Focus on Infectious Diseases

Correctional Service of Canada's Infectious Diseases Newsletter

Human Immunodeficiency Virus (HIV) in Prisons: Responding to the Challenge

In this issue of Focus on Infectious Diseases, we take a look at human immunodeficiency virus (HIV) behind bars in Canada. The recent 16th International AIDS Conference held in Toronto in August 2006 prompted an assessment of where we are and where we need to be in the prevention and control programs in CSC Health Services. HIV has emerged as one of the most challenging public health issues in the last 50 years; the unique socio-demographic risk profile of inmates and the nature of incarceration itself present specific challenges for HIV prevention and control. However, the prison environment also provides a unique public health opportunity for intervention in a vulnerable population that would otherwise be under serviced and hard to access. Perhaps the measure of success in this regard is how CSC has responded to the challenge by making use of opportunities for intervention.

First, achievements of the Special Initiatives Program, presented by Mary Beth Pongrac at a poster session at the AIDS Conference, are highlighted. This is followed by reports from many CSC staff who attended the conference, giving their personal perspective on the conference and how it has affected their thinking about HIV, and the role that CSC has in controlling the epidemic. Lastly, a preliminary investigation into HIV screening based on pilot data is presented and discussed in the context of the most recent estimates of HIV prevalence and incidence in Canada, and recent calls for changes to screening practices in the United States.

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Special Initiatives Program: HIV Prevention by Inmates for Inmates

by Mary Beth Pongrac
HIV Project Officer, National Infectious Diseases Program

The Special Initiatives Program provides inmates the opportunity to submit proposals for projects and activities related to HIV, hepatitis C and sexually transmitted infection (STI) prevention, for other inmates. The Program was conceptualized in 2002 by Nancy Connor, then National Infectious Disease Program Coordinator, and now a Manager with CSC's Health Information Management Module (HIMM) project.

Funding for the Special Initiatives Program is provided under the *Federal Initiative to Address HIV/AIDS in Canada*. Since its inception, the Special Initiatives Program has supported more than 20 inmate-led projects/activities, including the following:

- HIV prevention poster and t-shirt design contests;

- an inmate-led HIV/hepatitis C symposium;
- an inmate-designed interactive HIV learning tool;
- inmate-designed calendars with HIV prevention messages; and
- the development of an inmate HIV support group.

At the suggestion of Alan Sierolawski, National Infectious Disease Program Coordinator, I submitted an abstract on the Special Initiatives Program to the XVI International AIDS Conference. In May 2006, I received word from conference organizers that the abstract had been accepted as a "poster presentation". This meant that I was required to create a poster of a certain height and width, describing the Program. The poster would be displayed during certain hours on only one day of the conference and I was to be available from 12:30 p.m. – 2:00 p.m. on that day, beside the poster, to answer questions from conference participants.

In order to bring attention to the poster in general, to the Program specifically, and to the importance of prevention messaging, we decided to hand out t-shirts designed by an inmate at Westmorland Institution (see photo at right).

T-shirt designed by an Aboriginal inmate at Westmorland Institution through the Special Initiatives Program. The statement "Are you at risk?" appears in English, French, Micmac and Maliseet (two First Nations languages), and pertains to risk behaviours and transmission of HIV, and the importance of getting tested for HIV. The red ribbon represents the AIDS ribbon. The wreath represents a sacred herb, such as sweetgrass, which is usually braided. The feathers are those of an eagle, which has special significance in Aboriginal culture. The four colours represent the four directions, the four seasons, the four stages of life, and the four races: yellow, red, black and white.

David Lewis, Regional Infectious Disease Coordinator – Atlantic Region, Jonathan Smith, Epidemiologist, and Alan Sierolawski handed out the t-shirts, which were an instant success; they could hardly keep up with the demand.

As it was an international conference, there were participants from all over the world. Imagine seeing someone in AIDS-ravaged sub-Saharan Africa wearing a t-shirt designed by an Aboriginal inmate in a Canadian penitentiary. For me, it signifies the vastness of HIV/AIDS – it truly is a global pandemic.

During the time that I stood by the poster, I met people from several countries, all of whom expressed interest not only in the Special Initiatives Program, but also in other CSC initiatives with respect to HIV and infectious disease prevention.

CSC has one of the most progressive approaches in the world. Its comprehensive infectious disease program includes peer education, health promotion, infectious disease prevention education, and harm reduction measures such as condoms, dental dams, lubricant, bleach for cleaning tattooing, piercing and injecting equipment, and methadone maintenance treatment.

Voluntary testing for HIV and other infectious diseases is offered to all inmates at admission, and testing is available throughout an offender's sentence. Those who test positive for any infectious disease have access to appropriate treatment, including referral to specialists in the community.

The International AIDS Conference was a first for me – attending an event where thousands of people from around the world, regardless of their sexual orientation, colour of skin, country of origin, race, gender, age, religious affiliation, infection status, or language spoken, assembled together to fight a pandemic that affects us all. The fact that CSC contributed to this fight enriched my experience that much more.

Reports from the Front Line: CSC Staff Experiences at AIDS 2006 in Toronto

Atlantic Region

David Lewis, Regional Infectious Disease Coordinator

This was the first conference I had attended that was not a CSC conference. It was also the first HIV conference I had the opportunity of attending. For 12 years I had worked in institutions and although I had some contact and awareness of the issues related to HIV outside the correctional setting this was a real eye opener. I was amazed by the diversity of topics covered and the different streams of the conference. There was literally something for everyone. The commonality was HIV. I tried to attend as many sessions as possible and on as many different subjects as possible. I have a science degree so the scientific presentations were of interest to me. They were presented at a much more detailed level than I was accustomed to, but were often related back to clinical presentation. The devastation in countries like Lesotho where 40% of the population is HIV+ is unfathomable. Although the conference was about HIV, the other components of CSC's Infectious Disease Program - HCV, TB, STIs, immunization and harm reduction - were all topics covered at this conference. The plenary sessions were fantastic.

