

Sexual Health, HIV, and Sexually Transmitted Infections among Gay, Bisexual, and Other Men Who Have Sex with Men in the United States

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Abstract The sexual health of gay, bisexual, and other men who have sex with men (MSM) in the United States is not getting better despite considerable social, political and human rights advances. Instead of improving, HIV and sexually transmitted infections (STIs) remain disproportionately high among MSM and have been increasing for almost two decades. The disproportionate and worsening burden of HIV and other STIs among MSM requires an urgent re-assessment of what we have been doing as a nation to reduce these infections, how we have been doing it, and the scale of our efforts. A sexual health approach has the potential to improve our understanding of MSM's sexual behavior and relationships, reduce HIV and STI incidence, and improve the health and well-being of MSM.

Keywords Homosexuality, male · Sexuality · HIV infections/epidemiology · Sexually transmitted diseases/epidemiology · Health promotion · Health policy

Disclaimer The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention or the Department of Housing and Urban Development.

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Introduction

Sexual health among gay, bisexual, and other men who have sex with men (MSM) is much more than just the presence or absence of disease. It is a holistic concept that includes how MSM approach their sexual behavior and relationships, how they feel about them, and how their physical and mental health are affected by them. Good sexual health is important not only for MSM, but is an essential component of the overall health and well-being of all people [1–3]. Sexual health was defined by participants in a 2002 technical consultation convened by the World Health Organization in the following way:

Sexual health is a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled [1].

Although sexual health among MSM is much more than just the absence of sexually transmitted infection (STI), the prevention, detection, and treatment of HIV and STIs are important elements of achieving and maintaining good sexual health. Acquiring HIV or another STI can adversely affect physical and mental health, lead to feelings of shame or guilt about one's sexual behavior, cause individuals to stop all sexual activity or constrain sexual behavior and pleasure, subject individuals to stigma and discrimination, and contribute to stress in sexual relationships or even their dissolution [4–15]. Infection with HIV or viral STIs can

have life-long effects on a person's ability to establish and maintain relationships because of the challenges of disclosing HIV/STI status to potential sex partners and of preventing HIV/STI transmission to others. Infection presents many other life challenges, such as managing medications and the effects of recurring symptoms, and coping with stigma and discrimination [16–25].

The relation between HIV/STI infection and sexual health is not a one-way street—it is not just that having HIV or an STI negatively affects sexual health. Poor functioning in other areas of sexual health can in fact increase the risk of HIV/STI transmission, as well as adversely affect the detection and outcomes of HIV or STI infection. For example, MSM who are uncomfortable with their sexual orientation or behavior may avoid disclosing same-sex behavior to health care providers or delay HIV/STI diagnosis and treatment [26–28]. An HIV/STI diagnosis can be a marker of the presence of other sexual, mental, or physical health problems (including substance abuse, depression, trauma from physical or sexual abuse, and other co-existing problems) that are associated with sexual dysfunction, risky sexual behavior and higher rates of HIV/STI in MSM [29–35]. If left undetected and unaddressed, these problems may continue to negatively affect sexual health and lead to the acquisition of new infections or transmission of HIV/STIs to others. Thus, an accurate understanding of HIV and STIs among MSM is essential to understanding and promoting sexual health among MSM.

This paper reviews the current status of HIV and other STIs among MSM in the United States and discusses how a sexual health approach might lead to a better understanding of MSM's sexual behavior and relationships, reduce HIV and STI infections, and improve the health and well-being of MSM.

HIV, STI, and Other Health Inequities

It is important to recognize that the sexual health inequities experienced by MSM exist within a larger context of health problems that are driven, at least in part, by social marginalization and discrimination. Social marginalization is a fundamental cause of health inequities experienced by a range of socially and economically disadvantaged populations [36–40]. Discrimination toward sexual minorities is a form of social marginalization that is rooted in homophobia and is reflected in laws, policies and interpersonal interactions that affect the physical and mental health of MSM, including whether MSM seek and are able to obtain health care, and the quality of the health care services they receive [41–46]. Individual choices and behaviors play a very important role in health, but the choices and behaviors of

individuals (and the risks associated with these behaviors) are affected by society, culture, and the context that they occur within. Social marginalization influences the behaviors of individual MSM (e.g., discourages disclosure of sexual orientation, may contribute to substance use and other maladaptive coping strategies, impedes establishment and maintenance of same-sex relationships) and the relative risk of the behaviors they engage in by concentrating infectious disease in disadvantaged populations, and constraining individuals' ability and willingness to seek and receive appropriate prevention services and medical care in a timely manner [41, 43, 44, 46].

