



HIV/AIDS *Epi Update* Centre for Infectious Disease Prevention and Control

HIV Infections among MSM in Canada

At a Glance

- ◆ In Canada, men who have sex with men (MSM) account for 77% of cumulative reported AIDS cases among adult males.
- ◆ MSM account for 69.6% of positive HIV test reports among adult males since testing began in 1985.
- ◆ MSM were estimated to account for 40% of all new HIV infections in Canada in 2002.

Introduction

In Canada, the HIV/AIDS epidemic has had a tremendous impact on men who have sex with men (MSM). Even though the toll of the epidemic no longer affects MSM to the same extent that it did in the early to mid-1980s, this group still accounts for the largest number of reported HIV and AIDS diagnoses. Recent data on HIV incidence and risk behaviours suggest that MSM continue to be at risk for HIV infection and other sexually transmitted infections (STI). This report updates the current information on the status of HIV and AIDS among MSM in Canada.

AIDS Surveillance Data

- ◆ As of June 30, 2004, the Centre for Infectious Disease Prevention and Control (CIDPC) reported a cumulative total of 19,468 AIDS cases. Of the 17,585 adult male AIDS cases, 77% were attributed to MSM and an additional 4.7% were attributed to the MSM who also reported injecting drugs (MSM/IDU).¹
- ◆ There has been a steady decrease in the proportion of adult male AIDS cases attributed to MSM that were reported to CIDPC from 1979 to 1999, from 79.3% before 1999 to 55.4% in 1999. In 2000, this proportion increased to 57.8% and remained fairly steady until 2002 and showed a drop to 46.5% in 2003.¹
- ◆ The proportion of reported adult male AIDS cases attributed to MSM/IDU has remained relatively steady, varying between 2.2% and 6.2% during the last five years.¹

CIDPC Website:

www.phac-aspc.gc.ca/hast-vsmt/

HIV Surveillance Data

While AIDS data provide information on HIV infection that occurred about 10 years in the past, HIV data provide a picture of more recent infections.

- ◆ Positive HIV test reports sent from each province and territory are collated and synthesized at the national level by CIDPC. These reports show that before 1999, 74.2% of positive HIV test reports among adult males were attributed to MSM. This proportion then decreased to around 48% in 1999. It increased to 54.0% in 2000 and has been in the range of 48% to 54% during 2001-03.¹ A similar trend is observed in the absolute number of positive HIV test reports attributed to MSM among adult males. The increase in the number and proportion of MSM among adult male positive HIV test reports noted in 2000 was the first increase seen since the 1980s.

MSM Continue to Account for the Greatest Number of Prevalent and Incident HIV Infections

The 2002 national estimates of prevalence (number living with HIV) and incidence (number newly infected in a year) show that MSM continue to be the most affected group. At the end of 2002, an estimated 56,000 (46,000-66,000) people in Canada were living with HIV infection (including AIDS) and, of these, 58% or 32,500 infections

occurred among MSM. The largest absolute increase in prevalent infections in 2002 was in the MSM exposure category, which had 2,900 more prevalent infections than in 1999 (10% relative increase). The combined exposure category of MSM and IDU (MSM-IDU) made up 4% of total prevalent infections in 2002.²

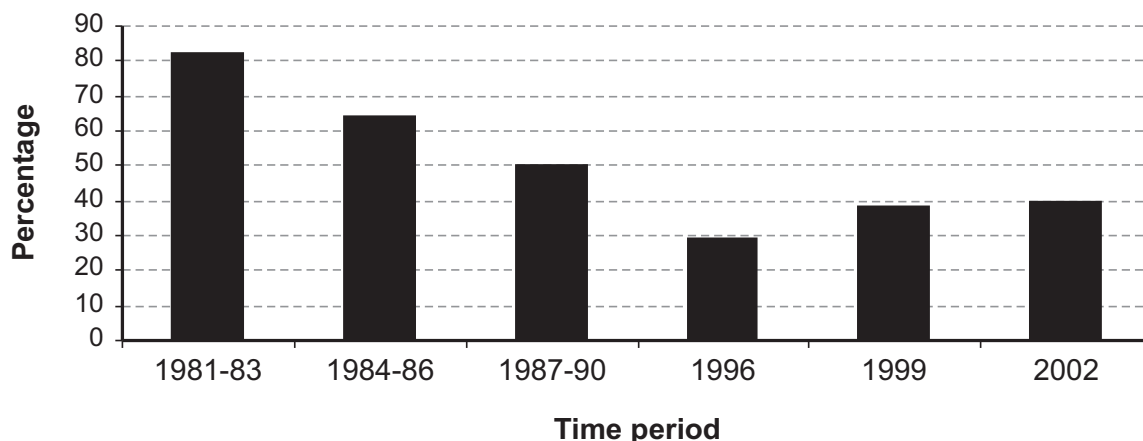
In 2002, MSM accounted for 40% of the estimated total of 2,800 to 5,200 new infections in Canada or approximately 1,000 to 2,000 new HIV infections. This represents a slight increase from the 38% estimated in 1999 (Figure 1).²

