



EVIDENCE FOR ACTION TECHNICAL PAPERS

EFFECTIVENESS OF INTERVENTIONS TO ADDRESS HIV IN PRISONS



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PREFACE

The global environment for the HIV response has shifted substantially towards a massive scaling up of prevention, treatment and care interventions. In particular, Governments made an unprecedented commitment during the United Nations Special Session on HIV/AIDS in 2001 to halting and reversing the epidemic by 2015. More recently, at the 2005 World Summit and at the 2006 High Level Meeting on AIDS, Governments committed to pursue all necessary efforts towards the goal of universal access to comprehensive prevention programmes, treatment, care and support by 2010. In support of this, substantial additional resources to fund an expanded response have become available, including through the Global Fund to Fight AIDS, Tuberculosis and Malaria.

Governments face the challenge of translating these commitments into practical programmes, which includes implementing a comprehensive range of interventions to address HIV transmission related to injecting drug use, including in their prison systems. This publication is part of a series of Evidence for Action Technical Papers, which aim to make the evidence for the effectiveness of interventions to manage HIV in prisons accessible to policy-makers and programmers. The series consists of:

1. Four papers that consider the effectiveness of a number of key interventions in managing HIV in

prisons, including:

- needle and syringe programmes and decontamination strategies;
- prevention of sexual transmission;
- drug dependence treatments; and
- HIV care, treatment and support.

2. A comprehensive paper on *Effectiveness of Interventions to Address HIV in Prisons* which (1) provides more detailed information about the interventions covered in the four above mentioned papers; and (2) reviews the evidence regarding HIV prevalence, risk behaviours and transmission in prisons, as well as other interventions that are part of a comprehensive approach to managing HIV in prisons, including HIV education, testing and counselling, and other programmes. This paper is available, in electronic format only, at <http://www.who.int/hiv/idu/>.

WHO, UNODC and UNAIDS recognise the importance of this review in supporting the implementation and scale up of evidence-based interventions in prison settings aimed at HIV prevention, treatment and care.

A NOTE ON TERMINOLOGY

In some jurisdictions different terms are used to denote places of detention, which hold people who are awaiting trial, who have been convicted or who are subject to other conditions of security. Similarly, different words are being used for various groups of people who are detained.

In this paper, the term 'prison' has been used for all places of detention and the term 'prisoner' has been used to describe all who are held in such places, including adult and juvenile males and females detained in criminal justice and prison facilities during the investigation of a crime; while awaiting trial; after conviction and before sentencing; and after sentencing. Although the term does not formally cover persons detained for reasons relating to immigration or refugee status, those detained without charge, and those sentenced to compulsory treatment and rehabilitation centres as they exist in some countries, nonetheless most of the considerations in this paper apply to them as well.

EXECUTIVE SUMMARY

BACKGROUND

HIV hit prisons early and hit them hard. The rates of HIV infection among prisoners in many countries are significantly higher than those in the general population. HCV seroprevalence rates are even higher. While most of the prisoners living with HIV or AIDS in prison contract their infection outside the institutions before imprisonment, the risk of being infected in prison, in particular through sharing of contaminated injecting equipment and through unprotected sex, is great. Studies from around the world show that many prisoners have a history of problematic drug use and that drug use, including injecting drug use, occurs in prison. Outbreaks of HIV infection have occurred in a number of prison systems, demonstrating how rapidly HIV can spread in prison unless effective action is taken to prevent transmission.

The importance of implementing HIV interventions, including drug treatment programmes, in prisons was recognized early in the epidemic. After holding a first consultation on prevention and control of HIV in prisons in 1987, WHO responded to growing evidence of HIV infection in prisons worldwide by issuing guidelines on HIV infection and AIDS in prisons in 1993. The guidelines emphasize that “all prisoners have the right to receive health care, including preventive measures, equivalent to that available in the community without discrimination”. This was more recently re-affirmed in the 2006 framework for an effective national response to HIV/AIDS in prisons, jointly published by the United Nations Office on Drugs and Crime (UNODC), WHO, and UNAIDS.

An increasing number of countries have introduced HIV programmes in prisons since the early 1990s. However, many of them are small in scale, restricted to a few prisons, or exclude necessary interventions for which evidence of effectiveness exists. There is an urgent need to introduce comprehensive programmes (*including information and education, particularly through peers; provision of condoms and other measures to reduce sexual transmission; needle and syringe programmes; drug dependence treatment, in particular opioid substitution therapy; voluntary counselling and HIV testing; and HIV care, treatment and support, including provision of antiretroviral treatment*), and to scale them up rapidly.

EVIDENCE OF THE EFFECTIVENESS OF INTERVENTIONS TO ADDRESS HIV IN PRISONS: CONCLUSIONS AND RECOMMENDATIONS

HIV/AIDS education

A few evaluations have indicated improvements in levels of knowledge and self-reported behavioural change as a result of prison-based educational initiatives. However, most studies concluded that the effectiveness of current educational efforts in influencing prisoners’ behaviour and in reducing HIV transmission among prisoners remains largely unknown and that simply providing information on HIV and the harms associated with risk behaviours is not enough. In particular, studies have pointed out that education and counseling are not of much use to prisoners if they do not have the means to act on the information provided while they are in prison.

Based on the data available and extrapolating from the literature on community-based programmes, education programmes in prisons are more likely to be effective if developed and delivered by peers.

Therefore, it is recommended that:

1. Recognizing that prisons are important settings for informational and educational programmes for both prisoners and staff about HIV and other infectious diseases, prison systems should establish well-designed programmes in all prisons.
2. Where possible, education delivered for prisoners by the prison system should be supplemented by peer education programmes.
3. Informational and educational programmes are but one component of an effective programme to manage HIV in prisons and must be supplemented by other programmes. In particular, prisoners must be provided with the prevention measures that enable them to act upon the information they receive, such as condoms and clean injecting equipment.

HIV counselling and testing

Programmes that make HIV testing and counselling easily accessible to prisoners on entry to prison and throughout incarceration result in increased uptake

of testing and counselling. However, HIV testing and counselling is not a goal in and of itself, but a means to enable people to access care, treatment, and support if they test HIV-positive, and to take measures to reduce the risk of transmitting infection to others. Linkage of HIV testing and counselling with care and treatment according to standards prevalent in the outside community is essential to encouraging prisoners to participate in HIV testing and counselling programmes, particularly as access to antiretroviral treatment in the community is scaled up in developing countries and countries in transition and needs to be expanded to prison systems in those settings. In addition, attention must be paid to ensuring that confidentiality of medical information is protected and to avoiding stigma and the negative consequences of testing: prisoners will not agree to participate in testing if they face discrimination or abuse.

Mandatory HIV testing is unethical and there is evidence suggesting that mandatory HIV testing and segregation of HIV-positive prisoners is costly, inefficient, and can have negative health consequences for segregated prisoners.

Therefore, it is recommended that:

1. Prison systems should provide easy access to HIV testing and counselling.

In particular, voluntary HIV testing and counselling:

- should be easily accessible to all prisoners upon entry and during imprisonment
 - should always be confidential, and everyone being tested should give informed consent and receive counselling
 - should be closely linked to access to care, treatment, and support for those testing positive, and be part of a comprehensive HIV programme that includes access to prevention measures, including condoms and clean injecting equipment.
2. Prison systems should not adopt policies of mandatory testing and segregation, as they are counterproductive and can have negative health consequences, including for segregated prisoners.

Provision of condoms

There is evidence that provision of condoms is feasible in a wide range of prison settings. No prison system allowing condoms has reversed its policy, and none has reported security problems or any other major negative consequences. In particular, it has been found that condom access is unobtrusive

to the prison routine, represents no threat to security or operations, does not lead to an increase in sexual activity or drug use, and is accepted by most prisoners and prison staff once it is introduced. At the same time, there is evidence that making condoms available to prisoners is not enough – they need to be easily accessible in various locations in the prison, so that prisoners do not have to ask for them and can pick them up without being seen by staff or fellow prisoners.

Studies have not determined whether infections have been prevented thanks to condom provision in prison, but there is evidence that prisoners use condoms to prevent infection during sexual activity when condoms are accessible in prison. It can therefore be considered likely that infections have been prevented.

Therefore, it is recommended that:

1. Prison authorities in jurisdictions where condoms are currently not provided should introduce condom distribution programmes and expand implementation to scale as soon as possible.
2. Condoms should be made easily and discreetly accessible to prisoners so that they can pick them up at various locations in the prison, without having to ask for them and without being seen by others.
3. Together with condoms, water-based lubricant should also be provided since it reduces the probability of condom breakage and/or rectal tearing, both of which contribute to the risk of HIV transmission.
4. Education and information for prisoners and for staff should precede the introduction of condom distribution programmes, which should be carefully prepared.
5. Female prisoners should have access to condoms as well as dental dams.

Other measures to decrease sexual transmission

There is evidence from countries around the world that rape and other forms of sexual violence occur in prisons. This poses a serious threat to the health of prisoners, including the risk of HIV and other sexually transmitted infections. While some prison systems continue to deny the existence of the problem, others have shown that it is possible to fundamentally change the way in which sexual violence is addressed in prison, within a relatively short

timeframe. These systems typically adopt methods to document incidents of prisoner sexual violence, undertake prevention efforts, provide staff training, undertake investigation and response efforts, and provide services to victims, including access to post-exposure prophylaxis.

Therefore, it is recommended that:

1. Prison systems should develop and implement multi-prong strategies for enhancing the detection, prevention, and reduction of all forms of sexual violence in prisons and for the prosecution of offenders.
2. Formal evaluations of the various components of the policies and programmes to address rape and other forms of sexual violence in prison should be undertaken.
3. Victims of sexual assault who report unprotected receptive vaginal or anal intercourse or contact with blood or ejaculate to mucous membrane or non-intact skin within 72 hours should have access to post-exposure prophylaxis (PEP). In addition, prison systems should consider offering PEP in other cases in which PEP could reduce the risk for HIV transmission after exposure to HIV.

Needle and syringe programmes

There is evidence that needle and syringe programmes (NSPs) are feasible in a wide range of prison settings, including in men's and women's prisons, prisons of all security levels, and small and large prisons. There is evidence that providing clean needles and syringes is readily accepted by IDUs in prisons and that it contributes to a significant reduction of syringe sharing over time. It also appears to be effective in reducing resulting HIV infections. At the same time, there is no evidence to suggest that prison-based NSPs have serious, unintended negative consequences. In particular, they do not appear to lead to increased drug use or injecting, nor are they used as weapons. Evaluations have found that NSPs in prisons actually facilitate referral of drug users to drug dependence treatment programmes. Ultimately, since most prisoners leave prison at some point to return to their community, implementing NSPs in prisons will benefit not only prisoners and prison staff, but also society in general.

Therefore, it is recommended that:

1. Prison authorities in countries experiencing or threatened by an epidemic of HIV infections among IDUs should introduce NSPs urgently and

expand implementation to scale as soon as possible. The higher the prevalence of injecting drug use and associated risk behaviour is in prison, the more urgent introduction of prison-based NSPs becomes.

2. Prisoners should have easy, confidential access to NSPs, and prisoners and staff should receive information and education about the programmes and be involved in their design and implementation.
3. Carefully evaluated pilot programmes of prison-based NSPs may be important in allowing the introduction of these programmes, but they should not delay the expansion of the programmes, particularly where there already is evidence of high levels of injecting in prisons.
4. Additional research about prison-based NSPs should be undertaken. In particular, more research in resource-poor systems outside Western Europe could allow for more rapid expansion of NSPs in these settings. Research should be designed to address operational issues and research gaps rather than replicate existing studies. Evaluation of pilot programmes may be justified if: (1) the evaluation takes place in settings that are sufficiently different from settings in which evaluations have already been undertaken; or (2) it addresses research gaps.

Bleach and decontamination strategies

Evaluations of bleach programmes in prisons have shown that distribution of bleach or other disinfectants is feasible in prisons and does not compromise security. However, disinfection and decontamination schemes in the community outside prisons are not supported by evidence of effectiveness. Studies undertaken in prisons have shown that conditions in prisons further reduce the probability that injecting equipment may be effectively decontaminated. Because of their limited effectiveness, bleach programmes can only be regarded as a second-line strategy to NSPs. Therefore:

1. Bleach programmes should be available in prisons where authorities continue to oppose the introduction of NSPs despite evidence of their effectiveness, and to complement NSPs. However, they cannot replace NSPs.
2. Where bleach programmes are implemented, bleach should be made easily and discreetly accessible to prisoners in various locations in the prison, together with information and education about how to clean injecting equipment and information about

the limited efficacy of bleach as a disinfectant for inactivating HIV and particularly HCV.

3. Where bleach programmes exist in prisons, but not NSPs, public health practitioners should continue to advocate for the introduction of NSPs.

Safer tattooing initiatives

There is evidence that tattooing is prevalent in prisons around the world, and that it creates a risk of HCV and, to a lesser extent, HIV transmission. Nevertheless, only one safer tattooing initiative has been evaluated, showing some positive results. It is therefore recommended that:

1. Prison systems should pilote and evaluate safer tattooing initiatives, to assess whether they reduce the occurrence of tattooing with shared and re-used equipment and related infections.

Opioid substitution therapy and other drug dependence treatment

There is evidence that OST, in particular with methadone maintenance therapy, is feasible in a wide range of prison settings.

Prison-based OST programmes appear to be effective in reducing the frequency of injecting drug use and associated sharing of injecting equipment, if a sufficient dosage is provided and treatment is provided for longer periods of time. The risk of transmission of HIV and other blood-borne viruses among prisoners is also likely to be decreased.

In addition, there are other benefits, both for the health of prisoners participating in the programmes, and for prison systems and the community. For example, reincarceration is less likely among prisoners who receive adequate OST, and OST has been shown to have a positive effect on institutional behaviour by reducing drug-seeking behaviour and thus improving prison safety. While prison administrations have often initially raised concerns about security, violent behaviour, and diversion of methadone, these problems have not emerged or have been addressed successfully where OST programmes have been implemented.

In contrast to OST, which has become increasingly available in many prison systems at least in part because of its potential to reduce injecting drug use and the resulting risk of spread of infection, other forms of drug dependence treatment have not usually been introduced in prison with HIV prevention as one of their objectives. Therefore, there is little data on their effectiveness as an HIV prevention strategy.

Nevertheless, good quality, appropriate, and accessible treatment has the potential of improving prison security, as well as the health and social functioning of prisoners, and can reduce reoffending. Studies have demonstrated the importance of providing ongoing treatment and support and of meeting the individual needs of prisoners, including female prisoners, younger prisoners, and prisoners from ethnic minorities.

Studies have also shown that effective aftercare is essential if the investment made in prison-based treatment is to pay long-term dividends. Aftercare should not be limited to facilitating continuation of drug treatment, but needs to include social support services.

Finally, studies suggest that alternatives to incarceration, such as treatment of addiction in the community, may be more cost-effective at reducing health, social, and economic harms of illegal drug use, and that expanded HIV prevention measures in prisons should ideally be coupled with evaluations of diversion programmes for nonviolent drug users.

Ultimately, reducing the number of people who are in prison – or sent to compulsory treatment and rehabilitation centres as they exist in some countries – because of problems related to their drug use must be a priority.

Therefore, it is recommended that:

1. Prison authorities in countries in which OST is available in the community should introduce OST programmes urgently and expand implementation to scale as soon as possible. Particular efforts should be undertaken to ensure that prisoners on OST prior to imprisonment are able to continue it upon imprisonment, without interruption.
2. Prison authorities should also provide a range of other drug dependence treatment options for prisoners with problematic drug use, in particular for other substances such as amphetamine type stimulants. Because there is little data on the effectiveness of these other forms of treatment as an HIV prevention strategy, evaluations of their effectiveness in terms of reducing drug injecting and needle sharing should be undertaken.
3. Prison authorities should devote particular attention to the availability of treatment and social support services for prisoners on their release.
4. States should affirm and strengthen the principle of providing treatment, education and rehabilita-

tion as an alternative to conviction and punishment for drug-related offences. Currently there is a major expenditure in many countries on imprisonment of drug dependent people, an approach that is associated with very high relapse rates soon after release. There is no evidence that such an approach is cost effective.

‘Drug-free’ units

There is some evidence from a small number of studies that so-called “drug-free” units may assist prisoners to reduce their drug use while in prison. However, the studies do not say anything about whether these units appeal to, and are successful in retaining, the most problematic users, in particular injecting drug users. Therefore, it is recommended that:

1. Prison systems should provide prisoners with the option of living in a “drug-free” environment. However, there is currently no data on the effectiveness of “drug-free” units as an HIV prevention strategy. Therefore, evaluations of their effectiveness in attracting and retaining injecting drug users and in reducing drug injecting and needle sharing should be undertaken.

Drug supply reduction measures

Despite the fact that many prison systems make substantial investments in drug supply reduction measures, there is little solid and consistent empirical evidence available to confirm their efficacy in reducing levels of drug use. In particular, there is no evidence that these measures may lead to reduced HIV risk.

Mandatory drug testing (MDT) programmes, as a supply reduction strategy, are used in a number of prison systems. From a public health perspective, concerns have been raised that these programmes may increase, rather than decrease, prisoners’ risk of HIV infection. There is evidence that implementing such programmes may contribute to reducing the demand for, and use of, cannabis in prisons. However, such programmes seem to have little effect on the use of opiates. In fact, there is limited evidence that a small number of people switch to injectable drugs to avoid detection of cannabis use through drug testing. Given that smoking cannabis presents no risk of HIV transmission while injecting opiates presents a significant risk of HIV and other health risks, the evidence that some prisoners switch from cannabis use to use of more harmful drugs by injecting is worrisome.

Therefore, it is recommended that:

1. Improving the documentation and evaluation of supply reduction measures should be a priority for prison systems making substantial investments in such measures.
2. Prison systems with MDT programmes should reconsider urinalysis testing for cannabis. At a minimum, they should make clear distinctions in punitive terms between those testing positive to cannabis and opiates.

Provision of HIV care, treatment and support

The advent of combination antiretroviral therapy (ART) has significantly decreased mortality due to HIV and AIDS in countries where ART has become accessible. There has been a parallel decrease in the mortality rate among incarcerated individuals in prison systems in those countries. Providing access to ART for those in need in the context of prisons is a challenge, but it is necessary and feasible. Studies have documented that, when provided with care and access to medications, prisoners respond well to ART. Adherence rates in prisons can be as high or higher than among patients in the community, but the gains in health status made during the term of incarceration may be lost unless careful discharge planning and linkage to community care are undertaken.

As ART is increasingly becoming available in developing countries and countries in transition, it will be critical to ensure that it also becomes available in the countries’ prison systems. Ensuring continuity of care from the community to the prison and back to the community, as well as continuity of care within the prison system, is a fundamental component of successful treatment scale-up efforts.

Other measures could also have a positive impact on HIV care, treatment and support in prison. These include ensuring that prison health care be appropriately funded and evolve from the “sick call” model employed in many prison systems into a proactive system that emphasizes early disease detection and treatment, health promotion, and disease prevention. In the medium and longer-term, transferring control of prison health to public health authorities could also have a positive impact. Health care in prisons can be delivered more effectively by public health authorities than by prison management, if proper resources are provided and freedom of action of the new prison health authorities is guaranteed.

It is therefore recommended that:

1. Prison authorities should ensure that prisoners receive care, support and treatment equivalent to that available to people living with HIV in the community, including ART.
2. As ART is increasingly becoming available in low- and middle income countries, actors at the international, national, regional, and local levels should ensure that it also becomes available in the countries' prison systems.
3. Particular efforts should be undertaken by prison authorities, working with the other components of the criminal justice system and with external health authorities and NGOs, to ensure continuity of care, including ART, from the community to the prison and back to the community, as well as within the prison system.

In addition, countries need to appropriately fund prison health care and may want to consider transferring control of prison health to public health authorities.

1. INTRODUCTION

HIV hit correctional facilities early and hit them hard. The rates of HIV infection among prisoners in many countries are significantly higher than those in the general population. Examples include countries in Western and Eastern Europe, Africa, Latin America, and Asia (see *infra*, chapter 2). Hepatitis C (HCV) seroprevalence rates in prisons are even higher than HIV rates. While most of the prisoners living with HIV or AIDS in prison contract their infection outside the institutions before imprisonment, the risk of being infected in prison, in particular through sharing of contaminated injecting equipment and through unprotected sex, is great. Coincident with the emergence of HIV, many countries were experiencing a significant increase in the incarcerated population. In 2003, experts estimated that 8.75 million people were incarcerated worldwide, with more than half of these in the United States, China, and Russia (Walmsley, 2003). The prison population in many countries increased significantly beginning in the 1990s. Each of these two “epidemics” – HIV and incarceration – has affected the other.

The importance of implementing HIV interventions in prisons was recognized early in the epidemic (Harding, 1987). After holding a first consultation on prevention and control of HIV in prisons in 1987 (WHO, 1987), WHO responded to growing evidence of HIV infection in prisons worldwide by issuing guidelines on HIV infection and AIDS in prisons (WHO, 1993). With regard to health care and prevention of HIV, they emphasized that “all prisoners have the right to receive health care, including preventive measures, equivalent to that available in the community without discrimination, in particular with respect to their legal status or nationality.”

Health in prison is a right guaranteed in international law, as well as in international rules, guidelines and covenants. As it was stated in April 1996 by UNAIDS to the United Nations Commission on Human Rights at its 52nd session:

HIV/AIDS in prisons remains a difficult and controversial subject.... Often there are not enough resources to provide basic health care in prisons, much less HIV/AIDS programmes. Yet the situation is an urgent one. It involves the rights to health, security of the person, equality before the law and freedom from inhuman and degrading treatment.... With regard to effective HIV/AIDS prevention and care programmes, prisoners have a right to be provided the basic standard of medical care available in the community.

Since the early 1990s, various countries have introduced HIV prevention programmes in prisons. Such programmes include education on HIV/AIDS and on drug use for prisoners and for staff, voluntary testing and counselling, the distribution of condoms, bleach, needles and syringes, and opioid substitution therapy for injecting drug users. Other forms of drug dependence treatment, as well as drug demand reduction and drug supply reduction measures may also be relevant to managing HIV in prisons, even though they are not adopted as HIV prevention measures. Prison systems in a growing number of countries are implementing such programmes. However, many of them are small in scale and restricted to a few prisons.

WHO has continued to support the need for innovation and pragmatic approaches to combating HIV and other viral infections in prisons, including through the release of a WHO Europe status paper on prisons, drugs and harm reduction (WHO Europe, 2005). Other UN agencies, particularly UNAIDS (Joint United Nations Programme on HIV/AIDS, 1997a and 1997b) and more recently UNODC (United Nations Office on Drugs and Crime, 2006), have also highlighted the importance of pragmatic approaches to HIV in prisons that further public health and human rights and are based on evidence. The *International Guidelines on HIV/AIDS and Human Rights* identify the following specific action in relation to prisons:

Prison authorities should take all necessary measures, including adequate staffing, effective surveillance and appropriate disciplinary measures, to protect prisoners from rape, sexual violence and coercion. Prison authorities should also provide prisoners (and prison staff, as appropriate), with access to HIV-related prevention information, education, voluntary testing and counselling, means of prevention (condoms, bleach and clean injection equipment), treatment and care and voluntary participation in HIV-related clinical trials, as well as ensure confidentiality, and should prohibit mandatory testing, segregation and denial of access to prison facilities, privileges and release programmes for HIV-positive prisoners. Compassionate early release of prisoners living with AIDS should be considered (Office of the United Nations High Commissioner for Human Rights & Joint United Nations Programme on HIV/AIDS, 1998, at 29e).

Prisons are in a key position as far as the management of HIV is concerned because they contain:

- ▶ a disproportionate number of individuals living with HIV and of individuals who may have been at risk on the outside, including, in many countries, many injecting drug users (IDUs);
- ▶ a large and changing population whose behaviour may put them at particular risk of HIV infection;
- ▶ a section of the population who may be difficult to reach in any other situation outside prison, and whose lifestyle may mean that they have had little contact outside with medical and other helping agencies;
- ▶ a unique mix of individuals of particular significance in the prevention of the spread of HIV infection (Strang et al., 1998).

Inside prison, these people may continue their involvement in behaviours such as drug use and sex, with reduced access to prevention measures (such as condoms and sterile injection equipment) and health education that are available to the general population.

Due to the closed nature of prisons, the health of prisoners is an issue that rarely comes to the attention of the public at large. However, the health of prisoners is an issue of public health concern. Prison presents a prime opportunity to respond to behaviours that pose a high risk of HIV and HCV transmission, such as needle sharing, using proven public health measures. Everyone in the prison environment – prisoners, prison staff, or their family members – benefits from enhancing the health of prisoners and reducing the incidence of communicable disease. Measures to decrease the risk of HIV and HCV transmission, including measures to minimize accidental exposure to these bloodborne infections, make prisons a safer place to live and work.

The public health rationale for adopting a comprehensive HIV prevention and care strategy in prison can be summarized from the UNAIDS statement (United Nations Commission on Human Rights, 1996):

Prisoners are the community. They come from the community, they return to it. Protection of prisoners is protection of our communities.

UNAIDS has drawn specific attention to the high turnover of prison populations around the world which can allow for further spread of infections contracted while in prison. Many prisoners serve short sentences and recidivism to prison is common. Consequently, HIV-positive people and at-risk individuals move frequently between prisons and

their home communities. Most prisoners will return to their home communities within a few years. The high degree of mobility between prison and community means that communicable diseases and related illnesses transmitted or exacerbated in prison do not remain there. When people living with HIV and HCV are released from incarceration, prison health issues necessarily become community health issues. The extent to which this is the case cannot be underestimated. For example, in 1997, in the United States there were more than 35,000 prisoners with HIV on any given day. In the same year, over 150,000 of those released had HIV-infection. It has been estimated that, in 1997, 20% to 26% of all people with HIV (and 29% to 43% of all those infected with HCV) in the United States passed through a correctional facility (Hammett, Harmon, Rhodes, 2002). In Russia, each year 300,000 prisoners, many of whom living with HIV, HCV, and/or tuberculosis, have been released in the last few years from prisons (Prison Healthcare News, 2003). In Ireland, according to a 1997 report, with a prison population of around 2,200, the annual turnover of prisoners was about 10,000, and the average sentence was 3 to 4 months. Out of the estimated 1,600 people in Ireland with HIV, 300 to 500 had been through the prison system (UNAIDS, 1997).

Having up to one-fourth of the HIV-positive population pass through a single type of institution has enormous implications for a community's strategic HIV planning (Spaulding et al., 2002). When prisoners return to their sexual and/or needle-sharing partners in the community, their partners face increased risk of HIV infection and may not be aware that they are at risk. However, the special characteristics of prisons also present great opportunities for the prevention of infectious disease transmission among a substantial number of disadvantaged individuals, and for providing them with care, treatment, and support.

As prison systems develop and implement comprehensive programmes to manage HIV in prisons, special attention should be given to female prisoners, who require information and services specifically designed for their needs. As there are fewer women in prison than men, the health services provided for women are sometimes minimal or second-rate. With the advent of HIV, a new problem has arisen for women prisoners. Women prisoners need the same preventive measures and the same level of care, treatment, and support as male prisoners. In addition, however, there is a need for initiatives that acknowledge that the problems encountered

by women in the correctional environment often reflect, and are augmented by, their vulnerability and the abuse many of them have suffered outside prison. The task of protecting women prisoners from HIV transmission and of providing those living with HIV with care, treatment, and support, therefore presents different – and sometimes greater – challenges than that of dealing with HIV infection in male prisoners.

1.1. Aim and scope

The aim of this review is to consider the effectiveness of interventions to manage HIV in prison settings. It is one of a number of reviews of public health strategies for HIV prevention that has the overall aim of providing the best currently available evidence for the value and benefit of different interventions to reduce the risk of HIV transmission. As such, this paper aims to provide guidance on the effectiveness of interventions to manage HIV in prison settings, in the context of a strategic approach to the prevention of HIV.

The paper starts by reviewing the evidence of the prevalence of HIV/AIDS in prisons, as well as evidence of the prevalence of risk behaviours and HIV transmission in prisons. It then reviews the evidence of the effectiveness of various interventions that have been undertaken in prisons to reduce the risk of transmission and provide care, treatment, and support to people living with HIV.

Consideration was given to only focusing on interventions to reduce the risk of HIV transmission from injecting drug use in prisons. However, there is evidence that other forms of risk behaviour, in particular consensual and non-consensual sexual activity, also occur in prisons, and some prisons have implemented programs to reduce those risks and evaluated them. We therefore decided to review the evidence concerning those interventions as well. Finally, because of the links between prevention and treatment, we also considered interventions aimed at providing care, treatment, and support to prisoners living with HIV.

1.2. Methodology

Search methods

A comprehensive search of the published literature was carried out. Electronic library and HIV/AIDS databases, and websites of various government and non-governmental bodies, relevant conferences, and

prison health and health news sites were searched. Key search terms used included “prison(s)”, “jail(s)”, “detention centre(s)”, “correctional facility(ies)”, “prisoner(s)”, inmate(s), “HIV”, “human immunodeficiency virus”, “hepatitis C”, and “HCV”. These search terms were combined with specific interventions (such as “drug dependence treatment”, “substitution therapy”, “methadone”, etc) and, where useful, with specific countries or regions. Studies and other materials reported in English, French, German, Italian, Portuguese and Spanish were reviewed. Due to a paucity of research on some of the interventions, especially in terms of evaluated intervention programmes, all studies located by the author were included in the review process. Attempts were made to access information from low-and middle-income countries and to access the ‘grey’ literature through professional contacts, and direct contact with known researchers and research centres. Several reviews of the effectiveness of certain interventions such as prison-based needle and syringe programmes (Rutter et al., 2001; Stöver & Nelles, 2003; Dolan et al., 2003; Lines et al., 2004; Lines et al., 2005), substitution therapy programmes (Stöver, Hennebel & Casselmann, 2004; Stöver, Casselmann & Hennebel, 2006; Kerr & Jürgens, 2004; Dolan & Wodak, 1996), drug treatment in prison (Larney, Mathers & Dolan, 2007; Mitchell, Wilson & MacKenzie, 2006), or provision of antiretroviral therapy in prison (Pontali, 2005) were also drawn on. Nevertheless, the review had limitations: not all papers could be obtained and publications in languages other than those mentioned are not included.

Programmes in this review included all those whose primary aim it is to reduce HIV transmission (such as HIV education, including peer education programmes, provision of condoms and bleach, needle and syringe programmes, and opioid substitution therapy programmes), but also other programmes aimed at providing access to care, treatment, and support (such as HIV testing and HIV treatment programmes), and programmes whose primary aim it is to reduce the use of illegal drugs in prisons, since they may also have some impact (positive or sometimes negative) on risks of HIV transmission. Finally, after-care programmes were also included in the review since studies have shown that some prison programmes are vastly enhanced by interventions undertaken upon release of the prisoner to the community.

Where available, the review highlights data specific to women prisoners and includes evidence about the effectiveness of gender-specific programmes.

Evaluating the strength of the evidence

Generally, the review examines whether interventions to manage HIV in prisons have been demonstrated scientifically to reduce the spread of HIV among prisoners or to have other positive health effects. The evidence has been evaluated according to the criteria originally proposed by Bradford Hill (1965) to allow a causal relationship to be inferred from observed associations, and by using additional criteria including:

- ▶ **Absence of negative consequences:** The presence of unintended negative consequences can have a major impact on the adoption or expansion of interventions.
- ▶ **Feasibility of implementation and expansion:** Is it feasible to implement programmes in prisons in diverse settings, including resource-poor settings, and in prisons of various types and security classifications, including in prisons for women?
- ▶ **Acceptability to the target of the intervention:** Do prisoners and staff accept the programmes and what conditions facilitate acceptance?
- ▶ **Unanticipated benefits:** Does the introduction of programmes lead to other unintended and welcome benefits?

While the reliability of research conclusions without support from randomized clinical trials is often questioned, the difficulty of conducting such trials to evaluate public health interventions should not be underestimated (e.g. Drucker et al, 1998). Generally, for a number of reasons, very few randomized clinical trials to evaluate HIV interventions in prisons have been undertaken.

2. EVIDENCE OF THE PREVALENCE OF HIV IN PRISONS

Numerous studies worldwide have shown that HIV prevalence is higher in prison than in the community, but the prevalence of HIV infection in different prisons within and across countries varies considerably. In most countries, with the exception of countries with large heterosexual HIV epidemics, prevalence rates in prison are closely related to the rate of HIV infection among IDUs in the community and the proportion of people who injected drugs prior to imprisonment.

The first report of AIDS in prisons was published in 1982 (Hanrahan et al., 1982; Wormser et al., 1983), only 1 year after the initial reports of opportunistic illnesses in men who had sex with men. The first comprehensive study of HIV prevalence in prisons was conducted in the United States during 1985-1986. Of 766 prisoners with AIDS in the study, 322 had already died at the time the study was conducted (Hammett, 1986).

Studies have shown HIV prevalence ranging from zero in a young male offenders institution in Scotland (Bird et al., 1993) and among prisoners in Iowa, United States, in 1986 (Glass et al., 1988), to 33.6% in an adult prison in Catalonia, Spain (Martin et al., 1990), to over 50% in a female correctional facility in New York City (Vlahov et al., 1991). As early as 1988, about half of the prisoners in Madrid (Estebanez et al., 1988) and 20% of prisoners in New York City tested HIV positive (Truman et al., 1988). The highest HIV prevalence reported among a national prison population is in South Africa, where estimates put the figure as high as 41.4%. Conversely, some countries report zero prevalence; most of these are in North Africa or the Middle East (Dolan et al. 2004).

HCV seroprevalence rates in prisons are even higher than HIV rates. In their recent review of all published studies of HCV in prisons, Macalino et al. (2004a) estimate that 30% to 40% of the 1.8 million prisoners in the United States are infected with HCV. While WHO estimates that about 3% of the world's population has been infected with HCV (WHO, 2002), estimates of the prevalence of HCV in prisons have been reported to range from between 4.8% in an Indian jail (Singh et al. 1999) to 92% in two prisons in northern Spain (Health Canada, 2004, with reference to CDC; Samuel et al., 2001; Pallas et al., 1999; Reindollar, 1999).

Within prison populations, certain groups have higher levels of infection. In particular, rates of HIV and

HCV infection among women tend to be higher than among men (DeGroot et al., 1999). For example:

- In Moldova, a study undertaken in five penitentiaries in January 2005 found an HIV prevalence rate of 1.40 to 4.71% among male prisoners, but a rate of 9.63% among female prisoners (Pintilei, 2005).
- In Canada, in 2002, 3.71% of prisoners in federal women's institutions, compared to 1.96% of male prisoners in the federal prison system, were known to be HIV-positive (Canadian HIV/AIDS Legal Network, 2006).
- In the United States, 2.8% of women in State prisons, compared to 1.9% of men in state prisons, were known to be HIV-positive (Maruschak, 2005).

Of eight studies that had both genders included in their sample and provided HCV prevalence for men and women separately, most reflected a higher HCV prevalence among female compared to male prisoners (Macalino, 2004a, with reference to Baillargeon et al., 2003; Crofts et al., 1995; Long et al., 2001; Ruiz et al., 1999; Weild et al., 2000). Studies done in Canada, the United States and Australia have shown that the prevalence of HCV among female prisoners ranges from 25.3% to 67%, as compared with 4% to 39.4% among men (Health Canada, 2004, with numerous references). Butler et al. (1999) reported that the higher rate among female prisoners is the result of a higher concentration of females in prison for drug-related offences.

Rather than attempting to present an exhaustive review of all studies undertaken, this chapter will provide an overview of some of the data from all regions. This overview is based on the review of HIV infection in prisons in low and middle income countries undertaken by Dolan et al. (2004; see also Dolan et al., 2007; unless otherwise indicated, references are to that review), but supplements it with more recent data and data from developed countries.

2.1 Eastern Europe and Central Asia

A review of injecting drug users and HIV infection in prisons found HIV prevalence data for all countries, with the exception of Bosnia, Croatia, Turkmenistan and Uzbekistan.

Generally, the available data tend to suggest lower HIV prevalence in prisons in Central Europe, such as in Poland, Czech Republic, Hungary and Bulgaria, and a much higher prevalence in some of the states of the former Soviet Union – in particular the Russian Federation and Ukraine, but also Lithuania, Latvia and Estonia. HIV is also a growing problem in prisons in some of the states of Central Asia. For example:

- ▶ In the **Russian Federation**, by late 2002, the registered number of people living with HIV or AIDS in the penal system exceeded 36,000 (4% of the prison population), and accounted for about 20% of known cases of HIV/AIDS in Russia (Bobrik, 2005). 95% of the registered people living with HIV or AIDS were IDUs (Kononets, 2002). Between 1996 and 2003, HIV prevalence in Russian prisons increased more than 30-fold, from under 1 per 1,000 prisoners to 42.1 per 1,000 prisoners (Roshchupkin, 2003). Morozov and Fridman (2000) reported an HIV prevalence of 46% among a sample of 9,727 IDU prisoners in Saint Petersburg in 1999. Drobniewski et al. (2005) reported an HIV and HBV and/or HCV co-infection rate of 12.2% and 24.1% respectively among 1,345 prisoners with TB in Samara.
- ▶ In **Ukraine**, twelve studies undertaken between 1996 and 2001 found a range in HIV prevalence from 0% to 26% among prisoners. In a more recent study, undertaken in January 2005, between 15% and 30% of prisoners in various prisons across Ukraine tested HIV- positive (Zhivago, 2005).
- ▶ In **Latvia**, it has been estimated that prisoners comprise a third of the country's HIV-positive population. In a 2003 study (n=8,305), HIV prevalence was found to be 6.2%.
- ▶ **Estonia** reported four studies of HIV prevalence with rates of 8.8 to 23.9%.
- ▶ **Belarus** reported 1,131 positive cases in 2003, representing a prevalence of 2.1%.
- ▶ In **Moldova**, a study undertaken in five penitentiaries in January 2005 found an HIV prevalence of 1.40 to 4.71% among male prisoners and 9.63% among female prisoners (Pintilei, 2005).
- ▶ In **Tajikistan** and in the **Kyrgyz Republic**, estimated prevalence among prisoners is eight per cent (World Bank, 2005).
- ▶ In Kazakhstan, the number of prisoners known to be HIV positive grew from 67 in 1997 to 559 in 2004 (Akhmetov, 2005).

- ▶ Injecting appears to be the major mode of HIV transmission among prisoners in most of the countries in the region.

2.2 South and South East Asia

From the data available, it appears that high prevalence rates are being experienced in at least some of the countries of this region. Serious problems may be evident in the Islamic Republic of Iran, Indonesia, Vietnam and Malaysia, while evidence from India, Pakistan and Thailand also suggests high rates of HIV among prisoners. The Philippines was the only country for which a study reporting zero prevalence was located. The following are some of the available data:

- ▶ The highest prevalence among prisoners was reported in the Islamic Republic of Iran, with one study suggesting a prevalence of 36.5% in 1996. However, more recent Iranian data revealed lower rates of 2.3% among prisoners in one study (Afshar, 2003) and 7% to 30.7% among incarcerated drug users (Rowhani-Rahbar, 2004; Nassirimanesh, 2002; Afshar, 2003).
- ▶ In Indonesia, nine studies found HIV prevalence rates of 4% to 22% in 2001. In 2003, rates ranging from 0.36 to 21.3% were reported (Ministry of Law and Human Rights of Republic Indonesia, 2005).
- ▶ In Vietnam, data reported in 2000 indicated a total of 22,161 prisoners had tested positive for HIV, for a prevalence of 28.4%. Another source reported an HIV prevalence rate of 17.3% across 6 prison camps in the country.
- ▶ Malaysia reported an HIV prevalence rate of 6% across prisons nationally in 2001, and a prevalence of 13.2% was recorded at Kajang in 1997.
- ▶ In Thailand, 300 of 5,000 prisoners (6%) in Klong Prem prison, the main facility in Bangkok, tested positive for HIV in February 1994, while in August of that year the number was reported as 400 (8%). Thaisri (2003) found an HIV rate of 25.4% among 689 male prisoners in a Bangkok central prison.
- ▶ In India, seven studies showed rates between 0% and 14% among women prisoners, and between 1% and 7% among male prisoners.
- ▶ In Pakistan, four studies revealed a prevalence of HIV between 0.1% and 6% in the mid 1990s.
- ▶ In Cambodia, 3.1% prevalence was recorded in Phnom Penh in 1993 (n=65).

2.3 East Asia and the Pacific

Overall, little research appears to have been done on HIV/AIDS in prisons in East Asia and the Pacific. Most of the data that was located was for China, and most of it was between eight and ten years old.

- ▶ In China, eight studies reported HIV prevalence rates ranging from 0% in two studies (n=1,577, n=3,250) to 4.2% (n=1,893). More recent studies were undertaken in Hong Kong, revealing low prevalences of 0.3% (2001) and 0.2% (2002).
- ▶ The only other prison studies found were in South Korea and American Samoa. In South Korea, zero prevalence was recorded among 84,082 prisoners tested between 1985 and 1994, and in 2001, the Department of Corrections estimated that there were less than 50 HIV-positive prisoners. In Samoa, HIV prevalence was zero among 42 prisoners tested in 1993.

2.4 Latin America

In Latin America, a large amount of studies were undertaken in Brazil, Argentina, and Mexico, but less information is available from other countries in the region. HIV prevalence among prisoners in Brazil and Argentina is reported to be particularly high. Rates reported from studies in Mexico, Honduras, Nicaragua, and Panama are also high, although generally lower than in Brazil and Argentina. For example:

- ▶ In Brazil, in several studies, prevalence rates ranged from 3.2% (n=63: Catalan-Soares, Almeida & Carneiro-Proietti, 2000) to over 20% in a large number of studies (Dolan et al. 2004). High rates of infection were also found in studies among women prisoners (e.g., Lopes et al. 2001; Miranda et al. 2000).
- ▶ In most studies in Argentina, prevalence rates ranged between 4 and 10%, but according to one report in 1996, up to one third of all prisoners in the country were estimated to be HIV-positive, with rates in individual prisons of up to 50%.
- ▶ In Mexico, eight studies found HIV prevalence rates ranging from 0.6% (Alvarado-Esquivel et al. 2005) to 7%.
- ▶ El Salvador reported a prevalence of 5%, but only 20 prisoners were tested in 1995.
- ▶ Honduras reported a prevalence of 6.8% of 2,028 prisoners in 1998/99.
- ▶ In Managua, Nicaragua, 4.6% of 95 prisoners tested in 1998 were found to be HIV-positive.

- ▶ Two studies in Peru indicated around 1% of prisoners to be HIV-positive in 1999 and 2003, but an earlier study (1994-1996) in one prison in Lima revealed a prevalence of 8.2%.
- ▶ Large-scale surveillance has been undertaken in Chile, with 43,083 prisoners tested between 1988 and 1999, and 0.6% testing HIV-positive.

Several studies in the region found that between 56 and 100% of HIV-positive prisoners were IDUs.

2.5 Caribbean

Only a small amount of information about HIV prevalence in prisons in this region is available. Most recently, it was reported that a study of HIV prevalence was undertaken at the main prison in St. Lucia, "revealing that the HIV/AIDS situation in the prison system is a microcosm of the general society" (St Lucia News, 2006). Rates reported from Cuba, Jamaica, and Trinidad & Tobago ranged from 4.9 to 25.8%, suggesting that prevalence among prisoners in this region may be high.

Almost no information is available on the extent of injecting drug use among prisoners, or on the prevalence of HIV among prisoners who inject.

2.6 Sub-Saharan Africa

In several countries for which data is available, very high prevalence rates were reported. This was especially true for countries in southern Africa, such as Zambia and South Africa. However, high rates were also found in several western African countries such as Cote d'Ivoire, Gabon, Burkina Faso, Nigeria, and Cameroon. However, in other countries, such as Madagascar, Somalia, Senegal, Mauritius, and Niger, low prevalence was found. For example:

- ▶ In Zambia, four studies revealed HIV prevalence rates ranging from 16.1 to 27.2%.
- ▶ In South Africa, HIV prevalence was estimated to be 41.4% in 2002.
- ▶ Malawi reported an HIV prevalence of 75% among 40 prisoners who were not TB patients.
- ▶ A number of studies in Cote d'Ivoire reported a prevalence of 27.8%.
- ▶ Two studies in Burkina Faso found prevalences of 9.1% and 11% in 1998 and 1999.
- ▶ A prevalence of 1.6% (n=1,100, 1997) was reported from Senegal.

- ▶ A study among 660 prisoners at the central prison of Niamey (Niger) found a prevalence of 0.45%, at a time when prevalence in the general population was estimated to be 0.5% (Ousseini, 1994).
- Among 300 male prisoners in Nigeria, 6.7% tested HIV-positive, a rate slightly higher than the national average (Dada, Akanmu, Esan, 2006).

Much of the information on prevalence is more than five years old, so it is possible that it does not accurately reflect the current situation of HIV prevalence in African prisons.

Little information was available on the proportion of prisoners who were IDUs. No studies were found indicating the HIV prevalence among IDUs in prison in this region.

2.7 North Africa and the Middle East

One study in Yemen in 1998 found an HIV prevalence rate among a relatively small sample of prisoners of 26.5%. Most other countries for which data was found recorded prevalence of less than one percent. Very little is known about the situation of injecting drug use and HIV among IDUs in prisons in this region.

2.8 Western Europe, Australia, North America

Extensive data exist from many studies undertaken in Western Europe, Australia, Canada, and the United States.

- ▶ In Western Europe, particularly high rates have been reported from countries in southern Europe – for example, 14% in Spain (Spanish Focal Point, 2001). This rate, however, is much lower than in the early 1990s. Martin et al. (1998) reported that, for those incarcerated for the first time, prevalence of HIV fell from 38% in 1991 to 19% in 1995 in Spanish prisons. High HIV infection rates have also been reported in early studies in France (13%; testing of 500 consecutive entries), Switzerland (11%; cross-sectional study in five prisons in the Canton of Berne), and the Netherlands (11%; screening of a sample of prisoners in Amsterdam). In contrast, some European countries, including Belgium, Finland, Iceland, Ireland, United Kingdom, and some states in Germany, reported lower levels of HIV prevalence (all data from Harding & Schaller, 1992). More recent data (Babudieri et al. 2003)

show a decline of reported rates of HIV seroprevalence in prisons in Italy (from 9.7% in 1990 to 2.6% in 2001; however, the authors warn that these data are incomplete and do not account for possible biases); low rates of HIV in Greece (0.19%: Malliori et al. 1998); and HIV prevalence of 4% among IDUs and 1% among non-IDUs in a cross-sectional survey carried out in six European prisons (France, Germany, Italy, The Netherlands, Scotland and Sweden: Rotily et al. 2001b).

- ▶ In the United States, the number of prisoners known to be HIV-positive has been steadily decreasing since 1999, from 25,807 (2.1%) in 1999 to 23,659 (1.9%) in 2003. On December 31, 2003, 2.0% of State prisoners and 1.1% of Federal prisoners were known to be living with HIV. In a few jurisdictions, however, rates are much higher, particularly among women. In New York, for example, 7.3% of male and 14.6% of female prisoners were known to be HIV-positive; and in Florida, 3.7% of male and 7.3% of female prisoners (Maruschak, 2005).
- ▶ In Canada, one of the most recent studies, of 1,617 prisoners in 7 provincial institutions in Québec, found an HIV seroprevalence rate of 2.3% among men and 8.8% among women (Landry et al. 2004). In federal prisons, the number of known HIV-positive prisoners seems to have dropped, for the first time in a decade, between 2002 and 2004, from 251 (2.04%) to 188 (1.43%). Rates among women (3.44%) continue to be much higher than among men (1.37%) (Smith, preliminary unpublished data, 2005). Overall, in a large number of studies published between 1989 (Hankins et al.) and 2005 (Calzavara et al.) rates between one and 11.94% have been reported (Lines, 2002; Health Canada, 2004; Correctional Service Canada, 2003).
- ▶ In Australia, prevalence of HIV at the end of 2001 was 0.066% compared with 0.2% in prisoners throughout Australia, and 0.4% and 0.3% in New South Wales and Victoria respectively (Hellard and Aitken, 2004).

2.9 Conclusions

HIV surveillance has been the most common form of HIV research in prison. However, much of the data regarding HIV prevalence in prisons comes from high-income countries. Information about low and middle income countries is more limited. When data do exist, they tend to be quite varied and unsystematic. Additionally, in many cases the existing data are not recent enough to provide an accurate picture of the current situation in prisons (Dolan et al. 2004).

Even within high-income countries, the precise number of HIV-positive prisoners is difficult to estimate, and rates of HIV infection reported from studies undertaken in a single prison or region may not be an accurate measure of HIV prevalence in prisons across the country as a whole because the levels of HIV infection may vary from region to region within a country.

In many countries, more thorough and systematic research is needed to provide an accurate picture of the current situation of HIV in prisons.

Nevertheless, the review demonstrates that HIV infection is a serious problem in prison systems, and one that requires immediate action. In many systems, rates of infection are many times higher than in the community outside prisons, primarily attributed to IDU prior to incarceration (Macalino et al. 2004, with many references). In other systems, rates are high because of high rates of HIV in the general population. Everywhere, the prison population consists of individuals with greater risk factors for contracting HIV (and HCV) compared to the general population. Such characteristics include injecting drug use, poverty, alcohol abuse, and living in medically underserved and minority communities (Reindollar, 1999).

3. EVIDENCE OF THE PREVALENCE OF RISK BEHAVIOURS IN PRISONS

Studies may underestimate the prevalence of activities and behaviours that present risks of HIV (and/or HCV) transmission – in particular, injecting drug use and sexual intercourse – because of the many methodological, logistical, and ethical challenges of undertaking a study of prisoners' high-risk behaviours. These challenges stem primarily from three aspects of prisoners' lives: prisons are by nature coercive environments; sex and drug use violate prison regulations; and, sexual behaviour involves identity issues that often spur shame and a fear of homophobic violence from other prisoners. (Mahon, 1997). Many prisoners decline to participate in studies because they claim not to have engaged in any high-risk behaviours (Health Canada, 2004, with reference to Pearson, 1995). This can result in low generalizability and underreporting of risk behaviours affecting statistics in prisons worldwide. As well, prisoners who do participate can be reluctant to give data regarding risk behaviours, the majority of which constitute institutional offences (Health Canada, 2004). Prisoners are afraid of reprisal for admitting illegal behaviours (Rutter, 2001, with reference to Dolan, Wodak & Penny, 1995).

