

# Male Circumcision

### Overview

- There is now clear evidence to show that circumcision can reduce the risk of HIV infection through vaginal intercourse in heterosexual men by up to 60%
- The WHO and UNAIDS have recommended that circumcision be included as an additional, important element in HIV prevention programmes
- Men undergoing circumcision should be advised that condoms are still necessary and are still the best way of preventing HIV transmission through sexual intercourse
- More data is needed on the benefit of circumcision to men who have sex with men and on the protective benefit to the female partners of HIV-positive circumcised men.

### FACT

#### International AIDS Conference 2010

At the recent conference in Vienna, it was suggested that over four million new HIV infections in East and Southern Africa could be prevented by 2025 if male circumcision was increased by 80%, along with a \$20.2 billion saving in HIV-related health costs between 2009-2025.



### Evidence of effectiveness of circumcision in HIV prevention

There have been three randomised controlled trials on the effects of circumcision on HIV infection. The first took place near Johannesburg, South Africa<sup>1</sup> and was stopped early in 2005 when the data showed a significant reduction in HIV risk, of 60 per cent, in the circumcised group.

Two other large trials, one in Kisumu, Kenya<sup>2</sup> and one in Rakai, Uganda<sup>3</sup> followed this trial. Both these trials were also stopped early after data showed at least a 53 per cent and 51 per cent reduction in risk respectively.

During the Kenya trial, 2,784 men, were recruited and 1,391 were assigned to the circumcision group and 1,393 to the uncircumcised control group. During the trial period 22 men in the intervention group and 47 in the control group were diagnosed HIV positive.

This translates to a 2-year HIV incidence of 2.1 per cent for those circumcised and 4.2 per cent for those uncircumcised - a significant reduction in incidence but one that is still high for the uncircumcised group. Similarly, high prevalence amongst both control

and circumcision groups was noted in the other studies.

This highlights that circumcision alone is not an adequate prevention strategy.

Prior to the three randomised trials, there were a number of ecological and observational studies on the effects of circumcision which suggested a link. An article published in *AIDS* in 2000 conducted a review of the data available at the time for female-to-male transmission in sub-Saharan Africa and concluded there was a significantly reduced risk of HIV infection amongst circumcised men in the region.<sup>4</sup>

1. "Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: The ANRS 1265 Trial", *PLoS Medicine* 2(11) 25 Oct 2005

2. "Male circumcision for HIV prevention in young

men in Kisumu, Kenya: a randomised controlled trial" *The Lancet* Vol 369, Feb 4 2007

3. "Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial" *The Lancet* Vol 369, Feb 24 2007

4. "Male circumcision and risk of HIV infection in sub-Saharan Africa: a systematic review and meta-analysis" *AIDS* 2000, 14, 2361-2370

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### How is circumcision thought to prevent HIV?

Several protective benefits of circumcision have been shown. The inner surface of the foreskin contains a large number of Langerhans cells.<sup>5</sup> These are uniquely vulnerable to HIV and are thought to provide a main entry point in the body for the virus, which is able to attach itself to receptors in the cells.<sup>6</sup> The virus does not infiltrate cells on the outer surface of the foreskin because it is protected by layers of closely packed cells.

When the foreskin is retracted during sexual intercourse, it exposes the entire inner surface to vaginal fluids (during heterosexual sex), thus exposing a large area to potential infection. In contrast, the outsides of the foreskin and the penis shaft have a natural barrier that helps to prevent infections, such as HIV, entering the body. The foreskin may also be subject to small tears, which also provide a potential transmission route. With the foreskin removed, as in circumcision, the potential routes for HIV to enter the penis are therefore reduced.

Another benefit is that circumcision is believed by scientists, to reduce the rates of some sexually transmitted infections and genital ulcers, which are also a risk factor for HIV transmission.

### Reactions

Following the publication of the data from the two terminated studies in 2006 many called for circumcision to be included in prevention strategies for HIV. The WHO and UNAIDS now state that “male circumcision should now be recognised as an efficacious intervention for HIV prevention” and “promoting male circumcision should be recognised as an additional, important strategy for the prevention of heterosexually acquired HIV infection in men.”<sup>7</sup>

Some African countries have introduced circumcision programmes. Kenya and Zimbabwe aim to circumcise up to 80% of uncircumcised men aged 15 to 49 within the next 10 years by using better techniques, training equipment and staff.

There has been a strong note of caution in most of the reactions to the trial data. In particular, the WHO and UNAIDS have included several caveats to their recommendation that circumcision be offered as a prevention option. Some of the challenges associated with promoting male circumcision are highlighted in the following section.

