

HIV Seroprevalence Among Male Prison Inmates in the Six Countries of the Organization of Eastern Caribbean States in the Caribbean

EV Boisson¹, C Trotman¹

ABSTRACT

Objective: To determine HIV prevalence among male prison inmates in the six OECS countries in the Caribbean.

Subjects and Methods: Six unlinked, anonymous point prevalence surveys of a total of 1288 male inmates were conducted during a one-year period, August 2004 – August 2005. An oral fluid sample was collected and an interviewer-administered questionnaire and consent form was completed for each survey participant.

Results: The overall HIV prevalence was 2.8% (range 2.0% – 4.1%). Only 39% of all inmates had previously been tested, compared to 67% of the HIV-positive inmates. Of all inmates who previously tested, 61% had their last test less than two years ago, 45% had done so while in prison and 39% had done so in a hospital. Most of those who had not previously been tested had no particular reason for not doing so (57%); 24% of them felt it was not necessary or they were not at risk.

Conclusion: HIV prevalence among male prison inmates was three times higher than the estimated OECS population prevalence in 2003, slightly higher than the prevalence among incarcerated males in the United States of America and Canada, and lower than that in other Caribbean countries in earlier years. Health information on prison populations is important as this is a vulnerable group, with frequent movement in and out of the general population. Preventative services, voluntary counselling and testing, and appropriate care and treatment should be available to all inmates as this is an opportunity for many who may not otherwise access these services.

Seroprevalencia del VIH Entre los Reclusos Varones en los seis Países de la Organización de Estados del Caribe Oriental (OECS) del Caribe

EV Boisson¹, C Trotman¹

RESUMEN

Objetivo: Determinar la prevalencia del VIH entre los reclusos varones en los seis países de la OECS del Caribe.

Subjetos y Métodos: Se realizaron seis encuestas de seroprevalencia puntual del VIH anónimas no relacionadas a un total de 1288 reclusos varones por un período de un año, de agosto 2004 a agosto 2005. Se recogió una muestra de fluido oral, y un cuestionario aplicado por un entrevistador y una planilla de consentimiento fueron llenados por cada participante de la encuesta.

Resultados: La prevalencia general de VIH fue de 2.8%, (rango 2.0% – 4.1%). Sólo el 39% de todos los reclusos habían sido sometidos a pruebas con anterioridad, en comparación con el 67% de reclusos VIH positivos. De todos los reclusos que habían sido previamente sometidos a prueba, al 61% le había sido aplicada la prueba hacía menos de dos años, el 45% la habían recibido mientras estaban en prisión, y el 39% la habían recibido en algún hospital. La mayor parte de los que no habían recibido la prueba previamente, no tenían una razón en particular para no hacerlo (57%), en tanto que el 24% sentía que no era necesario, o no corrían riesgo.

Conclusiones: La prevalencia del virus de la inmunodeficiencia humana entre los reclusos varones, fue tres veces mayor que la prevalencia estimada para la población de la OECS en el año 2003,

From: ¹Caribbean Epidemiology Centre, Port-of-Spain, Trinidad and Tobago, West Indies. Fax: 868-622-1008, E-Mail: boissoel@carec.paho.org

Correspondence: Dr EV Boisson, ¹Caribbean Epidemiology Centre, Port-of-Spain, Trinidad and Tobago, West Indies.

ligeramente más alta que la prevalencia entre los encarcelados hombres en los Estados Unidos de Norteamérica y Canadá, y más baja que la existente en cualquiera de los países del Caribe en años anteriores. La información sobre la salud en las poblaciones de las prisiones es importante ya que tales poblaciones constituyen un grupo vulnerable, que con frecuencia entran y salen de la población general. Los servicios preventivos, asesoramiento voluntario y prueba, así como tratamiento y cuidado adecuados, debe estar disponibles para todos los reclusos, ya que se trata de una oportunidad para que muchos que, de lo contrario, no tendrían acceso a estos servicios.