Despite these challenges, there is ample evidence from studies undertaken in prisons around the world that behaviours that present risks of HIV (and/or HCV) transmission are widespread in prisons.

3.1 Injecting drug use

Illegal drugs are available in prisons despite the sustained efforts of prison systems to prevent illegal drug use by prisoners – by doing what they can to prevent the entry of drugs into prisons, tightly controlling distribution of prescription medications, and enforcing criminal prohibitions on illegal drug possession and use among prisoners. According to UNAIDS, “[w]hether the authorities admit it or not – and however much they try to repress it – drugs are introduced and consumed by inmates in many countries ... Denying or ignoring these facts will not help solve the problem of the continuing spread of HIV” (UNAIDS, 1997).

Many prisoners come to prison with established drug habits (Calzavara et al., 2003). Hiller et al. (1999) report that in the United States, 68% of all new admissions test positive for an illegal drug in urine screening, and similar findings have been reported across Europe (EMCDDA, 2005), North

America, and Australia (Shewan, Stöver & Dolan). In other parts of the world, the situation is less clear because of the lack of systematic research (Dunn et al., 2000; Ohaeri, 2000), but in many countries, drug use among people who are incarcerated is common. In fact, many prisoners are in prison in the first place because of offences related to drugs (UNAIDS, 1997). These may be crimes related to drug production, possession, trafficking or use, or crimes committed to acquire resources to purchase drugs. Many prison systems have seen significant increases in their population (and consequent overcrowding) attributable in large measure to a policy of actively pursuing and imprisoning those dealing with and consuming illegal substances (Stöver et al., 2001). In some countries, the female prison population is growing more rapidly than the male prison population (Zurhold, Stöver & Haasen, 2004; Boyd & Faith, 1999; Sudbury, 2002; Bloom et al., 2004).

People who used drugs prior to imprisonment often find a way to continue using on the inside, although prevalence and frequency rates for most – but not all (Plourde and Brochu, 2002; Swann & James, 1998) – prisoners decline with imprisonment (Shewan et al., 1994). In a study of correctional officers in Ireland, respondents saw the drug problem in their prison as “out of control” (Allen, 2001), and a majority of prisoners in another study claimed that the pressure to use drugs was greater during imprisonment than outside (Swann & James, 1998). Some people discontinue using drugs while in prison, while other prisoners start using drugs, often as a means to release tensions and to cope with being in an overcrowded and often violent environment (Taylor et al., 1995; Hughes & Huby, 2000). Plourde & Brochu (2002) found that drug use was significantly higher in maximum- (52%) and medium-security institutions in Canada (35%) than in minimum-security institutions (19%). Cocaine use diminished considerably, while a significant number of prisoners who had not previously used heroin tried it in prison. This is consistent with findings of other studies revealing the popularity of heroin in prison (Swann & James, 1998). Bullock (2003) found that the main reason provided by prisoners for their reduced levels of drug use in prisons was the relative lack of availability in prison (mentioned by 61% of those reporting reduced use), followed by attempts to stay off drugs (14%) and “get fit” (Kevin, 2000), not being able to afford drugs (13%), and concerns about punishment (6%: Bullock, 2003).

Prisoners in a drug treatment programme in a Delaware state prison in the United States reported on methods used to smuggle drugs into the facility (Inciardi & Lockwood, 1993). They reported that visitors and correctional staff brought most drugs into the prison. Visitors were reported to have concealed drugs in clothing, in cellophane packages hidden in their mouths, or in ballpoint pens with the ink cartridge removed. Correctional staff were reported to smuggle drugs and drug paraphernalia into the prison in sports equipment, hollowed-out books, garment linings and photographic equipment. Prisoners themselves reported being able to smuggle drugs into prisons.

A study assessing current and past drug use in a sample of 77 Canadian correctional officers working in two medium-security penitentiaries, found high rates of drug use also among correctional officers. In the study, 58% of correctional officers indicated past illegal drug use. This compares with 20% of Canadians who indicate illegal drug use. Correctional officers were more likely than the general population to have used marijuana and cocaine (Svenson et al., 1995).

Injecting drug use in prison is also prevalent in many prisons (see *infra*) and is of particular concern with regard to transmission of HIV and other blood borne diseases such as hepatitis B and C. This is because those who inject drugs in prisons often share needles and syringes, which is a very efficient way of transmitting HIV. Because it is more difficult to smuggle needles and syringes into prisons than it is to smuggle drugs into them, needles and syringes are very scarce. Often, only a handful of needles will circulate among a large population of prisoners who inject drugs. As a result, needle sharing is frequent, and 15 to 20 people may inject using the same equipment (Correctional Service Canada, 1994a; Small et al., 2005; Taylor & Goldberg, 1996). Sometimes, the equipment is even home-made, and needle substitutes are fashioned out of hardened plastic and ballpoint pens, often causing damage to veins, scarring, and severe infections (Small et al., 2005; Mahon, 1996; Hughes, 2003; Turnbull, Stimson & Stillwell, 1994; Taylor & Goldberg, 1996; Bijl & Frost, 2000). In addition to the serious risk of infection, drug injectors in prison are at more risk of health complications, including scarring and bruising, abscesses and thrombosis from using extremely poor quality injecting equipment (Morrison, Elliott & Gruer, 1997).

For many IDUs, imprisonment is a common event:

- In a national study in the United States, approximately 80% of 25,000 IDUs reported having been imprisoned at some stage (Normand et al. 1995).
- A study of IDUs in Toronto, Canada, in the early 1990s also found that over 80% had been in prison at least once since beginning to inject drugs (Millson, 1991).
- 76% of 1,475 IDUs participating in the on-going Vancouver Injection Drug User Study (VIDUS) report a history of incarceration since beginning to inject drugs (Woods et al., 2004).
- In the Australian Study of HIV and Injecting Drug Use, the proportion of respondents in each city who had ever been in prison ranged from 23% in Melbourne to 54% in Sydney (Loxley et al., 1995). Between 4% and 25% of IDUs had been in prison in the previous year. Male IDUs were more likely to report being imprisoned than female IDUs (MacDonald et al., 1997).
- In a 12-city WHO study of HIV risk behaviour among IDUs, between 60% and 90% of respondents reported a history of imprisonment since starting drug injecting and most had been imprisoned on multiple occasions (Ball et al. 1995).
- 56% of 485 IDUs in a treatment cohort in Thailand had ever been jailed (Beyrer et al., 2003).

Multiple episodes of imprisonment were reported to be more common for IDU prisoners than for other prisoners in Scotland (Gore et al., 1995). IDU prisoners in Gore's study were significantly more likely to have been in prison on six or more occasions than non-IDU prisoners.

In a number of studies (Dolan, 2000), the percentage of prisoners with a history of injecting drug use before incarceration ranged from 11% in one study in England (Maden et al, 1992) to 64% in studies in New South Wales, Australia (Dolan et al., 1999).

3.1.1 Injecting drug use in prison

Injecting drugs is a highly clandestine activity both inside and outside prison and this makes it difficult to estimate the number of drug injectors (Hughes, 2000a). However, a large number of studies from countries around the world report high levels of injecting drug use, including among female prisoners (DiCenso, Dias & Gahagan, 2003; Elwood Martin et al., 2005). Studies also show that the extent and pattern of injecting and needle sharing vary significantly among prisons; that many people who inject before imprisonment reduce or stop injecting when

they enter prison, but many resume injecting upon release; that some people start injecting in prison; and that those who inject in prison will usually inject less frequently than outside, but are much more likely to share injecting equipment than are drug injectors in the community (Shewan et al., 1994). Furthermore, they are sharing injection equipment with a population – fellow prisoners – that often has a high rate of

HIV and HCV infections (see supra, chapter 2). One study found HIV positive prisoners were significantly more likely to inject (Dolan et al., 1990) [and engage in sex: Dolan et al., 1996] than prisoners who were uninfected or unsure of their HIV status.

The following table provides some examples of studies that examined injecting behaviour in prison.

Table 1: Examples of studies that have examined injecting behaviour in prison

Location	Nr	% injected	% shared	Reference
Australia	2,482	36	60	Wodak 1989
Australia (NSW)	7 studies	31-74	70-94	Dolan & Wodak, 1999, with further references
Australia (SA)	50	52	60	Gaughwin, Douglas & Wodak 1991
Canada	4,285	11		Correctional Service Canada 1996
Canada	350	18.3		Ford et al. 2000
Canada	105 f	19		DiCenso, Dias, Gahagan 2003
Canada	102	21	86	Elwood Martin et al 2005
Canada	>1,200	27	80	Small et al., 2005
Canada	439 m, 158f	3.3	32	Calzavara et al., 2003
Canada	450	2.4	92	Dufour et al 1996
England	378	11.6	73	Edwards, Curtis, Sherrard, 1999
Europe (cross-sectional: France, Germany, Italy, Netherlands, Scotland, Sweden)	871	13		Rotily et al 2001b
European Union & Norway		0.2-34		EMCDD, 2005
Greece	544	24.1	92	Malliori et al 1998
Greece	861	20.2	83	Koulierakis et al 1999
Ireland	1178		70.5	Allright et al. 2000

Location	Nr	% injected	% shared	Reference
Mauritius	100 m, 50 f, 50 youth (25 m, 25f)	10.8 of adults, 2.1 of youth		RSA Mauritius, 2005
Netherlands	497 injecting drug users	3	0	Van Haastrecht et al., 1998
Russian Federation	1,044	10	66	Frost & Tchertkov, 2002
Russian Federation	277	13		Dolan, Bijl & White, 2004
Scotland		15.9		Gore et al. 1995
Thailand	689	25	77.8	Thaisri et al. 2003
United States	281 m, 191 f	31% of injecting drug users with history of imprisonment had used illegal drugs in prison, and nearly half of these had injected in prison		Clarke et al. 2001

Most of the studies on injecting drug use in prison were undertaken in high-income countries, but there are data from a number of low and middle income countries (see the table, supra, and Dolan et al., 2004; Dolan et al., 2007). For example:

- ▶ Rowhani-Rahbar, Tabatabaee-Yazdi & Panahi (2004) report that about 10% of Iranian prisoners are believed to inject drugs and more than 95% of them are reported to share needles.
- ▶ Injecting in prison is also believed to be a serious problem in prisons in countries in Eastern Europe and Central Asia. Evidence of this has been provided by studies undertaken in the Russian Federation (see the table, supra: Frost & Tscherkov, 2002; Drobniowski et al., 2005; Sarang et al., 2006), Ukraine (Zhivago, 2005), and Armenia (Weilandt, Eckert & Stöver, 2005). In Tajikistan, a rapid assessment among male and female prisoners showed that one third of the prisoners who reported ever having injected also reported injecting drugs in prisons. Among them, 40% reported using previously used needles and/or syringes (Godinho).
- ▶ There are reports of injecting drug use in prisons in Latin America (e.g., Mexico: Cravioto P et al., 2003) and Africa (e.g., Rapid Situation Assessment Mauritius, 2005; Adjei et al., 2006).

3.1.2 Starting to inject in prison

While studies have shown that many prisoners stop injecting in prison, they have also shown that a significant number of prisoners start injecting inside (Gore SM, Bird A, Ross A, 1995). In a national survey of Irish prisoners, Allright et al. (2000) found that 21% of prisoners who inject drugs reported that they had started to inject while in prison. Studies in other prisons have also reported high rates of initiation of injecting in prison, for example in Scottish prisons (Gore SM et al., 1995; Gore SM et al., 1997; Bird AG et al., 1997: 19% in one prison), Finland (Korte et al., 1998: 21.7%), Thailand (Thaisri et al., 2003: of 351 injectors, 15.9% initiated injecting while incarcerated), Russia (Frost & Tscherkov, 2002: 13.5%), Canada (Calzavara et al., 1997: 23%; Ford et al., 2000: 16%), and Australia (Dolan & Wodak, 1999). In other studies, the proportion of IDUs who started injecting in prison was somewhat lower (Bird AG et al., 1997: 4%; Bird AG et al, 1995: 6%; Power et al., 1992: 8% of a sample of male injectors in Scottish prisons). An overview prepared for the European Union reported that between 0.4% and 21% of IDUs started injecting in prison (EMCDDA, 2002).

In a national prison survey in England and Wales, Boys et al. (2002) found that more than a quarter of heroin users reported that they had initiated use of this drug in prison.

Gill, Noone, and Heptonstall (1995) have suggested that the observation that a large number of prisoners begin injecting in prison should be interpreted with caution, saying that men who are at risk of becoming injecting drug users may be at no greater risk of starting to inject in prison than outside.

3.1.3 Sharing of injecting equipment in prison

Studies show that those who inject in prison are typically much more likely to share injecting equipment than are drug injectors in the community (see **table 1**, supra). In many cases, the successful record of risk reduction in the community contrasts with fairly stable reports of high risk injecting and sharing in prison. One Australian study reported that six of the 36 prisoners who reported injecting and sharing when last in prison also reported that was the first time they had ever shared syringes (Crofts et al., 1995). In a study of injecting behaviour amongst a purposive sample of drug-users in Scottish prisons, 24% of those who were injecting prior to imprisonment reported sharing injecting equipment at that time. Of those who were still injecting in prison, however, 76% reported sharing equipment. Factors most closely identified with current sharing of injecting equipment in prison were: (a) having injected a wider range of drugs in prison (during both current and previous sentences); (b) frequency of Temgesic (buprenorphine) use (obtained on the black market); and (c) being prescribed methadone in the community, then having that prescription discontinued on entry to prison (Shewan et al., 1994).

Similarly, in a study in Ireland, almost three quarters of those who injected in prison reported that they had shared injecting equipment, compared to 45.7% in the month before imprisonment (Allright et al., 2000); and in a study in Australia, 52.1% of prison injectors, compared to 9.7% of community injectors, reported sharing injecting equipment (Kevin, 2000). Dolan et al. (1996) found that syringe sharing was much more common during imprisonment than before entry and after discharge and commented that “[i]mprisonment interrupted IDUs protection strategies exposing them to far greater risks of contracting HIV and other blood borne viral infections.” Sharing injecting equipment was particularly high among female prisoners (EMCDDA, 2002). Only one Canadian study found that rates of injecting with used needles were the same pre-incarceration as they were while incarcerated (Calzavara et al., 2003).

Sharing of injecting equipment in prisons resembles that occurring in shooting galleries in that numerous strangers share syringes randomly in prison (Dolan,

Wodak, Hall, Kaplan, 1998; Small, 2005). Generally, only friends or sexual partners share injecting equipment in the community (Dolan et al, 1996). The sharing that occurs in shooting galleries and in prisons is much more risky than other kinds of sharing and the difference is more pronounced when HIV prevalence is low (Allard, 1990). In prisons, interpersonal relationships and the possession of exchangeable resources determine access to scarce injecting equipment. The scarcity of syringes has resulted in patterns of sharing amongst large numbers of persons. In a study by Dolan et al. (1996), 51 respondents outside prison shared syringes with 144 others; in prison, 60 respondents reported sharing with a total of 1,144 IDUs. Such continual reuse of scarce syringes poses serious health hazards (Small et al., 2005).

A small number of qualitative studies has examined HIV risk associated with injecting and sharing in prisons (Taylor & Goldberg, 1996; Hughes, 2003; Small et al., 2005). They report that used syringes may circulate endlessly and are used by many prisoners, and that syringe sharing is difficult to avoid for prisoners who do inject because syringes are so scarce. Accessing syringes normally entails some form of payment unless a prisoner shares a close social relationship, like a friendship, with the owner. Ownership of injecting equipment can confer privileged position inside prison. It enables owners to levy a charge to others for the use of injecting equipment or trade drugs for the loan of injecting equipment. Trading leads to the sharing of equipment. Some prisoners discussed the health risks of sharing syringes and pointed to the large number of different individuals who are using the same syringe (Small et al., 2005):

Let’s think about the disease that can go around. I mean, I’m watching 15 guys fix off of one syringe. ‘How do you know out of 15 guys you’re sharing with, are you saying that none of them have it [HIV]?’

Some prisoners in the studies suggested that a prisoner may not disclose the fact that they are HIV positive, for fear that they would not be able to gain access to a syringe in future. The studies concluded that “syringe scarcity leads to syringe sharing and to elevated risk of blood-borne diseases transmission among inmates who continue to inject drugs” (Small et al., 2005). As stated by Hughes (2003),

The lack of sterile injecting equipment creates a need for drug injectors to repeatedly use injecting equipment, which raises serious concerns regarding the spread of infection.

Drug injectors recognise the risk of infection but still put themselves at risk despite the grim drug injecting environment.

3.1.4 Why injecting drug use in prisons?

Kevin (2000) has asked:

When considering the negative consequences of confinement, drug use seems to be an obvious inclusion. Does confinement drive inmates to drug use?

Shewan, Stöver & Dolan put it this way:

Are people who inject and share equipment in prison doing these things because they somehow have to, or because they want to?

According to Kevin, “[i]t could be reasonably argued that confinement is a predictor of drug use.” In fact, a qualitative study by Hughes & Huby (2000) found that drug use in prison is, at least partly, the product of a prison regime where drugs are used in an attempt to combat boredom and isolation. “It is important to recognise that the role of drugs in people’s lives provides a meaningful social and self-identity inside prison, alleviates boredom, and fills the void that the absence of constructive regimes leaves” (Hughes, 2003, with reference to Her Majesty’s Chief Inspector of Prisons for England and Wales, 1993; Hughes and Huby, 2000). According to Crofts (1997),

The boredom, frustration and hopelessness felt by many prisoners potentially contribute to drug use. Many prisoners have no investment in the future, which will probably contain little except unemployment, further drug use and further imprisonment... They may believe they have nothing to lose (and some escape to gain) from drug use.

To determine why individuals use drugs and whether the reasons are different for outside and inside prison, Calzavara et al. (1997) provided a list of 16 reasons and asked prisoners to indicate the extent to which each applied to them. The top reasons for doing drugs in the 12 months prior to the current incarceration included: “it makes me feel good”, “because I’m addicted”, and “a way to escape reality”. The top reasons for doing drugs in the past 12 months of incarceration included: “it makes me feel good”, “it makes the time pass easier”, “helps me deal with feelings of boredom”, “helps me escape reality”, and “because I’m addicted”. Drug use and injecting drug

use in the year prior to incarceration were both predictors of drug use in prison. Plourde & Brochu (2002) also found that the motives for drug use prior to and during incarceration were quite different: the majority of prisoners who had used drugs while in prison had used the drugs to relax (62%), while prior to incarceration they had used drugs primarily to forget their problems (38%) and to have fun (31%).

In a later study, Calzavara et al. (2003) found that independent correlates of drug injecting while incarcerated were injection of heroin (OR=6.4) or other opiates (OR=7.9) and not injected with used needles (OR=0.20) outside in the year prior to incarceration, and ever being incarcerated in a federal prison (OR=5.3).

Hughes (2003) suggested that a holistic policy approach should aim to, among other things, tackle the reasons why drug injectors enter prison; how their imprisonment can be reduced; why drug injectors’ need for illegal drugs is sustained in prison; and how integrated drug treatment strategies can be forged between prison and the wider community.

A few other studies have suggested that prison-based drug use has more to do with the nature of the population and their pre-prison behaviour than the prison environment (Kevin, 2000; Thomas & Cage, 1975).

Generally, however, there is agreement about the need for further research towards understanding why drug use exists in prison. Shewan, Stöver & Dolan emphasize:

To predict and respond to behaviours that concern us, we have to understand them. And, it must be admitted, as yet we don’t completely.

Where we are reasonably well-informed is on what happens with regard to drug use and injecting in prison. That many prisoners stay abstinent, or drastically reduce their drug use, and certainly a majority cease injecting while in prison. This is likely to be for a variety of reasons, such as reduced access to amounts and the range of drugs available, trepidation of losing remission, or it may simply be that these prisoners choose to reduce their drug intake and choose to avoid high risk behaviours. What is more difficult to understand is why some prisoners maintain or even increase their risk taking behaviour. ... This is a crucial area for designing and implementing drug services in prison.

Health Canada (2004) agrees: “Research studies lack more in-depth details regarding the motivations behind risk behaviours, which could aid in more effective planning and implementation of preventive measures. ... Future research should aim to identify the motivations of the prison population in engaging in high-risk conduct rather than elucidating specific behaviours and factors. This approach could help develop more tailored and effective prevention and intervention initiatives ...”

3.1.5 Injecting upon release

As shown above, many drug using prisoners, including injectors, will stop using drugs upon incarceration and are physically and behaviourally healthier while in prison than when in the community. But there is evidence of a high number of relapses (or taking up the old using patterns) and overdoses after this period of abstinence. In a study in the Netherlands, relapse to drug injecting during the week following release from prison was reported by 41% of study participants, in 82% of cases on the very day of release (Van Haastrecht, & Van Den Hoek, 1998). Strang et al (1998) reported that a majority of prisoners who had stopped injecting in prison said they “definitely intended to” or “would probably” inject when released. Shewan et al. (2001) examined chaotic and high risk injecting behaviour of prisoners on release from prison in a longitudinal study. They reported that there was an initial flurry of injecting behaviour on release, which became more variable over time. It has been suggested that “we should therefore be making considerably more effort to study the mechanisms of how and why the drug use is continued immediately after release by many if not most recently released prisoners with a history of problematic drug use” (Shewan, Stöver & Dolan).

3.2 Sexual activity

It is difficult to obtain reliable data on the prevalence of sexual activities in prisons because of the many methodological, logistical, and ethical challenges of undertaking a study of sexual activities in prisons. Sex violates prison regulations and sexual behaviour involves identity issues that often spur shame and a fear of homophobic violence from other prisoners (Mahon, 1997). Many prisoners decline to participate in studies because they claim not to have engaged in any high-risk behaviours (Health Canada, 2004, with reference to Pearson, 1995). This can result in low generalizability and underreporting. Prisoners who do participate may underestimate the incidence of sex because they are concerned with possible repercussions from fellow prisoners and correctional officers

(Saum et al., 1995; Rutter, 2001, with reference to Dolan, Wodak & Penny, 1995; Awafeso & Naoum, 2002; Health Canada, 2004). They may be embarrassed to admit engaging in sex with same sex partners for fear of being labeled as weak or gay, and they may fear the possibility of punitive measures. Even worse, admitting to having been raped in prison goes against the prisoner code whereby status and power are based on domination and gratification (Wooden & Parker, 1982). Only a small minority of victims of rape or other sexual abuse in prison ever report it to the authorities. Indeed, many victims – cowed into silence by shame, embarrassment and fear – do not even tell their family or friends of the experience.

Despite these challenges, the evidence from studies undertaken in prisons around the world is clear on one point: consensual and non-consensual sex do occur in prisons, despite laws or policies prohibiting sex, which have been difficult to implement or enforce (CDC, 2006).

3.2.1 Types and prevalence of sexual activity

Sexual activity in prisons takes place in a variety of ways. (For a summary of the information contained in this section, see the Evidence for Action Paper on *Effectiveness of Interventions to Address HIV in Prisons – Prevention of Sexual Transmission*).

3.2.1.1 Rape and other forms of sexual violence

Prisoner sexual violence is a complex continuum that includes a whole host of sexually coercive (non-consensual) behaviours, including sexual harassment, sexual extortion and sexual assault. It can involve prisoners and/or staff as perpetrators. Rape¹ in prison can be almost unimaginably vicious and

1 Although there is no general definition of rape in international human rights law, rape has been authoritatively defined as “a physical invasion of a sexual nature, committed on a person under circumstances which are coercive.” (Judgment, International Criminal Tribunal for Rwanda (ICTR), *Prosecutor v. Jean-Paul Akayesu*, Case No. ICTR-96-4-T (2 September 1998), para. 38. In the Akayesu decision, which involved a Rwandan official who encouraged the rape of Tutsi women during the genocide, the court went on to explain that: “coercive circumstances need not be evidenced by a show of physical force. Threats, intimidation, extortion and other forms of duress which prey on fear or desperation may constitute coercion.”) Also instructive is the definition of rape employed by the U.N. special rapporteur on rape during armed conflict. She describes rape as “the insertion, under conditions of force, coercion or duress, of any object, including but not limited to a penis, into a victim’s vagina or anus; or the insertion, under conditions of force, coercion or duress, of a penis into the mouth of the victim.” (Human Rights Watch, 2001, with reference to Report of the Special Rapporteur on systematic rape, sexual slavery and slavery-like practices during armed conflict, U.N. Doc. E/CN.4/Sub.2/1998/13 (22 June 1998), para. 24. Other forms of sexual abuse that falls short of rape – such as aggressive sexual touching – do not involve physical penetration.

brutal. Gang assaults are not uncommon, and victims may be left beaten, bloody and, in the most extreme cases, dead. Yet overtly violent rapes are only the most visible and dramatic form of sexual abuse behind bars:

Many victims of prison rape have never had a knife to their throat. They may have never been explicitly threatened. But they have nonetheless engaged in sexual acts against their will, believing that they had no choice. These coercive forms of sexual abuse are much more common than violent gang rapes and, for prison authorities, much easier to ignore (Human Rights Watch, 2001).

In addition to physical force, aggressors may employ several methods to control their victims, including entrapment (blackmail), pressure tactics and psychological manipulation (Kunselman et al., 2002).

Existence and prevalence of rape and other forms of sexual abuse

The existence and prevalence of sexual violence in prisons has been decried for a long time, but in many countries there has been little or no societal outcry for its victims, and consequently little action to address it (Struckman-Johnson & Struckman-Johnson, 2006). As early as in the 1820s, Rev. Louis Dwight, who investigated state prison conditions from Massachusetts to Georgia, denounced the large number of boys and young men who were subjected to sexual abuse (Dumond, 2006, with reference to Katz, 1976). One hundred years later, Joseph F. Fishman, who visited 1500 jails and prisons in the United States before 1920, confirmed the continuation of this practice (Fishman, 1934). He also reported that prison officials turned a blind eye to sexual abuses and that the predators responsible were often ignored by correctional officers. He also was one of the first to identify that the prisoner code prevents victims from reporting instances of sexual violence (Hensley et al., 2000).

Since the 1960s, a small but increasing number of studies have investigated sexual violence in prisons, and a much larger number of studies and reports have reported sexual violence (Dumond, 2006, with many references). The following are some of the most relevant findings:

- Most studies on incidence of sexual violence in prison have focused on male victims in the United States. A number of studies reported high rates of "sexual aggression" (11 to 28%), while report-

ing lower rates of "completed rape" of 1 to 3% (see, e.g., Davis, 1982; Lockwood, 1980; Nacci & Kane, 1983; Hensley, Tewksbury & Castle, 2003). Other studies reported even higher rates of sexual coercion (Struckman-Johnson & Struckman-Johnson, 2006, with many references), suggesting that prison rape is widespread and pervasive (see, e.g., Wooden & Parker, 1982). Lower rates were generally found in studies that used interviews (e.g., Lockwood, 1980; Nacci & Kane, 1983), whereas higher rates were found in studies that used anonymous surveys (e.g., Struckman-Johnson et al., 1996; Wooden & Parker, 1982). A meta-analysis of the research undertaken concluded (Gaes & Goldberg, 2004):

When we limit the studies to those that focus on assault or completed assault, the range is from 0 to 16 percent, although most of the prevalence estimates (typically lifetime prevalence) are 2 percent or less. When forms of pressure are included, the lifetime prevalence is 21 percent or less, although in at least one institution the result was 40 percent.

- Levels of sexual violence in some of the other Western countries in which research on the incidence of sexual violence has been undertaken seem to be lower than in the United States (for the UK, see O'Donnell, 2004, with many references; for Canada, see Correctional Services Canada, 1996; for Australia, see, e.g., Butler, 1997; Butler & Milner, 2001). One author has suggested that the higher levels in prisons in the United States may be explained by "higher levels of lethal violence in society, race relations and the attitudes of custodial staff" (O'Donnell, 2004).
- While most studies were undertaken in the United States and a few other Western countries, international prison research has revealed that sexual violence in prisons is of serious concern around the world (Human Rights Watch, 2001, with many references). A Kenyan human rights group, for example, included the following description in its report on prisons in that country:

[O]ne respondent reported an incident in which nine male juveniles were so badly sodomised by adult prisoners that their rectums protruded. ...Similarly it was reported that first offenders in Machakos prison are preyed upon by older inmates who will even resort to rape if the younger inmates refuse to submit. Other young inmates engage in homosexual relations with older inmates in exchange for protection

from the attentions of other prisoners (Kenya Human Rights Commission, 1996).

- ▶ Reports from many other countries include similar incidents (see, e.g., for the former Soviet Union: Moscow Center for Prison Reform, 1996, at 12; for the former Czechoslovakia: Helsinki Watch, 1989, at 31-33; for France: Welzer-Lang et al., 1996; for Australia: Heilpern, 1998; for Brazil: Human Rights Watch, 1998, at 117-118; for Venezuela: Human Rights Watch/Americas, 1997, at 54-55; for South Africa: Africa Watch, 1994, at 46; for the Philippines: Amnesty International, 2001; see also Observatoire international des prisons, 1996, at 139.
- ▶ Only a small minority of victims of rape or other sexual abuse in prison ever report it to prison authorities. Struckman-Johnson et al. (1996) found that only 29% of victimized prisoners had informed prison officials of the abuses they suffered. Similarly, Nacci & Kane (1983) found that only 32% of targets of sexual aggression had done something "official" to remedy the problem, while a 1988 survey of correctional officers in Texas found that 73% of respondents believed that prisoners do not report rape to officials (Eigenberg, 1989). Davis (1982) found that of an estimated 2,000 rapes that occurred, only ninety-six had been reported to prison authorities. Dumond (2006, with reference to many studies) explains why:

After an attack, a victim of prisoner sexual violence faces difficult decisions which increase the feelings of confusion and despair. The victim's response will profoundly affect his future life in prison. In some ways the victim is in a no-win situation. If the victim chooses protective custody, he risks further labeling, increased stigmatization, reduced programs and services, and the potential trauma of isolation itself. If he fights back to defend himself, he risks being labeled a troublemaker, being disciplined by staff, or being denied parole. If he chooses to "hook-up" with a "protector," he might avoid some future attacks, but he will likely become a long-term sexual slave forced to perform sexually with the "protector." If he remains in the general population, he may be further confronted by his attacker or others aware of the victimization.

- When correctional officials are asked about prevalence of rape in their prisons, they often claim it is an exceptional occurrence rather than a sys-

temic problem (Human Rights Watch, 2001).

- ▶ The extremely low numbers of rapes reported by prison officials contrast not only with the much higher prevalence found in academic surveys, but also with the estimates made by correctional officers on the subject. Studies to assess correctional officers' beliefs regarding prisoners' sexual victimization have uniformly found a high rate of prisoner-on-prisoner sexual abuse. For example, a 1988 study of officers in the Texas prison system found that only 9% of officers charged with the direct supervision of prisoners believed that rape in prison was a "rare" occurrence, while 87% thought that it was not rare (Eigenberg, 1989; the remainder were undecided). A 1996 study in Nebraska, United States, found that prison staff in three men's prisons estimated that 16% of male prisoners were being pressured or forced into sexual contact (Struckman-Johnson, 1996). The rates were slightly lower than those estimated by prisoners in the same facilities.
- ▶ Surveys of the prevalence of sexual coercion among **female prisoners** are rare (Kunselman et al., 2002). Most of the research on women's sexuality in prison has been on consensual behaviour (Gaes & Goldberg, 2004, with many references). In some of this research, "there is an indication of subtle coercion and cooptation, the fuzzy gray area between consensual and coerced sex inside of prison" (ibid). Studies in the United States that covered both men and women prisoners found a much lower rate of coerced sex among women than men (Struckman-Johnson et al. 1996; Struckman-Johnson & Struckman-Johnson, 2006). Sexual pressuring and harassment among women prisoners was more common than actual sexual assault, and a much greater proportion of acts was perpetrated by correctional staff (Alarid, 2000; Struckman-Johnson & Struckman-Johnson, 2006).

For more details on studies on incidence of sexual violence in prison, see **table 2** below.

Increased vulnerability of certain prisoners

As stated by Dumond (2006), [p]redators look for means, opportunity and vulnerability. They select targets who are least able to defend themselves; less believed by prison staff; are disliked by inmates and staff; and, easily ostracized.

- Research has demonstrated that certain prisoners appear to be at increased risk (Donaldson, 1995):w
- ▶ young and inexperienced prisoners;

- ▶ first time offenders;
- ▶ prisoners with mental illness or developmental disabilities;
- ▶ physically small or weak prisoners;
- ▶ prisoners known to be homosexual (Struckman-Johnson, Struckman-Johnson, 2006; Hensley, Tewksbury, & Castle, 2003; Man & Cronan, 2001/2002; Wooden & Parker, 1982);
- ▶ transgendered prisoners (Stop Prisoner Rape and ACLU National Prison Project, 2005);
- ▶ prisoners who appear effeminate, or not “tough” or “streetwise”;
- ▶ prisoners who are not gang affiliated; and,
- ▶ those previously sexually assaulted.

When victims are from a “suspect class” displaying characteristics that make them loathsome or unsympathetic, they may be unable to garner or secure the necessary support. Researchers have found that some officers are less likely to respond to incidents involving homosexual victims, or involving apparently consensual acts (see, e.g., Eigenberg, 1989: 27.1% of the officers reported that they would have difficulty believing homosexual rape victims.). Some officers even believe that certain prisoners deserve to be raped (ibid: “Most respondents ... believe that inmates who have consented to participate in prior sexual acts get what they deserve if they are subsequently raped by other inmates...”).

Impact upon victims

Although there is debate over the prevalence of sexual coercion in prisons, most researchers agree about its profound negative effects on men and women (Struckman-Johnson & Struckman-Johnson, 2006).

Lockwood (1980) was one of the first to document the severe effects of sexual aggression on male prisoners, including fear, anxiety, psychological disturbance, and suicidal ideation. Subsequently, several authors (see, e.g., Dumond and Dumond, 2002; Struckman-Johnson et al., 1996; Human Rights Watch, 2001) have described a cycle of victimization that includes a primary phase of physical injury, pain and suffering, and emotional responses of fear, anxiety, terror, and hopelessness. Secondary victimization includes the loss of status among the prisoner hierarchy, loss of self-esteem, and alienation from staff. Failure to disclose the incident can lead to depression and suicide (see, e.g., Wiggs, 1989; Wooden & Parker, 1982). All responses are intensified if the man is sexually assaulted again. The victim

may develop an inner rage that may manifest itself in aggression and violence toward others in the prison system and in the community on release.

Another potential, devastating consequence of prisoner-on-prisoner rape is the transmission of HIV. In one study, 44% of male prisoners who experienced sexual violence reported a fear of contracting HIV (Struckman-Johnson & Struckman-Johnson, 2006). Human Rights Watch (2001) reported that several of the prisoners interviewed by the organization believe that they have contracted HIV through forced sexual intercourse in prison. For example,

K.S., a prisoner in Arkansas, was repeatedly raped between January and December 1991 by more than twenty different inmates, one of whom, he believes, transmitted the HIV virus to him. K.S. had tested negative for HIV upon entry to the prison system, but in September 1991 he tested positive.

A number of studies have reported the effects of sexual coercion on imprisoned women (Struckman-Johnson et al., 1996; Struckman-Johnson & Struckman-Johnson, 2002; Human Rights Watch, 1996; Baro, 1977). One study compared outcomes in men and women, finding that men and women victims of sexual violence in prison are alike in that most felt distrust of other people, nervousness around others, and dislike of people getting close after the incident. Men and women were equally likely to report symptoms related to post-traumatic stress disorder, such as flashbacks and bad dreams and fears of repeat incidents. Men differed from women in that they were more likely to be worried about their reputation, to report a fear of contracting HIV, and to report feeling hateful toward others and acting violently toward others. Substantially more men had thoughts of suicide and attempted suicide (Struckman-Johnson & Struckman-Johnson, 2006).

3.2.1.2 Consensual same-sex activity

In addition to rape and other forms of sexual violence, consensual same-sex activity also occurs in prison. However, as has been pointed out, distinguishing coerced sex from consensual sex in prison can be difficult:

The existence of freely given consent or, conversely, the absence of coercion, is a critical factor in distinguishing sexual abuse from consensual sex. But in the context of imprisonment, much more so than in the outside world, the concepts of consent and coercion

are extremely slippery. Prisons and jails are inherently coercive environments. Inmates enjoy little autonomy and little possibility of free choice, making it difficult to ascertain whether an inmate’s consent to anything is freely given. (Human Rights Watch, 2001)

Some have called all sex that is bartered in exchange for items (such as food, drugs, or cigarettes), money, protection, or other reasons “exchange sex” (see, CDC, 2006), but this term glosses over the fact that some such sex may be consensual, while, for example, sex in exchange for protection rarely – if ever – is.

All forms of sex, even consensual sex, tend to be uniformly forbidden under prison disciplinary codes. However, consensual sex is seen as less of a threat to prisoner or institutional security than rape and other forms of sexual violence, and thus does not demand the attention of more violent behaviour (May and Williams, 2002, with reference to Saum et al., 1995; Awofeso & Naoum, 2002). Some such activity occurs as a consequence of sexual orientation. Zachariah et al. (2002) reported that prison does not modify the behaviour of men who have homosexual relations before imprisonment, and therefore does not significantly modify the risk of infection (if condoms are

accessible), except for their choice of partner (Niveau, 2005). However, most men who have sex in prisons do not identify themselves as homosexuals and may not have experienced same sex relationships prior to their incarceration. Freud differentiated between exclusive (obligatory) homosexuality and situational (facultative) homosexuality. The latter term applies to someone engaging in a sexual relationship with a person of the same sex, but whose sexual preference is for a person of the opposite sex. Temporarily, under conditions of deprivation, such as imprisonment, such persons may engage in same-sex behaviour (Awofeso & Naoum, 2002, with reference to Freud, 1905). Many prisoners do not think of their behaviour as homosexual if they are the penetrating partner (Johnson, 1971), or are reluctant to acknowledge any such practice. In studies, this often results in under-reporting of sexual activity in prisons (Mahon, 1997).

Nevertheless, studies from many countries in different regions of the world provide evidence that sexual activities are prevalent in prisons. Some of these studies report separately on prevalence of consensual and non-consensual sexual activities, while others simply report prevalence of “sexual activity”. These studies are summarized in table 2.

Table 2: Reported prevalence of sexual activities in prison²

Africa

Kenya	Kenya Human Rights Commission, 1996	This report describes several incidents of rape and other forms of sexual violence.
Mozambique	Vaz et al., 1995	In a cross-sectional study among 1284 male and 54 female prisoners in 4 correctional institutions of Maputo, 5.5% of the men reported having had sexual intercourse while in prison. In all but one instance this involved sex with another man.

2 There are many differences between the various studies that have been undertaken on the prevalence and type of sexual activities in prisons, making comparisons difficult (O'Donnell, 2004; Dumond, 2006; Gaes & Goldberg, 2004):

- Differences in definition. Possibly the most perplexing methodological issue in examining sex frequency and type among prisoners involves definitions of sex-related incidents.
- Differences in methods of data collection. Questionnaire surveys, interviews or scrutiny of medical and disciplinary records are all sometimes used.
- Differences in the source of data. Sometimes official records of incidents of sexual violence are used, sometimes other sources.
- Differences in time periods studied. Sometimes data are collected for any stage of any sentence, sometimes only the current period of imprisonment is considered relevant, and sometimes the focus is limited to a specific time frame.
- Differences in the type of institution studied i.e. from the dormitories of a minimum security prison to the isolation cells of a super-maximum security prison.

Despite these differences, the studies clearly demonstrate that sexual activities (both rape and other forms of sexual violence as well as consensual sex) occur regularly in prisons. Some of the studies clearly distinguish between consensual and non-consensual forms of sexual activity, while other do not, simply reporting prevalence of sexual activity.

Nigeria	Odujinrin & Adebajo, 2001	In a cross-sectional study of prisoners using an anonymous risk-factors identification questionnaire, 42.8% of respondents said they knew that homosexuality was the most prevalent sexual practice in the prison while 28.6% claimed there was no sexual practice and 13.1% feigned ignorance of any sexual practices in the prisons. 5.2% admitted having had sex in prison.
South Africa	Africa Watch, 1994	This report describes several incidents of rape and other forms of sexual violence.
Zambia	Simooya & Sanjobo, 2002	4% of prisoners agreed in one to one interviews that they had sexual relations with other men, but indirect questioning suggested that the true prevalence was much larger.

Asia and Pacific

Australia	Connolly and Potter, 1990	Estimates that 9% of prisoners in New South Wales prisons engage in sexual activity.
Australia	Wodak et al. 1991	In this study of male injecting drug users released from prison in New South Wales, 5% reported being raped while in prison.
Australia	Dolan et al., 1996	HIV-positive prisoners were significantly more likely to engage in sex than prisoners who were HIV-negative or of unknown HIV status.
Australia	Butler, 1997	A prisoner general health survey involving 538 randomly selected male and 132 female New South Wales prisoners found 6.3% of male prisoners and 15.2% of women prisoners had engaged in consensual sexual activity while in prison. 2.6% of male prisoners and 1.5% of women prisoners reported non-consensual sex.
Australia	Seamark et al., 1997	Estimates that 12% of prisoners in South Australian prisons engage in sexual activity.
Australia	Heilpern, 1994; Heilpern, 1998	Almost one quarter of male prisoners aged less than 26 years in New South Wales reported being sexually assaulted.
Australia	Dolan, Wodak, Hall, 1999	This study monitored the HIV risk behaviours of 181 prisoners attending New South Wales prison HIV educational courses, finding that 4% had engaged in anal sex and 8% in other types of sex while in prison.
Australia	Butler & Milner, 2001	A prisoner general health survey involving 747 randomly selected male and 167 female New South Wales prisoners found 2.4% of male prisoners and 20.4% of women prisoners had engaged in consensual sexual activity while in prison. 0.3% of male prisoners and 0% of women prisoners reported non-consensual sex.
India	Sharma, 2006	Reports that a study by M Srivastava of 1000 married male prisoners in prisons in Lucknow and Delhi found that 82% said they had or tried to have sexual relations with another male prisoner.
Thailand	Thaisri, 2003	In a prospective cohort of 689 male prisoners in a Bangkok central prison, more than 25% of prisoners reported ever having had sex with men, of whom more than 80% continued having sex, or started having sex, with men in prison during follow-up.

Central and Eastern Europe, and Central Asia

Armenia	Weilandt, Eckert & Stöver, 2005	2.9% of 542 prisoners reported sexual contacts with penetration with another man inside prison. 36% of the prisoners who reported sexual contact said that it was against their will.
Czechoslovakia	Helsinki Watch, 1989	This report describes several incidents of rape and other forms of sexual violence.
Hungary	Gyarmathy, Neaigus & Szamado, 2003	9% of 551 male and 81 female prisoners reported having had sex in prison.
Russian Federation	Albov & Issaev, 1994	In a survey conducted among 1100 male prisoners aged between 18 and 80 that had been in prison for 1.5 to ten years, only ten to 15% of the prisoners reported having had no sexual contacts while serving their term. The 8 to 10% of prisoners belonging to the "untouchables" or "underdogs" (Petukhi) ¹ had regular sexual activity with other men as passive partners. Many reported having oral and anal sex with 30 to 50 partners, while some only "served" a "small group" (10 to 15) of prisoners. 5 to 7% were involved in a long-standing homosexual relationship.
Russian Federation	Moscow Center for Prison Reform, 1996	This report describes several incidents of rape and other forms of sexual violence.
Russian Federation	Frost & Tchertkov, 2002	A study of 1044 prisoners found that 9.7% of prisoners had ever had sex in prison.
Russian Federation	Dolan, Bijl & White, 2004	10% of 153 prisoners in 2000 and 12% of 124 prisoners in 2001 reported having had sex in prison. There were some reports of "survival sex" (i.e. trading sex for money, drugs, goods or protection).
Slovakia	Stanekova et al., 2001	19% of female prisoners, 5.6% of adult males, and 8.3% of juvenile males in a pilot study reported homosexual contacts in prison, compared to 0%, 5%, and 10.3% outside prison, respectively.
Slovenia	Hren, 2005	19.3% of 456 prisoners reported being sexually active in prison.

Latin America

Brazil	Marins et al. 2000	In a study of 1,059 prisoners in 2 prisons, 66% of prisoners reported sex with female visitors, and 10% reported homosexual practices with other prisoners.
Brazil	Human Rights Watch, 1998	This report describes several incidents of rape and other forms of sexual violence.

North America

Canada	Correctional Service Canada, 1996	In Canada, 6% of federal prisoners surveyed in the mid-1990s reported sex with another prisoner. 3% reported having been sexually assaulted by another prisoner.
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Canada	Calzavara et al., 1997	37% of female prisoners reported to have engaged in homosexual activity.
Canada	Correctional Service Canada, 1999	A search of 9751 records of major and minor incidents recorded by prisons between January 1997 and May 1998 found 60 incidents involving either "muscling for sexual favours, unwanted sexual advances, or actual sexual assaults" by one prisoner on another.
Canada	DiCenso, Dias & Gahagan, 2003	37% of 156 female prisoners in the federal prison system reported being sexually active in prison.
United States ²	Kassebaum, 1972	In this early qualitative work, Kassebaum noted that female prisoners were sexually exploited by prison staff and other female prisoners. One case of violent gang rape by other prisoners was described.
United States	Lockwood, 1980	Found that sexual targeting – typically accompanied by violence – was frequent, though actual rape much less common. Based on interviews with 89 randomly selected prisoners, 28% had been the targets of sexual aggression at some point, but only one prisoner had been raped.
United States	Davis, 1982	The first empirical study of the issue, conducted in 1968. After interviewing thousands of prisoners and hundreds of correctional officers, as well as examining institutional records, Davis found that sexual assaults were "epidemic" in the Philadelphia system. "[V]irtually every slightly-built young man committed by the court is sexually approached within a day or two after his admission to prison," the author said. "Many of these young men are repeatedly raped by gangs of prisoners." Slightly over 3% of prisoners had been sexually assaulted over the 26 month period.
United States	Wooden & Parker, 1982	Based on data from anonymous questionnaires distributed to a random sampling of 200 members of a medium-security men's prison, in California, 65% of prisoners had experienced sexual contact and 14% had been forced into anal or oral sex.
United States	Nacci & Kane, 1983	Found that only one of 330 prisoners had been forcibly sodomized while in federal prison while two others had been forced to "perform a sex act". 29% of prisoners stated that they had been propositioned for sex, and 11% had been "targets of sexual aggression." The authors defined sexual aggression narrowly, only considering acts that involved physical violence.
United States	Tewsbury, 1989	Of 150 participants, 19.4% reported having had sexual contact with at least one other prisoner while in prison during the preceding year. Regarding coercive sex, 92.6% claimed to never have been approached in a forceful or threatening manner, and no prisoner admitted to having been raped. When prisoners were asked to estimate frequencies of sexual activities in prison, their estimates were much higher than the self-reported incidence rates. For example, respondents estimated that 14% of the prisoners had been raped while in prison.
United States	Saum et al., 1995	Among 101 participants, rape was reported by one and attempted rape by five prisoners through their lifetime incarceration histories. Overall, only 2% of the respondents reported that they had engaged in sex with other men during the previous year of incarceration, while 11.2% claimed to have had sex with females. The women involved were correctional officers, visitors or female inmates attending classes at the male prison.

EVIDENCE OF THE PREVALENCE OF RISK BEHAVIOURS IN PRISONS

United States	Struckman-Johnson et al., 1996	This study estimated that 22% of 486 men in Nebraska prisons had experienced at least one incident of pressured or forced sexual contact. Approximately 12% of these incidents were classified as rape (defined as involving forced oral or anal sex). Reported rates of sexual coercion among women prisoners were lower: 7% of 42 women in one prison reported an incident of sexual coercion. No incident qualified as a completed rape.
United States	Stephens, Cozza & Braithwaite, 1999	This study found that transsexual prisoners (n=31) were 13.7 times more likely than the other prisoners in the study (n=122) to have a main sex partner while in prison [95% CI=5.28, 35.58]. Moreover, they were 5.8 times more likely than non-transsexual prisoners to report having more than one sex partner while in prison [95% CI=2.18, 15.54]. The authors concluded that transsexual prisoners need to be protected from assault and battery, receive social and preventive support.
United States	Alarid, 2000	Qualitative data by Alarid suggested that sexual pressure and an occasional sexual assault were part of prison life for women.
United States	Struckman-Johnson & Struckman-Johnson, 2000	21% of 1788 men in seven mid-western prisons had experienced pressured or forced sexual contact, of which ten percent were classified as rape.
United States	Struckman-Johnson & Struckman-Johnson, 2002	In a study of Midwestern prisons, the authors found that 27% of 148 women in a maximum-security facility reported being sexually coerced, with 5% being raped. In facilities with less violent populations, 9% of 79 women and 8% of 36 women reported being sexually coerced. There were no completed rapes.
United States	Hensley, Tewksbury & Castle, 2003	Documented a 14% rate of sexual threats and a 1% 'completed rape' rate among 173 men in Oklahoma prisons.
United States	Hensley, Castle & Tewksbury, 2003	Found that 4% of 245 women in a southern prison had been sexually coerced by another female prisoner.
United States	Stephens et al., 2003	This study of a sample of male prisoners in a medium security prison suggested that prisoners who reported being treated for TB were more likely to have had sex with a man while in prison and to report that they had a main sex partner. They were also 1.15 times more likely to have had sex with a person from the transgender community and 2.53 times more likely to report being forced to have sex than those without a past history of TB treatment.
	Centers for Disease Control and Prevention, 2006	In this report about HIV transmission among male prisoners in Georgia, transmission was associated with male-male sex. 71% (n=48) of the prisoners who became HIV positive during incarceration and participated in interviews reported having sex in prison, compared to 16% of matched controls. 59% (n=40) reported any sex with other male prisoners, compared to 12% of matched controls, and 32% (n=22) reported sex with male prison staff. 16% (n=11) reported "exchange" sex and 9% (n=6) rape as victim, compared to 3% and 1% of matched controls.

