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Medical male circumcision coverage from 2007 to 2014 in Rakai, Uganda

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Abstract

We assessed medical male circumcision (MMC) scale-up in Rakai Uganda using population-based surveys during 2007–2014. MMC coverage increased from 28.5% to 52.0%. Coverage was initially lower in 15–19-years olds but increased in 2014, was higher in married men and in trading communities, and lowest in the sexually inactive. Coverage did not vary by self-perceived risk of HIV or HIV serostatus. Increasing generalized coverage suggested that MMC became normative, but coverage falls short of WHO/UNAIDS 80% targets, indicating the need for demand generation.

Keywords

Male circumcision scale-up; implementation; HIV prevention; program evaluation; sub-Saharan Africa

INTRODUCTION

Medical male circumcision (MMC) is an important HIV prevention strategy in Sub-Saharan Africa. Fourteen priority countries, including Uganda, were identified for MMC scale-up in 2007[1]. In 2011, WHO/UNAIDS further set the strategic goal of achieving "MMC prevalence of at least 80% among 15–49 year old males" in these countries[2]. Reaching this goal requires monitoring and evaluation of MMC scale-up to assess program performance and identify subgroups with low coverage.

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The Rakai District in rural South-central Uganda has had a generalized heterosexual HIV epidemic since the 1970's. Non-Muslim men who represent ~85% of the male population do not practice circumcision by tradition, and are focus of the scale-up program. MMC prevalence in non-Muslim men was ~4% prior to 2003[3]. During 2003–2006, a randomized trial of MMC was conducted in Rakai and showed that MMC reduces risk of HIV acquisition in men[4]. Since 2007, the health benefits of MMC have been widely disseminated to the communities, and free MMC services were provided. To evaluate the scale-up and diffusion of MMC into the communities, we used population based surveys to estimate overall MMC coverage in men aged 15–49 years and the coverage in non-Muslim men and by their demographic and risk behavioral profiles, and HIV serostatus from 2007 to 2014.

METHODS

With PEPFAR funding, the Rakai Health Sciences Program (RHSP) has been the primary provider of free MMC services in Rakai. Since 2007, MMC was provided by trained clinical officers to consenting males aged 13 and older at a central facility and four satellite clinics, and mobile camps became available from 2011. Provider initiated pre-HIV test counseling was provided to all MMC clients with post-test counseling for those who agreed to learn their results. MMC was provided to HIV-positive men if there were no contraindications to surgery. In addition to RHSP MMC services, men could receive MMC at local government health facilities.

Population surveillance data are available from the Rakai Community Cohort Study which conducts cross-sectional surveys of consenting individuals aged 15–49 years about every 12 to 18 months. Each survey was preceded by a household based census of all residents. All identified eligible cohort subjects (aged 15–49 years and resident in the household for >6 months) were then consented and interviewed by trained same-sex interviewers using structured questionnaires to collect sociodemographic, sexual behaviors, health and care seeking information. Men were asked about their circumcision status. Blood samples were collected for HIV testing. Participation rate was ~92% among age eligible residents present at time of each survey; and among these participants, ~95% provided a blood sample.

This analysis used data from 30 communities consistently surveyed in the five most recent completed surveys conducted in early 2007-early 2008 (n=3712 men, 87.5% non-Muslim), early 2008-late 2009 (n=3748, 87.7% non-Muslim), early 2010-mid 2011 (n=4243, 87.3% non-Muslim), mid 2011-early 2013 (n=4881, 88.0% non-Muslim), and early 2013-late 2014 (n=5181, 87.8% non-Muslim).

Overall MMC coverage in men was estimated for each survey as the proportion of men reporting being circumcised among all men surveyed. Coverage in non-Muslim men was also estimated since they were the focus for scale-up. Furthermore, MMC coverage in non-Muslim men was estimated by their demographic and sexual behavioral characteristics, community residence type (urban trading centers, semi-urban secondary road trading centers and rural agricultural villages), self-perceived risk of HIV exposure among sexually active

men, and by HIV status. Pearson Chi-Square tests were used to assess the significance of differences in coverage by these covariates at each survey.

RESULTS

Figure 1 shows MMC coverage in all men and in non-Muslim men, and by subgroups of non-Muslim men. From 2007–2014, coverage increased from 28.5% to 52.0% in all men, and increased from 18.7% to 45.7% in non-Muslim men. Coverage increased in all subgroups of non-Muslims. Coverage was initially slightly higher in the HIV-positive than the HIV-negative, but there were no significant differences in recent years. MMC coverage in the 15–19 year age group was consistently lower than other age groups, with a large increase in 2014. Coverage was higher among married men and among men living in urban main road trading centers. Coverage was similar among men reporting one or multiple sex partnerships, both of which were higher than coverage in men reporting no sex in the past year. MMC coverage in sexually active men did not differ significantly by condom use or self-perceived risk of HIV exposure, except in the latest survey where coverage was higher in men reporting consistent condom use.

DISCUSSION

The increasing MMC coverage in all subgroups of non-Muslim men suggests that MMC became more normative in Rakai from 2007 to 2014 after completion of the trials and dissemination of information on health benefits. MMC coverage was comparable in HIV-infected and uninfected men. The recent increase of MMC coverage in adolescents aged 15–19 years probably reflects higher MMC uptake among younger boys in the MMC program[5]. These younger boys were not age eligible for the surveys initially, but became eligible and thus were observed in the latest survey when they reached age 15. MMC coverage was consistently highest in urban main road trading centers. This could be due to easier access to MMC service facilities in these communities, especially during the years before MMC mobile camps became available in outlying rural villages. Urban communities may also have more information flow, facilitating acceptance of MMC. Coverage was consistently higher among sexually active men, suggesting that MMC was adopted by men exposed to HIV risk. Additionally, higher MMC coverage was comparable to or higher among men reporting consistent condom use, suggesting no evidence of behavioral risk compensation associated with MMC scale-up[6].

Despite increasing MMC coverage in this traditionally non-circumcising population, MMC coverage still fell short of the 80% WHO/UNAIDS target. There is, therefore, a continuing need for demand generation to reach the 80% coverage goal.

Acknowledgments

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Figure 1. Medical male circumcision coverages in 15–49 year old men, in 15–49 year old non-Muslim men and by their characteristics in 30 communities in Rakai Uganda during 2007 to 2014.