As a result of social and individual determinants of risk, MSM are more likely to experience multiple health problems at higher rates compared to other men. A growing body of evidence indicates that MSM are more likely, compared to other men, to have clinical depression, anxiety disorders, eating and body image disorders, some cancers, and possibly alcohol dependence. They are also more likely to attempt suicide, smoke tobacco, and use illicit drugs (including marijuana, cocaine, hallucinogens, amphetamines, and opiates) [41, 44, 47–50].

The evidence regarding sexual health inequities experienced by MSM is striking. Compared to other men, MSM are more likely to have (or have had in the past) various STIs including HIV, syphilis gonorrhea, lymphogranuloma venereum (LGV), enteric STIs, human papillomavirus (HPV), human herpesvirus (HHV-8), hepatitis B, and possibly hepatitis A and C [51–57]. Co-morbidities are common, and HIV-infected MSM are at significant risk for co-infection with other STIs, most notably syphilis, HHV-8, and LGV, as well as hepatitis C [51–53, 56–59].

Two recent studies by the Centers for Disease Control and Prevention (CDC) provide population-based comparisons that illustrate the magnitude of some of the sexual health inequities experienced by MSM. The first study used data from the National Health and Nutrition Examination Survey (NHANES), a nationally representative population-based survey, to assess HIV and HSV-2 prevalence among MSM [54]. They found that 5.2% of sexually active men participating in NHANES had ever had sex with another man (95% CI = 4.4–6.2) and 57% of these men had done so in the past year. Men who had ever had sex with a man were more likely to have HIV compared to non-MSM (9.1% vs. 0.2%), and MSM who had sex with a man in the past year were even more likely to have HIV (11.8%). MSM had slightly higher rates of HSV-2 infection, but these differences were not statistically significant.

Another group of CDC authors conducted a meta-analysis of 7 published population-based surveys that provided estimates of the percentage of men who had sex with another man in their life-time, in the past 5 years, and in the past year [55]. The authors used this information to

calculate disease rates for men who had sex with another man in the past 5 years compared to other men and women. The authors estimated that approximately 4% of men in the United States (95% CI = 2.8–5.3), or about 2% of the total population (95% CI = 1.4–2.7), were men who had had sex with another man in the past 5 years. In 2007, the HIV diagnosis rate was 60 times as high for these MSM compared to other men in states with long-standing confidential name-based HIV reporting (692 cases per 100,000 MSM vs. 11.6 per 100,000 for other men). The HIV diagnosis rate was 54 times as high for these MSM, compared to women (692/100,000 vs. 12.9/100,000). Large inequities in primary and secondary syphilis rates were also found. Men who had sex with another man in the past 5 years were 61 times as likely to be diagnosed with syphilis compared to other men (121/100,000 vs. 2/100,000), and 95 times as likely to be diagnosed with syphilis compared to women (121/100,000 vs. 1.3/100,000).

Some MSM are at even greater risk for HIV and STI infection than others. Health inequities in the general population that are associated with race/ethnicity can also be found among MSM of color. Sexual health inequities are especially severe for black MSM. For example, in 2006 blacks comprised about 12% of the US population, but black MSM accounted for nearly three times that percentage (35%) of new HIV infections among MSM that year [60]. Numbers of new HIV infections are especially high among young black MSM (ages 13–29 years); more HIV infections occurred in this group than in any other group of MSM (as defined by race/ethnicity and age) [60]. MSM living in urban areas have higher rates of infection, as do MSM with histories of sexual abuse, substance use, and mental health problems, those with lower educational attainment, and those who are poor [31, 33, 41, 61–64].

HIV and STI Trends

The mobilization of the lesbian, gay, bisexual and transgender community around HIV prevention and the care and support of people living with AIDS, public awareness campaigns, HIV testing, and the illness and deaths of so many MSM, contributed to dramatic declines in risk behavior, HIV infections, and STI diagnoses among MSM during the first decade of the HIV epidemic. The estimated number of new HIV infections among MSM (including MSM with a history of injection drug use, MSM-IDU) dropped by an astonishing 76% from a peak of 87,200 infections per year during the 1984–1985 period to approximately 20,600 infections per year during 1991–1993 (I. Hall, personal communication, August 8, 2010).

