Opioid Substitution Therapy in Prisons: Reviewing the Evidence

Canadian HIV/AIDS Legal Network | Réseau juridique canadien VIH/sida

Injection Drug Use and HIV Infection

Injection drug use has been associated with severe health and social harms.[1, 2] High rates of disease, death, crime, and the accompanying costs are drug-related harms experienced throughout the world. Injection drug use has also been identified as a key risk characteristic for HIV infection in many countries around the world.[3] Explosive epidemics of HIV have emerged in various settings, demonstrating that HIV can spread rapidly once established within communities of people who inject drugs.[4-7] The dynamics of injection drug use-driven HIV epidemics present unique challenges, giving policy makers and health authorities little time to respond in an effort to contain outbreaks of HIV infection.

Injection Drug Use, HIV Infection and Prisons

Incarceration is a common event among people who inject drugs. A 12-city World Health Organization study of HIV risk behaviour among people who inject drugs found that between 60 and 90 percent of respondents reported a history of imprisonment since commencing drug injection[8] and in the United States, approximately 80 percent of people who use drugs have a history of imprisonment.[9] A large number of studies from around the world report high levels of injection drug use in prisons,[10-29] including among female prisoners.[30, 31] In one Russian study 10 percent of prisoners reported injecting drugs while in prison, 14 percent of whom stated that their first injection occurred within a penal institution.[19]

A significant proportion of people who use drugs inject drugs while in prison, with 50 percent or more of people who use drugs from several countries reporting injection while in prison.[11, 12, 22, 23, 28] In one Russian study 10 percent of prisoners reported injecting drugs while in prison, 14 percent of whom stated that their first injection occurred within a penal institution.[19]

Worldwide levels of HIV prevalence within prisoner populations tend to be much higher than in the general population.[32-36] HIV prevalence among prisoners varies considerably across settings, although several countries have reported HIV prevalence among prisoners to be between 10 and 25 percent.[37-41] The jurisdictions with the highest HIV-prevalence in prisons (apart from countries with large heterosexual HIV epidemics) are areas where HIV infection is "pervasive among IV drug users, who are dramatically over-represented in correctional institutions".[42] Incarceration has also been associated with HIV infection in several countries,[43, 44] and evidence of rapid spread of HIV infection has been documented within a number of prisons, including in countries in Eastern Europe and the former Soviet Union (fSU).[4, 5, 45, 46, 28, 47] In Central Asia prison populations have been called a "driver" of tuberculosis and HIV epidemics.[35]

Within prisons the prevalence of injection drug use and HIV infection, combined with the high rate of turnover of the prison population, create the potential for efficient and widespread transmission of infectious diseases and other drug-related harms. However, prisons also present opportunities for the treatment of drug dependence and the prevention of infectious disease transmission among a substantial number of disadvantaged individuals.

Responding to Injection Drug Use and HIV

In most areas of the world, the mainstay of dealing with the problem of injection drug use has been targeted law enforcement.[2] However, despite the resources spent on the "zero-tolerance" strategy, it has had only limited success.[48] Since the early 1990s, in many countries supply and demand for drugs has increased, purity of drugs has improved, and the price of drugs has decreased.[49]

Among the most effective interventions for the prevention of social and health-related harms among people who inject drugs is the provision of addiction treatment services.[50-52] While there is no single treatment modality that will work in every circumstance, studies have demonstrated the beneficial effect of opioid substitution therapies (OSTs), detoxification programs, peer-support programs, and other treatment strategies.[53-55] However, in most settings the demand for addiction services far exceeds supply.[56, 57, 2]

