CONTROLLING HIV INFECTION BEHIND BARS: QUESTIONS, STRATEGIES AND OBSTACLES*

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INTRODUCTION

What actions, if any, should authorities in Australia take to minimise the spread of HIV infection in prisons? In consideration of public policy on an issue judged to be of importance, the first and most critical step is to choose the right questions. Second, the limitations of knowledge required to answer the selected questions need to be spelt out. Third, the realistic options available for policy makers should be identified. Fourth, the criteria for chosing between these options should be defined and the degree of safety which must be allowed for when selecting options must be considered. Finally, the fact that the process of policy formulation and implementation occurs in an imperfect and less than entirely rational world must be taken into account.

A decade after the discovery of the global pandemic of HIV infection, it is probably safe to assume that most policy makers with responsibility for public health throughout the world recognise that the containment of this infection is of paramount importance. The unfolding tragedy of an uncontrolled HIV epidemic in several African countries and parts of the United States demonstrates already the potential magnitude of the consequences of allowing the genie to escape from the bottle. Although the AIDS epidemic in several African countries has already threatened within a decade to reverse painfully achieved public health advances, HIV infection has also shown itself to be potentially more than a mere health concern elsewhere. It is now accepted that AIDS has the potential to threaten economic development and possibly political stability in some countries. It may be inconceivable that these apocalyptic consequences of AIDS could ever occur in Australia. Yet clearly AIDS must not be underestimated. Authorities must consider all of the possible mechanisms for HIV transmission within a society and ensure that the risk to future generations is minimised. Responsible exercise of power demands nothing less. As the prison population comprises almost 1 per cent of the total population and has a rapid turnover so that the entire prison population is in effect replaced several times a year, the potential for HIV transmission in prisons must be defined, and, if considered significant, measures identified which can minimise transmission effectively.

Defining the specific aims and gaining agreement for them is the first step. The overarching aim of a responsible policy maker in relation to HIV infection and prisons can be assumed to be to secure a maximum achievable reduction in HIV transmission within

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all correctional facilities. It is now generally accepted that control of HIV infection in the general community in Australia depends on control of HIV infection among injecting drug users (IDUs). It may well be the case that control of HIV infection among IDUs depends upon control of this infection in prisons.

QUESTIONS

Bearing the above considerations in mind, the most relevant questions for policy makers are:

- Does substantial HIV transmission occur in prisons?
- If so, what measures will minimise effectively HIV transmission in prisons?
- What factors might be anticipated to obstruct the implementation of effective prevention strategies?

DOES SUBSTANTIAL HIV TRANSMISSION OCCUR IN PRISONS?

Should we be concerned about the risk of HIV transmission in prison? In many western countries, including the State of New South Wales, almost 1 per cent of the total population at any time is behind bars. Moreover, as the mean duration of imprisonment is only four months, a not inconsiderable proportion of the population passes through the prison system over time. Most prisoners have been sexually active and some will have engaged in unsafe injecting practices before entering a correctional facility for the first time. In some cases, sexual activity and drug injecting also occurs during imprisonment as well. Sexual activity and drug injecting soon after incarceration occurs commonly, thereby enabling potentially rapid transmission of HIV to the general community following release if substantial HIV infection has occurred during imprisonment.

Is there any evidence of significant transmission among and from prisoners? The rapid dissemination of HIV infection among Thai IDUs in 1987/88 (with subsequent rapid spread to non-drug using heterosexuals) has been attributed to the release following a Royal amnesty of large numbers of drug using prisoners who had become infected in jail. While plausible, this speculation remains only a possible and uncorroborated explanation of the explosive spread of HIV in Thailand during the last few years.

Numerous studies in many developed countries have shown that the prevalence of HIV infection within prison populations is several times higher than in the general community. The major explanation for this observation is the high proportion of injecting drug users (IDUs) in prison populations. However, the fact that there is a higher prevalence of HIV infected persons in prisons than in the community does not in itself prove or even suggest that substantial HIV infection occurs within prisons unless behaviours associated with the risk of transmission have also been shown to be common in prisons.

