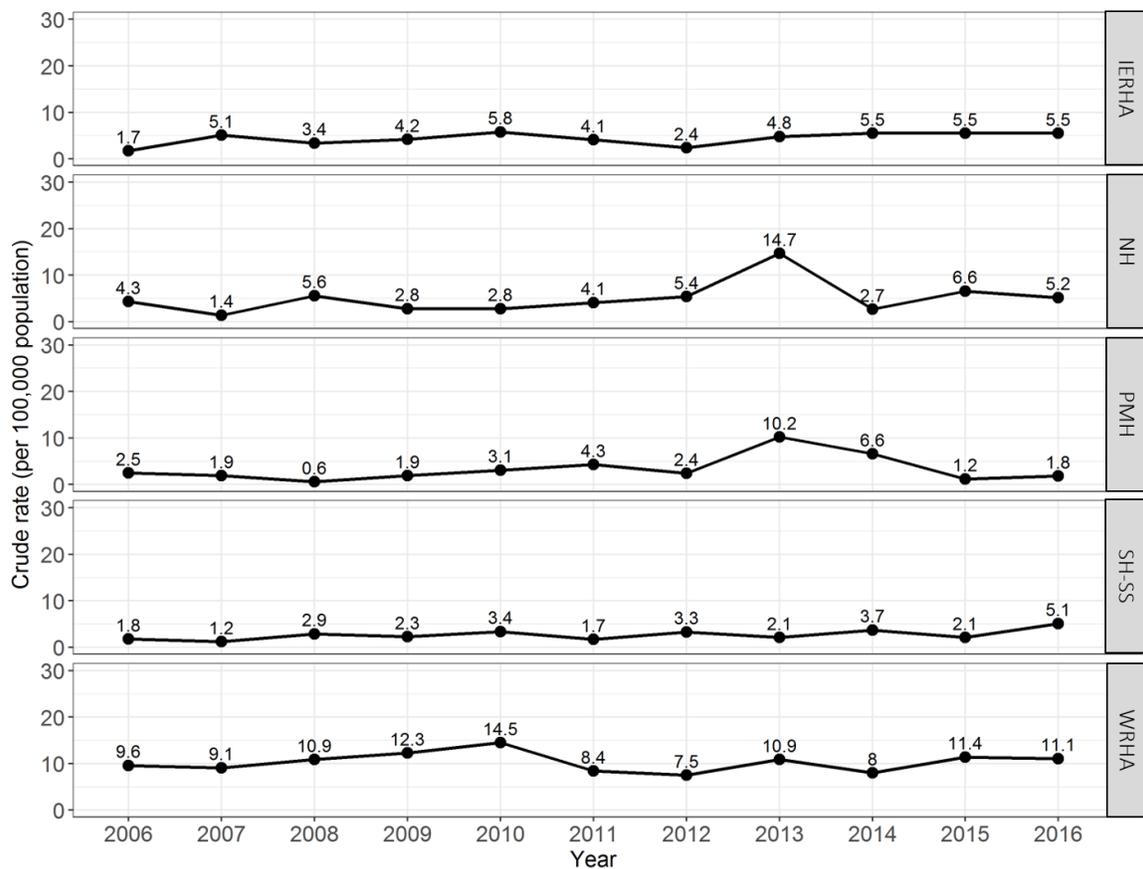


Figure 8. Crude Rates of New HIV Cases in Manitoba by RHA and Year (2006-2016).

From 2015 to 2016, the rate of new HIV cases held steady in the WRHA at just above 11 cases/100,000 people residing in the WRHA (Figure 8). Northern Health Region (NH) had the overall highest rate (14.7 new HIV cases per 100,000 population) during 2013 and rates have decreased in the following years. Historically, SH-SS was a region with lower HIV rates during the period, but 2016 saw its highest rate (5.1 new HIV cases per 100,000 population) at more than twice the rate in 2015 (2.1 new HIV cases per 100,000 population).

SELF-REPORTED ETHNICITY OF HIV CASES

62% of all new HIV cases in Manitoba in 2016 are in African/Caribbean/Black and Indigenous (First Nations, Inuit, and Métis Nations) peoples

