

REGIONAL MUNICIPALITY OF OTTAWA CARLETON
 MUNICIPALITÉ RÉGIONALE D'OTTAWA CARLETON

MEMORANDUM
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<u>Information Previously Distributed</u> To be listed on the Community Services Agenda - 03 July 1997
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DATE 15 May 1997

TO/DEST. Chair and Members of Council

FROM/EXP. Medical Officer of Health

SUBJECT/OBJET **EPIDEMIOLOGY OF HIV IN OTTAWA-CARLETON**

The purpose of this memo is to provide an update on the epidemiology of HIV/AIDS in Ottawa-Carleton and on the SITE programme. The attached document "The Epidemiology of HIV and AIDS in Ottawa-Carleton" (Annex A) will provide this update.

CONSULTATION

No consultation was required.

FINANCIAL IMPLICATIONS

No financial applications are implied in this report.

CONCLUSION

This report supports the need to continue HIV prevention initiatives in the Ottawa-Carleton area.

Approved by
Robert Cushman, MD, MBA, FRCPC

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**THE EPIDEMIOLOGY OF HIV AND AIDS IN OTTAWA-
CARLETON**

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May, 1997

Abstract

There is little doubt that HIV-infection is an important public health problem in Ottawa-Carleton with a total of 1524 reported infections and 388 AIDS deaths since surveillance began in 1983 to January 1st, 1997. In 1996, the rate of new cases of infection (incidence) was 13.5 per 100,000 persons (19.4 per 100,000 in men and 8 per 100,000 in women). Although the incidence of HIV in men has been declining since 1992, the incidence in women has usually increased each year over the past decade. The main risk behaviours leading to HIV infection in males are men who have sex with men and injection drug use (IDU). For women, heterosexual activity (both in Canada and in countries where HIV infection prevalence is high) and IDU are the main risk factors.

The SITE needle-exchange programme has been expanding since it was first initiated in 1991 and has an exchange rate of 101% (101 used needles coming in for every 100 clean ones going out). This high exchange rate reflects a low likelihood of needle sharing for SITE attendees and is an indicator of the success of the programme. The rate of HIV infection among IDUs in Ottawa-Carleton is difficult to assess but was about 8.2% in 1993. As a result of the participation of the SITE in a surveillance project, more up to date information is available. At present there is no evidence to suggest that the needle exchange programme has led to an increase in drug use or needle sharing in the Ottawa-Carleton IDU population.

Monitoring trends in the incidence of HIV infection remains crucial in evaluating the success of ongoing preventive programmes and in determining the need for new interventions. The rising rate of HIV-infection among women requires immediate attention through enhanced public awareness and education programmes. As well, the characteristics of populations such as IDUs and men who have sex with men should be better described if we hope to improve our control efforts in these groups. In the meantime, the SITE needle exchange programme is providing valuable services and may be contributing to a stabilisation of HIV-infection rates among IDUs in our region.

THE EPIDEMIOLOGY OF HIV/AIDS IN OTTAWA-CARLETON

I. Introduction

The HIV/AIDS epidemic continues to be a major public health problem for both developing and industrialised nations. The World Health Organisation estimated that in January 1996, the global number of HIV infections exceeded 28 million including 7.7 million cases of AIDS.¹ As of September 1996, a total of 14,185 cases of AIDS were reported to the Laboratory Centre for Disease Control (LCDC) at Health Canada and at least 10,213 (72%) had died.² After correcting for the problems of under-reporting and reporting delays, the actual number of AIDS cases in Canada was estimated to be much higher, at 19,000 to 20,000 cases. The most recent estimate of the total number of HIV infections in Canada is 42,500 to 45,000 giving a crude prevalence estimate of 1.5 HIV infections per 1000 population.³ Over 95% of AIDS cases originate from four provinces namely British Columbia, Ontario, Quebec and Alberta. In Ontario, 5776 AIDS cases had been reported as of October 1st, 1996 with 4843 reported deaths and 933 persons still living with this disease.

The purpose of this report is to describe the HIV/AIDS epidemic in Ottawa-Carleton since surveillance for this disease began in 1983, to provide information on the SITE needle exchange programme and to examine trends in the detection of HIV-infection through the anonymous testing programme. In doing so, it is important to understand the following concepts:

- ◆ The average time between infection with HIV and the development of symptoms is about ten years; therefore the number of cases of AIDS at any point in time reflects the number and characteristics of individuals who were infected with HIV many years previously.
- ◆ HIV-incidence refers to the rate at which new HIV infections are occurring during a specified time period and therefore is the best measure of the dynamics of the present epidemic.
- ◆ Although AIDS must be reported by law in Canada, HIV infection is not a reportable disease in all provinces; therefore, national data regarding the incidence of HIV in Canada are incomplete (but can be estimated mathematically).

II. HIV

As of January 1st, 1997, a total 1524 of HIV-infections were reported and 388 persons had died from AIDS in Ottawa-Carleton. Presently, about 1,075 persons in the region are living with HIV and 368 of them have AIDS. It is estimated that approximately one third of people with HIV infection have not

been tested so that the true number of persons living with HIV in Ottawa-Carleton is probably closer to 1600, of which 525 are unaware of their infection.⁴ In 1996, 103 newly acquired HIV infections were reported to the Health Department corresponding to an overall incidence rate of 13.5 per 100,000. The incidence rate in males (19.4 per 100,000) was more than 2 times the rate in females (8 per 100,000). For both sexes, the majority of HIV infections (49%) were identified in the 30 to 39 year age group (Figure 1). The mean age at diagnosis has remained stable at 32 years. However, at the time this report was prepared, information on the median age at diagnosis was unavailable. Data from LCDC indicate that nationally, the median age declined from 32 years in 1983 to 23 years for the period 1985-1990.²

Data on the sero-prevalence of HIV among women in Ottawa-Carleton were not available for this report. A sero-prevalence survey conducted in Ontario in 1992 revealed an average prevalence rate of 1.9/10,000 for women of childbearing age, which was slightly lower than the national rate of 3-4/10,000.⁵

