

VOLUNTARY MEDICAL MALE CIRCUMCISION



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The Impact of VMMC: Averting up to 64,000 new HIV infections in Zambia and Zimbabwe by 2030

Statistical modeling suggests increased access to voluntary medical male circumcision (VMMC) for adolescent boys and young men in Zambia and Zimbabwe will avert up to 64,000 new HIV infections by 2030.

Introduction

Despite tremendous progress accelerating access to HIV treatment, approximately 1.5 million people were newly infected with HIV in 2020. To reduce the risk of HIV infection, the global community must continue to increase and sustain access to highly effective HIV prevention tools, such as pre-exposure prophylaxis and VMMC.

Within a combination prevention package, VMMC is one of the most cost-effective HIV prevention interventions available.¹ Studies demonstrate that VMMC, a one-time intervention reduces the risk of female-to-male HIV transmission by approximately 60%.^{2,3,4} In 2007, the World Health Organization recommended increasing access to VMMC services in high-burden priority countries in Eastern and Southern Africa (ESA). However, uptake was initially slow, and many countries struggled to reach their VMMC program goals. In 2015, the Clinton Health Access Initiative (CHAI) in partnership with the Bill & Melinda Gates Foundation began supporting rapid acceleration of VMMC access in Zambia and Zimbabwe.



Photo Credit: CEHURD

Approach

CHAI worked with the Ministries of Health in Zambia and Zimbabwe to support management and coordination of their VMMC programs to increase program efficiency and impact. Key activities conducted by CHAI included:



Updated Policies and Guidance:

- Supported the creation and dissemination of national policies and operational plans to guide VMMC scale-up.
- Analyzed data to inform resource prioritization for immediate program impact, focusing chiefly on health

workforce training and prioritizing 15- to 29-year-old adolescent boys and young men who are most at risk of HIV infection compared to men above 30 years.



Strengthened Sub-National Capacity:

- Provided VMMC provincial coordinators in Zimbabwe with skills and tools to monitor program implementation quality through district activity plans and budgets and routine quality assurance processes.
- Facilitated efficient resource allocation in Zimbabwe to ensure supply of services and demand generation activities were aligned to targets.



Developed M&E Systems:

- Strengthened Ministry of Health information systems to include new indicators relevant to VMMC. In both Zambia and Zimbabwe, this included the development of standardized, age-disaggregated indicators to inform evidence-based decision-making, including resource allocation and demand generation activities.
- Supported the development of tools and processes such as data quality audits to improve the accuracy, completeness, and timeliness of data.

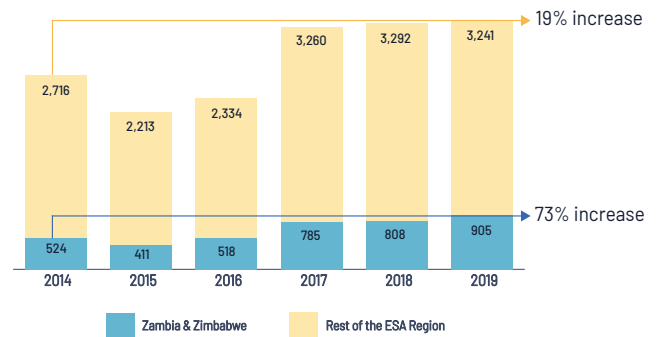


Mobilized New Funding:

- Provided technical support to the Ministries of Health in Zambia and Zimbabwe to include VMMC services in formal funding requests from the Global Fund in 2017.
- Conducted an analysis in Zambia to inform the development of an investment case for VMMC. As a result of this evidence, funding allocated to the national VMMC program increased from US\$3.6M in the 2015-2017 funding cycle to US\$6.1M for the 2018-2020 funding cycle.

Due to strengthened management, coordination, and increased funding, **VMMCs in Zambia and Zimbabwe increased by 73% from 524,000 procedures in 2014 to 905,000 procedures in 2019** as compared to 19% in 15 priority countries⁵ in the East and Southern Africa region in the same period (Figure 1).

Figure 1: VMMC Procedures Conducted in East and Southern Africa (Thousands)



Public Health Impact: 1.8 million people in Eastern and Southern Africa will live a life free of HIV as a result of VMMC

64,000
HIV infections averted in Zambia and Zimbabwe by 2030 due to VMMC

60,000
The capacity of Heroes National Stadium and National Sports Stadium, the largest stadiums in Zambia and Zimbabwe

Mathematical models estimate that the scale-up of VMMC programs across the 15 priority countries in Eastern and Southern Africa averted 340,000 new infections through 2019. This impact is expected to grow further, averting an estimated 1.8 million new infections by 2030 and 5.7 million by 2050.⁶

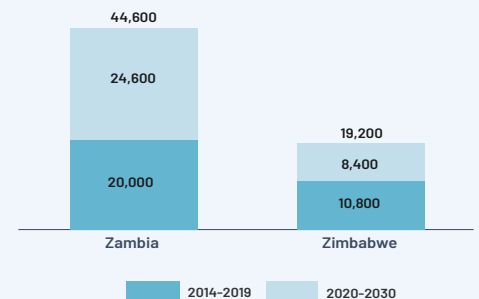
An impact analysis using the GOALS⁶ model projected **VMMCs conducted between 2014-2019 in Zambia and Zimbabwe are estimated to have averted over 30,000 new infections (both male and female) to-date, and this is expected to grow to nearly 64,000 new infections averted by 2030.**

As a population, men who undergo VMMC will acquire fewer HIV infections through sexual encounters in their lifetime, thereby effectively reducing HIV transmission to other sexual partners. As a one-time procedure, the benefits of VMMC are life-long and accrue over time as adolescent boys and young men age into high risk age groups—thus the impact on new infections significantly grows into future years.