West Indian Med J 2009; 58 (2): 2

INTRODUCTION

In many countries in Eastern and Western Europe, Africa, North and South America and Asia, HIV infection rates among inmates in prisons and other detention centres are reported to be significantly higher than those in the general population (1, 2). This is because certain populations that are highly vulnerable to HIV infection also have an increased probability of incarceration because of their involvement in behaviours such as drug use and (for women) sex-work (1–3). In prisons, sharing injection equipment is generally considered to be a more significant risk factor for HIV transmission than sexual activity (3–6). However, injecting drug use is relatively rare in the Caribbean compared to some of the other regions in which prison surveys were conducted (7). Also, relatively little is known about the prevalence of HIV infection in prisons in the Caribbean and information from studies in other countries cannot readily be generalized to countries in the Caribbean, as HIV epidemic patterns and timings differ.

The six OECS countries are located in the Eastern Caribbean with a total population of approximately 566 626 in 2005 (8). The first case of HIV reported from the OECS was in 1984. At the end of 2003, the Caribbean Epidemiology Centre (CAREC) and the United States of America (USA), Centers for Disease Control and Prevention (CDC) estimated that there were 4703 persons living with HIV/AIDS in the six OECS countries, resulting in an estimated prevalence of 0.83% [range 0.62% – 1.03%] (7). The majority of infections are reported to be due to heterosexual contact. While male cases still outnumber females, the ratio of male to female cases has decreased over time, especially in recent years, approaching a ratio of 1:1 (7).

There is a lack of seroprevalence data on vulnerable populations in the Caribbean. Prison inmates are an important population in this regard because:

- C data are needed to support the implementation of expanded voluntary counselling and testing in the prison setting and to care for those who are infected (9)
- C the prison population moves in and out of the general population, so results from these surveys – and subsequent interventions – can benefit the society as a whole
- C collaborative studies on HIV in the prison can promote the development of a model for other

surveys and public health interventions in this setting.

The objective of these surveys was to determine the HIV prevalence among male inmates in prisons in the six countries of the OECS, to provide evidence to support the development of expanded, confidential, voluntary counselling and testing, prevention education and care and treatment for HIV in prisons in the region. The purpose was not to discover or to make assumptions about HIV infections possibly acquired while incarcerated.

SUBJECTS AND METHODS

Six unlinked, anonymous point prevalence surveys of a total of 1288 male inmates were conducted during a one-year period, August 2004 – August 2005, one in each prison in each OECS country. Five of the surveys were conducted over a two-day period and the one in St Lucia lasted three days. Voluntary counselling and testing (VCT) was available to all inmates on request at the prisons' medical clinics prior, during and after the surveys.

All male inmates who were incarcerated during the time of the surveys were eligible to participate. The only exception was in St Kitts and Nevis where for security reasons those in maximum security and those who were condemned were not allowed to participate.

In each prison, the survey was explained to all inmates collectively, after which inmates had the opportunity to ask questions and discuss concerns about the survey and HIV/AIDS in general. Each inmate who consented to participate in the survey then had an oral fluid sample collected and a consent form and an interviewer administered questionnaire were completed. The questionnaire items included information on age, length of sentence and HIV testing history. The oral fluid samples were collected using FDA-licensed Orasure collectors manufactured by EpiTope Inc. No needles or skin puncturing was required. All samples were tested for HIV antibodies at CAREC using the routine testing algorithm (Fig. 1).

The surveys were conducted by teams consisting of CAREC staff, Ministry of Health staff, prison medical staff, National HIV/AIDS Programme counsellors and retired nurses, who were trained to administer the questionnaire and consent forms and to collect the oral fluid samples. Each inmate who participated received a stipend for their participation (toothbrush, toothpaste, soap and a washrag).