	Kang et al., 2005	This study examined HIV risk behaviour in jail/prison among Puerto Rican injecting drug users in New York (NY, n = 300) and Puerto Rico (PR, n = 200), and its relationship with later drug and sex risk behaviours. During 3 years prior to interview, 66% of NY and 43% of PR samples were incarcerated at least once. In both sites 5% of participants reported engaging in sex inside jail/prison.
	Struckman-Johnson & Struckman-Johnson, 2006	The study yielded information on the largest sample of male and female victims of sexual coercion in prison to date. Of the 1788 male respondents, 382 (21%) answered 'yes' to the question asking if they had ever experienced an incident of pressured or forced sexual contact against their will while incarcerated. Of the 263 female respondents, 51 (19%) answered 'yes' to this question. Men reported that their perpetrators in worst-case incidents were prisoners (72%), staff (8%), or prisoners and staff collaborating (12%). Women reported that their perpetrators were prisoners (47%) and staff (41%). Greater percentages of men (70%) than women (29%) reported that their incident resulted in oral, vaginal or anal sex. More men (54%) than women (28%) reported an incident that was classified as rape.

Western Europe

Multi-country	Rotily et al., 2001	In a cross-sectional survey carried out in six European prisons (France, Germany, Italy, The Netherlands, Scotland and Sweden), 1% of 871 prisoners reported that they had ever had homosexual intercourse in prison.
England	Strang et al., 1998	Estimated that the proportion of the adult male prison population engaged in homosexual activity during their current sentence might be between 1.6% and 3.4%.
England	Turnball et al., 1992	Almost half of male prisoners who were sexually active reported engaging in anal sex.
England	McGurk et al., 2000	Interviewed 979 prisoners, aged 15 to 17 years, finding 3 reports (0.3%) of "unwelcome involvement in sexual activity" and the same number of seeing a prisoner "do something sexual to an unwilling" prisoner.
England	Edgar et al., 2003	Less than 2% of 590 prisoners said they had been sexually assaulted while in custody; 3% said they had been threatened with a sexual assault; and a further 2% said they had witnessed one. 76% said that sexual assault did not occur at all or that it was rare.
France	Welzer-Lang et al., 1996	This report describes several incidents of rape and other forms of sexual violence.
Ireland	Allright et al., 2000	20 of 1079 men who answered the question reported having had sex with another man while in prison.
Scotland	Power et al., 1991	A total of 559 male and female prisoners were interviewed out of a random stratified sample drawn from 8 prisons. 1 man and 3 women reported having had sex while incarcerated. In addition to the possibility of under reporting, the low rates of sexual activity were attributed to the unacceptability of anal intercourse in Scotland and the predominantly single-cell housing of prisoners.

3.2.1.3 Sex between prisoners and staff

Sexual activity occurs also between correctional staff and prisoners. Dumond (2006, with many references) summarizes some of the available research as follows:

Most correctional officers do not participate in such abusive behavior; yet a small minority of staff have inflicted serious harm on inmates. Correctional officers, administrators, mental health staff, support staff, teachers have all been identified as violating inmates sexually. In the last ten years in particular, it has become increasingly apparent that women in confinement face a substantial risk of sexual assault, most often by a small number of ruthless male correctional staff who use terror, retaliation, and repeated victimization to coerce and intimidate confined women. There is also ... new data regarding ... the large number of female prison staff responsible for staff sexual misconduct against male inmates.

In their recent, large study, Struckman-Johnson and Struckman-Johnson (2006) found:

Male inmates were most likely to be assaulted by other inmates who were nearly always male. However, about one fifth of the men were victimized by prison staff, who sometimes included female employees. Female inmates were about as likely to be victimized by other inmates (48%), who were nearly always female, as by staff (43%), who could be male or female.

These results underscore that "men and women in prison can be victimized by almost any person – male or female, inmate or staff – who can gain access to inmates" (ibid).

3.2.1.4 Conjugal visits

Some prison systems allow conjugal visits during which prisoners may engage in sexual activity with their partners. However, many systems remain opposed to this practice. Awofeso & Naoum (2002) explain why:

A major reason for the opposition to conjugal visits by custodial authorities is the potential for breaches of security. Since conjugal visits imply some degree of privacy between inmates and visitors, the risk of visitors smuggling illicit drugs and contraband through to inmates during such encounters is increased. Also, most

conservative custodial officers continue to oppose this initiative, ostensibly on security grounds, but more likely based on their moral or value judgment of what should constitute prisoners' rights and privileges. Furthermore, there are substantial political costs for any State administration that formalizes this initiative ... The political opposition is likely to misrepresent such an initiative as symptomatic of a 'soft' approach to crime prevention.

3.2.1.5 Factors influencing type and prevalence of sexual activity

A number of factors are believed to affect prevalence and type of sexual activity in prisons, including:

- ▶ the size of the prison and system (sexual activities tend to be more frequent in large systems that provide anonymity than in those where prisoners know each other's neighbourhoods and families);
- ▶ whether accommodation is single-cell or dormitory;
- ▶ whether prisons are overcrowded;
- ▶ whether proper prisoner classification policies exist, including among their goals the separation of dangerous prisoners from those whom they are likely to victimize, and the extent to which they are enforced
- ▶ the extent to which conjugal visits are allowed;
- ▶ whether prison policy or practice allows children and young people to be housed with adults;
- ▶ staffing levels and levels of supervision;
- ▶ the extent to which a prison contains difficult to monitor areas;
- ▶ the duration of the sentence;
- ▶ the extent to which prison authorities respond to complaints of rape and other forms of sexual violence, and more generally, the extent to which they demonstrate their commitment to prevent, investigate, and punish rape and other forms of sexual abuse (Jürgens & Bijl, 2001; Human Rights Watch, 2001).

3.3 Tattooing

Imprisonment and tattooing have long had a powerful association, a result of peer group pressure in prison, the desire to achieve and advertise group membership and status within and on release from prison, and boredom (Hellard and Aitken, 2004, with refer-

ence to Crofts et al., 1996; Awofeso and Williams, 2000; Awofeso, 2002; Post et al., 2001). According to research and the reports of prisoners, the appeal of tattooing involves (McDonough, 2001):

- ▶ a subjective means of expressing and outwardly affirming experiences attributed to the prison and the experience of incarceration, including boredom, acceptance, frustrations, powerlessness, rebellion, resistance, and commemoration;
- ▶ a way for prisoners to spend time together;
- ▶ a way of displaying both individuality and solidarity;
- ▶ a way of remembering;
- ▶ a way of affirming identity, freedom, and self-ownership;
- ▶ a way of expressing the internalization of prison culture's norms and values.

Nevertheless, tattooing is an illegal activity in most prisons. Therefore, neither tattooing equipment nor disinfection facilities are provided. Many prisoners therefore share tattooing equipment, which constitutes a risk of infection.

3.3.1 Risk of infection

Epidemiological studies have implicated tattooing as a risk factor for HCV infection (Post et al., 2001, with reference to Balasekaran et al., 1999; Ko et al., 1992; Holsen, Harthug, Myrmel, 1993; Kaldor et al., 1992; Neal et al., 1994; Sun et al., 1999). Possible transmission of HCV by tattooing has rarely been reported in the literature (Post et al., with reference to Abildgaard and Peterslund, 1991; Thompson et al., 1996; Sun et al., 1996).

In prison, however, several studies have found evidence linking tattooing to the transmission of blood-borne viruses. For the most part correctional facilities lack appropriate protocols for the safe administration of tattoos such as the proper use of equipment, sterilization facilities, and licensed tattooists (or trained

prisoners). Also, IDUs have a high number of tattoos, which at times are used to cover injecting drug use track marks (Health Canada, 2004, with reference to Long, 1994). These unsafe and unhygienic practices make tattooing in prison a proxy risk behaviour for the sharing of tattoo devices and subsequent HCV infection (Health Canada, 2004). For example, recent Australian research showed that having a tattoo in prison was an independent risk factor for HCV (Hellard, Hocking, Crofts, 2004). In addition, a number of studies have described cases of HCV transmission in prison in which tattooing was the most likely route of transmission, although injecting drug use or other behaviour that could have created a risk of HCV infection could not be completely discounted (for more details, see *infra*, chapter 4).

Whereas tattooing is not generally recognized as a risk factor for HIV, the possibility remains (Braithwaite et al., 1999). Doll (1988) reported two cases in which HIV was apparently transmitted by tattooing in prison, and a study of Thai prisoners demonstrated an independent association between tattooing and HIV positivity (Thaisri, 2003).

Tattooing may provide a link between non-injecting and injecting prisoners, thus enabling blood-borne infections to be disseminated.

3.3.2 Prevalence of tattooing

Studies from countries around the world report high levels of tattooing in prison, including among female prisoners (Butler, 1997; Dolan & Wodak, 1998; Smith et al, 1991; DiCenso, Dias & Gahagan, 2003). Furthermore, prisoners with a history of IDU have been found to be significantly more likely to receive a tattoo in prison than those without (e.g., Rotily et al. 1998; Martin et al. 1990, Dolan & Wodak, 1998). Many prisoners report sharing tattooing needles (Taylor, 1999: 68%) or say they are uncertain whether clean equipment was used (Hellard and Aitken, 2004). One French study reported that 8.9% of prisoners had a tattoo in the first 3 month of their being incarcerated (Rotily et al, 1998).

Table 3: Percentage of prisoners who received a tattoo in prison

Location	N	% tattooed	Reference
Russian Federation	1,044	26	Frost & Tchertkov, 2002
Russian Federation	153 (2000), 124 (2001)	42 19	Dolan, Bijl & White, 2004
Armenia	542	33.4	Weilandt, Eckert & Stöver, 2005
Zambia	1,566	17	Simoooya & Sanjobo, 2002
Canada	4,285	45	Correctional Service Canada, 1996
Canada	350	57 inside and outside prison; 11.1 in prison only	Ford, 1999
Canada	156 females (f)	27	DiCenso, Dias & Gahagan, 2003
Thailand	689	44.5	Thaisri, 2003
Australia	102 males (m)&f ? 384 m 648 m 128 f 201	38 40 11 35 15 58	Dolan & Wodak, 1998 Taylor, 1994 Dolan et al. 1999a Butler 1997 Butler 1997 Close, 1990
USA: New York	480 f	24	Smith et al. 1991
USA: New Mexico	455 m	82	Hull et al.1985
Spain	631 m	75	Martin et al. 1990
Spain	360 IDUs	91	Martin et al. 1990
Spain	271 non-IDUs	53	Martin et al. 1990
France, Germany, Italy, The Netherlands, Scotland and Sweden	871	18	Rotily et al. 2001b
Ireland	596	14.6	Long et al. 2001

3.4 Other risk factors

Several other behaviours represent risk factors for transmission of blood-borne infections in prisons.

Body piercing is prevalent in some prisons. In Canada, a survey of 4,285 prisoners revealed that 17% had been pierced in prison (Correctional Service Canada, 1995); and a survey of female prisoners in federal prisons showed that 16% (n=18 of 112) were engaging in body piercing in prison (DiCenso, Dias & Gahagan, 2003). A review of the findings of 12 different studies on the relationship between pierc-

ing and hepatitis transmission found that eight of 12 studies identified percutaneous exposure, including body piercing and ear piercing, as a major risk factor for viral hepatitis. Six studies found that hepatitis seropositivity was significantly associated with ear piercing (Hayes & Harkness, 2001).

Sharing of **razor blades** is commonly reported in developing countries and countries in transition, such as in Zambia, where 63% of 1,566 prisoners reported sharing razor blades (Simoooya & Sanjobo, 2002), Thailand (Thaisri, 2003), and Armenia (22.6%: Weilandt, Eckert & Stöver, 2005). Data about the

prevalence of sharing of toothbrushes in prisons could be located only in one study undertaken in Armenia, where 5.3% of prisoners reported sharing toothbrushes (Weilandt, Eckert & Stöver, 2005), but it also occurs in other countries and puts prisoners at risk of contracting blood-borne infections.

Exposure to human blood and body fluids through **fight**s, **assaults**, and **accidents** also has the potential for transmitting infections. Both prisoners and staff may be exposed to human blood or other body fluids as a result of assaults and fights, accidental needle stick injuries from hidden syringes, or when providing first aid. One Australian study indicated that about 10% of females and 5% of males engage in self harm in prison where blood is drawn (Butler 1997). A study of Canadian female federal prisoners showed that 9% (n=10 of 109) were engaging in slashing or other forms of self-injury (DiCenso, Dias & Gahagan, 2003). Another Canadian study found that 23% (9/39) of prisoners reported slashing while in prison (Calzavara et al., 1997). The motivations for slashing reported by participants were similar to those reported in a study of self-mutilation behaviours among prisoners in American correctional facilities (Shea & Craig-Shea, 1991). A study in Armenia showed that 5.2% of prisoners had taken part in blood sharing (brotherhood) rituals in prison (Weilandt, Eckert & Stöver, 2005). Fights and assaults are also common in prison, with reports of the proportion of prisoners suffering physical assaults from other prisoners ranging from 10% to 21% (Hellard and Aitken, 2004). While the risk of HIV transmission during violence appears to be small, there are case reports of prisoners contracting HCV from physical assaults, with two possible cases occurring in New South Wales in Australia (Haber et al., 1999). There has also been one report of a prison officer acquiring hepatitis C from a blood splash resulting from two prisoners fighting (Rosen, 1997).

3.5 Conclusions

There has been considerable research into behaviours that put prisoners at risk of contracting HIV and other blood-borne infections. However, as with data regarding HIV prevalence in prisons, much of the data comes from high income countries. Information about low and middle income countries is more limited.

In many countries, more thorough and systematic research would be useful to provide a more accurate picture of the current situation of risk behaviours in prisons. Nevertheless, the review demonstrates that

risk behaviours for HIV infection and other blood-borne infections are prevalent in most prison systems. In many prisons, *injecting drug use* is a reality and most prisoners who do inject will share injecting equipment, creating a serious risk of spread of infection. Prisons have the potential to decrease, as well as maintain, increase or reintroduce, high-risk drug using behaviour. *Sexual activity*, including *rape* and other forms of sexual violence, are also reported from prisons around the world, and put prisoners at risk of HIV and other sexually transmitted infections (STIs). Finally, *tattooing* and other activities, including *body piercing*, *sharing of razors* and *toothbrushes*, and *fight*s, *assaults* and *accidents*, occur in many prisons and put prisoners at risk of a variety of blood-borne infections.

In light of the existing data from systems around the world, prison systems everywhere should take action to avoid transmission of infection. Where information is lacking, systems can undertake rapid situation assessments to obtain a better picture of what exactly goes on in their prisons that puts prisoners at risk of HIV and other infections.

4. EVIDENCE OF THE RISK OF HIV AND HCV TRANSMISSION IN PRISONS

This chapter reviews the evidence of the risk of HIV and HCV transmission in prisons. It covers studies that demonstrated HIV and/or HCV transmission in prisons, as well as studies showing that imprisonment correlates with HIV and/or HCV and/or HBV infection.

4.1 Evidence of association of infection with HIV, HCV, and HBV among IDUs with history of imprisonment

A large number of studies from countries in most regions of the world have shown that a history of imprisonment is associated with prevalent and incident HIV and/or HCV and/or HBV infection among IDUs.

With regard to HIV infection, it was significantly associated with a history of imprisonment in a number of countries in Western and Southern Europe (including among female prisoners: Estebanez et al., 2000), but also in the Russian Federation, Canada, Brazil, the Islamic Republic of Iran, and Thailand (see table 4 for details about various studies). In a study of IDUs in various cities in the Russian Federation, Heimer et al. (2005) found that, in addition to HIV-positivity, TB-positivity, overdose, and abscesses were correlated with a history of imprisonment, and concluded that “reductions in imprisonment for drug-related offences are a public health and human rights priority.” Syringe sharing in prison was found to be the most important independent determinant of HIV infection in a number of studies, including in the Islamic Republic of Iran (Zamani et al., 2005). In Canada, an external evaluation of data from a study of IDUs in Vancouver (Tyndall et al., 2003) suggested that 21% of HIV infections among IDUs in Vancouver in 1996-2001 may have been attributable to infection during incarceration (Hagan, 2003).

Another Canadian study found that behaviours that can directly contribute to HIV infection (syringe lending and borrowing) were strongly and independently associated with reports of recent incarceration (Wood et al., 2005). Only one study, undertaken among women in Rhode Island, US, showed that time in the community – rather than in prison – places repeatedly incarcerated women at risk for HIV infection (Rich et al., 1999).

HCV infection was also significantly associated with a history of imprisonment in studies in a number of countries in Western and Southern Europe, as well as in Canada, Brazil, Australia, and the United States (Calzavara et al. 2005). This includes areas in which HIV prevalence and incidence is low among IDUs in the community and in prisons, but in which HCV rates are high and histories of incarceration are among the strongest associations with HCV seropositivity among IDUs, such as in Australia where it has been said that prisons are “key to the control of HCV” (Crofts, 1997). The odds of HCV infection increase with increasing frequency of incarceration, increased duration of each imprisonment, and an increase in the time between release and re-incarceration (Health Canada, 2004, with reference to Pallas et al., 1999; Butler et al., 1999; Malliori et al., 1998; Butler et al., 1997; Allright et al., 2000). In one study, individuals who were incarcerated more than five times were significantly more likely to become HCV positive (odds ratio of 21.7: Malliori et al., 1998). The chance of HCV positivity gradually increases with each additional month spent in prison (Gore et al., 2000). Prisoners re-incarcerated less than 5 years after their release show an odds ratio of 23 and a positivity value of 76.7% for HCV infection (Pallas et al., 1999). This increased risk is primarily the function of prisoners continuing to engage in high-risk injecting practices, such as sharing IDU paraphernalia with a large and homogenous cohort of prisoners (Health Canada, 2004).

Association of HIV infection among IDUs with history of imprisonment: The Thai example

In Thailand, incarceration has been known to be a risk factor for HIV infection among IDUs for over a decade (Choopanya et al., 1991, 2002; Kitayaporn et al., 1994, 1998).

Indeed, it has been said that the first epidemic outbreak of HIV in the country likely began among IDUs in the Bangkok prison system in 1988. HIV infection among IDUs rose from two percent to 43 percent between 1987 and 1988. The increase closely followed, and is believed to be due to, the release of hundreds of prisoners (including many IDUs) in an amnesty on the King's birthday (Wright et al, 1994).

The first risk assessment among a large cohort of Bangkok IDUs found only two risk factors to be independently associated with HIV infection: having shared needles with two or more individuals in the previous 6 months and having been in prison (Choopanya et al., 1991). Controlling for all other risks, Bangkok IDUs with a history of prison were about twice as likely to be HIV-infected as those who had never been jailed. In terms of absolute risks, 70% of all IDUs in this study had been incarcerated at least once, and 80% of all those with HIV infection had ever been jailed.

Later studies by other groups have confirmed this ongoing association, including a study conducted by Kitayaporn et al. (1998) in 1995, which concluded that Bangkok IDUs continue to be at high risk for HIV infection related to needle sharing and incarceration; and a more recent report of HIV infection rates during incarceration, measured at 35/100 person-years at risk (95% CI 21.2, 55.2) among jailed Bangkok IDUs (Choopanya et al 2002). This is strong evidence of a causal relationship between incident HIV infection and incarceration.

In another cohort of IDUs in Bangkok, people who injected while incarcerated had a higher incidence of HIV infection (35.3 per 100 person years of observation) than those who had been incarcerated but had not injected (11.3 per 100) and those who had not been incarcerated (4.9 per 100). The authors concluded that the "great risk associated with incarceration warrants special attention. Although the risk associated with incarceration is not fully characterized, it is likely that a large proportion of this risk results from the sharing of drug injection equipment in settings where access to clean syringes and needles is severely limited" (Vanichseni S et al., 2001).

In 2003, another study once again reaffirmed the association between incarceration and HIV infection among Thai male and female injecting drug users (Beyrer et al., 2003). The study concluded that prisons remain a very high risk environment for Thai drug users. Finally, a case-control study of Thai convicts showed sharing needles while in holding cells prior to incarceration significantly increased HIV infection risk (Buavirat et al, 2003). 51% of HIV-positive former prisoners reported injecting heroin during approximately one week in a holding cell, compared with 31% during a median incarceration time of 52 weeks in prison. This was the first study to pinpoint excess risk during the holding period before incarceration, and confirms the hypothesis that high risk exposures such as borrowing needles and injecting drugs with multiple partners in the holding cell are probably attempts to alleviate the severe symptoms of drug withdrawal (Buavirat, Sacks, Chiamwongpat, 2003b).

4.2 Evidence of association of tattooing in prison with HBV, HCV, and HIV infections

Receipt of a tattoo in prison has been associated with *HBV and HCV infections* in a number of studies (Hellard, Hocking, & Crofts, 2004; Samuel et al., 2001), while other early studies have not reported such an association (Health Canada, 2004, at 143, with reference to Long and Rickman, 1994). In studies in Spain (Estebanez et al., 1990) and Thailand, independent risk factors for prevalent *HIV infection* included being tattooed while in prison (Thaisri, 2003; Buavirat et al., 2003). One study found that prisoners with a single tattoo had an odds ratio of 5.4 with an 11.6% HCV seropositivity rate, and among those with multiple tattoos the odds ratio was 9.2 with a 16.7% positivity rate (Health Canada, 2004, with reference to Ko et al., 1992).

4.3 Studies and reports of HIV and HCV transmission in prisons

As early as 1986, HIV transmission in prisons was reported (Gauney & Gido, 1986). In the same year, the first of a small number of studies of HIV transmission in prisons was published (Kelley et al., 1986).

4.3.1 HIV outbreak investigations

The strongest evidence of extensive HIV transmission in prison has emerged from a number of documented

outbreaks in prisons in Scotland, Australia, Lithuania and the Russian Federation. Two of these outbreaks have been investigated extensively. One additional potential outbreak was investigated in Canada, but no effort was made to establish evidence of transmission. Outbreaks have also been reported from other countries, but little information is available about them.

Outbreak of HIV infection in a prison in Scotland

Prompted by several acute cases of HBV infections that had been observed in the prison, Taylor et al. (1995) investigated an outbreak of HIV in Glenochil prison, Scotland in 1993 (see table). Before the investigation began, 263 of the prisoners who had been at Glenochil at the time of the outbreak had either been released or transferred to another prison. Of the remaining 378 prisoners, 227 were recruited into the study. Recruitment ranged from 26% to 51% across 11 subunits at Glenochil. Anecdotal reports suggest that many prisoners who were not recruited were injectors from one particular subunit where injection was prevalent (Scottish Affairs Committee, 1994). Of the 227 prisoners recruited, 76 reported a history of injection and 33 reported injecting in Glenochil prison. Twenty-nine of the latter were tested for HIV, with 14 testing positive. Thirteen had a common strain of HIV and it is therefore proven that they became infected in prison. All IDUs infected in prison reported extensive periods of syringe sharing (Taylor & Goldberg, 1996; Yirrell et al., 1997).

HIV Outbreak in Glenochil Prison

	Prisoners	%
Prisoners when outbreak occurred	645	100
In Glenochil at study outset	378	59
Recruited	224	35
History of injecting	76	12
Injected in Glenochil	33	5
Tested for HIV	29	4.5
Tested HIV-positive	14	2.2
Same strain of HIV	13	2.0

A follow up study 12 months after the outbreak estimated that up to 20 prisoners had become infected (Gore et al., 1995). The Scottish Affairs Committee speculated on the extent of the outbreak in Glenochil prison after discussions with prison medical officers. The Committee assumed that, if prisoners who declined testing were as likely to be injectors and to have become infected as prisoners who were tested, the total number of prisoners infected during the outbreak could be between 22 and 43 (Scottish Affairs Committee, 1994).

Outbreak of HIV infection in an Australian prison

Epidemiological and genetic evidence was also used to confirm an outbreak of HIV in an Australian prison. Criteria for establishing that HIV infection had indeed occurred in prison included: HIV-antibody test results, documented primary HIV infection assessed by a panel of HIV experts, time and location in prison, risk behaviour in prison, and genetic relatedness of HIV sequences obtained from respondents. Attempts to trace 27 IDUs resulted in 21 being located. Of these, six had died of AIDS and two declined to participate for fear of repercussions for transmitting HIV. 13 were enrolled. Overall, it was concluded that infection occurred in prison for 4 subjects and in the community for two. The location of infection for the remaining seven could not be determined. 11 participants reported syringe sharing in prison, two also reported receiving a tattoo in prison, and one also reported unprotected anal sex. The authors concluded: "Our study found a relatively large number of incident cases considering the small sample size, the extremely low prevalence of HIV infection in the Australian prison population and the rapid turnover of inmates. All these factors militate against detection of HIV transmission in prison" (Dolan & Wodak, 1999).

Outbreaks of HIV infection in prisons in Lithuania and the Russian Federation

There also are reports of outbreaks of HIV infection in prisons in Lithuania (Caplinskas & Likatavicius, 2002; Caplinskiene, Caplinskas & Griskevicius, 2003; MacDonald, 2005) and the Russian Federation (Bobrik, 2004).

In Lithuania, sharing of needles and syringes in one of the country's 14 penal establishments – Alytus correctional facility – resulted in a rapid HIV outbreak. Between 17 May and 20 June 2002, the Correctional Affairs Department and the Lithuanian AIDS Centre carried out a survey at the prison and identified 207 cases of HIV-positive prisoners. The

survey was repeated in July 2002 and a further 77 prisoners were identified as HIV-positive. 44 of these 77 prisoners had been found to be HIV-negative during the previous survey in May 2002. In total, during the period between May and August, 299 new HIV-positive cases were identified. The cause of this HIV outbreak was established to be a result of injecting drug use in the prison (MacDonald, 2005).

A similar outbreak was also documented in a correctional colony in Tatarstan in the Russian Federation, where 260 prisoners became HIV-infected in 2001 (Bobrik, 2005).

Potential outbreaks in prisons in Canada

In Canada, an evaluation of HIV/AIDS harm reduction measures in the federal prison system reported about three incidents within the federal prison system in which the threat of HIV transmission was judged to be high. In one incident, a prisoner, known to be positive for HIV and HCV was sharing a needle, and twenty prisoners came forward for testing. Test results indicated that some tested positive for HIV and HCV. No effort was made to establish proof that transmission of infection had occurred in prison, but the evaluation noted that another outbreak was under investigation and that "these results are likely representative" and that "these episodes can occur in any location, at any time" (Correctional Service of Canada, 1999).

HBV outbreak in prison in the United States

An outbreak of HBV (CDC, 2001) and ongoing HBV transmission (Khan et al., 2005) at a state correctional facility was documented in the United States.

Other reports of outbreaks

There have been a number of outbreaks of HIV in Indonesian prisons and two outbreaks of HIV in prisons in the Islamic Republic of Iran (Dolan et al. 2004).

4.3.2 Reports of transmission of HIV or HCV in prison

In addition to the evidence from the outbreak investigations, there are a number of reports of HIV and HCV infection in prison.

As early as 1986, a report was published identifying six HIV-positive prisoners in New York who had been incarcerated without interruption before infection became prevalent in their communities (Gauney and Gido, 1986). However, the evidence was only suggestive of HIV infection in prison and there was no indication of the extent of transmis-

sion as no denominator was provided. In Australia, one prisoner was reported to have tested negative after six years in prison in 1987 and then tested positive while incarcerated without interruption. Medical files confirmed his report of severe symptoms were consistent with primary HIV infection (Dolan et al., 1994). This can be regarded as a definite case of HIV infection occurring in prison. In Bavaria, Germany, Langkamp (2000) reported one case of a seroconversion in prison. In the United States, May and Williams (2002) reported that from 1985 through 1988, the state of Nevada tested approximately 13,000 prisoners upon entry and exit to the prison system and found 12 (0.09%) prisoners had seroconverted (with reference to Gendney, 1999). In interviews with the 12 prisoners who seroconverted, all reported using a needle at least once during their incarceration. All denied sexual activity.

Well-documented evidence exists for STI (Alcabes & Braslow, 1988; Puisis, Levine & Mertz, 1998; Smith, 1965; Van Hooven, Rooney & Joseph, 1990; Wolfe et al., 2001) and HBV (CDC, 2001) intra-prison transmission resulting from sexual contacts among prisoners in the United States, the Russian Federation (Bobrik, 2005), and Malawi (Zachariah et al., 2002).

Cases of HCV seroconversion among prisoners were reported as early as 1993 in Maryland, United States. In a study of 265 male prisoners, a relatively low seroconversion rate for HCV of 1.1/100 PY (two seroconverters) in prison was found (Vlahov et al., 1993). The authors hypothesized that a possible explanation for the low seroconversion rate could be related to a saturation of the susceptible population, with reports of HCV prevalence of 85% within the IDU community the prison draws from. The study by Vlahov et al. also did not provide unequivocal evidence that HCV transmission did in fact occur within prison. However, later studies in Australia (Haber et al., 1999 (4 cases; two subjects had a history of IDU, the other two subjects had histories of possible exposure by physical assault and barber shears); Post et al., 2001; O'Sullivan et al., 2003 (4 cases attributed to high-risk needle-sharing in prison)) and the United States (Tsang, Horowitz & Vugia, 2001) have provided very strong evidence that transmission did occur in prison.

An Australian study documented a very high incidence rate for HCV of 41/100 PY among young men who inject drugs and re-entered prison within the study period (Crofts et al., 1995). However, the proportion of infections that occurred in prison could not be determined.

A high incidence rate for HCV was also documented:

- among prisoners in a medium security prison for males in Denmark: 25/100 PY (1–140) – some of the transmissions definitely occurred in prison, but for others transmission outside the prison could not be excluded (Christensen et al., 2000);
- among prisoners in a long-stay Scottish prison: for prisoners who reported never having injected drugs, ever having injected drugs, having injected drugs during follow-up, and having shared needles/syringes during follow-up, HCV incidences per 100 person-years of incarceration risk were 1, 12, 19, and 27, respectively (Champion et al., 2004); and
- in the Russian Federation, where the incidence of hepatitis C in penal institutions in 2002 was reported to be 26.5/100,000, almost 4 times higher than in the population of Russia at large (Bobrik, 2005).

Hepatitis C seroconversions were observed in a Canadian prison for women, prompting an investigation into the factors that may lead to transmission of infections in the prison (Elwood Martin et al., 2005). Langkamp (2000) reported that two prisoners in a prison in Nuremberg, Germany, may have been infected during the course of their detention, one of them in a “blood brother” ritual, and that one case of seroconversion was found among 213 prisoners in two prisons in which prisoners were systematically examined on their release.

In contrast, a French study did not detect any seroconversion for HCV, but stressed that the finding “should be interpreted with caution due to the particular detention conditions at the prison involved” (Arrada et al., 2001). A low incidence rate for HCV was also found in a study of 446 prisoners incarcerated for 12 months or more in a prison in Rhode Island, United States (0.4 for HCV and 0 for HIV: Macalino, 2004). Taylor et al. (2000) found that over a 6-year follow-up period, new HCV infections occurred primarily within the community rather than in prisons.

Finally, there is one documented case of a sheriff in a prison in Oregon, United States, contracting HCV by a conjunctival splash while breaking up a brawl between two prisoners (Rosen, 1997).

4.3.3 Studies of HIV transmission

Apart from the above-mentioned outbreak investigations and reports, demonstration of HIV transmission in prison has proven to be remarkably difficult.

The most common methodology used to study HIV incidence in prison has been repeated mass screening of prisoners, usually on entry and annual follow-up.

Another methodology used in the early stages of the HIV epidemic was to undertake studies of prisoners incarcerated for very lengthy periods. The extensive duration of imprisonment suggested that it was highly unlikely that the prisoners could have acquired HIV infection before imprisonment and still be alive. However, the main shortcoming with these studies was that the denominator for the number infected was unknown and so rates of transmission could not be estimated.

In a review of early studies, Dolan (no date) considered evidence of HIV transmission in prison from studies in three ways: (1) on the strength of methodology to demonstrate transmission; (2) on the extent of transmission that may have occurred; and (3) on aspects of the study design that may have influenced the results. Most of these studies were undertaken in the United States, early in the epidemic, and were undertaken among prisoners serving sentences of more than 1 year (Kelley et al., 1986; Brewer et al. 1988; Horsburgh et al., 1990; Castro et al., 1991) and more than 5 years (CDC, 1986; Mutter et al., 1994). Most of them found relatively low HIV incidence (0-4%), as did a more recent study in the United States (Macalino et al., 2004). Because the researchers failed to control for a window period of at least 6 months, the findings are somewhat inconclusive in that it is not possible to be certain any of the prisoners actually contracted HIV inside prison. The prisoners who seemingly contracted HIV in prison could have contracted the virus prior to entering prison. Similarly, a number of prisoners in the sample might have contracted the virus in prison and it did not show up on the screening upon exit, due to the potential 6-month window period (Krebs and Simmons, 2002). Therefore, many studies failed to prove conclusively that transmission had occurred in prison and concluded that such transmission was rare (for more details, see **table 5**: Studies of HIV and HCV transmission in prison).

Another, more recent study employed a unique design engineered to overcome some of the complications encountered by the other studies. It val-

idly documented that HIV has been transmitted in prisons in an unnamed southern state in the United States and estimated that a minimum of 33 (0.63% of sample) and a maximum of 238 prisoners contracted HIV inside prison. Significantly, the study estimated that 49% of the 33 prisoners contracted HIV by having sex with another man. Only 18% were estimated to have contracted HIV via injecting drug use (15% had both risk factors, and 18% had other risk factors: Krebs & Simmons, 2002).

In Brazil, Diaz et al. (1999) used a less sensitive enzyme immunoassay testing strategy to identify recently infected persons in a Brazilian prison. A total of 113 of 846 (13.4%) prisoners tested HIV-positive. Of 78 HIV-positive prisoners for whom serum was available for testing using the sensitive enzyme immunoassay testing strategy, 5 had recent infections, probably acquired within the prison. The annual HIV incidence rate among susceptible prisoners was estimated at 2.8% per year (95% CI: 2.4 – 3.4% per year). Also in Brazil, a study by Osti et al. (1999) reported that 73 prisoners who initially tested HIV-negative in a study of 693 male prisoners were retested five and seven months after the initial test, and that three of them seroconverted, suggesting that infection with HIV had occurred after imprisonment.

A study undertaken in Germany was able to document seroconversions among 41 of 1,032 prisoners who underwent at least two tests for the same disease (HIV, hepatitis A, B, and C, and syphilis) while in prison; of these, 20 prisoners had definitely contracted hepatitis infections while in prison: 8 HCV, 13 HBV, and 5 HAV. HIV transmission could not be documented (Keppler, Nolte, Stöver, 1996; Keppler & Stöver, 1999).

4.3.4 Other evidence of transmission: mathematical models

Two studies that employed mathematical modeling techniques estimated the potential for HIV to spread among prisoners. The first study estimated the number of prisoners in England with a history of IDU, the number who continued injecting in prison, and the proportion of the latter who shared syringes. The prevalence of HIV and the number of syringes in circulation were taken into account. The study estimated that 2% of sharers would become infected each year, resulting in 62 prisoners becoming infected in England each year (Medley, Dolan and Stimson, 1992). The second study developed a mathematical model to estimate HIV incidence in prisons in New South Wales, Australia. Based on two earlier

studies undertaken in prisons in New South Wales, the model took into account duration of imprisonment; number of prisoners using each needle; lower and higher number of shared injections per IDU per week; proportion of IDUs using bleach; efficacy of bleach; HIV prevalence and probability of infection. The study estimated that the minimum (and maximum) number of IDU prisoners infected with HIV in New South Wales prisons was 38 (and 152) in 1993 (Dolan, Wodak, Hall, Kaplan, 1998).

While acknowledging that these figures require confirmation by seroincidence studies, the authors pointed out that mathematical models are especially useful in prison environments because it is difficult to accurately measure HIV incidence in a population with such a high turnover.

More recently, in Brazil, mathematical techniques were applied to estimate time-dependent incidence densities of HIV infection among prisoners. The analysis was based upon the results of a cross-sectional survey carried out in a sample of 631 prisoners of a major penitentiary institution of Sao Paulo. The use of mathematical techniques "raised the suspicion of active HIV transmission inside the prison" (Burattini et al., 2000). Incidence density ratio derivation showed that the risk of acquiring HIV infection increases with the time of imprisonment, peaking around three years after incarceration (Burattini et al., 2000; Massad et al., 1999)

4.4 Conclusions

There is a large and growing body of evidence from many countries that HIV transmission in prison is a major public health concern that necessitates the implementation of evidence-based HIV prevention programmes in prisons.

1. A number of studies have provided conclusive evidence of HIV and HCV transmission in prison.

The infrequency of reports of HIV and HCV transmission has led some to a belief that transmission occurs rarely among prisoners (Braithwaite et al, 1996; Horsburgh, 1990) . A more likely explanation is that confirmation of transmission is more difficult in prisons than community settings (Dolan, Wodak, 1999; Maguire et al., 1995).

Ascertaining whether transmission occurred in prison or in the community prior to entry is complicated when infections such as HIV and HCV have long incubation periods. Determination of HCV transmission is further complicated by the fact that infec-

tion does not usually result in acute illness. While it is difficult to gather conclusive evidence, transmission does occur in prison and there is increasing evidence that HIV and HCV transmission in prison is a major public health concern, particularly where there is a substantial pool of infection in the community from which prisoners come, risk behaviours are prevalent in prison, and prevention measures are not available to prisoners.

The small number of retrospective and prospective studies undertaken in the United States found relatively low levels of HIV transmission in prisons, but many of them were conducted before 1986, early in the HIV epidemic, when rates of HIV were relatively low, and/or in States in which HIV infection rates are generally relatively low; it is therefore not surprising that they found lower rates of transmission.

In contrast, studies that used mathematical models and particularly outbreak investigations found higher levels of HIV transmission and demonstrated how rapidly HIV can spread in prison.

A number of studies have also provided conclusive evidence of HCV transmission in prison. Transmission was attributed to sharing of injecting equipment (O'Sullivan et al., 2003; Haber et al., 1999), lacerations from barbers shears and lacerations arising from physical assault (Haber et al., 1999), tattooing (although injecting drug use could not be completely discounted as the route of transmission: Post et al., 2001), and a blood splash to the eye (Rosen, 1997).

2. In many countries, the predominant mode of transmission in prisons is injecting drug use.

As described above, in chapter 3.1, there is evidence that injecting drug use is prevalent in prisons in many countries. In the vast majority of prisons where prisoners do not have access to sterile injecting equipment, this inevitably leads to high levels of sharing of injecting equipment. Particularly where levels of infection among injecting drug users are already relatively high, there is evidence that this can lead to outbreaks of HIV infection in prisons such as they have occurred in a number of countries, including the Russian Federation (Bobrik, 2005) and Lithuania (Caplinskas & Likatavicius, 2002; Caplinskiene, Caplinskas & Griskevicius, 2003; MacDonald, 2005). Because sharing of injecting equipment is such an efficient way of transmitting HIV and, particularly, HCV, large numbers of prisoners can, however, also become infected when prevalence of HIV is relatively low in prisons, such as in the prisons in Scotland and Australia where intramural HIV transmission was documented.

3. There is evidence of transmission of HBV, HIV, and STIs through sexual activity in prison.

Well-documented evidence exists for STI intra-prison transmission resulting from sexual contacts among prisoners in the United States (Alcabes & Braslow, 1988; Puisis, Levine & Mertz, 1998; Smith, 1965; Van Hoeven, Rooney & Joseph, 1990; Wolfe et al., 2001), the Russian Federation (Bobrik, 2005), and Malawi (Zachariah et al., 2002). The US Centers for Disease Control and Prevention also reported an outbreak of HBV in a US state prison, where self-reported data showed that 20% of the cases were the result of sexual contact among prisoners (CDC, 2001).

In one US study of HIV transmission in prison, sex between men accounted for the largest proportion of prisoners who contracted HIV inside prison. It estimated that 49% of 33 prisoners for whom it could be proven that they contracted HIV in prison contracted it by having sex with another man. Only 18% were estimated to have contracted HIV via injecting drug use (15% had both risk factors, and 18% had other risk factors: Krebs and Simmons, 2002). In another study, of HIV transmission among male prisoners in the state prison system of Georgia, male-to-male sex in prison was significantly associated with HIV seroconversion during incarceration (CDC, 2006; Wohl, 2006). Macher, Kibble, and Wheeler (2006) documented acute retroviral syndrome in a prisoner after he had intercourse with two HIV-positive prisoners.

In prisons in which levels of injecting drug use are low or where injecting drug use does not occur, this is likely the primary way in which HIV and STIs are transmitted.

4. HCV has likely been transmitted through tattooing in prison.

Epidemiological studies undertaken in the community outside prison have implicated tattooing as a risk factor for HCV infection, but possible transmission of HCV by tattooing has rarely been reported in the literature (Post et al., 2001, with references), and such reports of possible transmission through tattooing (Abilgaard & Peterslund, 1991; Thompson et al., 1996; Sun et al., 1996) did not document HCV seroconversion.

Two studies, one in Australia (Thompson et al., 1996) and one in the United States (Tsang, Horowitz & Vugia, 2001), have each described a case of HCV transmission in prison in which tattooing was the most likely route of transmission, although inject-

ing drug use or other behaviour that could have created a risk of HCV infection could not be completely discounted.

5. Apart from one documented attack on a prison staff resulting in HIV transmission, there are no confirmed cases of HIV infection among staff attributed to contact with prisoners.

No confirmed cases of HIV infection among prison staff have been attributed to contact with prisoners (Kantor, 2006; CDC, 1986), with the exception of an early report from Australia of seroconversion and subsequent death of an officer in Australia who was injected by an infected prisoner with a syringe full of his own blood (Jones, 1991).

A sheriff in a prison in Oregon, United States, contracted HCV by a conjunctival splash while breaking up a brawl between two prisoners (Rosen, 1997).

6. Transmission of HIV and other bloodborne infections may occur through the use of non-sterile equipment during medical procedures in prison.

Because of the severe underfunding of prison health-care services in many countries, HIV and HCV transmission may occur through the use of non-sterile equipment during medical procedures – despite the fact that no documented transmission has been reported. Prison health services must have adequate material and resources available to ensure that such transmission does not occur (WHO, 1993, para 25).

7. In a large number of countries, a history of imprisonment has been associated with HIV infection among IDUs.

HIV infection among IDUs has been associated with a history of imprisonment in a large number of countries.

In high prevalence contexts, a large number of studies shows that a history of incarceration is an independent risk factor for HIV positivity, including among female prisoners (Estebanez et al., 2000). But even countries with lower documented HIV prevalence among IDUs such as England (Edwards et al., 1999), Scotland (Goldberg et al., 1998), Australia (Dolan & Wodak, 1999), and Germany (Stark et al., 1997) have reported associations between injecting practices and HIV prevalence in prisons.

Although these studies are only suggestive of transmission having occurred in prison, they indicate that the extent of transmission can be potentially considerable.

Most of the studies are on male prison populations or do not report results separately by gender, but a few studies concern female prisoners (Estebanez et al., 2002). Many have found that seropositivity increases with the number of times individuals are incarcerated. Nevertheless, the temporal sequence is difficult to establish since IDUs who are seropositive may have a higher probability of incarceration or IDUs who are incarcerated may have a higher probability of acquiring HIV infection while in prison or after release from prison. The observed association between imprisonment and infection may be due to risk behaviour in prison or a consequence of an association between history of imprisonment and chaotic lifestyle, which may in turn be a surrogate marker of injecting risk behaviour.

Despite these limitations, these studies provide some evidence to support the conclusion that HIV is spreading in prisons.

8. In a large number of countries, incarceration has been associated with HCV prevalence.

This could be due to a number of reasons. Selection probably leads to a high HCV prevalence among prisoners. Since a history of IDU is the most consistent and predominant risk factor for HCV seropositivity, the concentration of HCV infected individuals in prisons is most likely due to the incarceration of persons who inject illegal drugs (Macalino et al. 2004).

Many studies also implicate either a history of previous imprisonment or multiple imprisonments as a statistically significant correlate to HCV infection (see supra). In their review of published studies on HCV in incarcerated populations, Macalino et al. (2004) explain this as follows:

One explanation for this risk association is that more risky users have an increased probability of acquiring HCV infection. For example, users who engage in IDU at greater levels are more likely to be imprisoned multiple times and for longer sentences. It is important, however, that this association could be confounded by the length of time an inmate was using injection drugs, thus having a greater opportunity to be incarcerated for drug-related crimes.

An alternative explanation is that the association between HCV prevalence and a history of incarceration suggests that imprisonment may be an independent risk factor for contracting hepatitis C infection. While incarcerated, inmates are susceptible to trauma due

to fights, the sharing of razors, and tattooing with unsterile equipment, where blood-to-blood contact may occur. HCV prevalence has been associated with tattooing, commercial barbers, body piercing, and local folk medicine practice in studies done in other countries [references deleted]. ... These studies were all done in non-incarcerated populations, and one could speculate that the risk of HCV transmission could be higher in prisons since the necessary "equipment" might be at a premium.

In particular, having a tattoo in prison has been identified as an independent risk factor for being HCV positive (Hellard, Hocking, Crofts, 2004). It may present a substantial risk for transmission of HCV because of the use of improper equipment, sharing tattoo devices, lack of sterilization facilities, and the high prevalence of HCV infection among prisoners (Tsang, Horowitz & Vugia, 2001). Post et al. (2001) have suggested that large, prospective studies with meticulous assessment of confounding risk factors may be required to effectively assess the association between tattooing and primary HCV infection in prison.

Sexual transmission of HCV may also potentially occur in the prison setting, although overall HCV transmission by sexual activity is much less efficient (Macalino et al. 2004, with reference to MMWR, 1998). The greatest potential for HCV transmission in prison, however, would be the sharing of injecting equipment (Macalino et al. 2004).

9. Under certain conditions, imprisonment increases the risk of HIV and HCV infections.

The possibility that imprisonment is a risk factor for HIV (and HCV) transmission has been much debated, even though the association between imprisonment, use of injecting drugs, and the transmission of another bloodborne virus, HBV, was recognized more than 30 years ago (Gill, Noone, Heptonstall, 1995, with reference to Wallace, Milne, Barr, 1972).

According to many authors, "it is generally accepted" that confinement conditions increase the risk of HIV and HCV infections (Burattini et al., 2000; Hellard and Aitken, 2004; Rowhani-Rahbar A, Tabatabee-Yazdi A, Panahi M, 2004). Burattini et al. (2000) say: "In addition to confinement, other risk factors like marginal social status, drug addiction, low socioeconomic level and precarious health services contribute to the observed high prevalence of HIV, hepatitis, syphilis and tuberculosis, to name a few. This represents a

potential public health problem in the sense that the penal system acts as a concentrator of those infections and as a spreading focus for the population at large." According to Hellard and Aitken (2004), there are two reasons why transmission risks in prison are higher than in the community. First, in many countries, many prison entrants have histories of injecting drug use, and thus already have high prevalences of blood-borne viruses. Second, the lack or under-supply of preventive measures in most prisons, combined with extreme social conditions and consequent prisoner behaviour, creates extra opportunities for transmission of infections. For example, reports of syringe sharing with multiple injectors are still common in prisons but now generally uncommon in community settings. Thus, multiple and powerful factors conducive to high HIV incidence are found in many prisons. Crofts (1997) summarizes the point as follows: "Prisons take people from diverse settings who would not otherwise meet, create the opportunity to spread bloodborne viruses among them and then send them back to their original social networks as potential sources of infection."

Pointing out that many injectors stop injecting in prisons, some have however suggested that imprisonment may reduce the overall risk of HIV transmission (McKee and Power, 1992). For example, Smyth (2000) hypothesizes that "injectors who inject in prison tend to do so unsafely, but as so many injectors cease injecting during their sentence, the incidence of infection (and other adverse effects such as accidental overdose) drops among the total population of imprisoned injectors." Similarly, Gill, Noone, and Heptonstall (1995) suggest that, although those who inject in prison are more likely to share equipment, they inject less frequently, prison geography may limit the size of sharing networks, and imprisonment interrupts injecting for most. In addition, they suggest that differences in the course of infectivity of HIV, HBV, and HCV could substantially affect the relative risks of transmission of these viruses in prison, increasing those for HBV and HCV while reducing HIV risk. They conclude that the effect on HIV transmission could, however, be quite different given an influx of entrants with acute HIV infection or a steady increase in the proportion of imprisoned IDUs in the later stages of HIV infection.

Commenting mainly on the situation in the United States, Spaulding et al. (2002) say that "most inmates with HIV infection acquire it in the outside community: prison does not seem to be an amplifying reservoir." They say: "Although the possibility of intraprisoon spread of HIV is a concern, "extraprisoon

spread" is a greater threat, because risky sexual behaviour and parenteral drug use are more common in the community than in prison. Rather than being an incubator, the correctional facility may be a relatively safe haven." One study in the United States demonstrated that time in the community places repeatedly incarcerated women at risk for HIV infection (Rich et al., 1999). The rate of HIV acquisition in community-based, high-risk cohorts indicates that the risk of transmission increases, rather than decreases, on release from prison. "Risk-reduction programs designed to maintain safe behaviors are important to prevent an inmate from acquiring HIV on release" (Spaulding et al., 2002).

Based on the review of studies from around the world, in *some contexts*, imprisonment may indeed decrease the overall risk of blood-borne pathogen transmission. Although IDUs who continue to inject in prison are at higher risk of contracting blood-borne illnesses due to increased sharing of needles, the number of individuals who are injecting may be substantially less. However, even in such contexts, prisoners still represent a population at high risk of contracting HIV and other blood-borne illnesses with significant potential for prevention.

More importantly, studies have shown that imprisonment can increase the risk of HIV and/or HCV infections in prisons. Whether imprisonment in a particular prison leads to decreased or increased risk of HIV and/or HCV infection will depend on factors including, but not limited to, prevalence of infection in the particular prison, prevalence of risk behaviours (injecting drug use, sexual activity, and tattooing, but also activities such as sharing of toothbrushes and razors, and fights) and availability of preventive measures (such as condoms and sterile injecting equipment, but also individual razors etc). Efforts to reduce transmission in prison therefore need to focus on reducing the prevalence or frequency of risk behaviours (eg, through programmes to reduce prevalence of rape or through low-threshold substitution therapy for people dependent on opioids); the risk of infection; and the number of prisoners at risk of infection (eg, through diversion programmes).

