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PROJECT REPORT

Identifying high risk groups for sexually transmitted infections and blood borne viruses upon admission to prison in Western Australia

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ABSTRACT

Introduction: Prisoners frequently engage in high risk behaviours for sexually transmitted infections (STIs) and blood borne viruses (BBVs) and effective interventions are required to control the transmission of STIs and BBVs among prisoners. The variation in engagement in high risk behaviours among prisoner sociodemographic sub-groups in Western Australia, including differences between prisoners admitted to metropolitan and regional prisons, has not been systematically described. The objective of this article was to describe self-reported engagement in unprotected sex and sharing injecting equipment among prisoners on admission to prison in Western Australia, using routinely collected data.

Methods: A retrospective medical record audit was conducted for a total of 946 individuals admitted to prisons in Western Australia. Quota sampling was used to ensure adequate sampling of females, juveniles, and individuals from regional prisons. Initial health assessment records completed on admission to prison in Western Australia were audited to evaluate self-reported engagement in unprotected sex and the sharing of injecting equipment among prison entrants.

Results: Unprotected sex in the previous 12 months was reported by 48% of prisoners, and ever sharing injecting equipment was reported by 16% of prisoners. Adults were more likely to report both unprotected sex (52%) and sharing injecting equipment (18%) than juveniles (40% and 11%, respectively). Adults admitted to a metropolitan prison were significantly more likely to

report sharing injecting equipment (23%) than adults admitted to a regional prison (10%). Associations between risk behaviours, sex and Aboriginality differed among prisoners admitted to metropolitan and regional prisons.

Conclusion: There is distinct sociodemographic patterning of high risk behaviours among prisoners in Western Australia by age, sex, Aboriginality and prison location. The effectiveness of interventions to prevent STI and BBV transmission in prisoners may be enhanced by addressing the diversity in the prison population, including the differences identified in reported risk behaviours between prisoners admitted to metropolitan and regional prisons. Culturally appropriate and comprehensive interventions are required to promote risk-reducing behaviours and address the health needs of all prisoners in Western Australia.

Key words: audit, Australia, health, prisoner, regional prisons, screening.

Introduction

The high rates of sexually transmitted infections (STIs) and blood borne viruses (BBVs) found among prison populations has been linked to participation in high risk sexual and injecting practices, as well as the inadequate use of harm reduction measures while in prison[1]. The control of STIs and BBVs among prisoners requires the early detection and treatment of infections and comprehensive strategies to promote risk reducing behaviours.

The identification of high risk groups for STIs and BBVs among prisoner populations is not well documented, despite the established need for improved STI and BBV prevention programs[2,3]. Recent estimates of STI and BBV risk behaviour among prison entrants in Western Australia describe a 90% male and 88% metropolitan-based sample[4]. National data suggest that some prisoner subpopulations remain underserved by current programs, and highlight the need for the development of culturally appropriate prevention and education strategies for BBVs among Aboriginal drug users[4].

A review of interventions for HIV prevention found that their effectiveness is dependent on gender, age, and ethnicity[5]. An improved understanding of risk behaviour in prison populations may help to target preventive interventions in this high risk group, because intervention development must be based on the characteristics of the target audience[5]. Although limited in scope, data that are routinely collected from prisoners at the time of their incarceration in Western Australia provide an important opportunity to assess reported risk behaviours among sociodemographic subgroups, such as prisoners admitted to regional prisons, that have not been well described. This study aimed to describe self-reported engagement in high risk practices among Western Australian prisoners on admission to prison and assess their association with sociodemographic characteristics and STI and BBV test results.

Methods

At the time of this audit, prisoners in Western Australia resided in 15 correctional facilities, with 6 adult-only facilities located in regional areas[6] (no regional correctional facilities exist for juvenile prisoners in Western Australia). All new prison entrants are required to undergo a health assessment and be offered STI and BBV testing within 28 days of admission[7,8]. Testing for STIs and BBVs is not compulsory. The initial health assessment process was revised during 2005 to include the routine collection of information on engagement in high-risk behaviours, including unprotected sex during the previous 12 months and ever having shared needles, swabs or water. This information is used to provide appropriate risk behaviour counselling.

