

## TECHNICAL ISSUE BRIEF

# MEDICAL MALE CIRCUMCISION AND HIV PREVENTION

### Introduction

Male circumcision (MC), the surgical removal of the foreskin of the penis, is a common surgical procedure that is performed for a variety of cultural, religious, social, and medical reasons. Research has shown that, under the proper circumstances, MC can help men avoid HIV infection. It cannot, however, eliminate the risk entirely. In light of these findings, the U.S. Agency for International Development (USAID), in accordance with the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), promotes a particular type of MC – voluntary medical male circumcision (VMMC) – as part of a larger combination HIV-prevention portfolio.

The VMMC service delivery package supported through PEPFAR includes screening and treatment of sexually transmitted infections (STIs); HIV counseling and testing; risk reduction counseling focused on increasing the correct and consistent use of both male and female condoms, decreasing the number of multiple and concurrent sexual partnerships, and promoting other positive behavior changes relevant to HIV prevention; and ensuring active referrals of HIV-positive men to care and treatment programs.

### Background

In 2005–2007, the results of three randomized controlled trials (RCTs) in sub-Saharan Africa confirmed what several ecological and observational epidemiologic studies had previously suggested: VMMC has the potential to dramatically reduce men's risk of acquiring HIV from their female sexual partners. The combined data of all 12,000 male participants from trials conducted in Kenya, South Africa, and Uganda strongly suggest a protective effect of 60 percent for the male insertive partner of heterosexual partnerships. Furthermore, long-term, 5-year follow-up of men from the RCTs in Kenya and Uganda shows that the protective effect of male circumcision is maintained and increased overtime.

In addition, new population-level impact evaluation results confirming that scaling up adult male circumcision prevents HIV in men were released during the 2011 International AIDS Conference in Rome. A study, which was carried out over the course of 3 years in the township of Orange Farm in Johannesburg, South Africa, resulted in a 55 percent reduction in HIV prevalence and a 76 percent reduction in HIV incidence in circumcised men after increasing the circumcision prevalence from 10 percent to 54 percent.

Research also has identified plausible biological explanations for a connection between HIV infection and lack of circumcision. The tissue of the internal foreskin efficiently absorbs HIV, mainly because it contains Langerhans and other HIV "target cells." In ad-



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**Men line up in Iringa, Tanzania, to get circumcised. In most countries in Southern and Eastern Africa, the demand for MC service is very high.**

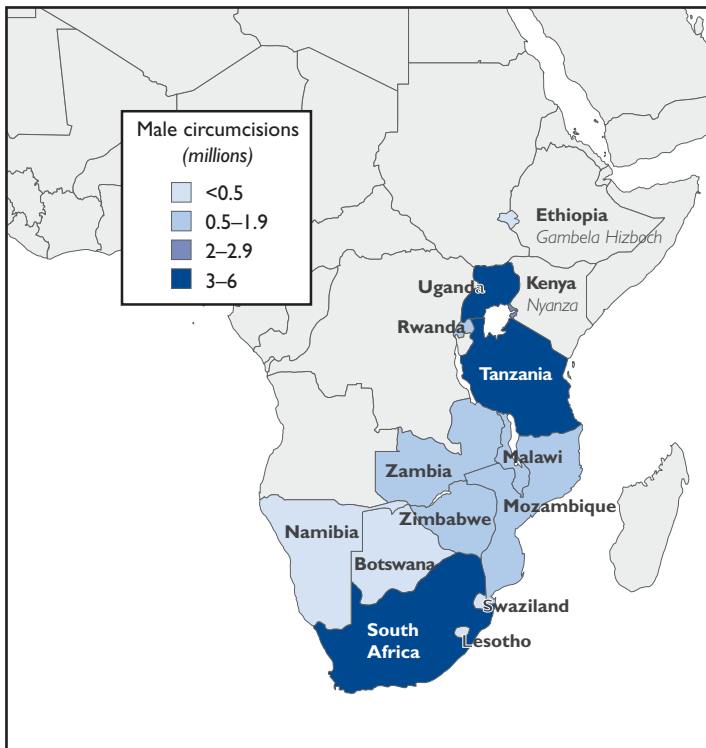
dition, the internal foreskin has a mucosal surface that is particularly susceptible to tears and abrasions and, consequently, to HIV and other STIs, as opposed to the more hardened skin-like surface of the external foreskin.

### Gender, Culture, and Sexual Risk Compensation

In certain cultures, genital cutting is an integral part of initiation practices that mark the transition from boyhood to socially recognized manhood. In many African societies, initiation affirms age and gender as two major principles of social organization. Local understanding often links MC with improved hygiene and a lower risk of HIV and STIs, and this has culminated in a growing preference for VMMC in many African countries.

