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Sustainability and Integration of the Voluntary Medical Male Circumcision Program in Zimbabwe

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By

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Abstract

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Low- and middle-income countries are increasingly under pressure to determine how to integrate their donor-driven health programs into locally-run health programs. Voluntary Medical Male Circumcision (VMMC) is a cost-effective, evidence-based HIV prevention strategy. It has been shown to reduce female to male transmission of HIV by 60%. The World Health Organization and UNAIDS recommend VMMC in 15 countries. These East and Southern African countries have high HIV prevalence rates, where heterosexual sex is the main driver of HIV transmission, and there are low circumcision prevalence rates in some or all populations. External donors such as the United States President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, TB, and Malaria (GFATM) are seeking to withdraw financial support for the VMMC program, despite its potential contribution to ending the HIV/AIDS epidemic, because they feel that national governments should be able to continue the program at steady-state. According to PEPFAR, mathematical modeling shows that reaching high levels of VMMC coverage can "…dramatically reduce community-level HIV incidence and save billions of dollars in HIV care and treatment costs. The imminent withdrawal of donor funding has stimulated national governments to mobilize domestic resources and take responsibility for the oversight and operations of the program from NGOs.

In Zimbabwe, there is political will from the government to take on the VMMC program, as evidenced by the national VMMC Sustainability Transition Implementation Plan. According to this plan, the sustainability of the VMMC program calls for an integrated, decentralized, and locally owned program. The vertical (or stand-alone) program will be integrated into existing health services. The availability of the procedure at primary health centers will depend on training of more service providers. Decentralization will require a transfer of management responsibilities from implementing partners to subnational government stakeholders, a consolidation of roles, and greater community engagement.

In the first paper, *Managing change to integrate and sustain a vertical, donor-funded program: a case study on Voluntary Medical Male Circumcision in Zimbabwe*, I develop a business-school-style teaching case study that uses an example of a health program that is undergoing a transition from a vertical program to a horizontal health program. The VMMC program in Zimbabwe must make changes to its operating model to sustain the program in preparation for the eventual withdrawal of donor funding. It must also transition from a program that is donor and implementing partner led to one that is government owned and operated. This case study illustrates how a health program pivots after a period of disruption (in this case the COVID-19 pandemic); the likelihood of successful change when leadership is shared rather than dependent upon one individual; and how a team can participate in a process to prioritize addressing a problem and mobilize collective action to resolve it.

In the second paper, *Sustainable integration of a vertical Voluntary Medical Male Circumcision program into routine health services in Zimbabwe: a mixed methods process evaluation of a participatory change intervention*, I address whether a systems change intervention called the LEAD Framework furthered the integration and sustainability of the VMMC program. I focus on how the intervention facilitated the transition of VMMC within five pilot districts into a locally-owned and managed program while also strengthening individual and team capacity. District team actions included greater engagement of multisectoral stakeholders, better use of existing resources, and changes to operating models. I observed improvements across all World Health Organization health system building blocks, suggesting that the intervention strengthened the overall health system. A sustainability survey showed a reduction in funding stability but a significant increase in communications, program adaptation, and organizational capacity.

In the third paper, *Understanding stakeholder perspectives on integrating and sustaining voluntary medical male circumcision into routine health services in Zimbabwe: a qualitative study*, I describe the range of psychological and structural barriers and facilitators faced by a broad array of stakeholders engaged in integrating and sustaining the VMMC program. Notably, staffing and financing barriers, particularly the obstacles posed by staff attrition, limited domestic resources, and the transition from a fee-for-service to a facility-based performance model, will make decentralized service delivery and maintaining high levels of productivity challenging. Respondents also mentioned resistance to changing the program's operations as a significant barrier, especially as donors and partners continued to control the funding, thereby limiting the Ministry of Health and Child Care's (MoHCC) decision-making power. However, stakeholders saw an opportunity for increased responsibility and a greater sense of ownership at the subnational level through the decentralization of governance.

As a whole, this dissertation provides a description of how a transition of the VMMC program in Zimbabwe from a vertical program to a horizontal program can be facilitated through a participatory, bottom-up systems change intervention called the LEAD Framework, answering research questions not previously addressed in the literature and suggesting next steps for countries undergoing similar processes.

DEDICATION

This dissertation is dedicated to Bryce and Acadian Marr Chung. I hope you will be inspired that it is never too late to learn more and push yourself to take on new challenges.