Estimating the prevalence of HIV risk behaviours occurring in prisons is far more difficult than might be supposed. Serving prisoners are extremely wary about providing information regarding illegal activities occurring during their incarceration even to independent researchers. Interviewing former prisoners about their risk behaviour when

most recently incarcerated provides some indication of risk although the possibility of recall bias cannot be eliminated. Researchers in South Australia attempted to overcome these limitations ingeniously by asking prisoners and prison officers to assess a range of scenarios and estimate the probability of risk behaviour for each scenario.[1] The estimates of frequency of high risk behaviour from these two groups were surprisingly similar and close to estimates derived from interviews of former prisoners providing some support for the validity of estimates using other techniques.

Wodak[2] estimated on the basis of interviews with 209 former New South Wales male IDU prisoners that just over half shared injecting equipment and about 5 per cent had unprotected anal intercourse while in prison. Similar results (with slightly different methodologies) were obtained by researchers in Adelaide and London.[3] Although the prevalence of these risk behaviours in these individuals might have been less while they were in prison than when they were in the community, it is reasonable to assume, but difficult to prove or disprove, that the hazardousness of each single episode of risk behaviour was greater inside than outside prison. If the number of episodes of drug injecting are less frequent inside than outside prison, but the few available needles and syringes within a prison are reused repeatedly and to a far greater extent than in the community where sterile injecting equipment is extensively utilised, then prisons will exacerbate HIV infection in the critical population of IDUs.

We can measure the frequency of high risk behaviour within a prison with reasonable confidence in our results. We will probably never be able to estimate precisely the comparative hazardousness of risk behaviours occurring inside and outside prison walls. But policy, implicitly or explicity, will be based on assumptions of comparative hazardousness.

Analysis of urine specimens provided by prisoners for traces of potentially injectable substances have been used to estimate the prevalence of illicit drug use in jails. While this has the apparent appeal of objective scientific data, unfortunately, there are also serious pitfalls for the unwary which are inherent in urine testing and which must be borne in mind by all who interpret these data. Unless compliance is close to 100 per cent there can be little confidence in any minimum estimate of drug injecting based on urine testing. The

1 Gaughwin, M, Douglas, R, Davies, L, Mylvaganam, A, Liew, C and Ali, R, "Preventing Human Immunodeficiency Virus (HIV) infection among prisoners: prisoners' and prison officers' knowledge of HIV and their attitudes to options for prevention" (1990), 14 *Community Health Studies* at 614; Gaughwin, M, Douglas, R, Liew, C, Davies, L, Mylvaganam, A, Treffke, H, Edwards, J and Ali, R, "Human Immunodeficiency Virus (HIV) prevalence and risk behaviours for its transmission in South Australian prisons" (in press).

2 Wodak, A D, Shaw, J M, Gaughwin, M D, Ross, M W, Miller, M E, Gold, J, "Behind bars: HIV risk-taking behaviour of Sydney male drug injectors while in prison" (1991), in: Norberry, J, Gaughwin, M and Gerrull, S A (eds), *HIV/AIDS and Prisons. 4 Australian Institute of Criminology Conference Proceedings* at 239-44.

3 Douglas, R, Gaughwin, M, Ali, R, Davies, L, Mylvaganam, S and Liew, C, "Risk of transmission of the Human Immunodeficiency Virus in the prison setting" (1989), 150 *Medical Journal of Australia* at 722; Donoghoe, M, Dolan, K and Stimson, G, "National Syringe Exchange Monitoring Study. Interim Report on Characteristics and Baseline Risk Behaviour of Clients in England, April to September 1989" (1990), Monitoring Research Group, University of London Goldsmiths College, New Cross, London.