One of the surprises for me was the lack of unity I had expected. There were many different groups represented and they seemed to be jockeying for position. This was reflected in the media surrounding the event where men who have sex with men (MSM) felt they did not have enough of a presence at the conference and that after all HIV began as a "gay" disease. I attended a nursing forum on the last evening of the conference and some of those present complained that it was the last scheduled session and that there was not enough focus on nurses' contribution to the battle against HIV. I believe the key to resolving the HIV epidemic will be found by working together to make a difference and making sure no one group is left out.

I thoroughly enjoyed my time at the conference, but if I had to choose a highlight it would be handing out T-shirts and information at the Special Initiatives poster presentation. Interacting with so many people and having the opportunity to share the good work we are doing in CSC made me proud to work for CSC Health Services.

Attending this conference has motivated me to work harder at my role in my region, in CSC, and in my community.

Québec Region

Exhibition of the AIDS Memorial Quilt

Hélène Racicot, Regional Infectious Disease Coordinator

Late one afternoon, as I was strolling nowhere in particular, I happened to be at the entrance to the AIDS Memorial Quilt exhibit, held under the auspices of the CBC/Radio-Canada and the cultural activities program of the conference. Knowing nothing at all about it, I was completely captivated by the event.

The AIDS Memorial Quilt consists of panels created in honour of people who have died from AIDS. The panels are assembled by those close to the people who have died, friends and family members. On the quilts are messages of love and appreciation for the lives of those who have died.

As I looked at the panels, I felt the love, the suffering, the pride and entire lives summed up on a small panel, 3 feet by 6 feet. Started in San Francisco in 1987, the quilt has travelled to more than thirty countries since, including Canada in 1989.

All of these creations are original! The panels all have different colours and materials, and each is unique as an image of the person commemorated. Admittedly, they do not all show artistic talent, but they all touched me!!! AIDS now bears too many names and faces!!!

It takes away not just lives, but friends, loved ones and dear ones.

Let us share life with those who struggle to save life!
(See www.quilt.ca and www.quilt.org for more information)

Toronto: HIV and friendships

Diane Perreault, Nurse, Joliette Institution

In August I had the privilege of attending the International AIDS Conference in Toronto. It was certainly an excellent opportunity to develop my knowledge. I attended numerous workshops, listened to numerous speakers and gathered many papers, all of which I salted away for future reference. Besides all of that, however, I had the incredible luck to meet people, talk to them and exchange ideas that touched and moved me deeply. I have only to think of the welcome at Casey House, the Vigil at Yonge-Dundas Square and the Grandmothers' Gathering. Of course, this gave me a chance to meet with Correctional Service colleagues, with whom I was able to talk shop and discuss experiences working with infectious diseases and HIV.

The best encounter of all, though, without a doubt, was with the beautiful nurse from Burkina Faso who smiled at me in such a kindly way. We chatted for twenty minutes or so, and I suddenly had an urge to ask her what I could do to help women in her country.

We exchanged e-mail addresses and parted on that note. A few weeks later, we were in touch through the magic of the Internet, and I learned that she chaired an association for HIV-positive women and was herself positive. I can tell you that she shows an unshakable determination and great courage that affected me enormously. A fine bond of friendship has since developed between us, and she has become my beautiful friend in such a beautiful faraway land. We correspond regularly and still harbour the idea of creating a project between the inmates I work with and these so very needy women.

That sums up neatly the impact of this wonderful experience, which will leave indelible memories in our hearts and minds.

I wish to thank my employer for allowing me to take part in this unique event. I was very proud to be there.

Ontario Region

International AIDS Conference 2006

Sue Groody, Chief Health Services, Fenbrook & Beaver Creek Institutions
Cathy Ball, Infectious Disease Nurse, Fenbrook Medium Institution
Pat Jones, Infectious Diseases Nurse, Beaver Creek Institution

It is difficult to express the total sense of awe that is associated with being at a conference of this magnitude. There is so much to see and attend, making it a real challenge to fit as much into one day as possible. Then at the end of a packed day, you sit with the agenda to try and plot out your next day's events.

The overall theme "**Time to Deliver**", emphasizes the need for action, underscores the need for accountability and action, as well as emphasizes that government and individuals must be held accountable to the promises they have made to the world.

Twenty-five years into the global HIV/AIDS epidemic and still more than 4 million people become infected every year.

It is ten years since life saving treatment was introduced and 95% of those in need today, worldwide, still have little or no access to these drugs.

The Public Health Agency of Canada estimates that there are more than 50,000 Canadians infected with HIV including the unreported infections. Ontario is home to more than 40% of known infections.

The conference focused on five key challenges: accelerating research to end the epidemic; expanding and sustaining human resources; intensifying involvement of affected individuals and communities; building new leadership to advance the response; and scaling up: lessons from the field. Each day the conference focused on one of these five challenges, all the venues covering that challenge for the day, with speakers, poster presentations and the Global Village.

We focused throughout the conference on "Scaling up: lessons from the field", as we felt this would give us information to take back to our institution to better perform our jobs.

PREVENTION:
Needle Exchange Programs:
Findings support needle exchange programs. Globally it is known that drugs do enter prisons, and many start injecting in prison. Prisoners encounter many changes in IDU partners due to releases and new admissions. Evaluations of prisons that have needle exchange programs have found that there has been no negative effect or impact on safety or security within the institution. Needles have never been used as a weapon and needle exchange is the most effective method of preventing transmission through the sharing of dirty needles.