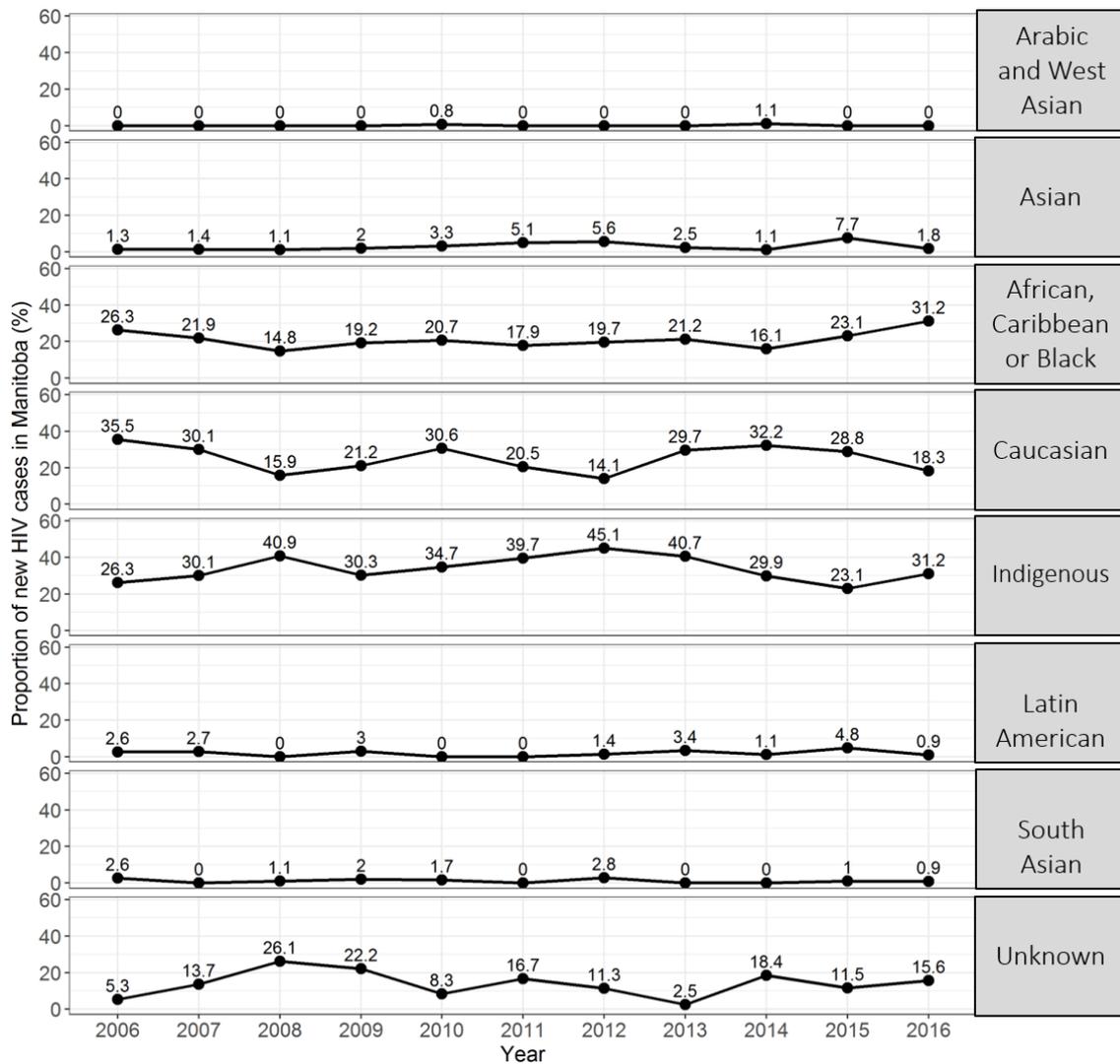


Figure 9. Proportion (%) of new HIV cases by self-reported ethnicity and year, Manitoba (2006-2016).

In 2016, nearly 2 in 3 people (62.4%) with new infections self-reported being of African/Caribbean/Black or of Indigenous descent (i.e. First Nations, Métis Nations and Inuit; 31.2% of new HIV cases for both ethnicity groupings). This represents an increase of 16.2 percentage points in the proportion of new HIV cases for individuals who self-identified as either African/Caribbean/Black or Indigenous from 2015 to 2016. Conversely, the percentage points of

new cases in the self-reported Asian, Caucasian, and Latin American groups all dropped noticeably (by 5.9, 10.5, and 3.9 percentage points, respectively).

SELF-REPORTED ETHNICITY BY SEX

African/Black/Caribbean females and Indigenous males bear the brunt of new HIV cases by sex