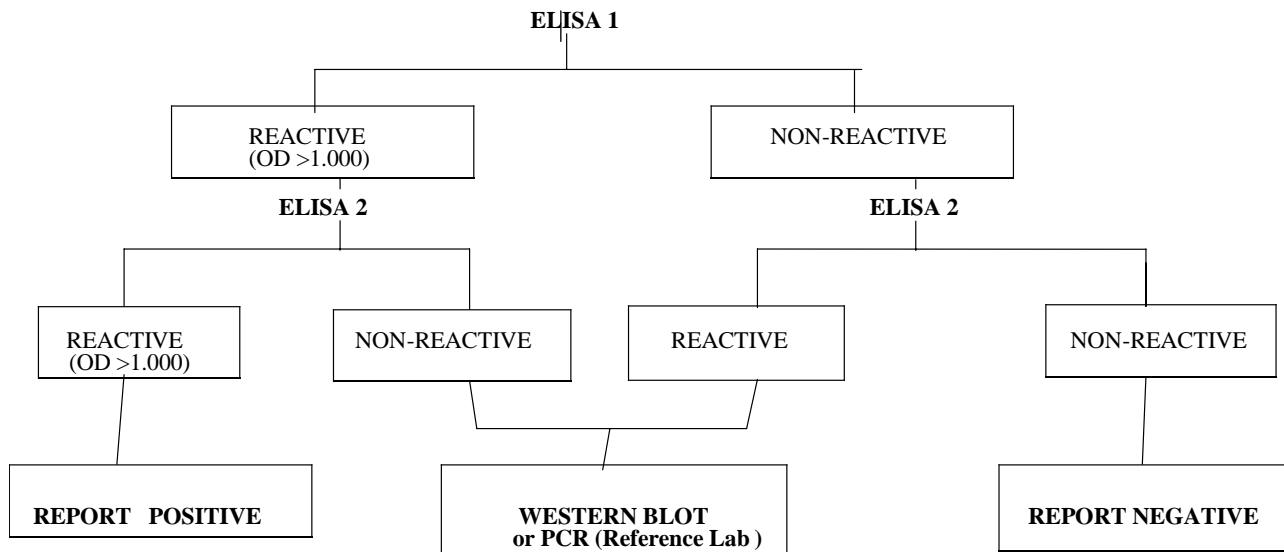


Fig. 1. CAREC HIV testing algorithm

The survey was unlinked and anonymous. Matching coded labels were affixed to the survey and consent forms, the oral fluid sample and the CAREC laboratory logbook. The codes could not be traced back to an individual as they did not include any personal information. However, any inmate who wished to know his HIV status could do so by requesting this service from the prison medical clinic. Data entry from the survey forms and summary laboratory test result sheet, and data analyses were conducted at CAREC, using Epi Info version 6.4d.

RESULTS

Of the 1606 eligible male inmates, 1288 participated in the surveys, giving an overall participation rate of 80%, ranging from 59% in Grenada to 100% in St Kitts and Nevis (Table 1).

Table 2 shows the age distribution of the study participants. The mean age of participants was 33 years, the youngest being 15 years and the oldest 67 years. Most (80.4%) of these had already been sentenced and 19.3% were on remand. Three inmates were unclear of their remand

Table 1: Participation and HIV prevalence rates

Country	Total number of eligible inmates	Number of survey participants	Participation rate (%)	HIV prevalence (%)
Antigua and Barbuda	163	100	61	3.0
Dominica	251	191	76	2.6
Grenada	233	137	59	2.2
St Kitts and Nevis ^a	169	169	100	2.4
St Lucia	415	347	84	2.0
St Vincent and Grenadines ^b	375	344	92	4.1
Total	1606	1288	80	2.8

Notes:

^a No inmates refused to participate, however for security reasons, those in maximum security and those who were condemned were not allowed to participate.

^b 1% was unavailable (*i e* in court, out at work, in mental unit).

The CAREC Research Ethics Committee reviewed and granted approval for these surveys.

status. Nearly half of the participants (43.7%) had been sentenced or incarcerated (remanded prisoners) for one year or less (Table 3).