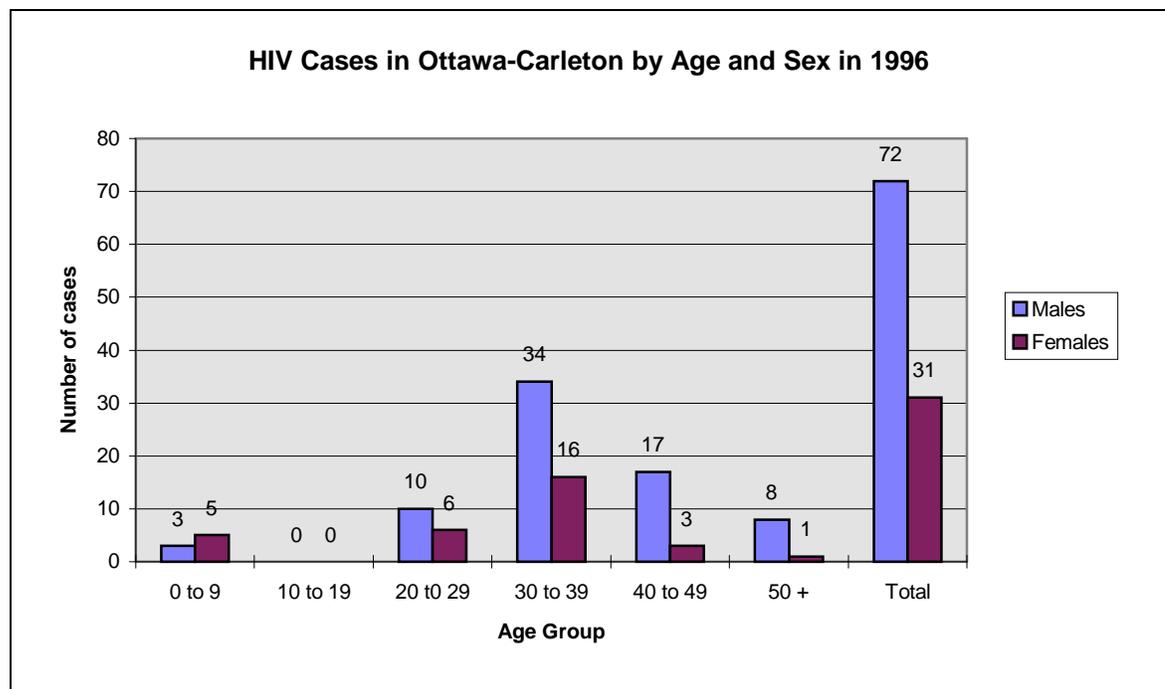


Figure 1: HIV Cases in Ottawa-Carleton by Age and Sex

In 1996, the main risk behaviours associated with HIV-infection in males were men who have sex with men (39%), injection drug use (IDU) (31%), followed by heterosexual sexual contact with persons at risk (11%). The proportion of infections acquired abroad was 6%, through perinatal transmission 4% and through blood/blood product transfusions was 1% (Figure 2). The risk of acquiring HIV through blood/blood products in Canada is presently estimated to be 1 per million transfusions. Persons who received blood transfusions before

screening was initiated in 1985 have been encouraged to be tested for HIV. As a result in the next few years we may continue to see higher than expected numbers of new cases attributable to this risk factor.