In many prisons in a large number of countries, HIV and/or HCV infections are prevalent and a high number of prisoners engage in high-risk behaviours. Under such circumstances, imprisonment may play a large role in the overall epidemic, as has been suggested by some studies (Hagan, 2003; Choopanya et al., 1996). In contrast, where few transmissions occur, this may be due, at least in part, to the success

of prevention efforts in the community that result in low rates of HIV infection among prison entrants and thus reduce, but not eliminate, risk of infection in prison. Commenting on the situation in Australia, Crofts (1997) has said: "Despite the opportunities for transmission by injecting drug use, there has been very little transmission of HIV in Australian prisons. However, this is not because conditions are not right for such transmission. It is because there is very little HIV among prison entrants as a result of harm reduction programs in the general community."

There are some indications that HCV incidence is likely to be particularly high in many prisons. HCV is endemic among prisoners in many countries. A number of cases of transmission have been reported. In addition, several studies have found that a history of imprisonment is significantly associated with HCV infection. Prisons bring people who are at relatively low risk of infection on the outside together with a large number of people living with HCV. In prison, HCV may be spread not only through injecting drug use, but also to prisoners not considered at risk on the outside, through activities such as sharing of razors or toothbrushes, or fights. As Crofts (1997) has put it: "Prisons are key to [the control of the HCV epidemic]; without rational approaches to the twin problems of injecting drug use and of HCV transmission in prisons, the epidemic will continue."

In conclusion, the studies reviewed in this chapter show that there is no room for complacency about the risks involved and illustrate the vulnerability of prisoners to infection with bloodborne viruses.

10. There are several ways to study HIV transmission in prison

In many countries conclusive evidence of HIV transmission among prisoners is needed before adequate prevention measures will be implemented. If the cooperation of prison authorities can be secured,

then examination of medical files may reveal cases of HIV and/or HCV transmission having occurred in prison. New cases of blood-borne viral infection can be followed up, as in the outbreak studies described in this chapter. Alternatively, a short-term cohort study could be undertaken among prisoners who would be tested regularly for infection.

If co-operation from prison authorities cannot be secured, ex-prisoners – in particular, HIV- and/or HCV-positive ex-prisoners – can be studied. It may be possible to gain access to their prison medical files if subjects are willing to provide consent.

Gore & Bird (1998) used existing data on HCV prevalence, injection-related HCV transmission and needle use in prisons and new data on infectiousness, to estimate the size of a study required to detect injection-related HCV in UK prisons. They pointed out that adequate design and power of these studies is important because of the complacency that could result from false negative findings. They suggest six risk-factor themes that studies should document.

Knowing how big the risk of intraprisson HIV and HCV transmission is, how transmission occurs, and who is at risk are essential pieces of information when designing any infectious disease education and prevention strategy. Data that document the burden posed by HIV transmission in prisons could garner support for intensified prevention efforts. "Current correctional policies seem to be based on the assumption that HIV is not transmitted inside prison. Data proving otherwise might alert the public to this potentially serious social problem and ultimately encourage policy reform, which may result in fewer HIV transmissions both inside and outside prison. Additional research is needed to convince people that preventing HIV transmission inside prison is more than a correctional health issue; it is a public health concern" (Krebs and Simmons, 2002).

Table 4: Association of HIV, HCV, and HBV among injecting drug users with a history of imprisonment

Eastern Europe

	Study	Finding
Russian Federation	Heimer et al., 2005	In this study of 826 injecting drug users in various cities in the Russian Federation, 44.8% reported ever having been to prison. Four health factors were correlated with imprisonment (HIV-positive; TB-positive, overdose and abscesses), while three were not (STIs, HBV and HCV).

Latin America

Brazil	Varella et al., 1996	In this study of 82 male transvestites imprisoned in Sao Paulo, the factors associated with significant differences in positivity were the time spent in prison and the number of sexual partners during the previous year.
Brazil	Kallas et al., 1998	In this study of 780 prisoners in Sao Paulo, multivariate logistic regression analysis identified previous incarceration as an independent risk factor for HIV seropositive.
Brazil	Marins et al., 2000	In this study of prevalence and risk factors for HIV among 1059 prisoners, the number of previous incarcerations (1 compared to 0) (<i>OR</i> = 1.7, 95% <i>CI</i> 1.07–2.7) was an independent predictor of HIV.
Brazil	Guimaraes et., 2001	In this study of 779 prisoners of a prison in Sao Paolo, a time of current imprisonment longer than 130 months and previous incarceration at the same prison were associated with a positive anti-HCV serological test.
Brazil	Hacker et al., 2005	609 active/ex-injecting drug users were recruited from different communities, interviewed, and tested for HIV. Among male long-term injectors, “to have ever injected with anyone infected with HIV” (<i>Adj OR</i> = 3.91; 95% <i>CI</i> 1.09-14.06) and to have “ever been in prison” (<i>Adj OR</i> = 2.56; 95% <i>CI</i> 1.05-6.24) were found to be significantly associated with HIV infection.

North America

Canada	Tyndall et al., 2003	In this study of injecting drug users in Vancouver, having been incarcerated in the last six months was independently associated with a markedly elevated incidence of HIV infection
Canada	Hagan, 2003	This external evaluation of the data in Tyndall et al. (2003) suggested that 21% of HIV infections among injecting drug users in Vancouver between 1996 and 2001 may have been attributable to infection during incarceration (Hagan, 2003).
Canada	Wood et al., 2005	Behaviours that can directly contribute to HIV infection (syringe borrowing and lending) were strongly and independently associated with reports of recent incarceration
Canada	Calzavara et al., 2005	Having a previous federal incarceration was found to be a risk factor significantly associated with HIV and HCV infection among adult prisoners in the Ontario provincial prison system.
United States	Fox et al., 2005	In this study of HCV infection among prisoners in the California state correctional system, independent correlates of HCV infection among both injecting drug user and non- injecting drug user prisoners included cumulative time of incarceration.

Pacific, South and South-East Asia

	Study	Finding
Australia	Butler et al., 1997	Among prisoners entering the New South Wales correctional system, multivariate analysis identified previous imprisonment as a significant predictor for HCV infection
Australia	Butler et al., 1999	Multivariate analysis identified injecting while in prison as a major risk factor for HBV, and institutionalization as a factor for HCV.
Australia	Van Beek et al., 1998	A history of imprisonment was found to be an independent predictor of HCV seroconversion; HCV incidence was substantially higher among injecting drug users who had been imprisoned (60,8/100 person years) than those who had not (12,5/100 person years) .
Australia	Hellard, Hocking, Crofts (2004)	HCV-positive prisoners were more likely to have injected drugs (OR 29.9) and to have injected drugs in prison during their current incarceration (OR 3.0); injecting drugs whilst in prison during this incarceration was a risk factor for HCV.
Australia	Gates et al., 2004	A history of prior imprisonment was a risk factor associated with HCV infection.
Islamic Republic of Iran	Zamani et al., 2005	Among male injectors visiting treatment centres in Tehran, a history of shared injection inside prison (adjusted odds ration (OR, 12.37; 95% CI, 2.94-51.97) was the main factor associated with HIV-1 infection.
Thailand	Choopanya et al., 1991	Bangkok injecting drug users with a history of prison were about twice as likely to be HIV-positive as those who had never been jailed.
Thailand	Kitayaporn et al., 1998	Concluded that Bangkok injecting drug users continue to be at high risk for HIV infection related to use of non-sterile injecting equipment and incarceration.
Thailand	Vanichseni et al., 2001	In a cohort of injecting drug users in Bangkok, people who injected while incarcerated had a higher incidence of HIV infection (35.3 per 100 person years of observation) than those who had been incarcerated but had not injected (11.3 per 100) and those who had not been incarcerated (4.9 per 100). The authors concluded that the "great risk associated with incarceration warrants special attention. Although the risk associated with incarceration is not fully characterized, it is likely that a large proportion of this risk results from the use of non-sterile injecting equipment in settings where access to clean syringes and needles is severely limited."
Thailand	Beyrer et al., 2003	This study reaffirmed the association between incarceration and HIV infection among Thai male and female injecting drug users.

Western Europe

England & Wales	Weild et al., 2000	Presence of anti-HCV was associated with injecting drug use inside prison and number of previous times in prison
France	Richardson et al., 1993	Imprisonment associated with HIV infection.
Germany	Stark & Muller, 1993; Muller et al., 1995; Stark et al., 1995a; 1995b; 1997	The use of non-sterile injecting equipment in prison was the most important independent determinant of HIV infection among a sample of injecting drug users in Berlin, and also an important determinant of HBV and HCV infection.

	Study	Finding
Greece	Malliori et al., 1998	The use of non-sterile injecting equipment in prison, and multiple imprisonments are the most important risk factors for HCV infection in injecting drug users.
Greece	Koulierakis et al., 2000	In this study among prisoners in 10 Greek prisons, logistic regression analysis suggested that total time in prison, previous drug conviction, being a convict (as opposed to on remand) and having multiple female sexual partners 1 year before incarceration were significant HIV risk behaviour correlates. For every year of imprisonment, the risk of injection in prison increased by about 17% [OR = 1.17 (95% CI: 1.07-1.27)]
Ireland	Allright et al., 2000	Time in prison over the past ten years and the use of non-sterile injecting equipment while in prison associated with HCV positivity. Concluded that "being in prison in Ireland may be an independent risk factor for contracting hepatitis C infection."
Italy	Babudieri et al., 2005	Frequency of imprisonment and tattoos were associated, respectively, with HIV and HCV positivity in a sample of prisoners from 8 Italian prisons.
Scotland	Davies et al., 1995	HIV infection was significantly associated with being imprisoned among a city-wide sample of injecting drug users in Edinburgh who had injected in the previous 6 months.
Scotland	Champion et al., 2004	Ever having injected drugs (relative risk= 13.0, 95% CI: 1.5, 114.3) and having shared needles/syringes in prison (relative risk= 9.0, 95% CI: 1.1, 71.7) were significantly associated with HCV seroconversion in prison.
Scotland	Seaman & Bird, 2001	No conclusive effect of incarceration on risk of HIV infection was found, but there was a suggestion that imprisonment might have been a significant relative risk factor for infection after risk behaviour among drug users in the community was reduced, due to introduction of NSPs.
Spain	Estebanez et al., 1990	Seropositivity increases with the number of times individuals are incarcerated.
Spain	Granados et al., 1990	Imprisonment associated with HIV infection.
Spain	Anon et al., 1995	HCV correlated with duration & number of imprisonments.
Spain	Pallas et al., 1999	Reincarceration and long-term injecting were the foremost risk factors for HBC-HCV and for HIV-HBV-HCV co-infection among injecting drug using prisoners.
Spain	Martin et al., 1998	Multiple incarceration histories and long-term imprisonment associated with higher risk of HIV infection.
Wales	McBride et al., 1994	HCV associated with history of imprisonment.
Multi-centre	Estebanez et al., 2000	In a multicentred, cross-sectional study undertaken in a population of female injecting drug users recruited from a variety of settings in Berlin,, London ,Madrid, Paris and Rome, factors independently associated with HIV prevalence in the regression analysis included previous imprisonment (OR = 1.4).

Table 5: Studies of HIV and HCV transmission in prison

Study	Respondents	Results	Limitations
Centers for Disease Control, 1986	Prisoners who had been imprisoned in Maryland, USA, for at least 7 years	HIV testing was offered in 1985. Approximately one-third of inmates accepted testing. Of these, two (1%) tested HIV-positive. Both had been incarcerated for nine years.	The unknown effect of selection bias was acknowledged by the authors. The possibility that the prisoners were infected before entering prison cannot be excluded. The extent of reported transmission was very low, but the study sampled only long-term prisoners and the extent of transmission may have been underestimated.
Mutter, Grimes, Labarthe, 1994	Medical files of all 556 prisoners in the Florida Department of Corrections who had been continuously incarcerated for the past 14 years were examined.	HIV test results were recorded in the files of 87 inmates. Of these, 18 were HIV-positive. Eight of the inmates were still asymptomatic at the end of 1991, after 14 years in prison, and it was assumed that they were probably infected in prison. The authors concluded that the intraprison HIV transmission rate for this group was 21%. This appears to be a very high rate of transmission.	The authors fail to emphasize the level of selection bias in the sample. Many of those tested may have volunteered for testing because they knew they engaged in high-risk HIV transmission activities. Regardless of the reasons for testing, the group of prisoners represents anything but a random sample, and selection bias may have inflated the intraprison HIV transmission figure (Krebs and Simmons, 2002). In addition, some individuals are known to have been infected with HIV and be asymptomatic for more than 15 years. Therefore, the evidence of infection occurring in prison can be said to be strong but not conclusive. Again, as in study one, the sample consisted of long-term prisoners who are probably at lower risk.
Keppler, Nolte, Stöver, 1996; Keppler & Stöver, 1999	1032 health records in a prison for women in Vechta, Lower Saxony, Germany were examined.	Records of prisoners who underwent at least two tests for the same disease (HIV, hepatitis A, B, and C, and syphilis) were examined to determine whether seroconversion had occurred during uninterrupted prison sentences. For 41 IDUs, seroconversion could be documented; of these, 20 (48.8 percent) had definitely been infected while in prison.	

Study	Respondents	Results	Limitations
Diaz et al., 1999	846 prisoners in a prison in Brazil	A less sensitive enzyme immunoassay testing strategy was used to identify recently infected prisoners. 113 of 846 (13.4%) prisoners tested HIV-positive. Of 78 HIV-positive prisoners for whom serum was available for testing using the sensitive enzyme immunoassay testing strategy, 5 had recent infections, probably acquired within the prison. The annual HIV incidence rate among susceptible prisoners was estimated at 2.8% per year (95% CI: 2.4 – 3.4% per year).	While infection in prison was probable, it could not be excluded that it occurred outside.
Kelley et al., 1986	913 prisoners in a US military maximum-security prison	1% of the prisoners was HIV-positive in 1983. Some segregation of HIV-positive prisoners occurred in the prison. Repeated testing of 542 prisoners who remained incarcerated found no cases of HIV seroconversion.	The sample was atypical of prison populations, with an underrepresentation of drug offenders (15 percent) and an overrepresentation (38 percent) of sex offenders. As these proportions in the general prison population are usually reversed, it would be unwise to generalize to other prisons. In addition, prisoners in maximum security often have limited opportunities to associate with other prisoners and to engage in risk behaviours. Dolan ("State of the Art") concluded that "although no evidence of HIV transmission emerged, the extent to which generalizations can be made from a maximum security military prison to prisons with different security levels or with a civilian population is unclear."
Horsburgh et al., 1990	1069 inmates in Nevada	Repeated testing in 1985 found that three inmates had seroconverted in prison, for a seroconversion rate of 1 per 604 prisoners, or 0.17% annually. The authors of the study concluded that HIV transmission among inmates was rare in Nevada (Horsburgh et al, 1990).	The 3 seroconverters had spent a relatively short time in prison when they last tested negative for HIV infection, and some of them may have been infected prior to imprisonment. Prisoners on short sentences were under-represented and, consequently, incidence may have been under-represented.

EVIDENCE OF THE RISK OF HIV AND HCV TRANSMISSION IN PRISONS

Study	Respondents	Results	Limitations
Brewer, 1988	393 prisoners in Maryland	393 prisoners were tested twice in 1985. Two prisoners who had seroconverted in prison were detected. The seroconverters had spent 60 and 146 days in prison when they had last tested negative for HIV infection. The annual rate of transmission was estimated to be 0.41%. Using the results of this study, Hammett et al. (1993) calculated that up to 60 new cases of HIV infection were occurring annually in the Maryland prison population.	It was not possible to determine with certainty that the prisoners had contracted HIV behind bars, although this was probable. Another limitation is that prisoners who refused to participate or were missed at follow-up were significantly more likely to have committed a drug offence, to be black, or to have received sentences of less than five years. As these characteristics were associated with HIV infection at entry, it is likely that those most at risk of HIV infection were underrepresented in the study.
Castro et al., 1991	2,390 entrants to Illinois prisons	HIV prevalence among prison entrants was 3.9% in 1989. After one year in prison, seven prisoners had seroconverted, translating into an annual intraprisson transmission rate of 0.3%.	The evidence of transmission in prison was strong, but acquisition of infection prior to incarceration could not be excluded. The study relied on mass screening of prisoners serving sentences of at least one year, meaning that short-term prisoners were excluded.
Krebs & Simmons, 2002	A sample of prisoners from an unnamed southern state in the US, between 1978 and 2000.	Rather than testing prisoners and coping with the inevitable difficulties of conducting a controlled longitudinal analysis, the study relied on existing data and a backward-looking longitudinal design, which naturally accounts for a 6-month window period and tracks a sample of prisoners for a 22-year research period beginning 1 January 1978 and ending 1 January 2000. The study estimated that a minimum of 33 (0.63% of sample) prisoners contracted HIV inside prison. Significantly, it estimated that 49% of the 33 prisoners contracted HIV by having sex with another man. Only 18% were estimated to have contracted HIV via injection drug use (15% had both risk factors, and 18% had other risk factors).	The figure was conservative for a number of reasons. First, there were likely numerous prisoners (up to 238) who contracted HIV inside prison, but tested positive for HIV only after returning to the community. Second, a number of prisoners from the original sample likely have HIV but have never been tested. Finally, the estimate is conservative because much of the time the sample spent in prison was during the early to mid-1980s when rates of HIV infection were relatively low. The authors concluded that, regardless of the conservative nature of the estimate, it validly documents that HIV has been transmitted in prison.

Study	Respondents	Results	Limitations
Macalino et al., 2004	446 prisoners incarcerated for 12 months or more at the Rhode Island Adult Correctional Institute	The study observed intake prevalence for 4,269 sentenced prisoners between 1998 and 2000: HIV (1.8%), HBV (20.2%), and HCV (23.1%). Incidence among 446 continuously incarcerated prisoners per 100 person-years was 0 for HIV, 2.7 for HBV, and 0.4 for HCV.	Incidence results cannot be extended to the entire incarcerated population, in particular those with shorter sentences.
Christensen et al., 2000	403 prisoners in a Danish medium security prison for males	The prisoners were offered an interview and blood test for hepatitis and HIV at inclusion as well as at release from prison on end of study. Of 403 prisoners available, 325 (79%) participated in the initial survey and for 142 (44%) a follow-up test was available. 43% (140/325) of the participants were IDUs of whom 64% were positive for HBV and 87% for HCV markers. No cases of HIV were found. 70% of IDUs had shared injecting equipment, and 60% had injected inside prison. Duration of injecting drug use, numbers of imprisonments, and injecting in prison were independently and positively associated with the presence of HBV antibodies among IDUs by logistic regression analysis. The HBV incidence was 16/100 PY (95% CI: 2–56/100 PY) and the HCV incidence 25/100 PY (1–140) among IDUs.	Some of the transmissions definitely occurred in prison, but for others transmission outside the prison could not be excluded.
Thaisri et al., 2003	689 male prisoners in a Bangkok central prison during 2001-2002	In this prospective cohort, HIV prevalence was 25.4% at enrolment. The remaining prisoners were followed-up for a period of 5 months. During this period (2,581 person-months), 9 prisoners seroconverted, corresponding to an estimated HIV-1 incidence of 4.18 per 100 person-years (95% CI: 4.11-4.26 per 100 person-years). All 9 incident cases were injectors. When the calculation was restricted to injectors only, the HIV-1 incidence would be 11.10 per 100 person-years during 973 person-months of observation (compared to 35 per 100 person-years observed by Choopanya, 2002).	

5. HIV/AIDS EDUCATION

5.1 Introduction

Education is an essential precondition to the implementation of HIV prevention measures. The WHO *Guidelines on HIV Infection and AIDS in Prisons* (1993) recommended:

14. Prisoners and prison staff should be informed about HIV/AIDS and about ways to prevent HIV transmission, with special reference to the likely risks of transmission within prison environments and to the needs of prisoners after release. The information should be coordinated and consistent with that disseminated in the general community. Information intended for the general public (through posters, leaflets, and the mass media) should also be available to prisoners. All written materials distributed to prisoners should be appropriate for the educational level in the prison population; information should be made available in a language and form that prisoners can understand, and presented in an attractive and clear format.
15. Prison staff should receive HIV/AIDS prevention information during their initial training and thereafter on a regular basis.
16. Prisoners should receive HIV/AIDS education on entry, during their prison term, and in pre-release programmes. All prisoners should have an opportunity to discuss the related information with qualified people. Face-to-face communication, both in groups and on an individual basis, is an important element in education and information.
17. Consultation with, and participation of, inmates and staff in the development of educational materials should be encouraged.
18. In view of the importance of peer education, both prison staff and prisoners themselves should be involved in disseminating information.
19. Education on infection control should emphasize the principles of universal precautions and hygiene. The lack of any risk of HIV transmission as a result of normal everyday contact should be emphasized. Excessive and unnecessary precautions while handling HIV-infected prisoners should be avoided. ...
22. As part of overall general HIV education programmes, prisoners should be informed of the dangers of drug use. The risks of sharing injecting equipment, compared with less dangerous methods of drug-taking, should be emphasized and explained. ...

The WHO Europe *Status Paper on Prisons, Drugs and Harm Reduction* highlights a few additional aspects of what is considered best practice education in prisons (WHO Europe, 2005):

The use of modern educational methods and of visual aids is now well established. Understanding will produce more effective collaboration between prisoners and staffs in reducing the spread of HIV.

Involving drug users in developing, designing and delivering information materials is critical to increase their appropriateness and range of reach. The content should cover both the risks of injection and sharing practices and advice on how to reduce these risks and avoid sharing.

Information should be delivered through a variety of channels, including general awareness campaigns, providing targeted information through health and social services frequented by problematic drug users and delivering information through peer and drug user networks and outreach workers. Harm reduction counselling is based on face-to-face communication and provides an opportunity for drug users to turn information into actual behaviour change through a process of clarification and reinforcement. ...

The particular needs of imprisoned ethnic minorities must be considered. Language is the most obvious barrier, but most ethnic minority prisoners would have experienced difficulties in accessing health and social care before admission and this could affect their health and addiction problems.

In a review of prevention of infectious disease transmission in correctional settings, Niveau (2005) says that health education should include information concerning diseases, routes of transmission, risk factors, methods of prevention, signs of disease outcomes, and possible treatments (Neff, 2003). He continues by saying:

The education can include a variety of pedagogical approaches and use media such as brochures and videos. Paper documents can be handed out to new prisoners, and these documents should be available in the prison for consultation at any time. These documents should be written in several languages, according to the local context. Despite this, they may be difficult to understand for

inmates from foreign countries or those who cannot read. Therefore, these documents should have as many pictures as possible to make them easy to understand.

Prisoners often react well to videos. However, this pedagogical tool poses the problem of language comprehension for some inmates, and group sessions are not always possible in correctional settings.

Prisoners can also attend oral presentations. This method encounters the same difficulties with regard to language and organization as video, but if interactive, the sessions are much more effective. Peer-led educational activities are very effective, but are difficult to organize in correctional settings.

Information and education can often be provided through personal counselling during medical consultations. This method is effective but not cost-effective, and should be reserved for special cases.

Finally, information and education activities can be tailored to the needs of particular prison or jail contexts, e.g. women's prisons or prisons for young offenders.

Providing information to prisoners and staff about HIV/AIDS, what it is and how it is transmitted, is the least controversial and most widely employed mode of prevention in prison (Polonsky et al., 1994). Already in the early 1990s, HIV education of prisoners occurred in all 31 countries surveyed by Harding & Schaller (1992) and in most US prisons (86%) and jail systems (58%: Hammett et al., 1993). Overall, US prison staff was more likely to receive education about HIV/AIDS than prisoners. Few prison systems in the United States (20%) had evaluated their HIV education programmes and none of these evaluations had been published (Hammett et al., 1993).

A 1996 report published in the United States underscored the need to take advantage of important missed opportunities to provide HIV/AIDS prevention programmes in prisons and jails for adults and in confinement facilities for juveniles. According to the report, these facilities are important settings for HIV/AIDS education efforts because of

- high prevalences in their populations of HIV-infected persons and persons with risk factors for HIV infection;

- demonstrated occurrence of and continuing high potential for HIV transmission in these facilities through sexual activity and sharing of drug-injection equipment;
- eventual release of almost all adult prisoners and confined juveniles to the community;
- high rates of re-incarceration and re-confinement; and
- feasibility of providing HIV/AIDS education programmes in these facilities.

The report highlighted several shortcomings of efforts that had been undertaken until then, including:

- many facilities did not provide interactive HIV/AIDS education programmes;
- in facilities for juveniles, HIV/AIDS education often is presented as a curriculum unit of the school program, which many juveniles may not receive because of their short lengths of stay;
- peer-led programmes were provided in even fewer facilities for adults and juveniles, although such programmes may be more credible and effective than those provided by educators affiliated with the correctional system for adults or the system for juveniles (Hammett et al., 1995).

Of 456 confinement facilities in the 40 state systems responding to the question, 31 (7%) were operating peer-led HIV/AIDS education, 258 (57%) were providing instructor-led education, 246 (54%) were using audio-visual materials, and 270 (59%) were using written materials.

Educational programmes have also been undertaken in low and middle income countries, and some of these programmes have been evaluated (see *infra*) or at least described in the literature. For example, Antonius (1994) reports about an education and support programme involving activities for prisoners, staff, and non-prison personnel and organizations developed by the Suriname National AIDS Program (NAP). Male prisoners and prison warders were selected for training as peer educators. Male prisoners formalized their status by forming the Boma AIDS Education Collective (BAEC). Female prisoners were not included in the training because most of them served short sentences and were instead involved in educational sessions which focused on sexual and mother to-child transmission of STDs. BAEC produced HIV/AIDS education leaflets in three languages for new and discharged prisoners for all prisoners in Suriname. The leaflets were then pre-tested and modified based on comments from

17 prisoners. The Programme was officially introduced in April 1992 when BAEC organized an AIDS/STD week. The week's activities included HIV/AIDS educational sessions, video shows, discussions, and HIV testing. A manual was produced for peer educators, and AIDS/STD education has since been included in the prison warder training curriculum. A number of collaborative activities with non-prison organizations were organized to demonstrate that prisoners are part of a wider community concerned about HIV/AIDS.

5.2 Review and analysis of the evidence

Only a small number of studies, undertaken mainly in developed countries, have evaluated educational programmes or initiatives in prison. The following questions guided the review and analysis of these studies and other published and unpublished data on the effectiveness of HIV/AIDS education in prisons.

- (1) Does HIV/AIDS education in prisons lead to increased knowledge by prisoners and/or staff about HIV/AIDS, and does it lead to more informed attitudes?
- (2) Does HIV/AIDS education in prisons lead to decreased risk behaviour in prisons or upon release?

The importance of providing education about HIV/AIDS in prisons has been highlighted by surveys of knowledge, beliefs and attitudes of prisoners towards HIV/AIDS that demonstrated that juvenile prisoners in South Africa generally lack accurate knowledge about HIV/AIDS (Carelsse, 1994); that average scores of knowledge and tolerance towards people living with HIV or AIDS were lower among prisoners in France than in the general community (Delorme et al., 1999); and that prisoners also lack knowledge on how to reduce the risk of contracting HCV (Butler et al., 1997). Studies in the United States showed that among adult prisoners 75% believed that HIV is transmissible by casual contact, such as by working with someone with AIDS, and that 85% of prisoners believed a person with AIDS can be identified by look (Celentano et al., 1990). Among American male adolescents awaiting sentencing at a Washington, D.C., area detention center, AIDS knowledge was reported to be moderate, and 24.5% believed HIV can be transmitted by mosquitos (Belgrave et al., 1993). Other critical knowledge deficiencies exist, and may be due to the exclusion of "touchy" subjects such as oral sex from prison education curricula (Keeton, 1998). A study

undertaken among prisoners in Lagos, Nigeria, showed that a considerable proportion of prisoners are at risk of being infected due to their high level of ignorance about HIV/AIDS and suggested that well-designed information, education and communication programmes, accompanied by provision of harm-reduction devices and risk-reduction counselling, are urgently needed (Odujinrin & Adebajo, 2001). Research has also shown that prisoners worry about contracting HIV while in prison (Viadro & Earp, 1991) and that prison can be an ideal setting for HIV education (Farabee & Leukefield, 1999).

Levels of knowledge with regard to HIV transmission and the degrees of tolerance versus HIV-positive prisoners varied significantly among *prison staff* from five countries in Europe (Rotily et al., 2001). A large proportion of staff overestimated the prevalence of HIV in their prison and feared being infected. The study underlined the necessity to improve HIV/AIDS information and education for prison staff in order to strengthen good practice in terms of managing the risk of infection and avoiding discrimination.

Research has confirmed the need for tailoring education and prevention activities for incarcerated women (Viadro & Earp, 1991), as well as the importance of age- and culture-specific education, and of involving prisoners themselves in the development of the education programmes. A study to investigate knowledge, attitudes, and practices regarding HIV/AIDS among incarcerated male adolescents in Brazil and to develop an HIV/AIDS prevention intervention for this population found that initial efforts at prevention based on commonly used approaches of providing information to guide future rational decisions generated limited participation. However, when the educators worked with the adolescents to develop interventions based on their interests and needs, using modalities such as music, hip-hop arts, graffiti, and helping them to create an HIV/AIDS prevention compact disk, they responded with enthusiasm. The study concluded that interventions for incarcerated youth were better received when developed in collaboration with them and based on their beliefs, aspirations, and culture. The intervention that resulted went beyond HIV/AIDS to include issues such as violence, drugs, sexuality and human rights (Alves Peres et al., 2002). However, another study of HIV prevention and high-risk behaviour in juvenile correctional institutions, undertaken in South Africa, pointed out that institutional authorities are often reluctant to place the design, control, and implementation of AIDS intervention programmes into the hands of juvenile prisoners (Carelse, 1994).

Finally, it has been suggested that collaborations between community-based service providers, academic researchers, and prison systems may be ideal to overcome the barriers to developing and evaluating HIV prevention programmes for prisoners (Grinstead, Zack & Faigeles, 1999; Ehrmann, 2002).

5.2.1 Does HIV/AIDS education in prisons lead to increased knowledge by prisoners and/or staff about HIV/AIDS, and does it lead to more informed attitudes?

Studies among adolescent and adult offenders in the United States indicate that HIV/AIDS education efforts may increase knowledge and change risk perception (Braithwaite, Hammett & Mayberry, 1996). For example, in an HIV education programme for adult parolees of the Cook County (Chicago) jail, those receiving an eighteen-day education session were more knowledgeable about HIV/AIDS at posttest and at follow-up twelve weeks later than was the randomly assigned control group (Lurigio, Petraitis & Johnson, 1992).

The evaluation of the HIV/AIDS education programme for prisoners in New South Wales confirmed that very few prisoners receive any formal AIDS education from outside the prison system, and that prison education programmes are the only source of AIDS education for many prisoners. Prisoners who participated in the education programme, either by going to talks about HIV/AIDS or by reading pamphlets, had a significantly higher average knowledge score about HIV/AIDS than those who did not. However, education did not appear to affect prisoners' attitudes, nor did it necessarily induce them to change their behaviour (Conolly, 1989).

Compared to the general AIDS education programme in New South Wales, a peer group AIDS education for prisoners developed in one prison in New South Wales was reported to be an "outstanding success" (Conolly, 1989, with reference to Conolly, 1989b). It noted, however, that the effectiveness of such a programme is dependent upon the types of peer networks that exist in the prison system, and that further research should answer questions like:

- ▶ Are there any key prisoners who carry authority amongst their peers and if so, how many and how far does their influence extend?
- ▶ How does the structure of the prison environment affect the communication networks between prisoners?

Five years later, an evaluation of the Prison HIV Peer Education Program (PPEP) established in New South Wales, found the PPEP:

- ▶ to be an effective tool in educating prisoners on HIV/AIDS as it increased their knowledge and understanding of HIV;
- ▶ attracted a relatively large number of prisoners who had not undertaken any educational courses while in a correctional centre and this was mainly attributable to (1) the programme being well respected by prisoners and holding a good reputation amongst them; (2) the fact that prisoners found the course non-threatening and relatively easy to complete; and (3) that the programme was structured using adult education principles and not traditional teaching methods; and
- ▶ to significantly contribute to changes in attitudes and a reduction in prejudices that prisoners may have towards HIV and people affected by it (Taylor, 1994).

An evaluation of the effectiveness of an HIV peer training programme conducted in a prison colony for drug dependent male prisoners in Siberia also found that the programme was associated with improved HIV knowledge. Respondents' knowledge of HIV transmission improved, with significantly higher proportions of prisoners reporting better knowledge of both how HIV can and cannot be transmitted. The evaluation concluded that the "provision of educational materials and training peer educators can be an inexpensive way to reach a population that is difficult to access outside prison" (Dolan, Bijl & White, 2004).

Similar results were shown by a study designed to evaluate the impact of educational interventions involving peer health educators among 300 prisoners in Maputo, Mozambique (Vaz, Gloyd & Trindade, 1996). A knowledge, attitudes, and practices questionnaire regarding HIV/AIDS and STDS was administered to each subject as part of the intake medical examination and after an educational intervention provided by 30 prisoner "activists". A large proportion of prisoners had high risk behaviours (65% had 2 or more sexual partners per month and 39% had a history of STD) and low HIV/AIDS knowledge at incarceration. Statistically significant increases in knowledge occurred after the intervention. Prisoners with less formal education had a poorer performance on the initial questionnaire (43% vs 69% $P < 0.00001$) and had a greater improvement after the intervention (41% vs 24%, $P < 0.00001$).

In the United States, a peer-led education intervention offered to prisoners entering a prison in California was evaluated in a randomized trial. Orientation groups were randomly assigned to receive the education either from an inmate peer educator or from a (non-inmate) professional HIV educator. Results of the evaluation indicated that peer-led groups were as effective as the groups led by a professional health educator in changing intentions to use condoms and to be tested for HIV and in increasing HIV/AIDS knowledge. Prisoners reported a strong preference for the education led by an inmate peer educator (Grinstead, Zack & Faigeles, 1997; Grinstead, Zack & Faigeles, 1999).

Dolan & Rouen (2003) evaluated an educational comic on harm reduction for prisoners in New South Wales, Australia. Knowledge on a range of harm reduction topics was very good among the (small number of) prisoners who responded to the survey included in the comic to assess prisoners' knowledge. This suggests that the prisoners had read the comic and were able to understand the information contained in it. Given previous research into prisoners' lack of knowledge of this area (Butler et al., 1997), it might be concluded that the comic increased prisoners' awareness of harm reduction in prison. The evaluation showed that a comic book format may serve as an attractive, user-friendly medium to communicate information on harm minimization to prisoners, but the authors stressed that it remained to be seen whether this increase in knowledge is translated into behavioural change.

5.2.2 Does HIV/AIDS education in prisons lead to decreased risk behaviour in prisons and/or upon release?

Early research from the United States into the behaviour of IDUs both in prison and in the community showed that "mere knowledge of AIDS is not sufficient for risk eliminations" (DesJarlais & Friedman, 1988). From their review of research, Des Jarlais and Friedman suggested that there were three essential components required for a successful HIV/AIDS prevention programme for IDUs. These were:

- ▶ new cognitive and emotional meaning attached to sharing of drug injecting equipment;
- ▶ increased availability of means for behaviour change; and
- ▶ reinforcement of behaviour patterns.

In a review of studies in the United States, Braithwaite, Hammett & Mayberry (1996b) concluded that the impact of HIV education interventions "is rather

mixed, particularly regarding behavior change". For example, the above mentioned evaluation of the education programme at Cook County jail did show positive impact on knowledge, but the HIV-educated group and control group did not differ with regard to behaviour intentions to reduce the risk of HIV infection (Lurigio, Petraitis & Johnson, 1992). Studies among adolescent offenders also indicated HIV/AIDS education efforts may increase knowledge, but whether HIV risk behaviour can be modified and sustained remained to be determined. Braithwaite, Hammett & Mayberry concluded that the impact of interventions on changes in risk behaviour "is yet unknown." Referring to education programmes for young offenders, they pointed to a central tension: "The best programs are explicit about precautionary and preventive measures, yet public opinion and the regulations of juvenile agencies often prohibit such explicit messages. Additionally, most systems forbid distribution of materials needed to carry out HIV prevention messages, such as condoms and bleach."

This is consistent with findings of studies in other countries. In Australia, the evaluation of the education programme for prisoners in the New South Wales Department of Corrective Services found that psychological addiction or other motivations to use drugs coupled with a lack of available cleaning solutions or new needles may necessitate unsafe needle sharing in prison despite knowledge that this could transmit HIV; and that prejudice against sex between men in prison, and inhibitions about discussing sex in public, means that it is difficult for individuals to seek out information about "safer sex" (Conolly, 1989). The evaluation pointed out that it was difficult for HIV/AIDS educators to deliver clear and credible messages to prisoners when prison policy remains open to debate and criticism because of its refusal to provide potentially life-saving prevention means, such as condoms and bleach for cleaning needles. It continued by saying:

In the prison system educators must also be greeted by an audience who is suspicious of authority, and who face a range of social and psychological problems which inhibit their ability to seek out information and/or act on the information they are given. Furthermore, the nature of the prison system is such that it poses difficulties for the organisation of AIDS Education Programmes due to staff shortages, the mobility of the prison population, and social barriers to effective communication between staff and prisoners.

It concluded that the AIDS education programme had “not yet proven to be an effective means by which to ensure that prisoners adopt safe behaviour.”

The evaluation of the Prison HIV Peer Education Program in New South Wales recommended that prisoners

have available to them all possible avenues to be able to avoid infection with HIV (and other blood borne communicable diseases) when involved in sexual and other activities within the correctional system. The first, is that all [highlight in original] inmates be provided with access to information and knowledge on the transmission of HIV ... While the second is that inmates have access to the tools to carry out the education that they have been taught. Once provided with the knowledge and tools required, inmates then have the ability to make informed decisions and actions in relation to the sexual activities that take place (Taylor, 1994).

Similarly, the evaluation of a peer training programme in a prison in Russia found that “much more will be needed to prevent an HIV epidemic in Russian prisons” and suggested that the Ministry of Justice consider improved and additional harm reduction strategies, including increased availability of bleach and condoms and the introduction of methadone treatment and syringe provision in prison (Dolan, Bijl & White, 2004). In Zambia, reports from prisoners and staff indicated a reduction in tattooing and injecting drug use, but sexual activity and the sharing of razor blades continued after an HIV/AIDS intervention led by prisoners trained as peer educators started at Kamfinsa prison. This suggests that “the risk of HIV transmission at the prison is still high and measures to address this situation are urgently needed” (Simooya & Sanjobo, 2001).

There seems to be some evidence from a small number of studies suggesting that pre-release education programmes can reduce *post-release* risk behaviours. A pre-release HIV prevention programme designed to reduce post-release HIV risk behaviour was evaluated in a randomized trial (Grinstead et al., 1999). The intervention consisted of a 30- to 60-minute individual session with a peer educator. The evaluation showed that men who received the intervention were nearly twice as likely to report using a condom at their first intercourse after release from prison compared to the standard care group (that had access to HIV educational materials and infor-

mal access to the peer educators: 20% vs. 38%, $p=.05$). Another pre-release intervention, consisting of an eight-session prerelease intervention for HIV seropositive prisoners to decrease sexual and drug-related risk behaviour and to increase use of community resources after release, was found to be feasible. Descriptive results supported the effectiveness of the programme in reducing sexual and drug-related behaviours and in increasing use of community resources after release. Compared with men who signed up for the intervention but were unable to attend, men who received the intervention reported more use of community resources and less sexual and drug-related risk behaviour in the months following release (Grinstead et al., 2001). Finally, a study evaluated a project aimed at reducing HIV risk among women visiting their incarcerated male partners. The study found that although women visiting their incarcerated partners are generally well-informed about HIV transmission and prevention, they are at high risk for HIV and underestimate the risk from their partner being released from prison (Comfort et al., 2000; Grinstead, Zack & Faigeles, 1999).

5.3 Conclusions and recommendations

1. There is evidence that well-designed HIV/AIDS information and education programmes can improve prisoners’ knowledge about HIV/AIDS.

Studies undertaken in a number of countries, including in low and middle income countries, have demonstrated a need for information and education programmes in prisons, and shown that well-designed programmes can improve prisoners’ knowledge about HIV/AIDS.

Knowledge alone is insufficient, but it is a precursor to protection from infection.

2. A few evaluations have indicated self-reported behavioural change (particularly upon release) as a result of prison-based educational initiatives, but the effectiveness of educational efforts is difficult to measure and it remains largely unknown whether they reduce HIV transmission among prisoners.

Although a few evaluations have indicated improvements in levels of knowledge and self-reported behavioural change as a result of prison-based educational initiatives, most studies concluded that the effectiveness of current educational efforts in influencing prisoners’ behaviour and in reducing HIV transmission among prisoners remains largely

unknown and that simply providing information on HIV and the harms associated with risk behaviours is not enough. In particular, studies have pointed out that education and counseling are not of much use to prisoners if they do not have the means to act on the information provided while they are in prison.

3. HIV information and education programmes in prisons are more likely to be effective if developed and delivered by peers.

Based on the data available and extrapolating from the literature on community-based programmes, education programmes in prisons – as in community settings (Broadhead et al., 1995; Broadhead et al., 1998) – are more likely to be effective if developed and delivered by peers. As Grinstead et al. (1999) have stated:

When the target audience is culturally, geographically, or linguistically distinct, peer education may be an effective intervention approach. Inmate peer educators are more likely to have specific knowledge about risk behavior occurring both inside and outside the prison. Peer educators who are living with HIV may also be ideal to increase the perception of personal risk and to reinforce community norms for safer sexual and injection practices. Peer education has the additional advantage of being cost-effective and, consequently, sustainable. Inmate peer educators are always available to provide services as they live alongside the other inmates who are their educational target.

Peer educators can play a vital role in educating other prisoners, since most of the behaviours that put prisoners at risk of HIV in prisons involve illegal (injecting drug use) or forbidden (same-sex activity and tattooing) and stigmatized (same-sex activity) practices. Therefore, peers may be the only persons able to speak candidly to other prisoners about ways to reduce the risk of contracting infections. As well, peer educators' input is not likely to be viewed with the same suspicion as the information provided by the prison hierarchy. Peer educators are more likely to be able to realistically discuss the alternatives to risk behaviour that are available to prisoners, and are better able to judge which educational strategies will work within their prison and the informal power structure among prisoners. Peers can also help prisoners adhere to antiretroviral regimens for HIV (Boudin et al., 1999). Finally, peer-led education has been shown to be beneficial for the peer educators themselves: individuals who participate as peer educators report significant improvements in their

self-esteem (Van Meter, 1996). Additionally, it has been reported that some peer educators become paid employees of community-based organizations after their release from prison as a result of the skills developed in the peer education training process (Ehrmann, 2002).

However, as with other education programmes, preventive education among peers is difficult “when prisoners have no means to adopt the changes that would lead to healthier choices” (Wykes, 1997). Peer support groups need to be adequately funded and supported by staff and prison authorities, and need to have the trust of their peers, which can be difficult when the prison system appoints prisoners as peer educators because it trusts them, rather than because the prisoners trust them (Wykes, 1997).

4. A number of other factors appear to influence the effectiveness of informational and educational interventions.

While there is little published information outlining the educational interventions that have the greatest impact on reducing prisoners' risk behaviours, a number of factors appear to influence the effectiveness of informational and educational interventions. These factors include:

- the comprehensiveness of the programme (including whether it includes safer drug use and safer sex information and demonstrations about how a condom is properly used, or how drug paraphernalia can be safely cleaned)
- whether it is linguistically and culturally appropriate (Martin et al., 1995)
- whether it is specific to the needs of various populations, in particular female prisoners and youth (Martin et al., 1995)
- whether it is appropriate to the average prisoners' reading and comprehension level (Hogan, 1994)
- whether it has been designed with the input of prisoners
- whether it is instructor-led or peer based
- whether it is offered only at the beginning, when a person first enters prison, or whether ongoing refresher courses and seminars are offered to sustain and reinforce the HIV/AIDS-related health message
- whether information is limited to distribution of pamphlets or the showing of a video, or whether interactive educational sessions are offered

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- ▶ whether modern educational methods are used
 - ▶ whether the programme is associated with pre- and post-test counselling
 - ▶ whether the education programme sits within a more comprehensive harm reduction programme that includes drug treatment, the provision of condoms and bleach, and a needle and syringe programme (Hellard & Aitken, 2004).

Therefore, it is recommended that:

1. Considering that prisons are important settings for informational and educational programmes for both prisoners and staff about HIV and other infectious diseases, prison systems should establish well-designed programmes in all prisons.
2. Where possible, education delivered for prisoners by the prison system should be supplemented by peer education programmes that have been shown to be more effective in reaching prisoners.
3. Informational and educational programmes are but one component of an effective programme to manage HIV in prisons and must be supplemented by other programmes. In particular, prisoners must be provided with the prevention measures that enable them to act upon the information they receive.

6. HIV COUNSELLING AND TESTING

6.1 Introduction

Counselling and testing are important for two reasons: as part of an HIV prevention programme (i.e., it gives those who may be engaging in risky behaviours information and support for behaviour change), and as a way to diagnose those living with HIV early and offer them appropriate care, treatment and support. Earlier identification of HIV-positive prisoners leads to earlier medical attention and allows for time to engage individuals in important secondary prevention measures, such as education, harm reduction, and/or referral to substitution therapy or other forms of drug dependence treatment. Testing also creates an important opportunity to provide important health information to prisoners during post-test counselling.

As part of a major effort to scale up access to HIV testing and counselling globally, in the context of efforts to achieve universal access to prevention, treatment and care, WHO and UNAIDS have recently developed guidance on provider-initiated testing and counselling in health care facilities (WHO, UNAIDS, 2007); and have undertaken other efforts to increase access to HIV testing and counselling outside the health-care context (UNAIDS, WHO, 2004).

Prison systems have typically adopted one of the following kinds of HIV testing policies:

- ▶ HIV testing is conducted on all prisoners upon admission, conviction, or prior to release, without informed consent (compulsory testing).
- ▶ HIV testing is considered a standard part of a medical examination on admission, conviction, or prior to release. It is recommended to all prisoners and undertaken unless prisoners “opt out” of the test (explicitly decline the test).
- ▶ HIV testing is offered and recommended to all prisoners on admission, conviction, or prior to release, but is only undertaken if prisoners “opt in” to testing (specifically agree to the test).
- ▶ HIV testing is offered to prisoners on admission, conviction, or prior to release, but it is not recommended (prisoners are not encouraged to take the test).
- ▶ Prisoners can receive a test – at any time or only under certain circumstances – if they actively request it, but it is not offered to them (testing on demand).

The WHO Guidelines on HIV Infection and AIDS in Prisons (1993) state:

10. Compulsory testing of prisoners for HIV is unethical and ineffective, and should be prohibited.
11. Voluntary testing for HIV infection should be available in prisons when available in the community, together with adequate pre- and post-test counselling. Voluntary testing should only be carried out with the informed consent of the prisoner. Support should be available when prisoners are notified of test results and in the period following.
12. Test results should be communicated to prisoners by health personnel who should ensure medical confidentiality.

The 2006 “framework for an effective national response” to HIV in prisons states that prison systems should (UNODC, WHO, UNAIDS, 2006, recommended actions 62-66):

62. Provide access to voluntary, confidential HIV testing with counselling for prisoners where such testing is available in the outside community. This should include access to anonymous HIV testing in jurisdictions where such testing is available outside of prisons.
63. Ensure prisoners are provided with sufficient information to enable them to make an informed choice about whether to undertake test or to refuse testing if they so choose.
64. Ensure well-informed pre- and post-test counselling as a mandatory component of HIV testing protocols and practice, and ensure effective support is available to prisoners when receiving test results and in the period following.
65. Ensure the confidentiality of HIV test results of prisoners.
66. Ensure that informed consent and pre- and post-test counselling are mandatory for all HIV testing practices in prisons – including diagnostic testing, the use of rapid test kits, and testing as part of post-exposure prophylaxis protocols.

The *International Guidelines on HIV/AIDS and Human Rights* (Office of the United Nations High Commissioner for Human Rights & Joint United Nations Programme on HIV/AIDS, 1998) recommend that prison authorities should provide prisoners with “access to voluntary testing and counselling” and “should prohibit mandatory testing”.

Nevertheless, compulsory testing is still practiced in some prison systems.

One of the first prison systems to adopt such a policy was the federal prison service in the United States (Basu et al., 2005). In 1987, the US federal government mandated that prisoners test negative for HIV before release from federal prison. Prisoners who tested positive were detained involuntarily, even after they completed their sentences or met parole eligibility standards for transfer to half-way houses or transitional supervision programs (Starchild, 1989). These measures had little or no benefit for individual prisoner's health; they did not guarantee access to care, and no effective antiretroviral treatments were available. Routine prophylaxis of opportunistic infections was not provided. Moreover, this testing method prior to release did not provide an opportunity to implement effective prevention strategies, and was more likely to destabilize patients as they re-entered their communities without employment, money, food, or shelter (Basu et al., 2005). Yet mandatory HIV testing statutes were passed in 15 states during the 1980s and early 1990s, mostly under pressure from correctional officers' unions (id). Mandatory testing strategies were modified at the federal level and, in some states, after a wave of lawsuits in the late 1980s and early 1990s, many of which alleged that the testing strategy did not serve a legitimate objective, but had the potential to cause harm. Some correctional institutions shifted from a mandatory testing policy to a strategy of avoiding HIV testing after ART was shown to be effective ((Diamond, 1994), unwilling to pay for such therapy and sometimes requiring prisoners to actively seek to be tested through court order or state-level approval (Currie, 1998).

In Australia, HIV testing of prisoners was authorized in all jurisdictions, either specifically or through general provisions, but New South Wales, for example, repealed the regulation requiring this in 1995 and has since operated an induction programme for new prisoners that offers voluntary HIV and hepatitis testing (Magnusson, 1995). In 1996, the Western Australian Government was found in breach of the federal *Disability Discrimination Act* 1992 because of prison policies that segregated HIV-positive prisoners and had them imprisoned in maximum-security prisons (The Editor, 1997).

