

Viewpoints

The Ugandan success story? Evidence and claims of HIV-1 prevention

Justin O Parkhurst

Uganda is widely regarded as an HIV/AIDS success story, but the reality of this claim has rarely been critically investigated. Although evidence-based medicine is increasingly important, analysis of the Ugandan epidemiological situation shows that the so-called proof accepted for policy recommendations can be subject to creative interpretation. I believe that, in view of all the available evidence, Uganda has been successful in preventing the spread of HIV-1 in many ways, and that there are meaningful lessons to be learned from the way that the government and other institutions have tackled the disease. However, the importance of the Ugandan experience will be compromised if conclusions are drawn out of context, and statements are made on the basis of oversimplified assessment of epidemiological data.

There are several policy lessons that can be learned from the response to HIV/AIDS in Uganda, where declining prevalence rates of HIV-1 have been reported in a number of surveillance sites around the country since 1992. Indeed, the international community enthusiastically praises Uganda for its success in tackling the disease and urges other nations, especially other African nations, to learn from the Ugandan example. However, statements of success have often been based on misinterpretation of epidemiological data, and can sometimes not be supported when all the Ugandan evidence is assessed. Furthermore, inappropriate attribution has been made by some as to the causes of any epidemiological changes seen. Such misinterpretation has, in many ways, become an integral part of the story of Ugandan success.

Taken as a whole, the Ugandan evidence indicates that the country is unique in Africa in the extent to which HIV-1 is subsiding. Additionally, as the first African nation to identify individuals with AIDS and to establish a national response programme, the Ugandan experience is an ideal example to other nations of how to react to the disease.¹ However, to truly learn from the Ugandan experience, investigation of the complex realities of the situation is necessary; premature conclusions should not be drawn from a few limited pieces of evidence.

Use and misuse of Ugandan evidence

Many claims of the success of Uganda in dealing with HIV/AIDS have been predicated on selective pieces of information, which have been falsely presented as representative of the nation as a whole. Such data have been used, for instance, to claim that overall rates of HIV-1 in Uganda have been reduced from 30% to 10%. This statement has been reproduced in the National Strategic Framework for HIV activities in Uganda² and in mass

media.^{2,3} Statements such as these are probably based on data from government antenatal clinic surveillance sites (table).⁴

These data, however, actually indicate that the decreased prevalence rate often attributed to the whole of Uganda actually arose at only one site, Mbarara (30.2% to 10.5%), though rates in Nsambya and Rubaga also fell sharply. Furthermore, these sites represent only a few urban antenatal clinics—hardly indicative of a nation where about 87% of the population live in rural areas.⁵

Unfortunately, government reports do not provide information on the numbers of women tested every year or the proportion of the population assessed. Simply looking at the unweighted average of all available sites by year can result in biased conclusions because of over-representation of urban areas. Furthermore, incorporation of later-reporting rural sites with lower prevalence rates, such as Pallisa, Matanay, and Moyo, can further exaggerate the apparent overall rate of decline. Finally, that surveillance based on data from antenatal clinics is generally biased to exaggerate recorded declines in prevalence, is now widely acknowledged.^{6–8} Claims of success in the battle against HIV-1 would be much stronger if they referred to the Ugandan data as a whole, emphasising that although sentinel surveillance is difficult, Uganda does show greater declining trends than do other African nations.