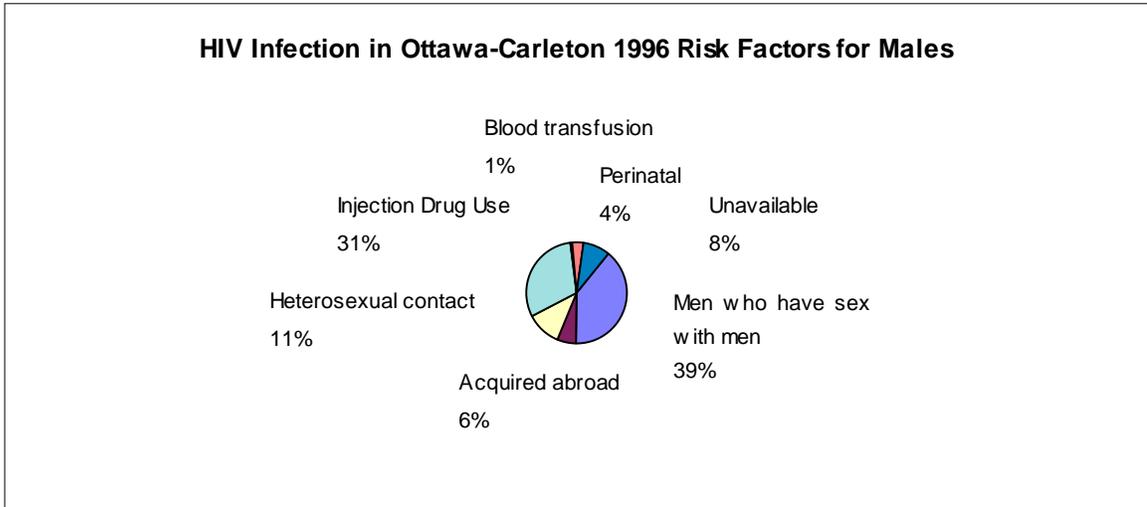


Figure 2: HIV Infection in Ottawa-Carleton 1996, Risk Factors for Males

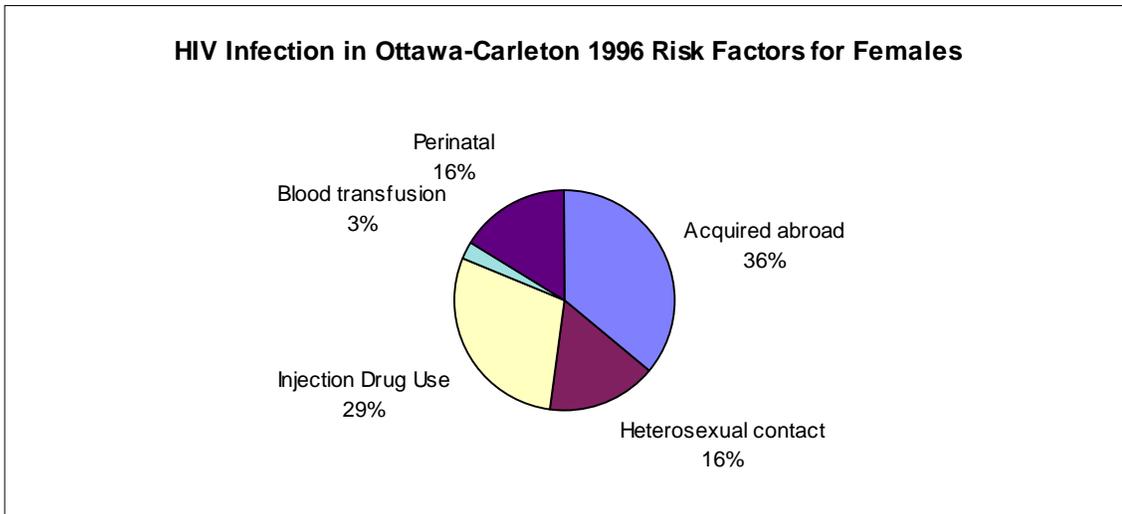


Figure 3: HIV Infection in Ottawa-Carleton 1996, Risk Factors for Females

For females, heterosexual contact was the main mode of transmission (Figure 3). In 1996, approximately 36% of all reported HIV-infections were acquired abroad or in developing countries where the prevalence of HIV is very high (known as Pattern II countries) while another 16% resulted from heterosexual contact with a person in an industrialised country. Injection drug use was identified as the mode of transmission for 29% of new HIV infections in women. Other routes of transmission for females were perinatal (during pregnancy or delivery of HIV+ mother) at 6% and blood transfusion at 3%.

Over the past decade, the annual number of new HIV infections in Ottawa-Carleton increased steadily until 1992 and declined to a rate of 13.5 per 100,000 in 1996 (Figure 4).

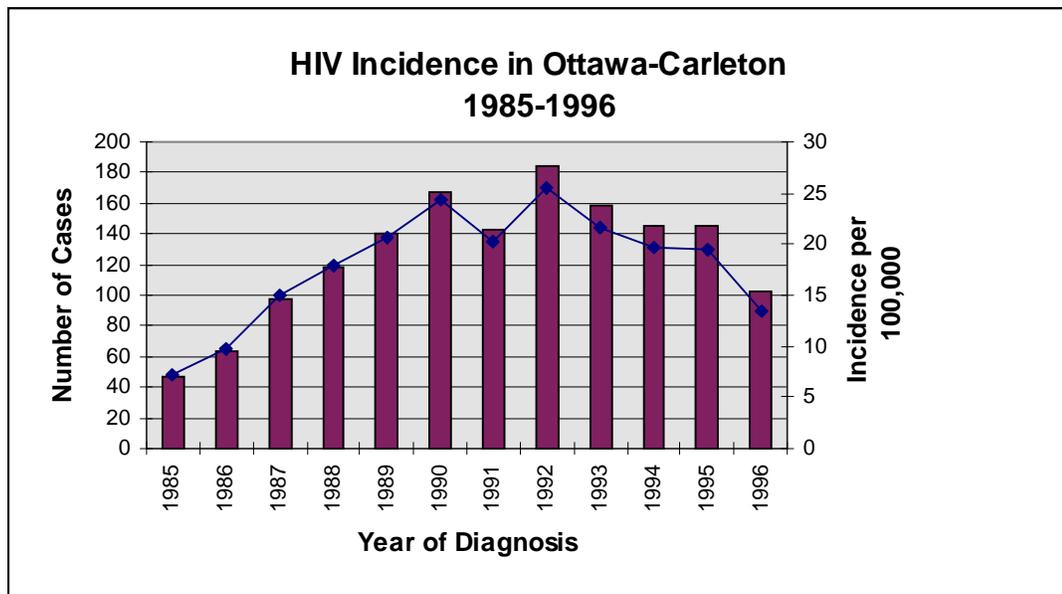


Figure 4: HIV Incidence in Ottawa-Carleton 1985-1996

In males the incidence of HIV peaked in 1992 at 45 per 100,000 and has been declining since then (Figure 5). The decline in the rate of HIV-infection in males may be partially explained by a change in behaviour towards safer sexual practices as illustrated in Figure 6.