Sampling

Quota sampling of data from an electronic database which records all criminal offenders in Western Australia was used

to enrol prisoners who were admitted after 1 January 2005, and discharged between 1 January 2007 and 31 December 2007 (inclusive). Quota sampling aimed to allow analysis of reported risk behaviours by age, gender and prison location. Discharged prisoners were sampled because prisoners' paper medical records are scanned into a centralised electronic database within 4 months of discharge.

The study target sample size (200 male and 200 female adult metropolitan prisoners; 200 male and 100 female adult regional prisoners; and 100 male and 100 female juvenile prisoners) represented over 8% of adult prisoner admissions and over 11% of juvenile prisoner admissions in Western Australia per year during the study period. Eligible prisoners were sampled consecutively in reverse chronological order based on date of discharge, commencing from 31 December 2007 to maximise the time between the eligible admission and discharge dates, and minimise selection bias associated with the duration of imprisonment.

The electronic databases were used to collect demographic data (date of birth, sex, Aboriginality, date and location of admission and discharge), reported risk behaviours (unprotected sex in the previous 12 months and ever shared needles, swabs or water), and the performance and results of STI and BBV testing for the sampled prison admission. Department of Corrective Services staff conducted the audit with the approval of the Department's Director of Health Services. Data were recorded on standardised data collection forms and entered into a password protected database. As the audit's primary purpose was to evaluate and improve the quality of health care delivered to prisoners and posed no additional risks or burdens to participants, it complied with requirements for a quality assurance study as defined by the National Health and Medical Research Council[9] and received confirmation of exemption from ethical review by the Chair of the Human Research Ethics Committee at Curtin University.

Data analysis

Sample descriptive statistics were generated, including 95% confidence intervals (CI) for risk behaviour prevalence estimates. The χ^2 test of independence was used to test for associations between reported behaviour, sociodemographic characteristics, and the results of STI and BBV testing.

Results

A total of 112 juvenile females, 122 juvenile males, 302 adult females and 410 adult males were sampled. Of these 946 prisoners' records audited, 27 had no initial health assessment record, 67 completed an old version of the initial health assessment which did not collect comparable information on risk behaviours, and 17 had missing responses for both behavioural risk factors assessed and were excluded from the analysis. Therefore, a total of 835 prisoners were included in this analysis, including 606 adults who ranged in age from 18 to 66 years and 229 juveniles who ranged in age from 12 to just under 18 years.

The mean age of adult male (32.3 years) and female (32.8 years) prisoners, and juvenile male (15.6 years) and female (15.7 years) prisoners were similar. Most (90%) of the prisoners audited were admitted to prison in 2007. The mean duration of imprisonment was 135 days for adults and 15 days for juveniles. Adults admitted to metropolitan prisons were less likely to be Aboriginal than adults admitted to regional prisons (χ^2=89.4, df=1, p<0.001; Table 1).

Risk behaviours

Unprotected sex in the previous 12 months was reported by 48% of the 810 individuals who responded to this item. Ever sharing needles, swabs or water was reported by 16% of the 815 individuals who responded to this item. This result excludes 14 positive responses that were accompanied by comments such as 'shares drinks', which indicated that the question had been misinterpreted. Individuals who reported ever sharing injecting equipment were significantly more likely to have reported unprotected sex in the previous 12 months (64%) compared with those who did not report sharing injecting equipment (45%) (χ^2=14.4, df=1, p<0.001).

Table 1: Sample characteristics and the prevalence (valid %) of risk behaviours by location of prison admission among adult prisoners

Characteristic	Metropolitan prisoners (n=372)			Regional prisoners (n=234)		
	% of sample	Unprotected sex % (95% CI)	Share injecting equipment % (95% CI)	% of sample	Unprotected sex % (95% CI)	Share injecting equipment % (95% CI)
Overall	100	52 (47-57)	23 (18-27)	100	51 (45-58)	10 (6-14)
Sex						
Male	49	40 (32-47)	19 (13-24)	66	51 (43-59)	12 (7-17)
Female	51	64 (57-71)	27 (20-33)	34	52 (41-63)	6 (0.9-12)
Aboriginality†						
Aboriginal	37	57 (48-65)	25 (18-32)	76	50 (43-58)	6 (3-10)
Non-Aboriginal	63	49 (42-55)	21 (16-27)	24	55 (41-68)	22 (11-33)

†'Aboriginal' here includes people of Aboriginal or Torres Strait Islander origin.

