

## Quarterly Research Digest on Voluntary Medical Male Circumcision for HIV Prevention

1. Schenker, I. **Cutting-edge success in preventing heterosexual HIV transmission in Africa: voluntary medical male circumcision has reached 15 million men.** *AIDS Educ Prev* 2018;30(3): 232-242.

Male circumcision is a minor surgery performed for religious and medical reasons. Three randomized clinical trials demonstrated it could reduce heterosexual HIV transmission from infected females to males by over 60%, paving the way in 2006 for multinational efforts to circumcise 27 million men in sub-Saharan Africa by 2021. It is estimated that by 2030 male circumcision will avert at least 500,000 HIV infections in Africa, saving lives and budgets. Voluntary medical male circumcision (VMMC) of adults and adolescents has challenged policy makers, implementers, funders, and civil society in bringing surgery to the frontline of HIV prevention. Five key challenges are discussed: policy, clinical, demand, supply, and scaling up. A unique Israel-Senegal-South Africa collaboration, which enhanced high-volume (100 VMMCs per day) and high-quality (less than 2% minor adverse events) procedures, is described, highlighting VMMC as one of the most impressive public health collaborative interventions in HIV/AIDS prevention globally.

2. Greener, R., et al. **Healthcare providers' understanding of HIV serodiscordance in South Africa and Uganda: implications for HIV prevention in sub-Saharan Africa.** *Afr J AIDS Res* 2018 May 10: 1-8. [Epub ahead of print]

HIV transmission within stable heterosexual HIV serodiscordant couples accounts for almost half the new incident infections in South Africa and Uganda. Advances in HIV prevention provide opportunities to reduce transmission risk within serodiscordant partnerships (e.g., antiretroviral treatment (ART), pre-exposure prophylaxis (PrEP), medical male circumcision, and couples-based HIV counselling and testing). These interventions require a clinical encounter with a provider who recognises prevention opportunities within these partnerships. We explored healthcare provider understanding of HIV serodiscordance in a reproductive counselling study with providers in eThekweni district, South Africa, and Mbarara district, Uganda. In eThekweni, in-depth interviews (29) and focus group discussions (2) were conducted with 42 providers (counsellors, nurses and doctors) from public sector clinics. In Mbarara, in-depth interviews were conducted with 38 providers (medical officers, clinical officers, nurses, peer counsellors and village health workers). Thematic analysis was conducted using NVivo software. In eThekweni, many providers assumed HIV seroconcordance among client partners and had difficulty articulating how serodiscordance occurs. Mbarara providers had a better understanding of HIV serodiscordance. In the two countries, providers who understood HIV serodiscordance were better able to describe

useful HIV-prevention strategies. Healthcare providers require training and support to better understand the prevalence and mechanisms of HIV serodiscordance to implement HIV-prevention strategies for HIV serodiscordant couples.

3. Kaufman, M. R., et al. **Impact of counseling received by adolescents undergoing voluntary medical male circumcision on knowledge and sexual intentions.** *Clin Infect Dis* 2018;66(suppl\_3): S221-S228.  
Online at: [https://academic.oup.com/cid/article/66/suppl\\_3/S221/4956280](https://academic.oup.com/cid/article/66/suppl_3/S221/4956280)

**BACKGROUND:** Little is known regarding the impact of counseling delivered during voluntary medical male circumcision (VMMC) services on adolescents' human immunodeficiency virus (HIV) knowledge, VMMC knowledge, or post-VMMC preventive sexual intentions. This study assessed the effect of counseling on knowledge and intentions.

**METHODS:** Surveys were conducted with 1293 adolescent clients in 3 countries (South Africa, n = 299; Tanzania, n = 498; Zimbabwe, n = 496). Adolescents were assessed on HIV and VMMC knowledge-based items before receiving VMMC preprocedure counseling and at a follow-up survey approximately 10 days postprocedure. Sexually active adolescents were asked about their sexual intentions in the follow-up survey. Prevalence ratios (PRs) and 95% confidence intervals (CIs) were calculated by modified Poisson regression models with generalized estimating equations and robust variance estimators.