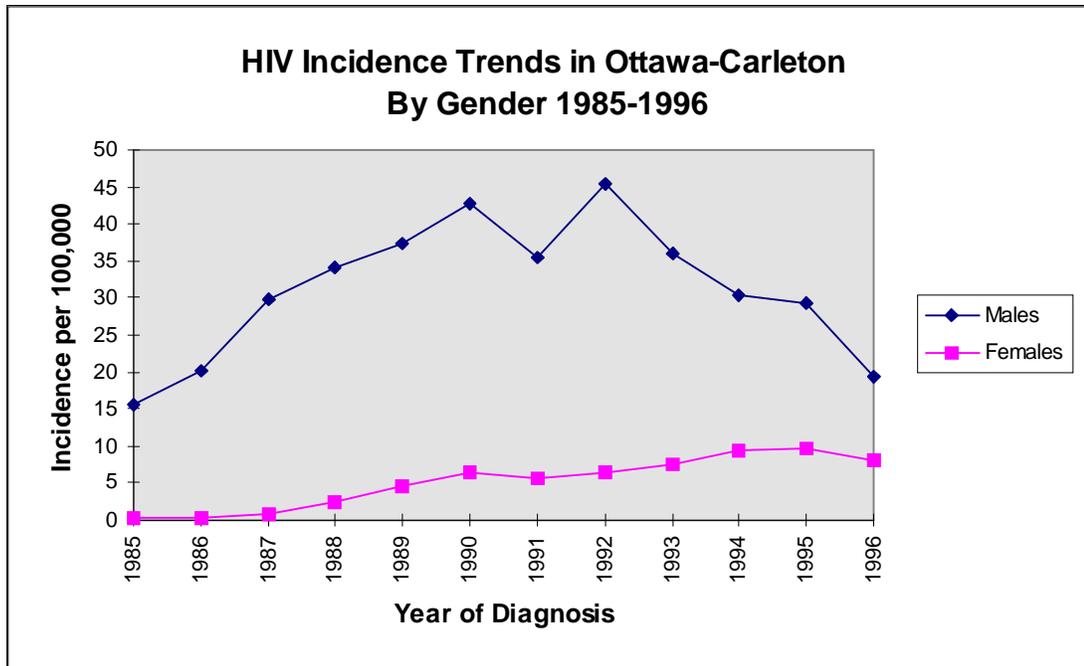


Figure 5: HIV Incidence Trends in Ottawa-Carleton by Gender 1985-1996

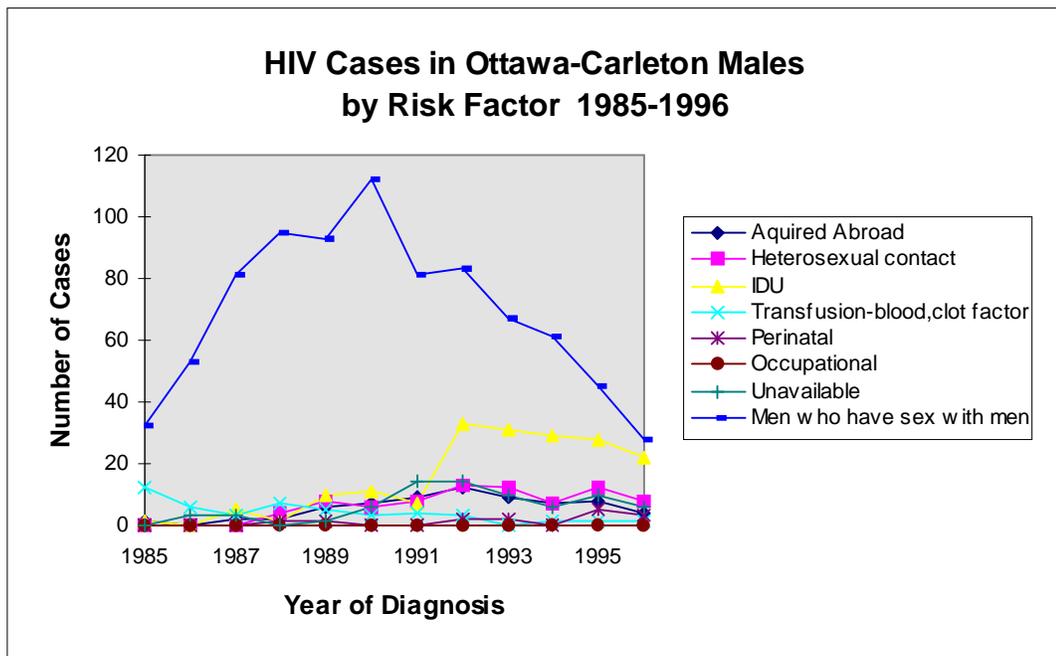


Figure 6: HIV Cases in Ottawa-Carleton Males by Risk Factor 1985-1996

Although the incidence of HIV has been declining in men over the past few years, there has been some concern that infection rates in young Canadian males may be rising because of unsafe sexual practices.¹⁰ There is no evidence that HIV infection rates have been increasing in Ottawa-Carleton among young males tested. (Figure 7).

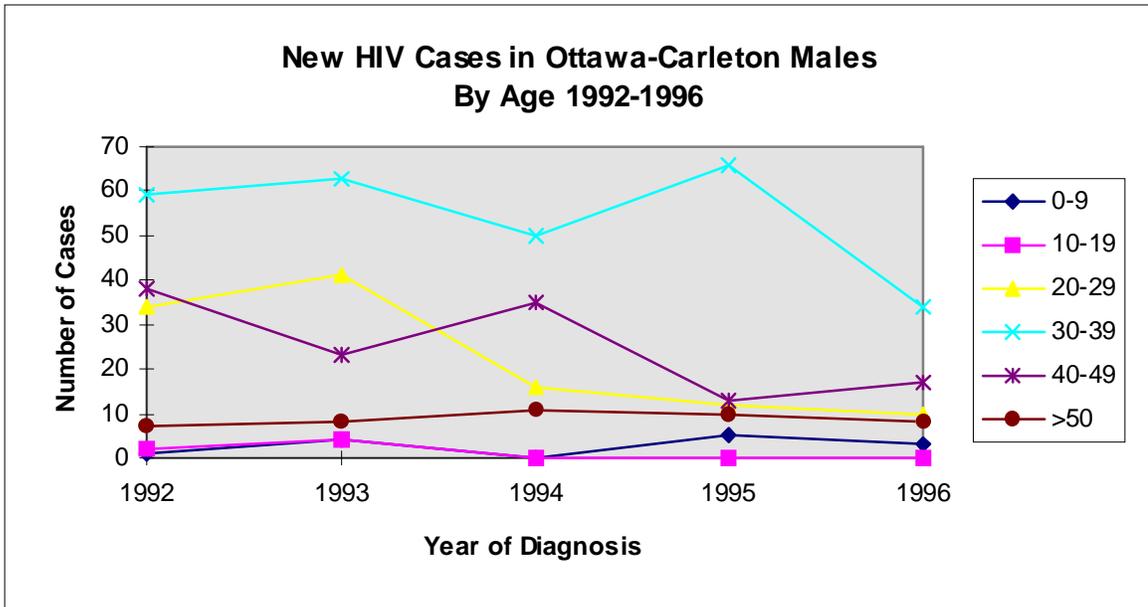


Figure 7: New HIV Cases in Ottawa-Carleton Males by Age 1992-1996

For women, the rate of new HIV infections has usually increased each year since 1985 (Figure 5). This is consistent with a disturbing trend in Canada towards a general increase of HIV infections among women.⁵ Figure 8 shows the changes in risk factors for HIV-infection in Ottawa-Carleton women over time.

