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## High HIV Prevalence among MSM in Jamaica is associated with Social Vulnerability and other Sexually Transmitted Infections

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### Abstract

**Background**—HIV prevalence among men who have sex with men (MSM) is thought to be high in Jamaica. The objective of this study was to estimate HIV prevalence and identify risk factors in order to improve prevention approaches.

**Methods**—With the help of influential MSM, an experienced research nurse approached MSM in four parishes to participate in a cross-sectional survey in 2007. MSM were interviewed and blood taken for HIV and syphilis tests, and urine taken for gonorrhoea, *Chlamydia* and *Trichomonas* testing using transcription-mediated amplification assays. A structured questionnaire was administered by the nurse.

**Results**—One third (65 of 201; 32%, 95% Confidence Interval (CI) 25.2% – 47.9%) of MSM were HIV positive. Prevalence of other sexually transmitted infections (STI) was: *Chlamydia* 11%, syphilis 6%, gonorrhoea 3.5% and *Trichomonas* 0%. One third (34%) of MSM identified themselves as being homosexual, 64% as bisexual and 1.5% as heterosexual. HIV positive MSM were significantly more likely to have ever been told by a doctor that they had a STI (48% vs. 27%, OR 2.48 CI 1.21 – 5.04,  $p=0.01$ ) and to be the receptive sexual partner at last sex (41% vs. 23%, OR 2.41 CI 1.21 – 4.71,  $p=0.008$ ). MSM who were of low socio-economic status, ever homeless and victims of physical violence were twice as likely to be HIV positive. The majority (60%) of HIV positive MSM had not disclosed their status to their partner and over 50% were not comfortable disclosing their status to anyone.

**Conclusions**—The high HIV prevalence among MSM is an important factor driving the HIV epidemic in Jamaica. More effective ways need to be found to reduce the high prevalence of HIV among MSM including measures to reduce their social vulnerability, combat stigma and discrimination and empower them to practice safe sex.

## Keywords

HIV; MSM; STI; risk factors; Jamaica; social vulnerability

The high HIV prevalence among men who have sex with men (MSM) in the Caribbean remains a serious challenge (1,2). Surveys indicate that HIV prevalence among MSM may be as high as 33.6% in Jamaica (3) and 20.4% in Trinidad and Tobago (4). These figures are higher than the HIV prevalence of 12.6% found among non-Hispanic black gay men in New York (5) and considerably higher than the adult HIV prevalence rates of 1.0% and 1.7% among the general population in the Caribbean (6) and Jamaica (7), respectively. A meta-analysis of studies in low and middle income countries found that MSM have a markedly greater risk of being infected with HIV compared with the general population in the Americas, Asia and Africa (8).

A review of 44 studies and 58 behavioural interventions among MSM conducted between 1988 and 2007 found a significant decrease over time in occasions of or partners for unprotected anal sex ranging from 17% – 27% (9). The effect was greater in studies in which the comparison condition provided minimal to no HIV content. Most of these studies were carried out among white men in the United States of America (USA) or Europe. There is a clear need to conduct more studies among MSM in developing countries including the Caribbean where the challenges of reaching MSM with prevention services are likely to be more difficult. This is due to a number of factors including the strong stigma associated with HIV and with homosexuality as well as discrimination and violence against MSM. In addition, adverse social conditions, limited resources and structural barriers such as anti-sodomy laws contribute to increased social vulnerability among MSM.

Jamaica has established a comprehensive response to the HIV epidemic for over two decades and reduced HIV rates among sex workers, sexually transmitted infection (STI) clinic attendees and antenatal clinic attendees (10). In fact, UNAIDS includes Jamaica among those countries that have reduced HIV incidence by 25% or more in the past 10 years (6, 7). A public access program to provide antiretroviral therapy (ART) to persons living with HIV (PLHIV) was initiated in 2004 through a grant from the Global Fund to Fight AIDS, Tuberculosis and Malaria. This grant also provided well needed additional resources to expand HIV prevention among those most at risk including MSM. Since there was no survey of MSM since 1995 it was important to undertake this study to estimate the HIV prevalence among MSM and identify risk factors in order to improve prevention approaches.

## Methods

Following extensive discussions with key MSM and gatekeepers, an experienced female research nurse was introduced to the community and attended their activities. With the help of influential MSM and others she approached MSM in four parishes in Jamaica (Kingston & St Andrew, St Catherine, St Ann and Manchester) to participate in a cross-sectional survey between March 2007 and January 2008. She recruited MSM by attending their social activities, through MSM peer educators and by asking persons who participated in the survey to inform other MSM. All persons participating in the survey received a phone card

and those persons who made an appointment to visit the nurse in order to do the survey were reimbursed their bus fare. Five trained outreach educators helped to conduct some of the interviews in parishes other than Kingston and St Andrew.