**RESULTS:** Regarding post-VMMC HIV prevention knowledge, older adolescents were significantly more likely than younger adolescents to know that a male should use condoms (age 10-14 years, 41.1%; 15-19 years, 84.2%; aPR, 1.38 [95% CI, 1.19-1.60]), have fewer sex partners (age 10-14 years, 8.1%; age 15-19 years, 24.5%; aPR, 2.10 [95% CI, 1.30-3.39]), and be faithful to one partner (age 10-14 years, 5.7%; age 15-19 years, 23.2%; aPR, 2.79 [95% CI, 1.97-3.97]) to further protect himself from HIV. Older adolescents demonstrated greater improvement in knowledge in most categories, differences that were significant for questions regarding number of sex partners (aPR, 2.01 [95% CI, 1.18-3.44]) and faithfulness to one partner post-VMMC (aPR, 3.28 [95% CI, 2.22-4.86]). However, prevention knowledge levels overall and HIV risk reduction sexual intentions among sexually active adolescents were notably low, especially given that adolescents had been counseled only 7-10 days prior.

**CONCLUSIONS:** Adolescent VMMC counseling needs to be improved to increase knowledge and postprocedure preventive sexual intentions.

4. Dam, K. H., et al. **Parental communication, engagement, and support during the adolescent voluntary medical male circumcision experience.** *Clin Infect Dis* 2018;66(suppl\_3): S189-S197.  
Online at: [https://academic.oup.com/cid/article/66/suppl\\_3/S189/4956271](https://academic.oup.com/cid/article/66/suppl_3/S189/4956271)

**BACKGROUND:** Voluntary medical male circumcision (VMMC) is one of few opportunities in sub-Saharan Africa to engage male adolescents in the healthcare system. Limited data are available on the level of parental communication, engagement, and support adolescents receive during the VMMC experience.

**METHODS:** We conducted 24 focus group discussions with parents/guardians of adolescents (N = 192) who agreed to be circumcised or were recently circumcised in South Africa, Tanzania, and Zimbabwe. In addition, male adolescents (N = 1293) in South Africa (n = 299), Tanzania (n = 498), and Zimbabwe (n = 496) were interviewed about their VMMC experience within 7-10 days postprocedure. We estimated adjusted prevalence ratios (aPRs) using multivariable Poisson regression with generalized estimating equations and robust standard errors.

**RESULTS:** Parents/guardians noted challenges and gaps in communicating with their sons about VMMC, especially when they did not accompany them to the clinic. Adolescents aged 10-14 years were significantly more likely than 15- to 19-year-olds to report that their parent accompanied them to a preprocedure counseling session (56.5% vs 12.5%;  $P < .001$ ). Among adolescents, younger age (aPR, 0.86; 95% confidence interval [CI], .76-.99) and rural setting (aPR, 0.34; 95% CI, .13-.89) were less likely to be associated with parental-adolescent communication barriers, while lower socioeconomic status (aPR, 1.37; 95% CI, 1.00-1.87), being agnostic (or of a nondominant religion; aPR, 2.87; 95% CI, 2.21-3.72), and living in South Africa (aPR, 2.63; 95% CI, 1.29-4.73) were associated with greater perceived barriers to parental-adolescent communication about VMMC. Parents/guardians found it more difficult to be involved in wound care for older adolescents than for adolescents <15 years of age.

**CONCLUSIONS:** Parents play a vital role in the VMMC experience, especially for younger male adolescents. Strategies are needed to inform parents completely throughout the VMMC adolescent experience, whether or not they accompany their sons to clinics.

5. Gilbert, H. N., et al. **Messaging circumstances and economic pressures as influences on linkage to medical male circumcision following community-based HIV testing for men in rural Southwest Uganda: a qualitative study.** *AIDS Res Treat* 2018 May 3; 2018: 8387436.

Online at: <https://www.hindawi.com/journals/art/2018/8387436/>

Voluntary medical male circumcision (MMC) reduces risk of HIV infection, but uptake remains suboptimal among certain age groups and locations in sub-Saharan Africa. We analysed qualitative data as part of the Linkages Study, a randomized controlled trial to evaluate community-based HIV testing and follow-up as interventions promoting linkage to HIV treatment and prevention in Uganda and South Africa. Fifty-two HIV-negative uncircumcised men participated in the qualitative study. They participated in semistructured individual interviews exploring (a) home HTC experience; (b) responses

to test results; (c) efforts to access circumcision services; (d) outcomes of efforts; (e) experiences of follow-up support; and (f) local HIV education and support. Interviews were audio-recorded, translated, transcribed, and summarized into "linkage summaries." Summaries were analysed inductively to identify the following three thematic experiences shaping men's circumcision choices: (1) intense relief upon receipt of an unanticipated seronegative diagnosis, (2) the role of peer support in overcoming fear, and (3) anticipation of missed economic productivity. Increased attention to the timing of demand creation activities, to who delivers information about the HIV prevention benefits of MMC, and to the importance of missed income during recovery as a barrier to uptake promises to strengthen and sharpen future MMC demand creation strategies.

