Male circumcision, a surgical procedure carried out on young men and infant boys in many parts of the world including much of Africa, is now proven to reduce the risk of HIV transmission in men by approximately 60 per cent.

This protection conferred against HIV infection was proven beyond any reasonable doubt by the results from three large, randomized controlled studies undertaken between 2005 and 2007 in three countries in Africa.

Male circumcision is particularly significant for places hardest hit by the pandemic, such as countries in sub-Saharan Africa, or areas within them, where HIV prevalence is high and one third or less of men are typically circumcised. Now there is an enormous opportunity to add the procedure to the repertoire of proven HIV prevention strategies, such as reductions in the number of sexual partners, in particular the number of concurrent partners, and consistent and correct condom use. Introducing or scaling up services that offer male circumcision will have the most pronounced prevention effect in those countries bearing the brunt of AIDS.

Male circumcision has the potential to avert about 5.7 million new HIV infections and 3 million deaths over 20 years in sub-Saharan Africa.

With just over 10 per cent of the world’s population, sub-Saharan Africa has the largest number of people living with HIV – 24.7 million. In 2006, countries in this region recorded over 2.8 million new infections and the deaths of 2.1 million adults and children.

1 UNAIDS Epidemic Update 2006
Recent modelling studies by Williams and colleagues\(^2\) projected that full coverage of male circumcision has the potential to avert about 5.7 million new HIV infections and 3 million deaths over 20 years in sub-Saharan Africa.

Male circumcision is the most compelling evidence-based prevention strategy to emerge since the finding that antiretroviral medication can reduce mother-to-child transmission of HIV.

There is strong consensus and excitement in the scientific community about the potential of the procedure. Male circumcision is the most compelling evidence-based prevention strategy to emerge since the finding that antiretroviral medication can reduce mother-to-child transmission of HIV. Governments, supported by non-governmental organisations, multilateral and bilateral development partners, and others need to take decisive action now to make this life-saving strategy affordable and safely available to relevant populations bearing the heaviest burden of HIV infection.

A high-level WHO/UNAIDS Technical Consultation issued a powerful set of conclusions and recommendations\(^3\) on male circumcision in March 2007, with health experts and other stakeholders calling for prioritizing male circumcision in high HIV prevalence countries – where most infection occurs due to heterosexual transmission and where relatively few men are circumcised.

Now is the time for leaders, policy- and decision-makers, officials, and all those with the resources and influence to take action. Seizing the evidence of this important breakthrough, they can systematically and speedily inform their people of the facts and call for urgent integration of voluntary male circumcision into public health programmes.

Those acting quickly and decisively to translate the science into new practices, policies and behaviours will be rewarded – as will their people – by the great benefits accruing from a real reduction in HIV transmission, a reduction in human suffering, and substantial savings from reduced numbers of those needing AIDS treatment.

**Compelling scientific evidence**

All three of the studies undertaken between 2005 and 2007 were randomized controlled trials. Such studies, used in testing most new medicines or medical procedures, are considered the “gold standard” of research because they control or compensate for a variety of factors that might otherwise influence outcome.

Over 10,000 men were enrolled in the three trials. Each trial randomly assigned the men to one of two groups. Those in the ‘intervention’ group underwent circumcision.

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\(^3\) WHO/UNAIDS Technical Consultation, Male Circumcision and HIV Prevention: Research Implications for Policy and Programming Montreux, 6-8 March 2007
performed by trained medical professionals in a clinical setting. Those in the 'control' group had to wait to be circumcised until the end of the follow-up period of 24 months, or the end of the trial, whichever came first.

All participants in the trials, regardless of whether they were in the intervention or control group, were extensively counselled in HIV prevention and risk reduction at enrolment, after circumcision and at regular intervals during study follow-up. Access to condoms was assured.

The first randomized controlled trial to report results was conducted in a semi-urban area known as 'Orange Farm' in South Africa. With 3,274 uncircumcised men aged 18–24 years enrolled, the trial achieved a 61 per cent reduction in HIV incidence.\(^4\) The study was sponsored by Agence National de Recherches sur le SIDA, a French Government agency.

