

Trends in Sexually Transmitted Diseases, Sexual Risk Behavior, and HIV Infection Among Asian/Pacific Islander Men Who Have Sex With Men, San Francisco, 1999–2005

H. FISHER RAYMOND,* SANNY CHEN, MPH,* HONG-HA M. TRUONG, PhD, MS, MPH,‡ KARL B. KNAPPER,†
JEFFREY D. KLAUSNER, MD, MPH,* KYUNG-HEE CHOI, PhD, MPH,‡ AND WILLI MCFARLAND, MD, PhD, MPH*

HIV risk behavior indicator trend data from 1999 through 2002 suggested rising levels of risk among Asian/Pacific Islander men who have sex with men (API-MSM) in San Francisco. Additional data through 2005 show a continuing increase in male rectal gonorrhea but a drop in early syphilis. Although overall unprotected anal intercourse remained high, potentially serodiscordant unprotected anal intercourse has declined since 2001. Moreover, having multiple sex partners decreased, whereas HIV testing increased. Viewed as a whole, current trends suggest that recent prevention activities have been successful for this population.

WE PREVIOUSLY REPORTED INCREASES IN sexual risk behavior and sexually transmitted diseases (STDs) among Asian/Pacific Islander men who have sex with men (API-MSM) in San Francisco from 1999 to 2002.¹ At that point in time, HIV prevalence was lower among API-MSM compared with other racial/ethnic groups in the city.^{2,3} This early detection of behaviors that could increase HIV transmission presented a prevention opportunity. We now present 3 additional years of data after intensified HIV prevention efforts. Given the complexity of the HIV epidemic and the small size of the API-MSM subpopulation, monitoring HIV risk and incidence requires examination of multiple sources of data. These data can include STD surveillance data, street-based surveys, and analysis of programmatic data. Such an approach is consistent with World Health Organization recommendations for second-generation HIV surveillance.⁴

Methods

In San Francisco, we track several HIV prevention indicators to monitor trends in the epidemic.^{1,5} We present the annual rates of male rectal gonorrhea and early syphilis among API-MSM based on citywide case surveillance reporting for 1999 through 2005.⁶ To calculate rates per 100,000, we use the estimate of 2,285 API-MSM in San Francisco from Mills et al, to our knowledge, the only population-based estimates of the racial/ethnicity makeup of the MSM community.^{1,7}

We also compare data from 2 epidemiologic surveys that recruited MSM using time–location sampling and street-based sur-

From *San Francisco Department of Public Health, San Francisco, California; †STOP AIDS Project, San Francisco, California; and the ‡Center for AIDS Prevention Studies, University of California, San Francisco, California

veys.⁸ The first, the Asian Counseling and Testing (ACT) survey, was conducted in 2000–2001 and specifically targeted API-MSM aged 18 to 29 years.³ The second survey was part of National HIV Behavioral Surveillance (NHBS) conducted in 2003–2004.⁹ NHBS included MSM of all ages and race/ethnicities. Four indicators were compared between these 2 surveys: having 2 or more sex partners in the last 6 months, ever testing for HIV, HIV prevalence, and HIV incidence. HIV incidence was measured in both surveys using the Standardized Testing Algorithm for Recent HIV Seroconversion or STARHS.¹⁰ We also calculated HIV incidence among API-MSM who were tested for HIV at the municipal STD clinic in 2004 using the BED assay.¹¹

Using the STOP AIDS Project (SAP) programmatic data,^{5,12} we present 2 indicators of sexual risk behavior: 1) the overall percent of API-MSM reporting any unprotected anal intercourse (UAI), and 2) the proportion of API-MSM who report UAI with partners of opposite or unknown serostatus (that is, potentially serodiscordant UAI).

Results

By unifying data from diverse sources, we achieved sufficient sample sizes of the API-MSM subpopulation to examine trends in HIV indicators over time. From city-wide STD surveillance, there is no known number of total screening tests performed. The ACT survey recruited 495 API-MSM aged 18 to 29 years. NHBS data included 191 API-MSM overall, with 93 aged 18 to 29 years. These 2 surveys provided serologic specimens for HIV incidence estimation using STARHS. An additional 421 serologic specimens were available from API-MSM testing for HIV at the municipal STD clinic for estimation of HIV incidence using the BED assay. API-MSM respondents in the STOP AIDS Project ranged from a low of 74 in 2003 to a high of 226 in 1999.