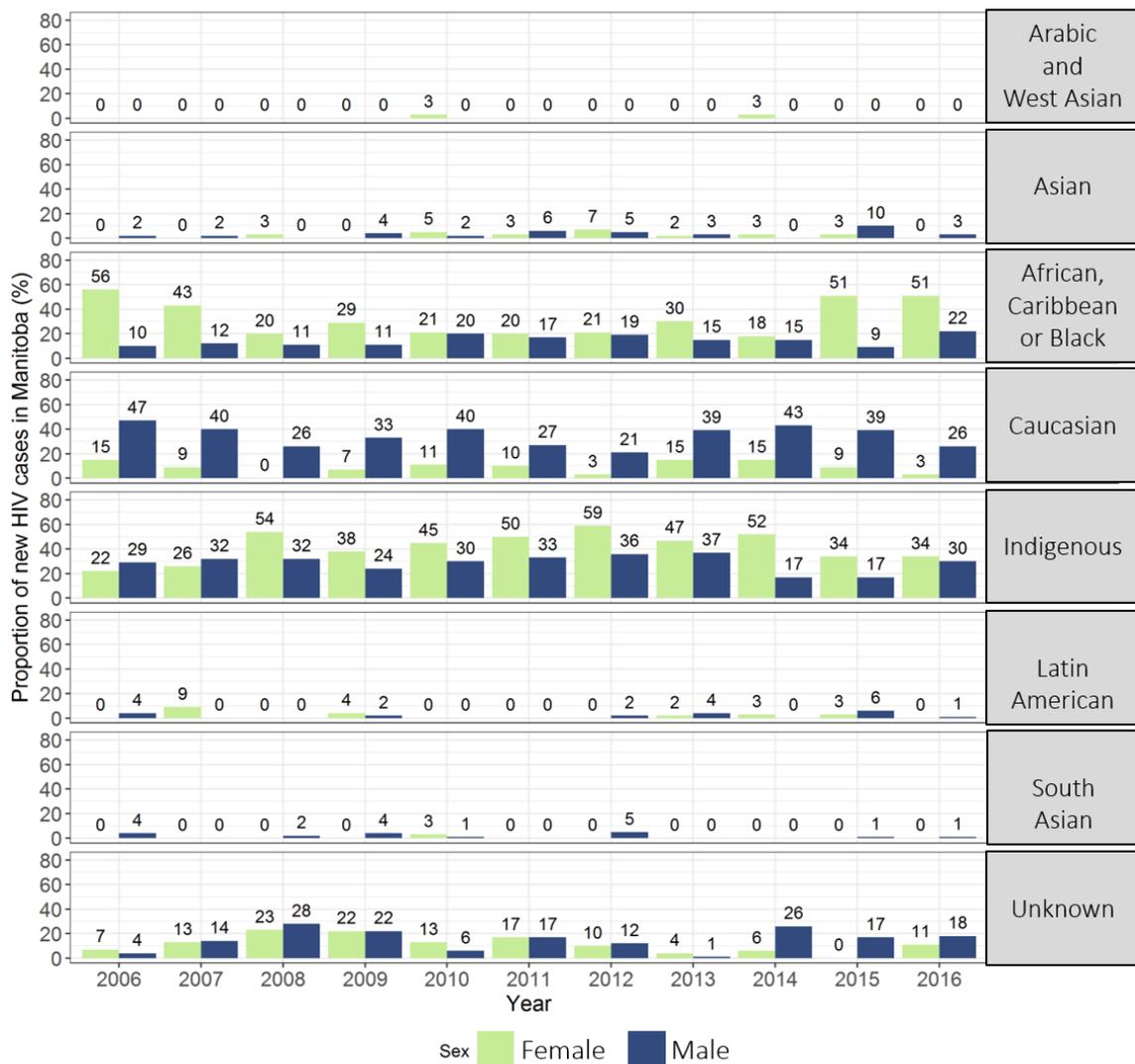


Figure 10. Proportion (%) of new HIV cases in Manitoba by self-reported ethnicity, sex, and year (2006-2016).

Note: Some ethnicities were not reported in 2016 (3 females and 14 males with unknown ethnicity in 2016). These HIV cases are reported herein in the “Unknown” ethnicity category. Two male individuals (2.7% of male infections) were reported as “Other” and they were added to the “Unknown” category.

In 2016, male and female HIV cases have different ethnic distributions. While there was a similar breakdown across African/Caribbean/Black (22%), Indigenous (30%), and White (26%) ethnicities in men, female infections were much more concentrated in African/Caribbean/Black (51%) and Indigenous women (34%). For every 10 infections in African/Caribbean/Black males, there were 12 in White and 14 in Indigenous males. For every 10 infections in African/Caribbean/Black females, there were 0.6 cases in White and 7 cases in Indigenous Women.

FEMALES

Recall that in 2016, females represented roughly 1/3 of new HIV cases in Manitoba (Figure. 5). Among women, the ethnic groups with the highest proportion of the female infections were African/Caribbean/Black (51%), Indigenous (34%), and Caucasian (3%), which are similar proportions to those measured in 2015. The 6-percentage point change in female Caucasian infections may, in part, be due to the uptick in cases in women of unknown ethnicity. Over 11 years, there has been two shifts in the predominance of HIV new cases in women, from African/Caribbean/Black (high in 2006 at 56%) to Indigenous (high in 2012 at 59%), and back to African/Caribbean/Black (51% in 2015 and 2016), again.

Notably, all cases in African/Caribbean/Black women were immigrants from HIV-endemic countries and to Canada (2015 or 2016). Of these women, 95% tested positive for HIV prior to immigrating to Canada or within 1 year of immigration.

MALES

Of the 74 HIV infections and new cases in Manitoba males, Indigenous males (First Nations, Inuit, and Métis Nations) accounted for 30% of new cases. The ethnicity with the second highest proportion of new HIV infections was White (26% in men). African/Caribbean/Black males had the third highest case count, with 22% of new cases in 2016.

Not in keeping with the female ethnic groups, from 2014 and 2015 to 2016, the ratios of ethnic groups with the highest new case counts did change. In 2015, White ethnicities were the predominant HIV infection group (39%), Indigenous peoples accounted for 17% of infections, and Asians for 10%. In 2016, we see an almost equalizing of new case proportions between Indigenous, Caucasian, and African/Caribbean/Black ethnicities. Prior to 2014, either Indigenous or white males represented the majority of new HIV cases. Also differing from the female infections, among males who self-reported as African/Caribbean/Black and who had immigrated to Canada, only 69% first tested positive for HIV in Manitoba before or within 1 year of arrival.

PRIMARY RISK EXPOSURE CATEGORIES OF HIV CASES

The categories of risk exposure presented in this report reflect the most likely mode of HIV transmission for a new HIV case. Although more than one risk factor or exposure may be indicated on the case investigation form, individuals are assigned to a primary risk exposure category based upon a pre-determined hierarchy of risk (see methods section and Table 1 for the description of primary risk exposure categories, methodology and hierarchy).