non-compliant usually use more drugs than the compliant. Also, specimens taken too far apart may underestimate the prevalence of injection while specimens taken too close together might overestimate the prevalence of injecting as single episodes of drug consumption may be counted more than once. Urine analysis is also heavily dependent on technical expertise and quality control of the laboratory. A positive result only indicates the presence of a drug or metabolite and does not indicate how the drug was administered. Unless the specimens can be linked to an individual, we cannot separate those who have obtained prescribed drugs lawfully from the remainder. A negative result could mean a concentration below the threshold set by the laboratory, or a small dose, or a dose withheld because of anticipated urine testing, or a period since the last ingested dose sufficient to allow complete excretion or metabolism or undetected switching of samples or ingestion of large quantities of liquids to reduce the concentration of the drug in the urine to sub-threshold levels. Prison authorities are mainly interested in the consumption of proscribed substances. From an HIV perspective, it is the injection of drugs and even more so the sharing of injection equipment which is critical. This information is not available from urine analysis testing. The only conclusion which can be drawn from attempts to estimate the frequency of drug use in prisons by urine testing is that such attempts are usually going to be subject to substantial error.

It is commonly assumed that the significance of a high prevalence of HIV infection in prisons is that if behaviours known to be associated with the transmission of HIV infection are common in prisons and some prisoners have already been infected with HIV, then the confined nature of correctional facilities may result in these institutions serving as "incubators" for HIV. However, the spread of HIV infection in prisons will only be maximised if a critical admixture of high-risk and low-risk individuals occurs. If high-risk populations and low-risk populations are largely segregated from each other, whether inside or outside prisons, then infection will still be propagated but at sub-maximal rates. Maximal rates of propagation are achieved when a critical mixing of high-risk and low-risk populations occur. The critical degree of admixture can be predicted from mathematical modeling. However, the salient consideration is whether under all circumstances maximal achievable reductions in HIV transmission are occurring and not whether HIV transmission is more or less extensive inside or outside prisons.

There are surprisingly few published studies of HIV infection occurring in prisons. Paucity of data should not be confused with a conclusion that significant HIV transmission is not occurring in prisons. The few studies in existence encouragingly report little evidence of HIV infection occurring in prisons. Were these studies conducted in high or low prevalence areas? Studies conducted in high prevalence areas will be far more informative of the potential for rapid transmission. What degree of compliance to HIV testing was obtained? Unless compliance was close to 100 per cent then estimates must be interpreted cautiously. How generalisable were the conditions of the prisons studied to Australian correctional facilities? If the prison conditions were far more stringent than apply generally in Australia, generalisation to local circumstances must be appropriately qualified. Therefore, I conclude from the above that the existing data on HIV infection occurring within prison is too limited and subject to too many qualifications to estimate confidently the degree of risk of substantial HIV infection occurring in Australian prisons.

Hepatitis B Virus transmission is a useful surrogate marker for HIV as the transmission mechanisms are similar. Fortunately Hepatitis B is not shrouded in an emotional and sensitive mist like HIV and is therefore more amenable to investigation. The few studies of Hepatitis B Virus infection in (US) prisons also show low rates of transmission.[4] But were these rates low because most subjects were already immune because of previous exposure to Hepatitis B (as would be expected)? Or were the rates low perhaps because the prison conditions in the jails studied were extremely stringent (and therefore perhaps not generalisable to Australia)? Or were the jails in areas where IDUs are rare and therefore the opportunity to observe Hepatitis B transmission would have been low? Unless all these details have been enquired about, it is difficult to make any interpretation of these Hepatitis B studies as a surrogate marker for possible HIV transmission.

Estimates of the prevalence of HIV infection in correctional facilities have been quoted by some to suggest that these might provide some indication of the current and future risk of more widespread transmission. In New South Wales, involuntary HIV testing has been conducted on over 6,000 prisoners on entry and exit since November 1990. Compliance has been close to 100 per cent. HIV prevalence has been reported to be about 0.5 per cent which is encouraging news. Unfortunately these data do not provide any indication of the risk of rapid transmission within the prison system in the future if the prevalence of HIV infection in IDUs in the community starts to increase. Entry and exit testing over time will provide an estimation of the risk of transmission within prison subject to the difficulty of allowing for the "window" period. It will also provide interesting evidence for potential litigants who may choose to challenge whether correctional authorities provided full duty of care. The most appropriate interpretation of the low prevalence of HIV infection among the substantial sample of New South Wales prisoners is that it is not too late to intervene, assuming that we agree that one or more interventions are warranted.

