



National Collaborating Centre
for Infectious Diseases

Centre de collaboration nationale
des maladies infectieuses

APRIL 2008

evidence review

Primary HIV Prevention Interventions in Prisons and Upon Release

The purpose of this paper is to review HIV/AIDS prevention interventions in prisons in Canada and worldwide that aim to reduce transmission. Four systematic reviews, six randomized control trials and 13 observational studies are examined that evaluate HIV risks and interventions among inmates from 2002 to 2007. In particular, voluntary counselling and testing, needle exchange, distribution of condoms and bleach, tattooing and methadone maintenance programs are examined. Further, sexual education and peer-based HIV prevention programs that include pre- and post-release outcomes are assessed.

The HIV Prevalence in Prisons

In 2003, 34,643 inmates were incarcerated in Canada (1). Most Canadian studies report rates of HIV prevalence in prisons between 1% and 3% or about five to 20 times higher than in the greater population (2–4). In Ontario in 2003 and 2004, the prevalence of HIV infection was 11 times higher and Hepatitis C (HCV) infection 22 times higher (0.8% and 1.8% respectively) among inmates in selected provincial remand facilities (jails, detention centres and youth centres) than among comparable populations outside correctional institutions (3). Within the study period and based on an HIV prevalence of 2% and an HCV prevalence of 17.6% (n=1844), it was estimated that over 1000 HIV-positive and 9200 HCV-positive adults were admitted to Ontario remand facilities. Poulin and colleagues (5) report that the prevalence of HIV infection was almost 19 times higher among inmates in selected Quebec provincial prisons than in the general population in 2003, whereas the

This evidence review is part of a series on HIV prevention and control produced by the National Collaborating Centre for Infectious Diseases. It is intended to inform public health practitioners and community-based workers and guide their practice.

prevalence of HCV infection was 23 times higher. Based on an HIV prevalence rate of 3.5% and an HCV rate of 18.5% (n=1607), it was estimated that approximately 800 HIV-positive and 4800 HCV-positive people are admitted yearly to these Quebec remand facilities.

Canadian women inmates have higher rates of HIV (0.9–4.7%) than male inmates (6). In a study of 17 Quebec prisons, the prevalence of HIV infection was 2.4% among the male participants and 8.8% among the female participants (5). Canadian statistics indicate that 75% of women serving time in federal prisons were doing so for minor offences such as shoplifting and fraud, and one third of these were related to drugs (6).

HIV prevalence in prisons in developed countries ranges from 0.2% in Australia, 2% in the U.S., to over 10% in some European nations (7,8). Europe and Central Asia (19%), South Asia (3%), East Asia and the Pacific (9%), Caribbean (3%), Latin America (11%), North Africa and Middle East (10%), and Sub-Saharan Africa (20%), also report high HIV prevalence rates in inmates (9).

HIV Risk Behaviours in Prisons

Unclean Needle Use

Many Canadian inmates engage in high risk behaviours for HIV transmission, prior to prison, while in prison, and upon re-entry into the general population. Unclean (nonsterile or previously used) needle use during drug injection is the

primary risk behaviour for HIV seroconversion (8,10–12). Risks of percutaneous contamination exist when carried out in unhygienic conditions (11). It is estimated that 20% to 74% of male inmates in federal institutions in Canada are or have been drug users (13,14). In a BC and an Ontario prison study, 25% of male (47/188) and 22% of female (22/104) inmates, respectively, reported illicit injection drug use while in provincial prisons (4,13). Inmates under community supervision have high rates of illicit drug use (13,15). In a recent study by Calzavara and colleagues (13), 30% of adult inmates in Canadian provincial remand facilities (jails, detention centres and youth centres) reported a history of injection drug use, and the prevalence of both HIV and HCV infections was much higher in this male group than in the group who reported no such drug use.

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In a study of women in Canadian federal prisons (n=157), 27% were engaged in tattooing, 19% injection drug use, 16% received a body piercing, and 9% were slashing or engaging in some other form of self-injury (16). Similarly, a Canadian national survey indicated that 45% of male inmates receive tattoos and 17% body piercings, often using dirty needles (17). Poulin and colleagues (5) also confirm that unsafe tattooing practices pose a concern: 37.9% of male inmates and 4.8% of female inmates reported receiving a tattoo inside a Canadian prison, and a substantial proportion reported that non-sterile equipment had been used.

Sexual Activity

Transmission of HIV through unsafe sex is considered a less significant risk factor than the sharing of needles in prison but it is, nevertheless, a risk behaviour for HIV infection (10,11). In one study, 24% of women in Canadian federal prisons reported having unprotected sex with 81% of these women reporting being sexually active within the institution either through conjugal visits or same sex partners (16).

A U.S. study revealed that male inmates' (n=185) attitudes and behaviours about same-sex acts changed the longer they were incarcerated. Initially 1% said they were homosexual, 4% bisexual, and 95% heterosexual (18). When asked about

current sexuality, 75% of inmates considered themselves as heterosexual, 14% bisexual, and 9% homosexual. Hensley, Tewksbury and Wright (19) similarly found that, prior to incarceration, 79% of American inmates identified themselves as heterosexual, 15% bisexual, and 6% homosexual. When asked about their sexual orientation during their present incarceration, 69% identified themselves as heterosexual, 23% bisexual, and 7% homosexual.