Table 2: Age distribution of the male inmates

Age group (years)	Number (%)
15–19	91 (7.1)
20–24	231 (17.9)
25–29	229 (17.8)
30–34	201 (15.6)
35–39	200 (15.5)
40–44	170 (13.2)
45–49	95 (7.4)
50–54	38 (3.0)
55–59	18 (1.4)
60–64	3 (0.2)
65–69	4 (0.3)
Unknown	8 (0.6)
Total	1288 (100)

Table 3: Length of stay in prison

Length of stay	Number (%)
Less than 6 months	320 (24.8)
7–12 months	243 (18.9)
More than 12 months	722 (56.1)
No response	3 (0.2)
Total	1288 (100)

Thirty-six inmates tested positive for HIV, giving a prevalence of 2.8% (range 2.0% – 4.1%) [Table 1]. Four of the 1288 survey participants had samples that were insufficient for testing and thus gave indeterminate results. Overall, 39% of the inmates had previously been tested for HIV. Among those who were HIV positive, two-thirds (67%) had previously been tested; compared to only 39% of those who were HIV negative having been previously tested ($\chi^2 = 11.7$, $p = 0.003$). Forty-five per cent of all inmates who had previously been tested had done so while in prison and 39% had been tested in a hospital (Table 4). Most inmates who

Table 4: Location and time of previous HIV test

Variable	Number (%)
<i>Location of test</i>	
Clinic	28 (5.5)
Hospital	200 (39.4)
Prison	227 (44.7)
Private facility	40 (7.9)
Unknown	13 (2.6)
<i>Time of test</i>	
Less than 1 year ago	196 (38.6)
1–2 years ago	113 (22.2)
More than 2 years ago	186 (36.6)
Unknown	13 (2.6)
Total	508 (100)

had previously been tested had their last test less than two years ago (61%) [Table 4]. Among the inmates who had not been previously tested, most (57%) had no particular reason for not doing so, 24% felt it was not necessary as they were not at risk, 4% did not want to know if they were infected and 6% said they did not have access to testing (Table 5).

Table 5: Reasons for not previously having a HIV test

Reasons	Number (%)
No particular reason	443 (56.8)
Not necessary/not at risk	189 (24.2)
No access	49 (6.3)
Do not want to know	32 (4.1)
No response	67 (8.6)
Total	780 (100)

Among the HIV positive inmates:

- C All were aged less than 49 years, with the mean age being 33 years (range 17–48 years). Two were in the 15–19-year age group; 13 were in the 20–29-year age group; 13 were in the 30–39-year age group; and eight were in the 40–49-year age group.
- C Fifty per cent were incarcerated for less than one year, 25% were incarcerated for 1–2 years and 25% were incarcerated for more than 2 years.
- C Thirty-one (86%) had been sentenced and 14% were on remand.
- C Twenty-four had previously been tested for HIV, of which 10 had been tested in prison and eight had been tested in a hospital. Eight inmates had been tested less than one year ago, six had been tested 1–2 years ago and eight had been tested more than two years ago. Two persons did not respond to this question.
- C Of the 12 inmates who had not previously been tested for HIV, seven had no particular reason for not doing so, four felt it was not necessary because they were not at risk and one did not want to know his HIV status.

DISCUSSION

These surveys, conducted during the period, August 2004 – August 2005 gave an HIV prevalence of 2.8% (range 2.0% – 4.1%) in the male prison population in the six OECS countries. This was significantly higher than the estimated population prevalence for the OECS of 0.83% [0.62% – 1.03%] in 2003 (M-H $\chi^2 = 60$, $p < 0.0001$) (7). The survey population was aged 15–67 years and the estimated population prevalence was based on a wider age group and different gender distribution. It is possible that the difference in population age structure and gender distribution, as well as timing, could account for some of the difference in HIV prevalence between the prison and general populations in the

OECS. The limited available data used and many assumptions made in the models to determine the population estimate made it impossible to determine the direction of possible bias in the general population estimate. Thus it remains unclear as to whether there was a true and significant difference between the HIV prevalence in the prison population and the general population of the OECS.