Methadone Maintenance Programs:
Methadone Maintenance Programs have reduced HIV and Viral Hepatitis transmission rates. Evaluations of MMT programs in prisons have indicated positive results. However, there are still some countries that do not support MMT programs.

Buprenorphine:
Buprenorphine is another option for treatment of drug dependency. There is less stigma attached to it and it gives the patient a clearer head, with less risk of overdose, and it is easier to be withdrawn from. It has been proven as effective as Methadone in 20-60mg doses in relieving withdrawal symptoms and decreasing illicit opioid use. However, further research is needed on the comparative efficacy of Buprenorphine to Methadone in doses above 60mg. It is more expensive than Methadone and is taken sublingually. Treatment can only be started after the patient experiences withdrawal (at least 6 hours after last opioid).

Condoms:
Condoms are known to be safe and effective to prevent transmission of infectious diseases.

More research is needed for the effectiveness of female condoms in reducing transmission. It was interesting to note the number of countries that do not have easy access to condoms. Many people from these countries at the conference were trying to get as many of the free condoms as they could to take home.

Safer Crack Kits:
Safer crack smoking is a viable comprehensive harm reduction program for reducing HIV and HCV transmission. There is a need to focus on the multi-person use of the apparatuses to smoke crack. Very few health authorities in Canada have implemented a strategy to support crack smokers.

TB/HIV Co-Infection:
There are 14 billion individuals co-infected with HIV/TB globally. One TB infected person can infect 20 others. Add HIV to the equation and there is a much greater risk of developing active TB disease. In some African countries, one of every two HIV positive individuals is TB positive. People are dying from TB even though they are on highly active anti-retroviral therapy (HAART).

There is a great need to work together in the clinical setting and research needs to be done to reduce transmission of TB and to reduce reactivation in HIV positive individuals.

Challenge to participants:
We need to diagnose cases by screening all HIV infected individuals for TB at every doctor's visit. We must be vigilant in diagnosing, and in reducing reactivation with medication, as well as ruling out active cases. We also need to address the issue of poor uptake of testing in high burden countries, as low income areas have high TB prevalence.

Challenges in Treatment of HIV/TB:
One of the issues is the initiation of HAART in a TB infected person; all front-line TB drugs need to be metabolized by p-450 in the liver, which is suppressed by HAART. There is an increased rate of mortality from TB in an HIV positive individual due to the decreased CD4 count.

HIV SCREENING AND TESTING
Challenge to participants:
We need to push the envelope and encourage screening and testing. There are many people who are positive and not aware of it. Fear of stigma and discrimination on testing positive may keep people from testing.

Challenge to participants:
We need affordable, rapid testing that does not require blood taking. We also need to reassess the whole model of pre-and post-test counselling. It is often too time consuming and discourages individuals from seeking testing. There needs to be more discussion around universal testing and mandatory testing.

BEHAVIOUR CHANGE PROGRAMS
Challenge to participants:
Postponement of sex among young people is being encouraged through programs, along with avoidance of multiple simultaneous relationships. There needs to be more education around sero-sorting (choosing sexual partners based on HIV status) within gay communities.

HIV PREVENTION RESEARCH
Male Circumcision:
Studies are showing that HIV rates are lower in the circumcised population. Countries with higher rates of male circumcision have lower rates of HIV infection.

Studies in South Africa show that circumcised men are 60% less likely than uncircumcised men to become infected with HIV from female partners. It is believed this method of protection is effective due to the removal of the HIV target cells in the foreskin. The challenges with this form of protection are around the safety and ethical concerns of circumcision, as well as cultural and religious challenges.

Cervical Barriers
Cervical barriers will protect women from HIV and other sexually transmitted infections. It is believed the upper genital tract may be more susceptible to HIV. An efficacy trial in South Africa and Zimbabwe is nearing completion. The challenges to the research are the lack of markers of protection, along with adherence, pregnancy, retention rate, cost, ethical questions and care obligations.

PRE-EXPOSURE PROPHYLAXIS
There is an efficacy trial under way in Botswana, Peru and Thailand which will be completed in 2008. There are many unanswered questions with this form of prevention. Will it lead to resistant virus? What is the level of adherence required? Would it be acceptable for otherwise healthy people to take chronic medication for protection? Would there be a potential for abuse of PrEP among those people who refuse to or do not want to use condoms?

HERPES SUPPRESSION
Herpes infects up to 70% of people in parts of Sub Sahara Africa. Infection with Herpes triples the risk of HIV acquisition and transmission. There are Acyclovir trials under way in Africa, Latin America and US with the results expected in 2007-2008.

MICROBICIDES
Microbicides emerged as one of the biggest prevention stories of the conference. Microbicides are a topical substance such as gels or creams applied in the vagina or rectum to protect against contracting HIV. There are five first generation vaginal microbicides in the late stages of clinical trials, with results expected in 2008.

The challenges of microbicides are that they are female initiated, and many women are male dominated and fear violence from their partners if they are not in agreement with the use of microbicides. As well, there are many structural, cultural disadvantages for women.

Rectal Microbicides
Rectal microbicides are in the early research stage at present. There is a push from the gay population to press forward with research.

HIV VACCINES RESEARCH
The first phase of vaccines was in 1987. Eighty-five candidate vaccines have entered human trials and none has proven effective at this time. The search for a vaccine is continuing with the funding of 300 million dollars from the Bill and Melinda Gates Foundation.

There is a long way to go before we will know if a vaccine will be found for HIV.

HEPATITIS C EPIDEMIC
There are 200 million people chronically infected with HCV around the world. Each year 3 to 4 million individuals are newly infected. Mortality is expected to triple over the next two decades.

HIV/Hepatitis C Co-Infection
HIV accelerates Hepatitis C progression with increase in liver disease. Individuals co-infected are more likely to develop end-stage liver disease. Overall sustained viral response (SVR) after treatment of co-infected individuals is only 27% to 40%, although treatment will at least slow the progression of the disease to cancer of the liver. It is recommended to treat co-infected individuals.