The most common risk of HIV infection in Manitoba in 2016 was being born in or traveling to an endemic country (Figure legend on next page)

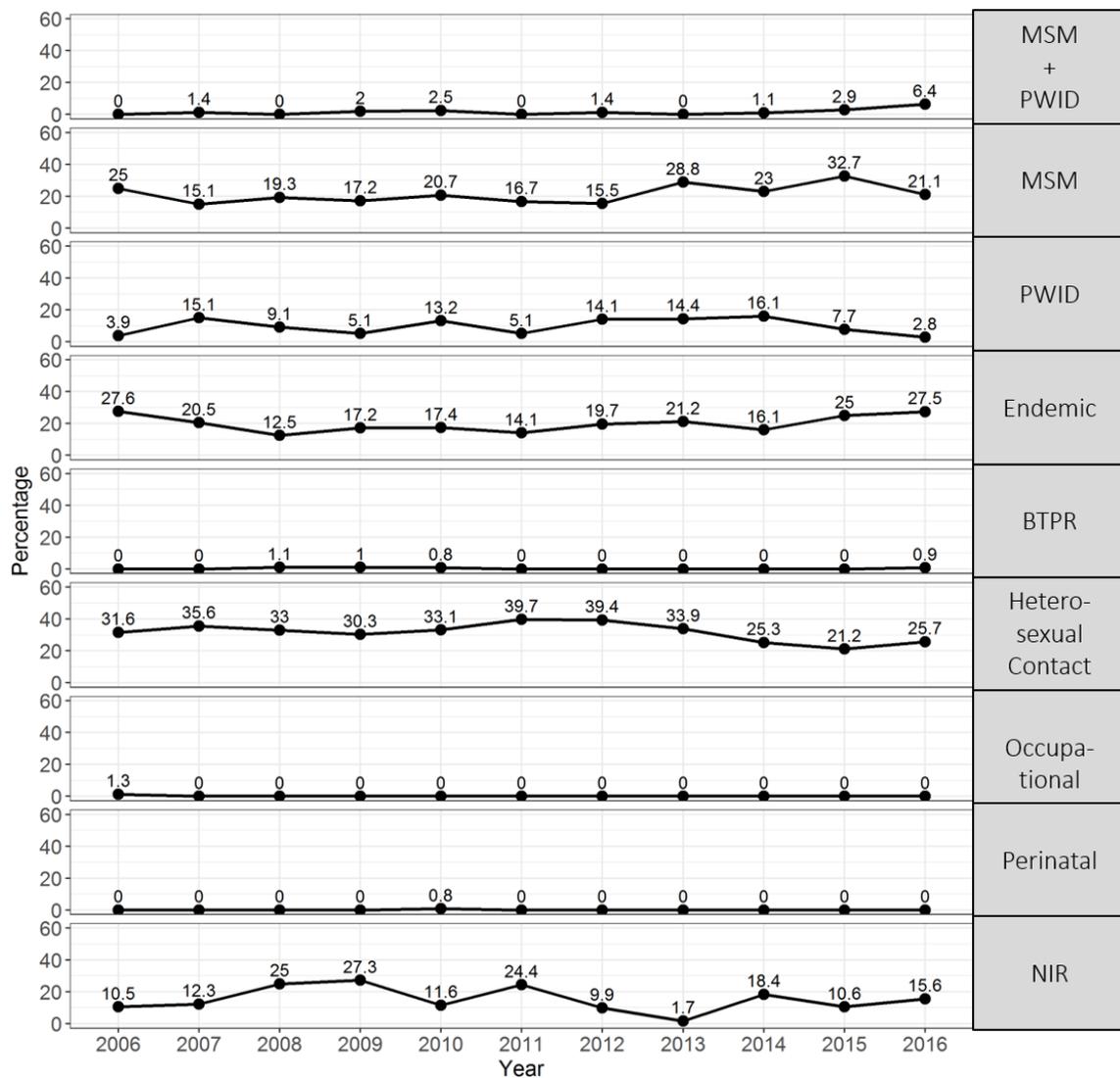


Figure 11. Proportion (%) of new HIV cases in Manitoba by *primary risk exposure category* and *year* (2006-2016).

* PWID = people who inject drugs, MSM = men who have sex with men, MSM + PWID = men who have sex with men and indicate injection of drugs, BTPR = Blood transfusion product recipient, NIR = no identifiable risk. **Endemic risk exposure category indicates that the individual was born in a country where HIV is endemic. See Appendix C for a list of endemic countries.

Note: Some individuals choose to not answer this section or their risk data were not provided. Those individuals have been placed in the NIR category.

In 2016, the MSM category was surpassed as the number 1 risk of HIV transmission by endemic exposure, which increased by 2.5 percentage points from 2015 (25.0% in 2015 and 27.5% in 2016). Similarly, the number of individuals who were identified with heterosexual contact as their primary risk exposure increased by 4.5 percentage points (21.2% in 2015 and 25.7% in 2016). Although still in the top 3 risks of exposure in 2016, MSM saw the largest change in proportion of cases, from 32.7% down to 21.1% (down 11.6 percentage points. In 2016, there was a 5-percentage point increase in the percent of people for whom NIR was reported. Over the 11 years of data collection, this is close to the average of the prior 10 years of 15.2%.