What can be concluded from these considerations? First, it is safe to assume that current HIV prevalence in New South Wales jails and probably the rest of Australia is low. No assumptions can be made about future trends. Some take the current figures as an encouragement to turn to other and more pressing matters. Others take the view that these figures indicate that the opportunity for effective prevention and protection of the community is still available and that no time should be lost. Second, the data on HIV and Hepatitis B transmission in prison are too limited and subject to too many qualifications to allow confident interpretation and generalisation to Australian conditions. Third, although the behavioural data indicate that unsafe injecting and sexual practices are less common in prison than the community, the very real possibility exists that each episode of unsafe behaviour inside prison is more hazardous than in the community. At present, we are unable to define with any confidence the degree of risk of HIV transmission in prison. HIV prevalence data, HIV infection data, Hepatitis B infection data and behavioural estimates are all too limited to use as a basis for assuming low risk. In summary, on the basis of existing data it is not possible to determine precisely the degree of risk of widespread dissemination of HIV infection occurring in prison.

4 Decker, M, Vaughan, W, Brodie, J, Hutcheson, R Jr and Schaffner, W, "Seroepidemiology of Hepatitis B in Tennessee Prisoners" (1984), 150 *Journal of Infectious Diseases* at 450-9.

However, given the potential magnitude of the adverse consequences of infection, and therefore the importance of not underestimating the degree of risk, and assuming that the appropriate aim is maximum achievable reduction in HIV infection under all circumstances, the prudent course of action for responsible authorities under these circumstances is to assume that substantial risk exists until evidence to the contrary emerges. This also applies to prisons. Sound policy should be based on the assumption that potentially substantial HIV infection occurs in prisons. There is an abundance of evidence to support that assumption.

WHAT MEASURES WILL MINIMISE HIV TRANSMISSION IN PRISONS?

A range of measures have been recommended and some of these have been implemented.[5] Reducing the number of persons exposed to the risk of HIV infection in prisons is the logical first step. The prison population in NSW reached 6,000 in the early 1990s. At any time, approximately 95 per cent are male of whom about 50 per cent are serving time for drug-related offences with over 80 per cent of the smaller population of female prisoners also serving sentences for drug-related offences. The proportion of prisoners who actually use drugs, as opposed to serving time for drug-related offences, is even higher. Although there may be few sentencing alternatives for the majority of offenders convicted of serious income generating property crimes (or the less common violent crimes) related to illicit drug use, non-custodial sentences such as the "electronic bracelet" for minor offences may help to reduce the prison population. Most prisoners serving time for drug-related offences have had numerous previous convictions. Prison is a last resort. But even if non-custodial alternatives are possible for only a minority, they are worth pursuing for a multitude of reasons — control of HIV infection, reducing the costs of prison, rehabilitation and compassion.

Many other strategies are available to reduce the risk of infection in prison assuming a constant population exposed to risk. As the sharing of injecting equipment in prisons is both more hazardous in terms of HIV transmission and more prevalent than unprotected anal intercourse, it is sensible to concentrate efforts on the reduction of sharing. Elimination or substantial reduction of injecting equipment and injectable drugs in prisons is a logical and, at first thought, readily achievable strategy. However, as in many other similar attempts to reduce HIV transmission, increasing efforts to restrict the supply of injecting equipment and injectable drugs in prisons may be partly successful but at the price of increasing the hazardousness of each episode of risk behaviour. The net effect of attempting to reduce the supply of drugs and injection equipment in prison may be to inadvertently exacerbate HIV transmission. Despite a variety of attempts to decrease the smuggling of injecting equipment and injectable drugs into prisons throughout the world by increasing the chances of detection and raising penalties for detection, drugs, needles and syringes still find their way into prison although almost certainly in smaller quantities. Consequently, the use of fewer pieces of injection equipment probably results in increased