What Programs Exist in Canadian Prisons?

All prison systems in Canada have programs to reduce illicit substance use and harm among inmates who use drugs; however, the types of programs vary significantly by provincial or federal jurisdiction (20). To curb HIV infection rates in prisons, Correction Service of Canada (CSC) (10), provincial prisons, and community-based organizations provide voluntary counselling and testing, distribute condoms, dental dams and water-based lubricants, provide methadone maintenance therapy, and offer prevention education and materials (16). Possessing syringes in Canadian prisons is prohibited and needle exchange programs are not available (16,21). Tattooing is common, even though it is illegal, and poses a high risk for HIV transmission due to the sharing and use of unclean needles (16).

In 2002, CSC expanded its methadone maintenance treatment (MMT) program to include the treatment of all inmates in federal penitentiaries addicted to heroin and cocaine who agreed to participate in the program (22). Prior to this, MMT was only available to special-case inmates. Provincial correctional systems in provinces such as BC and Quebec offer access to methadone programs and counselling for inmates who were enrolled in MMT prior to incarceration (14,20). Other provinces and territories such as Newfoundland and Labrador, Nunavut, and PEI, do not have any MMT program available.

What is the Evidence on HIV Interventions in Prisons?

Effective primary HIV/AIDS prevention interventions in prisons can target high-risk activities and reduce the risk of HIV infection (11,23). These programs include voluntary counselling and testing, needle exchange programs, distribution of condoms and bleach, safe tattooing, methadone maintenance, and sexual and HIV prevention education interventions.

Voluntary Counselling and Testing

Voluntary counselling and testing (VCT) programs raise awareness, provide education, dispel myths, reduce levels of HIV-related discrimination, and detect those in need of care and treatment (2,8,11). VCT studies have shown that, without offering routine HIV screening, most infections remain undiagnosed (8,24). VCT is provided in Canadian institutions upon request and to those who show signs of infection, although the type of testing varies by jurisdiction (2). Pre- and post-test counselling should be offered in the prison setting,

but it is currently not provided uniformly even though it is 'policy' in Canadian federal prisons (16). Some have argued that mandatory testing is an effective and appropriate policy to detect HIV infection; however, the overall effectiveness and acceptability of this approach has not been studied and human rights issues must be considered (8).

Needle Exchange Programs

Numerous national jurisdictions (e.g., Switzerland, Germany, Spain, Moldova, Kyrgyzstan, Belarus, Armenia and Scotland) have introduced needle-exchange programs in a variety of prisons, with overwhelmingly positive results, and a number of other jurisdictions (e.g., Iran and Ukraine) have taken steps toward introducing them (25,26). Dolan, Rutter and Wodak (27) conducted a systematic review of 19 needle exchange programs in Swiss, German and Spanish prisons and reported a stable or decreased level of drug use, a decline in needle sharing, and a plateau or a reduction in the transmission of HIV. Needles were used and disposed of correctly. Prison needle exchange programs reduce harm to inmates by taking used syringes out of circulation and reducing HIV and HCV transmission rates (11,21).

Bleach Distribution

Bleach is used to clean shared needles and helps to reduce HIV transmission. Bleach is not universally provided or accessible in federal and provincial Canadian prisons (20). In one study, women (n=53) in nine Canadian institutions had problems accessing bleach confidentially and in sufficient quantity (16). Studies have raised doubts about the effectiveness of bleach in decontamination of injecting equipment and conditions in prisons further reduce the probability that injecting equipment may be effectively decontaminated (28). Bleach programs can only be regarded as a second-line strategy to needle exchange programs.

Safe Tattooing Programs

Recently, government authorities terminated a 'safe' tattooing pilot program initiated in August 2005 by the CSC audit branch (17). The Canadian HIV/AIDS Legal Network maintains that the tattoo program could save money if it saves five or more HIV seroconversions (29). CSC has indicated it costs about \$29,000 a year to treat a person with HIV, while HCV treatment costs about \$25,000 a year (17). However, the Canadian Taxpayers Federation and other groups believe the tattoo project wasted taxpayers' money (29). Chief Public Health Officer of Canada, Dr. David Butler-Jones, maintains that the \$600,000 project was not given enough time for full evaluation and that harm reduction measures such as safe tattooing are an integral element of any comprehensive HIV/HCV prevention strategy. While it seems that support for safe tattooing in prisons is not widespread, the benefits appear to outweigh the costs.

Methadone Maintenance Treatment (MMT)

The effectiveness and acceptability of MMT in prisons have been shown in studies in Australia, Western Europe, Canada, USA, and Iran (28). Kaldor and colleagues (30) surveyed four randomized control MMT prison interventions in the U.S., France, and Australia and found that injection drug use and associated needle sharing was reduced, re-entry in the community was facilitated, re-incarceration risk was reduced, heroin use declined significantly, and there was a positive effect on institutional behaviour. Correlated by duration and stability of MMT program participation, HIV transmission declined. Further, evidence suggests that MMT may help to reduce risk of overdose for those nearing release (28).