In prisons in Europe, including Eastern Europe (see, e.g., Ukraine: Gunchenko, 1998; Moldova: Pintilei, 2007) compulsory testing has been abandoned in nearly all countries (Harding & Schaller, 1992). However, in some countries, such as in the Russian

Federation, compulsory testing continues.³

In Asia and the Pacific, the June 2007 WHO/UNICEF/UNAIDS technical consultation on scaling up HIV testing and counselling noted that different countries in the region "have different experiences of HIV testing and counselling in closed settings such as rehabilitation centres, prisons, camps and juvenile institutions", including "mandatory HIV testing on entry, release, or during the period of detention". It further noted that "voluntary counselling and testing remains exceptional and is usually not accompanied by access to appropriate prevention or care-related services" (WHO, UNICEF, UNAIDS, 2007).

6.2 Review and analysis of the evidence

6.2.1 Compulsory testing

Those advocating mandatory testing (and, sometimes, segregation) of all prisoners have said that such testing would allow prison systems to know exactly how many prisoners are living with HIV; provide those living with HIV with necessary care, support, and treatment; protect staff and fellow prisoners from contracting HIV in prisons; and protect third parties, such as partners and other persons with whom a prisoner will likely have contact after release from prison, from contracting HIV. However, no direct comparisons of outcomes data have established that compulsory testing provides a superior form of HIV management to other testing approaches, and efficacy data have not accompanied defenses of the mandatory testing approach (Basu et al., 2005). Indeed, most public health officials and disease specialists see policies of mandatory testing and segregation as counterproductive (Hoxie et al., 1990; Jacobs, 1995).

Attempts to identify and segregate known HIV-positive prisoners to "contain" the epidemic will miss seroconverting persons who are in the "window" period (i.e., the period after infection and before antibodies can be detected by current testing methods). Correctional-officer unions in several countries have

3 According to correspondence received on 19 July 2007 from Vsevolod Lee, National Programme Officer, UNODC, Regional Office for Russian and Belarus (on file with author), in "some regions, inmates are tested twice: when entering to the jail and when entering to the colony. In some regions, inmates belonging to the risk groups (IDUs) undergo HIV testing every three months. Besides, inmates undergo testing after each extended visits of their wives. The rest of the inmates undergo testing once a year. However, in general, repeated testing is not widely practiced as the Penal System Administration is not interested in disclosing data of HIV transmission within the penal institutions."

lobbied for disclosure of the HIV status of prisoners, but ignoring universal precautions when interacting with HIV-negative prisoners may increase the risk of occupational exposure to hepatitis B and C as well as primary HIV infection by providing a false sense of security (Spaulding et al., 2002). HIV is not transmissible via casual contact (as is active TB, for example), and therefore compulsory testing and segregation of people living with HIV in prisons is not necessary for public health purposes. Instead of testing without consent – which is unethical and potentially infringes the right to security of the person, the right not to be subject to torture or to cruel, inhuman or degrading treatment or punishment, and the right to privacy (Betteridge & Jürgens, 2004; Canadian HIV/AIDS Legal Network, 2006c) – prisoners can be provided with the means necessary to act responsibly and to protect themselves and others from the risk of contracting HIV, such as access to voluntary counselling and testing, education, counselling, condoms, bleach, sterile needles and syringes, opioid substitution therapy and other drug dependence treatment (Jürgens, 2001; Lines 1997/98).

In addition, no data are available on the effectiveness of separate housing for HIV-positive prisoners as an HIV prevention strategy. Separate housing of HIV-positive prisoners:

- ▶ does not reduce the spread of other sexually transmitted, opportunistic, and bloodborne infections
- ▶ might increase the risk for tuberculosis outbreaks: tuberculosis outbreaks resulting from the implementation of segregated housing have been documented in California and South Carolina (CDC, 1999; CDC, 2000). In a prison in South Carolina, United States, segregating HIV-positive prisoners contributed to a tuberculosis outbreak in which 71% of prisoners residing in the same housing area either had new tuberculosis skin-test conversion or developed tuberculosis disease. Thirty-one prisoners, and one medical student in the community's hospital, subsequently developed active tuberculosis (Patterson et al., 2000)
- ▶ raises concerns about disclosure of prisoners' HIV status and access to prison programmes, and
- ▶ does not prevent transmission by prisoners who are unaware that they are infected or by HIV-positive prison staff (CDC, 2006).

Furthermore, even in high-income countries, inadequacies have been reported in the HIV treatment and care standards of several segregated units

(Basu et al., 2005). Segregating prisoners provides no conceivable benefit to medical care. As stated by Basu et al. (2005), In their current form, segregation units ostracize prisoners and exclude them from valued activities ... Segregation has led to the reassignment of inmates to distant sites that are far from family members — possibly reducing the quality of prisoners' lives, destabilizing their social support networks, and mixing inmates with different security status.

According to Paris (2006), segregation of HIV-positive prisoners "is not a real option":

To cohort or segregate so as to ensure the existence of "guaranteed HIV-free prisons," one would have to consider the very real possibility that in such perceived "HIV-free prisons" inmates may forego precautions and embark in risky behavior because of the assumed safety. It is quite possible that in such facilities introduction of HIV by a single case within the testing window, or by infected staff [...], may spread the virus rapidly and infect large numbers of inmates. In order to guarantee that a prison is "HIV-free," one would have to test at intake--whether tested previously at another prison or not--re-test at the end of the window (e.g., at 6 months) and periodically re-test all inmates, perhaps as frequently as every 6 months. I posit that it would be very difficult and expensive to maintain a "guaranteed HIV-free prison."

6.2.2 Other forms of testing

Only a small number of studies undertaken mainly in the United States and a few other high-income countries have evaluated voluntary forms of HIV counselling and testing in prison. Therefore, much remains unknown about the effectiveness of various testing strategies in prison, particularly in low and middle-income countries. The following is a summary of some of the most important findings.

6.2.2.1 Importance of improving access

Efforts to improve access to voluntary HIV counselling and testing in prisons are justified, as they reach a clientele at high risk of HIV infection that often has not used counselling and testing services on the outside (Beauchemin & Labadie, 1997; Sabin et al., 2001). In the United States, AIDS has tended to be diagnosed at a younger age and at an earlier stage of disease in prisoners than in nonincarcerated persons (Dean-Gator and Fleming, 1999), offering important prevention and care opportunities.

6.2.2.2 Rates of HIV testing

Voluntary HIV counselling and testing programmes in prisons can achieve high rates of acceptance among prisoners who are offered testing, but documented rates vary considerably, ranging from 39% to 83%. The highest levels of acceptance have been reported by researchers examining the testing programme in Wisconsin (U.S.), which tested a relatively low-prevalence population: voluntary testing was accepted by 71% of all entrants and 83% of entrants reporting injecting drug use (Hoxie et al., 1990). Cotton-Oldenburg et al. (1999) reported an acceptance rate of 71% among 805 women. In contrast, rates of acceptance were lower (47%) in Maryland (U.S.), a prison system with a higher prevalence of HIV among prisoners. HIV-positive prisoners who refused testing were later found to be more likely to test positive on blinded tests than those accepting voluntary counselling and testing. As a result, although 47% of prisoners accepted testing, the programme identified only 34% of the HIV-seropositive prisoners. Low perceived risk of HIV, fear of testing HIV-seropositive, and lack of interest were given as key factors for refusing testing (Behrendt et al., 1994).

Not surprisingly, the few prison systems that have implemented routine “opt-out” testing have reported high HIV testing rates of more than 90% (Grinstead et al., 2003; Ramratnam et al., 1997). In one U.S. state (Rhode Island) that has adopted such a system, about one third of all HIV-positive persons first learn of their HIV infection while incarcerated (Dixon et al., 1993; Desai et al., 2002).

6.2.2.3 Factors determining testing uptake

Several factors may account for the wide variability in uptake of HIV testing, but the nature and relative importance of such factors are difficult to determine based on the existing published literature. Where counselling and testing is not offered (and recommended) to all prisoners, “the need for prisoners to actively request the test when dealing with the myriad issues involved in prison life may be a large part of the problem” (Basu et al., 2005). A low rate of acceptance may also be due to the structure of the testing programme: testing acceptance rates may be particularly low where testing is done in the view of other prisoners, with inadequate counselling services and confidentiality measures, and with inadequate follow-up care, treatment and support for those testing HIV-positive (Basu et al., 2005). In this context it is notable that the Rhode Island testing programme that reported the highest acceptance

rates features comprehensive care after testing at entry; while many of the studies documenting lower testing uptake were undertaken before ART became available.

In at least one study, uptake of HIV testing increased significantly after implementation of saliva testing procedures, suggesting that some prisoners may delay or refuse testing because of their fear of needles (Bauserman et al., 2003). It has also been suggested that in countries where male-to-male sex is the most common risk behaviour associated with HIV, homophobia within the prison environment may be a factor in males avoiding HIV testing, since in such settings for many, being HIV-positive is associated with being homosexual.

Finally, in one study, predominant motivations for testing were injecting drug use or fear of infection inside prison (possibly through contact with blood, during fights, or even by casual contact), suggesting that HIV testing should be accessible and that prisoners should receive appropriate counselling and information to allow realistic assessment of risk (Burchell et al., 2003).

6.2.2.4 Prisoners’ experience of testing

Post-discharge surveys have indicated that 78% of former prisoners in Rhode Island welcomed the opportunity to receive testing as it was part of comprehensive HIV treatment and case management discharge programmes (Ramratnam et al., 1997).

However, “opt-out” testing policies may lead to testing without informed consent. A survey of medical service providers reported that “routine testing policies in some cases amounted to mandatory testing when inmates just ‘went along’ with whatever was asked of them, because of confusion or fear (Basu et al., 2005, with reference to Grinstead et al., 2003). Another study, of young imprisoned men’s perception of and experiences with HIV testing, revealed that some perceived that testing was mandatory. The authors concluded that “[t]he nature of prison environments, coupled with the crowded, rushed, and overwhelming aspects of the intake process itself, may fuel some men’s beliefs that testing is mandatory and inhibit some men from refusing an HIV test” (Kacanek et al., 2007). They suggested that, to “minimize the risk of misperception, staff in prison settings that routinely offer HIV testing upon entry could assure incarcerated people that testing is voluntary and provide adequate, safe opportunities for individuals to refuse testing” (id.).

6.2.2.5 Rapid HIV testing

One study examined the feasibility and acceptability of rapid HIV testing in a jail, concluding that “rapid HIV testing was feasible and highly acceptable” but noting that “[f]urther studies are needed to successfully incorporate rapid HIV testing into jail screening programs” (Beckwith et al., 2007).

6.3 Conclusions and recommendations

1. Programmes that make HIV testing and counselling easily accessible to prisoners on entry to prison and throughout incarceration result in increased uptake of testing and counselling, particularly if HIV testing and counselling are part of a comprehensive care and treatment programme for HIV-positive prisoners and if HIV test results are kept confidential and those voluntarily disclosing their HIV-positive status do not face discrimination or abuse.

HIV testing and counselling is not a goal in and of itself, but a means to enable people to access care, treatment, and support if they test HIV-positive, and to take measures to reduce the risk of transmitting infection to others. Linkage of HIV testing and counselling with care and treatment according to standards prevalent in the outside community is essential to encouraging prisoners to participate in HIV testing and counselling programmes, particularly as access to antiretroviral treatment in the community is scaled up in low and middle income countries and needs to be expanded to prison systems in those settings. In addition, attention must be paid to ensuring that confidentiality of medical information is protected and to avoiding stigma and the negative consequences of testing: prisoners will not agree to participate in testing if they face discrimination or abuse.

2. In addition to access to HIV testing and counselling, prisoners need access to the means to protect oneself.

As shown above, in chapter 3, many prisoners, including prisoners who are aware of their HIV status, engage in activities that carry a risk of HIV transmission. Knowledge of HIV status alone is not sufficient to prevent HIV transmission when the means that would enable a person to take steps to reduce that risk are not accessible in prison.

3. Mandatory HIV testing is unethical and there is evidence suggesting that mandatory HIV testing and segregation of HIV-positive prisoners is costly, inefficient, and can have negative health consequences for segregated prisoners.

Therefore, it is recommended that:

1. Prison systems should provide easy access to HIV testing and counselling.

In particular, **voluntary** HIV testing and counselling:

- ▶ should be easily **accessible to all prisoners upon entry and during imprisonment**
- ▶ should always be **confidential**, and everyone being tested should give informed **consent** and receive **counselling**
- ▶ should be closely **linked to access to care, treatment, and support** for those testing positive, and be part of a comprehensive HIV programme that includes access to prevention measures.

2. Prison systems should not adopt policies of mandatory testing and segregation, as they are counterproductive and can have negative health consequences, including for segregated prisoners.

7. PROVISION OF CONDOMS AND OTHER MEASURES TO PREVENT SEXUAL TRANSMISSION

7.1 Provision of condoms

7.1.1 Background

Recognizing the fact that sexual activity occurs in penal institutions and given the risk of disease transmission that it carries, providing condoms (and water-based lubricants) has been widely recommended. As early as 1993, WHO, in its *Guidelines on HIV Infection and AIDS in Prisons*, recommended that condoms be made available to prisoners throughout their period of detention” and “prior to any form of leave or release” (para 20). The same recommendation was made by UNAIDS (1997a; 1997b) and in joint documents issued by WHO, UNAIDS, and UNODC (WHO, UNAIDS, UNODC, 2004; UNODC, 2006). Provision of female condoms and dental dams⁴ to female prisoners has also been recommended (Correctional Service of Canada, 1994; UNODC, 2007).

As early as 1991, a WHO study found that 23 of 52 prison systems surveyed provided condoms to prisoners (Harding & Schaller, 1992). By August 2001, 18 of the 23 prison systems in the pre-expansion European Union were making condoms available (Stöver et al., 2001). Today, many prison systems in other parts of the world, including in Canada, Australia, parts of the former Soviet Union, Brazil, South Africa, the Islamic Republic of Iran and Indonesia, also make condoms available to prisoners. In the United States, condoms are available only to the prisoners in a few jail and prison systems (Braithwaite, Hammett, & Mayberry, 1996), constituting less than 1% of all correctional facilities in the United States.

Research has shown that even where condoms, in theory, are available to prisoners, in reality they are often not accessible (MacDonald, 2005).

In prison settings, obstacles to condom distribution include opposition to male-to-male sex from prison officers and authorities (Dolan, Wodak, Penny, 1995), and is based on a combination of factors including

cultural objections, workload, institutional prohibition of sexual activity, and security concerns (May and Williams, 2002; Cregan, Kippax, Crawford, 1996). Critics of condom distribution to prisoners have argued that the provision will lead to an increase in both consensual and non-consensual sexual activity among prisoners. Specifically, some prison officials contend that providing condoms would send a mixed message and be interpreted as condoning sexual relations (Okie, 2007; Spaulding, Ballard Lubelczyk & Flanigan, 2001). Another rationale often given is that condoms filled with drugs could be swallowed and used as vehicles to move drugs behind bars (Cregan, Kippax, Crawford, 1996). However, there are no similar prohibitions against plastic storage bags, which could also be used to hide contraband (Spaulding, Ballard Lubelczyk & Flanigan, 2001). Finally, there are also worries that condoms would be used as weapons against prison staff (Yap et al., 2006).

The potential liability of correctional authorities that do not make condoms available to civil action was illustrated by an out-of-court financial settlement achieved by a South African former prisoner (Dolan, Lowe, Shearer, 2004, with reference to Anonymous, 2003). The former prisoner claimed he contracted HIV through sex while in prison between 1993 and 1994. Condoms were introduced in South African prisons in 1996. He contended that the authorities did not warn prisoners about the risks of unprotected sex or supply condoms. The South African Department of Correctional Services denied any liability under the settlement.

Legal action was also taken by 52 prisoners in New South Wales in 1994, challenging the Departmental policy which at the time prohibited condom provision (Jürgens, 1994; Yap et al., 2006). Before the court action reached conclusion, and following legal advice on the likely outcome of the case, the New South Wales Department of Corrective Services implemented a pilot condom distribution programme in three men’s prisons. The six-month condom pilot was conducted between March and August 1996 using condom vending machines that dispensed a small cardboard box containing one condom, a sachet of lubricant, information on the correct use of condoms and a plastic zip-lock disposal bag. Following

⁴ Dental dams are small, thin, square pieces of latex that are used for oral-vaginal or oral-anal sex. They get their name from their use in dental procedures.

the successful pilot, the condom programme was expanded across New South Wales and included dental dams in women's prisons. Condoms are freely available from both dispensing machines and the prison clinics. Under the 1996 prison policy, condoms and dental dams are not to be used for any purpose other than sexual activity with another consenting prisoner within a prison cell. Penalties apply for the unauthorised possession, use and disposal of condoms. The programme has been evaluated (Dolan, Lowe, Shearer, 2004; Yap et al., 2006).

7.1.2 Review and analysis of the evidence regarding condom provision

7.1.2.1 Evidence from community settings

Prevention is the mainstay of the response to HIV/AIDS and condoms are an integral and essential part of comprehensive prevention and care programmes (WHO, UNAIDS, UNFPA, 2004). In the late 1990s, however, questions were raised about the effectiveness of condoms as a means to prevent sexually transmitted infections (STIs), including HIV. An extensive review of all available studies was conducted by a panel convened by the US National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC) in June 2000 in the United States, with the participation of WHO. The review concluded that (National Institute of Allergy and Infectious Diseases, 2001; see also Weller & Davis, 2002; Warner et al., 2006):

- ▶ The consistent use of male latex condoms significantly reduces the risk of HIV infection in men and women and of gonorrhoea in men.
- ▶ Laboratory studies have established the impermeability of male latex condoms to infectious agents contained in genital secretions, including the smallest viruses.
- ▶ Male condoms may be less effective in protecting against those STIs that are transmitted by skin-to-skin contact, since the infected areas may not be covered by the condom.

In Thailand, the promotion by the government of 100% condom use by commercial sex workers led to a dramatic increase in the use of condoms (from 14% in 1990 to 94% in 1994), an equally dramatic decline in the nation-wide numbers of bacterial STD cases (from 410,406 cases in 1997 to 27,362 cases in 1994), and reduced HIV prevalence in Thai soldiers (Hanenberg et al. 1994; Nelson et al. 1996).

The most convincing data on the effectiveness of

condoms in preventing HIV infection has been generated by prospective studies undertaken on sero-discordant couples, when one partner is infected with HIV and the other is not. These studies show that, with consistent condom use, the HIV infection rate among uninfected partners was less than 1% per year (Saracco et al. 1993; de Vincenzi, 1994).

In 2004, in a joint position statement on condoms and HIV prevention, WHO, UNAIDS, and UNFPA concluded that "the male latex condom is the single, most efficient, available technology to reduce the sexual transmission of HIV and other sexually transmitted diseases" (WHO, UNAIDS, UNFPA, 2004).

Water-based lubricants reduce the probability of condom breakage and/or rectal tearing, both of which contribute to the risk of HIV transmission (Schoub, 1995).

*Dental dams*⁵ reduce the risk of STI transmission during oral sex by acting as a barrier to vaginal and anal secretions that contain bacteria and viruses (Centers for Disease Control and Prevention).

7.1.2.2 Evidence from prison studies

Only a small number of studies in developed countries have evaluated condom distribution programmes in prison. The following questions guided the review and analysis of these studies and other published and unpublished data on the effectiveness of condom provision in prisons. (For a summary of the information contained in this section, see the Evidence for Action Paper on *Effectiveness of Interventions to Address HIV in Prisons – Prevention of Sexual Transmission*).

- (1) Is distribution of condoms feasible in prisons, and has it resulted in any negative consequences for safety and security in the institutions? Do prisoners and staff accept condom distribution programmes?
- (2) Does provision of condoms in prison lead to decreased risk behaviour and is this associated with lower rates of infection in prison?

Is condom provision feasible in prisons, and has it resulted in any negative consequences for safety and security in the institutions? Do prisoners and staff accept condom distribution programmes?

No prison system allowing condoms has reversed

5 Dental dams are small, thin, square pieces of latex that are used for oral-vaginal or oral-anal sex. They get their name from their use in dental procedures.

their policies, and none has reported security problems (Hammett, Harmon, Maruschak, 1999) or any other negative consequences (Schaller & Harding, 1995).

A survey to measure the acceptability of the condom distribution programme at the Washington, DC Central Detention Facility found condom access to

- ▶ be unobtrusive to the jail routine
- ▶ constitute no threat to security or operations
- ▶ result in no increase in sexual activity
- ▶ be accepted by most prisoners (55%) and correctional officers (64%).

The survey concluded that the model would be easily replicable in other institutions (May and Williams, 2002).

An evaluation of the condom distribution program in New South Wales prisons, Australia, found similar results. It concluded that it was feasible to distribute condoms to prisoners (Dolan, Lowe & Shearer, 2004; Lowe, 1998). There were several indicators for this:

- ▶ the majority of prisoners (84%) supported the provision of condoms (prior to full introduction of the condom distribution programme, support had been less clear with 49% opposition expressed by prisoners participating in a general health survey)
- ▶ most prisoners were of the opinion that the condom vending machines were in accessible locations
- ▶ the reported level of harassment of prisoners using the machines was relatively low;
- ▶ most importantly, prisoners were using condoms when having anal sex.

From October 1997 to September 1998, 294,853 condoms were dispensed in New South Wales prisons. These figures are the equivalent of each prisoner obtaining one condom a week. Overall, there were no indicators of negative consequences as a result of the condom distribution programme. Most senior correctional staff agreed with the distribution of the condoms, while views were evenly divided among correctional officers. Minor incidents of misuse such as using condoms for water balloons, water fights and littering were recorded but these did not compromise prison safety or security. The only serious incident during the evaluation period

involved the throwing of an apparently used condom at an officer. The condom was found to contain hair shampoo, however, the incident was distressing to the officer involved. No incidents of drug concealment were recorded (Dolan, Lowe, Shearer, 2004).

Another evaluation of the long-term effects of provision of condoms in New South Wales prisons also found no evidence of serious adverse consequences of distributing condoms and dental dams to prisoners in New South Wales (Yap et al., 2006). To establish the consequence of condoms and dental dam provision, investigators analysed data obtained from surveys of prisoners in 1996, before condoms and dental dams were made available, and again in 2001, by which time there had been five years of experience of condom/dental dam access. Information from official prison records regarding the misuse of condoms/dental dams, and the use of condoms in assaults was also obtained. The main findings were:

- ▶ Fear about the provision of condoms/dental dams leading to more consensual and non-consensual sex were not realised. Indeed, there was a statistically significant fall between 1996 and 2001 in the percentage of men reporting both consensual ($p < 0.001$) and non-consensual sex ($p < 0.001$) with other prisoners. There was no significant change for women. The researchers remarked that the decline in both consensual and non-consensual sex among men "may be due to other factors. ... However, the presence of condoms and dispensing machines in NSW prisons may have also raised awareness and continued to reinforce HIV/AIDS prevention messages for prisoners.
- ▶ The 2001 survey of prisoners revealed that both condom kits and dental dams were being misused, but that this abuse was generally benign. Condoms were sometimes used as waterbombs, and the bags which condoms and dental dams were supplied in were used to store tobacco. Lubricant was used as hair gel, or, when banana and strawberry flavours were available, as a mild flavouring. The investigators also found that 13% of women reported using dental dams as place-mats or doilies.
- ▶ Although 29% of men said that they were aware of condoms or condom bags being used to store drugs, data from the New South Wales prison service showed that there was no increase in the proportion of prisoners using illegal drugs after condoms were made available. They remarked: Prisoners would undoubtedly find any means

of storing contraband even if condoms were unavailable. In a controlled and resource-poor setting, inmates display great inventiveness in employing any new resources for a variety of purposes, and safe sex kits are no exception.

- ▶ There were only three reports of minor incidents of condoms being used against prison officers. As stated by the authors, “[s]uch incidents were rare compared with the number of more serious assault charges recorded against prisoners each year, and mainly of a mischievous nature.”

The authors concluded:

While these data are based on self-report and subject to the insensitivity of official reporting, they highlight the benefit to correctional services of undertaking periodic surveys of prisoners’ health and behaviour to assess the outcomes of policy initiatives. Although there was initially strong opposition to condoms in prison, this soon dissipated as most of the anticipated adverse consequences did not eventuate. At least in NSW, condoms did not cause rape and mayhem.

In a survey of over 400 correctional officers in Canada’s federal prison system, 82% reported that condom availability had created no problems in their facilities (Correctional Service Canada, 1994). This was later confirmed by the evaluation of the HIV/AIDS harm reduction measures in the Canadian federal prison system. The evaluation examined:

- ▶ whether there were any perceptual or behavioural barriers which influence the prisoners’ utilization of condoms and dental dams
- ▶ what the prison system’s implementation experience was with the condom and dental dam distribution programme
- ▶ whether there were any unintended consequences related to the distribution of condoms and dental dams (Correctional Service Canada, 1999).

It found that, although some unintended usage was identified for condoms, there is no evidence that condoms have been used as weapons. Management and line staff interviewed at 18 prisons could not recall any incident where condoms had been used as weapons. The evaluation concluded:

It has been ... six years since condoms were [first] distributed. To date, there is no hard evidence that significant incidents involving [con-

doms] have resulted in injury to CSC staff.

The evaluation team concluded that the implementation of the condom and lubricant program “is both widespread and successful” (Correctional Service Canada, 1999).

Problems with implementation of a condom programme have only been reported from Jamaica. In Kingston, Jamaica, in 1997 a strike and prison riot by correctional officers followed a governmental announcement to provide condoms to prisoners and officers, resulting in six deaths. Offense to the implication of homosexual activity reportedly fueled the strike and riot (May and Williams, 2002, with reference to Becker, 1997). Introducing condom distribution could be more difficult in prisons in countries with deeply held negative views about same-sex sexual activity. This has been confirmed by a study undertaken in Zambia. Simooya (2000) reported that a majority of prisoners (68%) interviewed about their views on condom provision in prisons were opposed to making condoms available in prison and “found the idea of distributing condoms amongst men socially unacceptable.”

Does provision of condoms in prison lead to decreased risk behaviour and is this associated with lower rates of infection in prison?

Dolan, Lowe & Shearer (2004) found high levels of condom use among male prisoners in New South Wales responding to their survey: of the 14% of respondents who were sexually active in prison, 59% indicated that they used condoms for anal sex every time or often, while 30% reported using them every time or often when engaging in oral sex. This reported level of protection was above that of the general population (20-30%) but below that of homosexual men (70%), the population group that reported the highest level of condom use at the time the study was undertaken. The researchers concluded that “improving accessibility and promoting the use of condoms have been integral to successful HIV prevention strategies in the community” and that the “role of prisons in HIV transmission warrants the implementation of condom distribution programs in correctional centres.” At the same time, they suggested that “further research is indicated in to the effectiveness of such programs in reducing HIV and STI in prisons.”

May & Williams (2002) concluded that, although their study of the condom distribution programme at the Washington, DC, Central Detention Facility could not determine whether infections had been prevented, it

was likely. Health care providers at the jail reported less than one case of a sexually transmitted disease transferred in the jail each quarter. It could not be ruled out completely that some of these infections resulted from a preconfinement exposure.

In Canada, no systematic data was collected on behaviour changes as a result of the condom programme because a research and evaluation component was not built in at the time of the development of the programme (Correctional Service of Canada, 1999). However, together with a couple of other Canadian studies, the evaluation of the HIV/AIDS harm reduction measures in the Canadian federal prison system provides evidence that it is not enough to make condoms and lubricant available in prisons – they need to be easily accessible, without prisoners having to ask for them. In Canadian federal prisons condoms have been available since January 1, 1992. Initially, each prison established its own distribution system. At some prisons, condoms were distributed to every prisoner and supplies were left in certain areas of the prison. At other prisons, condoms were only available at health care centres. Availability of lubricant also varied significantly from prison to prison (Correctional Service Canada, 1999). In 1996, a report evaluating the Canadian federal prison system's progress in introducing HIV/AIDS prevention measures noted that in some prisons, barriers to obtaining condoms, dental dams, and lubricant still needed to be removed (Jürgens, 1996). A study on prisoners' views on harm-reduction tools in Canadian prisons found that, although condoms and dental dams were available, and although a fairly high percentage of prisoners reported engaging in sexual activity, few prisoners had ever used a condom in prison. Common barriers identified to use were: fear of being labelled as gay, fear of being suspected of transporting drugs, and the perceived low risk of same-sex activity, especially among female prisoners (Calzavara, 1996). The authors concluded that making condoms, dental dams, and lubricant available alone is not enough: they need to be easily and discreetly accessible so that prisoners do not have to ask for them and fear of being identified as engaging in sexual activity; and education needs to be undertaken to emphasize the need for using condoms, together with lubricant, when engaging in sexual activity, and to empower prisoners to use them (Jürgens, 1996; Calzavara, 1996). Subsequently, the Canadian federal prison system adopted a policy explicitly requiring that condoms, water-based lubricants, and dental dams be "readily and discreetly accessible" to prisoners at a minimum of three locations, as well as in all private family visit-

ing units, so that no prisoner "is required to make a request to staff for any item." (Correctional Service Canada, 2004). Once this policy was adopted, the evaluation of the HIV/AIDS harm reduction measures in the Canadian federal prison system team found that, in general, prisoners had easy and discreet access to both condoms and lubricant. Only in four of the 18 evaluation sites, some of the condom dispensers were visible to security posts, and in one case, condoms were located in the gym area, under camera surveillance. Of 110 prisoners interviewed by the evaluation team, none cited a situation where they had to ask a staff member for condoms and/or lubricant (Correctional Service Canada, 1999).

Summarizing the results of existing studies, Spaulding, Ballard Lubelczyk & Flanigan (2001) concluded that "condom accessibility may indeed help to reduce transmission of STDs in correctional facilities." They suggested that in prisons where condoms are available, the impact on STI transmission rates among prisoners should be more closely evaluated by means of monitored studies, but acknowledged that, for several reasons, it may be difficult to study the effectiveness of accessibility to condoms in reducing STI transmission.

7.1.3 Conclusions and recommendations regarding condom provision

The available research and the experience of the many prison systems in different parts of the world in which condoms have been provided to prisoners for many years, without any reported problems, suggest that providing condoms in prisons is feasible in a wide range of prison settings.

There is evidence that support for condom provision increases once a condom programme is started, and that a majority of prisoners and staff will support condom provision. However, in some countries where legal sanctions against sodomy exist in the community outside prison, and where there are deeply held beliefs and prejudices against homosexuality, introduction of condoms into prisons as an HIV prevention measure may have to be particularly well prepared through education and information about the purpose of the introduction of condoms, as well as initiatives to counter the stigma that people engaging in same-sex activity face.

There is no convincing evidence of any major, unintended consequences of condom provision for safety and security in prisons. No prison system allowing condoms has reversed its policy, and none has reported security problems or any other relevant

major negative consequences. In particular, it has been found that condom access is unobtrusive to the prison routine, represents no threat to security or operations, and does not lead to an increase in sexual activity or drug use.

While studies have not determined whether infections have been prevented thanks to condom provision in prison, there is evidence that prisoners use condoms to prevent infection during sexual activity when condoms are accessible in prison. It can therefore be considered likely that infections have been prevented. At the same time, there is evidence that making condoms available to prisoners is not enough – they need to be easily accessible in various locations in the prison, so that prisoners do not have to ask for them and can pick them up without being seen by staff or fellow prisoners.

Therefore, it is recommended that:

1. Prison authorities in jurisdictions where condoms are currently not provided should introduce condom distribution programmes and expand implementation to scale as soon as possible.

2. Condoms should be made easily and discreetly accessible to prisoners so that they can pick them up at various locations in the prison, without having to ask for them and without being seen by others.

Ideally, they should be made available in areas such as toilets, shower areas, waiting rooms, workshops, or day rooms where prisoners can pick up a condom without being seen by others. Distribution can be done by health staff, by dispensing machines, by trained prisoners (peers) or in a combination of these ways. Each prison should determine how to best make condoms available, to ensure easy and discreet access. Prisoners should not have to ask for condoms, since few prisoners will do so because they do not want to disclose that they engage in same-sex sexual activity. Condoms should be provided free of charge, and can be made available to all prisoners in a “health kit” given to them at entry, and containing HIV/AIDS and other health information, but also other items such as a razor, toothbrush, soap, etc.

3. Together with condoms, water-based lubricant should also be provided since it reduces the probability of condom breakage and/or rectal tearing, both of which contribute to the risk of HIV transmission.

There is no data comparing condom provision in

prison with and without water-based lubricant. However, given that lubricants reduce the probability of condom breakage and/or rectal tearing, it is logical that providing lubricant assists the aim of condom provision in decreasing the risk of HIV infection.

4. Educational and informational activities for prisoners and for staff should precede the introduction of condom distribution programmes, which should be carefully prepared.

This is particularly important in prison systems that face or could face initial opposition to the provision of condoms.

5. Female prisoners should have access to condoms as well as dental dams.

Currently, there is a lack of data on the effectiveness of providing female prisoners with access to condoms and dental dams. The only data come from the Canadian federal prison system and from New South Wales, Australia, where policy requirements state that dental dams must be provided to prisoners in addition to condoms and lubricant (Correctional Service Canada, 1999; Yap et al., 2007). Nevertheless, in light of the reported frequency of sexual relations of female prisoners, including with male correctional officers, female prisoners should be provided with access to condoms as well as dental dams. Such programmes should be carefully evaluated to assess their effectiveness.

7.2 Other measures to decrease sexual transmission

7.2.1 Background

In addition to providing condoms, lubricant, and dental dams, other measures to decrease sexual transmission of HIV and other STIs in prisons have been recommended, particularly policies and programmes to prevent rape and other forms of sexual violence and provision of post-exposure prophylaxis.

The WHO *Guidelines on HIV Infection and AIDS in Prisons* (1993) and the *International Guidelines on HIV/AIDS and Human Rights* (UNHCHR and UNAIDS, 1998), emphasize that prison authorities “are responsible for combating aggressive sexual behaviour such as rape, exploitation of vulnerable prisoners (e.g. transsexual, homosexual or mentally disabled prisoners) and all forms of prisoner victimization.” The WHO Guidelines recommend that prison authorities provide “adequate staffing, effective surveillance, disciplinary sanctions, and education, work and leisure programmes.” This is consist-

ent with recommendations made elsewhere, which highlight the need for changing institutional cultures which tolerate rape and other forms of sexual violence; and adoption of multi-pronged approaches to combating sexual violence, including specific policies and programmes around prevention (e.g. prisoner education, classification, structural interventions such as better lighting, better shower and sleeping arrangements) staff training, investigation, prosecution, victim services (e.g. medical and mental health), and documenting incidents (Human Rights Watch, 2001; Spaulding, Lubelczyk, Flanagan, 2001; Wortley, 2002; Zweig, Naser, Blackmore, Schaffer, 2006; Canadian HIV/AIDS Legal Network, 2006).

Ensuring that prisoners, particularly those who have been victims of rape, sexual violence or coercion, have timely access to post-exposure prophylaxis has also been recommended (Canadian HIV/AIDS Legal Network, 2006; UNODC, 2007; WHO, ILO, 2007).

Writing about the African context, Reyes (2000) pointed out that prison and penal reform need to “greatly reduce the prison populations, so that the few and underpaid guards be able to protect the vulnerable prisoners from violence – and sexual coercion.” This situation is similar to that of many other under-funded prison systems in which prisoners live in overcrowded conditions, with little supervision and protection, and are vulnerable to abuse, including sexual abuse.

7.2.2 Review and analysis of the evidence

7.2.2.1 Policies and programmes to address sexual violence

A recent review of efforts in the United States provides an overview of initiatives undertaken to address prison sexual violence, as well as to identify specific practices that are promising or innovative in nature (Zweig, Naser, Blackmore, Schaffer, 2006). The review highlighted the following issues:

- ▶ Prison systems are implementing a wide variety of strategies, with some systems implementing comprehensive plans while others are focusing on particular programs.
- ▶ Most systems have adopted specific written policies related to prison sexual violence, many of which seem to comprehensively address the issue through prevention, investigation and response, and victim services.

- ▶ Barriers to developing policies include changing correctional culture, staff resistance, fears of prisoners making false allegations, lack of adequate resources, and operational issues.
- ▶ The most frequently adopted preventative measures included prisoner housing assignment and transfer strategies, initiatives to address overcrowding, and prisoner education.
- ▶ A common theme that served as the foundation for many prison system’s policies and procedures regarding prison sexual violence is a commitment at the most senior levels of the prison system to change the correctional culture, thereby affecting the attitudes of staff and prisoners.
- ▶ Some prison systems have put together security review teams, mapping systems, and surveillance strategies to identify and address facility design vulnerabilities.
- ▶ All prison systems have prisoner classification systems for making housing decisions, and some use these systems to try to prevent prison sexual violence by identifying potential victims and perpetrators of sexual violence.
- ▶ Many prison systems have specific prisoner education or awareness campaigns about prison sexual violence – how to prevent it, how to identify vulnerabilities, and what to do if one becomes victimized.
- ▶ A small number of prison systems use peer education and mentoring programmes to help prevent sexual violence.
- ▶ Most prison systems have policies and programmes in place to investigate reports of prison sexual violence and prosecute cases as appropriate. Policies or protocols include many similar elements, such as response to incidents that occurred in the past, immediate response to recent incidents, separation of the victim and perpetrator, securing the crime scene, evidence collection from perpetrators and victims, chain of command and notification requirements, and reporting and documentation requirements.
- ▶ Most prison systems also report providing some victim services, such as medical services to address injuries, medical testing for contraction of communicable diseases, housing unit assignment strategies to address concerns related to the victimization, services to collect forensic evidence, and mental health crisis intervention and ongoing counseling.

- ▶ A number of prison systems create opportunities for prisoners to report incidents of sexual violence incidents, such as through hotlines and interviews where they are specifically asked about such experiences.
- ▶ Most systems report having staff training programmes specific to their system's response to prison sexual violence.
- ▶ Most systems also report documenting incidents of sexual violence in some way, either keeping both paper and electronic records on incidents, only paper records, or only electronic records.

However, while a number of efforts are underway to evaluate some of these initiatives, to date there have been no formal evaluations to assess the impact of the policies and programmes that have been implemented to address prison sexual violence. In other countries, the literature is often completely silent on the question of prevention of sexual violence, often indicating that the problem is not yet considered a sufficient priority at an official level (O'Donnell, 2004).

7.2.2.2 Post-exposure prophylaxis

There is evidence from studies in the community that provision of antiretroviral drugs to prevent HIV infection after unanticipated sexual exposure might be beneficial (Centers for Disease Control and Prevention, 2005). This has resulted in recommendations that post-exposure prophylaxis (PEP) be made available to persons seeking care less than 72 hours after exposure to blood, genital secretions, or other potentially infectious body fluids of a person known to be HIV infected, when that exposure represents a substantial risk for transmission. PEP refers to a set of services to prevent the infection to develop in the exposed person. These include first aid care, counselling and risk assessment, HIV testing following informed consent, and – depending on risk assessment – the provision of short term (28 days) antiretroviral drugs. If indicated, antiretroviral drugs should be initiated as soon as possible after exposure (ibid).

Recommendations have also been formulated for other scenarios in which PEP may be offered (Centers for Disease Control and Prevention, 2005; WHO & ILO, 2007). In particular, use of PEP has been widely encouraged for victims of sexual assault (Lurie, Miller, Hecht, Chesney, & Lo, 1998; Myles et al., 2000; Fong, 2001).

In the first documented use of PEP in the prison setting anywhere in the world, 46 prisoners in Australia

were offered PEP, and 34 elected to receive it, but only 8 completed the full PEP course (O'Sullivan et al., 2003). The study concluded that PEP administration in prisons is feasible, but that special consideration of prison circumstances is necessary to ensure accurate risk assessment, consideration of ongoing risk behaviours, prompt initiation of therapy, good compliance and adequate follow-up.

7.2.3 Conclusions and recommendations regarding other measures to prevent sexual transmission

There is evidence from countries around the world that rape and other forms of sexual violence occur in prisons. This poses a serious threat to the health of prisoners, psychologically and physically, including the risk of HIV and other sexually transmitted infections. While some prison systems continue to deny the existence of the problem, fail to collect statistical data on sexual violence in prison, and neglect to provide prison staff training in recognizing, preventing, and responding to prisoner sexual violence, other prison systems have shown that it is possible to fundamentally change the way in which sexual violence is addressed in prison, within a relatively short timeframe. These systems typically adopt methods to document incidents of prisoner sexual violence, undertake prevention efforts, provide staff training, undertake investigation and response efforts, and provide services to victims, including access to PEP.

Therefore, it is recommended that:

1. Prison systems should develop and implement multi-prong strategies for enhancing the detection, prevention, and reduction of all forms of sexual violence in prisons and for the prosecution of offenders.

2. Formal evaluations of the various components of the policies and programmes to address rape and other forms of sexual violence in prison should be undertaken.

Although there is near consensus in the literature about what needs to be done to reduce the incidence of sexual violence in prisons, to date, little if any research has been undertaken to assess which strategies are most effective. In addition to evaluating the various components of policies and programmes to address sexual violence, prison systems should allow external, independent researchers to carry out, at regular intervals, a comprehensive review and analysis of the incidence of rape and other forms of sexual violence in their prisons.

3. Victims of sexual assault in prison should have access to post-exposure prophylaxis.

In addition, prison systems should make PEP available in other cases in which PEP could reduce the risk for HIV transmission after exposure to HIV. Specific guidelines for the use of PEP in prisons should be developed by correctional health services to improve the administration of PEP in the prison setting.

8. BLEACH AND DECONTAMINATION STRATEGIES

8.1 Introduction

One strategy to reduce the risk of HIV transmission through the sharing of injecting equipment is to provide bleach or other disinfectants for sterilizing needles and syringes. Programmes providing bleach or other disinfectants have received support particularly in situations where opposition to NSPs has been strongest, including in prisons in most countries (Rutter et al., 2001).

According to WHO's network on HIV/AIDS in prison, 16 of 52 prison systems surveyed made disinfectants (mainly in the form of bleach) available to prisoners as early as 1991. Bleach or other disinfectants were available in some prison systems in Germany, France, and Australia, in prisons in Spain, Switzerland, Belgium, Luxembourg, and the Netherlands, and in some African and at least one Central American prison system (Harding & Schaller, 1992). Since then, the number of systems that make disinfectants available has continued to grow. In surveys undertaken in Europe, the proportion of prison systems that declared having made bleach available rose from 28 percent in 1992 to 50 percent in 1997 (European Network on HIV/AIDS and Hepatitis Prevention in Prisons, 1997). Today, bleach or other disinfectants are also available in many other prison systems, including in Canada, Indonesia, the Islamic Republic of Iran, and some systems in Eastern Europe and Central Asia (Lines, 2002; Dolan, 1999; Canadian HIV/AIDS Legal Network, 2006).

8.2 Review and analysis of the evidence

8.2.1 Programmes in community settings

Programmes providing bleach or other disinfectants were first introduced in 1986 in San Francisco to reduce HIV transmission among IDUs in the community (Normand, Vlahov, Moses, 1995). The proportion of IDUs reporting that they had cleaned syringes with bleach rose from 31 to 75 percent between 1986 and 1990. During that period, HIV prevalence among IDUs declined from 14 to 9 percent (Moss & Vranizan, 1992). In Australia, syringe cleaning has been associated with lower HIV prevalence among IDUs who reported sharing injecting equipment (Ross et al., 1992). Conversely, a number of studies have found bleach programmes to have no

impact on HIV transmission among IDUs (Normand, Vlahov, Moses, 1995, with further references). Before 1993, guidelines for syringe cleaning stipulated a method known as the "2x2x2" method. This method involved flushing injecting equipment twice with water, twice with bleach and twice with water. Research in 1993 raised doubts about the effectiveness of this method in the decontamination of used injecting equipment (Shapshank et al., 1993). In addition, a study of videotapes of people who use drugs re-enacting the last time they injected drugs found that of those who used bleach, more than 80% used bleach for less than 30 seconds when cleaning syringes, although they reported cleaning for longer periods of time (CDC, 1993, with reference to Gleghorn). As a result, new recommendations on how bleach disinfection should be done were issued (CDC, 1993), adding additional steps to the cleaning procedure.

In its comprehensive review of the evidence of the effectiveness of sterile needle and syringe programming in reducing HIV/AIDS among IDUs, WHO (2004) concluded that the "evidence supporting the effectiveness of bleach in decontamination of injecting equipment and other forms of disinfection is weak." The review pointed out that the efficacy of bleach as a disinfectant for inactivating HIV has been shown in numerous laboratory studies; that higher concentrations of bleach, although not always necessary, are more effective; and that contact time with bleach and the presence of other matter, such as clotted blood in syringes, are also important factors influencing efficacy (WHO, 2004 at 9, with many references). However, notwithstanding the strength of the laboratory data, field studies have cast "considerable doubt on the likelihood that these measures could ever be effective in operational conditions" (WHO, 2004 at 28). Three field studies (resulting in four reports) assessing the effect of bleach as a disinfectant for injecting equipment on HIV seroprevalence among IDUs concluded that disinfection of needles with bleach appeared to offer no protection, or at best little protection, against HIV infection (Chaisson et al., 1987; Vlahov et al., 1991b; Titus et al., 1994; Vlahov et al., 1994). Moreover, two studies assessed the effect of bleach on hepatitis C virus (HCV) prevalence and neither found a significant effect of bleach on HCV seroconversion (Kapadia et al., 2002; Hagan et al., 2001). At best, one of the studies (Kapadia et al., 2002) suggests a small (and probably insignificant) reduction of HCV infection.

A review of the effectiveness of bleach in the prevention of HCV infection concluded that, “although partial effectiveness cannot be excluded, the published data clearly indicates that bleach disinfection has limited benefit in preventing HCV transmission among injection drug users” (Public Health Agency of Canada, 2004).

As a result, the WHO review concluded that, “at best, these strategies [bleach and other forms of disinfection] can only be regarded as acceptable in community or correctional settings where the introduction of NSPs [needle and syringe programmes] is considered impossible because of fear or hostility on the part of the community members or authorities. Public health practitioners in these settings should continue to advocate for the introduction of NSPs as the most reliable and evidence-based way of maintaining control of HIV among IDUs” (WHO 2004, at 28).

8.2.2 Evidence from studies undertaken in prisons

Only a small number of studies have evaluated programmes providing bleach or other disinfectants in prison, and even fewer have focused on the health effects of such programmes. The following questions guided the review and analysis of the available data on the effectiveness of prison-based distribution of bleach or other disinfectants:

- (1) Do prison programmes of distribution of bleach or other disinfectants lead to decreased risk behaviours among IDUs and are these changes in behaviour associated with lower rates of infection among IDUs in prison?
- (2) Is there any evidence of any safety or security problems related to the introduction of such programmes?

(For a summary of the information contained in this section, see the Evidence for Action Paper on *Effectiveness of Interventions to Address HIV in Prisons – Needle and Syringe Programmes and decontamination strategies*).

8.2.2.1 Reduction of risk behaviours and of infections

The first two studies to allow the independent monitoring of a prison bleach-distribution programme were undertaken in Australia, finding that most prisoners could obtain bleach and that virtually all who shared syringes reported cleaning the syringes with bleach (Dolan et al., 1994; Dolan et al., 1996c; Dolan,

Wodak, Hall, 1998; Dolan, Wodak, Hall, 1999). The studies also found that there was a significant improvement in easy access to bleach between the first and second study. Other Australian studies also showed that, when bleach is made available to them, a significant proportion of IDU prisoners clean syringes with bleach, but rates in some prisons were significantly lower (Rutter et al, 2001, with references to a number of Australian studies). Relatively easy access to bleach was also reported in the evaluation of the HIV/AIDS harm reduction measures in the Canadian federal prison system. That evaluation examined whether there were any perceptual or behavioural barriers that influence the prisoners’ utilization of bleach kits; what the prison system’s implementation experience was with the bleach kits; and whether there were any unintended consequences related to the distribution of bleach kits. The evaluation found that, in general, prisoners had easy access to bleach, but that at a few prisons, access may not be discreet (Correctional Service of Canada, 1999). In contrast, in a small qualitative study designed to examine the health risks experienced by male prisoners who inject drugs in British Columbia, Canada, prisoners claimed that the supply and quality of bleach in prisons is inconsistent, and that bleach is not always kept in an appropriate, accessible location (Small, 2005).

While studies show that a significant number of prisoners will clean syringes with bleach if it is accessible, studies also show that conditions in prisons make it even more unlikely than in the community that injecting equipment may be effectively decontaminated with bleach. The research team that conducted the evaluation of the HIV/AIDS harm reduction measures in the Canadian federal prison system stated that it had “no confidence that the distribution of bleach alone will effectively reduce transmission of infection from Hepatitis or HIV.” It concluded that “because of the clandestine and furtive nature under which injection drug users operate in prison settings; of the primitive and make shift equipment used to inject drugs; and, of the tendency of injection drug users to become less careful when their cravings overcome their judgment, there is no guarantee that the use of bleach alone will effectively reduce transmission of infection from HIV or Hepatitis C” (Correctional Service of Canada, 1999). This is consistent with the findings of the other studies that examined prisoners’ use of bleach. These studies reported that only a small number of prisoners reported adopting recommended syringe cleaning guidelines (Dolan & Wodak, 1998); bleaching of equipment in prisons “does not occur consistently,

and most likely bleaching is performed too quickly when it is done" (Small, 2005); and that, while most prisoners claimed always to clean used equipment, "because prisoners can be accosted at any moment by prison officers, injecting and cleaning is a hurried affair" (Taylor & Goldberg, 1996).

8.2.2.2 Safety and security

No reports of any serious safety or security problems related to bleach programmes in prisons could be found. The only evaluation that examined whether there were any unintended consequences related to the distribution of bleach kits in prison reported that both prisoners and staff said that bleach had become a "fact of life" in prisons. At all 18 institutions visited during that evaluation, staff could not recall any incident where bleach had been used as a weapon. Interviews with staff indicated that, with a few exceptions, staff concerns in terms of safety have abated (Correctional Service of Canada, 1999).

8.3 Conclusions and recommendations

Disinfection and decontamination schemes in the community outside prisons are not supported by evidence of effectiveness. In prisons, effectiveness may be reduced even further.

