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U.S. Agency for International Development

Bureau for Global Health

## Male Circumcision and HIV Prevention

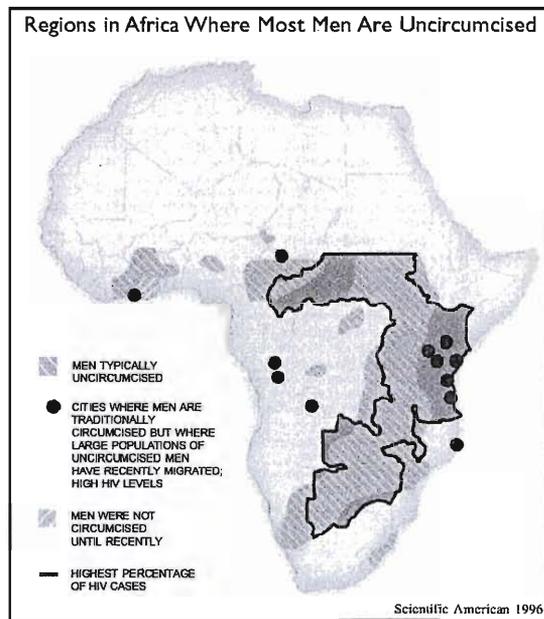
The effect of male circumcision (MC) on risk of HIV infection – and the practice's impact on the spread of HIV across different populations – have for years been subjects of interest to epidemiologists and other researchers. Numerous studies have noted a decreased risk of infection in circumcised men as well as continued low HIV prevalence rates in populations that traditionally practice MC. HIV/AIDS and reproductive health program professionals have become increasingly interested in MC, and the U.S. Agency for International Development (USAID) is now supporting preliminary activities to investigate male circumcision as a potential tool in the fight against HIV/AIDS.

### Background

Male circumcision (removal of the foreskin of the penis) is a common practice in many cultures. It may be a birth ritual or, as in many parts of sub-Saharan Africa, a rite of passage performed around adolescence. In clinical settings, it is normally done as a quick outpatient procedure using local anesthesia.

Researchers have noted links between MC and HIV prevalence rates since the 1980s. The body of research now includes:

- A systematic meta-analysis that analyzed the findings of 38 studies, mostly in Africa, and found that circumcised men appear to be less than half as likely to be infected by HIV as uncircumcised men. A sub-analysis of 16 of these studies found an estimated 70 percent reduction in HIV infection among higher-risk men (see figure, page 2).



- A two-year cohort study of male partners of HIV-positive women in Rakai, Uganda, in which 40 of 137 uncircumcised men became infected, compared with 0 of 50 circumcised men.

- Mapping of the HIV epidemic that has demonstrated a strong correlation between regions with higher levels of HIV infection and those with lower MC rates.

- A Joint United Nations Programme on HIV/AIDS (UNAIDS) multisite study that found MC to be a principal factor in the large and pervasive disparities in HIV prevalence across different African regions. Similar patterns have been observed in South and Southeast Asia (see table, page 3).

### Other Health Benefits

Circumcision is already known to greatly reduce a man's risk of penile cancer, and it also apparently reduces risks of some sexually transmitted diseases (STDs), including chancroid, herpes, and syphilis. It eliminates problems such as phimosis (narrow foreskin opening) and balanitis (infected foreskin), and also appears to reduce the risk of cervical cancer among female partners of circumcised men.

Research has identified plausible biological explanations for a connection between HIV infection and

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lack of circumcision. The tissue of the internal foreskin absorbs HIV up to nine times more efficiently than female cervical tissue, mainly because it contains Langerhans and other HIV "target cells" in much greater quantities than the cervix or other genital tissue (including other parts of the penis). In addition, the internal foreskin has a mucosal surface, as opposed to the more hardened skinlike surface of the external foreskin. This mucosal surface is particularly susceptible to tears and abrasions, and, consequently, infection by STDs and HIV.

## Continuing Research

These epidemiological, geographic, and biological findings provide very strong – though not conclusive – evidence that MC significantly lowers the risk of HIV infection. Large clinical trials to confirm an association between MC and HIV risk are now underway. Qualitative research and field studies to assess the acceptability and feasibility of expanding MC services can also help identify the possible role of MC in HIV prevention.

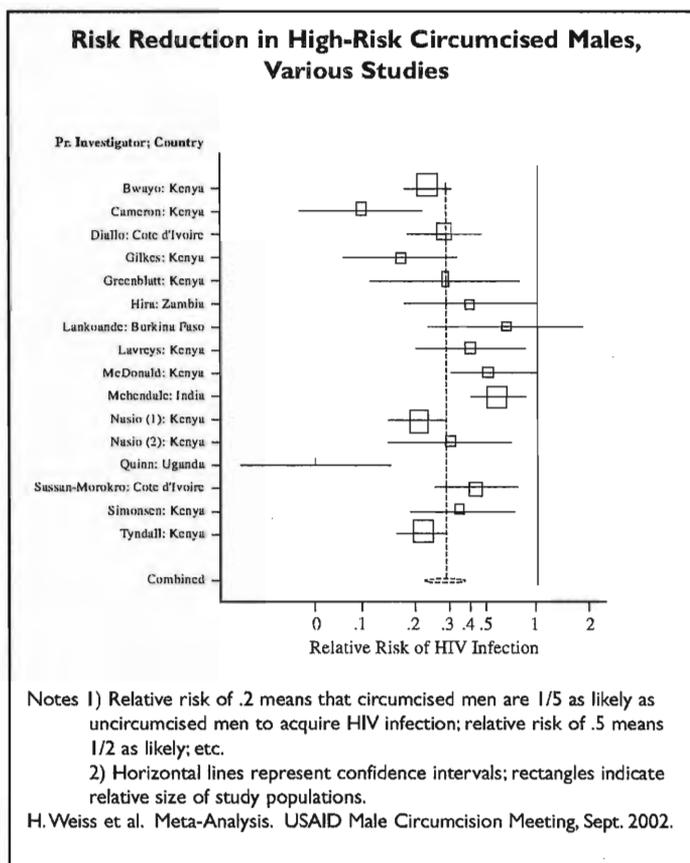
**Clinical trials.** Randomized controlled trials funded by the National Institutes of Health, the Bill & Melinda Gates Foundation, and other partners are being conducted in Kenya, South Africa, and Uganda to definitively assess whether circumcision of adult men protects them against HIV. The Uganda trial will also test previous findings suggesting MC may additionally protect the women partners of HIV-infected men. Combined, these studies will involve about 12,000 men. Results from the studies should be available within two to four years.