The 2.8% prevalence in the male prison populations in the OECS countries in these surveys was higher than the prevalence found among incarcerated males in the United States of America in 2005 [1.8%] (10) and in Canada in 2001 [1.7%] (11). However, it was lower than the prevalence found in surveys among prisoners in other Caribbean countries and Brazil in earlier years, 6.7 per cent in a survey of 1000 prisoners in Jamaica in 1997 (12), 19% among prisoners in the Dominican Republic in 2000 (13), 6% in a survey of 350 prisoners from the Maroon communities of Suriname in 2001 (14) and 12.6% in a survey of 1059 male inmates in two prisons in Brazil in 1998 (4). It was also lower than a survey conducted in the Belize Central Prison in 2004, which found the HIV prevalence among male inmates to be 5% (15). These differences may be a reflection of different methodologies between surveys, lower levels of HIV/AIDS awareness in Caribbean countries in earlier years or a combination of these two factors as well as other unknown reasons.

The overall participation rate in the survey was high (80%) but it varied widely between individual countries (Table 1). The survey results would be biased and not generalizable to the whole prison population if the non-participants differed from the participants in terms of HIV status and the other variables examined and the prison authorities in all but one country did not believe this to be so, based on their knowledge of the prison populations. In one country (Antigua and Barbuda), a third of the inmates who refused to participate was on average older and had longer sentences than the survey. In this country, the low participation rate in the survey coupled with the likelihood that the survey population may not be representative of the total male prison population, limited the ability to generalize the results to the whole prison population.

The surveys could have provided more information for use in developing prevention programmes in prison had questions been asked on risk behaviours such as tattooing, injecting drug use, needle sharing and availability and use of condoms. However, at the time of the surveys, participating countries wanted to focus efforts on collecting HIV prevalence data from possible high risk populations to assist in characterizing the burden of disease. The intent of the surveys was not to determine risk of HIV infection in prisons.

Less than half of the survey participants (39%) reported previously having had a HIV test, including one-third of the HIV positive inmates. This suggests a modest level of HIV awareness. However, during the group sessions to intro-

duce and discuss the survey, several inmates asked questions that indicated that they already had good knowledge of HIV/AIDS issues. These sessions were very useful as it allowed inmates to learn from each other and facilitated discussion of key issues. However, it is recognized that large group sessions may not be feasible in all prison settings.

Information on the health of prison populations is important from a public health point of view as prison populations move in and out of the general populations, with and without communicable diseases such as HIV infection (16). In this survey, nearly half of the inmates had sentences of one year or less and several inmates reported having been in prison before. Also, from a clinical perspective, inmates may not access healthcare while outside of prison for various reasons and there is an opportunity to address individual healthcare needs while they are incarcerated (16). There is also the opportunity, with good collaboration between inmates, prison staff and health staff to provide health education and develop effective HIV prevention programmes to prevent illness (17).

There are also ethical reasons for monitoring HIV in prisons. A Declaration of Commitment on HIV/AIDS that was endorsed by 189 countries at the United Nations General Assembly Special Session on HIV/AIDS in June 2001 stated that "*The vulnerable must be given priority in the response to HIV/AIDS*". Inmates, with little or no control of their environment, are by definition vulnerable and those who are HIV positive are at risk of stigmatization (18). Given the nature of relationships within prison settings and the high levels of mistrust, it is important that education on HIV be provided to prison and health staff. Voluntary counselling and testing for HIV and other sexually transmitted infections should be encouraged. All inmates who test positive should have access to care and treatment, as is currently the case in the OECS countries. Finally, given the importance of information on the health of prison populations, coupled with the lack of such information, further HIV surveys in prisons should be conducted in the region.

ACKNOWLEDGEMENTS

The authors thank the staff of Ministries of Health in the OECS countries for their assistance in conducting these surveys. We especially acknowledge Dr Hazel Williams-Roberts in St Kitts and Nevis, Dr Paul Ricketts in Dominica, Dr Alina Jamie in St Lucia, Dr Rhonda Sealey-Thomas in Antigua and Barbuda, Dr Alister Antoine in Grenada and Mr Samuel Joyles in St Vincent and the Grenadines, as well as persons on their respective teams who also assisted.