A second identified misinterpretation of data relates to the premature assertion that incidence rates of HIV-1 in Uganda have fallen. These claims are at times based on the government surveillance data presented above, which provide only prevalence rates—ie, the overall proportion of women who test positive for HIV-1. Successful HIV-1 prevention cannot be claimed until a decrease in the number of new infections each year (measured as incidence) occurs. Put simply, prevalence can decline while overall incidence remains stable or even increases. Such a dynamic would arise if mortality of the HIV-1 infected population were to increase above the incidence rate. Although many use the term HIV rates ambiguously, others have specifically made claims of declines in HIV incidence⁹ when, at the time, there was no evidence to this effect. Indeed, the first significant data on declining incidence rates in Uganda was not presented until 2000, at the Durban International AIDS Conference.¹⁰

There is growing evidence to suggest that incidence of HIV-1 across Uganda is in decline, since a fall in prevalence rates among the youngest age groups—especially 15–19 year olds—at surveillance sites is considered a proxy measure of incidence. This group of individuals has only recently become sexually active, so a fall in prevalence among them is unlikely to be due to AIDS-related mortality.¹¹ Young women in this age range, attending antenatal clinics in central urban and western regions of the country, have shown particularly pronounced declines in prevalence rates.^{12,13} Advocates of the Ugandan success story would have a strong argument if they used such data to support statements of a potential

Lancet 2002; **360**: 78–80

Health Policy Unit, London School of Hygiene and Tropical Medicine, London WC1E 7HT, UK (J O Parkhurst MPhil)
(e-mail: justin.parkhurst@lshtm.ac.uk)

Site	Date (year)									
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Nsambya	24.5	25	27.8	29.5	26.6	21.8	16.8	15.4	14.6	13.4
Rubaga	..	..	27.4	29.4	24.4	16.5	20.2	15.1	14.8	14.2
Mbarara	21.8	23.8	24.3	30.2	18.1	17.3	16.6	15	14.5	10.9
Jinja	24.9	15.8	22	19.8	16.7	16.3	13.2	14.8	11	10.5
Tororo	..	4.1	12.8	13.2	11.3	10.2	12.5	8.2	9.5	10.5
Mbale	3.8	11	12.1	14.8	8.7	10.2	7.8	8.4	6.9	6.3
Kilembe	..	..	..	..	7	16.7	11.1	10.4	8.5	..
Pallisa	..	..	..	7.6	5	1.2	..	..	3.2	2.6
Soroti	..	..	..	..	9.1	..	8.7	7.7	5.3	7.7
Matany	..	..	..	..	2.8	7.6	..	2	1.6	1.3
Hoima	..	..	..	..	..	..	..	12.7	9	5.4
Kagadi	..	..	..	..	..	..	..	..	10.3	11.5
Mutolere	..	4.1	5.8	..	4.2	..	3.6	2.6	..	2.5
Moyo	..	..	..	..	..	..	..	..	..	3.2

Reproduced from reference 4 by permission of Ugandan Ministry of Health.

Prevalence (%) of HIV-1 among individuals who attend antenatal clinics^a

decline in incidence of HIV-1, rather than making blanket statements of admirable, yet mythical, falls in incidence rates.

Another frequent mistake encountered is the notion that the decline in prevalence rates must be due to a few specific interventions introduced by the Ugandan government. Although it might be easy to assume that declines in prevalence indicate behavioural change, and that such change must be a result of government interventions, both these assumptions are questionable for several reasons. First, the government is but one player in the fight against HIV-1. There are hundreds of non-governmental organisations (NGOs), religious groups, and community activists also working to prevent the spread of HIV/AIDS in Uganda (figure). In actuality, the government of Uganda itself has widely acknowledged the roles that other groups have played in the fight against HIV-1, specifically calling for their increased participation in prevention activities in its policy documents and referring to them as partners in HIV-1 prevention. Despite this, many individuals and groups still often make the mistake of assuming that declines in prevalence must be the result of a few specific policies or interventions. Furthermore, individuals can change their behaviour for reasons unrelated to intervention programmes, such as a growing general awareness of the effect of AIDS on friends or relatives.¹⁴ Finally, many mathematical models predict that although prevalence rates will reflect declines in incidence, they will only do so after a time lag of 7 years or more.^{15,16} Hence, a decline in prevalence beginning in 1992 would correspond with a fall in incidence from the beginning of 1985. Yet in 1985 Uganda was in the midst of its civil war and did not have any national HIV-1 prevention programmes in place. Declines in prevalence rates in 1992 cannot, therefore, be a result solely of government action. Nevertheless, other African nations have not seen similar declines in prevalence, suggesting that Uganda alone must have acted in a way that changed the course of its HIV/AIDS epidemic.