Challenges In Treating Co-Infected Individuals:
These are often marginalized people, who have difficulty in accessing treatment, due to the overall cost of treating co-infection. Along with the cost issues are the side effects of both anti-retroviral therapy (ART) and Hepatitis C treatment at the same time.

As you can see there were many topics discussed and it was a real opportunity to be part of such a huge educational event. What we have reported on is only a small portion of our experience. We will leave you with some interesting facts that we learned while at the conference.

- Women account for roughly one-half of people living with HIV globally.
- Women often do not have the social or economic power to refuse sex or negotiate condom use.
- In India some men believe having sex with a virgin protects against HIV transmission, which leads to high incidence of rape among young girls.
- Nigerian sex workers commonly use high concentrations of lime juice intra-vaginally to prevent HIV, STI or pregnancy. Studies have proven this ineffective.

Prairies Region
Michelle Beyko, Regional Infectious Disease Coordinator

The XVI International AIDS Conference was a vast, multi-cultural forum of education, advocacy, networking and research. I have been to international conferences in the past, but never of this scope and magnitude. The week was filled with many memorable highlights including the addresses from Bill Clinton, Bill and Melinda Gates and Stephen Lewis. The conference not only provided opportunities to learn more about the disease process and treatments but also enhanced understanding of the global challenges in battling this disease. In the end, I left the conference feeling an increased appreciation for our Canadian healthcare system and our access to care and treatment.

I attended as many sessions as I could that addressed HIV/AIDS in prisons. I was particularly glad to learn that the WHO recognizes that HIV/AIDS is a world-wide problem in prisons and has developed the document "*HIV/AIDS Prevention, Care, Treatment and Support in Prison Settings*" to provide a framework to address this global

problem. Not only is HIV infection higher in Canadian prisons in comparison to the general public, but world-wide this has become a common phenomenon. As we know, this is often accompanied and exacerbated by high rates of other infectious diseases such as hepatitis and tuberculosis. Internationally, high rates of HIV infection in prisons are reflected in two main scenarios.

The first scenario includes countries in which there are high rates of HIV infection among injecting drug users, many of whom spend time in prison and some of whom continue to inject while incarcerated. In these countries, including Canada, high rates of HIV and HCV infection are related primarily to sharing of injecting equipment outside and inside prison. However, the scenario is quite different in countries in Africa, for example, where there are high rates of HIV infection in the general population, and infection rates are primarily driven by unsafe heterosexual sex. In these countries, high rates of HIV infection among prisoners are related to high rates of HIV infection in the wider population. The continued spread of HIV within the prisons in these countries is related especially to sexual contact (primarily men having sex with men), as well as unsafe medical practices, rather than to injection drug use.

I have always been fascinated with new developments in research and I found no exception in the area of HIV/AIDS prevention. The ultimate goal in HIV/AIDS research is the development of an HIV vaccine. The main problem with this progress is that HIV mutates rapidly in the body and the vaccine must stimulate a broad variety of antibodies against the virus's surface protein, so that the virus cannot mutate to escape control. Although such a development is challenging, it is being pursued.

Among other more successful attempts to reduce the risk associated with HIV/AIDS exposure is the current development of pre-exposure prophylaxis (PREP). This treatment has already been shown to be effective in animal studies and has demonstrated ability to achieve high levels of drug concentration in the male and female genital tract with no side effects. Human trials are currently underway. The main drawback of this treatment is that individuals would have to take the PREP everyday until they stop engaging in behaviours that put them at risk for acquiring HIV. It is expected that PREP would not be 100% effective and would only be a supplement to condoms.

There is also fear that people may perceive the medication as more protective than it actually is and not use condoms.

A second new advance has been the development of vaginal microbicides. These are gels that are inserted into the vagina one hour before intercourse. This is considered an important breakthrough in African countries where women are often unable to negotiate safe sex and have no other ways of protecting themselves. Lastly, much to my surprise, male circumcision has shown a significant impact in reducing the risk of transmitting HIV/AIDS.

All in all, the knowledge gained from the conference was very worthwhile and I am grateful to CSC for being granted the opportunity to attend such a superb event.

Pacific Region
Diane Thiessen, A/Regional Infectious Disease Coordinator

I tended to view the issues and information at the AIDS 2006 conference through the lens of women as I am Chief of Health Care at the women's facility. I noticed the fact that so many of the current strategies and those on the immediate horizon, i.e. microbicides, were dependent on women to utilize consistently and correctly. My experience with women at risk has shown that often this population is at a disadvantage when it comes to negotiating safer sex.

They often are desperate for money and this influences what they will and will not do. More importantly, many women have not developed the self esteem and skills to successfully take a stand on this issue. In CSC we give them the academic knowledge regarding HIV/AIDS and they are able to articulate the knowledge required to prevent spread of the disease. Unfortunately, the application of the knowledge requires skills they have not developed. Essentially it comes down to a power imbalance that has survived many generations.

The other issue I found very striking was the close association of TB with HIV/AIDS. We have tended to look at both of these issues in isolation of each other with TB being lost in the HIV/AIDS "hoopla". Because of the close link and very significant risks, I have started to view TB as being as big a risk to our population as HIV/AIDS. I can't help but wonder if some of our resources directed to HIV/AIDS can also encompass a more assertive TB strategy.

It was quite something to be part of an international event such as this. I suspect that this is probably the only time in my career that an event such as this will be held in Canada. I am grateful that CSC afforded me the opportunity to be part of it.