Following informed consent, MSM were interviewed by the research nurse, blood was taken for HIV antigen and antibody and syphilis antibody testing, and urine taken for gonorrhea, *Chlamydia* and *Trichomonas* nucleic acid amplification testing. The structured questionnaire included questions on socio-demographic status, STI history, number and type of sexual partners, condom use and knowledge of HIV. The questionnaire was administered orally. However sensitive questions concerning sexual behaviour were interviewer administered and self-completed on an answer sheet that the respondent placed in a sealed envelope. Interviews took place in the day or at night and at mutually agreed sites including private homes, selected clinics and medical offices, in the nurse's car in a car park or on the street. Socio-economic status was assessed by the interviewer using a qualitative scale of 1 to 10 with 1 being poorest and 10 being richest. Confidential test results were given to participants, with treatment as indicated, by a physician acceptable to the MSM. The study was approved by the Ministry of Health Ethics Advisory Committee.

Blood was taken in a 7ml red top tube (without gel) and transported to the lab in a cooler containing ice packs within 24 hours. HIV testing was done on serum using the Determine HIV 1/2 Ag/Ab rapid test (Abbott Laboratories, IL, USA). Confirmation of HIV positive tests was done at the National Laboratory using an ELISA algorithm and, where indicated, Western blot. Syphilis testing was done using the toluidine red unheated serum test (Trust) antigen with confirmation of positive results using the *Treponema pallidum* particle agglutination assay (TP-PA) test. First catch urine samples were collected in a urine cup and 2mls of urine was transferred to a Gen-Probe tube within 24 hours of collection. Gen-Probe tubes were stored in the refrigerator at the laboratory and then either tested in Kingston, Jamaica or sent via courier to the University of North Carolina for STI testing. Gen-Probe APTIMA Combo2 was used to test for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* and Gen-Probe APTIMA TV ASR was used to test for *Trichomonas vaginalis*. Initial positive and indeterminate tests were repeated. Testing for *Trichomonas* was stopped after all of the initial 100 urine samples were negative because the cost of the testing could not be justified given the very low prevalence.

Data were double entered and verified. Frequencies, cross-tabulations by HIV status, and odds ratios were prepared using SAS version 9, SAS Corporation, Cary, NC, USA. Confidence intervals around the prevalence of infection were estimated by using generalized estimating equations, taking into account the clustering of infection by type of venue and district of interview. The denominator varied at times due to missing data items.

## Results

Two hundred and one (201) MSM were enrolled and completed interviews and blood and urine tests. Ten (10) MSM who were approached refused to participate in the survey. One third (34.2%) of MSM identified themselves as being homosexual, 64.3% as bisexual and 1.5% as heterosexual. The majority (69%) were under 25 years of age, unemployed (51%)

and of lower socio-economic status (50%). One third (33%) were students while 35% were fully, and 14% partly, employed. Half (54%) of them had secondary, and 23% had tertiary, education. Most (49.3%) of the men lived in the parish of Kingston and St Andrew, 17.9% lived in St Catherine, 8.5% in Manchester, 8.0% in St Ann and 16.3% in other parishes. Nearly one fifth (18.4%) had spent a night in jail while 15.4% had been homeless, 15.1% had suffered violence and 14.1% had been raped. Half (49.0%) had suffered verbal abuse. One sixth (16.4%) of the men had one or more child.

One third (65 of 201; 32.3% 95% Confidence Interval (CI) 25.2% – 47.9%) MSM were HIV positive (Table 1); 60% of whom were under 25 years of age. HIV positive MSM were more likely to have ever been told by a doctor that they had a STI (48% vs. 27%, Odds Ratio (OR) 2.48 CI 1.21 – 5.04) and to be the receptive sexual partner at last sex (41% vs. 23%, OR 2.41 CI 1.21 – 4.71). MSM who were of low socio-economic status, ever homeless and victims of physical violence were twice as likely to be HIV positive (Table 2). No other variable was associated with being HIV positive. The majority (60%) of HIV positive MSM had not disclosed their status to their partner and over 50% were not comfortable disclosing their status to anyone.

Prevalence of other sexually transmitted infections (STI) was *Chlamydia* (11.0%), syphilis (6.0%) and gonorrhoea (3.5%); none of the MSM had *Trichomonas* (first 100 tested). A quarter (25.9%) of MSM reported ever having pain with urination and 24.9% were ever told by a doctor that they had a STI. Other STI symptoms ever reported by MSM included genital ulcers (8.5%), genital warts (8.0%) and anal discharge (3.5%). Among those MSM reporting STI symptoms 40.2% visited a private doctor, 24.2% visited a health centre, 9.0% went elsewhere for treatment and 8.9% obtained drugs without a prescription. Half (50.6%) of the men told their partner that they had STI symptoms.