Combined with the growing evidence of continued decline in prevalence and, potentially, incidence rates, the fact that the situation in Uganda is both unique and improving is easy to argue. The government has, for example, not only provided services such as education and blood screening across the country, but has also, more interestingly, implemented a uniquely creative and strategic policy approach to enable non-state actors in their individually targeted messages of prevention. It is lessons from this joint approach that need to be learnt by other nations that wish to go beyond the decontextualised universal recommendations of international bodies such as UNAIDS or WHO. The openness of Uganda is one such aspect of this joint approach that is often mentioned—eg, the Ugandan government included religious groups and NGOs in policy recommending bodies such as the Uganda AIDS Commission, which has resulted in cooperative links and enabled wider participation between the governmental and non-governmental groups. Furthermore, the government did not push controversial policies too strongly—eg, its policy of a quiet promotion of condoms through social marketing channels, again including religious leaders in discussions on the subject.^{17,18} Finally, the widely cited political leadership of the Museveni administration points to the benefits of a national

Rights were not granted to include this image in electronic media. Please refer to the printed journal.

Teenagers watching an AIDS awareness video at a teen advice centre in Kampala, Uganda

© Panos Pictures

government committed to addressing HIV/AIDS through all available channels. To assume that it was any one intervention that has led to declines in prevalence of HIV-1 overlooks the important unique policy response in the country, and risks losing valuable lessons for other nations.

Pressure to show results?

I believe that Uganda has indeed been successful in slowing the spread of HIV-1, leading to reduced prevalence rates. But the fact remains that some unfounded claims of Ugandan success have endured in the international policy discourse, the most notable (and clearly exaggerated) of which pertains to the reported 30% fall in HIV-1 prevalence rates to 10% in 4 or 6 years. Today, the country can be praised for the fact that the adult HIV-1 prevalence rate is most likely much lower than 10% and continues to decline, but still there remains no evidence that the nation ever saw a 30% fall in prevalence rates. That misinterpretations such as this one have endured could be attributable to various pressures that might exist, particularly in low-income and middle-income countries, which allow success stories of this kind to go unchallenged. Specifically, the notion of donor fatigue—whereby donors become frustrated with funding unsuccessful international programmes¹⁹—combined with an overall reduction in development funds available to Africa,²⁰ can produce political pressure to present an image of success to maintain funds. Similarly, low morale among workers in the health sector can also be countered with a successful image and international approbation.

But, the misuse of Ugandan HIV/AIDS data has become commonplace in the international discourse on HIV prevention, not just in national circles. The international community might also feel under pressure to present successful examples of HIV-1 prevention, especially in view of the high-profile nature of the problem and growing media attention on the profound effect of AIDS in Africa. Such pressures can lead to the proliferation, and quiet acceptance, of statements of Ugandan success that are not, in fact, based on any conclusive evidence, but which could be more accurate and justifiable were a more detailed and contextualised approach taken to the supportive evidence. The standard of proof for policy recommendations seems to have been lowered to provide the international community with the African success story it wants, or even needs.

Conclusion

The use of selective evidence as the basis for policy recommendations can be misleading and counter-productive. Countries with HIV-1 prevalence rates of more than 30% (such as some in Southern Africa) would be wrong to assume that by simply copying a few obvious Ugandan government interventions, they can expect to see a two-thirds reduction in their HIV-1 prevalence rate. Although Uganda has indeed done much in its struggle against HIV/AIDS, and the Ugandan experience can provide valuable information to assist other nations

in their prevention efforts, inappropriate recommendations based on poor interpretation of evidence must not be used as the basis for policy.

Conflict of interest statement

None declared.