The type of syringes available in prisons may be more difficult to effectively disinfect with bleach, prisoners may have problems accessing bleach, and cleaning is a time consuming procedure and prisoners may be reticent to engage in any activity that increases the risk that prison staff will be alerted to their drug use. As WHO Europe has pointed out, "prisoners are highly unlikely to spend 45 minutes shaking the syringes to clean them while waiting to inject in some hidden corner of the prison. Bleach can therefore create a false sense of security between prisoners sharing paraphernalia. The effectiveness of disinfection procedures ... depends greatly on the method used. Effectiveness varies and disinfection is now regarded as a second-line strategy to needle- and syringe-exchange programmes" (WHO Europe, 2005).

Distribution of bleach or other disinfectants is feasible in prisons and does not compromise security.

Disinfectants (mainly in the form of bleach) have been made available in a wide range of prison systems in different parts of the world. No reports of any serious safety or security problems related to bleach programmes could be found.

Because of their limited effectiveness, bleach programmes can only be regarded as a second-line strategy to needle and syringe programmes (NSPs). Therefore:

- ▶ Bleach programmes should be available in prisons where authorities continue to oppose the introduction of NSPs despite evidence of their effectiveness, and to complement NSPs. However, they cannot replace NSPs.
- ▶ Where bleach programmes are implemented, bleach should be made easily and discreetly accessible to prisoners in various locations in the prison, together with information and education about how to clean injecting equipment and information about the limited efficacy of bleach as a disinfectant for inactivating HIV and particularly HCV.
- ▶ Where bleach programmes exist in prisons, but not NSPs, public health practitioners should continue to advocate for the introduction of NSPs.

9. NEEDLE AND SYRINGE PROGRAMMES (NSPs)

A Note about Terminology

In this document we use the term needle and syringe programmes (NSPs) to refer to programmes that provide people who inject drugs with access to sterile injecting equipment (needles and syringes, swabs, vials of sterile water) and most often also to health education, referrals, counselling and other services. This term has grown in popularity and is increasingly replacing earlier terms like “needle exchange programmes” or “syringe exchange programmes.” In prisons, in some programmes used injecting equipment is exchanged against new injecting equipment, for example through automated machines. However, in most programmes, as in the community, injecting equipment is distributed, information about, and means for, the safe disposal of syringes are provided, and additional services are also offered.

9.1 Introduction

Because of the prevalence of injecting drug use in prisons around the world and the resulting risk of transmission of HIV and other bloodborne infections (in particular, HCV), providing sterile needles and syringes to prisoners has been widely recommended, on the ground that access to sterile drug-injecting equipment would ensure that prisoners who inject drugs would not have to share their equipment. As early as 1993, WHO, in its *Guidelines on HIV Infection and AIDS in Prisons*, recommended that “in countries where clean syringes and needles are made available to injecting drug users in the community, consideration should be given to providing clean injection equipment during detention and on release.” The same recommendation was made by UNAIDS (1997a; 1997b) and many other national and international bodies, including the Australian Medical Association (Editor, 1996) and the Ontario Medical Association (2004), which highlighted the public health implications of the lack of access to NSPs in prisons. The *International Guidelines on HIV/AIDS and Human Rights* also specifically state that prison authorities should provide prisoners with means of HIV prevention, including “clean injection equipment” (Office of the United Nations High Commissioner for Human Rights & Joint United Nations Programme on HIV/AIDS, 1998, at 29e). Most recently, the UNODC/WHO/UNAIDS framework for an effective national response to HIV/AIDS prevention, care, treatment and support in prison settings stated that the measures available outside of prisons to prevent transmission of HIV, including sterile needles and syringes, should also be available in prisons (2006, at 24, recommended action 60).

The rationale for establishing NSPs in prisons where injecting drug use takes place is even stronger than in communities (Rutter et al., 2001). In pris-

ons where injecting drug use takes place the risk of blood-borne viral infections may be increased due to the often large number of IDUs who share injecting equipment. Although injecting in prison is usually less frequent than in the community, each episode of injecting is more risky due to the scarcity of injecting equipment and the higher prevalence of sharing of injecting equipment (see **table 1** for an example of studies on frequency of injecting and sharing in prisons). The rapid turnover of prison populations also results in far more changes in injecting partners than in community settings and there is considerable interaction between prisoner and community injecting populations (Dolan, Rutter & Wodak, 2003).

The first prison NSP in the world was established in Switzerland in 1992. Since then, NSPs have been introduced (or are about to be introduced) in various prison environments in over 50 prisons in 12 countries in Western and Eastern Europe and in Central Asia (see **table 6**).

Table 6: Countries with needle and syringe programmes in prisons

Country	Start of programmes	Number of prisons with NSPs (as of 2006)
Switzerland	1992	7
Germany	1996	1 (6 NSPs were closed as a result of political decisions)
Spain	1997	38
Moldova	1999	7
Kyrgyz Republic	2002	11
Belarus	2003	1 (as of 2004)
Armenia	2004	3
Luxembourg	2005	1
Islamic Rep of Iran	2005	1 to 6 (five programmes to be opened in 2006)
Ukraine	2007	2 pilot projects expected to start in 2007
Scotland	2007	one 2-year pilot study approved for start in 2007
Portugal	2007-2008	implementation of NSPs by 2008

In some countries, only a few prisons have NSPs, but in Spain and in Kyrgyzstan programmes have been rapidly scaled up and operate in a large number of prisons, with the intention to make them available in all prisons. Programmes were first introduced in small prisons in Switzerland, but they have since been implemented in other countries in prisons for men and for women, in small, medium, and large institutions, in prisons of all security classifications, in civilian and military prison systems, in different forms of custody (remand and sentenced, open and closed), and in institutions that house prisoners in individual cells as well as in those that house prisoners in barracks.

Significantly, after having been introduced in well resourced prison systems in Western Europe, programmes have since been established in systems with very limited financial resources in Eastern Europe and in Central Asia. Programmes were typically first implemented on a pilot basis and later expanded to other prisons. Several models of distribution of sterile injecting equipment have been used, including automatic dispensing machines, hand-to-hand distribution by prison physicians, other prison health-care staff or drug counsellors, or by external community health workers, and distribution by prisoners trained as peer outreach workers. The following is a brief overview of the history of prison NSPs.

9.1.1 A short history of needle and syringe programmes in prisons

In *Switzerland*, sterile injecting equipment first became available to prisoners in 1992, at Oberschöngrün prison for men. Dr Probst, a part-time medical officer working at Oberschöngrün, was faced with the ethical dilemma of as many as 15 of 70 prisoners regularly injecting drugs, with no adequate preventive measures. Probst began distributing sterile injecting equipment without informing the warden. When the warden discovered this, instead of firing Probst he listened to Probst's arguments and sought approval to sanction the distribution of needles and syringes (Nelles & Harding, 1995). As of 2006 distribution is ongoing, has never resulted in any negative consequences, and is supported by prisoners, staff, and the prison administration. Initial scepticism by staff has been replaced by their full support:

Staff have realized that distribution of sterile injection equipment is in their own interest. They feel safer now than before the distribution started. Three years ago, they were always afraid of sticking themselves with a hidden needle during cell searches. Now, inmates are allowed to keep needles, but only in a glass in their medical cabinet over their sink. No staff has suffered needle-stick injuries since 1993 (Jürgens, 1996).

In June 1994 another Swiss prison – Hindelbank institution for women – started a one-year pilot HIV/AIDS prevention programme including distribution of injecting equipment. Hindelbank’s programme was evaluated by external experts, with positive results (Nelles et al., 1998). Following the first evaluation, a decision was taken to continue the programme. Other Swiss prisons have since started their own programmes, and in 2006, distribution of sterile injecting equipment was being undertaken in seven prisons in different parts of the country (Canadian HIV/AIDS Legal Network, 2006).

In *Germany*, green light to the development and implementation of the first two pilot prison NSP schemes was given in 1995, and the first pilot project started on 15 April 1996 in Lower Saxony. An evaluation undertaken after two years showed positive results (Jacob & Stöver, 2000). At the end of 2000, NSPs had been successfully introduced in seven prisons in Berlin, Hamburg, and Lower Saxony, and others were looking at how to implement them. However, since then six of the programmes were closed down, not because of any problems with the programmes, but as a result of political decisions by newly elected state governments. In each of these cases, the decision to cancel the programmes was made without consultation with prison staff. It has been reported that since the programmes closed, prisoners have gone back to sharing injecting equipment and to hiding it, increasing the likelihood of transmission of HIV and HCV, as well as the risk of accidental needle stick injuries for staff (Lines et al., 2004). Staff have been among the most vocal critics of the governments’ decision to close down the programmes, and have lobbied the governments to reinstate the programmes.

In *Spain*, the first pilot project started in August 1997. An evaluation undertaken after 22 months showed positive results (Menoyo, Zulaica, Parras, 2000). As a result, in June 2001, the Directorate General for Prisons ordered that NSPs be implemented in all prisons (Ministerio Del Interior/Ministerio De Sanidad y Consumo, 2003). As of late 2005, they were operating in 38 prisons (Canadian HIV/AIDS Legal Network, 2006). Spain’s routine evaluation framework delineates specific indicators including: level of knowledge about and acceptance of NSPs in prisons; drug consumption data; drug use practice data (e.g., number/percentage of prisoners sharing syringes); etc. Surveys are administered among prisoners and staff every six months. HCV seroconversion rates in Spanish prisons overall decreased from 5.1% to 2.0% between 2000 and 2004. Similarly, the HIV seroconversion rate decreased from 0.6% to 0.2% (Public Health Agency of Canada, 2006).

The *Republic of Moldova* started a pilot project in one prison in 1999. The project evolved through two stages. During Stage 1 injecting equipment was distributed hand-to-hand to prisoners through the prison medical unit. During the four or five months that this distribution system was in place, between 40 and 50 needles and syringes were exchanged. The project team decided that this method of distribution was not satisfactory. A number of barriers were identified. These included difficulty in establishing a rapport between the medical staff and the prisoners who were injecting, a lack of anonymity and of confidentiality in the service, and the fact that the NSP was only available during office hours (Lines et al., 2004).

Therefore, under Stage 2 of the programme, eight peer volunteers were trained to provide harm-reduction services in four different sites in the prison. Two peer volunteers were assigned to work at each site and were available on a 24-hour basis because the sites were based within the prison living units. The activities and programmes were carried out in cooperation with the prison physician. In the first nine months of 2002, 65 percent to 70 percent of people known to inject drugs in the prison were accessing the programme through the peer volunteers (Lines et al., 2004). Based on its success, the programme has been expanded to six other prisons, with further expansion planned. The total number of needles and syringes exchanged has grown from 3,650 in 2000-2001 to 37,813 in 2003-2004 and 61,433 in 2004-2005 (Pintilei, 2005).

In the *Kyrgyz Republic*, a pilot project started in one prison in October 2002. It was decided that injecting equipment should be provided in a location where prisoners could not be seen by guards; it therefore was provided in the medical wards. The pilot also provided secondary exchange using prisoners as peer volunteers, as in Moldova. The project coordinators found that both options were needed. In early 2003, an order was issued approving the provision of sterile injecting equipment in all Kyrgyz prisons, and by April 2004 they were available in 11 prisons. In all institutions, distribution of injecting equipment is done using prisoners trained as peer outreach workers who work with the medical unit. In April 2004, approximately 1000 people who use drugs were accessing the NSPs. They are provided with one syringe and three extra needle tips. This allows prisoners who inject drugs to inject more – up to three times a day without having to reuse a needle tip. This also reduces the cost of the NSP, since tips cost less than complete needles and syringes (Lines et al., 2004; Wolfe, 2005).

The *Republic of Belarus* started a pilot project in one prison in April 2003. There are plans to introduce them in other prisons, and the Ministry of Internal Affairs has stated that it is prepared to establish them in all prisons in the country (Lines et al., 2004).

In *Luxembourg*, an NSP started at the prison in Schassig (CPL Prison) in August 2005. A prisoner wanting to access the programme has to write a letter to a prison doctor, who – after having met the prisoner – gives him a kit containing an insulin syringe. The syringe can then be exchanged at the medical unit by health care staff (Comité de surveillance du sida, 2006).

In 2005, the State Department of *Ukraine* for Enforcement of Sentences decided that it would start prison needle and syringe pilot programmes in two prisons in 2006 and selected two colonies – colony #48 in Lviv and colony #53 in Mykolaiv – as the sites of the pilot projects. In preparation for the start of the projects, a conference and three trainings on needle and syringe programmes were organized in November and December 2005. Two of the training sessions took place with staff from the two colonies where the pilot projects will take place (Canadian HIV/AIDS Legal Network, 2006). Because of the elections and the period of political uncertainty that followed, implementation of the pilot projects has been delayed and is now expected to start in 2007.

In the *Islamic Republic of Iran*, an NSP started in the central prison of Isfahan and NSPs will soon be opened in five big prisons with support from the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Afshar, 2005; personal communication with Dr Parviz Afshar, Deputy for Health, Correction & Rehabilitation, Iranian Prisons and Corrective Measures Organization, on 19 June 2006).

Armenia started a harm reduction programme in prisons in 2004, with funds from the Global Fund to Fight AIDS, Tuberculosis, and Malaria, including a pilot bleach and NSP programme. This has since been expanded to two more prisons. (Grigoryan, 2006).

In *Scotland*, a number of prisons exchange used needles and syringes found in possession of a person at the time of arrest against sterile needles and syringes which are given to them at the time of liberation (Heller-Murphy, 2005). A 2-year in-custody NSP will start in one prison in 2007 (personal communication with Stephen Heller-Murphy, on 28 June 2006).

In *Portugal*, the government approved a new national plan against drugs and drug dependencies on 24 August 2006. The accompanying action plan foresees that by 2008 NSPs will have been established in prisons (Diario da Republica, 2006).

Finally, it has been reported that *Slovenia* (Zurhold, Stöver & Hausser, 2004) and *Poland* (personal communication with Marzena Ksel, Prison Health Services, Poland, on 6 October 2006) intend to introduce NSPs in some of their prisons.

9.2. Review and analysis of the evidence

9.2.1 NSPs in community settings

Outside prisons, in many countries NSPs have become an integral part of a pragmatic public health response to the risk of HIV transmission among IDUs (and ultimately, to the general public). Extensive studies on the effectiveness of these programmes have been carried out. For many years, there has been scientifically sound evidence showing that they are an appropriate and important preventive health measure. Some comprehensive reviews of the evidence for NSPs appeared in the early to mid 1990s, all confirming the effectiveness of NSPs in reducing HIV spread (see e.g., Normand, Vlahov & Moses, 1995; General Accounting Office, 1993; Office of Technology Assessment of the US Congress, 1995). This conclusion was drawn with even greater confidence in more recent reviews as more and better quality data became available (see, e.g., Institute of Medicine of the National Academy of Science, 2001 and 2006 and WHO, 2004).

But in spite of the impressive volume and quality of this supporting evidence, some continue to question the efficacy and safety of NSPs. A handful of studies from Montreal (Bruneau et al, 1997) and Vancouver (Strathdee et al., 1997) were relied upon by critics of the proposition that NSPs are effective and safe, despite subsequent papers providing plausible alternative explanations for the negative findings in those studies (see, e.g., Schechter et al., 1999; Strathdee & Vlahov, 2001).

In the most recent and comprehensive international review of the effectiveness of NSPs in reducing HIV among IDUs, WHO concluded that “measured against any objective standards, the evidence to support the effectiveness of NSPs in substantially reducing HIV must be regarded as overwhelming” (WHO, 2004, at 28).

To date 60 countries have implemented legal and/or government sponsored NSPs in community settings.

9.2.2 Evidence of the effectiveness of prison-based NSPs

Systematic evaluations of the effects of NSPs on risk behaviours and of their overall effectiveness in prisons were carried out in at least 10 projects in Switzerland, Germany, and Spain (in one additional evaluation, follow-up data could not be obtained due to opposition against the questionnaire by the prisoners). Summaries of some of the most relevant results are provided in **table 7**. These evaluations were either one or two years in duration, collected data through a variety of means, and followed generally accepted scientific standards. Limitations include relatively small sample sizes, relatively short follow-up timeframes, inconsistent methodologies for assessing seroprevalence and seroincidence, and absence of comparison groups (Public Health Agency of Canada, 2006). In Switzerland, one research group conducted all evaluations, whereas in other projects different research groups were responsible for the investigations. Research staff independent of the prison system or health authorities conducted the evaluations. The evaluated projects used interviews with prisoners (predominantly using qualitative instruments, such as anonymous questionnaires, in some cases complemented by qualitative interviews) to gain information concerning drug use, sharing of injecting equipment and acceptance and use of the NSPs. Prevalence of HIV and hepatitis B and C infection was based on questionnaires in some cases and serological testing in others. In Switzerland and Germany, interviews were performed before NSPs were implemented (pre-measurement) and after installation of the programmes (follow-up measurements 1, 3, 6 and/or 12 months later). The groups studied therefore served as their own control group. A comparison of outcomes among comparable groups of prisoners with and without access to NSPs could have provided additional valuable data, but could not be undertaken because of the opposition of ethical committees in all countries.

In addition, a study on the feasibility of NSPs in prisons was conducted in New South Wales, Australia, in 1995. Qualitative data from focus groups of stakeholders documented important issues for piloting an NSP (Rutter et al., 1995).

Finally, while there are no published evaluations of the programmes in Eastern Europe and Central Asia,

a number of published and unpublished reports, papers, and presentations provide information about these programmes and their effects.

The following questions guided the review and analysis of published and unpublished data on the effectiveness of prison-based NSPs.

- (1) Do prison NSPs lead to decreased risk behaviours among IDUs and are these changes in behaviour associated with lower rates of infection among IDUs in prison?
- (2) Do prison NSPs have additional and worthwhile benefits?
- (3) Is there any evidence of any major, unintended negative consequences?

(For a summary of the information contained in this section, see the Evidence for Action Paper on *Effectiveness of Interventions to Address HIV in Prisons – Needle and Syringe Programmes and decontamination strategies*).

9.2.2.1 Reduction of syringe sharing and of resulting blood-borne viral infections

With one exception (Heinemann & Gross, 2001), all available evaluations have shown that sharing of injecting equipment either ceased after implementation of the NSP (see, e.g., Nelles et al., 1998; Stark et al., 2005) or significantly dropped (see, e.g., Nelles, Fuhrer & Vincenz, 1999; Menoyo, Zulaica & Parras, 2000; Stöver, 2000; for more details, see **table 7**). Prisoners in Moldovan prisons with NSPs also reported few incidents of sharing (Pintilei, 2005).

Because ethical committees opposed comparison of different groups with and without access to NSPs, the studies could not provide conclusive evidence of the impact of the NSPs on the incidence of blood-borne viral infections. However, no new cases of HIV were reported in any evaluation. In five of the six prisons in which blood tests were performed for HIV or hepatitis infection, no seroconversion was observed (summarized in Stöver & Nelles, 2003), and self-reports in other prisons also indicated no new cases of infection. In another prison in which the incidence of HIV, HBV, and HCV was determined through repeated testing for these infections, no HIV and HBV seroconversions were observed, but four HCV seroconversions (Stark et al., 2005), one of which had definitely occurred in prison and was attributed to reports of frontloading (dividing up drug doses between two or more IDUs involved in syringe sharing or sharing of spoons for drug preparation).

Overall, the observed reduction in syringe sharing is impressive and studies have shown that the provision of sterile injecting equipment in prisons is readily accepted by IDUs.

Only in one evaluation, of a programme in the open prison of Hamburg-Vierlande in Germany, prisoners interviewed by a sociological research team as part of a qualitative investigation reported only a small reduction in sharing. Sharing continued because of insufficient supply with needles and syringes, mainly due to frequent break downs of the distribution machines, but also because the location of the machines did not allow for anonymous access, pro-

vision of the dummies that allowed for usage of the machines was inadequate, and because syringes of a particular size that was in high demand were not provided. However, the medical research team that conducted a quantitative investigation of prisoners' injecting behaviour reported more positive findings, including a much reduced rate of syringe sharing. In addition, no seroconversions were observed during the programme, while retrospective analysis before the onset of the programme detected five hepatitis B and two hepatitis C seroconversions in the study group which must have happened in prison (Heinemann & Gross, 2001).

Table 7: Sample evaluations of needle and syringe programmes in prisons

Prison, Country	Incidence of HIV/HCV	Sharing of injecting equipment	Drug Use	Injecting
Am Hasenberge (D) (reported in Stöver & Nelles, 2003)	no data	strongly reduced	no increase	no increase
Basauri (E) (Menoyo, Zulaica, Parras, 2000)	no seroconversion	strongly reduced	no increase	no increase
Hannöversand (D) (reported in Stöver & Nelles, 2003)	no data	strongly reduced	no increase	no increase
Hindelbank (SUI) (Nelles, Dobler-Mikola, Kaufmann, 1997)	no seroconversion	strongly reduced	decrease	no increase
Berlin (D)(Lehrter Strasse and Lichtenberg (Stark et al., 2005)		strongly reduced	no increase	no increase*
Lingen 1 (D) (Stöver, 2000; Jacob & Stöver, 2000a)	no seroconversion	strongly reduced	no increase	no increase
Realta (SUI) (Nelles, Fuhrer, Vincenz, 1999)	no seroconversion	single cases	decrease	no increase
Vechta (D) (Stöver, 2000; Jacob & Stöver, 2000a))	no seroconversion	strongly reduced	no increase	no increase
Vierlande (D) (Heinemann & Gross, 2001)	no seroconversion	little change or reduction	no increase	no increase

(adapted from Thomas, 2005; Stöver & Nelles, 2003; Rutter et al., 2001)

* 2 people who had previously only inhaled heroin reported injecting drug use on single occasions.

9.2.2.2 Additional benefits

There is evidence of ancillary health and social benefits associated with the implementation of NSPs.

Reduction in overdose incidents and deaths

A significant reduction of overdose incidents and deaths was reported in the evaluation of the first

needle exchange pilot projects in Germany (Jacob & Stöver, 2000a; Jacob & Stöver, 2000b). It has also been documented in the Swiss prison of Hindelbank, which averaged between one and three heroin overdose deaths a year in the period before introduction of the NSP. In contrast, in the nine years after the programme started operating, only one prisoner died of a heroin overdose (Lines et al., 2004; Lines

et al., 2005). Two reasons why NSPs have resulted in a decrease in overdose incidents and deaths have been offered. The first is that providing each IDU with his/her own injecting equipment enables the individual to consume a smaller amount of drug with each injection. In the past, when a syringe was shared among many prisoners, a person who injected drugs would only have limited access to it and would be more likely to inject large doses on those rare occasions when he/she was in possession of the syringe. The second reason cited was that the implementation of NSPs and the adoption of a harm-reduction philosophy within the institution fundamentally changed the way that prison health and social work staff were able to engage in counselling with prisoners. Honest discussions about risk behaviour and overdose risk were able to take place in an atmosphere where prisoners did not have to fear sanctions for admitting their drug use. (Lines et al., 2004; Lines et al., 2005).

Increase in referral to drug treatment programmes

Evaluations of NSPs in Germany and in Spain showed that the NSPs facilitated greater prisoner contact with drug treatment programmes, with referrals to drug treatment increasing during the study period (Stöver, 2000; Menoyo, Zulaica, Parras, 2000).

Other benefits

A number of evaluations noted other benefits, such as reduction in abscesses, a reduction in stress and improved relationship between prisoners and staff, and increases in awareness about disease transmission and risk behaviours (see, e.g., Menoyo, Zulaica, Parras, 2000; and the summary in Lines et al., 2004; Lines et al., 2005). There are also reports of an increase in staff safety in prisons with NSPs, due to the fact that accidental injuries to staff from hidden syringes during cell searches have been reduced (Jürgens, 1996; Lines et al., 2004). Rihs-Middel (cited in Rutter et al., 1995) suggested that the decrease in the possibility of injury is due to the fact that prisoners are permitted to store injecting equipment in a particular area of the cells and therefore do not hide it, thus reducing the risk of needle-stick injury during cell searches. Meyenberg et al. (1997) found that prison staff believed that the introduction of NSPs made injecting equipment more easy to control. With one exception, evaluation studies report no problems with safe disposal of used syringes, and the exchange rates within NSPs were high, reaching 98.9 and 98.3 percent respectively in two German prisons (Meyenberg et al., 1999). The one exception is the German prison of Hamburg-

Vierlande, where there were reports of syringes not being disposed of properly. At least in part, this was explained by two facts: 1) prisoners felt they would suffer negative consequences if they kept their syringe in the designated location; and 2) access to sterile injecting equipment was limited (Heinemann & Gross, 2001).

9.2.2.3 Absence of unintended negative consequences

No serious unintended negative consequences were reported.

Syringes not used as weapons

Among the most important findings from the evaluation studies is that there was no reported instance where prisoners have used syringes as weapons against other prisoners or staff. Since the first NSP started in 1992, there have been no reports of syringes ever having been used as weapons in any prison with an operating NSP. The only report of a syringe ever being used as a weapon is from a prison in New South Wales, Australia, which did not have a NSP. In that case, a prison guard was stabbed with a blood-filled syringe by a HIV-positive prisoner, and subsequently seroconverted and died (Rutter et al., 2001; Jones, 1991).

NSPs do not lead to increased drug use or injecting

Evaluations of existing NSPs have found that the availability of sterile injecting equipment does not result in an increased number of drug injectors, an increase in overall drug use, or an increase in the amount of drugs in the institutions. In a few prisons, evaluations actually found that reported levels of drug use or injecting decreased (see *infra*, Table 1, for details). In one prison, two individuals who had previously only inhaled heroin reported injecting drug use on single occasions. While it could not be ruled out that the availability of sterile injecting equipment may have facilitated initiation of injecting drug use, it is more likely that this finding reflects the natural incidence of injecting drug use among inhalation heroin users in settings where peers frequently inject (Stark et al., 2005, with reference to Allright et al., 2000; Gore et al., 1995). The number of needles and syringes distributed fluctuated over time in each of the prisons (Stark et al., 2005). Analysis of distribution data found that syringe distribution would increase whenever there were increased amounts of drugs in the prisons and prisoners had received recent payments (see, e.g., Nelles, Fuhrer & Hirsbrunner, 1999).

However, a letter published in the *British Medical Journal* claimed that evaluation of an NSP in a prison in Hamburg found that many prisoners who had stopped using drugs started using them again; and that many prisoners went from inhaling drugs back to injecting drug use “while sharing needles regularly” (Langkamp, 2000). A careful analysis of reports by both the sociological and medical research teams (Gross, 1998; Heinemann & Gross, 2001) who studied the feasibility and acceptance of the pilot project at the open prison of Hamburg-Vierlande does show that a higher percentage of prisoners reported injecting at Vierlande than at the closed institutions from which they were transferred to Vierlande. It also shows that some prisoners reported that they were tempted to go back to injecting drug use while they had previously switched to other forms of drug use because of the fear of infecting themselves with HIV and/or HCV through sharing of injecting equipment, in the absence of an NSP. However, it is doubtful whether the increased drug use and injecting in Vierlande, an open prison, compared to the closed institutions from which prisoners were transferred to Vierlande, can be associated with the existence of the NSP at Vierlande. The evaluation of the NSP itself does not make such a link. In addition, the evaluation report – while stating that prisoners’ reports need to be taken seriously that they could be tempted to go back to injecting drug use because of the NSP – stresses that these reports need to “be interpreted with great caution since a change in the consumption behaviour can very easily be attributed to the syringe distribution machines so that the responsibility and the “fault” can be given to others than the prisoners themselves” (Gross, 1998, translation from German original). Finally, a switch from inhaling or smoking to injecting, as reported by some prisoners in Vierlande, was also noted by studies undertaken in prisons *without NSPs* and attributed to the low availability of heroin that encouraged the change from smoking to injecting, a more efficient way of consumption (Long, 2004).

The fear that introduction of NSPs in prisons could tempt some prisoners to return to injecting drug use or to continue it in prison was also expressed in one of the reviews of prison NSPs, not based on any of the experiences with existing NSPs, but on a small study undertaken in a prison in Canada. In that study, one of 11 prisoners who reported having stopped injecting as a result of being arrested or imprisoned specifically reported that he stopped injecting due to his inability to get sterile injecting equipment and his resulting concern over HIV infection (Thomas, 2005). According to Thomas, “this appears to suggest that the introduction of sterile needles in prison could lead

a small number of IDUs who had given up injecting because of the lack of sterile needles to return to using drugs intravenously.” Smyth (2000) also speculated that, “[a]lthough there is no evidence that provision of needle exchange encourages individuals to start injecting in the community, implementation of such a service could cause many more of these established injectors to opt to continue injecting while in prison.” He expressed a concern that NSPs in prisons could increase the incidence of HCV if more IDUs decide to continue injecting due to the presence of an NSP, and if some of them share injecting equipment occasionally, despite the presence of the NSP. Thomas suggested that future evaluations of NSPs in prison should include strong ethnographic data collection components for the assessment of these types of potential behavioural effect. Smyth urged that a better understanding of the factors that mediate the observed reduction of injecting in this setting [prisons] is needed” and suggested that research evaluations of NSPs in prison should measure the proportion of prison entrants with IDU histories who continue to inject before the introduction of the NSP and then remeasure that proportion after the introduction of the NSP. He conceded that “there should still be substantial health gain for the wide population of IDU from the provision of the NSP in the prison” if the proportion of IDUs who continue injecting “only increases marginally” (Smyth, 2006).

Finally, it has been suggested that a low rate of drug injecting inside of prison “is one good reason for not providing sterile injecting equipment” (Hughes, 2000). A Dutch study of drug-injecting risk behaviours in prisons found that drugs were widely available and used in Dutch prisons but there were low levels of drug injecting (which mirrors the low levels of injecting among drug users in the community) with no-one reporting sharing needles and syringes (Van Haastrecht et al., 1998). The authors concluded that providing injecting equipment under such circumstances may increase the amount of drug injecting inside of prison and may be “counterproductive from a public health viewpoint.” The authors also noted that where prisoners have private cells they are less likely to circulate injecting equipment than where two or more people share a cell, or where prisoners are housed in barracks.

9.2.2.4 Other findings

Adequate access to NSPs and need for confidentiality and trust

Ensuring that all prisoners have easy and confidential access to NSPs and develop trust that they can access injecting equipment when they need it and

without having to fear any negative consequences is a key factor in ensuring their success. Evaluations have shown that prisoners are reluctant to use the NSP if they fear that accessing injecting equipment may result in negative consequences, either because they could be seen using a dispensing machine (Heinemann & Gross, 2001) or because they could only access the NSP through health care or other staff (Stöver, 2000). Technical failures of dispensing machines, leading to limited access to injecting equipment, were also noted (Stöver, 2000).

In one prison in which equipment was distributed through counselling staff and prisoners receiving opioid substitution therapy were excluded from the NSP, needles and syringes remained a commodity for trade in the prison. There was also reluctance to access the NSP due to the lack of anonymity and a fear that counsellors' knowledge of participants' drug consumption could affect parole (Meyenberg et al., 1997; Jacob & Stöver, 1997). In at least one prison, sharing of injecting equipment continued because syringes of a particular size which were in high demand were not available, highlighting that the injecting equipment provided needs to meet the prisoners' demand (Heinemann & Gross, 2001).

If prisoners have limited access to the programme, are not provided the right type of syringes, or lack trust in the programme, benefits for staff will also be reduced, as some prisoners will continue to hide needles and syringes, thus increasing the risk of needlestick injuries for staff (Heinemann & Gross, 2001).

The extent to which easy access, confidentiality and trust are important has been best demonstrated in Moldova, where only a small number of prisoners accessed the NSP when it was located within the health care section of the prison. It was only when prisoners could obtain injecting equipment from fellow prisoners, trained to provide harm reduction services, that the number of equipment distributed increased significantly i.e. 98.4 percent of prisoners reported easy access to injecting equipment (Pintilei, 2005; Lines et al., 2004; Canadian HIV/AIDS Legal Network, 2006). This suggests that in many prisons, distribution by prison nurses or physicians or even by non-governmental organizations or health professionals who come to the prison for this purpose will not be the best option, as many prisoners would not access the programme. In these prisons, distribution through peers has led to much greater access, without any unintended negative consequences (Pintilei, 2005; Wolfe, 2005; Lines et al., 2004; Lines et al., 2005).

Finally, distribution, rather than one-for-one exchange, guarantees greater access to injecting equipment, particularly for those prisoners who are reluctant to access the NSP themselves and prefer to have injecting equipment delivered by trusted peers, and where opening hours are limited.

Acceptance of NSPs by staff and prisoners

Experience has shown that prior to the implementation of NSPs, prison staff have to be convinced to accept or at least tolerate them. Nevertheless, once in place, acceptance increases and is generally high among staff, as well as among prisoners who use drugs and those who do not (Nelles & Fuhrer, 1995; Nelles et al., 1998; Meyenberg et al., 1999).

The one exception was the Hamburg-Vierlande prison, where staff attitudes towards the NSP did not improve. The evaluators concluded that the NSP should not be extended to all prisons until staff had a chance to actively participate in the development of a model that responds to the needs and reality of each prison (Heinemann & Gross, 2001). Staff attitudes towards the NSP were least positive in those prisons in which prisoners experienced problems accessing syringes and/or did not trust that they could obtain them without suffering negative consequences, leading to the continued illegal trade of syringes and, generally, to reduced benefits of the NSP (Heinemann & Gross, 2001).

9.3 Conclusions and recommendations

There is evidence that NSPs are feasible in a wide range of prison settings.

Overall, the review of the evidence demonstrates that prison NSPs are feasible in a wide range of prison settings: in men's and women's prisons, prisons of all security levels, small and large prisons, and in prisons in which prisoners live in units of individual cells and in barracks-style facilities. It also demonstrates that NSPs can be successfully implemented in countries in which prison systems are relatively well resourced, as well as in countries in which prisons operate with significantly less funding and infrastructural support, such as in Eastern Europe (Moldova, Belarus, and Ukraine) and Central Asia (Kyrgyzstan).

Prison-based NSPs appear to be effective in reducing needle sharing and resulting HIV infection.

There is strong evidence that the provision of sterile injecting equipment is readily accepted by injecting drug users in prisons and may contribute to a signifi-

cant reduction of syringe sharing over time. Based on the data available and extrapolating from the vast literature on community-based programmes, prison NSPs also appear to be effective in reducing resulting HIV infections.

Prison-based NSPs have additional and worthwhile benefits.

In particular, there are reports that NSPs in prison

- ▶ lead to reduced overdose risk and a decrease in abscesses
- ▶ facilitate referral to drug dependence treatment programmes (where available) and lead to an increase in the number of prisoners accessing such programmes.

There is no convincing evidence of any major, unintended negative consequences.

There is no evidence to suggest that prison-based NSPs have serious, unintended negative consequences. In particular,

- ▶ NSPs do not appear to lead to increased drug use or injecting;
- ▶ Injecting equipment are not used as weapons;
- ▶ NSPs do not appear to undermine abstinence-based programmes, as drugs have remained prohibited within prisons where NSPs are in place. Security staff remain responsible for locating and confiscating illegal drugs. However, it is recognized that if and when drugs find their way into the prison and are used by prisoners, the priority must be to prevent the transmission of HIV and HCV via unsafe injecting practices. Therefore, while drugs themselves remain illegal, injecting equipment that is part of the official NSP is not.

In order to be successful, prisoners need to have easy, confidential access to NSPs, and prisoners and staff should receive information and education about the programmes and be involved in their design and implementation.

The review also showed that there are a number of key determinants of the success of prison-based NSPs:

- ▶ easy and confidential access by prisoners to NSPs
- ▶ support by prison staff and prisoners, emphasizing the importance of information and education of both staff and prisoners about the programme and its expected benefits for prisoners, staff, and the public

- ▶ developing a mechanism for safe disposal of syringes, and
- ▶ involvement of staff and prisoners in the design and development of the programmes.

Additional research about prison-based NSPs would be beneficial if it leads to reducing gaps in evidence.

The review has shown that there are areas in which future evaluation studies could reduce gaps in research. Most importantly, NSPs in prisons in countries outside Western Europe have not been scientifically evaluated. Moldova has been collecting various data and is undertaking prevalence studies (Pintilei, 2005), but none of the programmes implemented outside Western Europe collected data before the programmes began or has attempted to more systematically gather research data. Gathering additional data would be important to inform the prison systems in Eastern Europe and Central Asia in which NSPs are increasingly being introduced.

For additional studies, Rutter et al. (1995) recommend using a two-year evaluation using multi-method strategies including: quantitative and qualitative interviews of prisoners and staff; testing prisoners for blood borne viral infections and drug use; and review of prison records for assaults and/or drug seizures. According to Thomas (2005), the “key tasks” in evaluating future pilot prison-based NSPs “is to collect reliable information on a wide-range of relevant indicators before, during and after implementation of the program, analyse any changes that can be attributed to the needle exchange program, compare the ‘positive’ and ‘negative’ effects, and make a determination as to whether the positive effects (e.g., a reduction in the amount of needle sharing and disease transmission, etc.) outweigh the negative effects (e.g., prisoners being introduced to, returning to, or increasing injecting because of the availability of needles, etc.).”

In the end, as the United States National Academy of Sciences’ Institute of Medicine stated in the context of its analysis of the evidence on NSPs in the community, it has to be recognized that “the improbability of being able to carry out the definitive study ... does not necessarily preclude the possibility of making confident scientific judgments.” Citing Bradford Hill, the Institute continued saying that “incomplete” scientific evidence “does not confer upon us a freedom to ignore the knowledge we already have, or to postpone the action that it appears to demand” (Normand, Vlahov & Moses, 1995, cited in WHO, 2004; National Academy of Sciences, 2006).

To reject prison-based NSPs, based on limitations of the design of the studies undertaken thus far, would ignore both the preponderance and pattern of the evidence and be “both poor scientific judgment and bad public health policy” (WHO, 2004) Or, in the words of WHO Europe (2005): “The relatively little experience available appears to show that, where risks are great, such as in countries with high prevalence rates of HIV and hepatitis, carefully introducing a syringe- and needle-exchange programme would be justifiable based on the experience already available ... When prison authorities have any evidence that injecting is occurring, they should consider an exchange scheme, regardless of the current prevalence of HIV infection”.

It is therefore recommended that:

1. Prison authorities in countries experiencing or threatened by an epidemic of HIV infections among IDUs should introduce needle and syringe programmes urgently and expand implementation to scale as soon as possible.

The overall success of the evaluated prison-based NSPs and the other available data reviewed for this report present a compelling case that prison-based NSPs are feasible, and suggest that they reduce sharing of injecting equipment and the resulting spread of HIV infections. This suggests that similar programmes may be beneficial in any prison with a problem of injecting drug use and associated sharing of injecting equipment.

The higher the prevalence of injecting drug use and associated risk behaviour is in prison, the more urgent introduction of prison-based NSPs becomes.

Monitoring and evaluation is an important component of any programme. While pilot projects of prison-based NSPs may be important in allowing the introduction of these programmes and to overcome objections against such programmes, they should not delay the expansion of the programmes, particularly where there already is evidence of high levels of injecting in prisons.

2. Additional research about prison-based NSPs should be undertaken to address remaining knowledge gaps.

This review has demonstrated significant gaps in research. In particular, more research in resource-poor systems outside Western Europe could allow for more rapid expansion of NSPs in these systems. Research in other systems should be designed to address research gaps rather than replicate exist-

ing studies. Evaluation of pilot programmes may be justified if: (1) the evaluation takes place in settings that are sufficiently different from settings in which evaluations have already been undertaken; or (2) it addresses research gaps.

10. SAFER TATTOOING INITIATIVES

10.1 Introduction

As described above, in chapter 3.3.2, studies in many countries have shown high levels of tattooing in prison. In many countries, tattooing is increasingly popular also in the community (Makkai and McAllister, 2001). While tattooing in the general community is legal and usually practiced under sterile conditions that minimize risks of disease transmission, infection, and dermal damage, prisoners are denied access to sterile tattooing equipment. Prisoners frequently go to great lengths to get tattooed in prison, substituting a variety of materials for the tattoo gun and inks (Crofts et al., 1996).

Sharing and reuse of tattooing equipment (tattoo needles, guns, and ink) pose a high risk of HCV and, to a lesser extent, HIV transmission.

In light of the prevalence of tattooing in prison and the fact that it is so ingrained in prison culture, simple prohibition of tattooing in prison does not seem to work. It has therefore been recommended that tattoo equipment and supplies be authorized for use in prisons, that educational materials on how to tattoo safely be made available to prisoners, and that prisoners who would offer tattooing services to other prisoners be instructed about how to use tattooing equipment safely (Correctional Service, Canada, 1994a). According to Hellard and Aitken (2004), “[a]llowing tattooing in prisons and giving prisoners the means to acquire tattoos safely seems the obvious solution but it is difficult to implement.” They continue by saying:

Efforts to establish tattooing services in Australian prisons to date have not been sustained. Obstacles preventing the provision of safe tattooing in prison include resistance from professional tattooing associations, who believe that hardwon gains in ‘mainstreaming’ the image of the industry would be lost if there was a formal association between tattooing and jails. There is also resistance from prison workers and management because of concerns that the materials may be used as weapons. Finally, public opinion (and therefore, political will) is unlikely to support the concept of prison inmates being provided with ... tattoos, public health or economic arguments notwithstanding.

In Canada, prisoners from 11 federal prisons made suggestions on how safer tattooing could be best supported in their institutions. Based on their input and other research, Collins et al. (2003) made a series

of recommendations to the Correctional Service of Canada (CSC), including to authorize the establishment of pilot safer tattooing projects. In March 2004, CSC, in partnership with the Public Health Agency of Canada, announced the initiation of a pilot project on safer tattooing practices. Six pilot sites were identified and training was provided to correctional staff and prisoners prior to implementation.

The one-year pilot, which started in 2005, included educating all prisoners about safer tattooing practices and provided safer tattooing services in a secure environment. Prisoner tattooists were hired after successfully meeting the established criteria and completing the safer tattooing training. Correctional staff supervised the tattoo shops (Adamowski et al., 2005; Betteridge, 2005; Gratton, 2006). Originally, the plan was to evaluate the results of the pilot before a decision would be made regarding implementation in federal prisons across Canada. However, in 2006, after a change in government, the new minister responsible for prisons decided to terminate the initiative (Betteridge, 2006; Kondro, 2007).

According to Canadian officials, this was the first programme of its kind, although other countries have been thinking about implementing it in their prisons (Etter, 2006).

10.2 Review of the evidence

There is ample evidence that tattooing is prevalent in prisons around the world, and that it creates a risk of HCV and, to a lesser extent, HIV transmission (see supra, chapter 3.3.2).

The results of the evaluation of the Canadian pilot project have not been publicly released. However, Betteridge (2007) reports that a draft of the evaluation report, obtained under access to information laws, “details positive outcomes, constraints, and enhancements to address implementation issues and cost-effectiveness of the initiative”.

The evaluation examined the operational component (tattoo rooms in six federal prisons) and educational component (information regarding unsafe tattooing provided to prisoners at regional reception centres and at the six prisons with tattoo rooms) of the initiative on the basis of: success, cost-effectiveness, implementation, unintended effects, and continued relevancy. The evaluation used both quantitative and qualitative research methods to gather information (Betteridge, 2007, with reference to Nakef, undated).

It reports that between 1 August 2005 and 31 August 2006, 324 prisoners received a tattoo through the initiative; 60 were on waiting lists. The evaluation makes 10 key findings. In particular, it found that the initiative has demonstrated potential to reduce harm, reduce exposure to health risks, and enhance the safety of staff members, prisoners and the general public; and that it has resulted in an enhanced level of knowledge and awareness amongst staff and prisoners regarding blood-borne disease prevention and control practices.

Other findings relate to implementation shortcomings that negatively impacted on the effectiveness and efficiency of the initiative. Tattooing activities at most sites were constrained by a lack of trained tattoo artists, and sporadic hours of operation at some sites had an impact on the number of tattoos provided. In terms of cost-effectiveness the evaluation found that while the cost of the initiative is low relative to the potential benefits, a more cost-effective model could be implemented to yield the same or better results without compromising safety.

Finally, the evaluation suggested a number of ways to address the implementation-related shortcomings and make the initiative more cost-effective and efficient.

The evaluation recommended that “[t]o maintain an enhanced level of knowledge and awareness of infection prevention and control practices, CSC should continue the education component of the Safer Practices Tattooing Initiative.” The second recommendation was blacked-out in the draft report; CSC relied on exemptions in the access to information law as authority for doing so.

10.3 Conclusions and recommendations

There is ample evidence that tattooing is prevalent in prisons around the world, and that it creates a risk of HCV and, to a lesser extent, HIV transmission. It is therefore recommended that prison systems undertake and evaluate pilot initiatives such as the one undertaken in Canadian prisons, to assess whether they reduce the occurrence of tattooing with shared and re-used equipment and related infections.

11. OPIOID SUBSTITUTION THERAPIES AND OTHER DRUG DEPENDENCE TREATMENTS AND INTERVENTIONS

11.1 Introduction

11.1.1 Drug use and dependence among prisoners

In many countries, prisoners use drugs while incarcerated, including by injecting (for details, see chapter 3.1). At least in part this is due to the fact that a substantial proportion of prisoners are drug dependent. A recent systematic review of studies reporting prevalence of alcohol or substance use or dependence in prisoners during the previous year showed that estimates of drug abuse or dependence in male prisoners (eight studies, $n = 4,293$) range from 10.0 to 48%; in female prisoners (six studies, $n = 3,270$), from 30.3 to 60.4% (Fazel, Bains & Doll, 2006).

In the absence of effective drug dependence treatment, it is likely that a high proportion of drug dependent prisoners will continue using drugs and persist in crime – and many will be at risk of contracting HIV, during imprisonment or in the community. In the United States, statistics reported by the Bureau of Justice Statistics indicate that among people on probation, those who frequently use drugs were 53% more likely to be re-arrested than non-drug users (Bureau of Justice Statistics, 1995).

The period of time when a prisoner is incarcerated represents an opportunity to intervene in the cycle of drug use and crime and to reduce the harms of drug use (Mitchell, Wilson, MacKenzie, 2005; McSweeney, Turnbull & Hough, 2002). However, many drug users in prison are serving short-term sentences or are on remand, which means the time available for therapeutic interventions is often limited. Further, meeting the diverse needs of people dependent on drugs in prison can be challenging (EMCDDA, 2003).

11.1.2 Objectives of drug dependence treatment

The objective of drug dependence treatment is the achievement and maintenance of physical, psychological and social well-being through reducing the risk-taking behaviours or practices associated with drug use, or through abstinence from drug use.

Due to the chronic relapsing nature of drug dependence and the need to address social and psychological dimensions, achieving abstinence for many people is often a lengthy and difficult process. The provision of ‘stepping stones’ or ‘stabilizing strategies’ in the form of short-term and more achievable goals helps to define and structure progress and also to reduce drug-related harms, one of which is infection with blood-borne viruses such as HIV and hepatitis B and C (WHO, 2005).

The potential impacts of drug dependence treatment on HIV prevention include (Metzger, Navaline, & Woody, 1998; Sorensen & Copeland, 2000): reduced injecting drug use; reduced using of non-sterile injecting equipment; reduced sexual risk behaviours; and opportunities for HIV education and medical care.

11.1.3 Types of drug treatment

There is a variety of treatment options available, ranging from drug-free residential to outpatient pharmacotherapy, including maintenance and detoxification regimes. WHO has reviewed the effectiveness of the different forms of treatment in other publications and concluded that long term pharmacotherapy with methadone or buprenorphine is the most effective intervention available for the treatment of *opioid* dependence and a critical component of efforts to prevent the spread of HIV among injecting drug users (WHO, 2004; WHO, 2005). Patients who want to withdraw from opioids can be treated with clonidine, lofexidine or reducing doses of methadone or buprenorphine to minimize the severity of withdrawal symptoms.

The use of methadone and buprenorphine for detoxification programmes should be distinguished from opioid substitution programmes. While detoxification programmes are important in supporting withdrawal they generally do not serve the purpose of HIV prevention.

11.1.3.1 Opioid substitution therapy

Opioid substitution therapy (OST) in its different forms has become a widely accepted drug treatment and harm reduction measure for opioid dependent individuals in the community (Stallwitz & Stöver,

with reference to Council of Europe, 2001). It entails prescribing a drug with a similar action to the illegal drug used (an 'agonist' in pharmacological terms), but with a lower degree of risk. Agonist pharmacotherapy programmes are available only for people who are primarily opioid-dependent, as the efficacy of substitution therapy for cocaine and amphetamine-type stimulants has not been demonstrated.

The value of substitution lies in the opportunity it provides for people who are dependent on drugs to reduce their exposure to risk behaviours and stabilize in health and social terms before addressing the other dimensions of dependence.

The agent that has been most widely applied and researched for agonist pharmacotherapy of opioid dependence is methadone. Methadone was first introduced in the 1960s. It is a long-acting synthetic opiate agonist that is easily absorbed when taken orally and in most people will prevent withdrawal symptoms for 24 hours, allowing once daily administration. Studies have demonstrated that methadone is successful in blocking the effects of opiate withdrawal symptoms and the euphoria produced by short acting opioids (Senay & Uchtenhagen, 1990). Methadone doses of between 60 and 120 mg/day or more have been identified as being most effective in terms of retention in treatment and reducing illegal drug use and criminal behaviour (Kreek, 2000; Ward et al, 1998).

Buprenorphine was first registered as a substitute medication for opioid dependence in 1995 in France. Buprenorphine is a partial agonist that is long-acting. OST with buprenorphine dosages between 8-24 mg has similar outcomes as OST with methadone. The choice between the two medications should be based on a clinical assessment.

OST with both methadone and buprenorphine has proven to decrease the high cost of opioid dependence to individuals, their families and society at large by reducing heroin use, associated deaths, HIV risk behaviours and criminal activity. OST is a critical component in the prevention of HIV infection among injecting drug users (WHO, 2004; WHO, 2005). Its effectiveness is improved when it is provided in combination with psychosocial support.