The trial carried out in Rakai, a rural area in Uganda, had a sample size of 4,996 uncircumcised men aged 15–49 years. HIV incidence was reduced by 48 per cent. This trial was sponsored by the National Institutes of Health of the United States.\(^5\)

A simultaneous trial conducted in Kisumu, an urban area in Western Kenya,\(^6\) had a sample size of 2,784 uncircumcised men aged 18–24 years. HIV incidence was reduced by 53 per cent. The trial was supported by the National Institutes of Health of the United States, and the Canadian Institutes of Health Research\(^6\).

All three trials were stopped early when interim analyses revealed results that were so compelling that it was deemed unethical to continue withholding circumcision from the control group.

Even before these randomised controlled trials, evidence about male circumcision’s benefits was accumulating. A meta-analysis of 28 published studies in 2000\(^7\) found that circumcised men are two- to three-times less likely to be infected by HIV than uncircumcised men, with differences most pronounced in men highly exposed to HIV infection. In a study of couples in Uganda,\(^8\) where the woman was HIV positive and the male partner was not, no new infections occurred among any of the 50 circumcised men over 30 months, whereas 40 of the 137 uncircumcised men became infected.

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\(^7\) Weiss HA, Quigley M, Hayes R. Male circumcision and risk of HIV infection in sub-Saharan Africa: a systematic review and meta-analysis. *AIDS* 2000;14:2361-70

\(^8\) Szabo R, Short RV. How does male circumcision protect against HIV infection? *BMJ* 2000; 320 (7249): 1592-4
Male circumcision is particularly significant for places hardest hit by the pandemic, such as countries in sub-Saharan Africa, or areas within them.

Generally view male circumcision favourably for their sexual partners and their sons.\textsuperscript{10}

Concerns about cost, pain and safety are expressed by men considering circumcision, but the benefits of improved hygiene, attractiveness and reduced susceptibility to sexually transmitted infections are strong incentives.

Following publication of the Orange Farm trial results in 2005, Members of Parliament in Swaziland and Kenya made statements about their commitment to the procedure. In Swaziland public health facilities are overwhelmed with requests and men are being put on a waiting list.\textsuperscript{11}

Research is being done into the possible occurrence of ‘risk compensation’ among men who

\textsuperscript{9} Harvard AIDS Institute survey in Botswana: Sex Transm Infect 2003;79:214-19 (UNAIDS Fact Sheet, Male circumcision and HIV, July 06)


\textsuperscript{11} Halperin, D. World Health Bulletin, vol. 84/7/news10706
have been circumcised. The term refers to the possibility that men would engage in riskier sex practices, for example unprotected sex, or sex with multiple partners, in the mistaken belief that circumcision provides total protection. There is, so far, little evidence that risk compensation actually occurs. The

The cost per infection averted in Swaziland would be $417, far less than the cost of lifelong antiretroviral treatment.

possibility, nevertheless, reinforces the need for counselling and public communication programmes about combination prevention emphasising that male circumcision is not a ‘magic bullet’ for HIV protection. It is additive to and should not replace other effective preventive behaviours, such as reductions in the number of sexual partners, particularly the number of concurrent partners, and consistent and correct condom use. Combination prevention should be the norm just as combination treatment is the standard.

Cost effective procedure

Male circumcision, at approximately US$50 per procedure according to recent estimates made in southern Africa, has potentially sizeable cost benefits.

In South Africa, the cost of setting up new surgical facilities has been estimated at $32 million, plus the same amount in annual operating costs. However, the country could eventually save nearly $1 billion from the annual bill for treating HIV-related illness.13

In Zambia, male circumcision as part of a package of HIV prevention could save $65 million for the government, by reducing the number of people becoming infected who would eventually require antiretroviral treatment.14

A study in Swaziland found that by scaling up to nearly 300,000 circumcisions from 2008 through end-2015, about 44,000 new HIV infections would be prevented in that period. The cost per infection averted would be $417, far less than the cost of lifelong antiretroviral treatment.15

In high HIV prevalence settings, the greatest public health impact will result from prioritizing expanded male circumcision services for younger men (for example between the ages of 12 and 30 years), among whom HIV prevalence may still be relatively low.