Figure 1 shows trends in male rectal gonorrhea, early syphilis, potentially serodiscordant UAI among API-MSM, HIV testing, and multiple sexual partners. After a period of rapid rise, the incidence of early syphilis has leveled off followed by a dramatic drop. The incidence of rectal gonorrhea has continued to rise during the same period (Fig. 1A, B).

Correspondence: H. Fisher Raymond, AIDS Office, 25 Van Ness Avenue, Suite 500, San Francisco, CA 94102-6033. E-mail: hfisher.raymond@sfdph.org

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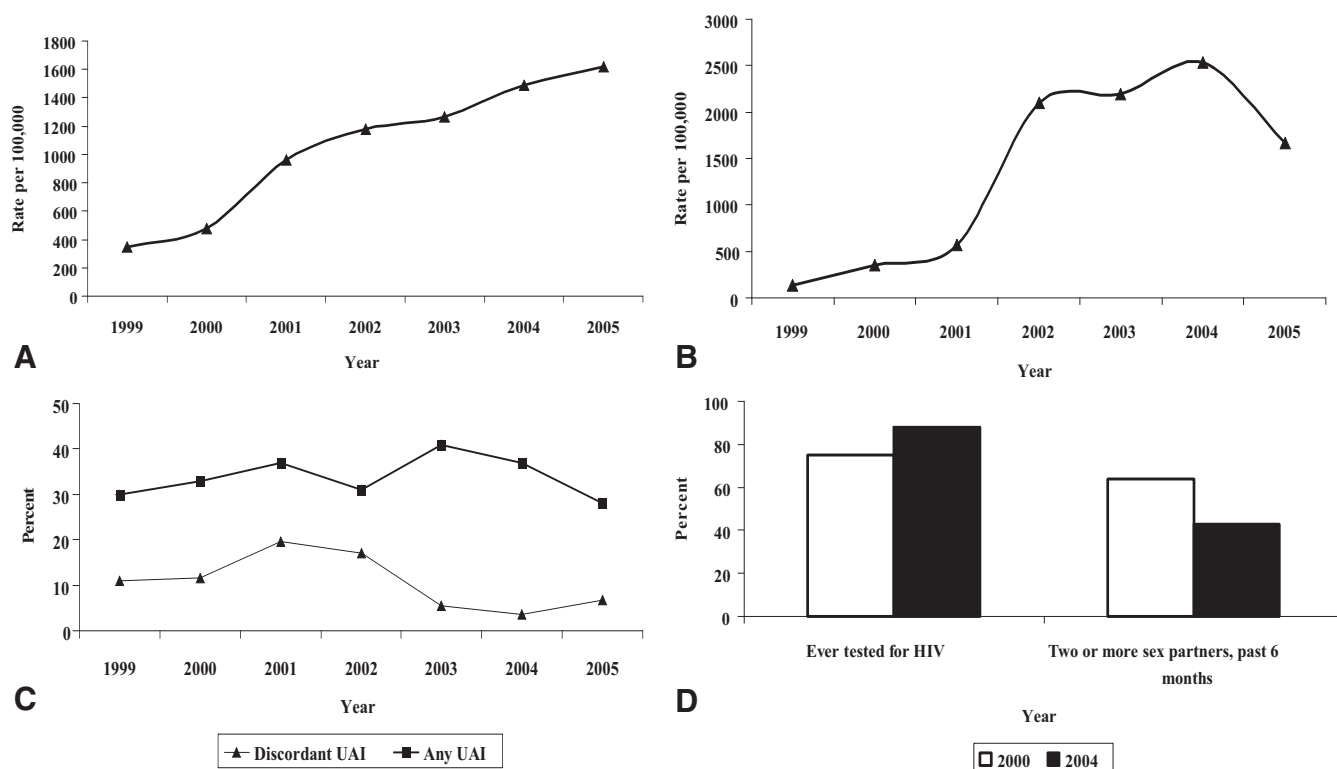


Fig. 1. HIV risk indicators, Asian/Pacific Islander men who have sex with men (API-MSM), San Francisco, 1999–2005. (A) Cases of male rectal gonorrhea per 100,000. (B) Cases of early syphilis per 10,000. (C) Potentially serodiscordant unprotected anal intercourse (UAI). (D) HIV testing and multiple sex partners.

