



Separating Fact from Fiction

Voluntary Medical Male Circumcision: An evidence-based, proven HIV prevention strategy

8 March 2012

Summary

Few public-health interventions show evidence as strong and consistent as that for the effectiveness of voluntary medical male circumcision (VMMC) in preventing female-to-male transmission of HIV. There is cumulative evidence from observing VMMC's effect over many years, and from the three landmark clinical trials in Africa—Kenya, South Africa and Uganda. New data from real-world VMMC programs continue to strengthen these findings.

Despite the prevention strategy “abstain, be faithful and condomize” (ABC), the impact on HIV prevention progress has been slow, resulting in literally millions of mostly young Africans dying. Substantially lowering rates of HIV infection will only be achieved with the introduction and scale-up of new prevention technologies in combination with existing ones. The scientific evidence accumulated over more than 20 years shows that male circumcision is one of, if not, the most effective in reducing HIV risk, as well as the most inexpensive.

VMMC research and implementation has largely been led by Africans, for Africans. National decisions to rollout VMMC are aligned with international recommendations from the WHO and UNAIDS. There is a consensus among most experts in the HIV/AIDS scientific community that VMMC is a critical component of HIV prevention. Unfortunately, some are not convinced of the protective effect of male circumcision.

Below are some of the primary criticisms, unsupported by evidence, that regularly get voiced by a small but vociferous group of opponents of VMMC. Below are also rebuttals to the criticisms with substantiated data from peer-reviewed scientific journal articles supporting the need to accelerate the implementation of VMMC programs for HIV prevention in generalized heterosexual epidemics in Africa.

For a comprehensive review of VMMC evidence to date, see **Male circumcision for HIV prevention: current evidence and implementation in sub-Saharan Africa** in the *Journal of the International AIDS Society*, found online at <http://www.jiasociety.org/content/14/1/49>.

FACT vs. FICTION

***Fiction:** Male circumcision has no association with reduced risk of HIV infection.*

FACT: Three milestone scientific trials (known as randomized clinical trials, or RCTs) in Africa have confirmed that VMMC reduces the risk of HIV acquisition in men by at least 60 percent.^{1 2 3} Outside of study settings, a wealth of data shows that countries with widespread male circumcision consistently have low HIV prevalence.^{4 5} For example, in West Africa where nearly all men are circumcised, HIV has been circulating for more than 80 years. Yet, as is true of all countries where male circumcision is nearly universal, no country in that region has an adult HIV prevalence greater than 6 percent.⁶

***Fiction:** The three VMMC trials were stopped early suggesting an over estimation of its effect in protecting against HIV.*

FACT: All three of the VMMC trials were terminated early by independent data monitoring committees because there was shown to be a high level of protection against HIV. (Each trial reduced HIV risk by approximately 60 percent.) It was no longer ethical to deny circumcision services to the men in the studies' control arms. The consistency of the results and the indication of a somewhat stronger effect of VMMC over the following years, show that if anything, the early stopping may have underestimated the effect. The high protective effect in each of the trials was not larger than expected, but was virtually identical to that seen in the real world, outside of the clinical trial setting.

***Fiction:** No long-term follow up can be done to prove male circumcision's durability over time.*

FACT: The trial participants are being actively followed and data are available for up to 5 years, showing in fact that VMMC effectiveness has increased over time. For example, in Orange Farm, SA, where many men were circumcised, a study demonstrated a 76 percent decrease in new HIV infections among those circumcised.⁷ Uganda reported a similar post-trial result of 73 percent.⁸ Biologically, there is no reason why the protective effect of foreskin removal would decline over time.

***Fiction:** In Africa, there are several countries where circumcised men are more likely to be HIV-infected than their uncircumcised counterparts, including Malawi, Rwanda, Cameroon, Ghana, Zimbabwe, Lesotho, Swaziland and Tanzania.*

FACT: Some studies looking at real-world patterns in these countries have found such results. However, the overwhelming majority of these studies suggest that VMMC is protective.^{9 10}

***Fiction:** HIV prevalence is much higher in the United States (where most men are circumcised) than in other developed countries where most men are uncircumcised such as Europe, the United Kingdom and Scandinavia.*