6. Kaufman, M. R., et al. **Counseling received by adolescents undergoing voluntary medical male circumcision: moving toward age-equitable comprehensive human immunodeficiency virus prevention measures.** *Clin Infect Dis* 2018;66(suppl\_3): S213-S220.  
Online at: [https://academic.oup.com/cid/article/66/suppl\\_3/S213/4956267](https://academic.oup.com/cid/article/66/suppl_3/S213/4956267)

**BACKGROUND:** The minimum package of voluntary medical male circumcision (VMMC) services, as defined by the World Health Organization, includes human immunodeficiency virus (HIV) testing, HIV prevention counseling, screening/treatment for sexually transmitted infections, condom promotion, and the VMMC procedure. The current study aimed to assess whether adolescents received these key elements.

**METHODS:** Quantitative surveys were conducted among male adolescents aged 10-19 years (n = 1293) seeking VMMC in South Africa, Tanzania, and Zimbabwe. We used a summative index score of 8 self-reported binary items to measure receipt of important elements of the World Health Organization-recommended HIV minimum package and the US President's Emergency Plan for AIDS Relief VMMC recommendations. Counseling sessions were observed for a subset of adolescents (n = 44). To evaluate factors associated with counseling content, we used Poisson regression models with generalized estimating equations and robust variance estimation.

**RESULTS:** Although counseling included VMMC benefits, little attention was paid to risks, including how to identify complications, what to do if they arise, and why avoiding sex and masturbation could prevent complications. Overall, older adolescents (aged 15-19 years) reported receiving more items in the recommended minimum package than younger adolescents (aged 10-14 years; adjusted beta, 0.17; 95% confidence interval [CI], .12-.21; P < .001). Older adolescents were also more likely to report receiving HIV test education and promotion (42.7% vs 29.5%; adjusted prevalence ratio [aPR], 1.53; 95% CI, 1.16-2.02) and a condom demonstration with condoms to take home (16.8% vs 4.4%; aPR, 2.44; 95% CI, 1.30-4.58). No significant age differences appeared in reports of explanations of VMMC risks and benefits or uptake of HIV testing. These self-reported findings were confirmed during counseling observations.

**CONCLUSIONS:** Moving toward age-equitable HIV prevention services during adolescent VMMC likely requires standardizing counseling content, as there are significant age differences in HIV prevention content received by adolescents.

7. Srithanaviboonchai, K., et al. **Physicians' and nurses' thoughts and concerns about introducing neonatal male circumcision in Thailand: a qualitative study.** *BMC Health Serv Res* 2018;18(1): 275.

Online at: <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-018-3093-y>

**BACKGROUND:** Neonatal male circumcision (NMC) is an alternative approach to adult male circumcision for HIV prevention. Recent studies found that NMC was rarely performed in Thailand and that most Thai health professionals did not recognize that NMC could reduce the risk of HIV infection and would not want NMC services in their hospitals. This study explored the thoughts and concerns of Thai government health staff regarding the introduction of NMC in government health facilities as a public health measure.

**METHODS:** In-depth interviews with physicians, nurses and physician administrators from four different levels of government hospitals in four provinces representing 4 regions of Thailand were conducted after provision of education regarding the benefits and risks of NMC. Interviews were audio recorded and analyzed using Atlas.ti software to develop themes.

**RESULTS:** Six themes emerged from the data of 42 respondents: understanding of the benefits of NMC; risks of NMC; need for a pilot project; need for staff training and hospital readiness; need for parental/family education; and need for public awareness educational campaign. Major concerns included possible medical complications of NMC, infringement of child rights, and lack of understanding from staff and parents. The respondents emphasized the need for a clear policy, proper training of staff, financial and equipment support, and piloting NMC rollout before this measure could be fully implemented.

**CONCLUSIONS:** Thai health professionals who took part in this study expressed several concerns if NMC had to be performed in their health care facilities. There is significant preparation that needs to be done before NMC can be introduced in the country.

8. Tobian, A. A. R., et al. **Providers' perceptions and training needs for counseling adolescents undergoing voluntary medical male circumcision.** *Clin Infect Dis* 2018;66(suppl\_3): S198-S204.

