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Original article

## Sexual Behaviors and Risk for Sexually Transmitted Infections Among Teenage Men Who Have Sex With Men

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### A B S T R A C T

**Objectives:** To report on sexual behaviors and sexually transmitted infections (STIs) among men who have sex with men (MSM) in their teens, when many MSM engage in their first sexual experiences.

**Methods:** MSM aged 16 to 20 years were recruited via community and other sources. Men completed a questionnaire about their sexual behaviors and were screened for gonorrhea, chlamydia, syphilis, and HIV.

**Results:** Two hundred men were included. The median age was 19 years. The median age at first insertive or receptive anal intercourse was 17 years. Half of men reported sex with mainly older men: these men were more likely to engage in receptive anal intercourse (48% vs. 25%,  $p < .001$ ) than other men. Most men had engaged in insertive (87%) and receptive (85%) anal intercourse in the prior 12 months with 60% and 53% reporting inconsistent condom use with insertive and receptive anal intercourse partners, respectively. The median number of insertive anal intercourse partners was 3 and 1.5 ( $p < .001$ ) among men reporting inconsistent and consistent condom use with insertive anal intercourse over the prior 12 months. The median number of receptive anal intercourse partners was 3 and 2 ( $p = .006$ ) among men reporting inconsistent and consistent condom use with receptive anal intercourse over the prior 12 months. Pharyngeal gonorrhea, rectal gonorrhea, urethral chlamydia, rectal chlamydia, and syphilis were detected in 3.0%, 5.5%, 3.0%, 4%, and 2.0% of men, respectively. All men were HIV negative.

**Conclusion:** Many of the teenage MSM in this study were at risk for STI. Preventative messages and STI screening interventions that are age appropriate need to be developed to reduce HIV and STI risk in this under-recognized group.

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### IMPLICATIONS AND CONTRIBUTION

This study is significant as it is one of the first to date to elucidate among teenage men who have sex with men (MSM): (1) age at first sexual behavior of each type, with both men and women; (2) detailed sexual behaviors implying risk for sexually transmitted infections (STIs) and HIV; and (3) detection of STIs.

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Many men who have sex with men (MSM) engage in sexual behaviors that place them at high risk for STIs, including HIV [1–5]. Globally, infections such as gonorrhea, chlamydia, syphilis, and HIV continue to be diagnosed at high rates among MSM [6–8]. Bacterial and viral STIs facilitate HIV transmission and are mostly asymptomatic, requiring frequent screening for optimal detection [5,9–11].

Over time, the age at first anal intercourse reported by MSM in Australia and presumably elsewhere has fallen [12]. Some studies have suggested that in some countries younger MSM may be at higher risk for HIV infection than older MSM. In a study conducted in two large cities in China, MSM aged 18–24 years accounted for 58% of all HIV cases detected in a sample of 429 MSM aged 18–64 years [8]. In the United States, teenage and young MSM have accounted for an increasing proportion of new HIV cases [13]. Among U.S. males aged 13–19 years, around 90% of all new HIV diagnoses are from male-to-male sexual contact [13]. Limited data suggest that teenage and young MSM may account for a significant proportion of newly reported STI cases among MSM. For example, MSM aged 29 years or younger in South Australia accounted for 49% of chlamydia cases, 52% of gonorrhea cases, and 21% of syphilis cases [14].

The Australian National Secondary Students and Sexual Health survey showed that among final year school boys: 8% had a same-sex partner in their most recent sex and 30% did not use a condom during their most recent sexual intercourse [15]. However, data on sexual behaviors specifically among teenage MSM are scarce. Existing literature mostly contains information on MSM aged in their 20s rather than those of teenagers or adolescents [8,14,16]. This study aimed to describe the sexual behaviors among teenage MSM in Melbourne, Australia.

## Methods

### *Subjects and recruitment*

Men in this study were participants in the Human Papillomavirus in Young People Epidemiological Research (HYPER) study, which aimed to examine human papillomavirus (HPV) infection among teenage MSM. To be eligible for the study, participants had to be males aged between 16 and 20 years who self-identified as same sex attracted. Details on methods for recruitment have been reported elsewhere [17]. Briefly, men were recruited between September 2010 and August 2012 via community organizations and social groups targeting teenage gay males (such as Minus 18), gay clubs at several Melbourne universities, gay community events (such as the MidSumma Gay and Lesbian Festival), and other venues.

A self-administered questionnaire was used to collect information on demographics, detailed sexual behaviors, and condom use as well as self-reported STI testing history. Men were also screened for urethral and rectal chlamydia by strand displacement assay and pharyngeal and anal gonorrhea by culture. Blood was obtained for hepatitis A and B, syphilis, and HIV serology.

Limited data on sexual behaviors from men in the HYPER study have previously been presented as they relate to prevalence of HPV among men in the study [17]. In this article, we present additional detailed data on sexual risk

behaviors among study participants. Consistent condom use was defined as always using a condom with all insertive/receptive anal sex partners, and inconsistent condom use as not using a condom all the time with any insertive/receptive anal sex partners.

### *Statistical analysis*

Sample characteristics were compared using descriptive statistics. Median and interquartile ranges (IQRs) were used for age at first individual sexual behaviors, number of sexual partners, and time since individual sexual behaviors first occurred. Proportions and corresponding 95% confidence intervals (CIs) were calculated for the prevalence of positive STI test results. The chi-squared test was used to compare the proportion of men engaging in receptive anal intercourse between men whose male partners were mostly older and all other men. The rank-sum test was used to compare the number of sexual partners in the past 12 months between men reporting consistent and inconsistent condom use in anal/vaginal intercourse. The rank-sum test was also used to test whether men who mostly had sex with older partners started insertive or receptive anal sex earlier than other men. Kaplan–Meier survival curves were used to present the cumulative proportion of men who reported first engaging in specific sexual behaviors by age. Statistical analyses were conducted using STATA 12.0.

### *Ethics and consent*

The study was approved by the Alfred Hospital Research Ethics Committee (project number 174/10) and the University of Melbourne Ethics Committee (project ID 1034462). Written informed consent was obtained from each participant. For the consent of minors (16- to 17-year-olds), an assessment of competency to participate in the study was undertaken by the research nurse. The HYPER study was also registered on The Australian New Zealand Clinical Trials Registry (ACTRN12611000857909).

## Results

### *Participant characteristics*

Two hundred males recruited in Melbourne, Australia, were included in the study. The median age was 19. Most men (137, 68.8%) were in the final year of their secondary school education at the time of recruitment. Sixty-four percent (127 of 198) of men were recruited from sexual health or general practice clinics and 36% (71 of 198) from community organizations and events.

### *Sexual experiences*

*Age at first sex.* The age at which men first engaged in specific sexual behaviors with men and women are listed in Table 1, respectively. The median age at first insertive oral sex and first receptive oral sex with men was 16 years. The median age at first insertive anal intercourse and first receptive anal intercourse with men was, later, at 17 years. The median age at first oral sex and first vaginal intercourse with women was 16 years.

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