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INTRODUCTION

Low- and middle-income countries are increasingly under pressure to determine how to integrate their donor-driven health programs into locally-run health programs. Voluntary Medical Male Circumcision (VMMC) is a cost-effective, evidence-based HIV prevention strategy. It has been shown to reduce female to male transmission of HIV by 60% (1). The World Health Organization and UNAIDS recommend VMMC in 15 countries (1,2). These East and Southern African countries have high HIV prevalence rates, where heterosexual sex is the main driver of HIV transmission, and there are low circumcision prevalence rates in some or all populations. External donors such as the United States President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, TB, and Malaria (GFATM) are seeking to withdraw financial support for the VMMC program, despite its potential contribution to ending the HIV/AIDS epidemic, because they feel that national governments should be able to continue the program at steady-state. According to PEPFAR, mathematical modeling shows that reaching high levels of VMMC coverage can "…dramatically reduce community-level HIV incidence and save billions of dollars in HIV care and treatment costs" (3). The imminent withdrawal of donor funding has stimulated national governments to mobilize domestic resources and take responsibility for the oversight and operations of the program from NGOs.

In Zimbabwe, there is political will from the government to take on the VMMC program, as evidenced by the national VMMC Sustainability Transition Implementation Plan (4). According to this plan, the sustainability of the VMMC program calls for an integrated, decentralized, and locally owned program. The vertical (or stand-alone) program will be integrated into existing health services. The availability of the procedure at primary health centers will depend on training of more service providers. Decentralization will require a transfer of management responsibilities from implementing partners to subnational government stakeholders, a consolidation of roles, and greater community engagement.

In the first paper, *Managing change to integrate and sustain a vertical, donor-funded program: a case study on Voluntary Medical Male Circumcision in Zimbabwe*, I develop a business-school-style teaching case study that uses an example of a health program that is undergoing a transition from a vertical program to a horizontal health program. The VMMC program in Zimbabwe must make changes to its operating model to sustain the program in preparation for the eventual withdrawal of donor funding. It must also transition from a program that is donor and implementing partner led to one that is government owned and operated. This case study illustrates how a health program pivots after a period of disruption (in this case the COVID-19 pandemic); the likelihood of successful change when leadership is shared rather than dependent upon one individual; and how a team can participate in a process to prioritize addressing a problem and mobilize collective action to resolve it.

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As a whole, this dissertation provides a description of how a transition of the VMMC program in Zimbabwe from a vertical program to a horizontal program can be facilitated through a participatory, bottom-up systems change intervention called the LEAD Framework, answering research questions not previously addressed in the literature and suggesting next steps for countries undergoing similar processes.

PAPER 1: MANAGING CHANGE TO INTEGRATE AND SUSTAIN A VERTICAL, DONOR-FUNDED PROGRAM: A CASE STUDY ON VOLUNTARY MEDICAL MALE CIRCUMCISION IN ZIMBABWE

Rationale for Case Study

The purpose of this teaching case study is to present a real-life example of a health program that is undergoing a transition from a vertical program to a horizontal health program. The Voluntary Medical Male Circumcision program in Zimbabwe must also make changes to its operating model to sustain the program for the eventual withdrawal of donor funding and modify the way it is run from donor and implementing nongovernmental partner led to government owned and operated. This case study also provides students with an example of how a health program pivots after a period of disruption, which was caused by the COVID-19 pandemic in this example.

Learning Objectives

This case documents the transition of Voluntary Medical Male Circumcision, a vertical health program, to a horizontal health program in Zimbabwe.[1] After reading, analyzing, and discussing the case, students should be able to:

Public health policy

1. Explain why a health program would transition from a vertical to a horizontal or integrated program.
2. Describe the elements of a sustainable health program.
3. Describe the process by which a donor-funded health program can be integrated and sustained within the general health system.

Management

4. Determine whether the challenges in the case require technical or adaptive changes.[2]
5. Explain why an organization is more likely to be able to successfully change when leadership is shared rather than dependent upon one individual.
6. Describe how a team participates in a process to prioritize addressing a problem and mobilize collective action to resolve it.

[1] A vertical health program is donor-driven and focuses on one disease or a population group, such as HIV, while a horizontal health program has a broader scope and longer term goals centered on primary care or general health services.

[2] A technical challenge involves a technical solution, such as performing a blood draw to diagnose anemia versus an adaptive challenge, which may require a change in the way an organization works.

Introduction

The HIV Prevention Coordinator for the Zimbabwe Ministry of Health and Child Care (MoHCC), knew that donor funding for the Voluntary Medical Male Circumcision (VMMC) program was going to dry up. Starting in 2018, the funding for the program had already plateaued. Although the withdrawal of external funding was not imminent, she realized the program could not rely on donor funding in the long term. While the government paid the salaries of healthcare workers and provided health facilities, external donors funded the majority of the program. Within the HIV program, there was also tension between the prevention and treatment teams, with government funding prioritizing HIV drug procurement over prevention strategies such as VMMC. To compound the problem, provincial and district leaders within the public sector health system did not feel ownership over the VMMC program. Shutting the VMMC program down was not an option; VMMC was a key part of the country's strategy to end the HIV epidemic.

The VMMC program was introduced in 2009 because of recommendations by the World Health Organization (WHO) and studies that showed VMMC can reduce HIV transmission from females to males by 60% (1,2). As a long-time employee with over a decade of experience in HIV at the MoHCC, the HIV Prevention Coordinator had been involved from the very beginning of the program. At first, donors and partners ran the VMMC program parallel to the health system and set the strategy, but over time she had assumed leadership of the program. Below the central level, partner NGOs were still responsible for implementing the strategy in collaboration with the MoHCC.