### Access to HIV Services

One third of MSM (31.0%) had visited a health centre in the past year (Table 3). Most of them (80.3%) were satisfied with the care that they received. The majority (57.7%) had ever done an HIV test with 93.0% of those testing getting the result. Among those receiving an HIV result 72.0% said that they were counseled. A third of the men had an HIV test during the past year. Two thirds of them had attended an HIV educational session in the past year (66.2%) and had previously seen the HIV risk card (64.2%) used by the National HIV Program as an educational tool.

### Sexual Practices

Most (73.3%) of the men reported being the insertive partner while 65.5% said that they were the receptive partner. Half (51.3%) of the men said that they were both insertive and receptive during sexual intercourse. When asked about the last time that they had sex 50.0% said that they were insertive and 51.0% said that they had receptive anal intercourse. Most (69.3%) MSM reported performing or receiving fellatio.

Most (80.1%) of the MSM reported two or more male sex partners in the past year and half (54.2%) had sex with a new male partner in the past year (Table 4). One quarter (27.3%)

first had sex with their main partner within the past 3 months and a quarter (27.4%) reported two or more male partners in the past 4 weeks. Most MSM met a new male sex partner within the past 12 months at a private home (35.0%) or on the street (33.5%). They also met new male sex partners on the internet (17.1%), at MSM parties (15.0%), bars and/or clubs (12.0%) as well as other sites (32.8%).

A majority (56.7%) of MSM reported having sex with at least one woman in the past 12 months and one third (33.8%) of them had two or more female partners during this time. More than a quarter (28.8%) had sex with a woman in the past 4 weeks.

### Condom use

Reported condom use of the men in this survey is summarised in Table 5. The majority of MSM (ranging from 61.8% to 77.0%) reported condom use at last sex with both male and female sex partners and at last anal sex. Nearly one half (44.3%) said that they did not use a condom in the past 3 months and 29.4% said that they did not do so in the past 4 weeks. One third (36.4%) reported that they did not use a condom with their main sex partner at last sex. 10.5% of men said that they had never had sex without a condom (8 of these 21 men or 38.1% were HIV positive). Most (90.6%) MSM had ever used a lubricant and the majority (59.7%) said that they always, or nearly always, used a lubricant during sex in the past 3 months. Lubricants used included a popular water based brand (25.9%), saliva (21.4%), Vaseline (32.8%) and other (52.2%). Most (82.6%) men said that they kept condoms at home. One fifth (21.9%) of the men were carrying a condom on them at the time of interview and they were able to display the condom. Many (20.9%) men had difficulty letting their partner know that they wanted to use a condom. Among those having difficulty asserting condom use 41.5% (17/41) were HIV positive.

A half (49.5%) of the MSM said that they had been helped by a person they had sex with in the past 3 months by getting money for expenses such as lunch or bus fare while 39.5% had helped someone. One sixth (16.5%) said that they had been paid for sex in the past 3 months and 12.0% said that they had paid someone for sex. Among those paying or receiving money for sex 38.9% (22/57) said that they used a condom on the last such occasion.

### Discussion

The HIV infection rate of 32.3% among these 201 MSM in 2007 is very high. It is similar to the HIV prevalence found in a survey of MSM conducted in Jamaica in 1995 (3) and considerably higher than the 10% found in 1985 among 125 MSM in Kingston (11). The HIV prevalence among MSM in Jamaica is significantly higher than the 12.6% found among non-Hispanic black gay men in New York and the prevalence found in Trinidad and Tobago (20%), Guyana (21%), Dominican Republic (6%) and the Bahamas (8.2%) (12).

Men, who were socially vulnerable, had a history of an STI and reported receptive anal intercourse were more likely to be HIV infected. These findings are consistent with our understanding of HIV transmission and the associated risk factors. The prevalence of Chlamydia (11.0%) and gonorrhoea (3.5%) among these MSM was likely to be underestimated because anal and pharyngeal swabs were not done. Access to HIV services did not

appear to be a problem with most of these men. The majority of them had done an HIV test, attended an HIV education session, seen the HIV risk card used by the program as an educational tool, attended a government health centre or a private physician and was satisfied with the service received. However, only one third of them had done an HIV test in the past year. Given their high risk status and sexual practices they need to be doing an HIV test annually. Persons who tested HIV positive during the survey were not asked whether they were already aware of their HIV status.

Most of the MSM had more than two male sex partners, including a new male sex partner, as well as one or more female sex partners in the past 12 months. Yet their condom use was inconsistent with nearly half of them (44.3%) failing to use a condom within the past 3 months. It is likely that this self-reported condom use is over estimated due to social acceptability bias. A clear illustration of this was that 8 of 21 men reporting that they had never had sex without a condom were actually HIV positive. The common (42.9%) use of Vaseline as a lubricant would reduce the protective effect of condoms.