Despite the potentially explosive dynamics of injection drug use-driven HIV epidemics, there is evidence that HIV epidemics among people who inject drugs have been prevented, stabilized, and reversed in various locations throughout the world.[58, 59] One review of settings with large populations of people who injected drugs suggested that some cities have managed to maintain low HIV seroprevalence among people who inject drugs due to: (1) the implementation of HIV prevention measures while seroprevalence was still relatively low; (2) the implementation of syringe exchange programs; and (3) the provision of outreach services to people who inject drugs.[58] Other important factors in addressing injection drug use-driven HIV epidemics include providing substitution therapies (e.g., methadone, buprenorphine), involving people who use drugs in the design and implementation of interventions, and ensuring that measures are responsive to changes in risk practices and provide adequate coverage.[60, 61]

There is also evidence that HIV epidemics among people who inject drugs have occurred due to a failure on the part of governments to quickly implement appropriate interventions.[1] In some settings, a failure to respond quickly to these emerging epidemics has been followed by more generalized HIV epidemics in which people who do not inject drugs are increasingly becoming infected with HIV through sexual contact.[62]

While effective HIV prevention and drug treatment interventions exist, some of these remain unpopular among some politicians.[48] In a number of countries such interventions have not been broadly implemented despite widespread support from scientific and medical bodies.[63-65] Among these interventions are OSTs involving methadone or buprenorphine. Recently, the World Health Organization concluded that pharmacotherapy with methadone or buprenorphine is the most effective form of treatment for opioid dependence,[66, 52] and in 2005 added both medications to the World Health Organization Model List of Essential Drugs.[67]

Methadone Maintenance Therapy

Methadone is a long-acting synthetic opiate agonist that is easily absorbed when taken orally and has a half-life of approximately 24 to 36 hours, allowing once-daily administration.[68] Studies have demonstrated that methadone is successful in blocking the effects of opiate withdrawal symptoms and the euphoria produced by short-acting opioids.[69] As a result, methadone maintenance therapy (MMT) is effective in reducing, among patients attracted into and successfully retained in MMT, the major risks, harms and costs associated with untreated opiate addiction.[70, 71] Research has demonstrated that MMT leads to reductions in, and even the elimination of, use of opiates,[72-77] as well as reductions in criminal activity, unemployment, and mortality rates.[72, 78, 79, 74, 80-83] MMT is also associated with reduced HIV and viral hepatitis transmission rates.[84, 85, 81, 86, 87] Several studies examining the relationship between MMT and HIV risk factors have shown reductions in risk behaviors, including needle sharing, number of sexual partners, engaging in sex without condom use, and exchange of sex for drugs or money.[88, 89,

[75, 90, 91] MMT has also been shown to be highly cost-effective,[92, 93, 82, 94] with every dollar (US) spent on MMT resulting in a saving of four to five dollars.[95, 96]

Methadone Maintenance Therapy Effective in Treating Dependence on Home-produced Poppy Derivates

Some have claimed that MMT may not be effective in treating people dependent upon home-produced derivatives of poppy (such as for example "chornaya" and "hanka") that are widely used in certain countries. Such a claim is unfounded and has no pharmacological basis. MMT is an opiate agonist; its clinical pharmacological action is not "heroin-specific". The efficacy of MMT was confirmed in a study showing no differences in MMT outcomes among individuals who use heroin and those who use other opioids.[97]

Methadone Maintenance Therapy Programs in Prisons

In recent years, the number of prison systems offering MMT has increased. MMT programs exist in systems in most of the 15 "old" European Union (EU) member states and in a number of "new" EU member states. Programs also exist in other countries, including Australia, Canada, the United States of America, Iran, and Indonesia. Finally, a number of prison systems in Eastern Europe and the former Soviet Union (fSU) have initiated MMT programs or are planning to do so.[98-102] This trend follows recommendations for the introduction and expansion of MMT programs within prisons by several prominent organizations, including the World Health Organization, the United Nations Office on Drugs and Crime, and the Joint United Nations Programme on HIV/AIDS.[103, 102, 104]

Arguments for provision of MMT in prison

Several arguments supporting the provision of MMT in prisons have been presented:[105]

