Non-condom use risk-reduction behaviours: can they help to contain the spread of HIV infection among men who have sex with men?

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In this issue of the journal, Jin *et al.* [1] report a detailed analysis of the association between sexual risk-reduction behaviours other than condom use and incident HIV infection in a cohort of HIV-seronegative men who have sex with men (MSM) in Sydney, Australia. Sexual risk-reduction behaviours that are studied here include 'serosorting', unprotected anal intercourse with HIV-seronegative partners only; 'negotiated safety', unprotected anal intercourse with HIV-seronegative primary partners only; 'strategic positioning', unprotected insertive anal intercourse and 'withdrawal', unprotected receptive anal intercourse without ejaculation. In a world where condom use during anal intercourse has been the cornerstone of HIV prevention among MSM, it is remarkable that all these risk-reduction behaviours include anal intercourse without condom use. This inevitably raises the question why the sexual behaviour identified as the primary driver of the HIV epidemic in MSM has become the central component of HIV risk-reduction behaviours employed by MSM.

The answer lies in how institutional and individual HIV-prevention strategies have evolved over the past 25 years. In the early years of the HIV epidemic, HIV prevention in MSM was based on the principle of 'risk-elimination'. Risk-elimination recommendations included a reduction of the number of sexual partners, avoidance of any unprotected anal intercourse and in some countries, avoidance of anal intercourse altogether. The latter resulted from worries about the extent to which MSM would adopt condoms, a pregnancy prevention method for heterosexuals, for use during anal intercourse between men. There was also concern about the suitability of condoms for anal sex in terms of strength and slipping and about the widespread use of oil-based lubricants for anal practices at the time. Because anal intercourse appeared to be too difficult to change [2], condom use soon became the norm in HIV prevention among MSM. Subsequent widespread changes in sexual behaviour resulted in a strong decrease in HIV transmission among MSM throughout the Western world [3].

Risk-elimination-based HIV prevention probably worked well until the mid-1990s when several social and medical developments started to affect safe sex adherence among MSM. Although it is likely that MSM have always practised risk-reduction behaviours to some extent (such as unprotected sex within the steady relationship only), after 10–15 years of exposure to similar HIV-prevention messages, men started to develop 'safe-sex fatigue', and began looking for alternative prevention strategies. At the same time younger generations of MSM arrived that had not personally experienced the devastating effects of AIDS in the MSM community in the early 1980s. Another factor with a more profound effect was likely the introduction of protease inhibitors and highly active antiretroviral treatment for HIV disease in 1996. The increased survival and subsequent strong drop in the number of AIDS cases caused many men to no longer view HIV infection as a

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death sentence but as a manageable chronic disease. When subsequent studies revealed that HIV-infected persons on highly active antiretroviral treatment developed undetectable viral loads and were much less likely to transmit HIV to their sexual partners than those with higher viral loads, a widespread re-evaluation of the risk of unprotected anal intercourse among MSM occurred. Risk for HIV infection was no longer seen as constant across partners, but varied according to certain conditions, such as partner characteristics (e.g. serostatus) or sexual position in anal sex (e.g. insertive versus receptive intercourse).

As the data from the study of Jin *et al.* [1] and several others show [4], MSM have increasingly adopted the concept of risk-reduction over the concept of risk-elimination. For several years there has been a scientific debate on the possible effectiveness of risk-reduction behaviours [5], but until now no solid data from prospective studies were available. The data reported by Jin *et al.* [1] show that compared to men who reported no unprotected anal intercourse, men who reported risk reduction behaviours were three times more likely to seroconvert, while men who reported no risk reduction behaviours were 10 times more likely to seroconvert. Compared to no unprotected anal intercourse, withdrawal was the least effective (five-fold risk), followed by serosorting (a possible two-fold risk, but not statistically significant), negotiated safety (no increased risk if fully adherent to the concept) and 'strategic positioning' (no increased risk). In summary we can say that with the exception of withdrawal and possibly serosorting, risk-reduction behaviours in this population of MSM were equally to somewhat less effective in preventing HIV infection than was no unprotected anal intercourse. Serosorting and negotiated safety require honest communication between partners who are accurately informed about their HIV status, whereas the effect of strategic positioning is supported by epidemiologic data indicating the decreased risk of insertive anal intercourse compared to receptive anal intercourse [6]. The risk of withdrawal during unprotected receptive anal intercourse has not been well documented, but this practice seems unreliable because of possible exposure to body fluids and cells, including those from untimely withdrawal and preejaculate.

From an epidemiologic viewpoint the results of the study by Jin *et al.* [1] are not surprising. What is more surprising is that despite the apparent high levels of unprotected anal intercourse in the Sydney MSM community, HIV-incidence rates in this city have remained low [7]. Jin *et al.* [1] suggest that this may be because of the fact that much of this unprotected anal intercourse was practised within the context of risk-reduction, particularly within the context of steady relationships [8].

Now, what are some of the conditions under which risk-reduction behaviours can help to stem the spread of HIV among MSM? First of all it is crucial that MSM have updated and accurate information about their HIV serostatus. Without such information, risk-reduction behaviours will not be effective. Second, HIV-seropositive MSM need to be willing to disclose their HIV serostatus. Disclosure of serostatus allows serosorting among HIV-seronegative and HIV-seropositive men, and encourages discordant couples to use condoms. Disclosure of serostatus will only be optimal if negative consequences, such as stigmatization and rejection, are minimal. Third, strategic positioning needs to be common, with HIV-seronegative men taking the insertive and HIV-seropositive men taking the receptive role in anal and oral sex.

If these conditions are met, risk-reduction behaviours are likely to have an effect, and this may well have been the case in Sydney. HIV-testing rates in Sydney are high [9], and the presence of a strong MSM community may reduce stigma and discrimination and foster a climate of open communication and responsibility. These conditions will certainly be different for many other groups of MSM, such as non-urban MSM, urban MSM of lower socio-economic status and MSM outside of the Western world. Thus, we need to be careful in generalizing the results of Jin *et al.* [1] for use in HIV-prevention programmes for MSM elsewhere. There is little doubt that many MSM around the world practice risk-reduction behaviours [4], but the current resurgence of HIV infection [10] suggests that overall, these practices have not been successful in slowing the spread of HIV among MSM. A detailed analysis of contextual factors in the Sydney MSM community may therefore help to further understand the conditions under which risk-reduction behaviours can help to contain the spread of HIV infection among MSM.

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