In lower prevalence settings, the highest and speediest impact will come if priority is given to men of any age with indications of being at higher risk for HIV, such as men presenting with sexually transmitted infections or HIV-negative men whose female partners are HIV positive.

The pace of scale-up is critical to both the cost per HIV infection

13 The Lancet Infectious Diseases 2007; 7:303
15 Ibid
Combination prevention should be the norm just as combination treatment is the standard.

Governments and authorities need to take the lead to ensure that male circumcision is performed safely by well trained, certified and supervised people.

The three large scale trials described show that very low complication rates can be achieved – less than 3 per cent -- when male circumcision is performed by trained workers in adequately equipped medical settings. However, a recent study in a district of Western Kenya17 (where male circumcision is already popular, and where some parents prefer to

take their sons to a medical facility, rather than to traditional providers) found that the complication rate of circumcisions performed in public health facilities was 11 per cent. The study also found that private health facilities offering circumcision had a much higher complication rate – twice that of public health facilities – and the complication rate for traditional providers was 34 per cent, far above acceptable limits.

Governments and health authorities, therefore, will need to be vigilant about training and certifying providers as well as regulating and standardising traditional male circumcision.

The resumption of sexual activity before wound healing could place a newly circumcised man at higher

16 Ibid
17 Assessment of Clinical and Traditional Male Circumcision Services in Bungoma District, Kenya; Complication Rates and Operational Needs, April 2006, Special Report by Robert C. Bailey and Omar Egesah, Published by PSI, AIDSMARK and USAID.
Male circumcision, integrated into the spectrum of HIV prevention practices, can be compared with childhood immunisation, which has saved millions of lives world-wide.

Kenya, Lesotho, Malawi, Mozambique, Namibia, Swaziland, Tanzania and Zambia have also established Government-led National Task Forces on Male Circumcision for HIV Prevention. Kenya and Zambia have started preparing National Policies.

Clearly, the issue is being taken seriously by many. But all concerned governments now need to play the central role that only they can play to translate knowledge into policy and programmes. Implementing the important “Conclusions and Recommendations from the Montreux Technical Consultation on Male Circumcision and HIV Prevention” is a vital step.

There are, of course, challenges ahead. The introduction of medical male circumcision, will need to be accompanied by the strengthening of health-service capacity in much of sub-Saharan Africa. A survey of health facilities in Kenya, for example, found that all but the major district hospitals are lacking the necessary sterilizing equipment, working surgical instruments and supplies to perform safe circumcisions. But challenges can be overcome and the benefits – stronger health systems and trained health workers along with reduced HIV risk – will be enormous.
Governments and all international development partners need to plan and allocate resources for the work in this priority area -- human resource and training needs, health service infrastructure, commodities and logistic requirements, and systems for supervision, monitoring, evaluation, and follow-up.

Public communication campaigns among communities and all stakeholders are needed. People must be encouraged to consider male circumcision because of its potential to reduce HIV risk. All decisions about undergoing the procedure need to be fully informed and completely voluntary. Parents must be responsible for weighing the pros and cons before deciding whether infant and young boys should be circumcised.

Male circumcision, integrated into the spectrum of HIV prevention practices, can be compared with childhood immunisation, which has saved millions of lives world-wide. The leaders and people of Africa now need to press ahead to claim its proven benefits.

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**Key resources**

The following documents and training resources are available now or will be soon on the following internet addresses.


Manual for Male Circumcision under Local Anaesthesia, WHO, UNAIDS, JHPIEGO to be published September 2007, pre-publication copy available through FarleyT@who.int

Male Circumcision Decision-makers’ Tool. Under development. Concept paper available through hankinsc@unaids.org

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This document was produced by the UNICEF Eastern and Southern Africa Regional Office (ESARO) with substantial inputs from the WHO Regional Office for Africa, WHO HQ and UNAIDS. It is issued jointly by UNICEF ESARO, the WHO Regional Office for Africa and the UNAIDS Regional Support Team for Eastern and Southern Africa.

AUGUST 2007