High Rates of New HIV Infections in Some Parts of Canada

- ◆ In the late 1990s, data from Ontario showed an increase in the rate of new HIV infections among MSM who were repeat testers for HIV, from 0.75 infections per 100 PY in 1996 to 1.13 per 100 PY in 1999.³ The incidence density declined to 0.87 per 100 PY in 2000 but rose to 1.50 per 100 PY in 2002 resulting in an overall increasing trend in the 1996-2002 period.³ Throughout the period, the incidence density was highest among MSM in Toronto (2.54/100 PY) and Ottawa (2.45/100 PY) as compared to other regions in Ontario. With the use of a new laboratory technique to identify recent infections among those with newly diagnosed HIV (STARHS assay) during 1999-2002, HIV incidence was

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Figure 1. Distribution (%) of new HIV infections among MSM, by time period



measured among persons who came forward for HIV testing. Incidence decreased among MSM in Toronto, from 4.3 per 100 person years (PY) in 1999 to 2.8 per 100 person years in 2001 and has remained fairly steady to 2002. In contrast, HIV incidence among MSM in Ottawa appeared to increase, from less than 0.1 per 100 PY in 1999 to 3.5 per 100 PY in the first half of 2001 and decreased to around 1.8 per 100 PY in 2002.⁴ The Ontario Laboratory Enhancement Study (LES) using STARHS assay, also revealed that the HIV incidence (per 100 PY) over 3 years period was 2.2 among MSM and 2.4 among MSM-IDU.⁵

- ◆ The results from STARHS assay in Ontario were used to model estimates of incidence and prevalence of HIV and the results revealed that MSM account for 61% of the estimated 23,563 prevalent HIV infections in Ontario and HIV prevalence among MSM in Ontario is estimated to be 14.4% (Toronto 19%, Ottawa 18%, and other regions 8%).⁶ The adjusted HIV incidence density in 2003 based on detuned assay was found to be 0.85/100 PY in Ontario and was highest in Ottawa (1.41/100 PY) followed by Toronto (1.05/100 PY) and then the rest of Ontario (0.59/100 PY).⁶
- ◆ The Ontario Men's Survey was undertaken between January and June 2002 in 13 regions of the province to conduct a comprehensive cross-sectional socio-behavioural and HIV prevalence study among 5080 self-identified gay and bisexual men in Ontario.⁷ Excluding men who never reported sex with another man or who did not provide a saliva sample or where the laboratory results were inconclusive, 9.4% tested positive for HIV; prevalence was 12.7% in Toronto, 4.9% in Ottawa, Southern Ontario 7.7% and 3.7% in Northern Ontario.⁷
- ◆ In Quebec, the Omega Cohort provides information on the incidence and psychosocial determinants of HIV infection among MSM living in Montreal. From October 1996 to June 2003, the overall incidence was 0.62 per 100 PY. It increased non-significantly from 0.43 to 0.83 per 100 PY between in the latest three years.⁸ The Omega Cohort results showed that HIV prevalence increased with age from a rate of 0.0% in MSM under 20 years to 3.1% in those aged 40-44 years, and then decreased to 0.4% among those 45 years of age or over; however, this trend was not statistically significant.⁹
- ◆ In British Columbia, results from the Vanguard study, a prospective cohort of young gay and bisexual men in Vancouver, show that the annual rate of new HIV infections among those men who had never injected drugs increased from a range of 0.2-1.0 per 100 PY during 1996 to 1999 to 2.0 per 100 PY in 2000 and to 2.5 per 100 PY in the first nine months of 2001.¹⁰
- ◆ With respect to HIV prevalence, data (self-reported or test data) from surveys done directly among MSM showed a very high rate before 1990: 23% to 32% in Vancouver,^{11,12} 27% to 57% in Toronto,^{11,13} 20% to 25% in Montreal,^{11,14} and between 10% and 20% in other regions of Canada.¹⁰ By 1998/2000, it appeared that there was some decline in the HIV prevalence rate among MSM surveyed by similar methods: 16% in Vancouver,^{15,16} and 10%-16% in Montreal.^{17,18} A 2002 survey in British Columbia reported an overall prevalence of 12.9% with a higher proportion of HIV-positive men being residents of Vancouver;¹⁹ however, a high prevalence rate is still seen among MSM who are also IDU, for example, 14% to 22% among MSM/IDU attending needle exchange programs in Quebec (1995-2000).^{20,21}

