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## **Male circumcision for the prevention of HIV**

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# Outline of talk

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- **How might circumcision reduce risk of female to male transmission?**
- **Data from observational studies**
  - Africa
  - Developed countries
  - Male to female transmission
  - Transmission between homosexual men
- **Recent data from randomised controlled trials**
- **WHO/UNAIDS recommendations on the implementation of circumcision as HIV prevention**
- **Conclusions**

# How might circumcision prevent HIV infection?

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- **The inner surface of the human foreskin is exposed upon erection, and has a high density of HIV target cells (Langerhans' cells, CD4+ T cells, and macrophages)**
  - **HIV target cells on the outer surface and the glans of the penis are protected by a layer of squamous epithelium greater**
- **Difficulties with hygiene with the uncircumcised penis may be associated with more exposure to vaginal fluids and thus more exposure to HIV**
- **A lack of circumcision may be associated with a greater incidence of ulcerative sexually transmitted infections**
- **The foreskin may be susceptible to abrasions.**

## Observational data: Africa



- The evidence that circumcision may prevent heterosexual transmission of HIV has been growing for years.
- Those countries of sub-Saharan Africa with highest HIV rates are those with very low circumcision rates
- Observational data that rates of HIV infection are substantially lower in HIV infected men

Table 2. HIV incidence rates by circumcision status and selected sociodemographic/behavioral and health characteristics.

	Circumcised HIV-negative men			Uncircumcised HIV-negative men		
	No.	Incident HIV cases/py	HIV incidence/100 py	No.	Incident HIV cases/py	HIV incidence/100 py
All	908	18/1683	1.1	4608	154/8548	1.8**
Age at circumcision (years)						
≤ 12	726	13/1348	0.9	na		
13+	178	5/335	1.5	na		
Age (years)						
15–19	195	3/313	1.0	1252	20/2120	0.9
20–29	317	8/583	1.4	1735	69/3156	2.2
30–39	210	5/423	1.2	748	33/1459	2.3
40+	186	2/372	0.5	864	32/1792	1.8

## Observational data: developed countries

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- **MUCH less research evidence is available**
- **Epidemics tend to be more diverse, with more transmission due to injecting drug use and homosexual contact**
- **The US has one of the highest rates of heterosexual HIV in the developed world but one of the highest rates of circumcision**
- **Only two follow up studies, one in India and one in the US, have provided suggestive evidence that circumcision may be associated with slightly reduced HIV risk in heterosexuals**

## Male to female transmission

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- **Among female partners of men with low to moderate viral loads, observational data suggest that circumcision may reduce transmission of HIV (Gray AIDS 2000).**
- **A randomized controlled trial of circumcision among HIV sero-discordant couples in Rakai, Uganda, has recently stopped recruitment on the advice of the Data and Safety Monitoring Board because of concern that numbers would be inadequate to show a protective effect**
  - **Preliminary results from the trial showed no significant difference in HIV transmission from circumcised HIV positive men compared to uncircumcised HIV-positive men.**
  - **Preliminary data from the trial suggested that recently circumcised HIV-positive men who resumed sexual activity before wound healing were more likely to transmit HIV than those who waited until complete wound healing, but this observation was based on very small numbers.**

## Homosexual men

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- **Most are infected by receptive sex, not insertive sex**
- **Currently very few studies, and conflicting data**
- **Data to be presented at this conference suggest that circumcision is not associated with reduced risk in this population**

D Templeton et al, oral presentation, IAS 2007

## The recent data from randomised trials

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- **The best evidence comes from a prospective study where men are randomised to be circumcised or not, and followed through time**
- **Three Southern African studies**
  - **South Africa (Auvert PLOS med 2005)**
  - **Kenya and Uganda, data published in early 2007**
- **All three studies showed a 50-60% reduction in HIV incidence in the circumcised men**



**Conclusion 1:**

**The research evidence that male circumcision reduces HIV risk is compelling**

**Recommendations :**

- 1.1 Male circumcision should now be recognized as an efficacious intervention for HIV prevention.**
- 1.2 Promoting male circumcision should be recognized as an additional, important strategy for the prevention of heterosexually acquired HIV infection in men.**