VMMC is unique in that it targets men exclusively to reduce the risk of sexually transmitted HIV. Successful VMMC programs will use existing cultural platforms and leverage the support of relevant traditional authorities to promote male norms that encourage sexual health and risk reduction.

Monitoring and evaluation of VMMC programs needs to be sensitive and responsive to the effect of VMMC on traditional ideas of manhood and its impact on perceptions of sexual pleasure among men and their partners. Additionally, programs must monitor possible negative impacts on women, including effects on disclosure



This map shows the number of male circumcisions that is needed to reach an MC coverage of 80 percent in Southern and Eastern African countries. A total of 29.1 million men need to be circumcised to reach that level of coverage.

of HIV serostatus, the ability to negotiate safer sex, and gender-based violence.

After circumcision, some men and their partners may feel that they can relax their attitudes toward safer sex. This is referred to as risk compensation. However, while VMMC reduces the risk of HIV infection for men, it only provides partial protection. Both circumcised and uncircumcised males are at risk of HIV infection during unprotected sexual intercourse, and HIV-positive men may spread HIV to their partners. Thus, VMMC is not a substitute for other behavioral HIV prevention methods.

It is important that all males, whether circumcised or not, reduce their risk of HIV infection by limiting their number of sexual partners, using condoms consistently and correctly, and seeking prompt treatment for STIs. Therefore, all successful VMMC programs must inform clients, their partners, and their larger communities that the procedure only provides partial protection against HIV infection and encourage them to use other prevention methods.

### Ensuring a Supply of VMMC Kits

The PEPFAR Medical Male Circumcision Technical Working Group, which comprises representatives from USAID, the U.S. Centers for Disease Control and Prevention (CDC), the Department of Defense, the National Institutes of Health, the Peace Corps, and the Office of the Global AIDS Coordinator, is partnering with Supply Chain Management Systems (SCMS) to lead the procurement and supply chain management of VMMC kits and supplementary commodities, including temporary infrastructures such as tents, prefabs, and mobile vans.

Since 2009, SCMS has procured more than 650,000 MC surgical kits for countries in Southern and Eastern Africa. Over this time, SCMS's focused strategy has been successful in reducing the cost from the initial price of \$21 USD per kit to as low as \$11 to \$16. Currently, SCMS is procuring and delivering kits and other VMMC commodities to Botswana, Ethiopia, Malawi, Mozambique, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

Three VMMC kits are currently available through SCMS, and each includes a set of surgical instruments and standard consumables, which are sufficient for one VMMC procedure.

- Option 1: Reusable surgical instrument kit for forceps-guided procedure
- Option 2: Reusable surgical instrument kit for sleeve resection and dorsal slit procedures
- Option 3: Fully disposable surgical instrument kit for forceps-guided procedure

## World Health Organization's Minimum Package of Services

USAID supports VMMC programs that are consistent with the World Health Organization's (WHO's) Minimum Package of Services guidelines for medical MC. These guidelines call for VMMC to be implemented in aseptic settings by well-trained, competent health professionals using proper equipment and supplies. Furthermore, the WHO guidelines specify that VMMC must be provided as part of a comprehensive package of services including the following:

- HIV testing and counseling
- Screening and treatment for STIs
- Provision of male and female condoms and promotion of their correct and consistent use
- Promotion of safer sex practices and risk reduction counseling
- MC or surgical removal of the foreskin
- Active linkage of HIV-positive client to care and treatment



## *Nurses provide male circumcision service in Iringa, Tanzania.*

Photo credit: Emmanuel Njehumeli/USAID

Additionally, three supplementary supply modules of VMMC supplies have been designed. Each serves a particular purpose and includes one of the following types of commodities:

- Infection prevention and control supplies including waste management commodities to ensure the safe disposal of hazardous waste
- Temporary infrastructure and operating theater equipment for VMMC mobile campaigns
- Emergency medical management supplies

VMMC sites may select items from these supplementary modules based on their specific needs. The lists of commodities for these modules include quantification guidance to help sites calculate quantities needed and forecast future orders accurately so stock-outs may be avoided. Additional efforts to ensure a continuous supply of VMMC commodities include maintaining a stock of VMMC kits in the regional distribution center in South Africa to reduce lead times and qualifying additional kit providers to expand the pool of acceptable vendors based on manufacturing capacity and product quality.

Additional information on the kits and supplementary commodities can be found in the SCMS eCatalog at <http://scms.pfscm.org/scms/ecatalog/mc>.

### **Providing VMMC Services**

As targeted activities progress, demand for VMMC services by interested adolescent and adult males and the parents of male early infants has increased. In order to effectively match supply to demand, PEPFAR is working closely with the World Health Organization (WHO) to ensure that all forms of VMMC service provision, whether immediate or long term in nature, are as efficient as possible. Task shifting, task sharing, efficient use of dedicated facility space and staff, proper clinical techniques, patient flow and scheduling, and supply chain management are all variables that must be optimized to yield the greatest return for investment of precious time and limited resources.