- First, it has been argued that MMT should be provided to all individuals who have received MMT outside of prisons. This point is particularly relevant in light of findings indicating that people taken off MMT when incarcerated often return to narcotic use, usually within prison, and often via injection.[106]
- Second, the provision of MMT will reduce high-risk injecting behaviours among prisoners who inject drugs and thereby reduce the spread of the infectious diseases in prison.
- Third, the provision of MMT may serve to increase prisoners' participation in abstinence-based treatment programs within prison and after release.
- Fourth, MMT may reduce the risk of overdose among people who inject drugs upon release from prison. Studies have demonstrated an increased risk for fatal overdose among newly released prisoners as a result of reduced tolerance to opiates.[107]
- Fifth, the provision of MMT may reduce the likelihood of criminal recidivism. Evidence indicates that MMT reduces people's participation in illegal activities, particularly among newly released prisoners.[78]

Evaluations of prison MMT programs

Evaluations of prison-based MMT programs have shown positive results. For example:

- All studies of prison-based MMT programmes that investigated the question found that imprisoned people with a history of injecting heroin and other opiates who receive MMT inject significantly less frequently than those not receiving this therapy.[108-114]
- A randomized-controlled trial indicated lower rates of syringe sharing among prisoners enrolled in MMT compared to controls.[111]
- Among people with a history of injecting heroin, receipt of and retention in MMT while in prison is associated with fewer overdoses and lower mortality.[109, 107]
- A randomized controlled trial of prisoners on MMT accompanied by psychological treatment (compared to a

group of prisoners receiving standard psychiatric treatment and non-opioid agonists) found that, during the course of the trial, substantially more prisoners in the MMT group discontinued drug use. At the end of the trial, a statistically significant number of prisoners in the non-MMT group continued to inject drugs.[108]

- MMT has a positive impact on prisoners' institutional behaviour, making them more manageable, reducing their drug-seeking behaviour and irritability, and reducing violent incidents, thereby improving prison safety.[115-119]
- MMT reduced criminal recidivism and reincarceration,[120, 107, 117, 121, 122] reduced post-release drug use.[123]
- Prisoners on MMT are more likely to seek drug treatment upon release from prison than prisoners who do not receive MMT or receive methadone only for detoxification purposes only.[124, 125]

Determinants of success

Several features associated with MMT and its implementation in prisons should be noted. Optimal treatment outcomes have generally been correlated with a number of factors, including: methadone dosing sufficient to address the symptoms of opiate withdrawal, significant access to quality psycho-social care services, prolonged treatment retention, and patient identification with the MMT program rules and program staff.[126, 109, 107, 112, 118, 127, 123]

Addressing the challenge of diversion of methadone

Some prison administrators are reluctant to introduce MMT because of the potential diversion of methadone from clinical treatment to illicit use. However, prison systems with MMT have successfully addressed this challenge by including certain rules into their MMT program guidelines. For example, in the federal prison system in Canada methadone is administered separately from other medication administration; administration takes place in the prison health services centre; prisoners are not permitted to bring any type of container (i.e., cups or plastic bags) into the methadone administration area; only one prisoner at a time is permitted in the methadone administration area; each prisoner must show photo identification; the prisoner must ingest the entire dose of methadone, drink a glass of water, and then speak to the nurse; and prisoners are observed for a minimum of 20 minutes after ingesting methadone, during which time prisoners are not permitted to use the bathroom.[128] Other prison systems have similarly detailed rules for administration of OST, some of which include specific measures intended to prevent the diversion of buprenorphine.[129]

MMT more effective than other forms of treatment

Several arguments have been made against the implementation of MMT in prison settings. Some critics consider methadone to be just another mood-altering drug, the provision of which delays the necessary personal growth required to move beyond a drug-centered existence.[130] Some object to MMT on moral grounds, arguing that it merely replaces one drug of dependence with another.[130]

However, the evidence demonstrates that MMT is more effective than detoxification programs in promoting retention in drug treatment and abstinence from illicit drug use.[93, 55] Given the poor outcomes associated with untreated opiate addiction, including increased risk for HIV infection[131] and death,[132] limited effective treatment options for those addicted to opiates,[133] and the fact that methadone is currently the most effective treatment for opiate addiction,[134] it is clear that MMT can play an important role in reducing harm among prisoners.