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- **Conclusion 2:**
  - **Male circumcision does not provide complete protection against HIV. In all three randomized controlled trials HIV incidence remained high in the circumcised men (0.7 to 1.0 per 100 person-years).**
  
- **Recommendations:**
  - **2.1 Male circumcision should never replace other known methods of HIV prevention and should always be considered as part of a comprehensive HIV prevention package, which includes:**
    - **promoting delay in the onset of sexual relations,**
    - **abstinence from penetrative sex and reduction in the number of sexual partners;**
    - **providing and promoting correct and consistent use of male and female condoms;**
    - **providing HIV testing and counselling services; and**
    - **providing services for the treatment of sexually transmitted infections.**

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- **Conclusion 3: Correct communication and messages on male circumcision are critical**
  
- **Recommendations:**
  - **3.1 Communication strategies need to ensure that circumcision is promoted within the context of comprehensive HIV prevention.**
  - **3.2 Messages need to be developed to ensure that men opting for the procedure, and where possible, their partners are counselled that male circumcision is only partially protective**
  - **3.3 Messages and counselling should stress that resumption of sexual relations before complete wound healing (6 weeks) may increase the risk of acquisition of HIV infection.**
  - **3.4 Messages should be carefully tailored, culturally sensitive, draw on local language and symbols, and should be addressed to both men and women.**
  - **3.5 Clear messages should be developed to inform communities about what is known and what is not known about male circumcision, including lack of data on direct protection for women, or for either partner during anal sex with men or women.**

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- **Conclusion 4: The socio-cultural context should inform male circumcision programming**
  
- **Recommendations:**
  - **4.1 Countries and institutions promoting male circumcision for HIV prevention should ensure that it is delivered in a manner that minimizes stigma associated with circumcision status.**
  - **4.2 Countries and international development partners should make resources available to support community and stakeholder consultations, involving traditional practitioners in places where they perform male circumcision to ensure participation of all relevant partners in the design of safe circumcision programs.**
  - **4.3 The socio-cultural implications of male circumcision should be assessed at national and local levels with the participation of key stakeholders and taken into account in the design and implementation of policies and programs.**

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- **Conclusion 5: Human rights, legal and ethical principles must guide service delivery**
- **Recommendations:**
  - **5.1 Countries should ensure that male circumcision is provided with full adherence to ethics and human rights principles. Informed consent, confidentiality and absence of coercion should be assured.**
  - **5.2 Where male circumcision is provided for minors, there should be involvement of the child in the decision-making. Parents who are responsible for providing consent for the circumcision of male infants, should be given sufficient information regarding the benefits and risks.**
  - **5.3 Before policy makers and program developers promote male circumcision for specific population groups, they should justify the reasons after conducting an analysis of the ethical and gender implications; this analysis should be conducted in consultation with members of such population groups**
  - **5.4 Countries considering the introduction or expansion of male circumcision services for HIV prevention should ensure that appropriate laws, regulations and policies are developed so that male circumcision services are accessible, provided safely and without discrimination.**

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- **Conclusion 6: The gender implications of male circumcision as an HIV prevention method must be addressed**
  
- **Recommendations:**
  - **6.1 Policy makers and program managers should maximize the opportunity that male circumcision programs afford for education and behaviour change communication, promoting shared sexual decision-making, gender equality, and improved health of both women and men.**
  - **6.2 Policy makers and program developers should adopt approaches to the scale-up of male circumcision services that include the goals of changing gender norms and roles and promoting gender equality; program managers should monitor and minimize potential negative gender-related impacts of male circumcision programs.**
  - **6.3 Male circumcision service provision should be used as an opportunity to address the sexual health needs of men, and such services should actively counsel and promote safer and responsible sexual behaviour.**

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- **Conclusion 7: Programs should be targeted to maximize the public health benefit**
  