OST also offers important opportunities for improving the delivery of antiretroviral therapy to HIV-positive drug users. Maintenance therapy enables opioid dependent drug users to stabilize their lives, avoid or manage many of the complications of injecting drug

use, and is therefore seen as an important component in strategies for retaining active injecting drug users in antiretroviral therapy programmes (Mattick et al. 2002). OST also provides additional entry points for scaling up antiretroviral therapy, improves drug adherence and increases access to care (Clarke et al. 2002; Moscatello et al. 2003; Lucas 2004; WHO et al. 2004; Open Society Institute 2004; Farrell et al. 2005).

In 2005, both methadone and buprenorphine were added to the WHO Model List of Essential Medicines (WHO, 2005b).

In spite of the volume and quality of the evidence supporting methadone and buprenorphine, OST remains controversial in some countries and many authorities are resistant to its use. WHO has emphasized that "policy-makers need to be clear that the development of drug substitution treatment is a critical component of the HIV prevention strategy among injecting opioid users". It continued by saying that "policy-makers ... need to be made aware of the very high costs of not putting such treatment in place. Countries without such treatment are those currently reporting major HIV outbreaks and such negative trends are likely to continue" (WHO, 2005).

11.1.3.2 Other treatment options for drug dependence

On the basis of the extensive existing evidence of the effectiveness of the treatment of opioid dependence, consideration was given to only focussing in this paper on strategies that have a direct impact on injecting drug use, such as OST. However, while such treatment is critical to the task of HIV prevention among injecting opioid users, the other available treatments form an important bedrock to the overall treatment and HIV-prevention strategy. All forms of treatment have some impacts on risks of HIV transmission, although reduction of that risk may not be an explicit goal of the treatment (WHO, 2005).

Abstinence-based or drug-free treatment approaches vary considerably in their setting and orientation. **Residential rehabilitation** is based on the principle that a structured, drug-free environment provides an appropriate context to address the underlying causes of addiction. These programmes assist the client in developing appropriate skills and attitudes to make positive changes towards a drug-free way of life. **Therapeutic communities** (TCs) are a subset of residential rehabilitation typified by an emphasis on accepting personal responsibility for decisions and actions (WHO, 2005; WHO-WPRO, 2006). TCs in the community have been shown

to be an effective treatment option for a subset of clients (Gowing, Cooke, Biven & Watts, 2002). **12-step programmes** i.e. self-help or mutual support groups are generally based on the principles of Alcoholics or Narcotics Anonymous, which espouse a disease concept of drug and alcohol dependency with the promise of recovery but not cure.

Psychosocial support may be delivered in the context of abstinence-based treatments or in conjunction with OST. The provision of psychological support and counselling to encourage behavioural and emotional change is important to the overall process of treating drug dependence. Behavioural interventions are also important to address risk behaviours associated with drug dependence, including injecting practices and sexual behaviours. As such, behavioural interventions delivered in conjunction with drug treatment are important in HIV prevention (WHO, 2005).

11.1.4 Drug treatment in prisons

11.1.4.1 Overview

Incarceration-based drug treatment is diverse, encompassing a broad array of treatment programmes including:

- ▀ OST and detoxification programmes
- ▀ TC programmes; the individual components of therapeutic communities vary widely, but there are several common components (Mitchell, Wilson, MacKenzie, 2006):

First, in order to create an environment conducive to rehabilitation, residents in therapeutic communities are most commonly housed in a separate, distinct treatment unit away from non-participating inmates. Second, residents are instrumentally involved in running the therapeutic community including leading treatment sessions, monitoring other residents for rule compliance, maintaining the treatment unit, and resolving disputes. Third, staff and residents of therapeutic communities tend to be confrontational with rule violators, but residents also are supportive of each other's struggles to make positive changes. Fourth, the guiding philosophy of therapeutic communities is that drug use is symptomatic of more general personal disorders, thus the focus of the treatment is on the underlying disorders and not drug abuse, per se.

- ▀ punitive interventions such as boot camps, which are modelled after military basic training (ibid):

Inmates participate in rigorous exercise regimens, learn military drill and ceremony, wear uniforms, and take on challenge courses (timed obstacle courses). Boot camps are highly structured. From the moment residents wake in the morning until lights out they are constantly engaged in scheduled activities. Boot camps also involve considerable confrontation, but unlike most therapeutic community programs confrontations most often occur between correctional staff and inmates – with drill instructors disciplining any deviation from established codes of conduct. In theory, the harsh, rigorous nature of boot camp programmes serve as a deterrent to future criminal conduct.

- ▀ counselling programmes, which generally incorporate elements of group counselling programmes (e.g., 12-step programmes), life skills training, cognitive skills training, drug education, and adult basic (academic) education. A key commonality among counselling programmes is their reliance on group based therapies, in which drug use and other common problems are discussed among peers in an effort to solve mutual issues. However, not all counselling programmes rely on peer therapy; some are individual-based where the client and a clinician work together to remedy drug problems. And still other counselling programmes include both group and individual counseling.

Some form of drug dependence treatment in prison is now provided by most developed countries, and there has been a rapid expansion during recent years in the number and type of interventions offered (McSweeney, Turnbull & Hough, 2002; Stöver et al., 2001). However, even in developed countries, few prisons have sufficient resources to provide adequate treatment programmes, and there are no services at all in many prisons (EMCDDA, 2003; Belenko & Peugh, 1998; Peters, Matthews & Dvoskin, 2004; Travis, Solomon, Waul, 2001). Research in countries in Central and Eastern Europe has shown that treatment for drug users is sporadic and that many prisoners are not eligible for any sort of treatment or support (MacDonald, 2005). Information about programmes in other developing countries and countries in transition is even more limited.

From an HIV prevention perspective, drug dependence treatment efforts in prisons need to be particularly concerned with decreasing the use of injecting drugs. Research shows that opiate use and injecting is much more prevalent in prison than use and injecting of cocaine (see, e.g., Bullock, 2003; Boys et al., 2002; Swann & James, 1998; Plourde & Brochu, 2002).

11.1.4.2 OST in prison

The first experimental OST programme in prison, offering methadone pre-release to jail inmates in New York City, was initiated in 1968 (Dole et al., 1969). The early literature noted that, in addition to Rikers Island in New York (Joseph et al., 1989), over the next 20 years such programmes either existed or had existed at some point at a prison in California (Contra Costa County), in Rotterdam in the Netherlands, at Wolds Remand Prison in the United Kingdom (Daines et al., 1992), and in Denmark and Sweden, (Gorta, 1992, with reference to Lynes, 1989).

In New South Wales, Australia, a pilot pre-release methadone programme started in 1986. It was later expanded so that the pre-release programme became just one component of a larger prison methadone maintenance therapy (MMT) programme (Hall, Ward & Mattick, 1993). Initially, the programme focussed on “breaking the cycle of criminal activity associated with drug use.” However, as early as 1987, it became the first prison MMT programme to move towards a HIV prevention strategy and to include the reduction of injecting heroin use and HIV and hepatitis B transmission among its objectives (Gorta, 1992).

Since the early 1990s, and mostly in response to raising HIV rates among injecting drug users in the community and in prison, there has been a marked increase in the number of prison systems providing OST to prisoners. Today, prison systems that offer OST to prisoners include most systems in Canada and Australia, some systems in the United States, most of the systems in the 15 “old” European Union (EU) member states (Stöver et al., 2001), and systems in other countries, including Iran and Indonesia. In Spain, 18% of all prisoners, or 82% of people with problematic drug use in prison, receive MMT (EMCDDA, 2005).

OST programmes are also provided in some of the “new” EU member states (such as Hungary, Malta, Slovenia and Poland), although they often remain small and benefit only a small number of prisoners in need (MacDonald, 2005). Finally, an increasing number of systems in Eastern Europe and the former Soviet Union have started OST programmes (such as Moldova and Albania) or are planning to do so soon (Canadian HIV/AIDS Legal Network, 2006; Moller, 2005).

Reflecting the situation in the community, most prison systems make OST available in the form of MMT. Buprenorphine maintenance treatment is available only in a small number of systems, includ-

ing in Australia (Black, Dolan & Wodak, 2004) and some European countries (Stöver, Hennebel & Casselman, 2004).

Generally, drug-free treatment approaches continue to dominate interventions in prisons in most countries (Zurhold, Stöver, Haasen, 2004), while OST remains controversial in many prison systems despite being widely accepted as an effective intervention for opioid dependence elsewhere.

Prison administrators have often not been receptive to providing OST, due to philosophical opposition to this type of treatment and concerns about whether the provision of such therapy will lead to diversion of medication, violence, and/or security breaches (Magura et al., 1993). Further, disparities in priorities and procedures between treatment and correctional staff typically surface when rehabilitation efforts are implemented in prison (Kinlock et al., 2002, with reference to Senese & Kalinich, 1997).

Several arguments have been made against the implementation of OST in prison settings. Some critics consider agonist pharmacotherapies as just mood-altering drugs, the provision of which delays the necessary personal growth required to move beyond a drug-centred existence. Some also object to OST on moral grounds, arguing that it merely replaces one drug of dependence with another. Finally, some point to the fact that an individual’s drug use is usually much less frequent in prison than in the community. For this reason it is sometimes argued that OST in prison is unnecessary. However, every single instance of injecting drug use in prison carries a high risk of HIV or other blood-borne infections transmission because it usually involves using non-sterile injecting equipment. In addition, the evidence of the benefits of OST in the community is overwhelming, suggesting that OST can play an important role also in reducing harm among prisoners.

11.2. Evidence on effectiveness of opioid substitution therapies in prisons

11.2.1 Background

Most of the existing research on OST in prisons was undertaken in the United States and Australia, but some studies were also conducted in Canada, Europe, and other countries such as Iran. The investigations comprise (Stöver, Hennebel & Casselman, 2004):

- ▶ a small number of controlled trials (Dolan et al., 2002; Dolan et al., 2003; Dolan et al., 2005; Bayanzadeh et al., 2004)
- ▶ evaluation studies of the provision of OST in prisons (Schultze, 2001; McGuigan, 1995; Boguna, 1997; Keppler, 1995; Heimer et al., 2005; Heimer, Catania, Newman et al., 2006)
- ▶ feasibility studies and reviews (Dolan & Wodak, 1996; Pearson & Lipton, 1999; Stöver, Casselman & Hennebel, 2006; Larney, Mathers & Dolan, 2007)
- ▶ examinations of the different modes of OST found in prisons (e.g., detoxification, pre-release, short-term and maintenance) (Michel & Maguet, 2003)
- ▶ studies on the diverse criteria relevant to evaluating the quality of the outcomes (Hannafin, 1997) or highlighting certain aspects of OST (Tracqui et al., 1998); and
- ▶ cost-effectiveness studies (Warren & Viney, 2004; Warren, Viney, Shearer et al., 2006).

A recent meta-analysis of the effectiveness of incarceration-based drug treatment excluded some of the most relevant investigations on OST in prisons, since it only included studies that reported a post-release measure of recidivism (Mitchell, Wilson, MacKenzie, 2006).

The following questions guided the review and analysis of published and unpublished data on the effectiveness of OST (for a summary of this information, see the Evidence for Action Paper on *Effectiveness of Interventions to Address HIV in Prisons – Drug Dependence Treatment*):

- (1) Does prison-based OST lead to a reduction in illegal drug use and associated risk behaviours?
- (2) Does prison-based OST have additional and worthwhile benefits?
- (3) What other significant findings are reported in the literature?

11.2.2 Does prison-based OST lead to a reduction in illegal drug use and associated risk behaviours?

The reduction of illegal drug use and injecting risk behaviours, such as sharing injecting equipment, which at the same time also implies a reduction of the transmission of blood-borne infectious diseases, constitute the primary aims of OST, whether in the community or in the prison setting.

Findings from studies of prison-based OST programmes with methadone maintenance therapy (MMT) reflect what is known about MMT in the community. As in the community, imprisoned heroin injectors who receive MMT inject drugs significantly less frequently than those not receiving this treatment (Larney, Mathers & Dolan, 2007).

- ▶ In an early study undertaken in New South Wales, Australia, IDUs who received MMT during imprisonment reported significantly fewer injections per week (mean 0.16 v 0.35; $P=0.03$ Mann-Whitney test) than those not receiving the treatment, but only when the maximum methadone dose exceeded 60 mg and if MMT had been provided for the entire duration of imprisonment (Dolan et al., 1996b; Dolan, Wodak & Hall, 1998). While it had many limitations – leading the authors themselves and some commentators (Gore & Seaman, 1996) to recommend that the efficacy of methadone maintenance in prison be evaluated prospectively in randomized controlled trials – the study did suggest that the reduction of injecting and syringe sharing that occur with MMT in community settings also occur in prisons. However, it also suggested that prisoners need a daily dose of at least 60 mg of methadone and treatment is required for the duration of incarceration for these benefits to be realized in prison.

- ▶ A randomized controlled trial of MMT versus wait list control in a New South Wales prison confirmed the findings of the previous study. This first prospective evaluation of the effectiveness of MMT in prison found that heroin use was significantly lower (27% versus 42%) among treated than control subjects at follow up (Dolan et al., 2003). Treated subjects reported lower levels of drug injecting and were significantly less likely to report syringe sharing at follow up than control subjects. HIV prevalence was zero at both baseline and follow-up for all subjects. HCV incidence was lower among the treated than the control group, but the difference was not statistically significant. The authors commented: “One limitation of this study was the short duration of follow up. This coupled with the high prevalence of hepatitis C infection precluded the possibility of detecting a difference in hepatitis C incidence between groups.” They concluded:

Methadone treatment reduced drug use and injection in prison. The implications from this study are far reaching ... This study suggests that prison based methadone programs should be provided in countries where community based programs operate.

- A 4-year follow-up study examined the longer-term impact of MMT on mortality, re-incarceration and hepatitis C and HIV seroconversion. It found that improved outcomes were associated with longer periods of methadone treatment (Dolan et al., 2005). Short periods of imprisonment (less than 2 months) were significantly associated with greater risk of hepatitis C infection. Short MMT episodes (less than 5 months) were also significantly associated with greater risk of hepatitis C. Retention in treatment was associated with reduced hepatitis C infection. This finding is consistent with studies of HIV seroconversion in IDUs in the community that found that HIV infection was highly correlated with duration and stability of MMT participation (Metzger, Navaline, & Woody, 1998). According to the authors, the "significantly greater risk of hepatitis C infection associated with short MMT duration underlines the importance of increasing retention in treatment, particularly during short prison sentences when MMT dropout was greatest."
- A significant reduction in injecting and syringe sharing was observed in the evaluation of a 5-month pilot programme of MMT prescription in a prison for males in Barcelona, Spain (Mourino, 1994; Boguna, 1997). Structured interviews were conducted with 123 incarcerated male opiate users, most of whom had already been in MMT prior to incarceration. The average methadone dose prescribed in prison was 58 mg. Over the course of the programme participants significantly reduced injecting and sharing syringes. However, this tendency was only significant when the treatment duration was more than six months. 15 participants had concomitant drug use, which was significantly less frequent than among individuals who received less than 50mg. Both findings (the necessity of providing a sufficiently high dose of methadone and sufficiently long treatment duration) are consistent with the findings of other studies (Dolan, Wodak, Hall, 1998).
- A randomized controlled trial of MMT accompanied by psychological treatment versus standard psychiatric treatment of drug-dependent prisoners in Iran found significant differences between the experimental and control group in terms of the variables relating to drug use and drug injection (Bayanzadeh et al., 2004). The 60 prisoners randomly assigned to the experimental group received methadone treatment in combination with cognitive-behavioural group therapy. The 60 prisoners in the control group received non-methadone drugs for the treatment of addiction as well as standard

psychotherapeutic medications. In the beginning of the study, all of the 120 subjects used drugs, but following the implementation of the projects, only 21.1% of the subjects in the experimental group, compared to 93.5% of the subjects in the control group, continued to use drugs. Before the commencement of the study, 47.4% of the experimental group, compared to 25.8% of the control group injected drugs. After the completion of the 6-month study, 10.5% of the experimental group and 41.9% of the control group continued to inject drugs, a statistically significant difference.

- Finally, the evaluation of a small prison methadone maintenance pilot programme in Puerto Rico showed that only 5.6% of the patients with 30 days or more in treatment reported heroin use in the past 30 days. In contrast, recent heroin use was reported by 37.5% of the non-treated prisoners ($p < 0.05$) and 65.2% of prisoners who reported any use of heroin in prison ($p < 0.001$). The low level of heroin use reported by patients was supported by the results from urine testing (Heimer et al., 2005; Heimer et al., 2006).

However, while these studies provide evidence that prisoners on OST reduce their drug use and injecting, they also confirm the findings from studies in the community that some people may continue to inject (and share needles) while on methadone. Darke, Kaye & Finlay-Jones (1998) examined the drug use and injection risk-taking among incarcerated methadone maintenance patients and compared incarcerated patients with community patients. Community patients were more likely to have injected a drug in the preceding 6 months (84% vs. 44%), to have used heroin (72% vs. 38%) and to have done so more frequently (20 vs. 4.5 days). Prisoners, however, were more likely to have borrowed (32% vs. 15%) and lent (35% vs. 21%) injecting equipment in that time. They concluded that, while incarcerated patients injected less frequently than community patients, the injecting occasions were of much higher levels of risk. In one study in Australia, prisoners' perceptions of the role of methadone in preventing the spread of HIV was investigated. 74% of the sample stated that there were more effective ways than methadone to stop the spread of HIV in prison, in particular, provision of sterile injection equipment (Bertram & Gorta, 1990b).

Finally, the recent systematic review of incarceration-based drug treatment concluded that all existing evaluations of prison-based OST found somewhat lower rates of *post-release* drug use among participants than non-participants (Mitchell, Wilson, MacKenzie, 2006).

11.2.3 Does prison-based OST have additional and worthwhile benefits?

11.2.3.1 Continuity of treatment

One benefit of provision of methadone maintenance in prison is that it allows people who started such treatment in the community to continue it in prison. This is particularly important because there is evidence that people who are on OST and who are forced to withdraw from methadone because they are incarcerated often return to narcotic use, often within the prison system, and often via injection (Shewan, Gemmell & Davies, 1994). Results from this study were confirmed by a survey of general practitioners prescribing methadone in the United Kingdom in which 42 of 68 respondents reported adverse consequences of imprisonment for several patients, including severe symptoms of withdrawal, resumption of heroin injecting, needle sharing, and chaotic drug use both in prison and on release. The authors concludes that "[t]his survey has shown unacceptable discontinuity between clinical practice in the community and in prison, which seriously undermines the benefits to individual people and to the community of controlled methadone prescribing" (Gruer & Macleod, 1997).

11.2.3.2 Reducing mortality, including upon release

In their four-year follow-up of imprisoned male heroin users who had participated in a randomized controlled trial of prison-based MMT, Dolan et al. (2005) demonstrated that retention in MMT was associated with reduced mortality. Whereas no deaths were recorded while participants were in MMT, 17 died out of MMT, representing an untreated mortality rate of 2.0 per 100 person-years (CI 1.2-3.2). This finding is consistent with previous findings of lower mortality in patients enrolled in MMT (Gearing & Schweitzer, 1974; Caplehorn et al., 1994; Langendam et al., 2001). Among the eight drug-related overdose deaths, four had never received methadone and four had ceased methadone prior to release from prison, underscoring the importance of uninterrupted transfer from prison into community-based treatment.

In recent years extensive research has focused on the mortality of people released from prisons, noting a large number of deaths during the first weeks after discharge that are attributed to drug overdose (Darke, Ross, Zador & Sunjic, 2000; Bird & Hutchinson, 2003; Harding-Pink, 1990; Joukamaa, 1998; Seaman, Brettell & Gore, 1998; Seymour, Oliver & Black, 2000; Shewan et al., 2001; Singleton et al., 2003; Verger et al., 2003;). This phenomenon

probably can be explained by the reduced tolerance to opiates during the imprisonment with the resumption of drug injecting upon release. Moreover, recently released prisoners appear to be at higher risk for methadone overdose (Cooper et al., 1999). These findings point to the utility and necessity of prison through care of drug treatment to counteract such risk situations and highlight the importance of OST not only as an HIV prevention strategy in prisons, but as a strategy to reduce overdose deaths upon release.

11.2.3.3 Facilitation of post-release treatment

Magura et al. (1993) found that the Rikers Island MMT programme significantly facilitated entry (85%) and retention at 6 months (27%) in post-release treatment compared to prisoners enrolled in detoxification programmes (37% enrolled, 9% retained). Kinlock et al. (2002) also found that a high proportion of prisoners who started OST in prison continued it in the community and concluded that OST "may be effective in engaging a sizeable number of inmates with a history of opioid addiction in treatment, both during and following incarceration."

11.2.3.4 Other potential health benefits

Boguna (1997) reported that the evaluation of the pilot MMT programme in a prison in Barcelona found not only a reduction in the sharing of injecting equipment, but also a statistically relevant change in the use of condoms in sexual relationships and a significant reduction in the number of overdoses.

11.2.3.5 Reduction of recidivism and re-incarceration rates

The available evidence suggests that OST programmes have a positive effect on criminal recidivism and re-incarceration, particularly if methadone is provided for longer, uninterrupted periods, if moderate to high doses of methadone are provided, and if provision of methadone is accompanied by additional support. In contrast, in some earlier studies in which these conditions were not met, program participants had somewhat higher re-offending rates than non-participants (Mitchell, Wilson, MacKenzie, 2006).

- In an early study in New South Wales, 77% of prisoners who had participated in the methadone programme reported that methadone aided them in reducing the number of crimes they committed, either specifically because it reduced their habit or more generally because they experienced a change in their lifestyle (Bertram & Gorta, 1990a).

- ▶ Bellin et al (1999) demonstrated a 14% reduction in re-incarceration risk (adjusted for age, race and gender) for prisoners in the Rikers Island prison programme who received high-dose methadone (=60mg) (n=1423) compared to those who received low-dose methadone (n=1371) ($P<0,0002$).
- ▶ The importance of dosage was also confirmed by an earlier study of the MMT program at Rikers Island. Magura et al. (1993) conducted a longitudinal follow-up investigation, comparing post-release outcomes of participants in the MMT programme and prisoners who had detoxified from heroin at Riker's. The daily methadone maintenance dose was 30mg. While the study was able to show other benefits (see infra), no group differences were found regarding relapse into crime and heroin and/or cocaine use after discharge from prison (88% of MMT versus 85% of control participants). The study concluded that success rates might be reduced by the frequently co-occurring crack and cocaine use of many of the prisoners dependent on opiates, which is not sufficiently addressed with MMT, but also because of the low methadone dose. Moreover, the authors suggested that, to prevent relapse into crime and drug use, people need additional support with overall social integration (see also Mourino, 1994).
- ▶ In a more recent report of individuals treated in the Rikers Island methadone programme over an 11-year period, Tomasino et al. (2001) concluded that a lower rate of reincarceration than typically observed for individuals with long histories of drug involvement suggests that prison-based methadone maintenance reduces reincarceration.
- ▶ Johnson et al. (2001) analyzed the effects of MMT on release outcome, i.e. the readmission rate, in Canadian prisons. MMT participants were compared to a group of incarcerated heroin users not in MMT. Compared to the non-MMT group offenders participating in MMT had significantly lower readmission rates and were readmitted at a significantly slower rate. Within a 12-month period, the non-MMT group was 28% more likely than the MMT group to be returned to custody.
- ▶ A retrospective study of 420 prisoners in French correctional facilities (Levasseur et al., 2002) found re-incarceration was significantly less likely (less than half as likely) among those prisoners who had received maintenance therapy while incarcerated (n=89) compared to those who had not (n=331).
- ▶ In their four-year follow-up of imprisoned male heroin users who had participated in a randomized controlled trial of prison-based MMT, Dolan et al. (2005) demonstrated that MMT treatment episodes of 8 months or longer significantly reduced re-incarceration risk compared to periods of no treatment. Longer and by implication uninterrupted periods of MMT significantly delayed re-incarceration, reflecting reduced criminal activity in released subjects. The risk of re-incarceration was lowest during periods of MMT that lasted 8 months or longer ($P < 0.001$), although MMT periods of two months or less were associated with the greatest risk of re-incarceration ($P<0.001$).
- ▶ In one of the earliest studies, undertaken in Australia, those released from prison on the prison methadone programme did not perform as well as they may have been expected to. The matched methadone and comparison groups were equally likely to be reincarcerated and to be reconvicted/charged in court. In contrast, however, the matched methadone group had more convictions/charges on average than the comparison group (4.4 versus 3.6) and were more likely to receive a further prison term (37.7% versus 22.7%) (Hume & Gorta, 1989).

11.2.3.6 Positive effects on prison environment

A number of studies have shown that MMT seems to have a positive effect on institutional behaviour by reducing drug-seeking behaviour and thus improving prison safety.

- ▶ In one of the first assessments of a prison-based methadone programme, Joseph et al. (1989) stated that, although concerns were initially raised about security, violent behaviour, and widespread diversion of methadone, none of these problems emerged in the methadone programme at Rikers Island in New York. They suggested that the lack of major discipline problems among the prisoners participating in the methadone programme is attributable to the methadone regimen, which relieves not only the acute symptoms of narcotic withdrawal, but also the physical hunger or cravings following the withdrawal of heroin. Absence of negative side-effects of OST often feared by prison staff was also reported in several other studies (Bertram, 1991; Wale & Gorta, 1987; Mourino, 1994; Magura et al., 1993; Herzog, 1993; Heimer et al., 2005).

- Prisoners have reported about the positive impact OST has on life in prison. In one study in particular, prisoners responded that they had stopped hustling for, using and thinking about heroin (33%), felt less aggressive, quieter and more relaxed (21%), had a new outlook, were more thoughtful and aware (12%) and felt that going on the methadone programme had made their time in prison easier. The prisoners also felt that their being on the methadone programme had led to benefits for the prison (75%). They stated there was less using and hustling (37%), fewer bashings and standovers (30%) and that the prison was calmer (22%) (Wale & Gorta, 1987).
- Herzog (1993) reported no conflicts between treated and untreated prisoners.
- This was confirmed by studies reporting that correctional staff perceived prison OST programmes to have reduced anxiety among prisoners, causing prisoners to be less irritable and easier to manage (Herzog, 1993; Magura et al., 1993). In a study undertaken in New South Wales, 86% of prison staff stated that they thought that the methadone programme does provide benefits for the individual, for prison management, and for the community (Hume & Gorta, 1988). Custodial staff thought that the programme was useful in that it helped to control heroin addiction in prison and that it prevented illegal trafficking in methadone as the programme now made methadone legally available. Many staff also thought that the programme contributed to easier management of prisoners in that it reduced aggressive behaviour of prisoners, as methadone prevented them from going through withdrawal. Sometimes, however, correctional staff were found to feel ambivalent or negative towards OST (Magura et al., 1993), highlighting the importance of educating staff about the aims and objectives of OST in prison (Hume & Gorta, 1988).
- Johnson et al. (2001) analyzed the effects of the prison methadone programme in Canadian prisons on institutional behaviour, especially regarding drug offences. Compared to the non-prison MMT (non-PMMT) group, the PMMT group had a significantly reduced rate of serious drug related institutional charges following initiation of PMMT, and spent significantly less time in involuntary segregation. This likely indicates a decrease in drug seeking and drug taking behaviour among PMMT offenders in comparison to Non-PMMT offenders after PMMT initiation.

11.2.4 What other findings are reported in the literature?

11.2.4.1 Cost effectiveness of prison-based OST

In the community, OST has been shown to be cost effective due to its impact on a variety of outcomes, including crime and HIV infection. In the first published study about the cost effectiveness of prison methadone programmes, Warren & Viney (2004; see also Warren, Viney, Shearer et al., 2006) suggest that prison methadone programmes compare favourably to community-based methadone programmes on the basis of cost alone. The analysis showed that, irrespective of whether avoided infections are included, only some 20 days of re-incarceration must be avoided to offset the annual cost of methadone treatment in New South Wales prisons.

11.2.4.2 OST with buprenorphine

While there is considerable evidence concerning MMT provision in prisons and increasing evidence concerning buprenorphine maintenance treatment (BMT) in the community, little research has examined BMT in prison settings (Larney, Mathers & Dolan, 2006).

Shearer, Wodak & Dolan (2004) compared BMT to other treatments for opiate dependence and found that retention in treatment at six-month follow-up was lower for BMT than MMT (30% vs. 59%). The study noted that the diversion of buprenorphine was initially a significant problem. However, it also noted that, as protocols for the supervision of dosing were further developed, this situation has improved.

Reynaud-Maurupt et al. (2005) could not demonstrate the impact of high-dose BMT on the health of prisoners and the course of their incarceration. However, the prisoners receiving BMT and the control group differed in several respects: the formers' occupational history before incarceration was less stable and their history of drug addiction and incarceration was more serious.

Because evidence for BMT in prisons remains limited, further research on BMT provision will be needed, including development of protocols around supervision of dosing and prevention of diversion (Larney, Mathers & Dolan, 2006) and attention to difficulties in induction. Many of the benefits of OST that have been demonstrated with methadone provision in prisons will probably also apply for buprenorphine provision if the administration can be supervised adequately, but only further research will be able to tell how the potential difficulties in induction and supervision can best be overcome.

11.2.4.3 Use of naltrexone

A trial undertaken in Australia evaluated the introduction of the antagonist naltrexone in prison through a controlled comparison with MMT and drug-free counselling, finding very poor induction and retention rates for oral naltrexone compared to methadone. The study did not replicate the success observed among prison parolees in the US (Cornish et al., 1997) or work release programmes in Singapore (Chan, 1996). According to its authors, the “most likely reason for this was that inmates were not subject to coercion or incentives to enter and stay on naltrexone maintenance. In the absence of such incentives, opioid dependent inmates showed a preference for agonist treatment including methadone maintenance and buprenorphine maintenance” (Shearer, Wodak & Dolan, 2004).

11.2.4.4 Use of Diamorphine

As part of scientific trials to evaluate the effectiveness of diamorphine (or heroin) maintenance treatment, a heroin prescription project was undertaken in a prison in Switzerland. Kaufmann, Dreifuss, & Dobler-Mikola (1997/98; see also Dobler-Mikola & Kaufmann, 1997) concluded that prescribing heroin under medical control in prisons is feasible.

11.2.4.5 Detoxification in prison

Detoxification is the management of withdrawal symptoms associated with the cessation of a drug of dependence. While not a treatment for drug dependence in itself, “assisting a person dependent on drugs to detoxify safely and with a minimum of discomfort or danger to their health may lead to further opportunities for clinicians to provide harm reduction or drug treatment services” (Larney, Mathers & Dolan, 2007).

There is a paucity of literature detailing or evaluating detoxification protocols in either community or prison settings. However, detoxification in prison need not differ from that provided in the community. Withdrawal can be managed in a number of ways, depending on the drug or drugs of dependence. Medical intervention, such as with short courses of methadone, may assist the detoxification process and reduce withdrawal symptoms and alleviate anxiety, particularly in the case of opiate dependence. Alternatively, detoxification can be managed non-medically, through the provision of psychological support and care (ibid).

A few studies have analysed the effectiveness of drug detoxification programmes in prisons using short courses of methadone (Jeanmonod, Harding & Staub, 1991) or lofexidine (Howells et al., 2002),

finding that lofexidine is comparable to methadone in effectiveness in managing withdrawal and is a viable alternative for opiate detoxification. There have been no published studies examining the use of buprenorphine for withdrawal management in prison.

Crowley (1999) analyzed the impact of a detoxification programme at a prison in Ireland, consisting of a 10-day methadone detoxification and a 6-week intensive rehabilitation module. The relapse rate in a follow-up after 12 months was 78%, and a high death rate after release was reported. Crowley suggested that many of those on the detoxification programme would have been treated more appropriately had they been allowed to continue the MMT programme they had started in the community before imprisonment. This is consistent with the results of an evaluation undertaken by the New Zealand Department of Corrections (Hannafin, 1997) and a qualitative study undertaken by Hughes (2000), exploring drug injectors’ views and experiences with detoxification in English prisons. Hughes reported that prisoners frequently experience disruption of MMT begun in the community, not only resulting in physical and psychological problems and risks, but also in increases in injecting drug use, use of non-sterile injecting equipment and subsequent transmission of blood borne infections. This is consistent with existing quantitative findings (e.g. Shewan et al., 1994; Darke et al, 1998) that strongly suggest that rather than detoxifying prisoners on MMT, prison systems should allow them to continue treatment without interruption.

11.2.5 Conclusions and recommendations regarding OST in prison

A wealth of scientific evidence has shown that, in the community, OST is the most effective intervention available for the treatment of *opiate* dependence and a critical component in the prevention of HIV infection among injecting drug users.

More recently, a small but increasing body of research has delivered significant findings regarding the effectiveness of methadone maintenance therapy (MMT) in prison settings in reducing injecting drug use in prisons and achieving other beneficial outcomes. In contrast, little research has examined buprenorphine maintenance therapy (BMT) in prison settings. The effectiveness and acceptability of MMT in the prison setting have been shown in studies from Australia, Western Europe, Canada, United States, and Iran. While the evidence for MMT in prison continues to be based on only a relatively small number of studies, results from these studies reflect what is known about MMT in the community. In particular:

1. There is evidence that OST with methadone is feasible in a wide range of prison settings.

In the last decade, OST has increasingly been established in prison settings. While the number of systems providing OST outside Australia, Canada, and Western Europe remains small, a growing number of countries in other regions, including in resource-poor countries, have made OST available. While some had expressed concern about the feasibility of implementing OST in prison settings, experience has shown that these difficulties can be overcome.

2. Adequate prison-based OST programmes are effective in reducing injecting drug use and associated needle sharing and infections.

Based on the data available from an increasing number of studies in various countries, and extrapolating from the vast literature on community-based programmes, adequate prison-based OST programmes appear to be effective in reducing injecting drug use and associated needle sharing. Especially when considering the known impact of adequate OST on HIV incidence and prevalence rates among injecting drug users in the community (e.g. Ward et al., 1992), the risk of transmission of HIV and other blood-borne viruses among prisoners is also likely to be decreased. OST programmes are particularly important where other prevention measures, such as syringe exchange programmes, are not available in prisons.

3. Adequate prison-based OST programmes have been shown to have additional benefits for the health of prisoners participating in the programmes, for prison systems and for the community. In particular, studies found that:

- ▶ retention in OST is associated with reduced mortality;
- ▶ OST in prison significantly facilitates entry and retention in post-release treatment compared to prisoners enrolled in detoxification programmes;
- ▶ re-incarceration is less likely among those prisoners who receive adequate OST while incarcerated;
- ▶ OST has a positive effect on institutional behaviour by reducing drug-seeking behaviour and improving prison safety;
- ▶ prison administrations often initially raise concerns about security, violent behaviour and diversion of methadone, but these problems have not emerged when OST programmes have been implemented, and
- ▶ both prisoners and correctional staff report about the positive impact of OST on prison life.

4. OST may help to reduce risk of overdose deaths upon release.

Many prisoners resume injecting once released from prisons, but do so with increased risk for fatal overdose as a result of reduced tolerance to opiates. Extensive research has noted a large number of deaths during the first weeks after discharge from prison that are attributed to drug overdose. This points to the utility and necessity of prison through care of drug treatment to counteract such risk situations and highlights the importance of OST not only as an HIV prevention strategy in prisons, but as a strategy to reduce overdose deaths upon release.

5. Strategies are needed to ensure continuity in treatment of opioid users as they move between the community and prison systems.

There is evidence that people who are on OST and who are forced to withdraw from it because they are incarcerated often return to narcotic use, often within the prison system, and often via injecting. Discontinuity between clinical practice in the community and in prison seriously undermines the benefits of OST to individual people and to the community.

6. Making OST available in prisons has become even more important because of its role in facilitating delivery of antiretroviral therapy to people who inject drugs.

Many injecting drug users with HIV spend time in prison, and they need to be able to access both OST and ART without interruption, including when transferring from the community to the prison and vice versa.

It is therefore recommended that:

1. Prison authorities in countries in which OST is available in the community should introduce OST programmes urgently and expand implementation to scale as soon as possible. Particular efforts should be undertaken to ensure that prisoners on OST prior to imprisonment are able to continue this treatment upon imprisonment, without interruption.

The overall success of the evaluated prison-based OST programmes and the other available data present a compelling case that prison-based OST programmes are feasible and suggest that, if dosage is adequate and treatment is provided for the duration of imprisonment and upon release, they reduce injecting drug use and use of non-sterile injecting equipment with the resulting reduction in HIV transmission and other blood borne infections. This suggests that similar programmes are beneficial in any country in which OST programmes are available in the community.

11.3 Evidence on effectiveness of other types of drug dependence treatment in prison settings

11.3.1 Background

As outside prisons, studies that have examined the utility of drug treatment as an HIV prevention strategy in prison have focussed on OST. The majority of studies on other forms of drug dependence treatment do not even measure treatment programmes' impact on post-release drug use (let alone on drug use in prisons), instead focusing on recidivism alone (Mitchell, Wilson, MacKenzie, 2006; Mitchell, MacKenzie, Wilson, submitted for publication). In addition, most of the research on other types of drug treatment is from the United States and from a few other developed countries (ibid).

In general, relatively few prison-based treatment programmes have been the subject of rigorous outcome evaluations (Weekes, Thomas & Graves, 2004; Smeeth & Fowler, 1990; MacKenzie, 1997; Harrison et al., 2003; Mitchell, Wilson, MacKenzie, 2006; Mitchell, MacKenzie, Wilson, submitted for publication). A lot of the existing research has been characterized as problematic (Gaes et al., 1999). Problems include misinterpretation of statistical analyses, unclear or inconsistent participant selection criteria, removal of prisoners from the analyses who failed to complete the programmes, removal of prisoners who were dismissed from the programme for using drugs, etc. "The net effect of these methodological problems is to potentially skew the results in the direction of finding a positive outcome" (Weekes, Thomas & Graves, 2004).

Each of the prison-based drug dependence treatment interventions ostensibly has the potential to reduce drug use and re-incarceration. But "while the potential of incarceration-based drug treatment programs is clear, their effectiveness is much less so" (Mitchell, MacKenzie, Wilson, submitted for publication). Several authors, after reviewing the literature on prison-based therapeutic communities, have concluded that these programmes are effective in reducing recidivism and drug use (e.g., Lipton, 1995; Lurigio, 2000). However,

these prior reviews have relied on non-systematic, narrative reviews, which when combined with the significant methodological shortcomings evident in most evaluations of

therapeutic communities, such as a lack of a comparison group (selection bias), make such conclusions suspect (Mitchell, MacKenzie, Wilson, submitted for publication).

11.3.2 Review of the evidence

(For a summary of this review of the evidence, see the Evidence for Action Paper on *Effectiveness of Interventions to Address HIV in Prisons – Drug Dependence Treatment*).

In 1999, Pearson and Lipton systematically reviewed the research assessing the effectiveness of prison-based drug dependence programmes in reducing recidivism. Their systematic review conducted a comprehensive search for quasi-experimental and experimental evaluations of interventions carried out in "prison, jail, or a similar residential correctional facility", conducted in any country, and completed between 1968 and 1996, inclusive. Their search revealed 30 studies meeting their eligibility criteria. Overall, Pearson and Lipton's synthesis of these 30 studies found strong evidence that therapeutic community programmes were effective in reducing recidivism while indicating that boot camp and group-counselling interventions were ineffective. At the time, there were too few studies evaluating other types of interventions to draw strong conclusions. However, the review characterized the evidence assessing the effectiveness of drug education, cognitive behavioural, and 12-step programmes as being promising (Pearson & Lipton, 1999).

A more recent review of the evidence base for prison treatment by Harrison et al. (2003) found:

- There have been few independent studies of 12 Steps programmes, and the evaluation studies have been methodologically poor.
- Cognitive-behavioural therapies have a consistent record for effectiveness, having value in motivating people to change behaviour and helping with co-occurring problems such as anxiety and depression.
- Evidence for the effectiveness of Motivational Interviewing is strong, especially with those resistant to change.
- Evidence for non-directive counselling techniques was not strong in general, and even more limited for its use in the criminal justice system.
- Although they are popular, evidence is lacking for the effectiveness of educational programmes.

- ▶ While therapeutic communities in prisons in the United States have claimed consistent reductions in reconviction rates and relapse into drug use, research is methodologically flawed. In particular, almost all of the successful therapeutic communities are linked to an aftercare programme. This issue has not been adequately addressed in evaluations. Two evaluations that included a group attending only a 'half-way house' programme found that this group did as well as those who had intensive treatment in both prison and the community, raising the possibility that limiting provision to a transitional therapeutic community would be more cost effective than providing a multistage structure. Even if success rates were higher than claimed, therapeutic communities could be the least cost-effective option for treating drug dependence.

Nevertheless, Harrison et al. (2003) concluded that drug dependence treatment in prison "has the potential of improving prison security, as well as the health and social functioning of prisoners, and it can enhance the achievement of key prison service aims and objectives, such as rehabilitation of offenders."

Another review, by Weekes, Thomas, and Graves (2004), concluded that the majority of drug dependence treatment programmes currently being offered to offenders throughout the world – with the exception of programmes in Canadian federal prisons and programmes developed by the US Federal Bureau of Prisons, the State of Maine Department of Corrections and Her Majesty's Prison Service High Security Prisons, which are grounded in integrated theory and employ comprehensive evaluation frameworks – have been developed without clear theoretical base, empirical evidence, or strong adherence to accepted best practice guidelines". They suggested that "part of the problem may stem from the fact that there is no clear consensus within the clinical community as to the ingredients of best practices and very little well designed research to guide program development and operation". They found that much of the research concluding that drug treatment programmes for prisoners are capable of reducing substance use and criminality is problematic, but suggested that the results of several more carefully designed, recent studies "have shown reason for optimism when considering the effectiveness of prison-based drug dependence treatment programs":

- ▶ A 19-site evaluation of prison-based residential substance abuse programmes operated by the United States Federal Bureau of Prisons found that after six months, 20% of programme par-

ticipants versus 36% of untreated offenders had at least one positive urinalysis. Moreover, 3.1% treated compared with 15% of untreated offenders were re-arrested on a new charge (Pellisier et al., 2001).

- ▶ A study of substance abuse programmes provided by the Correctional Service of Canada found that 16% of programme participants (including drop-outs and other non-completers) were reconvicted following one full year on release compared with 23% of a matched comparison group (Porporino et al., 2002).

The most recent, and most rigorous, systematic review of prison-based drug dependence treatment addressed the following research questions, using meta-analytic synthesis techniques: Are incarceration-based drug treatment programmes effective in reducing recidivism and drug use? Approximately how effective are these programmes? Are there particular types of drug treatment programmes that are especially effective or ineffective? What programme characteristics differentiate effective programmes from ineffective programmes? (Mitchell, Wilson & MacKenzie, 2005; Mitchell, Wilson, MacKenzie, 2006; Mitchell, MacKenzie, Wilson, submitted for publication). In many regards, this review is an extension of the work by Pearson and Lipton (1999), using a more current time frame (1980 through 2004). The main findings included:

- ▶ In concordance with other existing reviews, no evidence was found that participation in boot camp programs reduced recidivism or drug use.
- ▶ The most consistent evidence of treatment effectiveness came from evaluations of TC programmes. These programs consistently showed post-release reductions in reoffending and post-release drug use. Even among the most rigorous evaluations, participation in TC programmes was consistently related to reductions in *re-offending*. The authors also found that TCs were effective in several different types of samples (e.g., female only samples, male only samples, and adult samples), which suggests that TCs can be applied to a wide range of prisoners. However, the majority of studies chose not to measure the programmes' impact on drug use. According to the study's authors, a major issue that evaluators need to address in the future is the failure to assess program effects on client drug use. This review found that only a handful of studies examined drug use outcomes. This is a major shortcoming as many of these programs are predicated on the premise that drug treatment leads to reduced drug use.

- ▶ The evidence regarding counseling programmes indicated that these programmes were effective in reducing re-offending but not drug use.

The authors concluded that, while the extant research clearly supports the effectiveness of certain programmes, “there is a lack of understanding concerning which particular components of treatment programs are most important, and which combination of components are most effective”.

Overall, research to date suggests that successful programs “focus on skill-development (as opposed to “insight-oriented”, non-directive approaches), emphasize cognitive-behavioural factors (Bullock, 2003b), include structured relapse prevention, and involve gradual transition to extended maintenance and aftercare (to master relapse prevention skills)” (Weekes, Thomas, & Graves, 2004; Hiller et al., 1999; Inciardi et al., 1997; CASA, 1998; Peters and Steinberg, 2000).

The post-release phase of the treatment process has been found to be of critical importance in reducing the risk of relapse and further criminal activity among prisoners with drug dependence problems (Weekes, Thomas, & Graves, 2004, with reference to Porporino et al., 2002). The “greatest threat to the success of prison-based treatment comes from the failure of throughcare and aftercare arrangements, which are partly beyond the control of the prison authorities” (Harrison et al., 2003). Several studies show that effective aftercare is essential to maintaining the gains made in prison-based treatment of drug dependence (Fox, 2000; Ward, 2001), including in resource-poor settings (Iran: Babaei & Afshar, 2004).

Finally, the literature suggests that unique intervention models are needed for women (Zurhold, Stöver & Haasen, 2004; Ashley, Marsden, & Brady, 2003), ethnic minorities, and younger prisoners. While the basic treatment concepts and techniques are relatively universal and may be suitable for use with these populations, the ways in which treatment programmes are designed and structured may differ dramatically from programmes that are designed and delivered to adult male prisoners (Weekes, Thomas, & Graves, 2004). Drug-using female prisoners may have a number of needs that are quite distinct from those of their male counterparts (Peugh & Belenko, 1999). The pathways to problematic drug use, the reasons why they continue to use at problematic levels, the health consequences of using, and the ways in which they seek help and why are quite different from their male counterparts (Weekes, Thomas,

& Graves, 2004, with reference to National Center on Addiction and Substance Abuse, 2003; Cormier, Dell, & Poole, 2003; Canadian Human Rights Commission, 2003). Confrontation techniques, anger management, group settings and other treatment interventions developed for men may be inappropriate for women. The increased prevalence of sexual abuse, low self-esteem and other emotional problems among female problematic drug users can result in such approaches being ineffective or even detrimental. Welle, Falkin & Janchill (1998) suggest that drug dependence treatment for female prisoners that employs a gender-specific approach that addresses victimization experiences, relationship problems and parenting skills can be effective in reducing relapse and recidivism. Studies of drug dependence treatment programmes in the community found positive associations between six components of the programmes (child care, prenatal care, women-only programmes, supplemental services and workshops that address women-focused topics, mental health programming, and comprehensive programming) and treatment completion, length of stay, decreased use of drugs, reduced mental health symptoms, employment, self-reported health status, and HIV risk reduction (Ashley, Marsden, & Brady, 2003).

11.3.3 Conclusions and recommendations regarding other types of drug dependence treatment

1. There is little data on the effectiveness of other forms of drug dependence treatment as an HIV prevention strategy.

In contrast to OST, other forms of drug dependence treatment have not usually been introduced in prison with HIV prevention as one of their objectives. Indeed, few studies of other forms of incarceration-based drug dependence treatment have assessed programme effects on client drug use, particularly on drug use in prison. Therefore, there is little data on the effectiveness of these forms of treatment as an HIV prevention strategy. There is an urgent need for examining their effectiveness in the context of HIV.

2. Good quality, appropriate, and accessible treatment has the potential of improving prison security, as well as the health and social functioning of prisoners, and can reduce reoffending, as long as it provides ongoing treatment and support, post-release care and meets the individual needs of prisoners, including female prisoners, younger prisoners, and prisoners from ethnic minorities.

Such treatment in prison can work and has the potential to reduce the amount of drug use in prisons and upon release. Given that many prisoners have severe problems with illegal drugs, it would be unethical not to utilize the opportunity that imprisonment provides for treatment and rehabilitation (Harrison et al., 2003; Brooke et al., 1998; Keene, 1997; Maden, Swinton & Gunn, 1992). But there is an urgent need for independent and systematic outcome evaluations of these interventions, and for examining their effectiveness in reducing injecting drug use and needle sharing.

3. Aftercare is essential.

Effective aftercare is essential if the investment made in prison-based treatment is to pay long-term dividends. Aftercare should not be limited to facilitating continuation of drug treatment on the outside, but needs to include social support services.

4. In addition, reducing the number of people who are in prison or compulsory treatment and rehabilitation centres because of problems related to their drug use must be a priority.

Treatment in prison – or in compulsory treatment and rehabilitation centres – will never be a viable alternative to treatment in the community, because of the high cost of imprisonment (Harrison et al., 2003). Studies suggest that treatment of addiction in the community (Wood et al., 2004), may be more cost-effective at reducing the health, social and economic harms of illegal drug use, and that expanded HIV prevention measures in prisons should ideally be coupled with evaluations of diversion programmes for non-violent drug users (Wood et al., 2005, with reference to Rydell et al., 1996; Wood et al., 2003; and Freudenberg, 2001).

Ultimately, reducing the number of people, who are in prison or sent to compulsory treatment and rehabilitation centres because of drug use-related problems must be a priority. Imprisonment or compulsory, long-term detention of people addicted to drugs cannot be seen as providing a short or longer-term solution to individuals' and societies' problems with drugs.

Studies have shown that fear of arrest and sanctions is not a major factor in an individual's decision on whether to use or deal drugs; that there is little correlation between incarceration rates and drug use prevalence in particular countries or cities; and that the impact of enforcement action on price is much less powerful than other market factors (Bewley-Taylor, Trace, & Stevens, 2005). Given the signifi-

cant costs of incarceration as a way of reducing drug problems, it is hard to justify a drug policy approach that prioritizes widespread arrest and harsh penalties for people who use drugs on grounds of effectiveness. Many of the problems created by HIV infection and by drug use in prisons could be reduced if alternatives to imprisonment, particularly in the context of drug-related crimes, were developed and made available. As early as 1987, WHO, in a statement from the first Consultation on Prevention and Control of AIDS in Prisons, said that "[g]overnments may ... wish to review their penal admission policies, particularly where drug abusers are concerned, in the light of the AIDS epidemic and its impact on prisons."

Therefore, it is recommended that:

1. In addition to OST, prison authorities should also provide a range of other drug dependence treatment options for prisoners with problematic drug use, in particular for problematic use of other substances such as amphetamines and cocaine.