**“Promoting male circumcision should be recognised as an additional, important strategy for the prevention of heterosexually acquired HIV infection in men**

*WHO and UNAIDS, 2007*

5. The function of Langerhans cells is to absorb antigens, such as toxins and bacteria, that get into the skin and then present them to immune system cells to fight them off.

6. “How does male circumcision protect against HIV infection? BMJ 2000;320:1592-1594, [http://unaids.org/en/Issues/Prevention\\_treatment/MC.asp](http://unaids.org/en/Issues/Prevention_treatment/MC.asp)

7. “New data on male circumcision and HIV prevention: policy and programme implications” UNAIDS, WHO, 28 March 2007, [http://www.unaids.org/en/Issues/Prevention\\_treatment/MC](http://www.unaids.org/en/Issues/Prevention_treatment/MC)

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### Challenges Related to Circumcision

#### Behaviour Disinhibition

Perhaps the most significant challenge related to promoting circumcision is that it is not 100 per cent effective at preventing HIV transmission.

There is a worry that people may misunderstand its protective benefit and become unconcerned about practicing safer sex. This could result in a failure to take additional precautions, such as using condoms or partner reduction, to protect themselves against HIV. If men increase their risk behaviours because they believe that circumcision alone is enough to protect themselves they may counter the effectiveness of circumcision.

In the South Africa trial there was evidence that men in the circumcision group had increased their number of sexual partners. No evidence of an increase in risk behaviour was apparent in the Kenya and Uganda trials, however the rates of HIV acquisition amongst the circumcision group, although lower than the control group, were still high overall despite the effort put into prevention messages, counselling and condom provision.

#### Transmission routes

There is also a concern about the benefits of male circumcision to female and male partners. The three studies have all focused on protection offered by circumcision in cases of female-to-male transmission and not male-to-female or male-to-male.

The epidemic in Africa, where the trials took place, is overwhelmingly heterosexual and female. There is a fear that male circumcision may counter attempts at female empowerment in HIV prevention, which links to the worries about risk perception outlined previously. If men feel that circumcision is the only protection they need then they may be even more unwilling to use a condom. This would make it harder for women to negotiate condom use and could put them at more risk of acquiring HIV, particularly if risk behaviour around the number of partners also increases.

There is no clear evidence about the effect circumcision has on male-to-female transmission, where the circumcised man is HIV positive. There is some observational data that suggests there is a benefit, but no large randomised trial has been conducted.

Similarly, there is no clear evidence about the effect circumcision has on transmission through anal sex, for either the insertive or receptive partner.

This is naturally an issue for men who have sex with men (MSM), as well as for heterosexual couples who practice anal sex, and may affect whether circumcision is deemed a valuable prevention tool in countries where the epidemic is primarily found in MSM.



*Consistent Condom use  
remains vital*

There is evidence from the US suggesting there was a two-fold increase in chances of becoming HIV positive for those who were not circumcised.<sup>8</sup> But there has not been a large randomised trial to confirm these findings. Currently the Centre for Disease Control in the US is undertaking additional research to determine whether circumcision promotion would be appropriate for the US, and tells individuals that they may wish to consider it as an additional prevention measure.

Two observational studies, one in Sydney, Australia<sup>9</sup>, and the other in the UK<sup>10</sup> showed no benefit of circumcision for either insertive or receptive partners in anal intercourse.

8. "Male circumcision and risk for HIV transmission: implications for the United States, Centre for Disease Control and Prevention" March 2007, <http://www.cdc.gov/hiv/resources/factsheets/circumcision.htm>

9. IAS: Circumcision may be acceptable to some gay men, but study says no value for HIV prevention, [www.aidsmap.com/en/news/6F898D49-BF01-4E6E-AFAC-2C3D274D91EB.asp](http://www.aidsmap.com/en/news/6F898D49-BF01-4E6E-AFAC-2C3D274D91EB.asp)

10. "Circumcision and HIV infection among MSM in Britain: the role of the insertive role", City University London, International AIDS Conference 2010, Poster THPDC106

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### Safety of circumcision

Safety of circumcision is another factor that needs to be taken into account. It is not a risk free procedure and in resource poor settings there may not be the medical staff or facilities to satisfy demand or carry out the procedure safely.

Circumcision in the trials was done under the best possible medical care and this may not always be possible in the community and could impact on effectiveness. If facilities are not of a high enough standard there is the potential risk of HIV transmission occurring through cross contamination of equipment. There is also the possibility of complications such as bacterial infection caused by unsterile conditions or medical complications caused by inadequately trained staff.

