

This article was downloaded by: [University of San Francisco]

On: 28 June 2011, At: 13:05

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK

## AIDS Care

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/caic20>

### Prevention messages and AIDS risk behavior in Kampala, Uganda

Norman Hearst <sup>a</sup>, Phoebe Kajubi <sup>b</sup>, Esther Sid Hudes <sup>c</sup>, Albert K. Maganda <sup>d</sup> & Edward C. Green <sup>e</sup>

<sup>a</sup> Family and Community Medicine, University of California, San Francisco, CA, USA

<sup>b</sup> Child Health and Development Centre, College of Health Sciences, Makerere University, Kampala, Uganda

<sup>c</sup> Epidemiology and Biostatistics, University of California, San Francisco, CA, USA

<sup>d</sup> Baylor College of Medicine Children's Foundation, Kampala, Uganda

<sup>e</sup> The New Paradigm Research Fund, Washington, DC, USA

Available online: 28 Jun 2011

To cite this article: Norman Hearst, Phoebe Kajubi, Esther Sid Hudes, Albert K. Maganda & Edward C. Green (2011): Prevention messages and AIDS risk behavior in Kampala, Uganda, *AIDS Care*, DOI:10.1080/09540121.2011.582478

To link to this article: <http://dx.doi.org/10.1080/09540121.2011.582478>



PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

## Prevention messages and AIDS risk behavior in Kampala, Uganda

Norman Hearst<sup>a\*</sup>, Phoebe Kajubi<sup>b</sup>, Esther Sid Hudes<sup>c</sup>, Albert K. Maganda<sup>d</sup> and Edward C. Green<sup>e</sup>

<sup>a</sup>Family and Community Medicine, University of California, San Francisco, CA, USA; <sup>b</sup>Child Health and Development Centre, College of Health Sciences, Makerere University, Kampala, Uganda; <sup>c</sup>Epidemiology and Biostatistics, University of California, San Francisco, CA, USA; <sup>d</sup>Baylor College of Medicine Children's Foundation, Kampala, Uganda; <sup>e</sup>The New Paradigm Research Fund, Washington, DC, USA

(Received 21 November 2010; final version received 14 April 2011)

Uganda was one of the first countries to substantially reduce HIV rates through behavior change, but these gains have not continued in recent years. Little is known about what messages Ugandans are currently hearing about AIDS prevention, what they themselves believe to be important prevention strategies, and how these beliefs are associated with behavior. We interviewed men and women aged between 20 and 39 in two poor peri-urban areas of Kampala, using a random sample, cross-sectional household survey design. Respondents provided detailed reports of sexual behavior over the past six months, the main prevention message they are currently hearing about AIDS, and their own ranking of the importance of prevention strategies. Condom use was the main AIDS prevention message that respondents reported hearing, followed by getting tested. These were also what respondents themselves considered most important, followed closely by faithfulness. Abstinence was the lowest ranked strategy, but a higher ranking for this prevention strategy was the only one consistently associated with less risky behavior. A higher ranking for condoms was associated with higher levels of risk behavior, while the ranking of testing made no difference in any behavior. These results present challenges for AIDS prevention strategies that rely primarily on promoting condoms and testing. HIV prevention programs need to assess their impact on behavior.

**Keywords:** AIDS; Uganda; prevention; condoms; HIV testing; faithfulness; abstinence

### Introduction

Uganda was one of the first countries to experience a generalized HIV epidemic with widespread heterosexual transmission and one of the first to be successful in substantially reducing HIV incidence and prevalence (Okware, Opio, Musinguzi, & Waibale, 2001; Stoneburner & Low-Beer, 2004). This was accomplished through a home-grown approach that emphasized “Zero Grazing” (Genius & Genius, 2005; Green, Halperin, Nantulya, & Hogle, 2006; Kirby, 2008; Okware et al., 2001). In the late 1980s and early 1990s, this prevention message was delivered with remarkable consistency and intensity by almost all institutions in Uganda (Green, 2000; Okware, Kinsman, Onyango, Opio, & Kaggwa, 2005; Stoneburner & Low-Beer, 2004). Sexual behavior changed substantially, and HIV prevalence in young pregnant women fell by about two thirds in the 1990s (Wabwire, Asingwire, Opio, & Bukuluku, 2006).

