

Male circumcision reduces HIV risk in heterosexual men

This focus is adapted from a Cochrane Review produced by the South African Cochrane Centre, based at MRC, South Africa

Three African trials support male circumcision for reducing the risk of contracting HIV in heterosexual men. *The Cochrane Review*, updated to include these trials, now shows that research on the effectiveness of male circumcision for preventing HIV in heterosexual men is conclusive.

No further trials are required to establish that HIV infection rates are reduced in heterosexual men for at least the first 2 years after circumcision. Policymakers can consider implementing circumcision as an additional measure in HIV-prevention programmes. Circumcision may help to protect against HIV by removing cells in the foreskin to which the virus is specifically attracted; called Langerhans cells, they display receptors that enable HIV entry.

Previous studies investigated the association between circumcision and HIV, but until now, Cochrane researchers have been unable to make strong recommendations for the intervention due to a lack of high-quality evidence gained from randomised clinical trials.

The clinical trials included in the review took place in South Africa, Uganda, and Kenya between 2002 and 2006, and included a total of 11 054 men. The results show that circumcision in heterosexual men significantly reduces their risk of acquiring HIV by 54% over a 2-year period, compared with uncircumcised men. This reduced risk is the best estimate of the average effect and the researchers report that the true risk will be reduced by between 38 and 66%.

Further research, however, is required to establish whether male circumcision offers any benefit to women partners of circumcised men and homosexual men. In addition, policymakers need to think about the culture and environment in which circumcision is carried out. In many countries, male circumcision is practiced as part of the rites of initiation by traditional healers who are not trained in aseptic surgical techniques.

Recommended readings

1. *Male circumcision and HIV*

Authors: UNAIDS; UNICEF

Publisher: World Health Organization, 2008

Numerous observational studies indicate that circumcised men have lower levels of HIV infection than uncircumcised men. This short factsheet from UNAIDS briefly outlines three randomised controlled trials of male circumcision which have been carried out in East and Southern Africa.

The document provides a brief overview of circumcision and the cultural and religious practices connected with it. The authors then consider how male circumcision could help to prevent HIV. By removing the foreskin which is not toughened on its underside, circumcision reduces the ability of HIV to penetrate the skin of the penis. Laboratory research has revealed that on the underside of the foreskin are located many special immunological cells that are prime targets for HIV. The factsheet then briefly considers other health-related problems associated with circumcision and female genital mutilation.

Available online at: <http://www.eldis.org/go/topics/resource-guides/hiv-and-aids&id=44124&type=Document>

2. *Does male circumcision prevent HIV infection?*

Author: N Siegfried

Publisher: *Public Library of Science Medicine*, 2005

Given the devastating mortality and morbidity associated with HIV and AIDS, many potential prevention measures against HIV infection have been explored. Male

circumcision is one of these. This short article from the *Public Library of Science Medicine* reports results from the first completed trial of male circumcision for reducing HIV infection in South African heterosexual men.

The author conducted a randomised and blindly evaluated trial in a semiurban area near Johannesburg in which the background HIV prevalence rate among heterosexual men was 4.4%. The results showed that, after excluding those men who were HIV-positive at the beginning of the trial, the risk of acquiring HIV infection was significantly reduced by 60% in the men who had undergone circumcision. The author shows how the trialists suggest that circumcision could be rapidly incorporated into national plans of countries where circumcision is not widely practiced, while recognising that promotion of circumcision may also lead to undesirable outcomes such as undermining condom promotion. The author argues that the researchers are right to argue that we need to seriously consider circumcision as a potential prevention method, but it seems wise to be more cautious in making recommendations for policy. Available online at: <http://www.eldis.org/go/topics/resource-guides/hiv-and-aids&id=44125&type=Document>

3. *The role of male circumcision in the prevention of human papillomavirus and HIV infection*

Authors: R H Gray; M J Wawer; D Serwadda; G Kigozi

Publisher: *Journal of Infectious Diseases*, 2008

Two articles in this issue of the *Journal of Infectious Diseases* add to the growing body of evidence that male circumcision may reduce carriage of penile human

papillomavirus (HPV). The first article is a secondary analysis from a randomised trial of male circumcision for HIV prevention among South African men aged 18–24 years. The investigators reported that, after 21 months of follow-up, the point prevalence of high-risk HPV (HR-HPV) in urethral swab samples was 14.8% among men in the intervention arm compared with 22.3% in uncircumcised control subjects.