Screening for HIV among New Admissions to CSC: Pilot Data Results

By Jonathan Smith
Epidemiologist, National Infectious Diseases Program

In 2004, Health Services ran a pilot project to test three new surveillance and screening forms for bloodborne and sexually transmitted infections. The purpose of these forms was threefold: first, to provide a mechanism for more formal implementation of obligations prescribed in CD 821 and screening guidelines for sexually transmitted infections; second, to provide surveillance data to help guide and direct Health Services policies, programs, and harm reduction initiatives; and third, to provide a mechanism for the evaluation of public health interventions.

As part of the revised screening forms, inmates were asked about a number of lifestyle and other risk factors. These questions are asked so that the infectious disease nurses can recommend the appropriate testing and, more importantly, can provide counselling and education to inmates on protecting themselves and others from infection.

A total of 888 male new admissions took part in the pilot between February and December 2004 across all 5 regions in CSC, representing some two-thirds of those eligible to take part in the pilot. In fact, most of this sample was reported from two institutions, Millhaven Assessment Unit (Ontario) and the Regional Reception Centre (Quebec).

Among the 888 new admissions, almost two-thirds reported having a tattoo. Of those with a tattoo, 38% reported having a tattoo while incarcerated. Roughly a quarter, or 26.2%, reported a piercing (including ears) and 9% of those were done while incarcerated. With respect to drug use, 44.8% reported a history of snorting drugs (7% of those while incarcerated) and 21.5% a history of injection drug use (3% while incarcerated).

The majority of the inmates were sexually active. For example, 89% reported sex with a female (median number of partners was 4), 61% having had unprotected casual sex, and 12% reported sex with someone who was an injection drug user. Sixteen percent (16%) report having been the client of a sex trade worker and 2% report a history of sex trade work. Further, 4% reported sex with a male.

If we consider “high-risk heterosexual” contact (unprotected casual sex, sex with an injection drug user, sex trade involvement, or other high risk sexual partner) this would apply to 64% of the total number of new admissions. Combined with IDU and MSM, the proportion of new admissions with risk factors who should be screened is 70%.

In fact, 77% of the new admissions did have an HIV test. Broken down by risk factor though, this applies to 79% of IDU, 82% of those with a “high-risk heterosexual” contact, 80% of those with a tattoo and 81% of those who have snorted drugs. These results indicate that while inmates with identified risks are being screened, not all inmates with a risk factor had an HIV test. Of those identified as “high risk”, 82% had an HIV test. Caution is warranted, however, since it is unclear from the data that was collected whether the inmate had a recent test (i.e., in the community or in a provincial facility). The absence of a current test is not indicative of a lack of screening *per se*; further, inmates may have been scheduled for a follow-up test within 6 months if a risk factor was identified within the seroconversion window. Additionally, inmates may have refused the recommended tests.

Overall, 5 inmates were identified with HIV. This included 2 inmates who already knew their status and 2 who were newly diagnosed (1 was missing history). This is consistent with other surveillance data in CSC which suggests that the majority of HIV cases in CSC already know their status when they are admitted, or are diagnosed on admission as a result of the active screening program in CSC intake units. While the numbers are too small to provide any meaningful statistics, it is of interest to note that of the 5 cases, 4 reported a history of injection drug use, 5 reported a tattoo, and 2 reported having snorted drugs. Additionally, all 5 reported “high-risk heterosexual” contact.

Co-infection appears to be an important issue for inmates as well. For instance, of the 5 HIV cases, 3 were also HCV positive, 1 had evidence of HBV infection (anamnestic for HBV vaccination), 2 had HAV immunity, and 1 was also positive for gonorrhoea. This is important not only in terms of clinical management, but also suggests that screening for multiple infections should be considered as routine practice in CSC.

These data provide some very useful insight for CSC. It is encouraging to see such a high level of screening uptake among new admissions. Clearly, CSC nurses demonstrate a high degree of professionalism in conducting the screening assessments and are able to foster a level of trust with the inmates.

In addition, given the high risk of new admissions to federal corrections, continued vigilance to screening, counselling, prevention, and harm reduction is warranted.

Revised Canadian HIV Estimates and CDC Testing Recommendations for HIV: Implications for CSC

by Jonathan Smith
Epidemiologist, National Infectious Diseases Program

The most recent HIV estimates from the Public Health Agency of Canada (PHAC) indicated that the number of Canadians living with HIV (prevalent infections) at the end of 2005 was 58,000 (range 48,000-68,000), an increase of 16% from the estimate for 2002 (1). The number of prevalent HIV infections attributed to injection drug use (IDU) was 9,860 (range 7,800-12,000), up from 8,900 in 2002. Similarly, the estimated number of prevalent HIV infections attributed to heterosexual risk was 8,620 (range 6,600-10,600) in 2005, up from 6,950 in 2002.

PHAC estimated that the number of new infections (incident infections) in 2005 was between 2,300-4,500, compared with 2,100-4,000 in 2002. Men who have sex with men (MSM) continued to account for the largest proportion of new infections, representing an estimated 45% of new infections in 2005 and 42% in 2002. Some interesting trends were noted in the other exposure categories. The number of new infections estimated among the IDU exposure category was between 350-650 (14% of new infections) in 2005. Among individuals who were not born in countries where HIV is endemic, the estimated number of new infections attributed to heterosexual exposure was between 550 and 950 (21% of new infections) in 2005, compared with a range of 450-850 (21% of new infections) in 2002 (1).

PHAC estimated that approximately 15,800 individuals were unaware of their HIV infection at the end of 2005, representing 27% of the estimated number of people living with HIV in 2005 (1). However, there are limitations in the amount of information available to describe this group. Geduld et al have reported that HIV cases in Canada who progress to AIDS shortly after their initial HIV diagnosis are more likely to belong to a non-white ethnic group and to have been infected by routes other than MSM or IDU (i.e. heterosexual) (2). Since AIDS has a latency of roughly 10 years, this suggests that some individuals may be living for some time with occult HIV infection and potentially putting their sexual partners at increased risk of acquiring HIV.