In **Zambia**, 2.3 million VMMC procedures conducted between 2014-2019 averted nearly 20,000 infections with a projected increase in infections averted to 44,600 by 2030 (Figure 2).

In **Zimbabwe**, 1.6 million VMMC procedures conducted between 2014-2019 averted an estimated 10,800 new infections, with impact estimated to grow to 19,200 infections averted by 2030 (Figure 2).

Figure 2: Summary of HIV Infections Averted - GOALS Model Zambia and Zimbabwe, 2014-2030





Conclusion

VMMC remains a critical and proven prevention intervention for adolescent boys and men at risk of HIV infection. CHAI supported Ministries of Health to increase access to VMMC services through systematic management and coordination support to strengthen sub-national program implementation, development of M&E systems that support decision making, and mobilizing funding to successfully scale-up VMMC services. The analysis in this case study demonstrates that VMMC increases epidemic impact, accruing benefits over time—making it both an efficient and effective investment. However, the interruption of services related to COVID-19 mitigation measures could erode the momentum and gains achieved through decades of VMMC program implementation.

Considerations for Future HIV Prevention Interventions

Several approaches contributed to the success of VMMC programs in Zambia and Zimbabwe, including the use of existing coordination platforms for national and subnational planning, and strengthening M&E systems through integration of indicators and data collection processes into national reporting systems. Leveraging lessons from VMMC implementations will be critical to avoid rollout delays caused by weak coordination systems and poor data visibility for future biomedical prevention products, including near-term products like long-acting cabotegravir and the dapivirine vaginal ring.

About the STRIDE Grant

Through the Bill & Melinda Gates Foundation STRIDE grant, CHAI is partnering with the Ministries of Health in Zambia and Zimbabwe to maximize delivery of VMMC services to reduce new HIV infections. CHAI supports VMMC programs to achieve targets, while catalyzing effective transition of VMMC programs to local government ownership for sustainability. Through the STRIDE grant, CHAI intends to build resilient and responsive systems over a four-year period (2020-2024) by strengthening the integration of combination prevention programs, strategically leveraging the VMMC program transition, and disseminating lessons on the implementation, integration, and sustainability of combination prevention to global stakeholders.

COVID-19 Impact on VMMC Services

In Zambia and Zimbabwe, VMMC services experience a seasonal trend of high uptake and demand coinciding with school holidays and national campaigns in April, May, August, and September. Before 2020, both countries achieved approximately 40% of their annual VMMC outputs during Q2 and Q3 of a given year. In Zimbabwe suspension of VMMC service delivery and demand generation activities in April 2020 due to COVID-19 restrictions resulted in a decade-low number of VMMCs performed in 2020. In contrast, Zambia continued providing services through the pandemic as COVID-19 restrictions only prohibited active demand generation. Consequently, annual VMMC outputs in Zambia were consistent with past performance as services continued to be delivered at health facilities. The pandemic-related interruption of VMMC services could derail the progress made in scale-up and averting new HIV infections. It is imperative that COVID-19 mitigation strategies are implemented in a manner that continues to support availability of HIV prevention services, including VMMC, especially for individuals at high risk of HIV infection.

¹Sarkar S, Corso P, Ebrahim-Zadeh S, et al. (May 2019) *Cost-effectiveness of HIV Prevention Interventions in Sub-Saharan Africa: A Systematic Review*. *EClinical Medicine*; 10:10-31. [Link](#).

²Auvert B, Taljaard D, Lagarde E, et al. (Nov. 2005) *Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: The ANRS 1265 trial*. *PLoS Medicine*; 2 (11):e298. [Link](#).

³Gray, RH, Kigozi G, Serwadda D, et al. (Feb. 2007) *Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial*. *The Lancet*; 369:657-666. [Link](#).

⁴Bailey RC, Moses S, Parker CB, et al. (Feb. 2007) *Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial*. *The Lancet*; 369:643-656. [Link](#).

⁵WHO/UNAIDS 15 Priority countries for VMMC in Eastern and Southern Africa: Botswana, Eswatini, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, South Sudan, Uganda, Tanzania, Zambia, and Zimbabwe.

⁶UNAIDS and World Health Organization (Feb. 2021) *Progress Brief: Voluntary Medical Male Circumcision*. [Link](#).

⁷Futures Institute (Aug. 2011) *GOALS Model Manual: A Model for Estimating the Effect of Intervention and Resource Allocation on HIV Infections and Deaths*. [Link](#).

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