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International travel among HIV-positive and HIV-negative men who have sex with men, San Francisco, USA

K D Taylor, PhD, MPH[*], **H Fisher Raymond, MPH**[†], **H-H M Truong, PhD, MS, MPH**[*], **T Ick, BS**[†], **B Le, ASN**[†], **J Rive**[†], and **W McFarland, MD, PhD, MPH&TM**[*,†]

[*]Center for AIDS Prevention Studies, University of California

[†]San Francisco Department of Public Health, San Francisco, CA, USA

Summary

We measured the prevalence of international travel, the demographic and risk profile of international travellers and risk and preventive behaviours of travellers among HIV-negative and HIV-positive men who have sex with men (MSM), based in San Francisco, CA, USA, through the addition of questions to the local implementation of the National HIV Behavioral Surveillance survey in 2008. Of 270 MSM participating in the survey, slightly more than one-quarter (26.3%) had travelled internationally in the last year. Those with a history of international travel were more likely to be foreign born, of a higher socioeconomic status and HIV uninfected. Of eight HIV-positive MSM who travelled internationally (11.3% of HIV-positive MSM), all were on antiretroviral therapy and only three recalled being vaccinated for hepatitis A and B. Human papillomavirus infection was also higher among international travellers. Travel health services must be improved to address special needs of this population of international travellers.

Keywords

men who have sex with men (MSM); HIV; international travel; sexual behaviour

INTRODUCTION

Within the first decade following the recognition of AIDS in a cluster of men who have sex with men (MSM) in Los Angeles, CA, USA, HIV appeared in virtually every region of the world. While the origins and routes of the spread of HIV across the globe may be debated, it is clear that the virus spread rapidly between populations of MSM across international borders. The first AIDS cases detected in North America, Europe, Australia, South America and Asia were MSM. The first case in Thailand was in a gay man returning from living overseas.[1] Recent years have also witnessed a resurgence in HIV transmission among MSM on several continents,[2] most dramatically in Asia.[3,4]

While international travel has been associated with sexually transmitted infections (STIs),[5,6] there are fewer epidemiological data on HIV. A case-series study of MSM recently

Correspondence to: W McFarland, San Francisco Department of Public Health, HIV and Epidemiology Section, 25 Van Ness, Suite 500, San Francisco, CA 94102, USA, willi_mcfarland@hotmail.com.

diagnosed with HIV in San Francisco, CA, USA, found that the majority (55%) had travelled outside the USA during the period when they potentially acquired HIV infection or were acutely infected.[7] Moreover, nearly one in eight had primary antiretroviral (ARV) drug resistance. The latter finding raises concern over the spread of drug-resistant strains of HIV, with potentially severe consequences for countries now in the process of scaling up the delivery of ARVs with few options for changing patient regimens.

To our knowledge, the prevalence of international travel among HIV-negative and HIV-positive MSM has not been measured. The aims of the current study are to record the prevalence of international travel in the last year among MSM, characterize the demographic and risk profile of internationally travelling MSM, and assess their use of preventive and other health services. MSM were sampled in the course of the US National HIV Behavioral Surveillance (NHBS) survey. Such public health data can be used to track the potential for international transmission of HIV and ARV drug-resistant HIV, as well as to develop specific international travel health programmes for HIV-positive and HIV-negative MSM.

METHODS

Data originated from MSM who participated in the NHBS survey coordinated by the US Centers for Disease Control and Prevention (CDC). NHBS methods have been detailed previously.[8,9] In brief, NHBS comprises serial cross-sectional surveys of persons at high risk of HIV in 25 cities in the USA in order to track HIV prevalence and related risk behaviours over time. The current study uses the second wave of the NHBS for MSM in San Francisco recruited by time 2 location sampling (TLS) in 2008.