WHO and PEPFAR developed a set of VMMC “Models for Optimizing Volume and Efficiency,” which was published in January 2010. This publication states that VMMC, as a public health intervention, should be provided to as many HIV-negative men who wish to have the surgery as quickly and as safely as possible. Careful orchestration of talents, commodities, and infrastructure is thus essential to program success.

Through prioritization and support for programs that improve the scale and pace of VMMC service provision, PEPFAR funds will be used for the most safe and efficient VMMC service delivery models. The VMMC Task Force will assist countries in setting VMMC targets as part of funding requests and in shifting their prevention portfolios to expand this highly effective prevention intervention.

### **Costing and Impact Summary**

To further support VMMC program planning, PEPFAR worked through USAID to collaborate with Joint United Nations Programme on HIV/AIDS (UNAIDS) to develop the Male Circumcision: Decision Makers’ Program Planning Tool to assist countries in developing policies for scaling up services to provide VMMC. This tool allows analysts and decision makers to understand the costs and impacts of different policy options regarding the introduction or expansion of VMMC services. It is part of a larger toolkit developed by UNAIDS/WHO that provides guidelines on comprehensive approaches to VMMC, including types of surgical procedures and key policy and cultural issues.

The key policy topics addressed by the model are:

- Identifying all male adults, adolescents, and early infants; targeting coverage levels and rates of scale-up
- Service delivery modes that include fixed sites, mobile sites, and outreach facilities whether they are within public hospitals, private hospitals, or nongovernmental organizations
- Task shifting and task sharing of key personnel, including surgeons, physicians, clinical officers, and nurses

Key conclusions from an initial desk review study presented at the International AIDS Conference in Vienna, Austria, in July 2010 indicate that scaling up VMMC programs to reach 80 percent coverage of adult and early infant males within 5 years could potentially:

- Avert more than 3.4 million adult HIV infections over 15 years, with 10 of the 14 countries averting more than 19 percent of new HIV infections during the same time frame
- Yield a cumulative total cost savings of \$16 billion in 15 years
- Require approximately 20.3 million adult (15 to 49 years old) VMMCs to be performed during the 5-year catch-up period
- Cost an additional \$1.5 billion for the 5-year catch-up period
- Result in a net cost per HIV infection averted of \$500 or less for 6 of the 14 countries

USAID's Health Policy Initiative, in collaboration with UNAIDS, is providing technical and financial assistance to 14 countries in Southern and Eastern Africa to improve costing data estimates. This activity, which is combined with technical support for national Ministries of Health to develop nation-specific strategies for scaling up VMMC service, was completed in Kenya, South Africa, Zambia, Uganda, Zimbabwe, and Namibia; it is currently being implemented in Tanzania, Botswana, and Malawi.

### **VMMC in Iringa Region, Tanzania**

Iringa Region in the United Republic of Tanzania has the nation's highest HIV prevalence rate (16 percent) and one of the lowest MC rates (40 percent). To address the need to scale up VMMC for HIV prevention in the region, the Tanzania Ministry of Health, along with support from PEPFAR through USAID's Maternal and Child

Health Integrated Program, launched Tanzania's first VMMC high-volume campaign in the Iringa region in 2010.

During the first 6-week campaign in 2010, 10,352 adolescent and adult males participated in circumcision for HIV prevention. VMMC services, which included group education and individual counseling – including HIV counseling and testing, preoperative physical exams, VMMC surgeries, and two postoperative visits – were offered for 5 and a half days per week at five high-volume sites in three districts in Iringa. A repetition of that campaign in 2011 allowed the program to reach 32,000 adolescents and adult males. As of the end of September 2011, 67,000 adolescents and men have been circumcised in Iringa Region in Tanzania.

In order to meet demand for services in the community, the facilities adopted several efficiency techniques described in the WHO-published document "Models for Optimizing Volume and Efficiency." Utilizing WHO recommendations, teams of one surgeon – who was often a nurse with MC training – operating with four bed nurses used four surgical bays to circumcise six to eight clients per hour. An average of 50 to 60 VMMC surgeries was performed per day at each site.

The campaign, which placed a special emphasis on VMMC counseling including risk reduction counseling and HIV testing, was extremely successful. In fact, 99 percent of VMMC clients consented to an HIV test. Client postoperative follow-up visits varied by site but were as high as 80 percent. Furthermore, the adverse event rate was under 1 percent. Eighty percent of adverse events were moderate in nature, and all adverse events had been resolved by the end of the campaign.

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