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### Are HIV drug advertisements contributing to increases in risk behavior among men in San Francisco, 2001?

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In winter 2001, we quantified exposure to HIV medication direct-to-consumer advertising and its relationship to attitudes and behaviors among sexually transmitted disease clinic attendees. We

found that homosexual men frequently saw HIV medication advertisements. HIV-positive homosexual men with greater advertisement exposure believed HIV was a less serious disease. Men believed these advertisements influenced an individual's decision to have unprotected sex. HIV-positive homosexual men with greater advertisement exposure may be more likely to have unprotected anal intercourse.

Several studies have suggested that HIV treatment optimism may play a role in increasing the rates of unsafe sex among gay men and men who have sex with men [1-4]. Whereas direct-to-consumer (DTC) advertising campaigns for antiretroviral HIV drugs strive to increase the awareness of the potential benefits of HIV therapy, there may be untoward effects of this DTC advertising. A recent publication described 'what Americans are being sold in direct-to-consumer (DTC) advertisements for prescription drugs', but failed to quantify the effects that DTC advertisements may have in specific populations [5]. We sought to quantify these effects in a population with potential high exposure to certain DTC advertising, and measured the relationship between exposure and reported attitudes and behaviors.

From February to July 2001, we surveyed men attending the San Francisco municipal sexually transmitted disease (STD) clinic regarding sexual practices, HIV status, exposure to HIV pharmaceutical advertisements and attitudes towards the seriousness of HIV and a decision to have unprotected sex. The survey was an anonymous, self-administered convenience sample of 997 men, 53% of whom were heterosexual. We compared results between heterosexual ( $n = 527$ ) and homosexual men ( $n = 466$ ) and between homosexual men by HIV status (HIV negative 300; HIV positive 75) by frequency of exposure to HIV pharmaceutical advertisements. We defined seeing advertisements at least weekly as frequent exposure versus monthly, rarely or never seeing advertisements as infrequent exposure. The mean age of respondents was 32 years, 49% were white and 84% had completed at least some college education.

Among homosexual men, 76% reported seeing HIV drug advertisements that portrayed men who are healthy, handsome and strong either daily or weekly versus only 38% in heterosexual men ( $P < 0.05$ ). Whereas the frequency of exposure did not appear to affect men's belief in the seriousness of HIV by sexual orientation, HIV-positive homosexual men who saw advertisements at least weekly were six times more likely to believe that HIV was less serious compared with HIV-positive homosexual men who saw advertisements less frequently (36 versus 6%,  $P < 0.03$ ).

Regardless of sexual orientation, those with more

frequent exposure to the advertisements were more likely to agree that the advertisements affected an individual's decision to have unprotected sex compared with men with less exposure (63 versus 42% in homosexual and 69 versus 56% in heterosexual men,  $P < 0.01$ , respectively). In addition, among HIV-positive homosexual men with frequent advertisement exposure, 58% reported that these advertisements affected an individual's decision to have unprotected sex versus only 13% in those less frequently exposed ( $P < 0.01$ ).

Finally, we found no difference between homosexual and heterosexual men in reported unprotected vaginal or anal sex by advertisement exposure. Within homosexual men, however, HIV-positive respondents with frequent advertisement exposure more often reported unprotected anal sex compared with HIV-positive respondents with infrequent exposure (27 versus 17%,  $P < 0.4$ ).

We concluded that during the survey period homosexual men in San Francisco seen at the municipal STD clinic were frequently exposed to HIV pharmaceutical advertisements. HIV-positive homosexual men with greater exposure to the advertisements believed that HIV is a less serious disease, and both heterosexual and homosexual men believed that these advertisements influence an individual's decision to have unprotected sex. Finally, HIV-positive homosexual men with greater exposure to these advertisements may be more likely to engage in unprotected anal intercourse.

This study demonstrated that DTC HIV pharmaceutical advertising affects health beliefs at the population level and may influence individual behaviors. Subsequent to the preliminary report of these data, the Food and Drug Administration issued an advisory letter to HIV pharmaceutical manufacturers instructing them to change DTC materials to convey that HIV medications neither cure HIV infection nor reduce its transmission, and that individual medications must be taken only in combination with other drugs for HIV infection. Furthermore, the Food and Drug Administration letter stated that the images used in DTC promotional activities must be generally representative of patients with HIV infection and must not minimize significant side-effects.

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### Risk of HIV infection attributable to oral sex among men who have sex with men and in the population of men who have sex with men

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**We examined HIV infection and estimated the population-attributable risk percentage (PAR%) for HIV associated with fellatio among men who have sex with men (MSM). Among 239 MSM who practised exclusively fellatio in the past 6 months, 50% had three partners, 98% unprotected; and 28% had an HIV-positive partner; no HIV was detected. PAR%, based on the number of fellatio partners, ranges from 0.10% for one partner to 0.31% for three partners. The risk of HIV attributable to fellatio is extremely low.**

Since HIV was identified as being sexually transmitted, there has been considerable interest in the risk associated with performing fellatio. Although early studies found no independent risk for fellatio, the high correlation among multiple sexual practices raised the possibility that risk existed but could not be detected. Subsequently, case reports accumulated, largely among men who denied other risk behaviors [1]. Researchers acknowledged that fellatio, although not an efficient route of infection, nonetheless appeared to carry a small risk. Two studies provided quantitative estimates of the low risk among men who have sex with men (MSM) [2,3]. One [3] estimated the per-contact risk of unprotected fellatio with an HIV-positive or unknown HIV status partner [4/10 000; 95% confidence interval (CI) 0.01%, 0.17%] to be lower than the per-contact risk of acquiring HIV from protected receptive anal intercourse (RAI) (0.18%; 95% CI 0.10%, 0.28%).

Current 'safe sex' guidelines specify that unprotected orogenital sex is unsafe but low risk. A recent study of

primary infection of HIV-positive men. This finding, in many as 8% attributable to these conflicting data, asks for greater attention-attributable interest, because in a substantial

We present preliminary results of an ongoing investigation of the impact of (i) that study analyses using the PAR% of extremely low

From December 1998 to February 1999, HIV testing in San Francisco was required for men who have sex with men in the past 6 months and who had not been injected drugs in the past 6 months or one male partner

HIV test survey was conducted using the following practices. Post-test counseling was provided to determine the need for enzyme immunoassay (EIA) and a sensitive/less sensitive EIA [6] to identify HIV infection. The estimated risk of HIV infection was estimated using the formula  $p(RR - 1) / RR$ , where  $p$  is the exposure prevalence,  $RR$  is the relative risk estimate of HIV infection, and  $p$  is the prevalence of HIV infection used [2], and the risk of HIV infection was obtained from the results of the study of MSM.

The data collected from the study of MSM were used to estimate the risk of HIV infection among men who have sex with men. The results of the study of MSM are presented in Table 1. The results of the study of MSM are presented in Table 1.

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