- **Recommendations:**
  - **7.1 Countries with hyperendemic and generalized HIV epidemics and low prevalence of male circumcision should identify priority geographic settings where male circumcision is likely to have the greatest impact on the HIV epidemic**
  - **7.2 Such countries should consider scaling up access to male circumcision services as a priority for adolescents and young men.**
  - **7.3 Since neonatal circumcision is a less complicated and risky procedure than circumcision performed in young boys, adolescents or adults, such countries should consider how to promote neonatal circumcision**
  - **7.4 Countries with other HIV epidemic situations should carefully consider the potential impact that promoting male circumcision and expanding safe circumcision services will have on their HIV epidemic.**
  - **7.5 Careful monitoring and evaluation of male circumcision service delivery for possible untoward effects such as increases in unsafe and unprotected sex and increases in sexual violence should be undertaken to ensure that programmes promoting male circumcision for HIV prevention meet their desired objectives.**
  - **7.6 Male circumcision services should not be delivered in isolation, but as part of a minimum package which includes information about the risks and benefits of the procedure, counselling about the need to adopt and maintain safer sex practices, access to HIV testing, condom promotion and provision, and the management of sexually transmitted infections.**

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- **Conclusion 8: Health services need to be strengthened to increase access to safe male circumcision services**
  
- **Recommendations:**
  - **8.1 Needs assessments should be undertaken to describe and map out the anticipated scope of male circumcision scale-up, human resource and training needs, infrastructure, commodities and logistic requirements, costs and funding, and systems for monitoring, evaluation and follow-up.**
  - **8.2 Training and certification of providers should be rapidly implemented to increase the safety and quality of services in the public and private sectors.**
  - **8.3 Supervision systems for quality assurance should be established along with referral systems for the management of adverse events and complications.**
  - **8.4 Information on traditional practices is required and ways should be found to engage traditional practitioners to improve the safety of their services and counselling on sexual and reproductive health.**
  - **8.5 Appropriate service delivery models depend on the context and should be determined locally.**

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- **Conclusion 9: Additional resources should be mobilized to finance the expansion of safe male circumcision services**
  
- **Recommendations:**
  - **9.1 Countries should estimate the resources needed, develop costed national plans and allocate resources for male circumcision services without taking away resources from other essential health programs.**
  - **9.2 In view of the large public health benefit of expanding male circumcision services in countries with generalized HIV epidemics, such countries should consider providing male circumcision services at no cost or at the lowest cost possible to the client, as for other essential health services.**
  - **9.3 Bilateral and multilateral donors should consider male circumcision as an important, evidence-based intervention for HIV prevention and allocate resources accordingly.**
  - **9.4 Countries that decide to promote male circumcision for HIV prevention should ensure that existing resources are used as efficiently as possible and that sufficient resources are allocated to establish services that will be sustainable for the long term.**



- **Conclusion 10: Promoting circumcision for HIV-positive men is not recommended**
  
- **Recommendations:**
  - **10.1 Based on the current available evidence, male circumcision is not recommended for HIV-positive men as an intervention to reduce HIV transmission to women.**
  - **10.2 If medically indicated, male circumcision should be provided to all men irrespective of HIV status.**
  - **10.3 If male circumcision is requested by men with HIV infection following in-depth counselling on the known risks and benefits, it should not be withheld unless it is medically contraindicated.**
  - **10.4 HIV testing should be recommended for all men seeking male circumcision, but should not be mandatory.**

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- **Conclusion 11: Research is needed to guide program implementation**
- **Recommendations:**
  - **11.1 Further research should be conducted to clarify the risks and benefits of male circumcision with regard to HIV transmission from HIV-positive men to women, for men who have sex with men and in the context of heterosexual anal sex. The safety of male circumcision in HIV-positive men should be studied further.**
  - **11.2 Operations research should be conducted as services are scaled up to determine the best models and packages for service delivery in different epidemic settings, for different population groups and at different ages, how to achieve optimum quality services, including effective counselling methods, and to document changes in HIV-related individual and community perceptions and behaviours.**
  - **11.3 More information should be gathered on the resource needs required to expand safe male circumcision services.**
  - **11.4 Other potential benefits or risks of male circumcision, including the potential protective effects of male circumcision on other sexually transmitted infections, should be investigated.**
  - **11.5 Simpler and safer methods for performing male circumcision in resource-limited settings, including the use of suture-less, blood-free procedures and devices, need to be developed and assessed.**

## Conclusion

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- **Male circumcision has now been shown to be a efficacious intervention to prevent HIV infection in heterosexuals**
- **It is only partially efficacious, and not a “magic bullet”**
- **How effective it will be in reducing HIV in the real world is uncertain and will depend on the design and delivery of comprehensive intervention programs.**