Today, Uganda follows an ABC approach to prevention. Some programs, mainly in schools and faith-based organizations, encourage Abstinence for young people until marriage. Though less prominent than in the past, some messages encourage people to

Be faithful to their partners, particularly discouraging extramarital affairs. Current messages regarding Condoms emphasize that they save lives, that they should be used consistently, and that they are available for free. HIV testing is receiving increasing attention, with people being encouraged to know their status. In recent years, HIV prevalence has stagnated at about 7% of the adult population and appears to be rising again in some groups (Uganda AIDS Commission, 2007).

Little is known about what messages Ugandans are currently hearing most about AIDS prevention and what they themselves believe to be the most important strategies. Furthermore, few recent studies in Uganda have examined the relation between these beliefs and AIDS risk behavior. This study was designed to examine these questions in a sample of adults living in poor neighborhoods of Uganda's capital and largest city, Kampala.

### Methods

A random sample, door-to-door household interview survey was conducted in early 2009 in the Tebuyoleka and Mukalazi zones of Kawempe Division in

\*Corresponding author. Email: hearstn@fcm.ucsf.edu

the northern outskirts of Kampala. These two communities are typical of the peri-urban slums surrounding the city. Adults aged between 20 and 39 were eligible. The person answering the door was asked to enumerate all residents, and a respondent was selected based on the sampling scheme, with return visits when necessary. To approximate equal numbers of men and women, of respondents aged 20–29 and 30–39, and of residents in the two communities, participants were tabulated every day and recruitment closed for age/sex/community strata that had reached their quota.

Respondents were interviewed in a private setting of their choice by experienced interviewers. No personal identifiers were collected, and participants received no payment. The study was approved by ethical review boards of the Harvard School of Public Health and the Uganda National Council for Science and Technology and also received informal approval from local community leaders. Respondents were given a consent form written in both English and the local language; signed forms were separated from responses to preserve anonymity. There were no refusals. The final sample included 198 men and 207 women, mean age 29.1 years, evenly divided between the two communities.

Roughly a 15-minute interview included demographics, perceptions regarding HIV/AIDS, and detailed information regarding sexual activity during the prior six months. Respondents were asked to identify the main message they had heard in the past year from the government and other sources regarding preventing AIDS, choosing from abstinence, condoms, faithfulness, and getting tested; an option for “other (specify)” was seldom selected. They were also asked to give their own ranking of the importance of these strategies (1–4; 1–5 if listing an “other” strategy).

We used consistent condom use as an outcome because cohort studies in Uganda have shown no protective effect from inconsistent use (Ahmed et al., 2001). This was assessed in two ways, which agreed in all but two cases. One was to ask respondents if they always used condoms in the past six months with the current partner and up to four previous partners. The other was to ask the number of times they had sex in the past six months with each partner and then to ask how many times they used condoms. Condom use was counted as consistent when it was reported as such by both definitions with all partners.

Data were recorded on paper forms and analyzed using Stata version 11 (StataCorp, 2009). Associations between: (a) rankings of the importance of each of the four prevention strategies; and (b) each of the three ABC behaviors (abstinence in the past six

months, more than one ongoing sexual relationship, and consistent condom use) were assessed using 12 separate multiple logistic regressions, each adjusting for age and sex. This generated adjusted odds ratios estimating the effect of a one-point difference in the ranking of each prevention strategy on each behavior.

## Results

As shown in Table 1, the message that respondents reported currently hearing most about AIDS prevention was to use condoms, followed by getting tested, with faithfulness and abstinence far behind. When respondents were asked to rank what they themselves considered most important for preventing AIDS, the order of responses was the same, but there was less difference in the percentages selecting different options. Regarding behaviors, 12.1% reported being abstinent in the past six months (11.6% of men; 12.6% of women), 13.3% reported currently being involved in more than one ongoing sexual relationship (23.2% of men; 3.9% of women), and 22.5% of those who were sexually active reported using a condom every time they had sex during the past six months (26.4% of men; 18.8% of women).