We also thank staff in the prisons in the OECS countries for their most willing assistance in facilitating these surveys. We make special mention of the following persons and their respective teams: Mr Dorset in St Kitts and Nevis, Mr Charter and Mr Laurent in Dominica, Ms Alcide in St Lucia, Mr Allen and Mr Pryce in Antigua and Barbuda, Mr

Beggs and Mr Charles in Grenada and Mr Charles and Mr James in St Vincent and the Grenadines.

Thanks to Mr Nigel Grant for data entry and to Dr Bilali Camara and Ms Marsha Ivey for feedback on drafts of survey reports. Thank you also to the organizations that funded this survey, namely the Canadian International Development Agency (CIDA), the French Technical Cooperation (FTC), the United States Agency for International Development (USAID) and the Centers for Disease Control and Prevention (CDC).

REFERENCES

1. World Health Organization (WHO), UNAIDS, UN Office on Drugs and Crime. Evidence for action on HIV/AIDS and injecting drug use. Policy brief: Reduction of HIV transmission in prisons; 2004.
2. Seaman SR, Bird SM, Brett RP. Historical HIV prevalence in Edinburgh Prison; a database linkage study. *J Epidemiol Biostat* 2000; **5**: 245–50.
3. Jürgens R, Bijl M. High-risk behaviour in penal institutions. In Bollini P, ed. WHO Regional Office for Europe. HIV in prisons; 2001: 21–7.
4. Marins JR, Page-Shafer K, Barros MB, Hudes ES, Chen S, Hearst N. Seroprevalence and risk factors for HIV infection among incarcerated men in Sorocaba, Brazil. *AIDS & Behavior* 2000; **4**: 121–8.
5. Maruschak LM. HIV in prisons and jail. In: Krebs CP, Simmons M. Intraprison HIV transmission: an assessment of whether it occurs, how it occurs and who is at risk. *AIDS Education and Prevention* 2002; **14 (Suppl. B)**: 53–64.
6. Long J, Allwright S, Barry J, Reynolds SR, Thornton L, Bradley F *et al.* Prevalence of antibodies to hepatitis B, hepatitis C, and HIV and risk factors in entrants to Irish prisons: a national cross sectional survey. *BMJ* 2001; **323**: 1209–14.
7. CAREC/PAHO/WHO. Status and Trends – Analysis of the Caribbean HIV/AIDS epidemic 1982–2002; 2004.
8. PAHO/WHO. Health situation in the Americas – Basic indicators; 2005.
9. UNAIDS and WHO. World Health Organisation Guidelines on HIV infection and AIDS in Prisons; 2000.
10. Maruschak L. HIV in Prisons, 2005. US Department of Justice, Bureau of Justice Statistics Bulletin; September 2007.
11. Health Canada – Correctional Services of Canada. Infectious diseases prevention and control in Canadian Federal Penitentiaries 2000–2001; 2003.
12. Jamaica Ministry of Health. National HIV/AIDS and STI surveillance Report; 2002.
13. Dominican Republic Ministry of Health. National HIV/AIDS and STI surveillance Report; 2002.
14. Suriname Ministry of Health. National HIV/AIDS and STI Surveillance Report; 2002.
15. Belize Ministry of Health. HIV Seroprevalence in inmates at the Kolbe Foundation Belize Central Prison; June 2005.
16. Alcabes P, Freudenberg N. Monitoring HIV infections in prisons. In Bollini P, ed. WHO Regional Office for Europe. HIV in prisons; 2001: 31–43.
17. Grinstead OA, Zack B, Faigles B. Collaborative research to prevent HIV among male prison inmates and their female partners. *Health Education and Behavior* 1999; **26**: 225–38.
18. Lines R. HIV infection and Human rights in prison. In Møller L, Stöver H, Jürgens R, Gatherer A. and Nikogosian H. eds. WHO Regional Office for Europe. Health in prisons. A WHO guide to the essentials in prison health; 2007: 61–70.