

Rates of Testing for HIV in the Presence of Serodiscordant UAI Among HIV-Negative Gay Men in Committed Relationships

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Abstract We examined testing rates for HIV-negative men ($N = 752$) from a sample of gay male couples. Approximately half (52 %) tested in the past year. Among men who had engaged in sexual risk behavior in the past 3 months, 27 % tested within that period and 65 % within the past year. For men in concordant relationships these rates were 25 and 60 %, for men in serodiscordant relationships they were 34 and 72 %. MSM in primary relationships are testing at lower rates than the general MSM population, even after potential exposure to HIV. Testing and prevention messages for MSM should factor in relationship status.

Resumen En este artículo examinamos tasas de testeo para hombres VIH negativos ($N = 752$) de una muestra de parejas de hombres gay. Aproximadamente la mitad (52 %) de los hombres se había hecho la prueba del VIH en el último año. Entre los hombres que habían tenido comportamientos sexuales de riesgo en los últimos tres meses, un 27 % se había hecho la prueba dentro de ese período y un 65 % dentro del último año. Para los hombres en relaciones concordantes las tasas de testeo eran de 25 % y 60 %, mientras que para hombres en relaciones discordantes eran de 34 % y 72 %. Las tasas de testeo para el VIH en HSH en relaciones primarias son menores que para la población general de HSH, aun después de exposición potencial al

VIH. Los mensajes de prevención y tratamiento dirigidos a HSH deben tomar en cuenta si estos están o no en una relación de pareja.

Keywords Gay male couples · HIV testing · MSM · Committed relationships · Unprotected anal intercourse

Introduction

Three decades into the epidemic, in the US, HIV continues to overwhelmingly impact men who have sex with men (MSM); by transmission category, the majority of HIV diagnoses is among non-drug-injecting MSM [1]. Approximately one in five MSM is infected with HIV and nearly half (44 %) of those infected MSM are unaware of their infection [2]. Persons unaware of their infection are 3.5 times more likely to transmit HIV than persons who are aware [3]. Conversely, most reduce their risk behaviors after learning of their HIV-positive status [4], and each averted infection saves substantial resources in lifetime medical costs [5]. Unfortunately, non-optimal late diagnoses, defined as AIDS diagnosis within 12 months of initial HIV diagnosis, still comprise a third of all HIV diagnoses [1].

In view of this critical role that timely awareness of HIV-positive serostatus plays in halting the spread of HIV, one target of the United States National HIV/AIDS Strategy is to increase the percentage of HIV-positive serostatus-aware persons in the general population from 79 to 90 % by the year 2015 [6]. Adequate testing for HIV is the cornerstone to achieve this target. The CDC recommends that sexually active MSM get tested for HIV at least annually or more often if they are at increased risk [7], but a recent report suggests that a more frequent interval of 3–6 months may be more appropriate [8].

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Historically, the majority of HIV prevention research with MSM has been conducted among individuals, however, the importance of studying gay couples as a distinct subgroup among MSM is emerging. Multiple studies have highlighted that most HIV transmissions among MSM occur within steady relationships from one's primary partner [9–11]. One possible reason could be that the strategies that gay couples use to manage their risk for HIV, work effectively with casual partners but fall short in protecting the primary partners from acquiring the virus from each other [12]. Another reason could be that due to the interplay of various interpersonal and relationship factors, men in committed relationships require prevention strategies that factor in their non-single status [13, 14].

Due to the lack of information about HIV testing among HIV-negative gay men in committed relationships, the aim of the current analyses is to investigate the HIV-testing behavior in the presence of sexual risk-taking in this population. The data are from a larger study of gay couples aimed at exploring relationship-based predictors of sexual risk behavior. We expect that our findings will highlight the need for focused HIV-testing interventions for gay male couples.

Methods

Eligibility and Recruitment

We recruited 566 gay male couples from the San Francisco Bay area between June 2005 and February 2007 using active and passive recruitment strategies at community venues. To be eligible, both partners had to be at least 18 years old, have been in the relationship for at least 3 months, know their own and their partner's HIV status and be fluent in English. The resulting sample consisted of couples of all three serostatus groups—concordant HIV-negative, serodiscordant and concordant HIV-positive—as well as all agreement types. Each partner of the eligible couples provided written informed consent, took an ACASI (Audio Computer-Assisted) survey independently and privately at the study offices, and was paid \$40 as incentive. The present findings are from the 752 HIV-negative gay men in the sample belonging to concordant HIV-negative and serodiscordant relationships.

Measures

Demographic information recorded included age, length of the relationship, race/ethnicity, education level, annual income and employment status. Participants also reported about various aspects of their health including sexually transmitted diseases (STDs).