Table 2 shows associations between rankings of the importance of prevention strategies and protective or risky behaviors, adjusted for age and sex. A higher ranking for abstinence was associated with a greater likelihood of being abstinent, a lesser likelihood of having multiple partners, and a higher likelihood of consistent condom use (all protective behaviors). A higher ranking for faithfulness was associated with a lesser likelihood of multiple partners but also a lesser likelihood of consistent condom use. A higher ranking for condoms was associated with a lesser likelihood of abstinence, a greater

Table 1. Main AIDS prevention messages reported by 20–39 year-olds in two poor neighborhoods of Kampala, Uganda, 2009.

Main prevention message being heard	
Condoms	46.8%
Get tested	27.7%
Faithfulness	8.6%
Abstinence	6.2%
Personally ranks as most important	
Condoms	31.6%
Get tested	30.1%
Faithfulness	24.9%
Abstinence	12.6%

Note: Totals do not add to 100% because of occasional “other” responses and missing data.

Table 2. Associations between rankings of the importance of AIDS prevention strategies and behaviors.

		Outcome: risk or protective behavior		
		Practicing abstinence	Multiple partners	Consistent condom use
Predictor: ranking strategy as more important	Abstinence	1.6** (1.3, 2.1)	0.70* (0.51, 0.95)	1.3* (1.0, 1.7)
	Faithfulness	0.90 (0.65, 1.2)	0.71* (0.51, 0.99)	0.71*(0.54, 0.93)
	Condoms	0.63** (0.47, 0.85)	1.7** (1.2, 2.3)	0.96 (0.75, 1.2)
	Get tested	1.0 (0.78, 1.3)	1.1 (0.84, 1.4)	0.98 (0.79, 1.3)

Notes: Multiple logistic regressions, adjusted for age and sex; odds ratio (and 95% confidence interval) is for ranking each prevention strategy one place higher in importance.

\* $p < 0.05$ ; \*\* $p < 0.01$ .

likelihood of multiple partners, and no difference in self-reported consistent condom use. Rankings for getting tested were not significantly associated with any behavior.

### Discussion

These results suggest that condoms and testing are the main AIDS prevention messages that Ugandans are hearing today. These are also the main prevention strategies that they themselves rank as most important, though a sizeable minority ranked faithfulness first. Few reported faithfulness as the main prevention message being heard, in sharp contrast to the emphasis in Uganda during the late 1980s and early 1990s on “Zero Grazing,” “Love Faithfully,” and “Stick to One Partner” (Green et al., 2006; Ruteikara, 2008). Unfortunately, our results do not indicate that ranking condoms or testing highly as prevention strategies is associated with any protective behavior. Giving higher rankings to condom use was associated with riskier behaviors, and rankings for testing were not significantly associated with any behavior.

Conversely, the prevention strategy that respondents were least likely to hear and to rank highly themselves was the only one for which a higher ranking was consistently associated with protective behavior. Respondents ranking abstinence more highly were more likely to be abstinent, less likely to have multiple partners, and more likely to report consistent condom use. It is unclear whether giving more emphasis to abstinence for young people would result in more protective behavior or if it makes sense to expand this message to older age groups.

This study has limitations, and the results should be interpreted with care. It included a relatively small number of participants at a single point in time, representing only one segment of the Ugandan population. The ability to draw causal inference from cross-sectional data is always limited.

Nevertheless, these results have some interesting implications. They suggest that abstinence is not currently receiving inordinate emphasis in AIDS prevention messages in Uganda, as some have claimed (Cohen, Schleifer, & Tate, 2005; Kinsman, 2010; Sepulveda et al., 2007) and that efforts to encourage abstinence do not necessarily result in riskier behavior when people are not abstinent, a concern expressed by others (Brückner & Bearman, 2005). They may also help explain the paradox that while condoms are clearly protective for individuals who use them consistently, condom promotion has had disappointing results as a prevention strategy for generalized HIV epidemics in Africa (Green, Mah, Ruark, & Hearst, 2009; Shelton, 2007).

Testing is unique among prevention strategies in that it does not by itself prevent HIV transmission unless it produces changes in other behaviors, something for which we found no evidence. While testing might prevent transmission if it gets people into treatment and lowers their viral load, demand for treatment in Uganda already exceeds the available number of slots (Allen, 2010). So additional testing would not necessarily result in more people being treated without a major infusion of additional treatment funding.

