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# Expanding HIV/AIDS prevention programmes through Safe Male Circumcision and Voluntary Counselling and Testing in Uganda

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## The HIV Burden in Uganda

Although Uganda initially registered large reductions in HIV/AIDS prevalence rate during the 1990s, the rate of new HIV infection is on the rise across the country. At least 1.2 million Ugandans are infected with the HIV virus<sup>1</sup>. Recent evidence from the 2011 Uganda AIDS Indicator Survey revealed that the HIV/AIDS prevalence rate had increased from 6.4 percent in 2004/5 to 7.3 percent by 2011<sup>2</sup>. The trends in new HIV infections in figure 1 suggest that the annual number of new HIV infections increased by 11.4 percent from 115,775 in 2007/08 to 128,980 in 2010/11, despite the huge amounts of resources earmarked for HIV/AIDS related expenditures. The increase in the HIV/AIDS prevalence has been blamed on the complacency of Ugandans with the availability of anti-retroviral therapies (ARTs)—especially regarding sexual behavior.

Given the reversal in Uganda's HIV/AIDS fortunes, the control of the spread of HIV/AIDS remains a public health priority in the country. Previously, HIV/AIDS control programs in Uganda have relied on the ABC strategy (Abstinence, Being Faithful and Condom

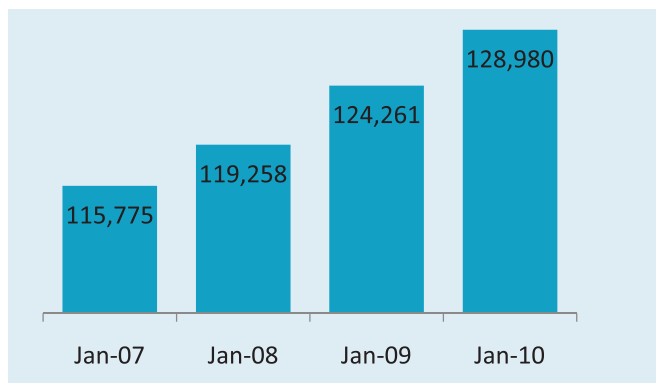
*Approximately 130,000 new HIV infections are registered every year in Uganda, the fourth highest number in all the 53 countries in Africa*

*The 2011 Uganda AIDS Indicator Survey revealed that the HIV/AIDS prevalence rate had increased from 6.4 % in 2004/5 to 7.3 % by 2011*

*About 1.2 million Ugandans are HIV infected*

*Scaling up safe male circumcision to reach 66 % of uncircumcised adult males by 2020 would avert 121,278 adult HIV infections and would lead to total net savings of almost US\$ 790 million*

*Scaling up voluntary counselling and testing to reach 100 percent of 'never tested' adults in Uganda by 2020 would avert 113,813 adult HIV infections and would lead to total net savings of almost US\$ 734 million*

**Figure 1: Trend of new HIV/AIDS infections**

Source: Aids National Strategic Plan 2011/12 -14/15

use). However, as the epidemic matured in Uganda, public health authorities have adopted additional interventions some of which include safe male circumcision (SMC), and prevention of mother to child transmission (PMCTC) as well as voluntary counselling and testing (VCT) to combat the spread of HIV. .

## Policy Goal

Uganda has an ambitious goal to reduce potential new HIV infections among adults by 150,000 by 2020. This reflects the urgency of the challenge and it is in line with the HIV prevention targets in the current National Aids Prevention Strategy, National Aids strategic Plan and the overriding National Development Plan and one of the MDG 6 targets of reducing new HIV infections to zero.

This policy brief provides estimates of the potential costs and impact of two HIV/AIDS prevention programmes—rolling out/expanding safe male circumcision (SMC) and voluntary counseling and testing (VCT) on Uganda's goal of reducing infections.