SELF-REPORTED RISK EXPOSURE CATEGORIES BY SEX

Predominant risk groups for males are MSM and heterosexual sex and for females are born in or travel to an endemic country or heterosexual sex

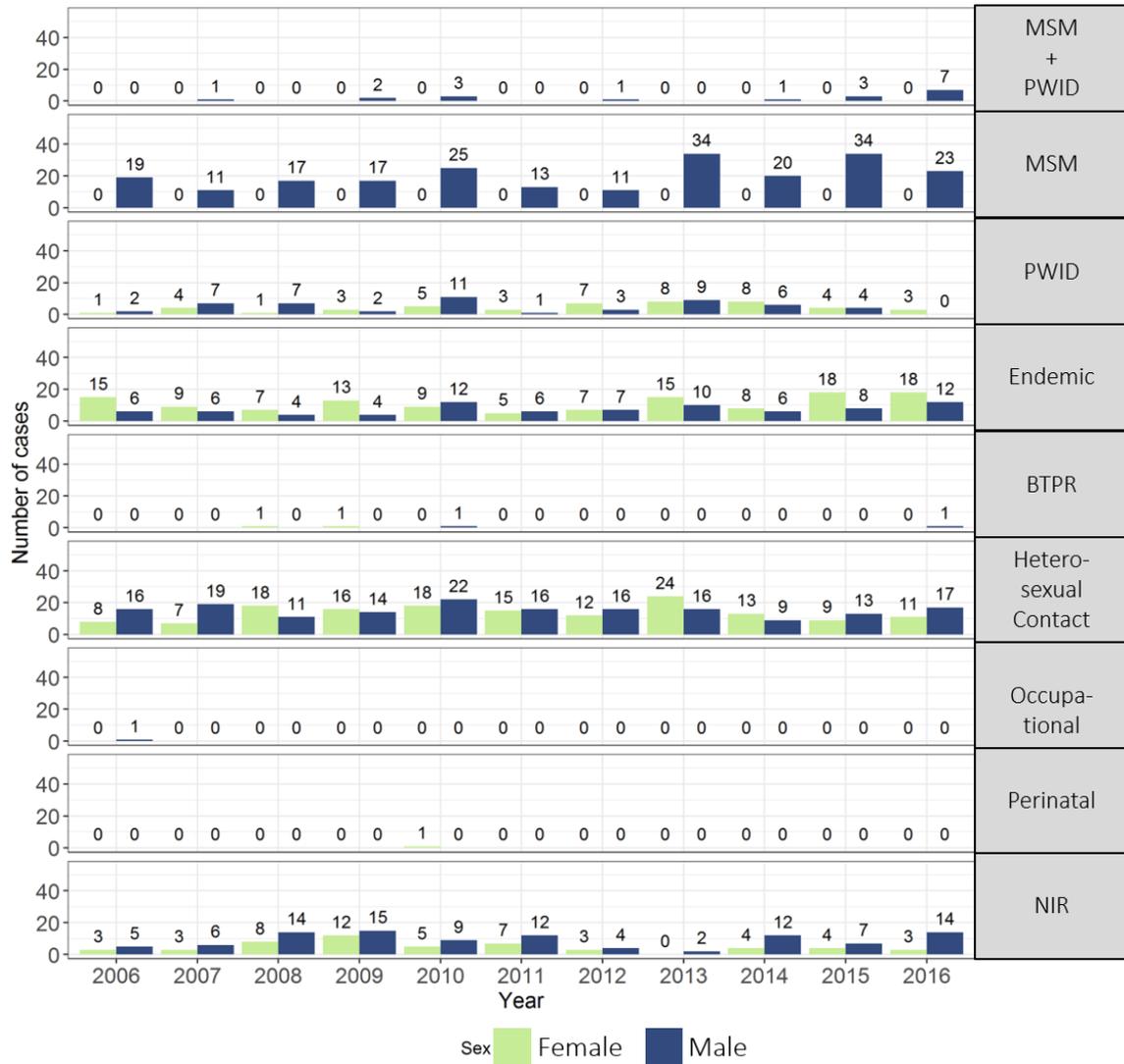


Figure 12. Number of new HIV cases, by primary risk exposure category, sex, and year, Manitoba (2006-2016).

PWID = people who inject drugs, MSM = men who have sex with men, MSM + PWID = men who have sex with men and inject drugs, BTPR = Blood transfusion product recipient, NIR = no identifiable risk. Endemic risk exposure category indicates that the

case was born in a country where HIV is endemic (see appendix B for a list of endemic countries).

FEMALES

Including the NIR category, HIV infections in women in 2016 occurred in 4 of 7 possible risk categories – PWID, heterosexual contact, endemic origin, and NIR. In 2016, the largest primary risk exposure categories were:

- ⊕ endemic exposure was identified in females at 18 cases (51.4%), and
- ⊕ heterosexual contact at 11 cases (31.4%).

In the previous 11 years, 2006 and 2015 were the only other years predominated by the endemic risk of exposure group; all other years, heterosexual contact was identified as the major risk factor at HIV identification in women.

MALES

The risk categories assigned to new HIV infections in men were different than for women. Including the NIR category, HIV infections in men in 2016 were occurred in 6 of 9 possible risk categories – PWID, heterosexual contact, endemic origin, and NIR. For males, the most common risks were:

- ⊕ 23 HIV cases (31.1%) were link with the MSM risk category, and
- ⊕ heterosexual contact category at 17 cases (23%).