5 Harding, T W, "AIDS in prisons" (1987), 2 *Lancet* at 1260-4; Heilpern, H, & Egger, S, "AIDS in Australian Prisons. Issues and Policy Options" (1989), Department of Community Services and Health, Canberra.

sharing and increased chances of HIV transmission. It is exceedingly unlikely, given the sensitivity of illicit drug use, that prison authorities could countenance approval of needle and syringe exchanges in correctional facilities although these are widely regarded in community settings as helping to retard the spread of HIV infection among IDUs. Punishing the use of non-injectable drugs in prison as severely as potentially injectable drugs does little to discourage either injecting or sharing. On balance, despite apparent plausibility and popular appeal of intensification of efforts to control the supply of drugs and injecting equipment in prisons, this is most unlikely to help control the spread of HIV infection. It may even make matters worse.

The provision of bleach for decontamination of injecting equipment goes some way to achieving the same purpose as providing sterile needles and syringes while avoiding some of the sensitivities of such an action. After all, providing bleach can be recommended for a variety of hygienic purposes apart from decontamination of injecting equipment. It is therefore a more palatable strategy for authorities. It is less effective than providing sterile injection equipment because it relies on adherence to instructions. But it is known that IDU prisoners and IDUs in the community do attempt to keep their injection equipment clean although the methods employed leave a lot to be desired.

Education of prisoners, prison officers and others responsible for policy matters helps to ensure a high standard of knowledge about HIV prevention. However, knowledge of the risks of HIV infection has not been demonstrated to influence risk taking behaviour by IDUs. All too often, unreasonable expectations of education are made. If education of prisoners plays any role in achieving behaviour change, it is likely to be only a subsidiary role.

There is now incontrovertible evidence within less than a decade of the discovery of the epidemic that recruitment and retention of IDUs into drug treatment, notably methadone maintenance treatment, decreases the risk of HIV infection among IDUs in the community. There is no reason to suppose that the situation in prison would be any different. The longer the duration of treatment and the higher the dose of methadone, the lower the risk of HIV infection. This relationship is also plausible as methadone maintenance treatment decreases the frequency of heroin injection in a dose dependent fashion. Although some still argue that methadone involves the treatment of a drug addiction with a drug of addiction, the real question is whether this is a greater or lesser evil than the possibly failure of authorities to maximally control the epidemic with all the potential long term consequences for the community that this might bring. Almost half the population of male IDUs and about 20 per cent of female IDUs in the community have spent time behind bars. A substantial proportion of IDUs will not have availed themselves of drug treatment outside prison. Yet surprisingly, drug treatment is not readily available to drug dependent prisoners, even those who profess to desire it while incarcerated. The effectiveness of methadone maintenance treatment in prison to reduce HIV transmission may take decades to confirm. Who should get the benefit of doubt?

Although international attempts to reduce the transmission of HIV among IDUs by decreasing the sharing of injection equipment have largely been successful, attempts to reduce sexual transmission in this population have been largely unsuccessful. Sexually transmissible diseases are an important co-factor in HIV transmission and are apparently

common among IDUs. It would therefore be logical to attempt to reduce their prevalence in this population while IDUs pass through the prison system (and at other points where IDUs come into contact with health and welfare services). This would have the potential benefit of reducing a wide variety of other STDs in a sexually active population which probably contributes disproportionately to these infections in the community because of poor utilisation or medical services.

Prisoners being released or commencing weekend leave should be assisted to take responsibility for the containment of HIV infection. It is realistic to expect that the majority will have sexual intercourse or inject drugs very soon after gaining freedom. Therefore the provision of appropriate equipment for safer injecting and sexual behaviour at the time of release from prison is in the interest of the prisoner and the general community. These measures are also less sensitive for prison authorities than contemplating needle and syringe exchange in prison. HIV serostatus, if known to authorities, should also be provided to prisoners on release together with advice on the interpretation of positive and negative test results.

