

# USE OF GEOGRAPHIC INFORMATION SYSTEM MAPPING FOR SCALING-UP VOLUNTARY MEDICAL MALE CIRCUMCISION SERVICES IN TANZANIA

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## BACKGROUND

Studies have demonstrated that voluntary medical male circumcision (VMMC) reduces the risk of heterosexually acquired HIV infection in men by approximately 60%. The World Health Organization (WHO) and UNAIDS recommended VMMC as part of a comprehensive HIV prevention package in 14 priority countries in sub-Saharan Africa including Tanzania. IntraHealth International, with PEPFAR/ CDC funding, is supporting the Government of Tanzania to strengthen and accelerate scale-up of a comprehensive package of optimum quality, safe VMMC services among adolescents and adult men 10-29 years of age to reach 90% prevalence in five regions by 2020, and to integrate early infant male circumcision services in reproductive and child health clinics for sustainability. In 2015-16, Tanzania recorded 80% male circumcision prevalence among adult men aged 15-49 years (2015-16 TDHS).

Scaling-up VMMC becomes more challenging as coverage increases and the number of eligible men decreases. For this reason, IntraHealth used geographic information system (GIS) data with information from community experts to identify accessible geographical areas in Tanzania with large numbers of uncircumcised men for targeted service delivery.

## METHODS

We collected 2016 ward-level male population projection data in the four IntraHealth-supported regions and shape files with geo-referenced points (e.g., ward boundaries, road networks, bodies of water, and forests/vegetation) from the National Bureau of Statistics. We extracted geo-coordinates of health facilities from the national health facility registry and DATIM GIS interface and used to geo-reference facility locations.

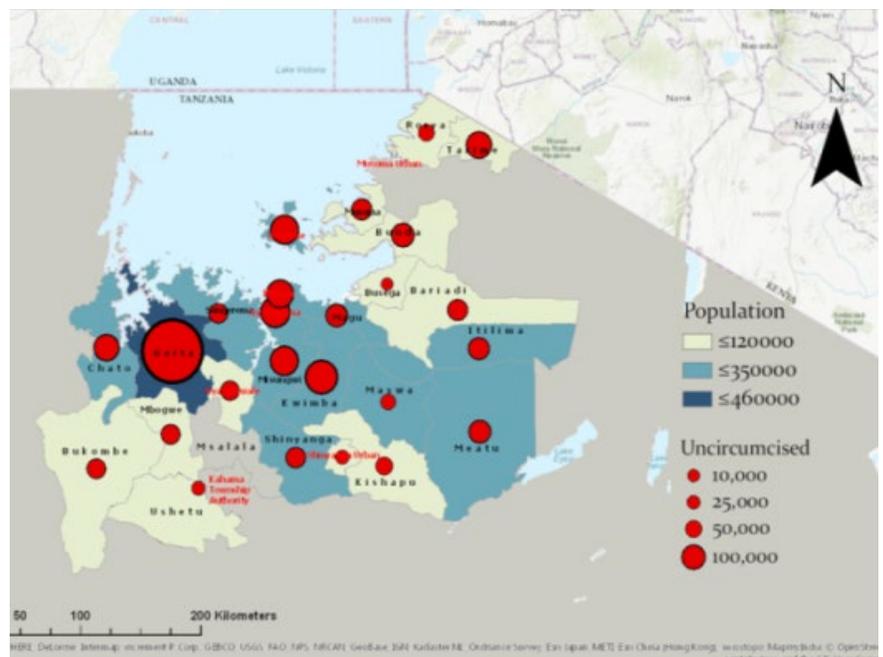


Figure 2. Distribution of uncircumcised men in four regions in Tanzania

We subtracted 2011-2016 service delivery data on circumcised men from the PROMIS database to establish estimations of uncircumcised men in the respective wards of the four regions. Geo-coded data and shape files were overlaid into GIS software (ArcGIS Pro Esri 2017) and analyzed to create maps of facility locations, coverage, and areas with high concentrations of uncircumcised men where demand creation and VMMC scale-up were prioritized. We presented the visual maps of the preliminarily preferred sites to the community experts provided additional socio-economic factors needed for consideration in site selection and planning for VMMC outreach campaigns such as accessibility and availability of water/electricity for sterilization of instruments and lodging for service providers respective locations.

## FINDINGS

Maps showed over 61% of uncircumcised men were located in 40% of the wards within the four regions.

Some wards with high numbers of uncircumcised men do not have water for sterilization of instruments; the roads are impassable; and there is no lodging to accommodate service providers for outreach services.

The project achieved these results with a \$7.1 million budget, an average of US\$31.12 per client, significantly lower than the national estimate and previous years at US\$50 and US\$39.36, respectively.

## CONCLUSION

Coupled with qualitative socio-economic information from community experts, interactive GIS mapping ensures efficiency in planning and monitoring for high-impact large-scale interventions at a minimum cost. Project designs should consider using interactive GIS maps to make strategic decisions for targeted high-impact interventions.

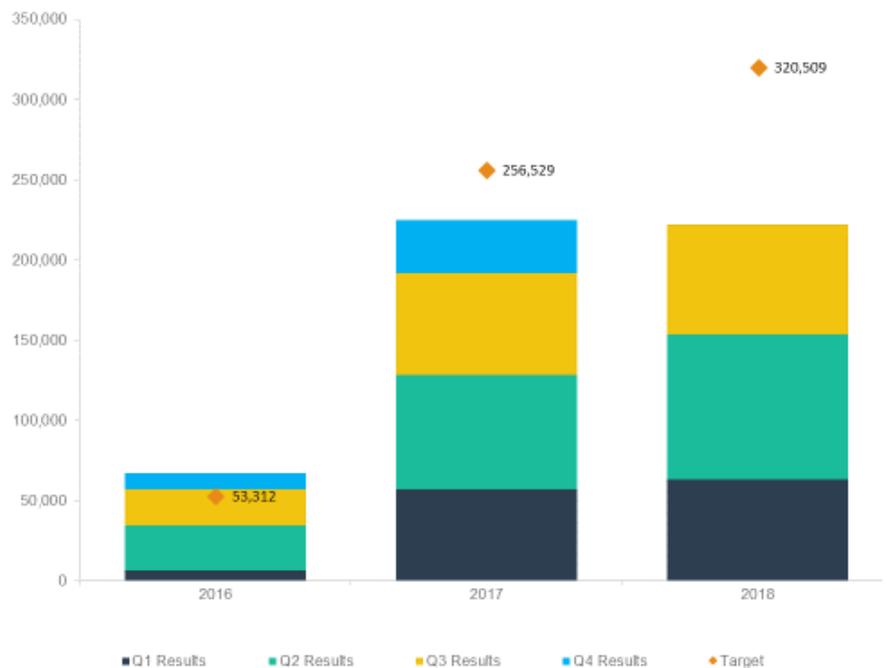


Figure 3. VMMC Results (2016-18)

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