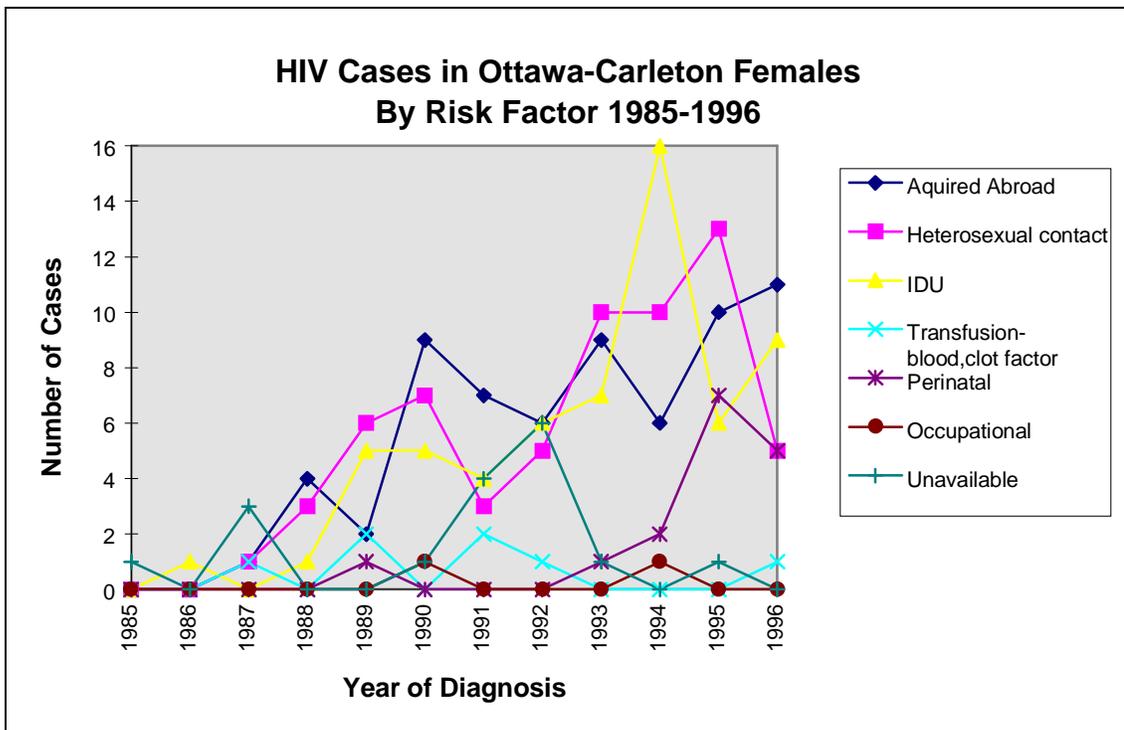


Figure 8: HIV Cases in Ottawa-Carleton Females by Risk Factor 1985-1996

The progressive increase in the number of cases attributable to heterosexual contact is of concern and is comparable to both provincial and national trends.³ For female IDUs, the number of cases of HIV increased sharply between 1985 and 1994, declined to six in 1995 and then increased to nine in 1996. Reasons for the high number of HIV cases in female injection drug users in 1994 are unclear and may relate to increased reporting or screening in that year. Since the total number of injection drug users in Ottawa is unknown, incidence rates for this population cannot be calculated. Fluctuations in the size of the population will therefore affect the crude numbers of positive tests.

Figure 9 shows the trends in HIV-infection for males and females combined. The rise in the number of cases in the IDU population may be a result of increasing rates of infection among female IDUs.

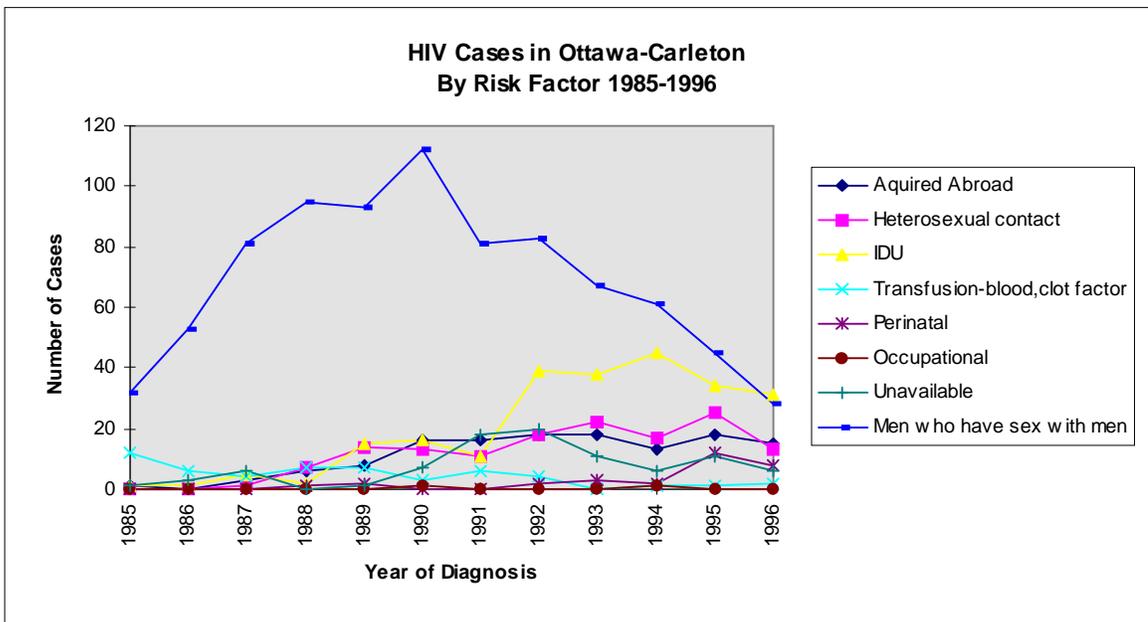


Figure 9: HIV Cases in Ottawa-Carleton by Risk Factor 1985-1995

III. Epidemiology of AIDS in Ottawa-Carleton

Trends in the annual incidence of AIDS in Ottawa-Carleton over the past eleven years are presented in Table 1 below.