Agreement Type

Participants' responses about the type of their sexual agreement were used to create two couple-level agreement categories: (i) monogamous agreements, where both partners reported their agreement as not allowing sex with outside partners, and (ii) non-monogamous agreements, where both partners either reported their agreement as allowing sex with outside partners, or where the two partners provided discrepant reports about the type of their agreement with one partner reporting their agreement as monogamous and the other partner reporting it as open.

Participants reported the *date of their last HIV test*

HIV serostatus was determined by self reports of the result of the participants' last HIV test.

Sexual Behavior

Participants were queried in detail about their sexual behavior in the past 3 months. The questions asked about the number of episodes of anal sex they had with their primary partner as well as with outside partners of HIV-positive, HIV-negative and unknown serostatus. The questions asked about insertive and receptive anal sex, with and without ejaculation, and with and without condoms. Using these responses about anal sex as well as the participant's and his primary partner's serostatus reports, we created two separate risk variables: the counts of unprotected anal intercourse (UAI) with the HIV-positive primary partner (UAIPP) and the counts of UAI with an outside partner of discordant or unknown serostatus (UAIOUT). Further, each of these risk variables was dichotomized into zero episodes of UAI and at least one episode of UAI in the past 3 months.

Data Analyses

Descriptive statistics for the sample were first generated. The elapsed time between the men's reported latest HIV test date and the survey date was calculated in months. For the purpose of reporting, this time interval was categorized into less than 3 months prior to the survey date, between 3 and 6 months prior, between 6 months and 1 year prior, between 1 and 2 years prior, more than 2 years prior, and the response "Don't know". The participants were categorized based on their sexual risk behavior into: all those who had UAIOUT, those in concordant negative relationships who had UAIOUT, and finally, those with a HIV-positive partner who had either UAIPP or UAIOUT. Frequencies were calculated for the overall sample and for each of these subgroups of men, for the time-since-last-test

categories. At the couple-level, frequencies were calculated for UAIOUT by couples' serostatus and the time since last HIV test for the partners was examined. All analyses were conducted using SAS V9.2.

Results

The majority (68 %) of participants self-identified as White while others identified as Hispanic (11 %), Asian/Pacific Islander (9 %), Black (6 %) and other race (6 %). The median age was 39 years (Range: 18–83 years; Mean: 40.8 years) and the median relationship length was 4 years (Range: 3 months–48 years; Mean: 7.4 years). While only 12 % reported educational attainment of a high school diploma or less, almost half (47 %) reported annual incomes below \$40,000. Approximately half (48 %) of the men reported having a monogamous agreement. The majority (83 %) were members of concordant negative couples. Over a third of the sample (36 %) had never had an STD and 43 % had not had one in the past 12 months. Among the remaining 22 % who reported at least one STD in the past 12 months, herpes was the most common (9.5 %), followed by gonorrhea (6.3 %), warts (5.4 %) and chlamydia (3.3 %).

In the overall sample, the mean time since last test was 22 months (Median = 9 months) with 52 % getting tested in the past year while 10 % didn't know when their last test was (Table 1). Among men who reported at least one episode of UAI with an outside partner of discordant or unknown serostatus within the past 3 months (UAIOUT), 27 % tested in the past 3 months and a total of 65 % tested within the past year. Among men in concordant negative relationships who had UAIOUT, 25 % tested within the past 3 months, and a total of 60 % tested within the past year. Finally, among men in serodiscordant relationships

who reported having UAI with their HIV-positive primary partner in the past 3 months or had UAIOUT, 34 % tested within the past 3 months and a total of 72 % tested within the past year. This last subgroup of men reported the shortest elapsed time since the last test (Mean = 9 months, Median = 5 months).

Among the concordant HIV-negative couples 84 % had not had UAIOUT (data not shown in table); one partner reported UAIOUT in 13 % of these couples and both partners reported UAIOUT in 3 % of these couples. Among this last group, the time since last test varied widely, for instance, from both partners getting tested in the past 3 months, to one partner getting tested over 3 years ago and the other in the past 3 months, to both partners getting tested over 5 years ago.