Acknowledgments

I thank Louisiana Lush for her comments. This research was supported in part by the University of Oxford and St Antony's College, Oxford, UK. The sponsors had no role in the design, data collection, data analysis, data interpretation, or writing of the viewpoint.

References

- 1 Parkhurst J. The crisis of AIDS and the politics of response: the case of Uganda. *Int Relat* 2001; **15**: 69–87.
- 2 Government of Uganda, Uganda AIDS Commission, UNAIDS. The national strategic framework for HIV/AIDS activities in Uganda: 2000/1–2005/6.
- 3 Fisher I. AIDS permeates Uganda politics too. *New York Times*, March 3, 2001.
- 4 Uganda Ministry of Health AIDS Control Programme. HIV/AIDS surveillance report. Entebbe: Uganda Ministry of Health, 1999.
- 5 UNAIDS. Uganda epidemiological fact sheet on HIV/AIDS and sexually transmitted infections: 2000 update. Geneva: UNAIDS, 2000.
- 6 UNAIDS. Reaching regional consensus on improved behavioural and sero-surveillance for HIV. Geneva: UNAIDS, 1998.
- 7 Grey RH, Wawer MJ, Serwadda D, et al. Population based study of fertility in women with HIV infection in Uganda. *Lancet* 1998; **351**: 98–103.
- 8 Zaba BW, Carpenter LM, Boerma JT, Gregson S, Nakiyingi J, Urassa M. Adjusting ante-natal clinic data for improved estimates of HIV prevalence among women in sub-Saharan Africa. *AIDS* 2000; **14**: 2741–50.
- 9 Karim QA, Tarantola D, Sy EA, Moodie R. Government responses to HIV/AIDS in Africa: what have we learnt? *AIDS* 1997; **11** (suppl B): 143–49.
- 10 Mbulaiteye S, Whitworth J, Nakiyingi J, Ruberantwari A, Ojwiya A, Kamali A. Falling HIV incidence: one decade of observation of a rural cohort in southwest Uganda. XIII International AIDS Conference July 9–14, 2000, Durban, South Africa.
- 11 Williams B, Gouws W, Wilkinson D, Karim SA. Estimating HIV incidence rates from age prevalence data in epidemic situations. *Stati Med* 2001; **20**: 2003–16.
- 12 Kilian AHD, Gregson S, Ndyabangi B, et al. Reductions in risk behaviour provide the most consistent explanation for declining HIV-1 prevalence in Uganda. *AIDS* 1999; **13**: 391–98.
- 13 Asimwe-Okiror G, Opio AA, Musinguzi J, Madraa E, Tembo G, Caraël M. Change in sexual behaviour and decline in HIV infection among young pregnant women in urban Uganda. *AIDS* 1997; **11**: 1757–63.
- 14 Macintyre K, Brown L, Sosler S. "Its not what you know but who you knew": examining the relationship between behavior change and AIDS mortality in Africa. *AIDS Educ Prev* 2001; **13**: 160–74.
- 15 Stoneburner RL, Low-Beer D, Tembo GS, Mertens TE, Asimwe-Okiror G. Human immunodeficiency virus infection dynamics in East Africa deduced from surveillance data. *Am J Epidemiol* 1996; **144**: 682–95.
- 16 Garnett GP. The basic reproductive rate of infection the course of HIV epidemics. *AIDS Patient Care STDS* 1998; **12**: 435–49.
- 17 Uganda Ministry of Health Condom Coordination Unit. Draft overview of condom situation in Uganda. Entebbe: Uganda Ministry of Health, 1999.
- 18 Uganda AIDS Commission. Annual report 1993. Kampala: Uganda AIDS Commission, 1994.
- 19 Burnell PJ. Aid fatigue: concept and methodology. Warwick: University of Warwick Working Paper, 1991.
- 20 Browne S. Beyond aid: from patronage to partnership. Aldershot: Ashgate, 1999.