Year	New Cases	Incidence per 100,000
1986	16	2.5
1987	41	6.4
1988	46	7.0
1989	64	9.5
1990	58	8.4
1991	34	4.8
1992	27	3.8
1993	15	2.0
1994	31	4.2
1995	19	2.5
1996	17	2.3

The number of new cases in the population peaked in 1989 at 9 per 100,000 in 1989 and appears to be declining since that time. In 1996, the incidence of AIDS in Ottawa-Carleton of 2.3 per 100,000 was lower than the provincial rate of 5 per 100,000. AIDS surveillance data however are incomplete due to under-reporting of HIV cases. A recent study estimated the reporting completeness of AIDS reporting in Canada to be approximately 85%.⁶ It is therefore possible that part of the decline in the incidence of AIDS is partially related to a decline in reporting by physicians. Information about new cases of AIDS is collected mainly for health planning purposes. To monitor the dynamics of the present HIV epidemic, it is better to examine HIV incidence data, since all new laboratory confirmed cases of HIV are reported to health units.

The statistic known as "Potential-Years-of-Life-Lost (PYLL)" estimates the total years of life lost before age 75 and shows the burden of premature deaths for a particular disease as well as the costs to society in terms of person-years lost. The PYLL for AIDS in Ottawa-Carleton in 1995 was 614 years or 82 years per 100,000 population which was comparable to the national PYLL rate.

IV. The SITE Programme

The Ottawa-Carleton Health Department initiated a needle exchange programme known as the SITE programme in July, 1991. The main objectives of this programme are:

- ◆ to reduce transmission of HIV in injection drug users (IDUs) through the provision of new, clean needles as well as materials to clean used needles (bleach kits);
- ◆ to reduce transmission of HIV in IDUs through education regarding the transmission of HIV and ways to reduce exposure to the virus (e.g. “not sharing” needles, cleaning used needles and safer sexual practices);
- ◆ to reduce transmission of HIV among IDUs through the distribution of condoms;
- ◆ to provide HIV testing and counselling to IDUs ;
- ◆ to provide IDUs access to hepatitis B testing and hepatitis B vaccine;
- ◆ to provide IDUs with referrals to support services and drug rehabilitation programmes.

The above services are provided through three modes of delivery: a fixed clinic location (at the Sexual Health Centre on Clarence Street), a mobile clinic (SITEmobile or the van) and outreach workers who provide services on the street and at specific agencies in the community. As the outreach component offers needle exchange, referral to counselling and diagnostic services, it has been important in promoting preventive practices among the harder to reach IDU population. A new initiative of the SITE programme is the development of partnerships with community agencies to assist in needle exchange.

An evaluation of the needle exchange programme⁷ completed in 1993 revealed the following important findings:

- ◆ IDUs in Ottawa-Carleton were very satisfied with services of the SITE;
- ◆ over 60% of clients indicated that what they needed most to stop sharing needles was increased access to clean needles or having the resources to purchase their own;
- ◆ needle exchange services did not encourage drug use and in fact may have contributed to a reduction in the use of illicit drugs;
- ◆ attitudes and knowledge about HIV risk-related injection practices improved during the study period while attitudes and knowledge about safer sex practices did not significantly improve.

Since the inception of the needle exchange programme in 1991 until the end of 1996, there have been a total of 22,691 visits to either the fixed or mobile SITE locations, 11,932 (53%) males and 10,759 (47%) females. Approximately 15% (3,383) of the total number of visits have been first visits. Figure 10 illustrates the annual number of visits, first time visits and percentage of visits where needle sharing was reported.