As is shown (Tables 1,2), adults were more likely than juveniles to report unprotected sex (χ^2=8.9, df=1, p=0.003) and sharing injecting equipment (χ^2=5.4, df=1, p=0.02). Adults admitted to metropolitan prisons were significantly more likely to report sharing injecting equipment than adults admitted to regional prisons (χ^2=16.3, df=1, p<0.001). In metropolitan prisons only, adult females were significantly more likely to report unprotected sex than adult males (χ^2=22.2, df=1, p<0.001). In regional prisons only, adult non-Aboriginal prisoners were significantly more likely to report sharing injecting equipment than adult Aboriginal prisoners (χ^2=11.7, df=1, p=0.001).

Reported behaviour among juveniles also differed significantly by sex and Aboriginality (Table 2). Juvenile females were significantly more likely to report unprotected sex and sharing injecting equipment than juvenile males, and juvenile non-Aboriginal prisoners were significantly more likely to report unprotected sex than juvenile Aboriginal prisoners.

Sexually transmitted infection and blood borne virus testing

The performance of STI and BBV testing was significantly associated with the reporting of risk behaviours (Table 3). Prisoners who reported unprotected sex were not significantly more likely to have a positive STI test result for chlamydia, gonorrhoea or syphilis (17%, 37/217) than prisoners who did not report unprotected sex (13%, 27/206) (χ^2=1.3, df=1, p=0.26). However, prisoners who reported sharing injecting equipment were significantly more likely to have a positive BBV test result for hepatitis B, hepatitis C or HIV (51%, 26/51) than prisoners who did not report sharing injecting equipment (23%, 53/236) (χ^2=17.1, df=1, p<0.001).

Discussion

A high prevalence of reported risk behaviours for the transmission of STIs and BBVs was found among prisoners, as has been reported previously[1,4,10]. Prisoners who reported high risk injecting practices were also significantly more likely to report high risk sexual behaviours. High reported rates of engagement in risk behaviours among prisoners are consistent with the high rates of STIs and BBVs observed in prisoner populations[3,4,11]. The present findings reinforce the need to improve harm minimisation interventions in prisons[12], and to ensure that these interventions effectively reach high risk subgroups.

Table 2: Sample characteristics and the prevalence (valid %) of risk behaviours among juvenile prisoners

Characteristic	Juvenile prisoners (*n*=229) % of sample	Unprotected sex % (95% CI)	*P*	Share injecting equipment % (95% CI)	*P*
Overall	100	40 (33-46)		11 (7-15)	
Sex			0.005		0.01
Male	52	31 (23-39)		6 (2-10)	
Female	48	50 (40-59)		17 (9-24)	
Aboriginality¶			<0.001		0.59
Aboriginal	70	32 (25-40)		10 (5-15)	
Non-Aboriginal	30	57 (46-69)		13 (4-21)	

†'Aboriginal' here includes people of Aboriginal or Torres Strait Islander origin.

Table 3: Association between reported risk behaviours for sexually transmitted infections (STI) and blood borne viruses (BBV) and the performance of BBV and STI testing

Risk behaviour	STI test performed (%)	*P*	OR (95%CI)	BBV test performed (%)	*P*	OR (95%CI)
Unprotected sex in previous year						
Yes	58	0.02	1.4 (1.1-1.9)	44	0.002	1.6 (1.2-2.1)
No	49			33		
Ever shared injecting equipment						
Yes	54	0.9	1.0 (0.7-1.5)	47	0.050	1.5 (1.0-2.1)
No	53			37		

BBV, Blood borne virus; STI, sexually transmitted infection.

