

Partner reduction is crucial for balanced “ABC” approach to HIV prevention

James D Shelton, Daniel T Halperin, Vinand Nantulya, Malcolm Potts, Helene D Gayle, King K Holmes

Behaviour change programmes to prevent HIV have mainly promoted condom use or abstinence, while partner reduction remains the neglected component of ABC

The key to preventing the spread of HIV, especially in epidemics driven mainly by heterosexual transmission, is through changing sexual behaviour. Interest has been growing in an “ABC” approach in which A stands for abstinence or delay of sexual activity, B for be faithful, and C for condom use (box).¹ Although “be faithful” literally implies monogamy, it also includes reductions in casual sex and multiple sexual partnerships (and related issues of partner selection) that would reduce higher risk sex. While most of the often polarised discussion surrounding AIDS prevention has focused on promoting abstinence or use of condoms,^{w1 w2} partner reduction has been the neglected middle child of the ABC approach.

Epidemiological importance of partner reduction

It seems obvious, but there would be no global AIDS pandemic were it not for multiple sexual partnerships. The rate of change of sexual partners—especially concurrent partners—is a crucial determinant in the spread of sexually transmitted infections,^{w3} including HIV.² Moreover, HIV viral load and therefore

ABC of sexual behaviour change

A = abstinence or delay of sexual activity
B = be faithful (including partner reduction and avoiding high risk partners)
C = condom use, particularly for high risk sex

infectiousness is dramatically higher during the early (acute) stage of HIV infection,³ so transmission would be particularly heightened by partner change among newly infected people. Transmission of HIV is also facilitated by the presence of other sexually transmitted infections, especially ulcerative ones.^{w4} Hence, increased risk of other sexually transmitted infections from multiple partnerships further magnifies the spread of HIV.

Role in HIV prevention successes

Partner reduction seems to have been pivotal to success in two countries heralded for reversing their HIV epidemics, Thailand and Uganda. Thailand’s “100% condom” approach in brothels is widely credited with reversing its more concentrated epidemic. However, this intervention was also followed by a striking reduction (about a twofold decline between 1990 and 1993) in the proportion of men who reported engaging in commercial and other casual sex.⁴⁻⁶

In Uganda, where the estimated prevalence of HIV in adults has fallen from about 15% to 5% during the past decade,⁷ each component of the ABC approach probably had an important role. However, the least recognised element, partner reduction, was perhaps the key.

It is difficult to reconstruct the events that occurred during the late 1980s and early 1990s, when the rate of new infections was falling in Uganda.^{5-7 w5} With respect to abstinence, Demographic and Health Surveys between 1989 and 1995 show that age at sexual debut increased by less than one year,⁶ and the proportion of single women aged 15-24 who reported sex during the previous year fell by about a third. Such changes were clearly important, but alone probably cannot account for the large national decline in HIV infection across all age groups.

In the same surveys, ever use of condoms increased from 1% to 6% for women, and by 1995 had reached 16% among men.⁷ In the 1989 and 1995 surveys conducted by WHO’s Global Programme on

Editorial by Wilson

Bureau for Global Health, US Agency for International Development, 1300 Pennsylvania Avenue, Washington, DC 20523-3700, USA

James D Shelton senior medical scientist, office of population and reproductive health
Daniel T Halperin senior technical adviser, office of HIV/AIDS

Global Fund for AIDS, Tuberculosis and Malaria, Geneva, Switzerland
Vinand Nantulya senior adviser

University of California, Berkeley 94720 USA

Malcolm Potts Bixby population professor

Bill and Melinda Gates Foundation, Seattle, WA 98102, USA

Helene D Gayle director of HIV, tuberculosis, and reproductive U

Center for AIDS and Sexually Transmitted Diseases, University of Washington, Seattle 98104, USA