The second article is a cross-sectional analysis of HPV detected at multiple anogenital sites in 463 US men, 16% of whom were uncircumcised. The investigators found a prevalence of any HPV genotype of 51.2% in circumcised men and 51.4% in uncircumcised men, suggesting that there was no protective effect. However there were substantial differences in risk profiles between the circumcised and uncircumcised men. In particular, the uncircumcised men were younger, less likely to be white, and more likely to be Hispanic, and they reported having had significantly more sex partners during the prior 3 months. These characteristics are likely to be associated with increased HPV infection and could confuse results. The authors show how the lack of clarity in the studies of circumcision and HPV infection stands in sharp contrast to the consistency of evidence that circumcision reduces HIV acquisition in men, which has been demonstrated in three previous randomised trials. The articles conclude that the public health importance of this surgery needs to be recognised for the prevention of HIV infection in minority US populations.

Available online at: <http://www.eldis.org/go/topics/resource-guides/hiv-and-aids&id=44146&type=Document>

4. *Male circumcision: global trends and determinants of prevalence, safety and acceptability*

Authors: London School of Hygiene & Tropical Medicine; UNAIDS

Publisher: World Health Organization, 2007

There is conclusive evidence from observational data and three randomised controlled trials that circumcised men have a significantly lower risk of becoming infected with the human immunodeficiency virus (HIV). This report from the World Health Organization reviews the determinants, prevalence, safety, and acceptability of male circumcision, focusing on sub-Saharan Africa. The authors review the religious, cultural, and social determinants of male circumcision and estimate the prevalence at global and regional levels. The report then summarises medical aspects of the procedure, including medical indications for circumcision, surgical methods used, and the complications of circumcision carried out in clinical and non-clinical settings.

The public health implications of the fact that male circumcision reduces risk of HIV infection are then considered, including a summary of the acceptability of adult male circumcision in currently non-circumcising populations in sub-Saharan Africa with high incidence of HIV. The authors find that there is substantial evidence that male circumcision protects against several diseases, including urinary tract infections, syphilis, chancroid, and invasive penile cancer, as well as HIV. However, as with any surgical procedure, there are risks involved. Recent studies of acceptability among non-circumcising communities with high prevalence of HIV

in southern Africa were fairly consistent in finding that a majority of men would be willing to be circumcised if it were done safely and at minimal cost. The report concludes that there is increasing demand for male circumcision in southern Africa and future expansion of circumcision services must be embedded within comprehensive HIV prevention programming, including informed consent and risk-reduction counselling.

Available online at: <http://www.eldis.org/go/topics/resource-guides/hiv-and-aids&id=44147&type=Document>

5. *Circumcision: a surgical strategy for HIV prevention in Africa*

Authors: I T Katz; A A Wright

Publisher: *New England Journal of Medicine*, 2008

Public health officials are now arguing that circumcision of men should be a key weapon in the fight against infection with the human immunodeficiency virus (HIV) in Africa. Recent studies have shown that circumcision reduces infection rates by 50–60% among heterosexual African men. This article in the *New England Journal of Medicine* examines the past research and future obstacles associated with introducing circumcision as a preventative measure. The authors discuss the results from previous randomised trials which suggest that circumcision reduced the rate of HIV infection among heterosexual men by 60%. Researchers have also found that circumcision provides increased protection against the human papillomavirus, herpes simplex virus, syphilis, and chancroid.

The authors highlight how most people involved in scaling up adult male circumcision recognise that the surgery is a costly endeavour and a socially complex intervention that may compromise other public health priorities. Reaching women through other prevention methods is also important because there is no direct evidence to date that circumcision reduces the risk of transmission from men to women. The article concludes that although circumcision has increasing support from researchers, donors, and politicians, its status as a non-behaviour-based intervention may ultimately be its biggest obstacle. The scale up of circumcision will require strong political backing, adequate funding, and leaders to champion the cause to ensure that it is a safe, low-cost option available throughout Africa.

Available online at: <http://www.eldis.org/go/topics/resource-guides/hiv-and-aids&id=44148&type=Document>

Further information

1. Siegfried N, Muller M, Deeks JJ, Volmink J. Male circumcision for prevention of heterosexual acquisition of HIV in men. *Cochrane Database of Systematic Reviews* 2009, Issue 2.
2. <http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD003362/frame>
3. Audio version. http://www.cochrane.org/podcasts/review_summaries/2009issue2/index
4. South African Cochrane Centre. <http://www.mrc.ac.za/cochrane/cochrane.htm>.
5. Effective Health Care Research Programme Consortium. <http://www.liv.ac.uk/evidence>
6. Circumcision, Eldis HIV and AIDS Resource Guide. <http://www.eldis.org/go/topics/resource-guides/hiv-and-aids/prevention/circumcision>