Earlier seroprevalence studies among provincial offenders found that an alarming proportion of offenders were unaware of their HIV status: 60% in BC in 1992 (3), and 40% in Quebec in 1994 (4). More recently, studies among provincial offenders report that the proportion unaware of their HCV status is also alarmingly high: 35% in Ontario in 2004 (5) and 15% in Quebec (6). Not knowing one's status may be due to several reasons, each of which has particular implications for public health. Some may not consider themselves at risk, and may continue to infect others inadvertently without understanding the nature of their risks. Others may understand their risk, but simply are afraid to know their status and refrain from testing.

The situation in the US is similar. Apart from different diagnostic criteria for AIDS (in the US, diagnostic criteria for AIDS includes a CD^{4+} count of less than 200; there are no diagnostic criteria for AIDS based on CD^{4+} count in Canada), an estimated 25% of HIV+ Americans are unaware of their status. Further, in 2004, 39% were diagnosed with AIDS within a year of their HIV diagnosis (7). This has led some in the US, including the Commissioner of Health for New York City, Thomas Friedman, to make calls for the implementation of routine HIV screening and the abolishment of dedicated HIV pre-and post-test counselling and consent (8). Testing for HIV would become an "opt-out" part of any routine medical check up, as it is now for prenatal testing in most provinces and territories in Canada. In fact, HIV testing is mandatory in several US state correctional systems, including New York, Texas, and Florida.

Where prevention strategies have incorporated universal screening, HIV transmission has been virtually eliminated. For instance, screening of blood donations has nearly eliminated transmission of HIV through blood transfusions, and HIV screening among pregnant women has nearly eliminated vertical transmission of HIV. These successes contrast with the inability to prevent sexual transmission of HIV in Canada and the US (7, 1). In the US, the proportion of AIDS cases attributed to heterosexual transmission increased by 256% between 1989 and 1999 (9).

Previous guidelines from both the Centers for Disease Control (CDC) and the US Preventative Services Task Force recommended routine counselling and testing for everyone who was high risk for HIV and those in "acute care settings" where the prevalence of HIV was $\geq$1%. These guidelines were difficult to implement, in part because providers were too busy to conduct risk assessments and because many felt that the risk assessment itself was a barrier to testing uptake.

The number of individuals actually screened for HIV in acute care settings in the US remained low. For example, a survey of emergency room physicians found that while they cared for an average of 13 patients per week with an STI severe enough to bring them to the emergency department, only 10% of those providers encouraged those patients to have a test for HIV.

Of interest is that in those emergency departments that have instituted HIV screening, the prevalence has been found to be higher at 2%-7% than among HIV counselling clinics at 1.5% or STI clinics at 2% (7).

Therefore the CDC has released revised recommendations for HIV testing among adults aged 18-64 in September 2006 (7), which apply to correctional health care facilities and include the following:

- "….initiate *[opt-out]* screening unless the prevalence of undiagnosed infection …. has been documented at <0.1%."
- "In the absence of existing data for HIV prevalence, health-care providers should initiate voluntary HIV screening until they establish that the diagnostic yield is <1 per 1,000 tests, at which point such screening is no longer warranted."
- "All patients initiating treatment for tuberculosis should be screened routinely for HIV infection"
- "All patients seeking treatment for STI, including all patients attending STI clinics should be screened routinely for HIV."

In CSC, screening for HIV (and other infectious diseases, including HCV, STI, and TB) is done under the authority of Commissioner's Directive 821. Specifically, CD 821 prescribes the following:

- "An assessment of risk behaviours and screening for infectious diseases by means of a questionnaire and a physical examination shall be done for all inmates at admission and reviewed regularly during incarceration"

CD 821 can be interpreted as prescribing an "opt-out" HIV screening policy for new admissions. Indeed, all new admissions are screened during the intake assessment process, and based on the pilot data presented earlier, it seems that many inmates present with risk factors – multiple risk factors in many instances – and do accept testing. However, as in the community, there is nothing to stop an inmate from non-disclosure of risk and refusal of HIV testing.

HIV testing is not mandatory in Canadian federal penitentiaries and includes pre-and post-test counselling. (The pre-and post-test counselling protocol has recently been revised to include counselling for other infectious agents, including viral hepatitis, and STI). Surveillance data shows that the number of HIV tests among new admissions has been trending upwards since 2000 to 2,418 in 2005, which represents 58% of the new admissions in that year (Table 1, Surveillance section). The "diagnostic yield" can be calculated by dividing the number of newly diagnosed HIV cases among new admissions by the number of screening tests done in this group. Between 2000 and 2005 this varied between 1.4 / 1,000 (2004) to 15.3 / 1,000 (2000); overall, the average yield has been 6.0 newly diagnosed HIV cases per 1,000 tests among new admissions to CSC (Figure 1, Surveillance section).

In CSC, the overall prevalence of HIV infection among new admissions is estimated at 2.97% in 2004 and 2.76% in 2005 (CSC IDSS, preliminary unpublished data – see Figure 2, Surveillance). This is based on combining the number of inmates already known to be HIV positive on admission with the number of newly-diagnosed infections. The CDC revisions also make the following recommendations regarding follow up testing:

- "Health care providers should subsequently test all persons likely to be at high risk for HIV at least annually. Persons likely to be at high risk include injection drug users and their sex partners, persons who exchange sex for money or drugs, sex partners of HIV-infected persons, and MSM or heterosexual persons who themselves or whose sex partners have had more than one sex partner since their last HIV test."
- "Repeat screening of persons not likely to be at high risk for HIV should be performed on the basis of clinical judgement."

