Male Circumcision

What is male circumcision?

- Male circumcision is the removal of some or all of the foreskin from the penis through a surgical procedure.

What is the biological plausibility of circumcision for HIV prevention?

- There are several biological explanations believed to play a role in the association between male circumcision and susceptibility to HIV infection. The inner foreskin has high concentrations of Langerhans' cells, which are more vulnerable to HIV because they have a comparatively thinner layer of the protein keratin[I] that surrounds skin cells. Although there are Langerhans' cells on the glans and urethra, these areas have thicker keratin layers, making the cells less vulnerable HIV targets.[1]
- Additionally, the inner foreskin is believed to provide a moist, warm environment where the HIV virus can last longer. The increased exposure time to the HIV pathogen along the inner foreskin may make uncircumcised men more vulnerable to HIV infection.[2]
- Small tears on the foreskin of uncircumcised men may increase exposure to HIV during sex.[3]

What is known about circumcision and HIV transmission among MSM?

There are no experimental studies on the effect of circumcision on HIV transmission during anal sex among MSM.[4] Moreover, the quality of available evidence documenting the effect of male circumcision in reducing HIV risk among MSM is considered "low" according the World Health Organization's Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) criteria.

- According to a systematic review of 21 observational studies (ie, non-randomized controlled trials), there is no evidence that circumcision has protective benefits for MSM who are primarily receptive ("bottom") during anal sex. The study observed no significant differences in odds of HIV infection between receptive MSM who were circumcised and those who were uncircumcised.[4]
- The same review estimated that MSM who are primarily insertive ("top") during anal sex significantly benefited from circumcision. Those who were circumcised had 73% reduced odds of HIV infection, compared to other primarily insertive MSM who were uncircumcised.[4] Some researchers believe that MSM who are primarily insertive may benefit from the same biological factors that account for the protective effects of circumcision among heterosexual men.[3]
- Men who have sex with both men and women may also potentially benefit from circumcision.[3] Evidence from 3 randomized controlled trials indicates that circumcision could reduce risk of HIV transmission from females to males during vaginal intercourse by 50% to 60%.[5-8]

In summary, male circumcision may only prevent HIV acquisition among men who serve as "insertive" partners during vaginal and/or anal sexual intercourse. Receptive partners do NOT benefit from male circumcision. However, more research is needed to better understand the effect of male circumcision on HIV transmission during anal sex among MSM. There is currently a randomized controlled trial on male circumcision under way among MSM in China.[4]

[I]Keratin is a fibrous structural protein that is a key component of skin and hair. Foreskin has a thinner layer of keratin—once it is removed via circumcision, the skin that remains has a higher concentration of keratin, which protects against HIV.

What is known about male circumcision among the heterosexual population?

- Three randomized controlled trials have shown that male circumcision decreases risk of HIV infection by 50% to 60% among heterosexual men, indicating that male circumcision only confers partial protection from HIV infection. The findings suggest that circumcision alone will not completely prevent HIV transmission during vaginal sex, and consistent condom use is still recommended among circumcised men.[6-8]
- Male circumcision may also confer protective effects against certain sexually transmitted diseases, such as the Human Papillomavirus (HPV), genital ulcers, and Herpes simplex type 2.[9]

What are some possible risks associated with male circumcision?

- Like any surgical procedure, male circumcision carries some level of risk. Documented adverse events include pain, bleeding, infections, and inflammation.
- The frequency of adverse events potentially or definitely related to circumcision ranged from 2% to 8% in experimental studies of adult circumcision. The most common adverse events reported were pain and mild bleeding. In these studies, severe adverse events were rare and no deaths or long-term complications were observed.[6-8]

What are other considerations for male circumcision as an HIV prevention strategy?

