USING MATHEMATICAL MODELING FOR POLICY AND STRATEGIC PLANNING

A Case Study of VMMC Scale-up in Eastern and Southern Africa

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WHO MEETING ON
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Introduction

- Mathematical modeling is a critical tool for HIV program planning and strategic decision making

    o *Examine intervention impacts over a range of timescales, settings, or subpopulations*

    o *Estimate outcomes that are otherwise difficult to measure, such as trends in HIV incidence or AIDS-related deaths*

    o *Quantify long-term gains in cost-savings or epidemiological impact*

- Disconnects between modelers and policymakers can make it difficult to translate model results from page to policy

Today:

- **Summarize challenges to ensuring model results are used in policymaking**

- **Describe success of VMMC program in using modeling to influence VMMC policy**

- **Propose framework to guide researchers looking to produce data for decision-making**

Case Study:
The Decision Maker's Program Planning Tool (DMPPT)

o A series of VMMC modelling exercises has had a significant impact on global VMMC policies

o Three iterations of the model demonstrate modeling's wide-ranging potential and uses: As a tool for advocacy, data for strategic planning, and program monitoring

o Success in policy reach could serve as a blueprint for others looking to apply modeling to inform policy

DMPPT

Advocacy

- Desk exercise in 2011

- Public data from 13 countries

DMPPT 2.0

Strategic Planning

- Applications in 9 countries

- Stakeholder engagement

- Customized to each country

DMPPT 2 Online

Monitoring

- Simplified, web-based version

- Accessible data: VMMC targets, coverage, and impact projections

"Neither the elegance of the science nor the strength of the effect predict the ease of implementation"

-- David Stanton, USAID, 2009
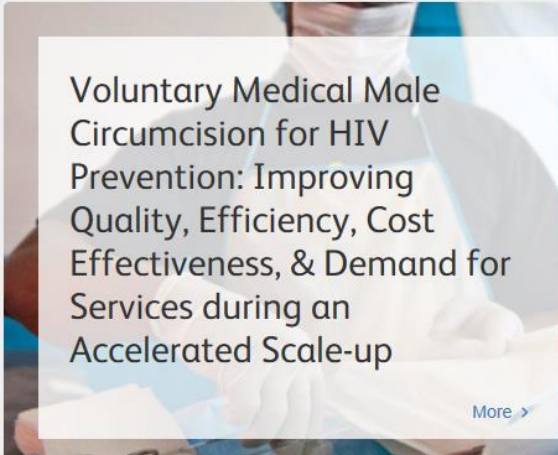
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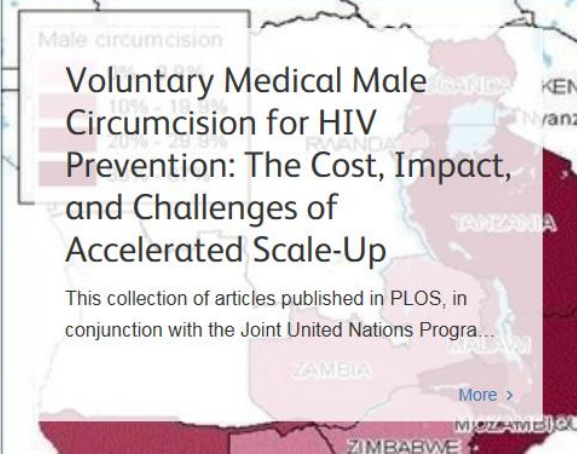
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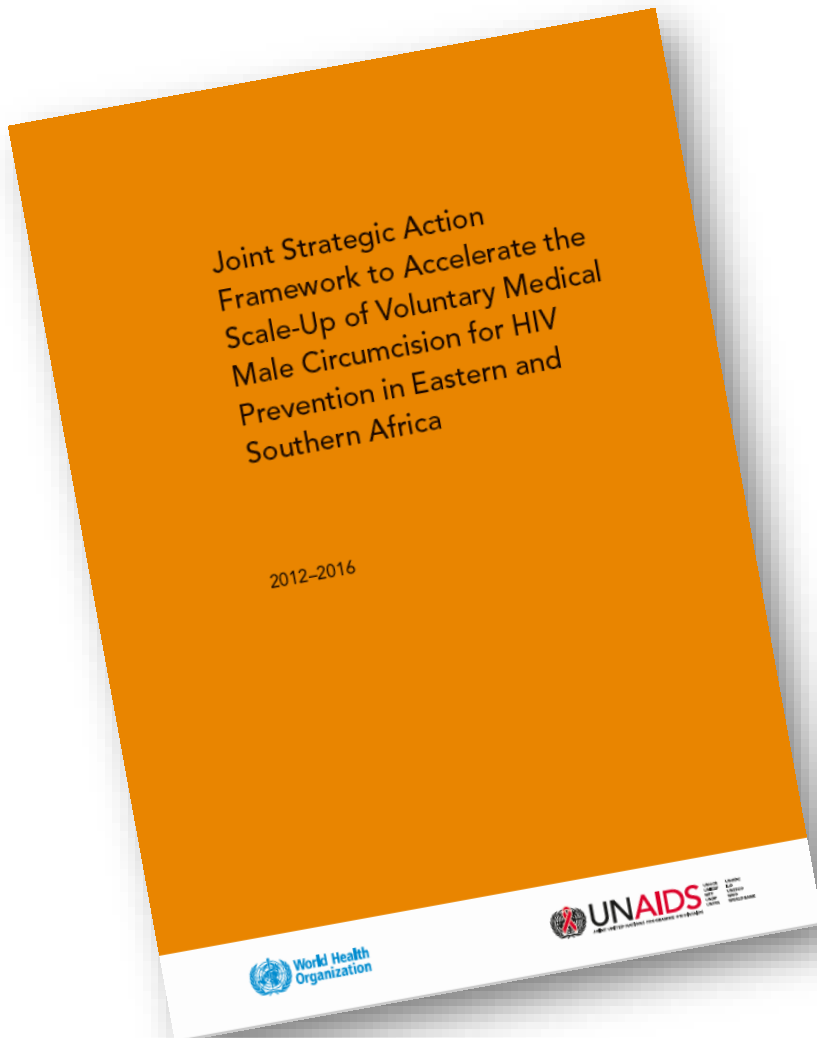
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Voluntary Medical Male Circumcision for HIV Prevention: The Cost, Impact, and Challenges of Accelerated Scale-Up