The NIR category was assigned in more cases in males (14) than females (3), which translates to 1 in 5 cases in men and 1 in 12 cases in women with unknown potential infection source. This can pose a challenge when planning HIV prevention efforts, especially in males.

AIDS CASES IN 2016

The number of AIDS diagnoses and deaths related to AIDS in Manitoba are low

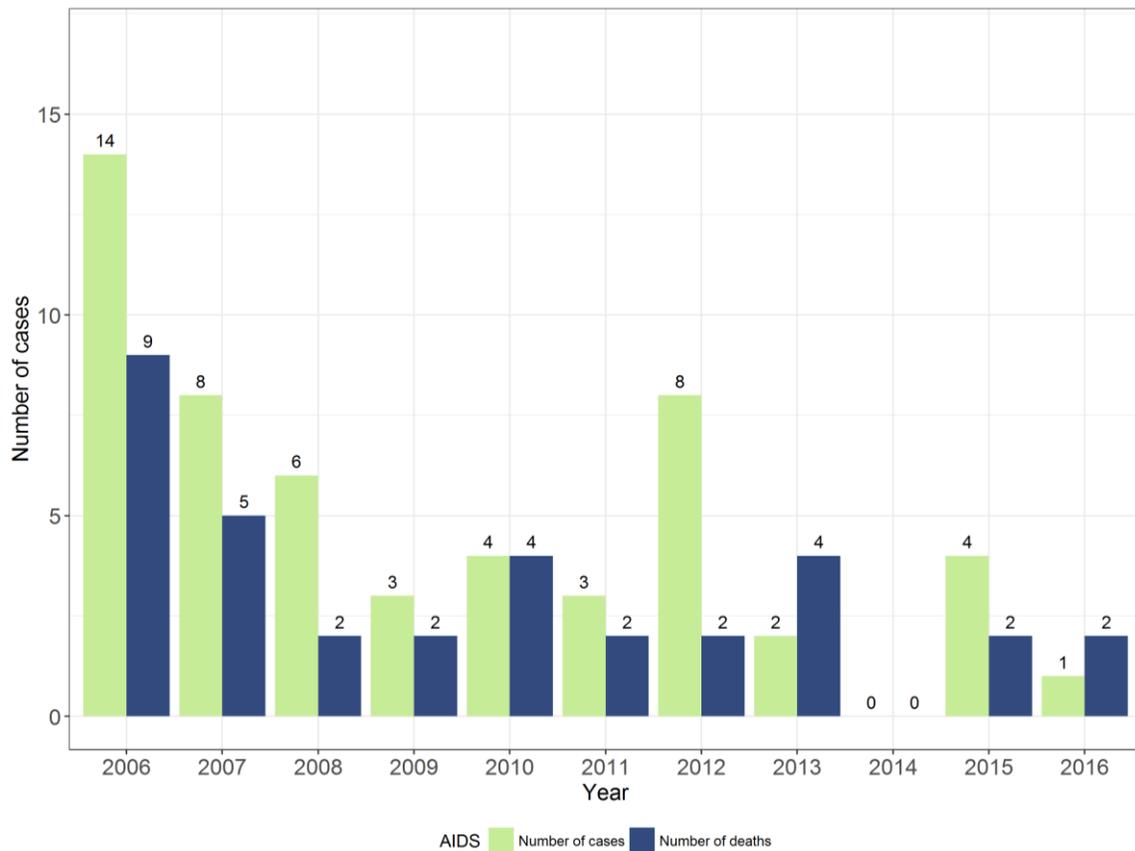


Figure 13. Number of reported AIDS cases, by sex and year, Manitoba (2006-2016)

Note: Previous AIDS case counts may fluctuate year-to-year due to delays and incomplete reporting.

On average, 5 new AIDS cases per year were reported between 2006 and 2016. The number of AIDS cases reported in 2016 was below the 11-year average at one case.

The average number of AIDS-related deaths in the 2006-2016 period is 3.1 deaths per year. In 2016, two AIDS-related deaths occurred in Manitoba.

Apart from the spike in AIDS cases in 2008, the number of AIDS cases and deaths have generally declined, particularly prior to 2009. New advances in treatment regimens and guidelines may have aided in these reductions.

CONCLUSION

HIV NUMBERS ARE CONCERNING

In Manitoba, the annual number of newly identified HIV cases has fluctuated over the last 11 years. The number of HIV cases reported to MHSAL has dropped by 36% in one year (more than 40 cases, in 2011) and then rebounded two years later (more than 45 cases increase from 2012 to 2013). There may be more than one reason for this.

- ⊕ Changes in testing practices, testing campaigns that increase the number of people being screened, or changes in criteria for testing may alter the number of cases detected in one year.
- ⊕ Repeat testing and linking new tests to old tests from previous years that have non-nominal identifiers or anonymous testing can lead to over counting or undercounting, respectively.
- ⊕ New cases in Manitoba do not necessarily mean new HIV infections in Manitoba. Not all records may reflect that some people with HIV have lived in Manitoba.
- ⊕ People who are initially diagnosed in Manitoba may relocate to another province right away, which may not become apparent in time for publication.