Overall UAI peaked in 2003 with apparent declines to 2005. Potentially serodiscordant UAI declined from a peak of 50% in 2001 to low levels from 2003 through 2005. API-MSM also had significantly lower levels of potentially serodiscordant UAI compared with other race/ethnic groups ($P = 0.047$, data not shown). Of note, examination of potentially serodiscordant UAI by HIV serostatus suffered from small numbers: 0 of 4 HIV-positive API-MSM reported serodiscordant UAI in 2004, and one of 5 reported serodiscordant UAI in 2005 (Fig. 1C).

Levels of lifetime HIV testing among 18- to 29-year-old API-MSM increased from 75% in the ACT survey to 88% in the NHBS survey ($P = 0.001$) (Fig. 1D). During the same time period, reporting having 2 or more sex partners in the last 6 months decreased from 64% to 43% ($P = 0.05$) (Fig. 1D).

HIV incidence among API-MSM testing for HIV in 2004 at the STD clinic using the BED assay was 0.85% per year and was significantly lower than the majority population of white MSM ($P = 0.05$). In our ACT survey of 18- to 29-year-old API-MSM, HIV prevalence was 2.6% (95% confidence interval [CI] = 1.4–4.5%) and HIV incidence was 1.8% (95% CI = 0.3–6.5%) per year using STARHS.⁸ Restricting the NHBS analysis to API-MSM of the same age group, HIV prevalence was 3.9% (95% CI = 0–11.23%) and was not statistically significantly higher than HIV prevalence in ACT ($P = 0.71$). No recent HIV infections were detected in NHBS (incidence 0% per year) ($P = 0.65$ compared with 2000). Of note, 62% (8 of 13) of HIV-positive API-MSM in ACT were unaware of their infection. In NHBS, all of the HIV-positive API-MSM were aware of their infection (4 of 4 for all ages, one of one for 18–29 year olds).

Discussion

Trends in HIV risk indicators among API-MSM over the last several years show a continuing rise in rectal gonorrhea, whereas early syphilis has dropped dramatically after a period of rapid rise. Behavioral data show that potentially serodiscordant UAI has decreased, lifetime levels of HIV testing have increased, and numbers of sex partners in the past 6 months have decreased. HIV prevalence has not significantly increased in 2 cross-sectional surveys in 2000 and 2004. Additionally, HIV incidence through BED and STARHS detected minimal numbers of recent infections among API-MSM tested at the STD clinic and during ACT and NHBS. Finally, no previously unrecognized HIV infections among API-MSM were detected in NHBS compared with 62% that were unrecognized in ACT. Taken as a whole, recent trends in indicators among API-MSM suggest that a potential increase in HIV incidence may have been averted. Our data also suggest a theoretical way that prevention may be working. Increases in HIV testing may result in more persons aware of their HIV serostatus, thus enabling them to more successfully avoid potentially discordant UAI (i.e., increase in HIV serosorting).

We recognize limitations of the data presented here. One limitation that has been common to studies of API-MSM in general is small sample sizes. The small number of 18- to 29-year-old API-MSM in NHBS ($n = 93$) particularly affects the comparisons of HIV prevalence and incidence. However, a strength of our analysis is that using multiple data sources can compensate for small sample sizes in particular studies. Moreover, we benefit from the larger sample of API-MSM in ACT, which provides a basis for comparing other data. Another limitation is the lack of an accurate census of API-MSM in San Francisco. We have used the only

published population-based estimate of the racial ethnic makeup of the MSM community of San Francisco. Finally, it is unclear why rectal gonorrhea rates are discrepant with changes in behavior and syphilis rates. Although these apparent reductions are promising, STD rates are still high and ongoing attention should be paid to continued efforts to reduce them.