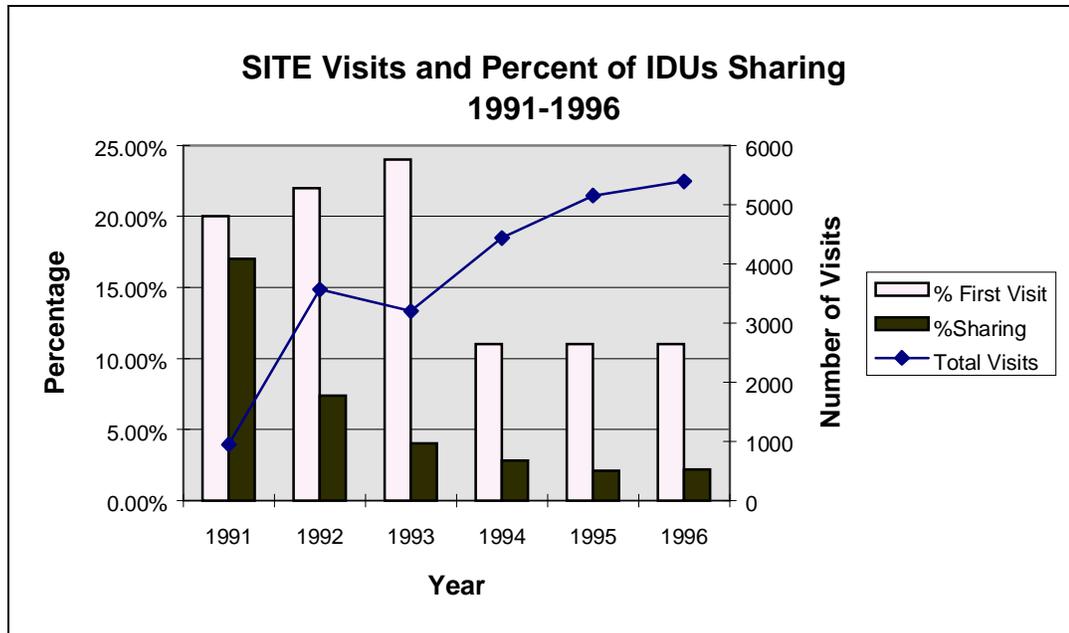


Figure10: SITE Visits and Percentage of IDUs Sharing 1991-1996

There is good evidence that the SITE program is reaching its objectives. The total number of visits has been steadily increasing thus indicating that clients are returning on a regular basis to exchange needles, obtain bleach kits or get counselling. It is also encouraging to find that the number of clients sharing used needles has continued to decrease over the past five years. The percentage of visits that were first visits increased until 1993 and then declined in 1994 and remained stable thereafter. This indicates the need to explore innovative ways of increasing awareness of SITE services among the IDU population in order to attract new clients.

At a first visit to any of the SITE locations a client can be provided with three clean needles and thereafter the exchange rate is one-to-one (i.e. one clean needle for one used needle). Figure 11 documents the number of needles distributed, the number of needles returned and the overall exchange rate for the programme. The growth in the number of needles distributed over time reflects the development of the programme. The high exchange rate in the past three years implies consistent use of new needles and a lower likelihood of needle sharing for IDUs attending the SITE. It is an indicator of the success of the programme.

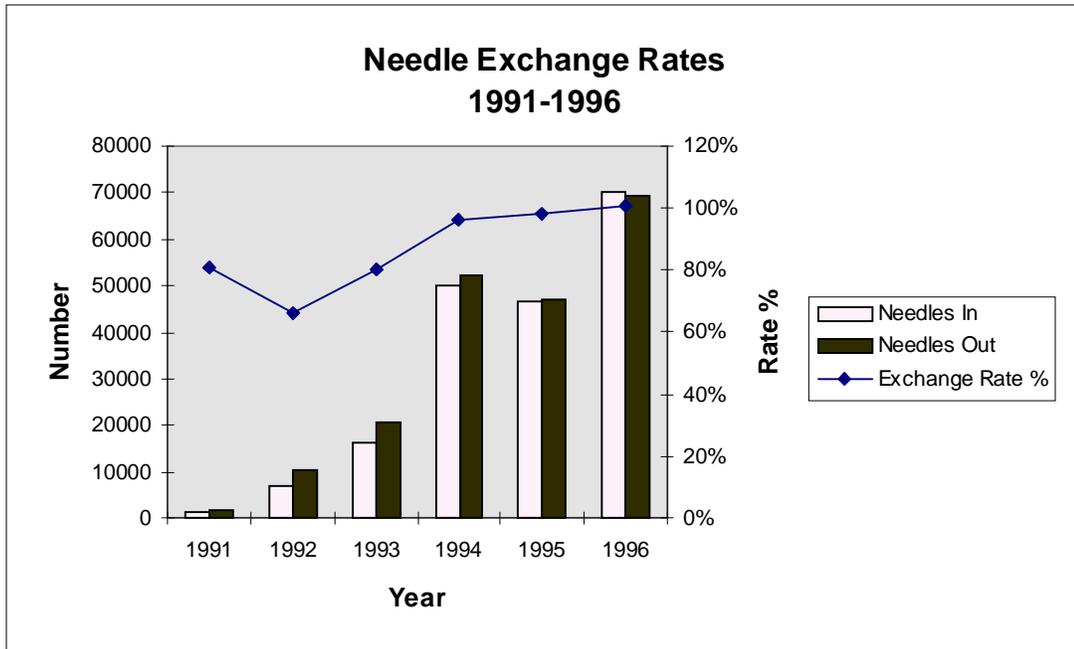


Figure 11: Needle Exchange Rates 1991-1996

The needle exchange programme has been expanding to provide more education and counselling to its clients as shown in Figure 12. The increase in educational initiatives offered through the SITE and other community partners, may be partially responsible for the improved knowledge and attitudes regarding safer injection practices found in the 1993 evaluation study.⁶