However, in contrast to OST, there is little data on the effectiveness of other drug dependence treatment as an HIV prevention strategy. Evaluations of their effectiveness in terms of reducing drug injecting and needle sharing should be built into the implementation of new initiatives for drug treatment.

2. Prison authorities should devote particular attention to the availability of treatment and social support services for prisoners on their release, and work in collaboration with relevant authorities to ensure that comprehensive after-care services are available.

The available evidence suggests that drug dependence treatment in prison may be of little benefit unless effective aftercare is provided.

3. States should affirm and strengthen the principle of providing treatment, education and rehabilitation as an alternative to conviction and punishment for drug-related offences.

Currently there is a major expenditure in many countries on imprisonment and prolonged incarceration of drug dependent people, approaches that are associated with very high relapse rates soon after release. There is no evidence that such an approach is cost effective.

12. OTHER DRUG DEMAND AND DRUG SUPPLY INTERVENTIONS: 'DRUG-FREE' UNITS AND URINALYSIS PROGRAMMES

12.1 Background

12.1.1 Drug-free units

In addition to providing drug dependence treatment, an increasing number of prison systems have established 'drug-free' units, including all 15 'old' European Union Member States and most 'new' EU Member States (EMCDDA, 2005), four of eight jurisdictions in Australia (Black, Dolan, & Wodak, 2004), the Canadian federal prison system (Grant, Varis, & Lefebvre, 2005), and several federal and state correctional institutions in the United States (Peters & Steinburg, 2000).

Typically, 'drug-free' units or wings (also known as contract or intensive support units) are separate living units within a prison that focus on limiting the availability of drugs and hold prisoners who have volunteered to sign a contract promising to remain drug free. These prisoners may or may not have a substance use problem, and may have agreed to additional drug testing and search procedures. In some instances, these units focus solely on drug interdiction through increased searching, while some systems provide a multi-faceted approach combining drug interdiction measures with treatment services.

Studies have shown that many prisoners do not perceive the prison environment to be a supportive one for those who wish to abstain from drug use (Swann & James, 1998). Establishing 'drug-free' units recognizes that, for a variety of reasons and often because drug use is so common, anyone who is not using drugs or is attempting abstinence may experience considerable difficulties and need additional support and the possibility of living in an environment where other prisoners have also agreed to a regime where no drugs will be available (EMCDDA, 2003).

'Drug-free' units could assist efforts to combat HIV transmission in prison if they resulted in decreased drug use, particularly injecting drug use.

12.1.2 Urinalysis programmes

A broad range of search and seizure techniques and procedures are being used by prison systems

in an attempt to reduce the availability of drugs in prisons. These supply reduction measures include a large range of measures, including random cell searches, staff and visitor entry/exit screening and searches, drug detection dogs and other drug detection technologies, perimeter security measures, and urinalysis programmes, often referred to as 'mandatory drug testing programmes' or 'MDT' (Weekes, Thomas, & Graves, 2004; Hughes, 2000a).

Many prison systems, particularly in high income countries, have placed considerable and growing emphasis on these measures to reduce the supply of drugs. In particular, urinalysis has been adopted as policy in several prison systems (MacPherson, 2004; Australia, all jurisdictions, with the exception of Queensland: Black, Dolan, & Wodak, 2004; Canadian federal prisons: MacPherson, 2001; United Kingdom: Select Committee on Home Affairs, 1999; United States Federal Prisons: Pellissier & Gaes, 2001).

In these systems, and others, the goal is to reduce the use of and demand for drugs in prison. Urinalysis, combined with self-report surveys of prisoners, is also used to obtain an estimate of the extent of drug use (Her Majesty's Government, 1995) as well as to target programmes and treatment services (MacPherson, 2004).

Urinalysis and other drug interdiction efforts are not aimed at managing HIV in prisons, but they may result in unintended consequences for HIV and hepatitis C prevention efforts. Drug interdiction measures may assist HIV prevention efforts by reducing the supply of drugs and injecting in prisons. At the same time, they could make such efforts more difficult. For example, concerns have been raised that the disruption in supplies of drugs and injecting equipment in prison may result in the increased risk of infection transmission (Hughes, 2003), or about MDT (see, e.g., Gore et al., 1996; Bird et al., 1997; Edgar and O'Donnell, 1998; Hughes, 2000b).

Of all the drug supply reduction measures used, one in particular has been subject of much debate in the context of managing HIV in prisons: urinalysis programmes.

12.2 Evidence regarding 'drug-free' units

The recent emergence of 'drug-free' units within prison systems has occurred despite limited research (Grant, Varis, & Lefebvre, 2005). Very little is known about their long-term effectiveness, and programmes offered vary widely, so the precise factors that contribute to a positive rehabilitative environment are unknown (Larney, Mathers, and Dolan, 2007).

12.2.1 Impact on drug use

A few studies show that prisoners in 'drug-free' units (DFUs) report significantly lower drug use than other prisoners (Australia: Incorvaia & Kirby, 1997; Canada: Grant, Varis, & Lefebvre, 2005) and that even with increased levels of searching, less substance-related contraband is found in DFUs (Grant, Varis, & Lefebvre, 2005).

12.2.2 Prisoners' views

Several studies demonstrate that DFUs appeal to a large number of prisoners (United Kingdom: Johnson & Farren, 1996; Swann & James, 1998; Canada: Grant, Varis, & Lefebvre, 2005). In one study, a sample of both drug users and non-drug users were asked to identify the types of supports DFUs should provide (Johnson & Farren, 1996): 72% indicated the need for trained staff, 63% one-on-one counselling, 59% a support group, and 57% an education/awareness group.

12.2.3 Impact on recidivism

Research on DFUs' impact on criminal recidivism remains limited and somewhat conflicting.

Two studies conducted in the Netherlands (Breteler et al., 1996; Schippers et al., 1998) were unable to demonstrate differences in recidivism for prisoners who resided in a DFU in comparison to addicted offenders who resided in a regular prison unit. On the other hand, prisoners released from the DFU in an Austrian prison were sentenced again significantly less often than prisoners released from normal units in the prison (EMCDDA, 2005).

In Canada, prisoners released from a DFU were 36% less likely to be returned to custody than offenders in the matched comparison group and had a higher rate of discretionary release i.e. day parole and parole. However, since the study assessed the impact of the introduction of DFUs in five pilot sites, all of whom were highly motivated to demonstrate their effectiveness, the authors emphasized that it

remains to be determined whether the benefits identified in the study can be replicated following wider implementation of DFUs (Grant, Varis, & Lefebvre, 2005).

12.2.4 Other findings

The Canadian study calculated potential cost savings of Can\$ 8000 per participant in the DFU, based on decreased incarceration time resulting from earlier release and reduced likelihood of readmission.

12.3 Conclusions and recommendations regarding 'drug-free' units

There is some evidence from a small number of studies that so-called 'drug-free' units may assist prisoners to reduce their drug use while in prison. Such units appeal to a large number of prisoners, including prisoners who do not have any drug problems and want to live in a 'drug-free' environment. However, the effectiveness of these units is by no means established. In particular, the studies do not say anything about whether DFUs appeal to, and are successful in retaining, the most problematic users, in particular injecting drug users. **Therefore, it is recommended that:**

Prison systems should provide prisoners with the option of living in a "drug-free" environment.

Because there is currently no data on the effectiveness of DFUs as an HIV prevention strategy, evaluations of their effectiveness in attracting and retaining injecting drug users and in reducing drug injecting and sharing of injecting equipment should be undertaken. Further research, clarifying the elements of programmes conducted in DFUs and their long-term impacts on drug use and criminal recidivism, should also be undertaken.

12.4 Evidence regarding urinalysis programmes

The following questions guided the review and analysis of published and unpublished data on the effectiveness of urinalysis programmes:

- (1) Do urinalysis programmes reduce drug use and related HIV risk behaviours among prisoners?
- (2) Do urinalysis programmes have other, worthwhile benefits?
- (3) Is there any evidence of any major, unintended negative consequences?

(For a summary of the review, see the Evidence for Action Paper on *Effectiveness of Interventions to Address HIV in Prisons – Drug Dependence Treatment*).

12.4.1 Do urinalysis programmes reduce drug use and related HIV risk behaviours among prisoners?

When the English prison system introduced its programme of mandatory drug testing, the positive test rate in institutions dropped from 34% in 1995 to 25% in 1996 (Edgar and O'Donnell 1998). More recent statistics show that between 1997 and 2003, the positive rate decreased further, from 24.4% to 11.7% (Weekes, Thomas, and Graves 2004). However, prisoners' drug use has been associated with a number of factors other than urinalysis. As a result, it is difficult to link the reported changes to specific causes.

A drop in the overall positive rate has also been reported in Canada, where an initial rate of 34% was found in three prisons during the pilot phase of random testing in 1995 (McVie, 2001). However, a 2001 study by the Correctional Service of Canada found that between 1996 – when the programme was implemented nationally – and 2000 the positive rate remained largely unchanged. At the same time, the percentage of prisoners refusing to submit a sample for random urinalysis has increased significantly. In particular, in maximum-security institutions, the refusal rate increased from 16% in 1996 to 29% in 2000, although CSC regulations stipulate that the sanctions for refusing to provide a sample are identical to those incurred when a sample tests positive for drug use. The high refusal rate could contribute to an underestimation of drug use (MacPherson, 2001).

Research results suggest that the effectiveness of urinalysis programmes in decreasing consumption may vary with different types of drugs and the routes of consumption. A major survey of prisoners carried out in England and Wales in 2001-2002 concluded that mandatory drug testing, along with other drug demand and supply reduction strategies, had substantially reduced cannabis use in prisons, but had little effect on the use of heroin (Singleton et al., 2005). This is consistent with the results of another study (Edgar & O'Donnell, 1998), in which 46% of cannabis users, but only 13% of heroin users reported stopping in response to mandatory drug testing.

In surveys of prisoners and/or prison staff only a minority of respondents stated that mandatory drug testing is an effective deterrent against the use of drugs, while the majority said that it would reduce drug use a little but that it would have very little impact on heavy users of 'hard' drugs (Australia: KPMG Consulting, 2000; Black, Dolan, & Wodak, 2004; Canada: Correctional Service of Canada, 1996; United Kingdom: MacDonald, 1997; Bullock, 2003; Scottish Prison Service, 2004). A significant number of prisoners believe that it is easy to 'get around' mandatory drug testing procedures (KPMG Consulting, 2000; Edgar & O'Donnell, 1998). In particular, prisoners may take advantage of 'windows of opportunity' that allow them to use drugs without being detected. If testing does not take place, or takes place less frequently, on weekends, as reviews of programmes in England and Canada have shown (MacPherson, 2001), prisoners can time use of heroin and other drugs with short detection times to reduce the risk of detection. Other methods of evading detection reported in studies include adding soap or other contaminants to the sample (Hughes, 2000a). Prisoners also dilute their urine by consuming various amounts of liquid before they are tested for illegal drug use (MacPherson, 2004).

12.4.2 Do urinalysis programmes have other benefits?

Drug testing provides data about levels of drug use in prisons (Fraser et al., 2001), but the results are severely restricted. Testing alone cannot be used to assess a prisoner's long-term drug use, the existence of a chronic problem or the need for treatment. Random urinalysis will detect occasions of drug use, but the interpretations must be made with caution given variable detection for different types of drugs, individual physiology, frequency of use and dose of drug consumed (MacPherson, 2004). In addition, the number of people tested is usually too small to monitor trends within a particular prison establishment, and the information too unreliable in the short term to form a basis for future policy decisions (Gore et al., 1996).

Significantly in the context of HIV management efforts, Bird AG et al. (1997) assessed the efficiency of random drug testing at detecting prisoners who inject heroin. They concluded that random mandatory drugs testing may only detect prisoners' heroin use on a maximum of 18 days out of 28 days and, if it does not operate on weekends, 9 out of 28 days. Therefore, it is likely seriously to underestimate prisoners' injecting-related drug use problems. This was confirmed by a large study undertaken in

England and Wales which indicated that the correlation between self-reported use and positive rates was lower for opiates than for cannabis (Singleton et al., 2005). A negative urine sample alone cannot be taken as proof that an individual has not used cocaine or opiates, which have relatively fast clearance rates in urine. It can only be stated that this individual has not used in the past one to three days.

12.4.3 Is there any evidence of any major, unintended negative consequences?

12.4.3.1 *Switch from cannabis to opioids and other drugs*

It is often claimed that implementation of urinalysis programmes will result in prisoners changing their drug use by switching from drugs such as marijuana and hashish, which have a relatively long detection time of up to five weeks in urine, to heroin and cocaine, drugs that are cleared within one to two days (heroin, other opiates and morphine derivatives) or one to four days (cocaine), and are therefore far more difficult to detect (MacPherson, 2001). In the context of efforts to manage HIV in prisons such a switch would be worrisome because marijuana and hashish are smoked, posing no risk of HIV transmission, while heroin and other opiates are often injected, with potentially greater negative health consequences, including transmission of HIV and other blood borne infections.

In a number of narrative reviews and surveys, 28 to 65% of prisoners said that, in their view, urinalysis programmes had indeed promoted switching from cannabis to less detectable drugs (Canada: Correctional Service Canada, 1996; United Kingdom: MacDonald, 1997; Edgar & O'Donnell, 1998; Gore, Bird, & Cassidy, 1999; Bullock, 2003; Hughes, 2000a). In one study, prison officers indicated that there had been a noticeable shift from 'soft' to 'hard' drug usage (MacDonald, 1997). In two studies, a small number of prisoners confirmed that they had indeed switched to heroin to avoid detection (Bullock, 2003; Edgar & O'Donnell, 1998).

Studies undertaken in the United Kingdom found some, although limited, evidence of switching to injectable drugs (Gore, Bird, Ross, 1996; Farrell, Macauley, Taylor, 1998; Singleton et al., 2005). The most recent and largest of these studies found that 25% of prisoners had stopped using cannabis in prison. 4% of these – 1% of all prisoners – said they were using other drugs instead, mostly opiates. A larger group (5% of all prisoners) had used heroin in

their current prison but not in the month before custody. This group gave ease of availability and need as the main reasons for taking heroin. However, 16% said that the fact that heroin was less easily identified was a factor. According to the study, these results suggest that "given the different status of cannabis and opiates outside prison and the different levels of harm associated with their use, the practice of making no distinction in punitive terms between those testing positive to cannabis and opiates should be reviewed" (Singleton et al., 2005). In contrast, examination of the random urinalysis data in Canada, with one exception (Kendall & Pearce, 2000), did not show any general increase in positive tests for opiates or cocaine since urinalysis programmes commenced.

12.4.3.2 *Other potential harmful consequences*

Both prisoners and staff have reported that implementation of a drug testing programme increases tensions and violent incidents in prisons (Gore, Bird, & Ross, 1996; MacDonald 1997, Edgar and O'Donnell, 1998). Despite official policy, prisoners have sometimes perceived urine screening to be anything but random, targeting or harassing particular offenders (MacDonald 1997; Edgar and O'Donnell, 1998; Hughes, 2000a). Many prisoners have used words such as "embarrassing" to describe their experiences with urine screening, and report that the withdrawal of privileges and imposition of closed visits can contribute to resentment of the system in which people feel powerless and unfairly treated (Hughes, 2000a). Attitudes such as these have the potential to undermine goals of the testing programme (MacPherson, 2004), and sanctions against drug use such as loss of contact visits as punishment for a positive urine test result may simply reinforce the original reasons for drug use (Crofts, 1997, with reference to Crofts, 1996).

12.4.3.3 *Diversion of resources*

Several authors have suggested that the high costs of urinalysis programmes may not be justified in light of the limited evidence that such programmes reduce levels of drug use in prisons (MacDonald, 1997; Kendall & Pearce, 2000; Hughes, 2000a; Hughes, 2003). Gore & Bird (1996) examined the cost of mandatory drug testing and suggested alternative ways in which this expenditure may be better utilized.

An Australian study concluded that "supply reduction strategies [drug detection dogs and urinalysis] were relatively expensive, had not been evaluated and

possibly had unintended negative consequences.” It suggested that, “given the substantial investment into supply reduction programs, in addition to the relatively poor documentation, it is imperative that improving the documentation and evaluation of supply reduction strategies takes the highest priority” (Black, Dolan, & Wodak, 2004).

12.5 Conclusions and recommendations regarding urinalysis programmes

1. Improving the documentation and evaluation of supply reduction measures should be a priority for prison systems making substantial investments in such measures.

Despite the fact that many prison systems make substantial investments in supply reduction efforts, there is little evidence available to confirm their efficacy in reducing levels of drug use or drug injecting. In particular, there is no evidence that these measures may lead to reduced HIV risk-taking behaviours.

2. Prison systems with drug testing programmes should reconsider urinalysis testing for cannabis. At a minimum, they should make clear distinctions in punitive terms between those testing positive to cannabis and opiates.

Drug testing programmes are used in a number of prison systems. From a public health perspective, concerns have been raised that these programmes may increase, rather than decrease, prisoners’ risk of HIV infection. There is evidence that implementing such programmes may contribute to reducing the demand for and use of cannabis in prisons. However, such programmes seem to have little effect on the use of opiates. In fact, some people may switch to injectable drugs to avoid detection of cannabis use through drug testing programmes. Given that smoking cannabis presents no risk of HIV transmission while injecting opiates presents a significant risk of HIV infection as well as other health risks (overdose), the evidence that some prisoners switch from cannabis use to use of more harmful drugs by injecting is worrisome.

13. HIV CARE, TREATMENT AND SUPPORT

13.1 Background

In many countries, the rates of HIV infection among prisoners are much higher than in the general population, and HCV rates are even higher (see *supra*, chapter 2, for more details).

Coincident with the emergence of HIV, many countries have experienced a significant increase in the prison population, resulting in prisons becoming an important source of health care for socially disadvantaged people, many of whom cycle in and out of prison. For example, in 1997, 20% to 26% of all HIV-positive people in the United States passed through a correctional facility (Hammett, Harmon, Rhodes, 2002). Out of the estimated 1600 people living with HIV in Ireland, 300 to 500 had been through the prison system (UNAIDS, 1997).

Having up to a quarter of the HIV-positive population of a country pass through prisons represents enormous challenges, but also opportunities for providing care, treatment, and support, including antiretroviral therapy (ART). Prisons are key points of contact with millions of individuals living with or at high risk of HIV infection who are largely out of reach of the medical system in the community (Glaser & Griefinger, 1993).

WHO's *Guidelines on HIV Infection and AIDS in Prisons* (1993) highlight that, as a general principle, prisoners have the right to receive health care "equivalent to that available in the community without discrimination." The guidelines contain the following specific recommendations related to care and support of HIV-positive prisoners (WHO, 1993, paragraphs 34 to 40):

34. At each stage of HIV-related illness, prisoners should receive appropriate medical and psychosocial treatment equivalent to that given to other members of the community. Involvement of all prisoners in peer support programmes should be encouraged. Collaboration with health care providers in the community should be promoted to facilitate the provision of medical care.
 35. Medical follow-up and counselling for asymptomatic HIV-infected prisoners should be available and accessible during detention.
 36. Prisoners should have access to information on treatment options and the same right to refuse treatment as exists in the community.
 37. Treatment for HIV infection, and the prophylaxis and treatment of related illnesses, should be provided by prison medical services, applying the same clinical and accessibility criteria as in the community.
 38. Prisoners should have the same access as people living in the community to clinical trials of treatments for all HIV/AIDS-related diseases. Prisoners should not be placed under pressure to participate in clinical trials, taking into account the principle that individuals deprived of their liberty may not be the subjects of medical research unless they freely consent to it and it is expected to produce direct and significant benefit to their health.
 39. The decision to hospitalize a prisoner with AIDS or other HIV-related diseases must be made on medical grounds by health personnel. Access to adequately equipped specialist services, on the same level available in the community, must be assured.
 40. Prison medical services should collaborate with community health services to ensure medical and psychological follow-up of HIV-infected prisoners after their release if they so consent. Prisoners should be encouraged to use these services.
- In 2006, the United Nations Office of Drugs and Crime (UNODC), together with WHO and UNAIDS, published a framework for an effective national response to HIV in prisons, reasserting that "[p]risoners are entitled, without discrimination, to a standard of health care equivalent to that available in the outside community" (UNODC, WHO, UNAIDS, 2006). "Recommended actions" 67 to 76 in the framework provide more detail about what governments should do:
67. Provide at no cost access to appropriate and professional HIV/AIDS care, treatment and support equivalent to that available in the outside community, including access to diagnostics, antiretroviral treatment, proper diet, health promotion options, and adequate pain management medications.
 68. Ensure that access to clinical trials, investigational therapies, non-conventional therapies, and alternative therapies is the same for prisoners as for people living outside of prisons. Such participation should only take place with expressed and informed consent, and prisoners should not be placed under pressure or intimidation to participate, nor be allowed to participate without their knowledge.

69. Ensure that prevention and treatment of STIs, TB, and hepatitis and other opportunistic infections are provided as key components of comprehensive HIV/AIDS care.
70. Ensure that prisoners are provided with information on HIV/AIDS treatments and therapies sufficient to enable them to make an informed choice about their treatment options, and that they are able to refuse treatment if they so choose.
71. Provide appropriate reproductive health and gynaecological care services for all women.
72. Provide quality obstetrical care for HIV positive pregnant women in prison, including antiretroviral therapy on a continuous basis, and prophylaxis for the infant during and post-delivery to ensure that vertical transmission of the infection is interrupted.
73. For infants kept in detention with their mother, provide paediatric care for those infants found to be HIV positive.
74. Encourage the participation of non-governmental organizations and other professionals from outside the prison system in providing care, treatment, and support services.
75. Provide access to effective, appropriate, and compassionate palliative care that meets standards available in the wider community.
76. Provide options for the early release for prisoners in advanced stages of HIV-related illness.

In recent years, provision of care and treatment for people living with HIV has become a global priority, and it is considered to be a basic human right. This includes the provision of ART in the context of comprehensive HIV care, including in prisons.

Provision of ART in prisons requires that national or international policies and guidelines for the use of antiretrovirals be followed (WHO, 2006; Department of Health and Human Services, 2006). Because provision of health care is a basic right for prisoners, no other special guidelines can be justified in this context (Pontali, 2005).

13.2 Evidence regarding provision of antiretroviral therapy in prisons

(For a summary of the review, see the Evidence for Action Paper on *Effectiveness of Interventions to*

Address HIV in Prisons – HIV care, treatment and support).

13.2.1 Evidence from community settings

Combination ART has proven to be effective in obtaining maximal and durable suppression of HIV viral load, restoration and preservation of immunologic function, improvement of quality of life, and reduction of HIV-related morbidity and mortality (Pontali, 2005, Hogg et al., 1998; Palella et al., 1998; Hogg et al., 1999; Florida et al., 2000; Lavallo et al., 2000). ART has changed HIV into a treatable, chronic condition. Left untreated, most HIV-positive people will eventually develop HIV-related illnesses and die. If they receive ART, however, they can live in relatively good health for many years. Such results have been observed even in “hard to reach” HIV-positive populations such as people who inject drugs (Open Society Institute, 2004; WHO, 2005b), and in challenging contexts such as resource-poor countries (Coetzee et al., 2004; Palombi et al., 2004).

13.2.2 Evidence from prison settings

In high-income countries, where ART is relatively accessible, it has been provided to many HIV-positive prisoners for the last ten years. Often, treatment is initiated in prison. For example, in Connecticut (United States), up to 67% of HIV-positive prisoners first received ART while in prison (Altice & Friedland, 1998; Altice, Mostashari, & Friedland, 2001). As a consequence, AIDS-related deaths in prisons in countries in which ART is available in prisons have decreased dramatically (Centers for Disease Control and Prevention, 1999; Mackenzie et al., 1999; Maruschak, 2001; Babudieri et al., 2005).

A number of studies undertaken mainly in prisons in the United States and a few other prison systems in developed countries have shown that, when provided with care and access to medications, prisoners respond well to ART (see, e.g., Springer et al., 2004). More recently, many resource-poor countries have also started making ART available in their prison systems, demonstrating that it is feasible to provide ART in these settings and to achieve satisfactory outcomes (Srisuphanthavorn et al., 2006; Winarso et al., 2006). However, to date these programmes are often small in scale (Simoooy & Sanjobo, 2006; Hassim, 2006) and most of them have not been comprehensively evaluated.

13.2.2.1 Adherence

A key aspect to obtaining the greatest benefits from ART is full adherence to the therapy regimen. Due

to the rapid multiplication and mutation rate of HIV and the relatively low potency and short half-life of most antiretrovirals, very high levels of adherence to antiretroviral schedules are necessary to avoid viral resistance (Paterson et al., 2000; Cheever, 2004). In comparison with patients who are adherent to ART, non-adherent people have higher mortality rates (Wood et al, 2003b); lower increases in CD4 cell count (Paterson et al., 2000); and spend more days in hospital (Paterson et al, 2000).

A Spanish study showed that prisoners receiving ART presented a higher rate of virological failure in conjunction with an unexpected lower rate of drug resistance, which suggested that they were not taking their treatment. When there was resistance, it was a consequence of low treatment adherence (Gallego, 2003). Other studies in developed countries, however, have shown that levels of adherence among prisoners can be as high as those found among HIV-positive persons enrolled in primary care services linked to municipal hospitals, methadone maintenance programmes, or research cohorts of injecting drug users (Pontali, 2005, with references). These studies have also provided information about factors influencing adherence:

- In a study in 5 prison treatment sites in the United States (N=90), overall self-reported rate of adherence to ART, administered twice daily under direct observation, was 94.1% during the 24 weeks of the study. Prisoners reported a number of institutional barriers to receiving doses. Some of the most frequent were that medicine was not available, the patient was not allowed to attend the medicine call, the patient did not want to go to the medication line, the patient was in "lockdown", or the patient was moved to another cell (Kirkland et al., 2002).
- Using a cross-sectional survey design within four ambulatory prison HIV clinics, Altice, Mostashari, & Friedland (2001) recruited 205 HIV-positive prisoners eligible for ART. Acceptance and adherence were documented by self-report and validated for a subset by pharmacy review. Clinical information was obtained from standardized chart review. Adherence was defined as having taken $\geq 80\%$ of ART. The acceptance of (80%) and adherence to (84%) ART among this group of prisoners was high. Multiple regression models demonstrated that correlates of acceptance of and adherence to ART differed. Acceptance was associated with trust in physician (8% increase for each unit increase with trust in physician scale) and trust in HIV medications (threefold reduction for those
- mistrustful of medication). Side effects (OR = 0.09), social isolation (OR = 0.08), and complexity of the antiretroviral regimen (OR = 0.33) were associated with decreased adherence.
- In their study in the Connecticut prison system, Springer et al. (2004) showed that the most predictive factor associated with nonadherence in the multivariate analysis was the composite, side-effect variable, that is having experienced side effects from any antiretroviral drug and having expressed willingness to stop medications if any side effects were to occur (11-fold increase). Social isolation was associated with a 12-fold increased risk of non-adherence, and every step up in the complexity of antiretroviral regimen was associated with a threefold higher risk for nonadherence.
- Mostashari et al. (1998) examined attitudinal and demographic correlates of antiretroviral acceptance and adherence among incarcerated HIV-infected women. Structured interviews were conducted with 102 HIV-positive female prisoners eligible for ART. Three quarters of the women were currently taking antiretroviral agents, of whom 62% were adherent to therapy. Acceptance and adherence with antiretroviral agents appeared to be significantly associated with trust in medications, trust in the health care system, and interpersonal relationships with physicians and peers.
- Edwards et al. (2001) reviewed their experience of providing specialist HIV care to prisoners at two prisons in London, England. Self-reported adherence to ART exceeded 90%, comparing favourably with the rate reported from a London outpatient cohort (Walsh et al., 1998). 63% of prisoners reported occasions when they had not received their medication as prescribed. Reasons included confinement to cell and travel to court, hospital, or another prison.
- In a cross-sectional study in two Spanish prisons (N=177), reported adherence levels were higher than in the community. A total of 24.3% were non-adherent (Soto Blanco, Perez, & March, 2005).
- In another cross-sectional study in three other Spanish prisons (N=281; 253 male and 28 female), over half of prisoners (54.8%) were considered to be nonadherent to ART, but only those prisoners who followed the prescribed dosage and procedure 100% correctly were considered to be adherent, which may explain why the reported rate of nonadherence was higher than in other studies (Soto Blanco et al., 2005). The study

showed once again the importance of psychosocial factors in the adherence to ART – factors that were independently associated with a higher risk of nonadherence included mentioning not having anyone concerned for them outside prison and suffering anxiety or depression in the last week. On the other hand, in contrast to what the above study found (Soto Blanco, Perez & March, 2005), prisoners who stated that the prison authorities were willing to open their cell if they missed their medication were less likely to be nonadherent.

- ▶ A third cross-sectional study in Spanish prisons (N=98; 96% men and 98% IDUs) reported similar levels of adherence, but highlighted that only 50% of prisoners achieved an adherence rate of over 95% (Marco et al., 2002).

Most recently, Srisuphanthavorn et al. (2006) reported that “good adherence” levels have been achieved at a prison in Thailand.

13.2.2.2 Modalities of administration of treatment

The modality of ART administration can profoundly affect adherence to treatment. Some correctional health services administer antiretrovirals under direct observation, while others use modified directly observed therapy (DOT) i.e. patients receive their daily ART and swallow the morning dose in front of the staff and self-administer the other dosages; or ‘keep on person’ (KOP) or self-administered therapy, which allows the patient to keep their medications in their cells and take them independently; or self-administer ART (Spaulding et al., 2002; Pontali, 2005). Any one of these strategies can be chosen, and they are sometimes used contemporaneously in the same prison, with different patients. The advantages and disadvantages of each modality have been described by Pontali (2005).

Studies to date have provided mixed evidence about which modality is preferable. An Italian study comparing DOT with modified DOT showed that the DOT group had significantly better virological and immunological results (Babudieri et al., 2000). Fischl et al. (2000; 2001) also presented data supporting the effectiveness of DOT. However, it is unclear whether the findings were DOT-related or whether people in prison have better adherence to ART for other reasons i.e. they are receiving treatment for mental health disorders and their illegal drug use is decreased (Spaulding et al., 2002). In a number of other studies, there was no significant difference in adherence between self-medication and DOT (Altice et al., 2001; Wohl et al., 2000; Wohl et al., 2003).

Studies have shown that successful implementation of DOT in prisons faces several challenges. The conspicuousness and inconvenience of waiting in line as well as inflexible medication dispensing hours can discourage rather than facilitate receipt of ART via direct observation. In one study, a significant number of prisoners (16%) reported that they miss their medications because they do not want to stand in the medication line (White et al., 2006). Prisoners may fear being labelled as HIV-positive if they are seen standing in line for medications several times a day (Spaulding et al., 2002). Many prisoners report keeping their HIV status hidden from the other prisoners (Altice et al., 2001; White et al., 2006), and Wohl et al. (2003). White et al. (2006) found that two thirds would prefer to take medication on their own rather than through DOT. If medication is provided through DOT, almost all would prefer to receive DOT from a correctional nurse rather than a correctional officer (White et al., 2006).

13.2.2.3 Continuity of care

Wood et al. (2003), Palepu (2003; 2004) and Stephenson et al. (2005) all found that transition between prison and the community is often associated with interruptions in care and treatment, with negative effects on virological and immunological outcomes. Springer et al. (2004) documented the effectiveness of ART among HIV-positive prisoners, but found that individuals who were reincarcerated had a log increase in viral load and a mean decrease in CD4 lymphocyte counts. The gains in health status made during the term of incarceration were lost among reincarcerated persons, because of relapse to drug use, discontinuation of therapy and, possibly, untreated mental illness. This underscores the need for linkage to aftercare services for prisoners with HIV infection upon release (Spaulding et al., 2002).

As most prisoners will eventually be released, careful prison discharge planning is essential for preserving the health care advances made in prison, and it requires a comprehensive approach (Spaulding et al., 2002; Springer & Altice, 2005). Attention to issues such as job placement; treatment of drug use; mental illness triage and referral; appointments for HIV care and other medical care; referral for assistance with housing, nutrition, entitlements and other services; transportation, and child care enhances the likelihood that medical discharge planning will be effective (Kim et al., 1997). Discharge planning and linkage to community aftercare also facilitates ongoing secondary prevention efforts (Vigilante et al., 1999).

Model linkage programmes providing good discharge planning, initiated well before prison release can reduce the rate of recidivism (Flanigan et al., 1996; Skolnick, 1998). It has been speculated that these results could also apply to HIV care follow-up and regular continuation of ART (Pontali, 2005). Experiences show that this link between prison and community is feasible and is essential to obtain continuity of HIV care (Altice et al., 1996; Wohl et al., 2004; Howard & Campbel, 2004; Kennedy et al., 2004). For example, Babudieri et al. (2005) found that an intensive counselling programme that aims to create a relationship between the prisoner and a medical team committed to patient clinical follow-up outside of prison may improve adherence both in prison and in the community after release.

In the United States, preliminary results of a randomized control trial of a case management model designed to bridge incarceration and release (versus standard discharge planning conducted prior to release only), indicated that a case management intervention for HIV-positive prisoners spanning the periods prior to and after prison release is successful in increasing access to and utilization of HIV medical care, reducing emergency room utilization and early recidivism (Wohl et al., 2006). Interviews with participants in the study six months after release showed that for HIV-positive prisoners, release is a time associated with great emotion and anxiety, particularly with respect to drug use and family relationships. This confirms that more intensive release preparation programmes spanning the continuum of both pre- and post release are needed, and that these programmes should not only provide HIV-related care and support services, but a broader spectrum of support including drug use prevention and treatment and community supports (Haley et al., 2006).

Equally important is ensuring the continuity of care within the prison system. Transfers from one prison to another or court dates may result in problems coordinating medical care and supplying medications in a timely fashion (Pontali, 2005), highlighting the importance of good prison pharmaceutical services to guarantee proper and regular access to antiretroviral drugs (Pontali et al., 2004).

13.2.2.4 Co-morbidities

A critical issue for treated prisoners is the presence of co-morbidities, such as chronic viral hepatitis, tuberculosis, and mental illness that often accompany HIV infection in this setting (Pontali, 2005). Such concomitant clinical manifestations can make the choice of antiretroviral combinations difficult,

because of possible drug interactions, reduced adherence to ART because of mental illness, and high pill load (Pontali, 2005).

Co-infection with hepatitis C (HCV) is common in HIV-positive prisoners (Macalino et al., 2004), particularly those with a history of injecting drug use. This may increase the risk of liver toxicity and impair the metabolism of some antiretroviral drugs. Despite the common association between hepatotoxicity and antiretroviral drugs, about 90% of people living with HIV, regardless of hepatitis co-infection, will tolerate ART without severe liver toxicity (Sulkowski et al., 2000), though it is important to be aware of potential drug interactions, particularly when treating HCV.

Recent studies have demonstrated that HCV treatment is feasible, promises to be effective in prison populations (Allen et al., 2003; Farley et al., 2005), and prisoners are interested in hepatitis C testing and, if indicated, treatment (Vallabhaneni S et al., 2006). Recommendations for the diagnosis and treatment of HCV in prisons have been developed (Saiz de la Hoya-Zamacola et al., 2006; Spaulding et al., 2006; Centers for Disease Control and Prevention, 2003; Federal Bureau of Prisons, 2005). With good adherence to treatment regimens, rates of sustained virological response for prisoners treated with combination therapy are comparable to those observed in patients outside prison at similar stages of disease. However, therapy in prisons can be frequently interrupted (Spaulding et al., 2006).

Management of Tuberculosis (TB) is generally similar in people living with HIV as in HIV-negative people and management guidelines are available (American Thoracic Society 2003; WHO & International Committee of the Red Cross, 2000; WHO, 2007). Important considerations include interactions between some TB and antiretroviral drugs, interactions between some TB drugs and methadone, and possibly buprenorphine; and the timing of initiating ART in people with active TB (WHO, 2005; WHO, 2006).

13.2.2.5 The link with opioid substitution therapy

Based on the data available from an increasing number of studies in various countries, and extrapolating from the vast literature on community-based programmes, adequate prison-based opioid substitution therapy (OST) programmes appear to be effective in reducing injecting drug use and associated needle sharing (see *supra*, chapter 11.2). In addition, adequate prison-based OST programmes have other worthwhile benefits, both for the health of prison-

ers participating in the programmes, and for prison systems and the community. In particular, studies have found that:

- ▶ retention in OST is associated with reduced mortality;
- ▶ OST in prison significantly facilitates entry and retention in post-release treatment compared to prisoners enrolled in detoxification programmes;
- ▶ re-incarceration is less likely among those prisoners who receive adequate OST while incarcerated;
- ▶ OST has a positive effect on institutional behaviour by reducing drug-seeking behaviour and improving prison safety;
- ▶ although prison administrations often initially raise concerns about security, violent behaviour and diversion of methadone, these problems have not emerged when OST programmes have been implemented, and
- ▶ both prisoners and correctional staff report about the positive impact OST has on prison life.

Therefore, it has been recommended that, in any country in which OST programmes are available in the community, prison authorities introduce such programmes urgently and expand implementation to scale as soon as possible. (For a more detailed analysis of the evidence regarding OST in prisons, see *supra*, chapter 11.2).

However, there is an additional factor that increases the need to make OST available in prisons. OST offers opportunities for improving the delivery of ART to HIV-positive opioid users. OST enables opioid dependent drug users to stabilize their lives, and avoid or manage many of the complications of injecting drug use, and is therefore seen as an essential component in strategies for retaining active injecting drug users in antiretroviral therapy programmes (Mattick et al. 2002). OST also provides additional entry points for scaling up ART, improves drug adherence and increases access to care (Clarke et al., 2002; Moscatello et al., 2003; Lucas, 2004; Farrell et al., 2005; WHO, 2006).

13.2.2.6 The link with HIV testing and counselling

Knowledge of HIV status is a prerequisite to receiving appropriate care, treatment and support. In many prison systems, particularly in resource-poor countries, access to HIV testing and counselling currently is limited, and scaling up access to treatment, including ART, will also require scaling up access to

HIV testing and counselling. (For a detailed analysis of the evidence regarding HIV testing and counselling programmes in prisons, see *supra*, chapter 6).

13.2.2.7 Funding and the place of prison health

Studies have found that prisoners tend to have consistently poorer health status when compared with the general population, regardless of the indicator chosen (Correctional Service Canada, 2004; Bobrik; 2005). While there is evidence that providing good care, treatment and support, including ART, is feasible in prisons and that prisoners respond well to ART, the challenges are great. Overcrowding, poor conditions, and inadequate medical services exacerbate negative health impacts and complicate the provision of care by prison health staff (UNODC, WHO, UNAIDS, 2006). In many countries, the biggest challenge is the lack of resources, financial and otherwise, devoted to health care in prison. Other challenges relate to the place of prison health care within the correctional system whose priorities and values may often conflict with those of medical care. Put simply, “corrections is a public safety or law enforcement activity rather than a public health activity” (Brewer, 1991).

A joint position paper by the American College of Physicians, National Commission on Correctional Health Care, and American Correctional Health Services Association (1992), spoke of a “crisis in correctional health care”, pointing out how in many countries incarceration of large numbers of people who use drugs, many of them living with HIV, has exacerbated existing problems in health-care provision in prisons. The paper made several recommendations about how this crisis could be overcome, including:

- ▶ drug policies, with their emphasis on incarceration, should be reconsidered
- ▶ correctional health-care budgets should be increased to reflect the growing needs of the prison population
- ▶ correctional health care should be recognized as an integral part of the public health sector; and
- ▶ correctional care should evolve from its present reactive “sick call” model into a proactive system that emphasizes early disease detection and treatment, health promotion, and disease prevention.

These recommendations are consistent with those of a study of health-care services in federal prisons in Canada (Correctional Service Canada, 2004) which pointed out that health services in prisons have tra-

ditionally been “individual care-based and therefore reactive,” and that a “much greater population health focus is required.” The study acknowledged that there is a need for a public health infrastructure to fulfil the core functions of public health services within prisons – ie, to assess the health status of prisoners; have an effective surveillance system for infectious and chronic diseases; undertake health promotion efforts; have coordinated actions to prevent diseases and injuries; protect the health of prisoners; and evaluate the effectiveness, accessibility, and quality of health services. It emphasized that a functioning prison public health system is required to ensure the appropriate management and control of infectious diseases and concluded that addressing prisoners’ health needs “will contribute to the inmate’s rehabilitation and successful reintegration into the community.”

In the long run, transferring control of prison health to public health could have a positive impact on HIV care, treatment, and support in prison. Some countries have already introduced such a change in prison health administration. Norway was one of the first. In France, where prison health was transferred to the Ministry of Health in 1994, each prison is twinned with a public hospital (UNAIDS 1997). In Italy, there has been integration between prison health authorities and centers for HIV care of the national public health system after a common decree of the responsible ministries in 1998 (Pontali 2005). In England and Wales, the Department of Health assumed responsibility from Her Majesty’s Prison Service for health policymaking in 2000, and full budgetary and health care administration control were transferred by April 2006. Experience in these prison systems has shown that health care in prisons can be delivered more effectively by public health authorities than by prison management, strengthening the link between health in the community and health in prisons (Pontali 2005; UNAIDS 1997; Editorial 1991). As a result of the reorganization, funding has improved and services now relate more to assessed health need. There is early but limited evidence that some standards of care and patient outcomes have also improved (Hayton & Boyington, 2006).

13.3 Conclusions and recommendations

1. Prison systems should ensure that HIV-positive prisoners receive care, treatment and support equivalent to that available to people living with HIV in the community, including ART.

The advent of combination ART has significantly decreased HIV-related mortality in both the com-

munity and in prisons in countries where ART has become available. Providing access to ART in prisons is a challenge, but it is both necessary and feasible. Studies have documented that, when provided with appropriate care and access to ART, prisoners respond well. Adherence rates among prisoners can be as high as or higher than among HIV-positive people in the community. However, health gains made during incarceration may be lost unless careful discharge planning and linkages to community care, treatment and support services are made.

2. As ART becomes increasingly available in low and middle income countries, actors at the international, national, and regional and local levels should ensure that it also becomes available in prisons.

To date, very little information exists about what is being done to ensure that prison systems are an integral part of scale-up efforts and there are no published studies or even guidelines on this. Sustainable HIV treatment programmes, integrated into countries’ general HIV treatment programmes or at least linked to them, are needed.

At the *international level*, access to treatment initiatives should include a prison-specific component and ensure that

- ▶ prison systems are included in technical assistance missions
- ▶ data about treatment access and coverage in prisons is collected and published
- ▶ best practice models are developed and disseminated
- ▶ the public health and human rights implications of inadequate treatment access in prisons are brought to the attention of policy makers.

At the *country level*:

- ▶ prison departments should have a place within the national HIV coordinating committees
- ▶ prison issues should be part of the agreed HIV/AIDS action framework and monitoring and evaluation system
- ▶ prison departments should be involved in all aspects of treatment scale-up, from funding applications (to ensure that funds are specifically earmarked for prisons), to development, implementation, and monitoring and evaluation of treatment roll-out plans; and
- ▶ the ministry responsible for health and the minis-

try responsible for the prison system should collaborate closely, recognizing that prison health is public health; alternatively, governments could assign responsibility for health care in prisons to the same ministries, departments and agencies that provide health care to people in the community.

Finally, at the *regional and local level*, prisons should

- form partnerships with health clinics, hospitals, universities and NGOs, including people living with HIV organizations, to provide health care and other services for prisoners; and
- develop integrated rather than parallel care and treatment programmes.

3. Efforts need to be undertaken by prison authorities, working with the other components of the criminal justice system and with external health authorities and NGOs, to ensure continuity of care, in particular, ART, from the community to the prison and back to the community, as well as within the prison system.

Successful HIV therapy requires that there be no interruption in antiretroviral medications. A large number of prisoners move in and out of the prison system as well as within the system, and it is essential to provide continuity of care from the community to the prison and back to the community, as well as within the prison system.

Treatment discontinuation for short or long periods of time may happen upon arrest and detention in police cells, within the prison system when prisoners are transferred to other facilities or have to appear in court, and upon release. Each of these situations should be addressed and mechanisms established to ensure uninterrupted ART. Police and correctional officers need to be educated about the importance of continuity of treatment. Particular attention should be devoted to discharge planning and linkage to community aftercare.

4. Where OST is available in the community, it should also be available in prisons, so that people on OST and ART are able to access both without interruption.

Making OST available in prisons to people dependent on opioids is strongly recommended. In addition to its role in the management of opioid dependence and the prevention of HIV transmission, OST has proven effective in facilitating delivery of and adherence to ART among people dependent on opioids.

Many IDUs with HIV will spend time in prison, and they need to be able to access both OST and ART without interruption, including when transferring from the community to the prison and vice versa.

5. In the context of efforts to increase access to care and treatment, including ART, prison systems should provide easy access to HIV testing and counselling.

In particular, **voluntary** HIV testing and counselling:

- should be easily **accessible to all prisoners upon entry and during imprisonment**
- should always be **confidential**, and everyone being tested should give informed **consent** and receive **counselling**
- should be closely **linked to access to care, treatment, and support** for those testing positive, and be part of a comprehensive HIV programme that includes access to prevention measures.

Knowledge of HIV status is a prerequisite to receiving appropriate care, treatment and support. In many prison systems access to HIV testing and counselling currently is limited, and scaling up access to treatment, including ART, will also require scaling up access to voluntary HIV testing and counselling.

6. In contrast, policies of mandatory testing and segregation are counterproductive and can have negative health consequences for segregated prisoners.

In addition, other measures could have a positive impact on HIV care, treatment and support in prison. These include ensuring that prison health care be appropriately funded, and moving from the current “sick call” model used in most prison systems into a proactive system that emphasizes early disease detection and treatment, health promotion, and disease prevention. Finally, experience in a range of prison systems has shown that health care in prisons can be delivered more effectively by public health authorities than by prison management. When control of prison health is transferred to public health authorities, this strengthens the links between health in the community and health in prisons. Therefore, countries may want to consider transferring control of prison health to public health authorities. If control of prison health is transferred to public health authorities, proper resources should be provided and freedom of action of the new prison health authorities guaranteed.

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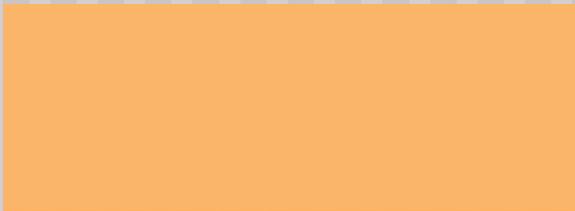
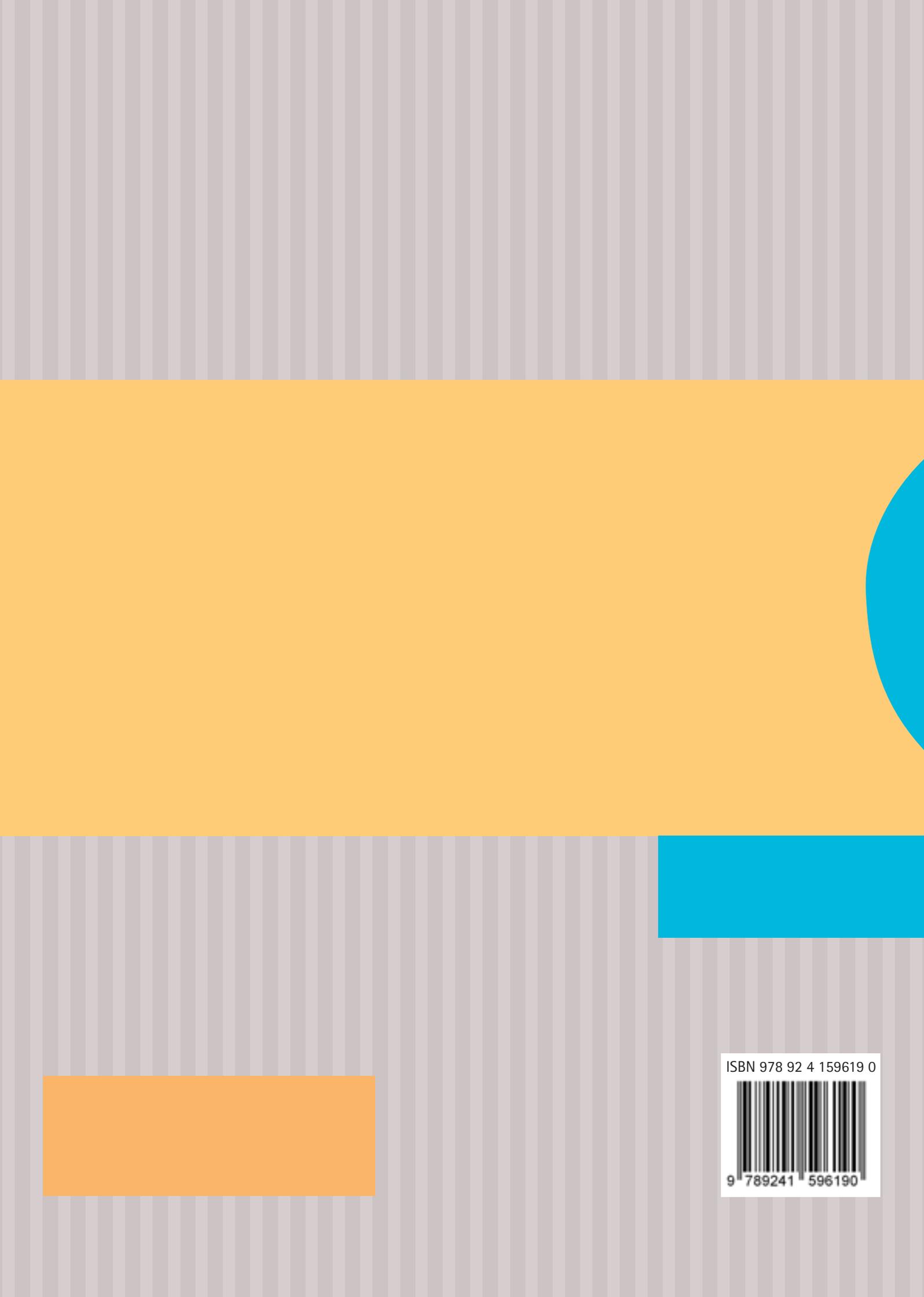
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