## Why the two policy options?

### 1. Safe Male Circumcision (SMC)

Uganda adopted SMC as part of the broader strategies for HIV prevention based on the National Safe Male Circumcision Policy 2010. This was based on results of three randomized controlled trials in 2007 showing that medical male circumcision is effective in reducing HIV acquisition among men by approximately 60 percent. Previous research also suggests that male

circumcision rates may partly explain the differences in the HIV/AIDS prevalence rates within sub-Saharan Africa (SSA). Specifically, HIV/AIDS prevalence rates are much lower in West African countries, which have a large Muslim population that practice male circumcision especially during infancy, than in East and Central African countries, which have much lower rates of male circumcision. The United Nations Programme on HIV/AIDS (UNAIDS) recommends SMC as one of the HIV prevention strategies in countries with low male circumcision rates like Uganda, where only 26 percent of its men aged 15-49 years are circumcised and has a high HIV prevalence of 7.3 percent. However, it should be noted that SMC does not provide complete protection against HIV. Thus, it should be considered only as part of a comprehensive package to prevent HIV. The target population for the SMC programme is males aged 15-49 years of age.

### 2. Voluntary Counselling and Testing (VCT)

A big percentage of the adult population in SSA has never been tested for HIV/AIDS since the outbreak of the disease more than two decades ago. Just about 56 percent of adults aged 15-49 have ever tested for HIV in Uganda. Yet, limited knowledge about HIV/AIDS status aggravates the spread of the disease. Indeed, many studies have found that VCT is an effective strategy for facilitating behavioral change around both preventing HIV and early access to care and support<sup>3</sup>. Indeed, the limited knowledge of individual sero-status is considered as one of the reasons why HIV spread at a fast pace in Uganda. Different delivery options for providing VCTs such as: free-standing sites; VCT services integrated with other health services; VCT services provided within already established non-health locations and facilities and mobile VCT services, have been demonstrated to be effective. The target population for VCTs are both female and male adults aged 15-49 years of age.

Using the data above, we simulate and estimate benefits and costs of adopting either SMC or VCTs as an HIV prevention strategy. the different policy options. Based on estimates of: new HIV infections averted, HIV/AIDS death avoided, and expenditures on HIV/AIDS treatment avoided, we undertake a cost-effectiveness analysis of the two HIV/AIDS prevention programmes to determine the efficiency and sustainability of the two alternatives over an 8 year implementation period.

### Key data assumptions used

Indicator	Value	Source
Adult HIV prevalence rate (male adults)	7.3% (6.1%)	UAIS, 2011
Male circumcision coverage rates	26%	UAIS, 2011
VCT coverage rates	56.6%	UAIS, 2011
Effectiveness rate of SMC	60%	Gray et al., 2007
Effectiveness rate of VCT	32%	Kumaranayake, et al., 2006, Malawi
Average cost of for SMC	US \$35	Kayunga case study, 2011, Uganda
Average cost of for VCT	US \$ 23.4	Menzies et al., 2007, Uganda
Discounted life time antiretroviral therapy cost	US \$ 7400	UNAIDS

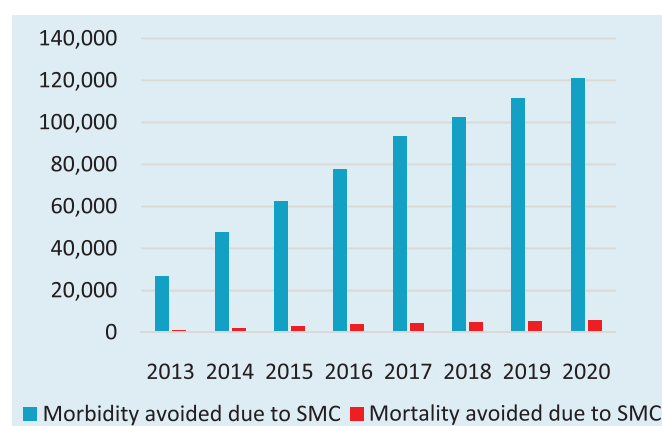
### Results

**Coverage:** The results of the simulations show that SMC will achieve 66% additional circumcision coverage of the uncircumcised males aged 15-49 years. In addition, it will lead to gross circumcision coverage of about 77 percent by 2020. On the other hand, VCT will achieve universal coverage (100 percent) by the end of 2020.

**Benefits:** Reduction in HIV incidence/morbidity and mortality are used as benefits in addition to an economic benefit in terms of cost savings from reduced expenditures on HIV/AIDS treatment. The latter are defined as the lifetime antiretroviral therapy (ART) costs multiplied by the annual number of infections averted, less the cumulative net costs of implementing the scaled-up SMC/VCT programs. By the end of 2020, it is projected that an additional 3.3 million adult males will be covered by SMC and an additional 4.8 million adults would be covered by VCT.

