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Acute HIV Infection Increases the Dangers of Serosorting

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Eaton and colleagues[1] found that self-identified HIV-negative men who have sex with men (MSM) who serosort (i.e., preferentially have sex with other men they believe are HIV-negative) had significantly more unprotected anal sex partners than did men who did not serosort. In theory, serosorting allows presumptively concordant HIV-negative couples to relax safer-sex requirements, because there is no risk of HIV transmission if both partners are, in fact, uninfected.

The effectiveness of serosorting as a risk-reduction strategy critically depends on accurate knowledge of one's own and one's partner's HIV status. Although all of the men in the Eaton et al. study self-identified as "HIV-negative," nearly 60% reported annual or less-frequent HIV testing, and the mean time since their last HIV test exceeded 14 months.

Importantly, even frequent HIV antibody testing cannot detect the presence of acute HIV infection. During acute HIV infection, which is the very brief—but highly infectious—period that begins shortly after viral acquisition and extends until the immune system mounts an effective antibody response, HIV antibody tests are nonreactive or indeterminate.[2] Consequently, persons with acute infection test HIV-negative on conventional antibody tests.

In a population of MSM with a 1% annual incidence of HIV infection and an average 14-month time between HIV tests, the prevalence of undiagnosed, chronic HIV infection would be expected to exceed 1%, and the prevalence of acute infection would equal 0.134%, assuming a 49-day period of acute HIV infection. Acute infection increases the likelihood of HIV transmission during anal intercourse by as much as a factor of 22 compared to chronic HIV infection.[3] Consequently, the risk of acquiring HIV through unprotected anal intercourse with a presumptively HIV-negative partner (who might be chronically or acutely infected) is equivalent to the risk associated with having unprotected sex with a partner drawn—without regard to his purported serostatus—from a population in which 1% + 22*0.134% = 3.95% of MSM are living with chronic HIV infection.

The findings of Eaton et al. suggest that many MSM who serosort do not appreciate the risk associated with this practice. Would they still choose to have unprotected sex if they knew that there was a 4% (or even 1%) chance that their ostensibly HIV-negative partner was, in fact, infected with the virus? The results of this simple modeling exercise provide quantitative support for their assertion that, "interventions for MSM who engage in sexual-risk behaviors need to [include] information about the shortcomings of serosorting."[1]

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