Online at: [https://academic.oup.com/cid/article/66/suppl\\_3/S198/4956261](https://academic.oup.com/cid/article/66/suppl_3/S198/4956261)

**BACKGROUND:** The majority of individuals who seek voluntary medical male circumcision (VMMC) services in sub-Saharan Africa are adolescents (ages 10-19 years). However, adolescents who obtain VMMC services report receiving little information on human immunodeficiency virus (HIV) prevention and care. In this study, we assessed the perceptions of VMMC facility managers and providers about current training content and their perspectives on age-appropriate adolescent counseling.

**METHODS:** Semistructured in-depth interviews were conducted with 33 VMMC providers in Tanzania (n = 12), South Africa (n = 9), and Zimbabwe (n = 12) and with 4 key informant facility managers in each country (total 12). Two coders independently coded the data thematically using a 2-step process and Atlas.ti qualitative coding software.

**RESULTS:** Providers and facility managers discussed limitations with current VMMC training, noting the need for adolescent-specific guidelines and counseling skills. Providers expressed hesitation in communicating complete sexual health information—including HIV testing, HIV prevention, proper condom usage, the importance of knowing a partner's HIV status, and abstinence from sex or masturbation during wound healing—with younger males (aged <15 years) and/or those assumed to be sexually inexperienced. Many providers revealed that they did not assess adolescent clients' sexual experience and deemed sexual topics to be irrelevant or inappropriate. Providers preferred counseling younger adolescents with their parents or guardians present, typically focusing primarily on wound care and procedural information.

**CONCLUSIONS:** Lack of training for working with adolescents influences the type of information communicated. Preconceptions hinder counseling that supports comprehensive HIV preventive behaviors and complete wound care information, particularly for younger adolescents.

9. Njeuhmeli, E., et al. **Scaling up voluntary medical male circumcision for human immunodeficiency virus prevention for adolescents and young adult men: a modeling analysis of implementation and impact in selected countries.** *Clin Infect Dis* 2018;66(suppl\_3): S166-S172.

**BACKGROUND:** The new World Health Organization and Joint United Nations Programme on HIV/AIDS strategic framework for voluntary medical male circumcision (VMMC) aims to increase VMMC coverage among males aged 10-29 years in priority settings to 90% by 2021. We use mathematical modeling to assess the likelihood that selected countries will achieve this objective, given their historical VMMC progress and current implementation options.

**METHODS:** We use the Decision Makers' Program Planning Toolkit, version 2, to examine 4 ambitious but feasible scenarios for scaling up VMMC coverage from 2017

through 2021, inclusive in Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Uganda, and Zimbabwe.

**RESULTS:** Tanzania is the only country that would reach the goal of 90% VMMC coverage in 10- to 29-year-olds by the end of 2021 in the scenarios assessed, and this was true in 3 of the scenarios studied. Mozambique, South Africa, and Lesotho would come close to reaching the objective only in the most ambitious scenario examined.

**Conclusions:** Major changes in VMMC implementation in most countries will be required to increase the proportion of circumcised 10- to 29-year-olds to 90% by the end of 2021. Scaling up VMMC coverage in males aged 10-29 years will require significantly increasing the number of circumcisions provided to 10- to 14-year-olds and 15- to 29-year-olds.

10. Van Lith, L. M., et al. **Perceived quality of in-service communication and counseling among adolescents undergoing voluntary medical male circumcision.** *Clin Infect Dis* 2018;66(suppl\_3): S205-S212.

Online at: [https://academic.oup.com/cid/article/66/suppl\\_3/S205/4956272](https://academic.oup.com/cid/article/66/suppl_3/S205/4956272)

**BACKGROUND:** Experience with providers shapes the quality of adolescent health services, including voluntary medical male circumcision (VMMC). This study examined the perceived quality of in-service communication and counseling during adolescent VMMC services.

**METHODS:** A postprocedure quantitative survey measuring overall satisfaction, comfort, perceived quality of in-service communication and counseling, and perceived quality of facility-level factors was administered across 14 VMMC sites in South Africa, Tanzania, and Zimbabwe. Participants were adolescent male clients aged 10-14 years (n = 836) and 15-19 years (n = 457) and completed the survey 7 to 10 days following VMMC. Adjusted prevalence ratios (aPRs) were estimated by multivariable modified Poisson regression with generalized estimating equations and robust variance estimation to account for site-level clustering.