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Condom Distribution

The qualitative findings of studies indicate that institutional barriers and the conditions of parole currently promote unprotected sexual intercourse, increase the risk of HIV and STD transmission, and perpetuate unstable and abusive relationships (31,32). Yap, Butler and Richters (33) studied men in the Australian prison system and reported that consensual and non-consensual male-to-male sex and male sexual assaults declined after the introduction of condoms into prisons. The authors postulate that the presence of condoms and dispensing machines in Australian prisons may have raised awareness and reinforced HIV/AIDS prevention messages (34).

Myers and colleagues (35) evaluated an HIV prevention case management program for men and women leaving California prisons. The case management program consisted of a client-centered needs assessment, care and treatment planning, referrals to community resources, liaison work with parole agents, and HIV risk reduction education and counselling. Participants who received case management increased abstinence or resorted to 100% condom use compared to baseline behaviour data.

Sexual Education and HIV Prevention

In a California prison setting, Wolitski and the Project START team (36) surveyed 552 young men in an enhanced sexual education intervention. Prior to the intervention, unprotected intercourse with main partners was reported by 76% of participants and nearly half had unprotected sex with a non-main partner. After the study was over, significantly lower rates of unprotected sex were reported among inmates who received enhanced interventions compared to those who received a single-session intervention.

Because of the risk of transmission during incarceration and after release, relevant and targeted education and prevention efforts are vital. Incarceration may provide an important opportunity for HIV testing, education, prevention, care and treatment.

Other strategies to reduce unprotected sex involve linking visitation and family prison programs with HIV risk reduction interventions (37). Prison visiting programs are predicated on the principle that the maintenance of social relationships is beneficial both as a reward system for controlling inmate behaviour and as a means of increasing the likelihood of successful re-entry into the community. Research suggests that approximately 50% of incarcerated men consider themselves to be in committed heterosexual relationships and intend to return to their partners upon release from custody (31).

Peer-based Education Programs

Braithwaite, Stephens and Treadwell (23) used peer educators to deliver HIV prevention messages in prison and found significant changes in reduced substance use, sexual risk-taking, and higher health and condom self-efficacy. The group that received peer education experienced more significant behaviour change than the control group. Another peer-based program called Project Wall Talk observed decreases in high risk sexual activities, injection drug use, and needle sharing upon release from prison (38). Similarly, the U.S. peer-based Beyond Fear Program produced an increase in HIV knowledge and behaviour, positive condom attitudes, intentions regarding not sharing needles, and peer education self-efficacy (39). Peer education models in correctional environments appear to be educationally effective for HIV prevention (23,38,39).

Research Gaps

Many studies mentioned limitations. Due to difficulties with recruitment of inmates, qualitative self-reporting surveys were conducted. Only a few studies reviewed in this paper used a randomized control trial design. (these include 2,13,16,17,23,33). The studies that reported significant results addressed theoretically important methods for HIV prevention (e.g., self-efficacy, attitudes, intentions) (38). More research in Canada is needed with pre- and post-intervention evaluations with prison control groups. Gaps were found in the literature on disease burden, voluntary counselling and testing, distribution of bleach and condoms, needle exchange, tattooing, and MMT in prisons. Studies of HIV in inmates should also determine if HIV was acquired in prison or in the community.

What can we Conclude about HIV Prevention in Prisons?

HIV infection is a significant health issue that faces inmate populations. As people come to prison from communities and return to communities upon release, public health care is needed to prevent, treat and care for those at risk for HIV. Correctional health markedly affects public health, and health policy for correctional facilities and the general community should be determined on the basis of sound evidence (26). Because of the risk of transmission during incarceration and after release, relevant and targeted education and prevention efforts are vital. Incarceration may provide an important opportunity for HIV testing, education, prevention, care and treatment. Needle exchange and safe tattooing programs may reduce the number of HIV infections that occur yearly behind Canadian bars.



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This publication was developed in consultation with independent experts and stakeholders.

Production of this publication has been made possible through a financial contribution from the Public Health Agency of Canada; and through affiliation with the International Centre for Infectious Diseases. The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada.

highlights

- Voluntary counselling and testing programs raise awareness, provide education, dispel myths, reduce levels of HIV-related discrimination, and detect those in need of care and treatment
- Evidence shows that needle exchange programs in prisons stabilize or decrease the level of drug use, reduce needle sharing, and stabilize or reduce HIV transmission
- There is no evidence that prison-based needle exchange programs have serious, unintended negative consequences
- Methadone maintenance programs in the U.S., France, and Australia facilitated re-entry in the community, reduced re-incarceration risk, and heroin use declined significantly
- Condom distribution programs raise awareness and reinforce HIV prevention messages, and reduce HIV transmission rates
- Peer education models in correctional environments appear to be educationally effective for HIV prevention

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