**Acceptability studies.** Qualitative studies in the above three countries and in Botswana, Haiti, Tanzania, Zambia, and Zimbabwe have revealed favorable attitudes toward MC in populations that do not traditionally practice circumcision. From 45 to 85 percent of uncircumcised men in surveys have expressed interest in the procedure if it is safe and affordable. The most commonly stated reason is for improved hygiene, and the perception of easier condom use is also mentioned. Women have similarly expressed positive attitudes, and couples have indicated interest in circumcision for their male infants – in Botswana, 68 to 89 percent of male and female respondents expressed interest in having their sons circumcised.

**Field studies.** A reproductive health program in central Kenya, where MC is traditionally performed on adolescents, is building upon cultural values and incorporating preventive health education with clinical circumcision. This hospital-based program for adolescent boys is an adaptation of the traditional one- to two-week period of seclusion following MC. A second project in western Kenya has suggested that with appropriate training, supplies, counseling, and informed consent procedures, effective clinical services can be introduced in areas where circumcision has not been traditionally practiced.

## Program Issues

In September 2002, USAID and some of its partner organizations hosted a conference of 145 international researchers and HIV/AIDS program staff to review the epidemiological, clinical, and field data related to MC and to discuss policy and program considerations for building possible future MC services.<sup>1</sup> These include:



<sup>1</sup> The complete meeting report, *Male Circumcision: Current Epidemiological and Field Evidence*, is available at [http://www.usaid.gov/pop\\_health/aids/TechAreas/research/index.html](http://www.usaid.gov/pop_health/aids/TechAreas/research/index.html)

**Program context.** Both traditional and clinic-based MC programs will need to take into account cultural norms, religious traditions, and national and local laws.

**Clinical management.** To ensure quality services, standardized guidelines and clinical training will be needed in areas such as surgical procedures and techniques, patient counseling and education, and postoperative needs.

**Accurate information.** Ethical considerations must be carefully addressed to ensure informed choice and consent. Information materials for diverse groups such as adolescents, adult men and their spouses, and the parents of infants should be age- and culturally appropriate and give balanced information about both advantages and possible complications of MC.

MC will not be a "magic bullet." As will likely be true for future microbicides or AIDS vaccines, circumcision will not provide full protection against HIV. It will provide little or no protection against urethral STDs such as gonorrhea and chlamydia and obviously will not prevent unwanted pregnancies. Effective behavior change programs will still be needed to address these risks. There will also be an urgent need to address possible behavioral "disinhibition" among circumcised men who may continue or return to high-risk behaviors if they feel they are protected by MC, when in fact such protection is partial, not 100 percent. Counseling that addresses informed choice and consent; the HIV prevention "ABC" behaviors of abstinence/delay of sexual debut, being faithful/partner reduction, and condom use; and other male reproductive health needs (such as STD treatment, family planning, and gender-based violence) would therefore need to be part of any future MC services.

Geographic Variation of HIV and Estimated MC Prevalence			
Low Circumcision (< 20% Circumcised)		High Circumcision (> 80%)	
Countries*	HIV Prevalence**	Countries*	HIV Prevalence**
<b>Sub-Saharan Africa</b>			
Zimbabwe	25.84	Kenya	11.64***
Botswana	25.10	Congo (Brazzaville)	7.64
Namibia	19.94	Cameroon	4.89
Zambia	19.07	Nigeria	4.12
Swaziland	18.50	Gabon	4.25
Malawi	14.92	Liberia	3.65
Mozambique	14.17	Sierra Leone	3.17
Rwanda	12.75	Ghana	2.38
		Gambia	2.24
		Guinea	2.09
		Benin	2.06
<b>South and Southeast Asia</b>			
Cambodia	2.40	Pakistan	0.09
Thailand	2.23	Philippines	0.06
Myanmar	1.79	Indonesia	0.05
India	0.82	Bangladesh	0.03
Nepal	0.24		

\* Countries within each region have similar risk factors for HIV (e.g., number of sexual partners, condom use, etc.) \*\* June 1998 UNAIDS/WHO % estimates. \*\*\* Excluding the predominately non-circumcising region around Kisumu, western Kenya, where prevalence is 34.9%, national prevalence would be about 8%.

Male Circumcision and HIV Infection: 10 Years and Counting. D. Halperin, R. Bailey. *Lancet* 1999, 354: 1813-15.

## Future Directions

Other activities will help determine male circumcision's possible role in future HIV prevention. These include:

- **Further feasibility studies (including cost-effectiveness studies)** to assess the addition of MC to male reproductive health services in high HIV-prevalence countries where most men are not circumcised.
- **Quality and safety studies** to gather more data on the safety of MC and complication rates in both traditional and clinical settings.
- **Technical consultations** to develop consensus on optimal medical and counseling procedures, standards of practice and care, and issues such as integration of reproductive health and HIV prevention messages into traditional rites of passage.

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