The TLS methodology is used to recruit approximated probability-based samples of hard-to-reach populations throughout the world.[10] TLS begins with the creation of a list of venues, days and time periods where and when the target population congregates, which serves as a sampling frame. In the present study, formative research enumerated all possible MSM-identified venues (e.g. bars, dance clubs, cruising areas, bookstores, gyms, social organizations and street locations) in San Francisco, and the days and time periods of attendance. From this roster of all venue–day–time (VDT) periods, a random sample of VDT is drawn. At the VDT, the attendance of all potentially eligible subjects is enumerated by counting all individuals crossing a predetermined line or zone. Research staff intercept men entering the zone to determine eligibility (male, age 18 years or older and resident of 1 of 9 San Francisco Bay Area counties). If eligible, men are invited to participate and informed consent is obtained. Intercepts are done consecutively without the choice of the recruiter until all staff are occupied. Once a staff member is available, consecutive intercepts and interviews resume. Identifying as gay, bisexual or MSM was not an initial eligibility criterion in order to avoid excluding men who may not acknowledge male–male behaviour at the screening stage. However, our analysis includes only men identifying as gay or bisexual or who had a male sexual partner in the past 12 months.

Persons agreeing to participate are interviewed face-to-face at the venue using a hand-held computer. In addition to the national core NHBS instrument on demographic characteristics and HIV-related questions, we included a question on international travel in the preceding

12 months. The question was added approximately mid-way through the study and only to the San Francisco local questionnaire. After the interview, blood specimens are collected for HIV testing. Analysis focuses on demographic characteristics, sexual risk behaviour (e.g. unprotected anal intercourse), STI history and health service use among international travellers compared with those of non-travellers, with additional description of HIV-infected international travellers. The study protocol was reviewed and approved by the Institutional Review Boards of the University of California, San Francisco and the CDC.

RESULTS

Of 380 eligible, consecutively intercepted men at randomly selected VDT periods during the study period, 270 (71.1%) participated in the survey. Of these, 71 (26.3%) reported international travel in the 12 months preceding the interview. The median age was 36 years and did not differ by travel history. Higher education level, higher annual income and being born outside of the USA were significantly associated with international travel (Table 1). Having health insurance was reported by 85.9% of international travellers.

Gay sexual orientation was reported by the vast majority (87.8%) with 10.7% being bisexual and 1.5% identified as heterosexuals who had sex with men. The majority (83.7%) were ‘out’ to their physicians about their sexual orientation. A similar proportion (84.4%) had visited their physicians in the last 12 months. Of international travellers, 2.8% had a history of syphilis diagnosis; past infection was also seen with gonorrhoea in 7.0%, chlamydia in 4.2%, herpes simplex type II virus in 5.6% and human papillomavirus (HPV) infection in 7.0%. Except for a higher prevalence of HPV among international travellers ($P = 0.04$), none of these variables were associated with international travel. Of all travellers, 59% reported having unprotected anal intercourse (UAI) in the last 12 months. Fifty percent of travellers who tested positive for HIV, and 61% of whom tested negative, reported UAI.

Men who tested HIV-positive were significantly less likely to travel internationally compared with HIV-negative men (11.3% versus 27.6%, respectively). All eight HIV-positive men were aware of their HIV serostatus, were on ARV therapy, had seen their physician in the past 12 months and were ‘out’ to the physician about their sexual orientation. One of the HIV-positive travellers was foreign born. Three of the eight recalled being vaccinated for hepatitis A and B; three reported hepatitis B only; two recalled neither vaccination.

In multivariate logistic regression analysis, HIV-negative serostatus, foreign birth, higher education and higher income remained significantly associated with international travel in the last year.

DISCUSSION

With a local addition to the CDC-coordinated NHBS instrument, we were able to gauge that a high proportion of MSM (1 in 4) in San Francisco had travelled internationally in the last year in a probability-based survey. Although HIV-negative MSM were more likely to report international travel, a still substantial proportion of HIV-positive MSM (1 in 8) had also

travelled internationally in the last year. MSM who travel internationally were also more likely to be of higher education level and income, and foreign born.