With the current HIV prevalence of 6.1 percent for males aged 15-49 years and 7.3 percent for all adults aged 15-49 years, it is estimated that SMC results into 26,861 new infection cases avoided (in the first year) and by 2020, the new infections avoided increase to 121,278. The deaths averted are estimated at 6,064 by 2020. The cost implication for these benefits is estimated at UGX 279 billion over the seven years period. On the other hand, VCT results into 26,953 new infections avoided by

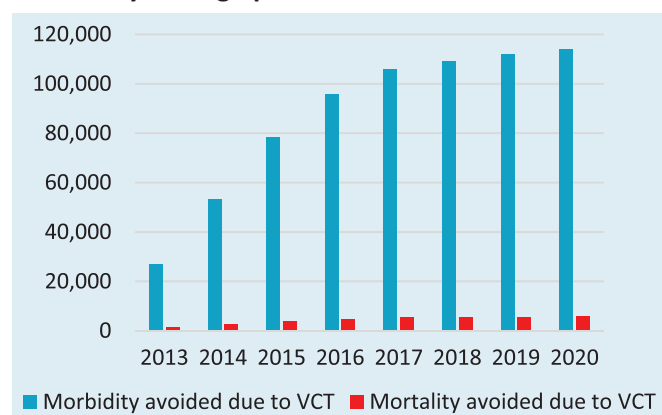
**Figure 2: Cumulative infections averted and mortality averted by scaling up SMC**



Source: Authors' calculations

2013 which accumulates to 113, 813 cases by 2020. The related deaths averted are estimated at 5,691 cases by the end of the seven years period. The cost implication for VCT benefits is estimated at UGX 280 billion by the end of 2020.

**Figure 3: Cumulative infections averted and mortality averted by scaling up VCT**



Source: Authors' calculations

The discounted cost per adult HIV infection averted is the cumulative incremental costs incurred through implementing the scaled-up SMC program, divided by the cumulative number of adult HIV infections averted over the relevant time period. The cost per HIV infection averted is US\$ 885 which simply means that it will cost the government US\$ 885 for each HIV infection case avoided. Subsequently, the discounted net savings per adult HIV infection averted are also calculated by dividing the discounted net savings with the cumulative number of adult HIV infections averted. The net savings per infection averted of US\$ 6,515 far outweighs the

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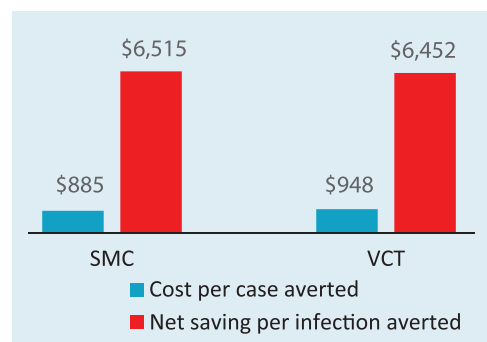
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net cost per HIV infection averted (Figure 4).

**Figure 4: Discounted net costs/savings per adult HIV infection averted by scaling up SMC and VCT**



Source: Authors calculations

On the other hand, for VCT, the cost per HIV infection averted is US\$ 948. Over the time period 2013 to 2020,

the cumulative net cost savings will be almost US\$ 734 million by 2020. The net savings per infection averted of US\$ 6,452 far outweigh the net cost per HIV infection averted of US\$ 948.

**Conclusion and way forward**

For both policies, the values of the cost per HIV infection averted are much lower than the net cost savings per infection averted. This means that both policies can be feasibly implemented. Better still, the two programs can be rolled out concurrently, for example, by having VCT as the entry point to SMC and this could substantially cut down the costs. Indeed, UNAIDS recommends a mix of different prevention actions –behavioral, biomedical, and structural- depending on the epidemic and the needs of those at risk.

**Endnotes**

- 1 Uganda AIDS Commission, (2011) National HIV Strategic Plan 2011/12-2014/15, 2011-2015. Kampala-Uganda
- 2 Ministry of Health, ICF International, CDC- Uganda, et al., (2012) Uganda Aids Indicator Survey, 2011 HIV/AIDS Prevention Interventions in Uganda: A

Policy Simulation

- 3 UNFPA (2002) HIV Prevention Now: Voluntary Counselling and Testing for HIV Prevention: Programme Brief No. 5  
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