King K Holmes director

Correspondence to: D Halperin dhalp@worldwidediaup.net

BMJ 2004;328:891-4

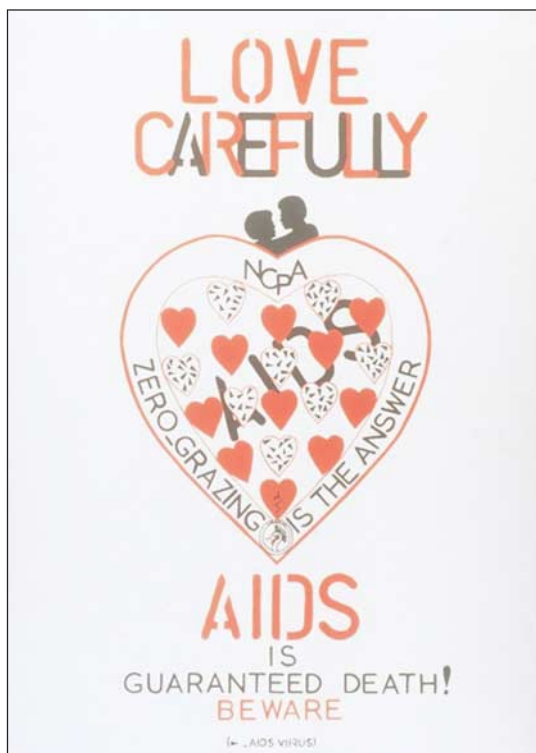


Fig 1 Poster from Uganda’s AIDS Control Programme in the late 1980s

References w1-w10 and a figure with data for Uganda are on bmj.com

AIDS, which sampled a more urban population, reported ever use of condoms was substantially higher, increasing from 7% to 20% in women and from 15% to 30% in men.⁶ Especially in such a generalised epidemic, however, these levels of condom use were still relatively modest, and ever use encompasses much more than the correct and consistent use of condoms required to prevent HIV infection.^{8,9} Therefore, although condom use probably contributed, it seems unlikely to account for the dramatic fall in HIV incidence in the late 1980s and early 1990s. By 2000, Uganda had one of the highest levels of reported condom use for non-regular partners in Africa,⁶ which probably supported the continuing stabilisation of the epidemic in the later 1990s.

But evidently even more important changes in sexual behaviour had occurred in Uganda. In the face of the then pervasive national campaign to encourage sticking to regular partners ("zero grazing," fig 1), reported multiple partner behaviour dropped noticeably. The Global Programme on AIDS surveys found that the proportion of men with one or more casual partners in the previous year fell from 35% in 1989 to 15% in 1995, and the proportion of women from 16% to 6%.⁵⁻⁷ Notably, the proportion of men reporting three or more non-regular partners fell from 15% to 3% (see bmj.com).⁶

Because people with large numbers of sex partners are most likely to spread sexually transmitted diseases, such changes are profound. Indeed, modelling of HIV interventions in rural Uganda suggests that such degrees of partner reduction could have had a substantial effect on incidence.^{10,16} Although a direct causal link cannot be definitively established between the campaign to promote monogamy and partner reduction, and the concomitant fall in the incidence of HIV, it seems likely that it was critical to the success in Uganda.^{5,7}

Other examples of partner reduction

Partner reduction has also occurred in other places. Many people, including gay men in Europe and the United States,^{1,5,11} seem to have responded to the threat of AIDS by reducing their number of partners. Demographic and health surveys in 29 developing countries in the 1990s asked individuals if they had done anything to avoid AIDS.⁷ Almost 80% of men and 50% of women reported that they had. The commonest reported change by far was restricting activity to one partner, followed by reducing numbers of partners, avoiding prostitutes, and adopting condom use. However, such survey findings were one time, retrospective responses, and therefore may not accurately represent changes in behaviour over time.

Other data provide more direct evidence of such behavioural change. Surveys from Cambodia, where prevention efforts seem to have reduced HIV infection,^{12,18} indicate the proportion of men who reported paying for sex has fallen greatly (fig 2).¹³ In Zambia, the prevalence of HIV reportedly fell among urban young women during the 1990s.^{6,12,14} At about that time there was a large reduction in casual and multiple partner sex^{6,15} in the presence of faith based and other grassroots efforts to promote delay of sexual

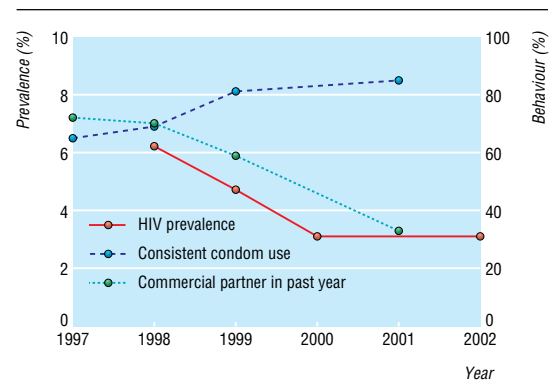


Fig 2 HIV prevalence and reported use of condoms and commercial sex among police in Cambodia, 1997-2002. The method for asking about condom use changed in 1999, which accounts for part of the increase from 1998 to 1999

debut among young people and monogamy for those who were sexually active. More recently, HIV prevalence has declined in Addis Ababa, Ethiopia,¹⁸ where large reductions in commercial and other casual sex have been reported among male factory workers.¹⁶ And in the Dominican Republic, where HIV also seems to have abated,^{12,17} men have reported partner reduction in addition to increased condom use with sex workers.