Continuing Risk Behaviour among MSM

Recent data on risk behaviours suggest that MSM continue to be at considerable risk of HIV infection and other STI through engaging in unprotected receptive or insertive anal intercourse (UAI) with casual or regular partners, or practising unsafe sex (oral or anal) with a known HIV-positive partner:

- ◆ It is estimated that around 15% of Montreal's MSM are HIV-infected. Results from the Montreal Omega Cohort Study indicate that 12% of MSM practice UAI with casual partners. This could result in a significant increase in the risk of new HIV infections.²² From 1997 to 2002, risky anal sex (RAS) increased slightly from 16% to 19%, and UAI increased slightly from 34% to 39%. The increases in risky behaviour, though slight, need to be closely monitored and better understood in order to ascertain their possible impact on HIV incidence.⁸
- ◆ In another survey in Montreal, the prevalence of reported UAI was 12% among MSM recruited in bars or saunas but was up to 21% to 24% among MSM who were HIV-positive.¹⁷ A study on sexual risk behaviours of HIV-positive MSM in Montreal found that 15% had had unprotected insertive anal sex with an HIV-negative partner or a partner whose serostatus was unknown.¹⁸ In another study of HIV treatment-related perceptions on sexual risk behaviours, 346 HIV-positive MSM were recruited in Montreal and 34% participants reported at least one instance of UAI in the preceding six months.²³
- ◆ With respect to relapse to risky behaviours, available data indicate that 10% of the Montreal cohort and 26% to 30% of the Vancouver cohort who reported safe sex at baseline disclosed relapse to unprotected anal sex at follow-up six to 12 months later.^{24,25}
- ◆ A 2002 survey of MSM in BC found that the majority of participants generally reported practicing safe sex (73.4%); however, those with multiple partners reported a 25% increase in UAI, from 18.8% in 2000 to 23.5% in 2002. It also showed that at least 27% of participants had had unprotected sex with a partner of unknown serostatus in the previous year.¹⁹
- ◆ In another study in Vancouver conducted among 131 gay men recruited in an anal dysplasia study, among those who reported anal intercourse in previous year, 55% reported UAI and 19.8% reported UAI with partner of unknown or different serostatus.²⁶
- ◆ Between May 1995 and September 2001, participants aged 15 to 35 years in a cohort study of MSM in the Greater Vancouver region reported increasing unprotected insertive (relative risk: 3.5) and receptive (relative risk: 5.1) anal sex with an HIV-positive partner; this increase in UAI was associated with seroconversion.²⁷ In the same study during the period from September 2001 to December 2003, it was observed that majority of seroconversions occurred in the small minority (15%) of those who reported sero-discordant receptive UAI.²⁸
- ◆ The Polaris study, an open cohort of MSM in Ontario, examined the association between stressful relationship events (SRE) and HIV-risk behaviour, and found that those who experienced a SRE were more likely to engage in UAI with regular partner (OR=3.1, p=0.002).²⁹ An analysis of a sub-sample of 183 men in the Polaris study between 1998-2001 was carried out to identify risk factors for recent HIV infection; receptive anal sex without condoms (OR=4.4, p=0.01) and delayed application of condoms (OR=5.8, p=0.01) were associated with recent seroconversion.³⁰
- ◆ In the Ontario Men's Survey, nearly 40% of the participants reported at least one event of unprotected anal intercourse with another man in the previous year while nearly 35% of the participants reported that they had never experienced unprotected insertive anal intercourse.⁷ Of the study participants, 57.1% reported sex with at least one casual male partner and 16.0% of them reported at least one instance of unprotected receptive anal intercourse with a casual partner in the previous three months.⁷ In the same study, it was observed that there were differences between men who receive money for sex and those who receive non-monetary resources in that men in the

latter group were more likely to be HIV positive, have a history of gonorrhoea, and to have used cannabis, tranquillizers or cocaine in the previous year.³¹

- ◆ Data from the Vancouver cohort and the Montreal cohort were combined and analyzed, comparing the sexual behaviours of HIV positive and HIV negative gay and bisexual men aged 16 to 30 years. Results show that 56% of HIV-positive men and 40% of HIV-negative men reported having engaged in receptive UAI during the previous six months or year.³² More recently, high-risk behaviour among MSM in both cities was associated with nitrite inhalant use and sex in public and commercial sex venues. Independent determinants of risk-taking for men in both cities were the use of poppers (Vancouver: odds ratio [OR]=2.1, Montreal: OR=2.9) and having sex in a bathhouse (Vancouver: OR=1.9, Montreal OR=1.8). In Vancouver, having sex in a bar (OR=1.8) and having at least 20 casual partners in the previous year (OR=1.7) were associated with high-risk sex. For men in Montreal, having a casual partner (OR=3.0) and having at least two regular partners in the previous year (OR=3.0) were independently associated with high-risk sexual behaviour.³³
- ◆ The results of a cohort study of MSM aged 15 to 35 enrolled in the Vanguard Project in Vancouver showed that the proportion of MSM reporting insertive UAI with casual partners increased significantly, from 17% in 1997-98 to 22% in 2001-02, and the proportion of MSM who reported receptive UAI increased from 11% to 16% during the same period.³⁴ There was an increase in both receptive and insertive UAI with a regular partner, although it was not statistically significant; however, there was no significant change in HIV seroconversion rate during this period (1997-2002). This study also reported that most of the MSM who engaged in UAI reportedly did so with sero-concordant partners, although sero-concordant receptive UAI was reported by 12%.³⁴ In the same cohort study in Vancouver, a significant increase was observed