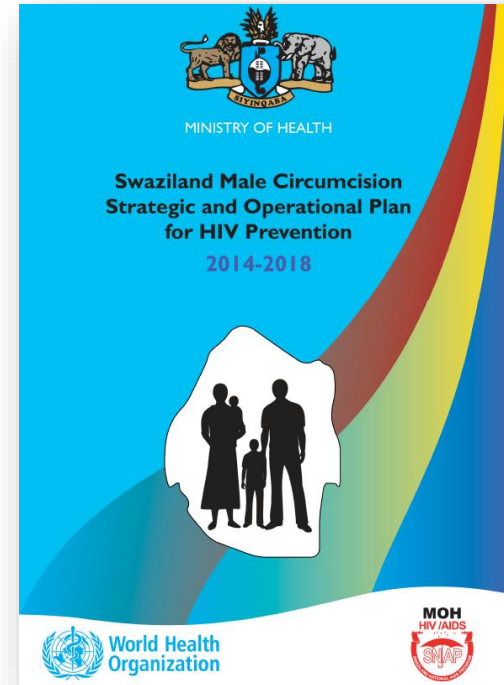This collection of articles published in PLOS, in conjunction with the Joint United Nations Progra...

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UNAIDS-WHO Joint Strategic Action Framework for Acceleration of VMMC Scale-Up: 2012 to 2016

Joint Strategic Action Framework to Accelerate the Scale-Up of Voluntary Medical Male Circumcision for HIV Prevention in Eastern and Southern Africa

2012–2016

World Health Organization

UNAIDS

- Microsoft-Excel-based modeling tool populated with publicly-available data

- Demonstrated that VMMC scale-up would result in substantial reductions in HIV infections and lower health system costs

- Results:
  - The 80% target was incorporated into the WHO-UNAIDS Joint Strategic Action Framework for VMMC in December 2011
  - All countries included VMMC scale-up in their national strategic plans
  - PEPFAR significantly increased its VMMC budget.

Example: Application of the DMPPT 2.0 in Swaziland

- In 2013/2014, Swaziland MOH wanted to understand how to better align their VMMC targets with the varying demand observed among different age groups.

- After examining the results of 6 modeling scenarios, the MOH chose to scale up to 50% coverage for neonates, 80% among males ages 10-29, and 55% among males ages 30-34.

- These evidence-based targets were incorporated into the *Male Circumcision Strategic and Operational Plan for HIV Prevention, 2014–2018.*

"[Our] plan was chosen with the intention of balancing cost, cost-effectiveness, impact, and programmatic feasibility."

- Dr Simon M. Zwane, Principal Secretary of Swaziland's Ministry of Health

DMPPT Lessons Learned

- **Modeling can be an effective tool to promote, plan, and monitor policy and programs:** The three iterations of the modeling tool demonstrate a range of uses for modeling in HIV programming.

- **Engage Stakeholders early and often**: Country stakeholders provided input in the DMPPT 2 model inputs, assumptions and research questions, leading to confidence in and use of the results.

- **Get to know the policymaking process:** It can be difficult to appreciate what goes into the policymaking process. With high levels of engagement, as well as coordination with global funding cycles and country processes, one can better ensure that results will feed into national strategies and plans.

- **Plan for sustainability:** At the same time, policymakers may not immediately understand what goes into the modeling process. Facilitating clear dialogue around sustainability is critical: what is needed by way of planning or support to ensure that a model is updated and applied on an ongoing basis?

Framework for Success

- Find an in-country influencer/champion

- Engage the right stakeholders early and often

- Encourage consensus throughout to ensure ownership later

- Customize analyses to reflect specific realities of each country (use stakeholder input)

- Create user-friendly tools to put power in the hands of program managers

- Establish a plan for sustainability

Stakeholder Engagement Best Practices

1. Identify and engage a wide array of stakeholders involved with the program (local, national and global levels)

2. Ensure an understanding of the value of modeling ("sell" stakeholders on your model)

3. Identify/agree on the research question

4. Identify/agree on the input variables (where from)

5. Identify/agree on assumptions

6. After completing the model analysis, come together to review results and agree on policy implications

VMMC Data for Decision Making

DHIS

MC Coverage

VMMC target

Impact of VMMC done

DMPPT 2 Online

Site capacity

Site performance

Site utilization rate

Site capacity/Site utilization Online Tool

Visualization key VMMC indicators

DHIS, DATIM, DMPPT, Site capacity / site utilization

GIS Online Mapping

VMMC capacity building

VMMC Online Training Hub

PEPFAR Data Pack

PEPFAR DATIM

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