Currently, CSC does not have a specific policy regarding follow up HIV testing. Inmates may request an HIV test at any time during their incarceration. Also, in some institutions an HIV screening 'blitz' is done once or twice a year, sometimes in conjunction with health awareness campaigns such as health fairs. In 2005, 3,688 general population inmates had a screening test for HIV during their incarceration (see Table 1, Surveillance section).

In Canada, prevention and control efforts may be contributing to the continuing lower incidence of infection. The epidemic in Canada has shifted from transmission predominantly among men having sex with men to an increasing proportion of new infections among heterosexuals and injection drug users. The nature of incarceration in Canada results in a concentration of risks, particularly with respect to injection drug use and high-risk sexual contact, among the inmate population.

Prevention and control of HIV in Canadian federal penitentiaries has long been a focus for CSC Health Services, and includes offering screening, counselling, education, and treatment. In light of recent recommendations by CDC however, it may be worthwhile to review the screening program with respect to implementing an "opt-out" program. This approach is consistent with current policy directives, and is warranted given the high prevalence, and high risk profile of inmates.

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Aboriginal Peer Education and Counselling Program: Update

by Gil Carriere
Aboriginal Health Coordinator, National Infectious Diseases Program

The infectious disease program, Aboriginal Peer Education and Counselling (A-PEC), consists of training First Nations, Inuit and Métis offenders to become peer supports and educators to fellow inmates. The training program is delivered by the regional Aboriginal Health Coordinator along with the support of a nurse and community organizations. Once the training is complete, the regional Aboriginal Health Coordinator, Elder, Aboriginal Liaison Officer and other staff members, choose the A-PEC institutional coordinator and volunteers to form an Aboriginal Inmate Wellness committee.

The Wellness Committee meets regularly to plan and deliver inmate information and educational sessions. The A-PEC coordinator also provides inmates with individual sessions for more private and confidential issues. One of the challenges of the program, says Prairie Region Aboriginal Health Coordinator, Curtis Charney, is to provide the wellness committee members with ongoing training in harm reduction, promotion of testing, risk behaviours and updates on infectious diseases. All five regions report favourable progress in the implementation of the A-PEC program.

Elder's involvement:

The strength of the A-PEC program is the cultural and spiritual leadership provided by the Elders. Opening prayers, smudging ceremonies, guiding words and, in some institutions, sweats, are led by the Elders and set a respectful tone for the training sessions.

Are Sexually Transmitted Infections (STI) in CSC Under-reported?

by Jonathan Smith
Epidemiologist, National Infectious Diseases Program

Investigation of the number of STI that are reported via the current aggregate Infectious Diseases Surveillance System (IDSS) reveals some interesting trends. Consistent with overall trends in the Canadian population, the case numbers and prevalence of bacterial STI are trending upward in CSC as well. However, closer inspection of regional trends in STI reporting reveals some sharp contrasts. Prairies Region consistently accounts for a large proportion of STI case reports. And within the Prairies Region, 3 institutions account for 50% of the case reports.

What accounts for this phenomenon? While it is true that population STI rates are highest in Saskatchewan and Manitoba, the three institutions reporting cases have one other thing in common not seen in other institutions – routine urine screening for chlamydia and gonorrhoea on new admissions. This practice likely is responsible for picking up asymptomatic infection, as these cases were probably not aware of their infection.

Table 1: Bacterial Sexually Transmitted Infections (STI) Reporting in CSC 2004 - 2005

Bacterial STI	Number of Cases				Proportion accounted for by Prairies Region	
	CSC		Prairies			
	2004	2005	2004	2005	2004	2005
Chlamydia	53	92	30	52	57%	57%
Gonorrhoea	11	11	10	11	91%	100%
Syphilis	10	6	3	1	30%	16%

This suggests that implementing routine urinalysis for chlamydia and gonorrhoea would increase the number of cases found on screening. Treating these asymptomatic infections results in preventing further transmission, whether within the institutions or when the inmate is back in the community. CSC currently has provisional guidelines for the diagnosis and management of sexually transmitted infections; revised final guidelines are scheduled for publication in 2007.

HIV Among New Admissions to CSC

by Jonathan Smith
Epidemiologist, national Infectious Diseases Program

The number of HIV screening tests by inmate status between 2000 and 2005 is shown in Table 1. Figure 1 shows the "diagnostic yield", or positivity rate for HIV tests among new admissions, calculated by dividing the number of newly-diagnosed HIV cases among new admissions by the number of HIV screening tests in this group. Figure 2 shows the overall estimated prevalence among new admissions, which is calculated by dividing the total number of HIV cases (newly-diagnosed plus those already known to be HIV-positive on admission). Data to 2004 are part of a comprehensive report due to be released Fall 2007. Data for 2005 are preliminary unpublished data and are subject to change.

Table 1: Number of HIV Screening Tests by Inmate Status 2000 - 2005

	2000	2001	2002	2003	2004	2005
New Admissions	1,596	1,768	2,317	2,059	2,112	2,418
General Population	2,573	2,770	3,505	3,771	3,567	3,688
Total	4,169	4,538	5,822	5,830	5,679	6,106

The vast majority of prevalent HIV cases among new admissions are known on admission; for instance, of the 131 HIV cases among new admissions in 2004, 3 were newly diagnosed and 128 were confirmatory diagnoses. Note that a new diagnosis is not synonymous with a new infection and these cases represent persons previously unaware of their status.