Since that time, however, unprotected sex among MSM has increased and a steadily growing number of HIV and STI infections have been observed in the United States [61, 65–68]. Using extended back calculation methods, CDC has estimated that 32,800 MSM and MSM-IDU were newly infected with HIV in 2006 [69]. Compared to 2006, this represents about a 60% estimated increase in new HIV infections since 1991–1993, and an estimated 26% increase from the 1997–1999 time period (when highly active antiretroviral therapy first became widely available) (I. Hall, personal communication, August 8, 2010). Surveillance of HIV diagnoses suggests that these increases may be continuing. From 2005 to 2008, estimated HIV diagnoses increased 17% among MSM and MSM-IDU in the states with long-standing confidential name-based HIV reporting [70].

HIV infections are likely increasing at the fastest pace among young MSM. HIV diagnoses among MSM between the ages of 13 and 24 increased from 1,725 in 2001 to 3,061 in 2006 [71]. This represents an estimated percentage increase of 12.4% per year. During the same time period, the estimated annual percentage change for HIV diagnoses decreased 1.1% among MSM age 25–44 and increased 2.7% for MSM age 45 and older. Among young MSM, the largest number of diagnoses was among black MSM. The greatest estimated annual increases of HIV diagnoses among MSM between the ages of 13 and 24 were found for Asian/Pacific Islander MSM (30.8%), black MSM (14.9%), and American Indian/Alaskan Native MSM (12.8%). The magnitude of these increases may have been influenced by a rise in HIV testing rates and improved surveillance, but they strongly suggest an underlying increase in new HIV infections among young MSM.

MSM are now estimated to account for the majority of syphilis cases in the United States [72]. Precise data on primary and secondary syphilis among MSM are not available for the United States as a whole, but CDC estimates that MSM accounted for approximately 63% of cases reported in 2008 for which information on sexual orientation is available [72]. In all racial and ethnic groups, MSM accounted for more cases of primary and secondary syphilis than did heterosexual men or women.

The high percentage of MSM cases in 2008 reflects an increase in the male-to-female ratio for primary and secondary syphilis that began in 1996. When heterosexual sex is the predominant mode of transmission, the male-to-female rate ratio should be about 1 (1 male case to 1 female case). In 1996, the male-to-female ratio was 1.2 to 1. By 2008, the male-to-female ratio was 5.1 to 1, suggesting a substantial increase in primary and secondary syphilis cases among MSM from 1996 to 2008 [72]. Investigations of local syphilis outbreaks have confirmed an increase in syphilis infections among MSM and high rates of primary

and secondary syphilis infection among MSM living with HIV [53, 73–76].

Similarly, CDC's Gonococcal Isolate Surveillance Project (GISP) has reported increasing numbers of gonorrhea cases among MSM. Since the early 1990s, there has been about a fourfold increase in the percentage of GISP cases of urethral gonorrhea that occurred among MSM in the 25–30 sites participating in this project [77]. In 2007, MSM accounted for a little more than 20% of gonorrhea cases that were sampled as part of this project. This number likely underestimates gonorrhea among MSM because this project does not monitor samples collected from the rectum and throat. Samples collected only from the urethra are likely to miss many infections among MSM [78, 79]. For example, one study in San Francisco found that 64% of gonorrhea infections (and 53% of Chlamydia infections) among MSM would be missed if only urine or urethral screening had been performed [78].

A Sexual Health Approach

The data summarized above show that MSM are at greater risk for HIV and STI infection than other men, and that during the past two decades these infections have increased among MSM in the United States. These problems are not limited to just this country. HIV and STI infections have been increasing among MSM in other high-income countries around the world [65, 66, 80] and MSM in low- and middle-income countries also bear a disproportionate burden of HIV infection [81, 82]. In order to turn around these troubling epidemiological trends and rates, it is necessary to better understand the causes of sexual health inequities among MSM, the factors that put some MSM at greater risk than others, and the underlying causes of increasing risk behavior, new HIV infections, and STIs among MSM.

The adoption of a sexual health perspective holds considerable promise for better understanding HIV and STI risk among MSM and offers new possibilities for understanding sexual behavior among MSM and the prevention, detection, and treatment of HIV and STIs. Adopting a sexual health approach requires a reframing of traditional public health strategies for disease prevention and control to reflect a positive approach to sexuality that recognizes the physical, emotional, and social aspects of human sexuality. It requires greater attention to how these aspects of human sexuality interact with each other and with other components of mental and physical health, what MSM desire and obtain from their sexual relationships, and how these relationships affect overall health and hinder or contribute to sexual risk taking behavior.