Condoms are provided to male prisoners in some jurisdictions overseas to reduce sexual transmission of HIV in prisons. There is no evidence as yet of their effectiveness in prisons but there is little reason to suppose that this would differ inside a prison from the community. Public health advocates support the introduction of condoms into the prison environment and claim this is a strategy critical for control of HIV. Authorities respond by speculating about the possibility of severe adverse consequences. This impasse can be resolved. As condoms have been introduced in some jurisdictions overseas, the international experience could be reviewed, paying particular attention to any unintended negative consequences. Secondly, a careful, time limited pilot study could be conducted looking specifically for repercussions. From a public health viewpoint, the introduction of condoms is far less important in prisons than attempting to reduce sharing of injection equipment. Unsafe injecting is a far more efficient mode of transmission and far more common behaviour in prison than unsafe sex. Wherever possible, the accommodation of prisoners in single cells with separate showers will also help to reduce HIV transmission but this is an expensive and long term strategy. Conjugal visits may also reduce sexual tension within prison and have been introduced in some overseas jails to improve rehabilitation of prisoners. A review of the international experience of conjugal visits may be informative and may also provide guidance on other benefits and disadvantages.

WHAT FACTORS MIGHT BE ANTICIPATED TO OBSTRUCT THE IMPLEMENTATION OF EFFECTIVE PREVENTION STRATEGIES?

HIV infection, prisons and illicit dug use are all sensitive subjects. Prison authorities have a difficult role to discharge. They manage complex institutions with little understanding or interest from the community, have extremely limited budgets, contend with considerable disagreement about the objectives of correctional facilities and are required to manage many individuals with a propensity to violence in crowded and often outmoded conditions. AIDS has made an already difficult job even harder. Those concerned with the preservation of public health often have very limited understanding of prison life. Conflict between the cultures and backgrounds of public health and correctional officers is inevitable and

exacerbates the difficulties of diminishing the spread of HIV infection in jail. It would be idle to pretend that the clash of cultures — corrections and public health — is not part of the problems of attempting to contain HIV within prisons. The public funding crisis in Australia during the 1990s compounds the problem. Ministers and their advisors have very limited room for manoeuvre. Unlike may of us who are involved, including myself, Ministers (and nowadays some of their senior advisors) have no security of tenure. One false move and they are required to "spend more time with their family". Ministers perceive, probably correctly, that many more in the community are looking for toughness and firmness and only a tiny minority supports actions which are rightly or wrongly perceived to smack of prison reform using HIV infection as a Trojan horse.

CONCLUSION

The rapid transformation from utmost obscurity to rooster and then to feather duster blights the careers of many who tread the difficult path of politics. Few advance beyond pre-selection. Fewer still are elected. Fewer still achieve Ministerial office. For those who wish to be remembered by grateful future generations even more than by tomorrow's voters, the decisions are all the harder because adequate evidence required for rational policy making is not available and probably never will be. But the principles can be identified and form my conclusions.

Firstly, sufficient evidence is available now to assume that responsible authorities should base policy on the expectation that significant HIV infection occurs in prisons, that this is of public health importance, and that HIV transmission can be substantially reduced by affordable measures which would be supported by an anxious public. Second, while fewer episodes of high risk behaviour occur in prisons than in the community, each episode is probably more hazardous in prison than outside. There is more to be gained in terms of HIV containment by attempting to reduce the hazardousness of risk behaviour than attempting to eliminate or reduce the frequency of these high risk behaviours. Third, multiple complementary preventive strategies are available to reduce HIV transmission in prisons and most of these have been demonstrated to be effective in the community and are likely to be just as effective in prisons. Fourth, notwithstanding the probable short term popularity of increasing the rigours of prison life, policy makers and politicians charged with the difficult task of making decisions are likely to be remembered by future generations if they have clearly chosen policies shown to be highly effective or disastrous. Chickens do have a habit of coming home to roost and all the more so on feather dusters who erred spectacularly.