Winnipeg continues to be the source location for most provincial HIV infections. Infected individuals tend to live in Winnipeg and are referred to the Winnipeg Regional Health Authority for follow-up.

HIV VARIES BETWEEN THE SEXES

Manitoba public health investigations collected data about sex: male, female, or transgender. There were no new cases of HIV reported in transgender individuals.

In 2016, the number of newly diagnosed HIV cases varies between the sexes and age groups. Males accounted for the majority of newly diagnosed HIV cases with a crude rate more than twice the crude rate in women (11.1 cases per 100,000 males and 5.2 cases per 100,000 females). This trend held across most years between 2006 and 2016.

... AND THEIR AGES

In terms of age at HIV diagnosis in 2016, the age of male HIV cases skewed about 10 years older than females, particularly as ages 40 and up made up more than half of the male cases and the vast majority of new female cases were in women between the ages of 30-49.

HIV INFECTION SPANS ETHNICITIES

In 2016, 80.7% of all new HIV cases self-identified as African/Caribbean/Black, Indigenous, or White. Nearly 2/3 of new cases were seen in African/Caribbean/Black or Indigenous individuals. More than 95% of cases in white individuals occurred in men. This highlights that infections in females were overrepresented in African/Caribbean/Black and Indigenous, but *not* white women. Table 2 demonstrates the over- and under-representation of HIV cases in these 3 top ethnicities.

Table 3. Burden of HIV cases across the 3 most commonly reported ethnicities in Manitoba in 2016.

| Ethnicity | Manitoba Males | | | Manitoba Females | | |
|-------------------------|--------------------------------|-----------------------------|------------------------------|----------------------------------|-----------------------------|------------------------------|
| | Proportion of male population* | Proportion of new HIV cases | Expected** (lower or higher) | Proportion of female population* | Proportion of new HIV cases | Expected** (lower or higher) |
| African/Caribbean/Black | 3.3% | 22% | 6.7 times higher | 3.1% | 22% | 7.1 times higher |
| Indigenous | 17.8% | 30% | 1.7 times higher | 18.4% | 30% | 1.6 times higher |
| White | 66.3% | 26% | 2.6 times lower | 67% | 26% | 2.6 times lower |

* Population data are from the Statistics Canada Census Profile, 2016 Census. Manitoba and Canada.

** Expected cases reflect the population proportion of that ethnicity group. For example, an ethnic group that makes up 20% of a population, all else being equal, should also be burdened with 20% of HIV cases.

HIV RISK FACTORS ARE SEX-SPECIFIC

In 2016, endemic exposure was the most commonly identified exposure category in Manitoba, followed by heterosexual activity, and MSM. Coming to Canada from an endemic country with higher HIV prevalence was the most common self-reported risk category in females. While MSM can only be a risk factor for male HIV infection, it was among the top three risk factors overall, and the number one risk factor in males.

One quarter of new HIV cases were linked to heterosexual activity, making it the second most common risk for HIV infections in Manitoba. No identifiable risk factors were reported in 15.6% of cases, which limits our abilities to make conclusions about risk and HIV transmission in a full 1/6th of new HIV cases.

FINAL THOUGHTS

Surveillance data provide a general overview of HIV infection realities in real-time time but cannot provide insight into the causal factors of HIV transmission. The data presented in this

report highlight the need for further research, as particular sub-groups of Manitobans are most burdened with HIV than others.

Sub-groups of people who might benefit most from infection prevention programs include Manitoba's Immigrant, Indigenous, and MSM populations.

- ⊕ Treatment programs that meet the cultural needs of people emigrating from endemic countries, Indigenous peoples, or the MSM community may have the greatest impact on treatment success and spread of disease in Manitoba.
- ⊕ Due to advancements in HIV treatments, people who are HIV-positive are living longer. Therefore, another population sub-group that will require specific prevention and treatment support are older and elderly Manitobans.
- ⊕ Though it can be more time- and resource-consuming, successful programming should take into account the specific needs of each of these subgroups. Needs might include language support, incorporation of Indigenous cultural and spiritual elements, and education that highlights the different risks that exist for different Manitobans.
- ⊕ The similarities among these population sub-groups can include marginalization, poverty, and reduced employment. These manifestations of social inequalities can be linked to health differences, as we see with the variations of HIV infection rates by ethnicity and risk category.

Finally, it is of value to mention the people being tested anonymously or belonging to an "unknown" subgroup. Novel means of working with these individuals may involve the inclusion of peer supports and harm reduction in order to build the trust and respect needed to increase participation in Manitoba's surveillance programs.