**RESULTS:** Of 10- to 14-year-olds and 15- to 19-year-olds, 97.7% and 98.7%, respectively, reported they were either satisfied or very satisfied with their VMMC counseling experience. Most were also very likely or somewhat likely (93.6% of 10- to 14-year olds and 94.7% of 15- to 19-year olds) to recommend VMMC to their peers. On a 9-point scale, the median perceived quality of in-service (counselor) communication was 9 (interquartile range [IQR], 8-9) among 15- to 19-year-olds and 8 (IQR, 7-9) among 10- to 14-year-olds. The 10- to 14-year-olds were more likely than 15- to 19-year-olds to perceive a lower quality of in-service (counselor) communication (score <7; 21.5% vs. 8.2%; aPR, 1.61 [95% confidence interval, 1.33-1.95]). Most adolescents were more comfortable with a male rather than female counselor and provider. Adolescents of all ages wanted more discussion about pain, wound care, and healing time.

**CONCLUSIONS:** Adolescents perceive the quality of in-service communication as high and recommend VMMC to their peers; however, many adolescents desire more discussion about key topics outlined in World Health Organization guidance.

11. Patel, E. U., et al. **Age differences in perceptions of and motivations for voluntary medical male circumcision among adolescents in South Africa, Tanzania, and Zimbabwe.** *Clin Infect Dis* 2018;66(suppl\_3): S173-S182.

Online at: [https://academic.oup.com/cid/article/66/suppl\\_3/S173/4956266](https://academic.oup.com/cid/article/66/suppl_3/S173/4956266)

**BACKGROUND:** The World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS) have set a Fast-Track goal to achieve 90% coverage of voluntary medical male circumcision (VMMC) among boys and men aged 10-29 years in priority settings by 2021. We aimed to identify age-specific facilitators of VMMC uptake among adolescents.

**METHODS:** Younger (aged 10-14 years; n = 967) and older (aged 15-19 years; n = 559) male adolescents completed structured interviews about perceptions of and motivations for VMMC before receiving VMMC counseling at 14 service provision sites across South Africa, Tanzania, and Zimbabwe. Adjusted prevalence ratios (aPRs) were estimated using multivariable modified Poisson regression models with generalized estimating equations and robust standard errors.

**RESULTS:** The majority of adolescents reported a strong desire for VMMC. Compared with older adolescents, younger adolescents were less likely to cite protection against human immunodeficiency virus (HIV) or other sexually transmitted infections (aPR, 0.77; 95% confidence interval [CI], .66-.91) and hygienic reasons (aPR, 0.55; 95% CI, .39-.77) as their motivation to undergo VMMC but were more likely to report being motivated by advice from others (aPR, 1.88; 95% CI, 1.54-2.29). Although most adolescents believed that undergoing VMMC was a normative behavior, younger adolescents were less likely to perceive higher descriptive norms (aPR, 0.79; .71-.89), injunctive norms (aPR, 0.86; 95% CI, .73-1.00), or anticipated stigma for being uncircumcised (aPR, 0.79; 95% CI, .68-.90). Younger adolescents were also less likely than older adolescents to correctly cite that VMMC offers men and boys partial HIV protection (aPR, 0.73; 95% CI, .65-.82). Irrespective of age, adolescents' main concern about undergoing VMMC was pain (aPR, 0.95; 95% CI, .87-1.04). Among younger adolescents, fear of pain was negatively associated with desire for VMMC (aPR, 0.89; 95% CI, .83-.96).

**CONCLUSIONS:** Age-specific strategies are important to consider to generate sustainable demand for VMMC. Programmatic efforts should consider building on the social norms surrounding VMMC and aim to alleviate fears about pain.

12. Broughton, E. I., et al. **The cost-effectiveness of three methods of disseminating information to improve medical male circumcision in Uganda.** *PLoS One* 2018;13(4): e0195691.

Online at: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0195691>

**BACKGROUND:** Uganda is working to increase voluntary medical male circumcision (VMMC) to prevent HIV infection. To support VMMC quality improvement, this study compared three methods of disseminating information to facilities on how to improve VMMC quality: M-providing a written manual; MH-providing the manual plus a handover meeting in which clinicians shared advice on implementing key changes and participated in group discussion; and MHC-manual, handover meeting, and three site visits to the facility in which a coach provided individualized guidance and mentoring on improvement. We determined the different effects these had on compliance with indicators of quality of care.

**METHODS:** This controlled pre-post intervention study randomized health facility groups to receive M, MH, or MHC. Observations of VMMCs performance determined compliance with quality indicators. Intervention costs per patient receiving VMMC were used in a decision-tree cost-effectiveness model to calculate the incremental cost per additional patient treated to compliance with indicators of informed consent, history taking, anesthesia administration, and post-operative instructions.