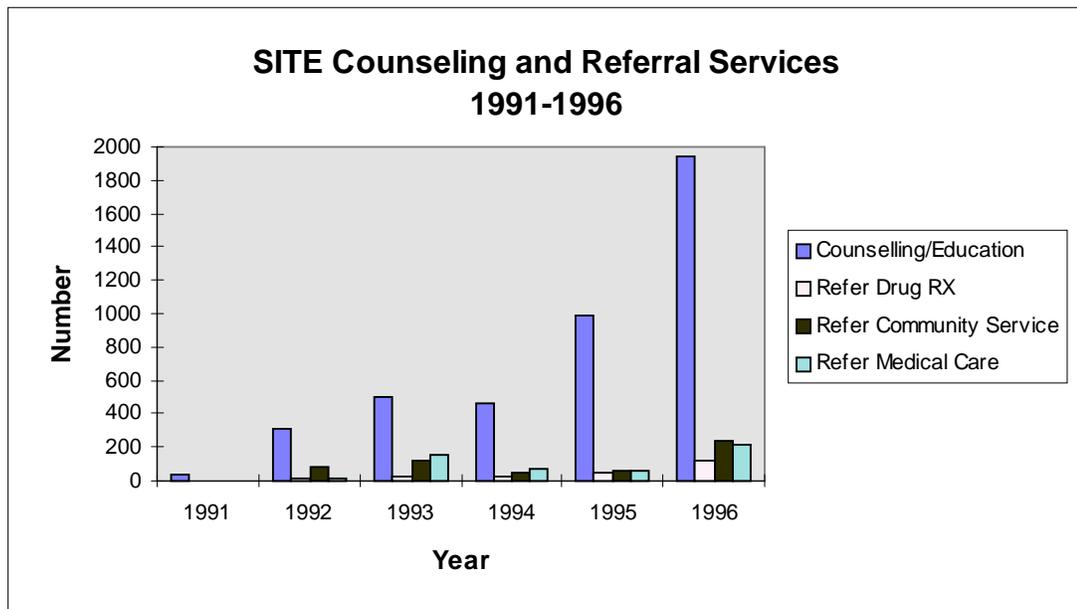


Figure 12: SITE Counseling and Referral Services 1991-1996

Referrals to drug treatment and rehabilitation services, medical care and community services were dramatically higher in 1996 than any other year. Notably, the number of referrals tripled. This increase in the rate of referrals and of counselling/teaching sessions was due to the trusting relationship that has developed during the years between SITE staff and clients. Also, staff training and development for SITE staff has been a priority during the last two years. This training has allowed part-time staff the opportunity to learn more about addictions, HIV related issues and what community agencies in Ottawa-Carleton are doing.

The SITE evaluation study also collected information from key informants in selected community agencies to determine if the needle exchange programme increased the number of referrals to addiction and treatment services.⁶ Attendance at the SITE was felt to influence an IDU's decision to seek help or treatment from the Detox Centre. Staff at addiction assessment services estimated that between 1% and 2% of the 100 IDUs seen each year were made aware of the agency's services through the SITE. This number however may be an underestimate because it was based on self-reported injection drug use which may be unreliable.

V. HIV Infection Among IDUs

Experts believe that it is possible to control HIV infection among IDUs as long as the prevalence (number of existing infections) is less than 10%.⁶ The rate of HIV-infection for the 170 IDUs who were tested in the SITE evaluation was 8.2% in August, 1993 which was the second highest rate for an IDU population in Canada at that time.⁴ The Ottawa-Carleton needle exchange programme is participating in a multi-site study organised through the LCDC examining the rate of HIV infection in IDU populations. Initial results of this study are being released in 1997.

HIV infection rates in IDU populations vary widely by region. In Toronto the prevalence rates increased from 4.5% in 1991 to 7.6% in 1994 and this trend was partially attributed to higher infection rates among males IDUs who had sex with other males.^{8,9} The highest rates of HIV infection in IDUs have been reported in Montreal where the sero-prevalence rate among CACTUS needle exchange attendees was 15.6% in 1993.¹⁰ There is no evidence to suggest that that needle exchange programmes, however, lead to increased drug use. In fact, studies have shown the opposite.⁹ IDUs attending needle exchange programmes may be more compliant with safer needle injection practices but less compliant with safer sex practices leading to an overall increase in the rate of HIV infection in this population.

VI. The Anonymous Testing Programme in Ottawa-Carleton

Three kinds of voluntary testing for HIV are available in Ottawa-Carleton:

1. **Anonymous testing** whereby testing is done without any identifiers. Results of the test can be linked to the person being tested by a code known only to the person.
2. **Coded testing (Confidential or Non-nominal)** whereby results of the test can be linked to the person by a code known only to the persons and the health care provider doing the testing.
3. **Nominal testing** whereby results of the test are linked to the person by their name.

Anonymous HIV testing sites in Ottawa-Carleton include the following:

- ◆ Community Health Centres (Sandyhill, Centretown and Somerset West)
- ◆ the SITE
- ◆ A network of community agencies including the Youth Services Bureau, OASIS and the Men's Salvation Army.

The above anonymous testing sites conduct approximately 900 HIV tests per year. The percentages of tests that were positive for HIV were 1.8% in 1992, 1.5% in 1993, 0.8% in 1994, 0.6% in 1995 and 0.3% in 1996. The percentage of positive HIV tests determined through anonymous testing in relation to all positive HIV tests reported in Ottawa-Carleton was 8.7% in 1992, 8.2% in 1993, 4.8% in 1994, 3.4% in 1995 and 7% in 1996.

Since spring of 1996, the SITE has been offering HIV anonymous testing. Thirty-three tests have been done and three individuals have tested positive for a 9% positivity rate. SITE staff have received training for anonymous testing and have been promoting this service through all venues.

VII. Conclusion

The HIV epidemic continues to be an important public health concern in Ottawa-Carleton. It is encouraging to find that overall HIV infection rates in men have been declining over the past four years. The current situation of female HIV infection rates usually increasing each year is disturbing and indicates a pressing need to continue to educate women in our area about the prevention of HIV and to help them to adopt, in particular, safer sex and safer injection practices.

There is good evidence that the SITE programme is providing important services for injection drug users in Ottawa-Carleton. Whether the SITE has influenced the rate of HIV infection in IDUs is difficult to determine since IDUs may have more than one risk factor for HIV infection. Continued surveillance of the infection rates among the IDU population and further research regarding the determinants of their behaviour are needed.

It is also important to be able to estimate more accurately the size and characteristics of populations at increased risk of HIV infection, such as the IDUs and men who have sex with men. Little is actually known about the prevalence of infection and characteristics in these populations in Canada. Improvements in our understanding of these areas will improve our preventive programs.

The anonymous testing programme provides HIV testing to approximately 900 persons per year in Ottawa-Carleton. Anonymous testing is important as it allows persons access to HIV testing without having to identify themselves. Without such testing, some persons may not get tested at all or may turn to donating blood to determine their HIV status, thereby jeopardising the safety of the blood system. As noted earlier, approximately a third of individuals infected with HIV have yet to be identified. Uncovering the reasons for this lack of testing as well as increasing the rate of HIV testing will be a challenge for health professionals, educators and researchers. The anonymous testing programme may become crucial in encouraging untested persons with risk factors for HIV to seek testing.

In summary, comprehensive surveillance along with public awareness and education initiatives are crucial components of HIV/AIDS control programmes. They must continue along with enhanced research initiatives if we hope to halt the spread of this infection.

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