Much has already been learned about the epidemiological, behavioral and psychosocial factors that put MSM at greater risk for HIV and STIs, but the bulk of this work has been reductionist and has failed to recognize the intrinsically human feelings and desires that drive human sexuality. There remain critical gaps in our understanding of the physical, emotional, and social roles of sex and sexual relationships in MSMs lives. A surprising amount of research remains to be done to understand how sexual behavior among MSM is shaped by developmental influences (e.g., early sexual experiences, coming out, acceptance/rejection by family and friends, school environment and policies), self-concept and mental health aspects of sexuality (e.g., internalized homonegativity, body image, sexual compulsivity, erotophobia/erotophilia, social anxiety), formation and maintenance of primary partnerships, sexual relations within and outside of primary partnerships, and sexual satisfaction and physical function. In addition to these important issues, other key areas for future scientific inquiry, programmatic focus, and structural change are addressed in greater detail below.

Sexual Dysfunction in MSM

The prevalence of sexual dysfunction among MSM and its association with risk behavior have implications for improving sexual health and reducing HIV/STI transmission among MSM. Available data suggest that sexual dysfunction is common among MSM and that MSM may experience higher rates of some types of sexual dysfunction compared to other men, but these issues have not been adequately studied [34, 83–87]. A study of medical students, for example, found that more MSM students experienced erectile dysfunction than did other male students (24% vs. 12%) [83]. Erectile dysfunction and the use of drugs to treat erectile dysfunction are associated with sexual risk and HIV/STI acquisition among MSM [88–91]. Sexual compulsivity and other measures of sexual dysfunction have also been linked to sexual risk behavior among MSM [34, 87, 92–96]. MSM living with HIV experience especially high rates of sexual dysfunction [87, 91, 97–100], and sexual dysfunction in this population has been associated with poorer adherence to HIV treatment [101] and HIV/STI transmission risk behavior [87, 91]. Taken as a whole, these findings suggest the possibility that better understanding and addressing underlying psychological and physical causes of sexual dysfunction among MSM might improve sexual health, reduce high-risk sexual behavior, and help reduce STI and HIV infections. This is an important and legitimate area for future scientific inquiry.

Health Care Provider Training in MSM Health

There is a need for increased effort to train and support health care providers in the provision of appropriate sexual health services for MSM [102]. Some MSM delay seeking HIV/STI services because they are uncomfortable with their own homosexuality; they are reluctant to disclose their sexual orientation; or because they have received judgmental or suboptimal health care services in the past [26–28, 103–105]. These negative experiences likely result from the discomfort, negative attitudes, and low self-efficacy that a minority of health care providers has with regard to treating gay or bisexual patients [106–108]. Too many health care providers fail to provide recommended sexual health screening tests and avoid talking about sexual health issues with MSM patients, even those patients who are living with HIV [26, 103, 109–113]. Providers need to be able to conduct sexual histories, conduct regular HIV/STI screening using samples collected from appropriate anatomical sites, and provide sexual health information in an accurate and nonjudgmental manner [104, 106]. In addition to increasing provider training in these areas, other strategies that may improve health care providers' ability to deliver appropriate services include creating health care settings in which MSM feel welcome, educating MSM about the services they should be receiving from their health care providers, and motivating MSM to ask for these services [105, 114–116].

Structural and Policy Change Efforts

The success of efforts to improve sexual health and reduce HIV/STI risk among MSM will also depend heavily on efforts to address the social and cultural environment within which MSM live, including efforts to address the damaging effects that a hostile social and political environment can have on MSMs mental, physical, and sexual health. Working to eliminate stigma and discrimination through efforts to reduce homophobia in the general public and in schools, providing comprehensive sex education in schools that is appropriate for both heterosexual and homosexual students, ensuring that laws and policies promote the basic human rights of MSM and protect them from hate crimes, educating and supporting parents of young gay, bisexual men or those who are questioning their sexual identity, providing MSM with equal access to health insurance, and legally recognizing long-term relationships of MSM are important structural and policy changes that would likely improve the long-term sexual health of MSM and reduce HIV/STI disease burden.