**RESULTS:** The most intensive method (MHC) cost \$28.83 per patient and produced the biggest gains in history taking (35% improvement), anesthesia administration (20% improvement), and post-operative instructions (37% improvement). The least intensive method (M; \$1.13 per patient) was most efficient because it produced small gains for a very low cost. The handover meeting (MH) was the most expensive among the three interventions but did not have a corresponding positive effect on quality.

**CONCLUSION:** Health workers in facilities that received the VMMC improvement manual and participated in the handover meeting and coaching visits showed more improvement in VMMC quality indicators than those in the other two intervention groups. Providing the manual alone cost the least but was also the least effective in achieving improvements. The MHC intervention is recommended for broader implementation to improve VMMC quality in Uganda.

13. Borgdorff, M. W., et al. **HIV incidence in western Kenya during scale-up of antiretroviral therapy and voluntary medical male circumcision: a population-based cohort analysis.** *Lancet HIV* 2018;5(5): e241-e249.

Online at: [https://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018\(18\)30025-0/fulltext](https://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018(18)30025-0/fulltext)

**BACKGROUND:** In Kenya, coverage of antiretroviral therapy (ART) among people with HIV infection has increased from 7% in 2006, to 57% in 2016; and, in western Kenya,

coverage of voluntary medical male circumcision (VMMC) increased from 45% in 2008, to 72% in 2014. We investigated trends in HIV prevalence and incidence in a high burden area in western Kenya in 2011-16.

**METHODS:** In 2011, 2012, and 2016, population-based surveys were done via a health and demographic surveillance system and home-based counselling and testing in Gem, Siaya County, Kenya, including 28 688, 17 021, and 16 772 individuals aged 15-64 years. Data on demographic variables, self-reported HIV status, and risk factors were collected. Rapid HIV testing was offered to survey participants. Participants were tracked between surveys by use of health and demographic surveillance system identification numbers. HIV prevalence was calculated as a proportion, and HIV incidence was expressed as number of new infections per 1000 person-years of follow-up.

**FINDINGS:** HIV prevalence was stable in participants aged 15-64 years: 15% (4300/28 532) in 2011, 12% (2051/16 875) in 2012, and 15% (2312/15 626) in 2016. Crude prevalences in participants aged 15-34 years were 11% (1893/17 197) in 2011, 10% (1015/10 118) in 2012, and 9% (848/9125) in 2016; adjusted for age and sex these prevalences were 11%, 9%, and 8%. 12 606 (41%) of the 30 520 non-HIV-infected individuals enrolled were seen again in at least one more survey round, and were included in the analysis of HIV incidence. HIV incidence was 11.1 (95% CI 9.1-13.1) per 1000 person-years from 2011 to 2012, and 5.7 (4.6-6.9) per 1000 person-years from 2012 to 2016.

**INTERPRETATION:** With increasing coverage of ART and VMMC, HIV incidence declined substantially in Siaya County between 2011 and 2016. VMMC, but not ART, was suggested to have a direct protective effect, presumably because ART tended to be given to individuals with advanced HIV infection. HIV incidence is still high and not close to the elimination target of one per 1000 person-years. The effect of further scale-up of ART and VMMC needs to be monitored.

**FUNDING:** Data were collected under Cooperative Agreements with the US Centers for Disease Control and Prevention, with funding from the President's Emergency Fund for AIDS Relief.

14. Joseph Davey, D., et al. **A systematic review of the current status of safer conception strategies for HIV affected heterosexual couples in sub-Saharan Africa.** *AIDS Behav* 2018 Jun 4. [Epub ahead of print]

We conducted a systematic review of safer conception strategies (SCS) for HIV-affected couples in sub-Saharan Africa to inform evidence-based safer conception interventions. Following PRISMA guidelines, we searched fifteen electronic databases using the following inclusion criteria: SCS research in HIV-affected couples; published after 2007; in sub-Saharan Africa; primary research; peer-reviewed; and addressed a primary topic of interest (SCS availability, feasibility, and acceptability, and/or education and

promotion). Researchers independently reviewed each study for eligibility using a standardized tool. We categorize studies by their topic area. We identified 41 studies (26 qualitative and 15 quantitative) that met inclusion criteria. Reviewed SCSs included: antiretroviral therapy (ART), pre-exposure prophylaxis, timed unprotected intercourse, manual/self-insemination, sperm washing, and voluntary male medical circumcision (VMMC). SCS were largely unavailable outside of research settings, except for general availability (i.e., not specifically for safer conception) of ART and VMMC. SCS acceptability was impacted by low client and provider knowledge about safer conception services, stigma around HIV-affected couples wanting children, and difficulty with HIV disclosure in HIV-affected couples. Couples expressed desire to learn more about SCS; however, provider training, patient education, SCS promotions, and integration of reproductive health and HIV services remain limited. Studies of provider training and couple-based education showed improvements in communication around fertility intentions and SCS knowledge. SCS are not yet widely available to HIV-affected African couples. Successful implementation of SCS requires that providers receive training on effective SCS and provide couple-based safer conception counseling to improve disclosure and communication around fertility intentions and reproductive health.