The apparent decrease in HIV risk presented in this report follows a period of increased attention drawn to rising risk in the MSM community in general and to the risk among API-MSM in particular. Intensified responses included the promotion of HIV testing, prevention for HIV-positives,^{13,14} and media campaigns to reduce stigma around HIV testing and MSM behavior.¹⁵ Increased awareness of HIV, stigma reduction, and HIV testing promotion are specific initiatives conducted by a local API-focused community-based organization. Our data suggest HIV prevention may be working for at least one segment of the MSM community in San Francisco.

References

1. McFarland W, Chen S, Weide D, Kohn R, Klausner J. Gay Asian men in San Francisco follow the international trend: Increases in rates of unprotected anal intercourse and sexually transmitted diseases, 1999–2002. *AIDS Educ Prev* 2004; 16:13–18.
2. San Francisco Department of Public Health. HIV/AIDS Epidemiology Annual Report, 2004. San Francisco: SFDPH, 2005. Available at: www.dph.sf.ca.us/PHP/AIDSSurvUnit.htm. Accessed April 18, 2006.
3. Choi KH, McFarland W, Neilands TB, et al. An opportunity for prevention: Prevalence, incidence, and sexual risk for HIV among young Asian and Pacific Islander men who have sex with men, San Francisco. *Sex Transm Dis* 2004; 31:475–480.
4. Rehle T, et al. Second-generation HIV surveillance: Better data for decision-making. *Bull World Health Organ* 2004; 82:121–127.
5. Chen SY, Gibson S, Katz MH, et al. Continuing increases in sexual risk behavior and sexually transmitted diseases among men who have sex with men, San Francisco, 1999–2001. *Am J Public Health* 2002; 92:1387–1388.
6. San Francisco Department of Public Health, San Francisco Sexually Transmitted Disease Summary, 2003. San Francisco: SFDPH, 2004. Available at: www.dph.sf.ca.us/Reports/STD/SFSTDAnnSum2003.pdf.
7. Mills TC, Stall R, Pollack L, et al. Health Characteristics of men who have sex with men: A comparison of those living in ‘gay ghettos’ with those living elsewhere. *Am J Public Health* 2001; 91:980–983.
8. MacKellar D, Valleroy L, Karon J, Lemp G, Janssen R. The young men’s survey: Methods for estimating HIV seroprevalence and risk factors among young men who have sex with men. *Public Health Rep* 1996; 111(suppl):138–144.
9. Sifakis F, Flynn CP, Metsch L, et al. HIV prevalence, unrecognized infection, and HIV testing among men who have sex with men. *MMWR Morb Mortal Wkly Rep* 2005; 54:597–601.
10. Janssen RS, Satten GA, Stramer SL, et al. New testing strategy to detect early HIV-1 infection for use in incidence estimates and for clinical and prevention purposes. *JAMA* 1998; 280:42–48.
12. Katz MH, Schwarcz SK, Kellogg TA, et al. Impact of highly active antiretroviral treatment on HIV seroincidence among men who have sex with men in San Francisco. *Am J Public Health* 2002; 92:388–394.
12. Parekh BS, Kennedy MS, Dobbs T, et al. Quantitative detection of increasing HIV type 1 antibodies after seroconversion: A simple assay for detecting recent HIV infection and estimating incidence. *AIDS Res Hum Retroviruses* 2002; 18:295–307.
13. Janssen RS, Onorato IM, Valdiserri RO, et al. Advancing HIV prevention: New strategies for a changing epidemic—United States, 2003. *MMWR Morb Mortal Wkly Rep* 2003; 52:330–332.
14. Wolitski RJ, Gomez CA, Parsons JT, et al. Effects of a peer-led behavioral intervention to reduce HIV transmission and promote serostatus disclosure among HIV seropositive gay and bisexual men. *AIDS* 2005; 19:S99–S109.
15. API Wellness Center, Banyan Tree Project. Available at: www.banyantreeproject.org. Accessed April 18, 2005.