We also found that the vast majority of internationally travelling MSM (over four-fifths) had seen a physician in the last year and were 'out' to them with regard to their sexual orientation. In addition, all of the HIV-positive MSM who travelled internationally were on ARV therapy. This high level of health access presents opportunities to enhance travel medicine services with specific information to include HIV prevention, HIV care and broader gay men's health issues. Surprisingly, only three of eight could recall being vaccinated for both hepatitis A and B. We acknowledge that recall of vaccination may be poor; however, clinical interactions (e.g. with providers or travel clinics) will be faced with verifying immune status and/or revaccinating many persons. The low level of response, with the added uncertainties of recall, underscores the need for health education and vaccine promotion for MSM. This may be particularly the case for HIV-negative MSM who may have fewer interactions with health-care providers than HIV-positive MSM. Missed hepatitis B vaccination is particularly poignant given that many MSM in San Francisco participated in the clinical trials to prove the safety and efficacy of the vaccines.[11] The original guidelines would have doubly prioritized this very population for vaccination: gay men and persons who travel internationally. With the switch to infant and childhood hepatitis vaccination after the 1990s, universal vaccination of our target population has not been achieved. Strengthening physician awareness and dissemination of the need for hepatitis A and B vaccination in the gay community are needed to close the gap. Additionally, the finding of increased HPV among internationally travelling MSM points to the potential benefit of vaccination for this infection.

The limitations of time within the current survey did not permit detailed measures of risk behaviours and ARV adherence while travelling internationally, nor did resources permit testing for ARV drug resistance. Future studies are needed to provide more information on how to create, deliver and evaluate primary and secondary HIV prevention interventions for those who travel across borders.

The availability of effective treatment for HIV has extended the life and wellbeing of persons living with infection. For many, wellbeing includes international travel for work, to visit family, for enjoyment and to fulfil lifetime goals. However, our estimates raise potential concerns for a world in which ARV therapy is rapidly being scaled up. Long-term treatment of HIV gives rise to increasing levels of ARV drug resistance. Americans are fortunate in having many options to manage their HIV infection. However, many other countries struggle to initiate the first line of ARV therapy; second-line therapy remains a challenge deferred to the future. Addressing the travel needs of HIV-positive persons therefore serves those living with HIV who travel abroad as well as the wider global community.

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Table 1

Characteristics of MSM by history of international travel in the last year, San Francisco, CA, USA, 2008

Variable	All participants (*n* = 270) *n* (%)	No international travel in the last 12 months (*n* = 199) *n* (%)	International travel in the last 12 months (*n* = 71) *n* (%)	*P* value
Education level				
Less than high school	41 (15.2)	37 (18.6)	4 (5.6)	<0.001
High school degree	96 (35.6)	82 (41.2)	14 (19.7)	
College degree	133 (49.3)	80 (40.2)	53 (74.6)	
Annual income				
<US$75,000	190 (70.4)	153 (76.9)	37 (52.1)	<0.001
≥US$75,000	80 (29.6)	46 (23.1)	34 (47.9)	
Birth				
Outside USA	45 (16.7)	27 (13.6)	18 (25.4)	0.036
In USA	225 (83.3)	172 (86.4)	53 (74.6)	
Has health insurance				
Yes	211 (78.1)	150 (75.4)	61 (85.9)	0.093
No	59 (21.9)	49 (24.6)	10 (14.1)	
Race/ethnicity				
Black	20 (7.4)	18 (9.0)	2 (2.8)	0.280
White	146 (54.1)	112 (56.3)	34 (47.9)	
Latino	66 (24.4)	45 (22.6)	21 (29.6)	
Asian	16 (5.9)	10 (5.0)	6 (8.5)	
Other	22 (8.2)	14 (7.0)	80 (11.3)	
Sexual orientation				
Heterosexual	4 (1.5)	3 (1.4)	1 (1.5)	0.660
Gay	237 (87.8)	179 (90.1)	62 (86.9)	
Bisexual	29 (10.7)	17 (8.5)	8 (11.6)	
'Out' to physician about sexual orientation				
Yes	226 (83.7)	167 (83.9)	59 (83.1)	0.979
No	44 (16.3)	32 (16.1)	12 (16.9)	
Visited physician in last 12 months				
Yes	228 (84.4)	170 (85.4)	58 (81.7)	0.579
No	42 (15.6)	29 (14.6)	13 (18.3)	
Self-reported HIV status				
Negative	205 (75.9)	142 (71.4)	63 (88.7)	0.008
Positive	63 (23.3)	55 (27.6)	8 (11.3)	

Numbers do not always add up to 100% due to missing data. MSM = men who have sex with men