FACT: While it is true that the US has higher HIV prevalence than many developed countries, it is not true that it has the highest. In the developed world, most HIV infections occur through receptive anal sex and injecting drug use, neither of which is influenced by circumcision status. Worth noting is that there is evidence to suggest that female-to-male transmission (which VMMC is known to protect against) is far lower in the US than in Europe, where there is less male circumcision.¹¹

***Fiction:** VMMC will replace condom use and increase other sexual behavior risk, increasing HIV transmission in Africa.*

FACT: Advocates of VMMC are not arguing for a “shift from condom use” to reliance only on VMMC for HIV prevention. VMMC has been integrated into the WHO’s recommended HIV prevention package of HIV testing and counseling, treatment for sexually transmitted infections, and provision and promotion of safer sex practices, including condoms. Furthermore, increased risks (more sexual partners and less condom use) within the context of VMMC have been studied extensively, and research generally indicates little or no increase in these risk behaviors^{12 13}. Study results also show that demand for circumcision is largely determined by the perceived benefits of reduced HIV/STI transmission risk, better hygiene and better sex. Condom avoidance is not perceived as a benefit of circumcision¹⁴. On the contrary, circumcision can be used as an opportunity to educate men and their female partners about HIV prevention.

***Fiction:** Evidence suggests that mass circumcision programs may exacerbate the HIV epidemic among women.*

FACT: VMMC benefits women. It protects against sexually transmitted infections, such as Trichomonas, bacterial vaginosis, herpes simplex virus, and human papillomavirus—the virus that causes cervical cancer.^{15 16} One extensive analysis found that circumcision might reduce HIV transmission from circumcised men to their female partner by 46 percent.¹⁷ On the other hand, if post-circumcision, men resume sex before the required 6-week wound-healing period, they might increase the risk of transmitting HIV to their female sexual partners.¹⁸ More recent findings, however, from a multinational study showed “no increased risk and potentially decreased risk” of infection due to VMMC to the female partners.¹⁹ Women will benefit even more over time from a population effect, or herd immunity, meaning that with fewer HIV-infected men, far fewer women would be at risk.

Fiction: Male circumcision is a dangerous distraction and a waste of scarce resources that should be used for known preventive measures.

FACT: Modeling reveals that in sub-Saharan Africa alone, widespread scale-up of VMMC would avert millions of infections and deaths and save billions of dollars in the long run. Specifically, an analysis of 14 priority countries in eastern and southern Africa found that scaling up VMMC services to cover 80 percent of all adult men and newborn boys would, over the period 2009-2015, avert more than 4 million new adult HIV infections at a cost of US \$2.5 billion. This would yield total net saving on cost of antiretroviral therapy (ART) of US \$20.2 billion over the same period.²⁰

The money saved on treatment could be reinvested in testing, treatment, and prevention of vertical transmission—other methods of prevention that have proven protection against HIV. The urgency has never been more apparent or the evidence more clear: Further delay of the rollout of VMMC would be counter-productive.

¹ Auvert B, Taljaard D, Lagarde E, Sobngwi-Tambekou J, Sitta R, Puren A: **Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: The ANRS 1265 Trial.** *PLoS Med* 2005, **2**:1112-1122.

² Bailey RC, Moses S, Parker CB, Agot K, Maclean I, Krieger JN, Williams CF, Campbell RT, Ndinya-Achola JO: **Male circumcision for HIV prevention in young men in Kisumu, Kenya: A randomised controlled trial.** *Lancet* 2007, **369**:643-646.

³ Gray RH, Kigozi G, Serwadda D, Makumbi F, Watya S, Nalugoda F, Kiwanuka N, Moulton LH, Chaudhary MA, Chen MZ, Sewankambo NK, Wabwire-Mangen F, Bacon MC, Williams CF, Opendi P, Reynolds SJ, Laeyendecker O, Quinn TC, Wawer MJ: **Male circumcision for HIV prevention in men in Rakai, Uganda: A randomised trial.** *Lancet* 2007, **369**:657-666.

⁴ Weiss HA, Quigley MA, Hayes RJ: **Male circumcision and risk of HIV infection in sub-Saharan Africa: a systematic review and meta-analysis.** *AIDS* 2000, **14**:2361-2370.