Figure 1: Newly Diagnosed HIV Cases and Diagnostic Yield Among New Admissions to CSC, 2000 – 2005

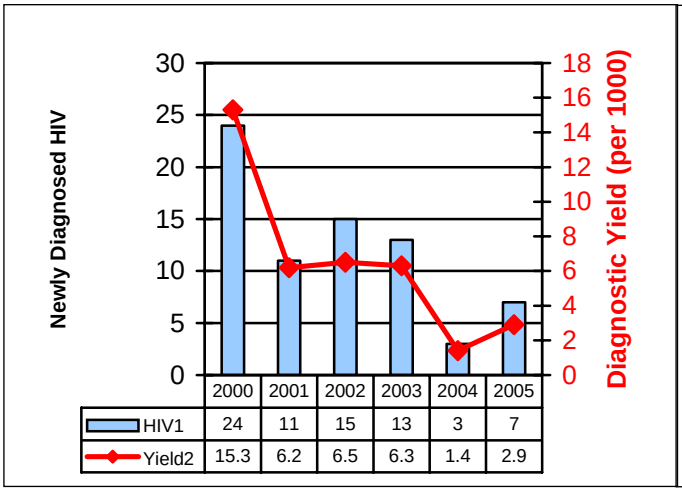
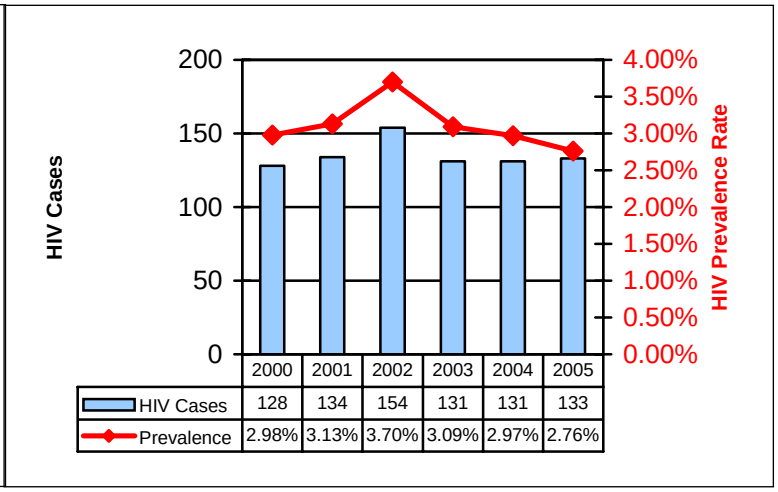


Figure 2: HIV Case Frequency and Prevalence Among New Admissions to CSC, 2000 - 2005



1 – HIV cases newly diagnosed on admission
2 – Newly discovered HIV cases per 1,000 screening tests

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Estimates of HIV Prevalence and Incidence in Canada

D Boulos, P Yan, D Schanzer, MS Remis, and CP Archibald

(excerpt from the Discussion, pp.172-3)
The methods used to estimate HIV prevalence and incidence incorporated a wide variety of data. Additional sources of surveillance data were available from Ontario and Quebec that provided greater clarity to the characteristics of the epidemic in these provinces. Statistical modeling methods were used for the first time, making optimal use of the national HIV surveillance data. For future estimates, we plan to make increased use of tests to identify recent infections among diagnosed cases and to utilize more results from targeted studies among high-risk populations.

Approximately 58,000 Canadians were estimated to be living with HIV infection. This number will likely increase as new infections continue and survival improves due to new treatments, which will mean increased future care requirements. An estimated 2,300 – 4,500 new infections occurred in Canada in 2005, slightly higher than was estimated for 2002. However, the increases cannot be stated with certainty due to the level of precision associated with the estimates; a firmer conclusion is that overall incidence is not decreasing.
Canada Communicable Disease Report, 1 August 2006; 32 (15): 165-174

Sex, Drugs, Prisons, and HIV

Susan Okie, M.D.

(excerpt from the Perspective, pp. 107-108)
Studies involving state-prison inmates suggest that the frequency of HIV transmission is low but not negligible. For example, between 1988 — when the Georgia Department of Corrections began mandatory HIV testing of all inmates on entry to prison and voluntary testing thereafter — and 2005, HIV seroconversion occurred in 88 male inmates in Georgia state prisons. HIV transmission in prison was associated with men having sex with other men or receiving a tattoo. In another study in a southeastern state, Christopher Krebs of RTI International documented that 33 of 5,265 male prison inmates (0.63%) contracted HIV while in prison. But Krebs points out that "when you have a large prison population, as our country does . . . you do start thinking about large numbers of people contracting HIV."

Studies of high-risk behaviour in prisons yield widely varying frequency estimates: for example, estimates of the proportion of male inmates who have sex with other men range from 2 to 65%, and estimates of the proportion who are sexually assaulted range from 0 to 40%. Such variations may reflect differences in research methods, inmate populations, and prison conditions that affect privacy and opportunity. Researchers emphasize that classifying prison sex as either consensual or forced is often overly simplistic: an inmate may provide sexual favors to another in return for protection or for other reasons. Better information on sexual transmission of HIV in prisons may eventually become available as a result of the Prison Rape Elimination Act of 2003, which requires the Justice Department to collect statistics on prison rape and to provide funds for educating prison staff and inmates about the subject.

At *[a]* Rhode Island prison, the medical program focuses on identifying HIV-infected inmates, treating them, teaching them how to avoid transmitting the virus, addressing drug dependence, and when they're released, referring them to a program that arranges for HIV care and other assistance, including methadone maintenance treatment if needed. The prison offers routine HIV testing, and 90% of inmates accept it. One third of the state's HIV cases have been diagnosed at the prison. "These people are a target population and a captive one," noted Rich. "We should use this time for health care and prevention." Nationally, 73% of state inmates and 77% of federal inmates surveyed in 2004 said they had been tested for HIV in prison. State policies vary, with 20 states reportedly testing all inmates and the rest offering tests for high-risk groups, at inmates' request, or in specific situations. Researchers said inmate acceptance rates also vary widely, depending on how the test is presented. ***NEJM, Vol 356 No. 2 105-108 January 11, 2007***