- Acceptability of circumcision as an HIV prevention intervention varies greatly among men worldwide.
    - In sub-Saharan Africa, a review of studies among adult uncircumcised men found that the median proportion of men willing to get circumcised was 65% (range: 29%–87%).[10]
    - Survey data from a convenience sample of MSM from 5 US cities found moderate acceptability among uncircumcised men—54% expressed willingness to get circumcised.[11]
    - In 2 samples of MSM in China, it was observed that between 31% and 43% of uncircumcised MSM would be willing to undergo circumcision.[12, 13]
- Other concerns include potential changes in behavior after circumcision that may offset the potential benefits of the intervention (ie, risk compensation or behavioral disinhibition).
- The limitations of circumcision should be explained to those MSM who are considering getting the procedure, including the fact that circumcision is only known to have partial protective effect from HIV risk, and that strong evidence only exists among heterosexual men.

What do recent data on access and knowledge of circumcision among MSM tell us?

From June through August 2010, the Global Forum on MSM and HIV (MSMGF) conducted a global study on access to and knowledge of HIV prevention strategies—including circumcision—among more than 5000 gay men and other MSM.[14] The responses to self-reported questions on access, knowledge, and desire to learn about circumcision are reported below, including overall responses and responses stratified by region and age group.

- Overall, a large proportion of respondents (50%) reported having easy access to male circumcision in their communities. However, only 19% rated their knowledge of male circumcision as an HIV prevention intervention as "very knowledgeable." Many participants (45%) rated their knowledge of male circumcision as an HIV prevention intervention as "not knowledgeable at all." Overall, 82% of participants agreed (60% strongly, 22% somewhat) that they would "like to learn more about male circumcision to prevent transmission of HIV among gay men/MSM."
- By region, Africa had the highest proportion of participants who reported easy access to male circumcision (68%), followed by the Middle East (63%) and North America (59%). Central/South America and the Caribbean (30%) had the lowest proportion of participants who reported easy access to circumcision, followed by Europe (47%) and Asia/Pacific (50%).
- With respect to knowledge about circumcision as an HIV prevention intervention, North America (41%) had the highest proportion of participants who reported

being "very knowledgeable" about circumcision, followed by Europe (32%) and Australia (27%). Asia/Pacific had the lowest proportion of participants who reported being "very knowledgeable" about circumcision, followed by Africa (15%).

- The desire to learn about circumcision to prevent HIV transmission among MSM was highest among participants from Central/South America and the Caribbean—where 81% of participants "strongly agreed" that they would like to learn more about circumcision—followed by Asia/Pacific (72%), and Africa (65%). Interest was lowest among men from Europe (23% "strongly agreed"), followed by men from Australia (25%) and men from North America (34%).
- Stratifying responses by age, the age group with the lowest proportion of participants reporting easy access to circumcision in their communities was the less than 25-year-old group (45%), followed by the 25–40-year-old group (49%); the age group with the highest proportion of MSM who reported easy access to circumcision was the over 40-year-old group (55%). Additionally, a small proportion of MSM below 25 (10%) indicated being "very knowledgeable" about circumcision compared to MSM between 25 and 40 years of age (14%) and MSM above 40 (28%). MSM below 25 expressed the strongest desire to learn about circumcision as an HIV prevention strategy (71% "strongly agreed"), followed by those between 25 and 40 years old (67%) and those over 40 years of age (45%).

Conclusions

Although there is compelling evidence that male circumcision reduces HIV risk among heterosexual men, there is still no strong evidence showing that circumcision will confer the same benefits for gay men and other MSM. Worldwide, the majority of gay men and other MSM do not have access to circumcision, though there is considerable interest in learning about circumcision as an HIV prevention strategy. Based on limited available observational data and the biologic basis for circumcision as an HIV intervention, it is possible that circumcision may be beneficial to gay men and other MSM who are primarily insertive during anal intercourse, as well as for MSM who also have female partners. The potential benefits of circumcision, as well as its limitations—ie, that it is only known to have partial protective effect from HIV risk, and that strong evidence only exists among heterosexual men—should be carefully explained to MSM who are interested in undergoing the procedure.

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