⁵ Mills E, Cooper C, Anema A, Guyatt A: **Male circumcision for the prevention of heterosexually acquired HIV infection: a meta-analysis of randomized trials involving 11,050 men.** *HIV Med* 2008, **9**:332-335

⁶ Klausner JD, Wamai RG, Bowa K, Agot K, Kagimba J, Halperin D. **Is male circumcision as good as the vaccine we've been waiting for?** *Future HIV Ther* 2008;**2**(1):1-7.

⁷ Auvert B. 2011. **Effect of the Orange Farm (South Africa) male circumcision roll-out (ANRS-12126) on the spread of HIV.** 6th IAS Conference on HIV Pathogenesis, Treatment and Prevention. 17-20 July 2011, Rome, Italy.

⁸ Gray R, Kigozi G, Kong X, Ssempiija V, et al. **The effectiveness of male circumcision for HIV prevention and effects on risk behaviors in a post-trial follow up study in Rakai, Uganda.** *AIDS* 2012 Jan 4, Epub ahead of print.

⁹ Drain PK, Halperin DT, Hughes JP, Klausner JD, Bailey RC: **Male circumcision, religion and infectious diseases: An ecologic analysis of 118 developing countries.** *BMC Infect Dis* 2006, **6**:172.

¹⁰ Gebremedhin S: **Assessment of the Protective Effect of Male Circumcision from HIV Infection and Sexually Transmitted Diseases: Evidence from 18 Demographic and Health Surveys in Sub-Saharan Africa.** *Afr J Reprod Health* 2010, **14**:105-113.

¹¹ Bailey RC, Halperin DT. **Male circumcision and HIV infection.** *Lancet* 2000;355:927.

¹² Mattson CL, Campbell RT, Bailey RC, et al. **Risk compensation is not associated with male circumcision in Kisumu, Kenya: a multi-faceted assessment of men enrolled in a randomized controlled trial.** *PLoS ONE* 2008;3:e2443.

¹³ (Agot KE, Kiarie JN, Nguyen HQ, Odhiambo JO, Onyango TM, Weiss NS. **Male circumcision in Siaya and Bondo districts, Kenya: prospective cohort study to assess behavioral disinhibition following circumcision.** *J Acquir Immune Defic Syndr* 2007; 44:66-70.

¹⁴ Bridges JFP, Selck FW, Grey GE, et al. **Condom avoidance and determinants of demand for male circumcision in Johannesburg, South Africa.** *Health Policy Plan* 2011;26(4):298-306.

¹⁵ Tobian AA, Kong X, Wawer MJ, Kigozi G, et al. **Circumcision of HIV-infected men and transmission of human papillomavirus to female partners: analyses of data from a randomised trial in Rakai, Uganda.** *Lancet* 2011;11:604-612.

¹⁶ Tobian AA, Gray RH, Quinn TC: **Male circumcision for the prevention of acquisition and transmission of sexually transmitted infections: the case for neonatal circumcision,** MacNeily AE, Afshar K: **Circumcision and non-HIV sexually transmitted infections.** *Can Urol Assoc J* 2011, **5**:58-59.

¹⁷ Hallett TB, Alsallaq RA, Baeten JM, et al. **Will circumcision provide even more protection from HIV to women and men? New estimates of the population impact of circumcision interventions.** *Sex Transm Infect* 2010. Advance online article.

¹⁸ Dr, Prof [Maria J Wawer](#) MD, [Frederick Makumbi](#) PhD, [Godfrey Kigozi](#) MBChB, eal. **Circumcision in HIV-infected men and its effect on HIV transmission to female partners in Rakai, Uganda: a randomised controlled trial.** *The Lancet*, [Volume 374, Issue 9685](#), Pages 229 - 237, 18 July 2009.

¹⁹ Baeten JM, Donnell D, Kapiga SH, Ronald A, John-Stewart G, Inambao M, Manongi R, Vwalika B, Celum C, Partners in Prevention HSV/HIV Transmission Study Team: **Male circumcision and risk of male-to-female HIV-1 transmission: a multinational prospective study in African HIV-1-serodiscordant couples.** *AIDS* 2010, **24**:737-744.

²⁰ USAID Health Policy Initiative: [http://www.malecircumcision.org/programs/documents/14_country_summary11309.pdf] [webcite](#) *The Potential Cost and Impact of Expanding Male Circumcision in 14 African Countries.* 33

###