in the proportion of MSM reporting recent use of crystal meth, ecstasy, and marijuana; the use of poppers, marijuana, hallucinogens, crystal meth, and ecstasy was found to be associated with receptive UAI with casual partners.³⁵ In a cohort study conducted between 1997-2002 among MSM in Vancouver, association between UAI and global and situation-specific substance use was assessed.³⁶ Type of drug use measure, partner type (regular vs. casual) and intercourse role (insertive vs. receptive) were found to be important determinants of association between UAI and use of specific substances and methamphetamine was specifically associated with RUAI with casual partners.³⁶ In the cohort recruited between May 1995 and September 2000 in Vancouver, 12% of the 910 MSM surveyed reported injecting drugs in the previous year, MSM/IDU reported more casual partners and were twice more likely to report UAI with casual partners as compared to non-IDU MSM.³⁷

- ◆ During the cross-sectional data collected between 2002-03 within the Vanguard project, use of Ketamine, GHB, ecstasy, and Viagra within two hours of encounters was found to be associated with UAI with casual partners of unknown HIV status.³⁸
- ◆ The recent rise in rates of reportable STI in Canada may also be used as a marker for unsafe sexual behaviour. The elimination of infectious syphilis, the least commonly reported bacterial STI in Canada, was seen as an imminent goal as recently as 1996; however, national infectious syphilis rates (preliminary) were almost four times higher in 2002 than they were in 1997 (0.4/100,000 vs. 1.5/100,000).³⁹ Despite limitations of surveillance data in assessing the sexual orientation of reported cases, this increase is disproportionately higher amongst males, who account for 80% of all reported cases.³⁹ In an analysis of a syphilis outbreak among MSM in Calgary, Alberta, in 2000-2001, it was reported that 35.7% of the MSM cases were co-infected with HIV.⁴⁰ Similarly, a review of the gonorrhoea

surveillance data in Canada reveals that reported cases of gonorrhoea among men increased by 73.7% between 1997 and 2002 (compared to a 51.8% increase among females).³⁹ The rising rates of syphilis, reported high rate of HIV co-infection, and increase in gonorrhoea rates in Canada further support the suggestion of an increase in unprotected sexual encounters among MSM.

Comment

A number of biases must be taken into account when interpreting the results noted here. HIV diagnostic data are limited to persons who present themselves for testing, and so trends in these numbers may be influenced by testing patterns or improved ability to remove duplicate tests. In addition, identifying information that accompanies HIV testing data is sometimes incomplete or inaccurate, and this may limit the usefulness of HIV incidence estimates. Results of cohort studies are limited by selection biases, loss to follow-up and problems with generalizability.

Despite these limitations, available data suggest that there was an increase nationally in new HIV infections among MSM in the late 1990s, and although this increase may not have continued, overall incidence does not appear to have decreased since then. There is also a continued presence of high-risk behaviours among MSM across the country. This high-risk behaviour among MSM is also noted elsewhere. For example, increases have been seen for HIV-associated risk behaviours and/or STDs among MSM in the USA,⁴¹⁻⁴³ Amsterdam⁴⁴ and Sydney, Australia.⁴⁵

Several hypotheses might explain these increases in HIV-associated risk behaviours including alcohol/drug use,^{33,46-48} feelings of complacency or optimism related to the success of antiretroviral therapy,⁴⁹ false reassurance upon learning an HIV-negative result, misconceptions about partner's HIV status, a lack of direct experience of the AIDS epidemic in the younger generation of gay

men, a desire to escape the rigorous norms and standards required for a lifetime of safe sex,^{46,50,51} and the impact of Internet chat rooms as a risky environment.⁵²

The increase in new infections among MSM and the number of MSM living with HIV underscore the need for innovative prevention programs to reduce the spread of HIV and STI among the gay community. These programs should not only focus on those who are not yet infected but also those who are HIV positive. Risk behaviour measured over time and in different settings across Canada that reflect urban and rural areas, as well as diverse populations, would be useful to better characterize the epidemic among MSM and to support effective prevention and care programs.

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