More generally, these results show that those responsible for prevention activities should not be satisfied with simply reaching people or improving their knowledge and attitudes. The challenge for prevention in Uganda and in similar settings with generalized epidemics will be to find the right mix of prevention messages and the best ways to deliver them so as to have maximum impact on behavior. In particular, these results suggest that overreliance on condoms and testing as prevention strategies in this population may be problematic.

### Acknowledgements

Funded by the John Templeton Foundation and the Harvard AIDS Prevention Research Project.

## References

- Ahmed, S., Lutalo, T., Wawer, M., Serwadda, D., Sewankambo, N.K., Nalugoda, F., & ... Gray, R. (2001). HIV incidence and sexually transmitted disease prevalence associated with condom use: A population study in Rakai, Uganda. *AIDS*, *15*, 2171–2179.
- Allen, M. (2010, January 30). War on AIDS hangs in balance as U.S. curbs help for Africa. *Wall Street Journal*. Retrieved from <http://online.wsj.com/article/SB10001424052748703906204575027442437944112.html>
- Brückner, H., & Bearman, P. (2005). After the promise: The STD consequences of adolescent virginity pledges. *Journal of Adolescent Health*, *36*, 269–270.
- Cohen, J., Schleifer, R., & Tate, T. (2005). AIDS in Uganda: The human-rights dimension. *Lancet*, *365*, 2075–2076.
- Genuis, S.J., & Genuis, S.K. (2005). HIV/AIDS prevention in Uganda: Why has it worked? *Postgraduate Medical Journal*, *81*, 615–617.
- Green, E.C. (2000). Traditional healers and AIDS in Uganda. *Journal of Alternative and Complementary Medicine*, *6*, 1–2.
- Green, E.C., Halperin, D.T., Nantulya, V., & Hogle, J.A. (2006). Uganda's HIV prevention success: The role of sexual behavior change and the national response. *AIDS and Behavior*, *10*, 335–346.
- Green, E.C., Mah, T.L., Ruark, A., & Hearst, N. (2009). A framework of sexual partnerships: Risks and implications for HIV prevention in Africa. *Studies in Family Planning*, *40*, 63–70.
- Kinsman, J. (2010). *AIDS policy in Uganda: Evidence, ideology, and the making of an African success story*. New York: Palgrave Macmillan.
- Kirby, D. (2008). Changes in sexual behavior leading to the decline in the prevalence of HIV in Uganda: Confirmation from multiple sources of evidence. *Sexually Transmitted Infections*, *84*(Suppl. 2), 35–41.
- Okware, S., Kinsman, J., Onyango, S., Opio, A., & Kaggwa, P. (2005). Revisiting the ABC strategy: HIV prevention in Uganda in the era of antiretroviral therapy. *Postgraduate Medical Journal*, *81*, 625–628.
- Okware, S., Opio, A., Musinguzi, J., & Waibale, P. (2001). Fighting HIV/AIDS: Is success possible? *Bulletin of the World Health Organization*, *79*, 1113–1120.
- Ruteikara, S. (2008, June 30). Let my people go, AIDS profiteers. *Washington Post*. Retrieved from <http://www.washingtonpost.com/wp-dyn/content/article/2008/06/29/AR2008062901477.html>
- Sepulveda, J., Smits, H., Carpenter, C., Curran, J., Holzemer, W.L., Bertozzi, S., & ... Weiss, H. (2007). *PEPFAR implementation: Progress and promise*. Washington, DC: National Academies Press.
- Shelton, J.D. (2007). Ten myths and one truth about generalised HIV epidemics. *Lancet*, *370*, 1809–1811.
- StataCorp. (2009). Stata (Release 11) [Computer software]. College Station, TX: Author.
- Stoneburner, R.L., & Low-Beer, D. (2004). Population-level HIV declines and behavioral risk avoidance in Uganda. *Science*, *304*, 714–718.
- Uganda AIDS Commission. (2007). *Moving toward universal access: National HIV & AIDS strategic plan 2007/8–2011/12*. Kampala: Author.
- Wabwire, F., Asingwire, N., Opio, A., & Bukuluku, P. (2006). *Rapid assessment of trends and drivers of the HIV epidemic and effectiveness of prevention interventions in Uganda: A synthesis report*. Kampala: Uganda AIDS Commission.