Public Health Strategies for MSM Sexual Health: What's Ahead

CDCs National Center for HIV, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) recognizes the potential value of an integrated approach to sexual health for MSM and all Americans. NCHHSTP supports a wide range of surveillance, research, and evidence-based programs to monitor and improve the health of MSM (Table 1) and has launched an MSM health website (www.cdc.gov/msmhealth) to facilitate the access of MSM and health care providers to information and recommendations about issues that affect MSM health. NCHHSTP is committed to reducing HIV and STI transmission and held a consultation in April 2010 to review the evidence regarding the potential benefits of a sexual health approach to achieving this goal and to obtain expert input on the development of a public health approach for advancing sexual health in the United States [36, 117]. At this meeting, the consultants emphasized the need to expand evidence-based approaches to sexual health in the United States and identified multiple potential benefits of such an approach to improving health and preventing HIV and STIs among sexually active men, women, and adolescents, including MSM.

NCHHSTP is currently developing guidance that provides specific recommendations for improving sexual health among gay, bisexual, and other MSM. These include: (1) expanding engagement of key partners (including the gay community, health departments, national and community-based organizations) on sexual health issues, (2) improving the collection, analysis, and timely reporting of data regarding HIV/STI transmission and sexual health among MSM, (3) expanding evidence-based interventions aimed at reducing HIV/STI transmission among MSM and improving sexual health, and (4) rigorously evaluating the effectiveness of interventions designed to improve the sexual health of MSM.

Sadly, the public health response to the sexual health problems of MSM has not always been what it should have been to protect and improve community health. As a result, the scale and effectiveness of the response to the HIV epidemic and other STIs among MSM has not always been sufficient and many infections that could have otherwise been prevented have occurred. There is an urgent need for individual MSM, the gay community, national organizations, and government at the local, state, and federal levels to look critically at the sustained increases in HIV/STI infections, rapidly expand our collective efforts to improve the sexual health of MSM, and demand accountability and demonstrable results from these efforts.

Table 1 Selected CDC activities to improve the sexual health of MSM

| Activity | Description |
|---|---|
| Act Against AIDS Campaign | This 5-year \$45 million campaign includes multiple phases that are directed to all Americans and those at increased risk for HIV. It includes an Internet-based campaign to promote HIV testing among African American MSM and future phases designed for MSM of all races/ethnicities. See www.ActAgainstAIDS.org |
| Behavioral HIV Prevention Research | CDC supports a range of behavioral research to develop and test interventions that reduce HIV risk behavior among MSM. These include research to develop and test in-person, mobile phone-based and Internet-based interventions with at-risk MSM including African American MSM, Latino MSM, and methamphetamine- and other substance-using MSM |
| Biomedical HIV Prevention Research | Recent research supported by CDC has demonstrated that HIV-negative MSM can safely take HIV medication on a daily basis, which has the potential to prevent infection with HIV (pre-exposure prophylaxis). CDC laboratory research with macaques has demonstrated the ability of HIV medication to prevent infection with a simian form of HIV (SHIV) after rectal exposure to HIV |
| Diffusion of Effective Behavioral Interventions (DEBI) | The DEBI project brings effective science-based HIV prevention to community-based organizations and health departments around the United States. More than 5,000 agencies have been trained to deliver effective interventions including ones for at-risk MSM, MSM living with HIV, African American MSM, young MSM, and non-gay-identified MSM. See www.effectiveinterventions.org |
| Evaluation Projects | CDC is conducting special evaluation projects to assess the real-world outcomes of DEBI interventions that are delivered by community-based organizations. This project includes evaluation of interventions for young MSM, Black MSM, and MSM (and others) living with HIV |
| HIV Prevention for Young MSM and Young Transgender Persons of Color | This program supports 29 community-based organizations across the United States to provide effective HIV prevention services to young MSM and transgender persons of color and their partners who are at high risk for acquiring or transmitting HIV |
| Improving HIV Testing Programs for MSM | This four-site project is evaluating the cost effectiveness of three different strategies for reaching and providing HIV testing to MSM to identify undiagnosed HIV infection and refer HIV-diagnosed MSM to appropriate medical care and treatment |
| MSM Health Website | This website, which is part of CDC.GOV, provides information and recommendations to gay, bisexual and other MSM about issues that affect their general and sexual health. See www.cdc.gov/msmhealth |
| MSM Prevalence Monitoring Project | Enhanced STI surveillance data are collected by sexually transmitted disease clinics in 8 US cities to assess syphilis, gonorrhea, chlamydia, and HIV infections among MSM |
| National HIV Behavioral Surveillance | This 21-city project collects data on HIV risk behavior and provides HIV testing to assess HIV prevalence and awareness of HIV status. Data are collected every 3 years in community venues frequented by MSM |

Additional information about CDC programs for MSM is available at: www.cdc.gov/msmhealth/msm-programs.htm

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