The findings demonstrate considerable variation in risk behaviours among sociodemographic subgroups. High rates of reported risk behaviour among females correspond with high rates of BBVs among females[1,11,13], which have been reported elsewhere[11,13-15]. Our finding of a higher prevalence of reported unsafe injecting practices among individuals admitted to metropolitan prisons when compared with individuals admitted to regional prisons is consistent with reported geographical differences in hepatitis C rates among Aboriginal prisoners[11,15,16]. Furthermore, Aboriginal prisoners in regional prisons were significantly less likely to report unsafe injecting practices than non-Aboriginal prisoners.

Cultural differences may explain the observed variation between regional and metropolitan Aboriginal prisoner populations. Further ethnographic research among rural prisoners is required to improve our understanding of these differences and identify potentially transferrable factors that could be used to further reduce the risk of STIs and BBVs among Aboriginal prisoners in both regional and metropolitan prisons. These findings also highlight the need to ensure preventive services are culturally appropriate and eliminate inconsistencies in the application of harm minimisation strategies in Australian prisons[12]. Alongside culturally appropriate education and prevention, prisoners need to be able to access the full range of proven harm minimisation strategies in prison, including needle and syringe exchange, opiate replacement and the provision of

cleaning equipment[17]. Despite repeated calls for the introduction of needle exchange programs and improved harm minimisation interventions in Western Australian prisons, substantial barriers to their adoption, including safety concerns and legislative, policy and operational issues have prevented their implementation to date. Delivery of screening and treatment programs using skilled Aboriginal staff who are not affiliated with the correctional system could significantly benefit prisoner health[18] particularly in rural areas where most prisoners are Aboriginal and access to health care outside the prison environment may be poor.

The proportion of metropolitan adult prisoners who reported ever sharing injecting equipment in this audit approximated the proportion of Australian injecting drug users who reported sharing injecting equipment in the preceding month[19] and was considerably lower than the 2007 National Prison Entrants Survey estimate[4]. The confidentiality of information collected for the National Prison Entrants Survey may facilitate increased disclosure. Self-completed questionnaires may also elicit greater disclosure of risk behaviours[19] than the assisted reporting environment of the initial health assessment. Due to the relatively recent implementation of the risk behaviour screening questions, prisoners sampled in this audit had a shorter average duration of imprisonment than the overall prisoner population, and this may also explain the differences in findings between studies.

The significant association between reported risk behaviours and laboratory confirmed BBV infection indicates that reported risk behaviours provide a useful indicator of infection risk, even if not complete, as well as relevant information for behavioural counselling and risk reduction strategies. Further work is required to facilitate improved disclosure of risk behaviours among prisoners and enable more comprehensive delivery of assessment, treatment and counselling services to this high risk population.

Census data indicate that over half of prisoners in Western Australia in 2007 had a prior imprisonment[20]. Exclusion of data from previous admissions may contribute to an underestimation of the association between reported risk behaviours and STIs and BBVs in this audit, particularly for chronic infections where repeated testing may be less likely[21]. Improved linkage of historical health data within the prison system would facilitate a more comprehensive evaluation of prison health service processes and outcomes.

This study was limited to auditing routinely collected data via scanned electronic copies of paper medical records, and as such is vulnerable to variations in administration of the behavioural screening questions and in the reporting of behaviour. Few prisoners were missing initial health assessment records, and we believe it is unlikely that there would be any substantial bias associated with missing records. The exclusion of prisoners from this audit due to the continued use of the old version of the health screening questionnaire highlights the need to ensure updated health assessment processes are implemented effectively. As a result of this audit, additional staff training has been conducted to improve data quality and ensure that staff who administer health risk behaviour screening have a clear and consistent understanding of the questions used.

Conclusion

There is distinct sociodemographic patterning of high risk behaviours among prisoners in Western Australia, and the effectiveness of interventions to reduce the risk of STI and BBV transmission among prisoners may be enhanced by an improved understanding of the basis for these differences in reported risk behaviours among prison subpopulations. Further work is required to facilitate the full disclosure of risk behaviours on admission to prison and to enable comprehensive assessment, treatment and prevention of STIs and BBVs.

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