15. Greevy, C., et al. **Male circumcision for HIV prevention: female risk compensatory behaviour in South Africa.** *AIDS Care* 2018 May 20: 1-7. [Epub ahead of print]

South Africa promotes male circumcision (MC) as an HIV prevention method and implemented a national plan to scale-up MC in the country from 2012 to 2016. Literature has suggested that female risk compensatory behaviours (RCBs) are occurring in countries where these programmes have been implemented. Behaviours such as decreased condom use, concurrent sexual partners and sexual activity during the circumcision wound-healing period have the potential to jeopardise the campaigns' objectives. Literature has shown that directly providing women with MC information results in correct knowledge however, previous studies have not directly sought women's views and ideas on engagement with the information. This study aims to identify and explore female RCBs in relation to MC campaigns in South Africa, and to identify interventions that would result in greater female involvement in the campaigns. Snowball sampling was used to conduct twelve qualitative vignette-facilitated semi-structured interviews with women residing in a municipal housing estate in Durban, Kwa-Zulu Natal, South Africa. Interviews were audio-recorded, verbatim transcribed and analysed using framework analysis. MC knowledge and understanding varied, with some participants mistaking MC as direct HIV protection for females. Despite a lack in knowledge, the majority of women did not report signs of RCBs. Even with a lack of evidence of RCBs, misinterpretation of the MC protective effect has the potential to lead to RCBs; a concept acknowledged in the literature. Several women expressed that MC campaigns are directed to males only and expressed a keenness to be more involved. Suggested interventions include couple counselling and female information sessions in community clinics. Exploring women's attitude towards involvement in MC campaigns

fills in a research knowledge gap that is important to international health, as women have a vital role to play in reducing the transmission of HIV.

16. Carrasco, M. A., et al. **Systematic review of barriers and facilitators to voluntary medical male circumcision in priority countries and programmatic implications for service uptake.** *Glob Public Health* 2018 Apr 26: 1-21. [Epub ahead of print]

Voluntary medical male circumcision (VMMC) is an effective biomedical HIV prevention strategy. There is a need to identify key barriers and facilitators to VMMC uptake in priority countries to improve uptake. In this paper, we report findings from a systematic review of the barriers and facilitators of VMMC uptake, comparing them across countries in order to provide programmers critical information to design effective VMMC uptake interventions. Our review followed PRISMA protocol. Twenty three articles from 10 of the 14 priority countries were included. The top three barriers cited were: MC negatively perceived as being practiced by other or foreign cultures and religions, fear of pain caused by the procedure, and perceptions of VMMC as not helpful/needed. The top four facilitators cited in most countries were: Belief that VMMC reduces health risks and improves hygiene, family and peer support of MC, and enhanced sexual performance and satisfaction. The barriers and facilitators highlighted in this paper can help inform programmatic strategies in these countries. More research is needed to ensure that all sub-populations are being adequately reached. By applying this information to new research and programming, these countries can achieve greater VMMC uptake - and thus reductions in HIV transmission and prevalence.

17. Mavhu, W., et al. **Adolescent wound-care self-efficacy and practices after voluntary medical male circumcision-a multicountry assessment.** *Clin Infect Dis* 2018;66(suppl\_3): S229-S235.

Online at: [https://academic.oup.com/cid/article/66/suppl\\_3/S229/4956268](https://academic.oup.com/cid/article/66/suppl_3/S229/4956268)

**BACKGROUND:** Adolescent boys (aged 10-19 years) constitute the majority of voluntary medical male circumcision (VMMC) clients in sub-Saharan Africa. They are at higher risk of postoperative infections compared to adults. We explored adolescents' wound-care knowledge, self-efficacy, and practices after VMMC to inform strategies for reducing the risks of infectious complications postoperatively.

**METHODS:** Quantitative and qualitative data were collected in South Africa, Tanzania, and Zimbabwe between June 2015 to September 2016. A postprocedure survey was conducted approximately 7-10 days after VMMC among male adolescents (n = 1293) who had completed a preprocedure survey; the postprocedure survey assessed knowledge of proper wound care and wound-care self-efficacy. We also conducted in-depth interviews (n = 92) with male adolescents 6-10 weeks after the VMMC procedure to further explore comprehension of providers' wound-care instructions as well as wound-care practices, and we held 24 focus group discussions with randomly selected parents/guardians of the adolescents.