Implications for behaviour change programmes

Our analysis of the importance of partner reduction and monogamy rests largely on ecological and other observational evidence, including self reported behavioural findings. Nevertheless, the overall patterns and associations seem consistent and logical and suggest that partner reduction could have a major effect. Yet it is still given little attention in most HIV prevention programmes, despite its epidemiological importance and apparent behavioural "acceptability." We believe it is imperative to begin including (and rigorously evaluating) messages about mutual fidelity and partner reduction in ongoing activities to change sexual behaviour. Formative research should identify which changes are feasible for each audience, and programmes should then build on behaviour changes that people already seem willing to make.

Moreover, it seems important and feasible to promote monogamy and partner reduction alongside abstinence and use of condoms. People seem generally able to grasp that the root problem with HIV transmission is risky sex and adopt the behaviour that best fits their circumstances. We have a public health responsibility to help people understand the strengths and limitations of each component and not promote one to the detriment of another. For example, although abstinence may be a viable option for many young people, for others it may be an unrealistic expectation. Likewise, even though prospective studies have shown that condoms reduce risk by about 80-90% when always used,^{9,19} in real life they are often used incorrectly or inconsistently.^{8,9} They should therefore not be advertised in a manner that leads to overconfidence or risky behaviour.

Importantly, evidence from both Thailand and Uganda indicates not only that individual behaviour changed but also that group norms of behaviour were altered.^{5 7 18} In Uganda, a combination of explicit and repeated presidential pronouncements and the committed engagement of faith based organisations, the governmental apparatus, the military, the health system, and community based and mass communications—all in the context of the stark reality of people dying from AIDS—seem to have achieved a “tipping point” so that avoiding risky sex has become the community norm. This experience supports the need for reinforcing messages from multiple sources. In addition, most of the behaviour change approaches originated within Uganda (and similarly within Thailand),^{1 5 7} suggesting external assistance should reinforce such locally developed approaches.

Of course, HIV prevention must extend beyond the ABC approach. Other behaviour changes such as avoiding the particularly risky practice of unprotected anal intercourse are important,¹⁹ as are efforts to reduce risk from intravenous drug use, promote safe injection practices in healthcare settings, expand access to voluntary counselling and testing, and treat other sexually transmitted infections, especially in high risk populations. In addition, it is imperative to continue efforts to develop an effective AIDS vaccine, develop safe microbicides so that women can directly lower their risk, explore increased availability of male circumcision,^{20 w10} and remain open to other new tools in the fight against the pandemic. How all these components are optimally promoted and deployed depends on many factors, including the stage and nature of a given epidemic and the particular subpopulations at risk. Additional research is necessary to maximise the impact of partner reduction and other interventions. Rather than arguing over the merits of abstinence versus condoms, it is time for the international community to unite around a balanced, evidence based ABC approach.

We thank Bernard Branson, Martha Campbell, Ward Cates, Kate Crawford, Paul Delay, Nomi Fuchs, Edward Green, Douglas Kirby, Anne Peterson, William Phillips, Glenn Post, Jeff Spieler, and John Stover for their useful comments.

Contributors and sources: The authors are all experts in HIV prevention with long experience in the developing world, and VN was involved in the early AIDS prevention efforts in Uganda. The two principal authors, DH and JS, developed the original concept from their review of published and unpublished evidence on what epidemiological and programmatic factors seem to have contributed to successful HIV prevention outcomes, particularly in Africa and southeast Asia. The other authors contributed importantly in reformulating and revising the paper.

Competing interests: None declared.

“The horror of Slim [AIDS] is forcing people to change social habits ... In Bugolobi, a young housewife with three children declared, with a gleam in her eye, “My husband stays at home much more. And I encourage him to do so by enthusiastically keeping him informed of the latest gossip about Slim victims.”