Discussion

HIV testing is the first step towards early detection and linkage to appropriate care and thereby towards reduction in transmission for those uninfected and a better quality of life for those infected. In a nationwide sample of MSM who did not report a previous positive HIV test, 61 % reported getting tested in the previous 12 months (of whom 7 % received a new, HIV-positive test result when retested for that survey); and 44 % of men with high-risk behaviors reported getting tested in the past 6 months [8]. In contrast, in our present sample of HIV-negative men in committed relationships, only half got tested within the previous 12 months. This is also lower than the 65–72 % of MSM in San Francisco who reported getting tested in the past 12 months [15] where the unrecognized infection rate is estimated to be 19 % [16]. Even more alarming is the finding that among those who engaged in risky sex in the past 3 months, small proportions got tested in the same

Table 1 Time (in months) since last HIV test for HIV negative men in different subgroups

Group	<i>N</i>	Mean	Median	Range		≤ 3 months	3–6 months	6 months–1 year	1–2 years	2+ years	Don't know
All men in the sample	752	21.6	8.7	0–257.9	%	20 %	15 %	17 %	16 %	22 %	10 %
					<i>n</i>	154	112	128	118	162	78
Men who had UAIOUT ^a	79	15	5.7	0.1–127.6	%	27 %	23 %	15 %	15 %	14 %	6 %
					<i>n</i>	21	18	12	12	11	5
Men in concordant negative relationship who had UAIOUT	60	17.1	5.8	0.1–127.6	%	25 %	23 %	12 %	15 %	17 %	8 %
					<i>n</i>	15	14	7	9	10	5
Men in sero-discordant relationship who had UAIPP ^b or UAIOUT	65	9.3	4.8	0.2–72.2	%	34 %	23 %	15 %	14 %	9 %	5 %
					<i>n</i>	22	15	10	9	6	3

^a UAIOUT—UAI with an outside partner of discordant or unknown serostatus in the past 3 months

^b UAIPP—UAI with HIV-positive primary partner in the past 3 months

period. For instance, only one-third of the men in discordant relationships and only a quarter of the men in concordant negative relationships who had UAI with a discordant or unknown status partner within the 3-month period prior to the survey got tested in that time frame. It appears from this, that men in serodiscordant relationships are more sensitive to the need for prompt testing in the presence of sexual risk behavior. While the number of concordant HIV-negative couples where both partners reported sexual risk behavior is too small to draw generalized conclusions, only one couple among them got tested in the period of exposure.

It is unclear why so few men got tested after potential exposure to HIV. HIV-negative men in longer term serodiscordant relationships, may have, over time, adapted a combination of risk reduction strategies such as viral load monitoring of HIV-positive partners, strategic positioning and withdrawal and therefore don't necessarily test after having UAI. Among men in concordant HIV-negative relationships the reasons for inadequate testing are not self-evident. Perhaps they too use risk reduction strategies and thus perceive being less susceptible to HIV. It is known that, to be able to have UAI with each other, many HIV-negative couples have monogamous agreements or agreements about condom use with outside partners, which may provide a sense of security and diminish the perceived need or urgency to get tested. However, if either partner has UAI with outside partners, this type of 'negotiated safety' loses its effectiveness.

One of the strengths of these findings is that they come from a sample of gay couples as opposed to single gay men who are the focus of most MSM research. Further, in contrast to surveillance data, we were able to highlight the testing behavior of men in the presence of one or more episodes of risky UAI in the recent past. The sample was large and diverse, both in terms of race/ethnicity and socioeconomic markers, and composed of couples with both monogamous and non-monogamous agreements as well as both concordant HIV-negative and serodiscordant relationships. Tempering our findings are limitations that include a non-probability sample that may not be representative of all gay couples, and self-reported data that are subject to recall biases. Additionally, social desirability bias, while reduced by the use of ACASI, could have still lead to underreporting of sexual risk and a more favorable reporting of date of most recent HIV test; however, both of these possibilities would make the findings more conservative. Since it was not a focus of the parent study, we do not have data on motivations and barriers to testing or the context within which gay men in relationships decide for or against testing. Finally, it is possible that with a median relationship length of 4 years, our sample is more representative of gay couples in longer-term relationships and as

such the present results may or may not directly apply to younger individual gay men who are more often the subjects of periodic surveillance. Similar investigations are needed with other independent samples of gay male couples with shorter and longer relationships in order to draw more generalizable conclusions about the lack of prompt testing in the presence of sexual risk behavior with primary as well as outside partners.

HIV testing and prevention strategies for HIV-negative gay men in committed relationships should be specifically designed to utilize the interplay of the couples' relationship dynamics. Efforts have been made to conduct couples-based counseling and testing for HIV for gay male couples in the US [17]. But given the high prevalence of new infections among men who have tested in the past year [8], the high rate of seroconversions that occur within primary relationships [9–11] and clear delays in testing even in the presence of sexual risk behavior, additional research into the testing habits and needs of HIV-negative men in primary relationships should be a priority. Testing recommendations should put a stronger emphasis on testing more frequently, independent of perceived risk behaviors. We believe our findings shed light on a hitherto unknown dimension of MSM behavior that should receive its due importance in the re-focused fight [6] against HIV.

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