**RESULTS:** Adolescent VMMC clients face multiple challenges with postcircumcision wound care owing to factors such as forgetting, misinterpreting, and disregarding provider instructions. Although younger adolescents stated that parental intervention helped them overcome potential hindrances to wound care, parents and guardians lacked crucial information on wound care because most had not attended counseling sessions. Some older adolescents reported ignoring symptoms of infection and not returning to the clinic for review when an adverse event had occurred.

**CONCLUSIONS:** Increased involvement of parents/guardians in wound-care counseling for younger adolescents and in wound-care supervision, alongside the development of age-appropriate materials on wound care, are needed to minimize postoperative complications after VMMC.

18. Kaufman, M. R., et al. **Females' peer influence and support for adolescent males receiving voluntary medical male circumcision services.** *Clin Infect Dis* 2018;66(suppl\_3): S183-S188.  
Online at: [https://academic.oup.com/cid/article/66/suppl\\_3/S183/4956264](https://academic.oup.com/cid/article/66/suppl_3/S183/4956264)

**BACKGROUND:** While female involvement in voluntary medical male circumcision (VMMC) has been studied among adults, little is known about the influence of adolescent females on their male counterparts. This study explored adolescent females' involvement in VMMC decision making and the postoperative wound healing process in South Africa, Tanzania, and Zimbabwe.

**METHODS:** Across 3 countries, 12 focus group discussions were conducted with a total of 90 adolescent females (aged 16-19 years). Individual in-depth interviews were conducted 6-10 weeks post-VMMC with 92 adolescent males (aged 10-19 years). Transcribed and translated qualitative data were coded into categories and subcategories by 2 independent coders.

**RESULTS:** Adolescent female participants reported being supportive of male peers' decisions to seek VMMC, with the caveat that some thought VMMC gives males a chance to be promiscuous. Regardless, females from all countries expressed preference for circumcised over uncircumcised sexual partners. Adolescent females believed VMMC to be beneficial for the sexual health of both partners, viewed males with a circumcised penis as more attractive than uncircumcised males, used their romantic relationships with males or the potential for sex as leveraging points to convince males to become circumcised, and demonstrated supportive attitudes in the wound-healing period. Interviews with males confirmed that encouragement from females was a motivating factor in seeking VMMC.

**CONCLUSIONS:** Adolescent female participants played a role in convincing young males to seek VMMC and remained supportive of the decision postprocedure. Programs

aiming to increase uptake of VMMC and other health-related initiatives for adolescent males should consider the perspective and influence of adolescent females.

19. Lane, C., et al. **Adolescent male circumcision for HIV prevention in high priority countries: opportunities for improvement.** *Clin Infect Dis* 2018;66(suppl\_3): S161-S165. Online at: [https://academic.oup.com/cid/article/66/suppl\\_3/S161/4956265](https://academic.oup.com/cid/article/66/suppl_3/S161/4956265)

Global experts recognize the need to transform conventional models of healthcare to create adolescent responsive health systems. As countries near 80% coverage of voluntary medical male circumcision (VMMC) for those aged 15-49 years, prioritization of younger men becomes critical to VMMC sustainability. This special supplement reporting 9 studies focusing on adolescent VMMC programming and services comes at a critical time. Eight articles report how well adolescents are reached with the World Health Organization's minimum package for comprehensive human immunodeficiency virus (HIV) prevention in South Africa, Zimbabwe, and Tanzania, analyzing motivation, counseling, wound healing, parental involvement, female peer support, quality of in-service communication, and providers' perceptions, and one presents models for achieving high VMMC coverage by 2021. One important finding is that adolescent boys, especially the youngest, experience gaps in their comprehension of key elements in the World Health Organization's minimum package. Although parents, counselors, and providers are involved and supportive, they are inadequately prepared to counsel youth, partly owing to discomfort with adolescent sexuality. At the country level, deliberately prioritizing young adolescents (aged 10-14 years) is likely to achieve national coverage targets more quickly and cost-effectively than continuing to focus on older, harder-to-reach men. The studies in this supplement point to areas where VMMC programs are achieving successes and they reveal areas for improvement. Given that prioritizing adolescents will be the best means of achieving sustainable VMMC for HIV prevention for the foreseeable future, applying the lessons learned here will increase the effectiveness of VMMC programs.