Linked to this are discussions of using traditional methods of circumcision and if these can or should be accommodated into circumcision roll outs. In some areas where circumcision has been traditionally practiced there have been concerns about the traditional methods of circumcising being unsafe.

Indeed in South Africa circumcision of boys under 16 (except for medical reasons) has been banned to protect boys from unsafe practices. Whilst not all traditional methods will be unsafe, attention needs to be paid to ensure circumcision is done in a safe way to avoid transmitting blood borne viruses, damage to the penis, or infection.

### Culture and religion

The practice of infant circumcision and the cultural meanings attached to it has also attracted controversy. In some cultures boys will be circumcised whilst still babies, others wait until the boy enters puberty, and others do not circumcise at all. Infant circumcision has been criticised by some as a 'mutilation' of boys without their consent and is seen by some critics to have no medical reason in most cases.

However, some stakeholders suggest that routinely circumcising infants and prepubescent boys may provide better protection from HIV in the long-run (as it is done before they become sexually active).

However, ethical questions arise over whether it is acceptable to circumcise an infant to protect against a sexually transmitted infection that they may not acquire or can protect against in other ways.

Circumcision of teenage boys also raises similar concerns over their ability to consent when it is seen as a cultural rite of passage or a religious duty.

However, many acceptability studies have shown that in African areas where male circumcision is not traditionally practiced, the majority of men are willing to have the procedure performed if it reduces the risk of HIV transmission

## Actions

**In order to address all these concerns the following actions need to be taken into account:**

- Any promotion of circumcision will need to be accompanied by clear and robust information on its benefits and limitations
- Men undergoing the procedure will need to understand that it will not provide complete protection from HIV and they will still need to practice other prevention methods, such as condom use, partner reduction, and sexual debut delay
- There should also be information about the importance of condom use for anal sex, whether this is with a male or female partner
- Men should be tested for HIV before being circumcised
- Finally, circumcision should not draw money away from other prevention efforts and should not be seen, as indeed no one prevention option should be, as the sole answer to HIV prevention. A comprehensive approach is needed.

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### Conclusions

The results from the three randomised trials make it clear that circumcision is an effective tool for reducing HIV transmission and the WHO and UNAIDS now recommend it is included as part of the prevention toolkit.

However, circumcision is not without its challenges. There are concerns over the way circumcision might be practiced and whether experienced people will do it in appropriate settings in a safe manner. There are also cultural and religious issues to consider, and the ethics of circumcising infants who cannot consent to the procedure. These issues are probably best addressed by the countries rolling out circumcision programmes.

What the programmes also need to provide are services that include HIV testing, counselling, diagnosis and treatment of STI's, condom promotion, behavioural change and promotion of other prevention methods.

Importantly circumcision should not be seen as a prevention tool for everyone; currently the only clear protection is for female-to-male transmission.

It may provide some protection for women having sex with an HIV positive male partner, and for MSM, but there have been no randomised trials to prove this.

It should not be seen as a 'magic bullet' or a sole method of HIV prevention, as although it may reduce risk by up to 60 per cent it does not eliminate it completely. If men increase their risk behaviour in the belief that circumcision has protected them they may negate the beneficial effects of circumcision. Thus it should always be seen as a companion tool to be used alongside condoms, partner reduction, sexual debut delay, and other tools.

Because of this, circumcision should not be provided at the expense of other prevention options, particularly as the benefit for women is not clear. It should be stressed that condoms remain the most effective current prevention tool and nothing in circumcision advocacy should compromise or dilute the message that consistent condom use remains vital.



Zimbabwean Poster Campaign for MC

## Sources of information

### NAT (National AIDS Trust)

[www.nat.org.uk](http://www.nat.org.uk)

NAT is the UK's leading charity dedicated to transforming society's response to HIV. We develop policy and campaign for change to stop the spread of HIV and improve the lives of people living with HIV. We provide fresh thinking, expert advice and practical resources.

### World Health Organisation (WHO)

[www.who.int](http://www.who.int)

The directing and coordinating authority for health within the UN system. Responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends.

### UNAIDS

[www.unaids.org](http://www.unaids.org)

The Joint United Nations Programme on HIV/AIDS, is an innovative partnership that leads and inspires the world in achieving universal access to HIV prevention, treatment, care and support.

### Clearing House on Male Circumcision for HIV prevention

[www.malecircumcision.org](http://www.malecircumcision.org)

A collaborative effort to generate and share information resources with the international public health community, civil society groups, health policy makers, and programme managers.