APPENDICES

APPENDIX A: REPORTING FORMS

Link to MHSAL Public Health Form used in routine surveillance of HIV and AIDS: HIV Case Investigation Form for Nominal & Non-Nominal Positive Cases (implemented 2008)

<http://www.gov.mb.ca/health/publichealth/surveillance/docs/hivcaseinvestigation.pdf>

HIV Contact Notification Form (implemented 2006)

<http://www.gov.mb.ca/health/publichealth/surveillance/docs/hivcontactnotification.pdf>

AIDS Case Report Form (note this is a Public Health Agency of Canada Form)

<http://www.gov.mb.ca/health/publichealth/cdc/protocol/form5.pdf>

APPENDIX B: USEFUL LINKS

Link to PHAC case definition for HIV (archived)

http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/HIV_VIH-eng.php

Link to PHAC case definition for AIDS (archived)

http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/AIDS_SIDA-eng.php

Link to Manitoba Communicable Disease Management Protocol for HIV/AIDS

<http://www.gov.mb.ca/health/publichealth/cdc/protocol/index.html>

APPENDIX C: LIST OF HIV-ENDEMIC COUNTRIES

| CARIBBEAN AND CENTRAL/SOUTH AMERICA | ASIA | |
|-------------------------------------|---|-------------------------|
| ⊕ Anguilla | ⊕ Cambodia | ⊕ Malawi |
| ⊕ Antigua and Barbuda | ⊕ Myanmar (Burma) | ⊕ Mali |
| ⊕ Bahamas | ⊕ Thailand | ⊕ Mozambique |
| ⊕ Barbados | | ⊕ Namibia |
| ⊕ Bermuda | AFRICA | ⊕ Niger |
| ⊕ British Virgin Islands | ⊕ Angola | ⊕ Nigeria |
| ⊕ Cayman Islands | ⊕ Benin | ⊕ Republic of the Congo |
| ⊕ Dominica | ⊕ Botswana | ⊕ Rwanda |
| ⊕ Dominican Republic | ⊕ Burkina Faso | ⊕ Senegal |
| ⊕ French Guiana | ⊕ Burundi | ⊕ Sierra Leone |
| ⊕ Grenada | ⊕ Cameroon | ⊕ Somalia |
| ⊕ Guadeloupe | ⊕ Cape Verde | ⊕ South Africa |
| ⊕ Guyana | ⊕ Central African Republic (formerly Zaïre) | ⊕ Sudan |
| ⊕ Haiti | ⊕ Chad | ⊕ Swaziland |
| ⊕ Honduras | ⊕ Democratic Republic of the Congo (formerly Zaïre) | ⊕ Tanzania |
| ⊕ Jamaica | ⊕ Djibouti | ⊕ Togo |
| ⊕ Martinique | ⊕ Equatorial Guinea | ⊕ Uganda |
| ⊕ Montserrat | ⊕ Eritrea | ⊕ Zambia |
| ⊕ Netherlands Antilles | ⊕ Ethiopia | ⊕ Zimbabwe |
| ⊕ St. Lucia | ⊕ Gabon | |
| | ⊕ Gambia | |

-
- | | |
|----------------------------------|-----------------|
| ⊕ St. Kitts and Nevis | ⊕ Ghana |
| ⊕ St. Vincent and the Grenadines | ⊕ Guinea |
| ⊕ Suriname | ⊕ Guinea-Bissau |
| ⊕ Trinidad and Tobago | ⊕ Ivory Coast |
| ⊕ Turks and Caicos Islands | ⊕ Kenya |
| ⊕ U.S. Virgin Islands | ⊕ Lesotho |
| | ⊕ Liberia |

* Note: this list is based off of the list of HIV endemic countries provided in the HIV and AIDS in Canada reports by PHAC (list last updated by PHAC in March 2007).

GLOSSARY

ANONYMOUS TESTING

The HIV test is ordered using a unique non-identifying code. The person(s) ordering the test and providing the result do not know the identity of the person being tested. Only the person being tested knows the code, so the test result is not linked to that person's health care record.

DISTRIBUTION

The "distribution of cases" refers to the pattern of a disease in a population. For instance, we can compare the percent of cases by age groups, and the manner in which the cases are spread over each age subgroup represents the distribution of the cases by age.

FORM COMPLETION DATE

The date where the most recent HIV case investigation form was completed by Regional Public Health Staff (after public health investigation).

NON-NOMINAL TESTING

The HIV test is ordered using a code of the person being tested. Only the person ordering the test knows the identity of the person being tested and is able to link the result back to that person's health care record.

NOMINAL TESTING

The HIV test is ordered using the name of the person being tested.

PREVALENCE

Prevalence measures the burden of both new cases and existing cases, added together, over a population and during a time frame.

RECORD ENTRY DATE

The date where MHSAL first enters data about a new database record for a patient from a laboratory (such as Cadham Provincial Laboratory). Complete information for data entry may still be pending, as patient investigation is typically in progress at this stage.

SPECIMEN COLLECTION DATE

The date where the patient provided the sample for laboratory testing.

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REFERENCES

- [1] Bourgeois AC, Edmunds M, Awan A, Jonah L, Varsaneux O, Siu W. HIV in Canada— Surveillance Report, 2016. *Can Commun Dis Rep.* 2017;43(12):248-55.
- [2] Public Health Agency of Canada. Case Definitions for Communicable Diseases under National Surveillance -2009. *Canada Communicable Disease Report.* Vol 35-S2. Nationally Notifiable Diseases - http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/AIDS_SIDA-eng.php
- [3] Summary: Estimates of HIV incidence, prevalence and proportion undiagnosed in Canada, 2014. Public Health Agency of Canada. Centre for Communicable Disease and Infection Control. Published in November 2015
- [4] Public Health Agency Canada. HIV and AIDS in Canada. Surveillance Report to December 31, 2010. Surveillance and Risk Assessment Division, Centre for Communicable Diseases and infection Control, Public Health Agency of Canada, 2012.