Another factor possibly contributing to high rates of HIV infection was the failure of most (60%) MSM to disclose their HIV status to their sexual partners. Half of the men were not comfortable disclosing their status to anyone. This is a likely indicator of the strong stigma associated with homosexuality as well as HIV infection. Half of these men had suffered verbal abuse, most likely associated with being gay, and many had experienced violence, rape, homelessness and jail. Many of these men are suffering on the margins of society and probably feel rejected and disempowered, There are also issues of lack of self efficacy as seen by the difficulty that many (20.6%) men had in expressing the need to use condoms to their sexual partners.

The findings from this survey cannot be generalised to the population of MSM in Jamaica because the sample was not randomly selected and is subject to selection bias. The sample was not a clinic-based sample, however, and should not be interpreted as the prevalence among persons seeking treatment for STI. Many of the men in the sample were poor, unemployed and socially vulnerable; transactional sex was pervasive and commercial sex fairly common. Half (48%) of the MSM had ever been told by a physician that they had an STI. This compares with the proportion of HIV cases reported to the Ministry of Health giving a history of a STI. Nevertheless, the HIV prevalence is unacceptably high and indicates that significantly more work is required in order to prevent more MSM becoming HIV infected.

Most of these men identified themselves as bisexual and were having sex with one or more women. Given the high HIV infection rates among MSM they are likely to be acting as a bridge population for HIV infection into the female and general population. Many of their female sex partners are not aware that they are bisexual. It is likely that the high HIV infection rate among MSM is one of the important driving factors for the continued HIV epidemic in Jamaica and some other Caribbean countries. More effective ways need to be found to reduce the high prevalence of HIV among MSM in Jamaica including measures to reduce their social vulnerability, combat stigma and discrimination and empower them to practice safe sex.

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**Table 1**

Prevalence of HIV and other STIs among 201 MSM in Jamaica – 2007

STI	No. Positive	Predicted Prevalence	95% CI Percentage
HIV	65	34.7%	25.2, 47.9
Syphilis	12	6.6%	5.3, 8.2
HIV and Syphilis co-infection	7	3.5%	2.4, 5.1
Gonorrhoea	7	4.2%	1.7, 10.5
Chlamydia	22	11.0%	7.0, 17.3
Trichomonas *	0	0%	

\* First 100 MSM tested for Trichomonas

**Table 2**

Social Factors associated with HIV infection among MSM in Jamaica – 2007

Social Factors	HIV Positive	HIV Negative	Odds Ratio 95% CI
	n = 65	n = 136	
Ever homeless	48.4%	29.4%	2.2, 1.0 – 5.0
Ever in prison	40.5%	20.5%	1.6, 0.7 – 3.2
Unemployed	32.4%	32.3%	1.0, 0.5 – 1.9
Victim of physical violence	46.7%	29.6%	2.1, 0.9 – 4.9
Low socio-economic status	40.0%	24.8%	2.3, 1.1 – 3.9
Ever paid for sex	39.4%	30.5%	1.5, 0.7 – 3.2

**Table 3**

Access to HIV services among MSM in Jamaica - 2007

Access to HIV service	No.	Total	%
Visited Health Centre in the past year	62	100	31.0%
Was satisfied with care received	51	62	82.3%
Ever had HIV test	116	201	57.7%
Received HIV result	107	115	93.0%
Counselled with result	77	107	72.0%
Had HIV test in past 12 months	62	201	32.9%
Had HIV education session in past year	133	201	66.2%
Had seen the HIV risk card	129	201	64.2%

**Table 4**

No. of Sexual Partners of 201 MSM in Jamaica – 2007

Type of Sex Partner in a specified time period	No. of sex partners					
	None		One		Two or more	
	No.	%	No.	%	No.	%
Total male partners – past 4 weeks	61	30.3	85	42.3	55	27.4
New male partners - past 4 weeks	149	74.1	33	16.4	19	9.5
Total male partners – past 12 mths	5	2.5	35	17.4	161	80.1
New male partners – past 12 months	37	18.4	55	27.4	109	54.2
Total female partners – past 4 weeks	143	71.1	33	16.4	25	12.4
Total female partners – past 12 mths	87	43.3	46	22.9	68	33.8

**Table 5**

## Reported Condom use among MSM in Jamaica - 2007

Condom use	No.	Total	%
At last sex with main male sex partner	59	88	67.0%
At last sex with second male sex partner	57	74	77.0%
At last sex with main female sex partner	21	34	61.8%
At last sex with a woman	108	147	73.5%
At last anal sex	146	201	72.69%
Keeps condoms at home	166	201	82.6%
Carrying condom and condom seen	44	201	21.9%
Sex without condom in past 4 weeks	59	201	29.4%
Sex without condom in past 3 months	89	201	44.3%
Used lubricant always/almost always in past 3 months	59	186	59.7%
Used Vaseline as a lubricant	66	154	42.9%