Cost-effectiveness of OST in prison

Although prison medical services in many developing countries and countries in transition, including those in Eastern Europe and fSU, are challenged by a lack of funding, MMT has been shown to be highly cost-effective due the impact of MMT on a variety of outcomes, including crime and HIV transmission.[135, 93, 95, 82, 96, 94] Two recent economic analyses of MMT in prisons concluded that from a treatment perspective

prison methadone is no more costly than community methadone.[136, 137]

Buprenorphine

Buprenorphine is a relatively new treatment option for opioid dependence. Buprenorphine is a long-acting synthetic opiate agonist that is easily absorbed when taken sublingually and has a half-life of approximately 24 to 60 hours, allowing once-daily administration.[138] As compared to methadone, buprenorphine may result in less sedation while still decreasing cravings for other opioids and preventing opioid withdrawal, and has a "ceiling effect" whereby its opioid agonist effects plateau at higher doses.[138] As a result, buprenorphine maintenance therapy (BMT) may carry less risk than MMT, thus increasing OST safety and treatment access.[138]

BMT is available in a limited number of prisons in Australia[139, 140] and several European countries.[101] While there is increasing evidence concerning BMT in the community, there is a lack of evidence regarding BMT in prison settings.[141] Further research is warranted and prison-specific protocols concerning supervision of dosing, prevention of diversion,[141] and patient induction into BMT should be developed.

Conclusions

A wealth of scientific evidence has shown that MMT is the most effective intervention available for the treatment of opiate dependence. MMT has been associated with reductions in risk behaviour, illicit drug use, criminal behaviour, participation in sex work, unemployment, mortality, and HIV transmission. Many of the concerns raised about MMT have been shown to be unfounded. In particular, MMT has not been shown to be an obstacle to the cessation of drug use. On the contrary, MMT has been found to be more effective than detoxification programs in promoting retention in drug treatment programs and abstinence from illicit drug use.

MMT programs have increasingly been established in prison settings. Despite the controversy concerning MMT, the evidence clearly demonstrates its efficacy in reducing illegal drug use and associated risk behaviours. Evaluations of prison-based MMT programs have been highly and consistently favourable, showing that MMT is associated with substantial declines in HIV risk-behaviour (e.g., syringe sharing), decreased levels of drug use and participation in the prison-based drug trade, and increased participation in drug treatment following release from prison. The available evidence also suggests that MMT programmes have a positive effect on criminal recidivism and re-incarceration. Finally, studies have shown that MMT has a positive effect on the prison environment. Although concerns have often been raised initially about security, violent behaviour, and diversion of methadone, these problems have not emerged or have been successfully addressed once prison-based MMT programmes were established.

From a public health perspective, initiating and rapidly expanding MMT programs is a priority for responding to the dual epidemics of injection drug use and HIV infection among prisoners. Given the evidence of entrenched epidemics of injection drug use and HIV infection in prisons in many countries in Eastern Europe and the fSU, it is clear that inaction on the part of prison officials will result in increased morbidity and mortality among drug dependent prisoners. Moreover, the failure to implement MMT could result in further spread of HIV infection among prisoners who inject drugs, the prison population as a whole, and could potentially lead to generalized epidemics among people in communities into which prisoners are released. Such further spread of HIV would lead not only to greater suffering for affected individuals and their families, but also would result in substantial, avoidable health care costs.

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This document was originally written in 2004 by Thomas Kerr and Ralf Jürgens and was revised in 2008 by Glenn Betteridge and Ralf Jürgens.

Project undertaken with the financial support of the Government of Canada provided through the Canadian International Development Agency (CIDA).

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