New Vision newspaper, Kampala, Uganda, 1987 Oct 23:10

Summary points

Controversy in AIDS prevention has primarily centred on abstinence versus condoms

Meanwhile, partner reduction has had an important role in countries that have cut HIV infections

Locally developed behaviour change approaches are often most effective in altering social norms

Abstinence, monogamy, and condom use should be promoted in an evidence based, mutually supportive way

- Green E. A plan as simple as ABC. *New York Times* 2003 Mar 1.
- Garnett GP. The basic reproduction rate of infection and the course of HIV epidemics. *AIDS Patient Care STDs* 1998;12:435-49.
- Pilcher CD, Tien HC, Eron JJ, Vernazza PL, Leu SY, Stewart PM, et al. Brief but efficient: acute HIV infection and the sexual transmission of HIV. *AIDS* (in press).
- Mills S, Benjarattanaporn P, Bennett A, Pattalug RN, Sundhagul D, Trongsawad P. HIV risk behavioral surveillance in Bangkok, Thailand: sexual behavior trends among eight population groups. *AIDS* 1997;11(suppl 1):S43-51.
- Low-Beer D, Stoneburner RL. Behaviour and communication change in reducing HIV: is Uganda unique? *African J AIDS Res* 2003;2:9-21. www.hsph.harvard.edu/hcpds/PublicationsWeb/Low-Beer1.pdf (accessed 29 Jan 2004).
- Bessinger R, Akwara P, Halperin DT. *Sexual behavior, HIV and fertility trends: a comparative analysis of six countries; phase I of the ABC study*. Chapel Hill, NC: Measure Evaluation, 2003. www.cpc.unc.edu/measure/publications/special/ (accessed 29 Jan 2004).
- Hogle J, Green EC, Nantulya V, Stoneburner R, Stover J. *What happened in Uganda? Declining HIV prevalence, behavior change, and the national response*. Washington, DC: USAID, 2002. www.usaid.gov/pop_health/aids/Countries/africa/uganda_report.pdf (accessed 29 Jan 2003).
- Ahmed S, Lutalo T, Wawer M, Serwadda D, Sewankambo NK, Nalugoda F, et al. HIV incidence and sexually transmitted disease prevalence associated with condom use: a population study in Rakai, Uganda. *AIDS* 2001;15:2171-9.
- Hearst N, Chen S. *Condoms for AIDS prevention in the developing world: a review of the scientific literature*. Geneva: UNAIDS, 2003. www.uspbr/nepaids/condom.pdf (accessed 29 Jan 2004).
- Robinson R, Mulder DW, Auvert B, Hayes RJ. Modelling the impact of alternative HIV intervention strategies in rural Uganda. *AIDS* 1995;9:1263-70.
- Rotello G. *Sexual ecology: AIDS and the destiny of gay men*. New York: Dutton, 1997.
- UNAIDS. *Report on the global HIV/AIDS epidemic 2002*. Geneva: WHO, 2002. www.unaids.org/Un/aids/EN/Resources/Publications/Corporate+publications/Report+on+the+global+HIV_AIDS+epidemic+2002+.asp (accessed 30 Jan 2004).
- National Center for HIV/AIDS, Dermatology and STDs. *Behavioral sentinel survey (BSS) V: sexual behavior among urban sentinel groups, Cambodia 2001*. Phnom Penh: NCHADS, 2003.
- Fylkesnes K, Musonda RM, Sichone M, Ndhlovu Z, Tembo F, Monze M. Declining HIV prevalence and risk behaviors in Zambia: evidence from surveillance and population-based surveys. *AIDS* 2001;15:907-16.
- Agha S. Declines in casual sex in Lusaka, Zambia: 1996-1999. *AIDS* 2002;16:291-3.
- Mekonnen Y, Sanders E, Aklilu M, Tsegaye A, Rinke de Wit TF, Schaap A, et al. Evidence of changes in sexual behaviours among male factory workers in Ethiopia. *AIDS* 2003;17:223-31.
- Green EC, Conde A. Sexual partner reduction and HIV infection. *Sex Trans Inf* 2000;76:145.
- VanLandingham M, Trujillo L. Recent changes in heterosexual attitudes, norms and behaviors among unmarried Thai men: a qualitative analysis. *Int Fam Plann Perspect* 2002;28:6-15.
- Halperin DT, Padian NS, Palefsky J, Shiboski SC. High level of HIV-1 infection associated with anal intercourse: A neglected risk factor in heterosexual AIDS prevention. International AIDS Conference, Barcelona, July 2002. www.aids2002.com/Program/ViewAbstract.asp?id=/T-CMS_Content/Abstract/200206290751215051.xml (accessed 29 Jan 2004).
- Bailey RC, Plummer FA, Moses S. Male circumcision and HIV prevention: current knowledge and future research directions. *Lancet Inf Dis* 2001;1:223-31.

(Accepted 19 January 2004)