Recognizing that external donor support was time-bound, the HIV and TB Program Director prioritized the transition of the VMMC program to one that could be sustained with national funding. A Sustainability Transition Implementation Plan for the VMMC program was launched in 2019. The plan emphasized decentralization, integration, and community partnership as three core components of sustainability:

> *"…sustainability is premised on the integration of VMMC into existing health service[s], decentralisation of key VMMC programme functions to ensure effective contextualized programming, and development of key partnerships between government, donors, implementing partners, and community stakeholders to ensure buy-in and involvement."*

The HIV Prevention Coordinator wondered how to motivate subnational health leaders to take ownership of the VMMC program when it meant adding to their responsibilities. They already had to juggle other competing priorities such as HIV, maternal and child health, malaria, and tuberculosis. To further complicate the situation, Zimbabwe was also under a lockdown, with COVID-19 having upended the entire world.

Overview of Zimbabwe

Zimbabwe is a landlocked country in Southern Africa with Mozambique to the east, Zambia to the north, Botswana to the west, and South Africa to the south. The country is divided into ten

provinces.[3] Over 99% of the population are African ethnic groups, with the largest being Shona (80%), then Ndebele (17%), and others (3%) (5,6). There are 16 official languages, with Shona the most widely spoken, followed by Ndebele (7). English is used for official business. Most Zimbabweans are Christian (88%), with 1.5% holding traditional beliefs, 0.5% Muslim, and 10% non-religious (7).

Basic Socioeconomic and Demographic Indicators*

Indicator		**Year**
UN Human Development Index ranking (8)	146 (out of 191)	2021
Population (millions) (7)	15.1	2022
Urban population (7)	32.4%	2022
Drinking water coverage (9)	63%	2020
Poverty rate at US$ 2.15 a day (10)	39.8%	2019
Gini index[4] (11)	50.3	2019
GDP per capita in PPP[5] (constant 2017 international dollars) (13)	2,444.5	2021
GDP per capita (current US$) (14)	1,737.2	2021
Literacy rate, adult total (% of people ages 15 and above) (15)	90	2021

*This data were compiled from the following sources: UN, CIA, UNICEF, World Bank

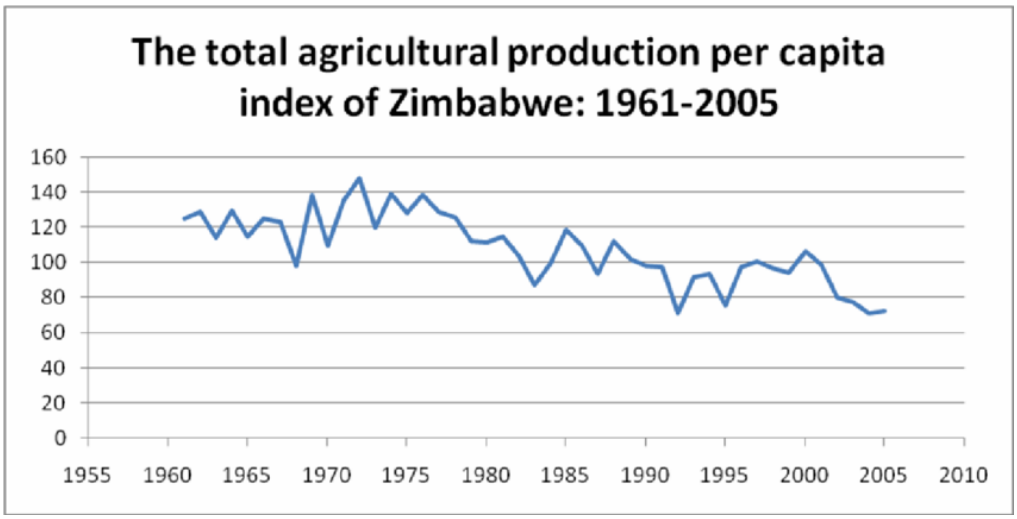
History

Zimbabwe was first inhabited by the hunter-gatherer San people. In the 11th century the Shona people formed kingdoms on the Zimbabwe plateau. It became a British colony in 1923 known as Rhodesia, named after the colonist Cecil Rhodes. Zimbabwe gained independence from its colonizers in April 1980, after which it was ruled by Robert Mugabe as president. Zimbabwe was the "breadbasket" of Africa, exporting wheat, tobacco, and corn to the rest of the continent and the world (16). Agricultural production has declined since the mid 1970's, plateauing from 1990 to 2000.

[3] Bulawayo, Harare, Manicaland, Mashonaland Central, Mashonaland East, Mashonaland West, Masvingo, Matabeleland North, Matabeleland South, and Midlands

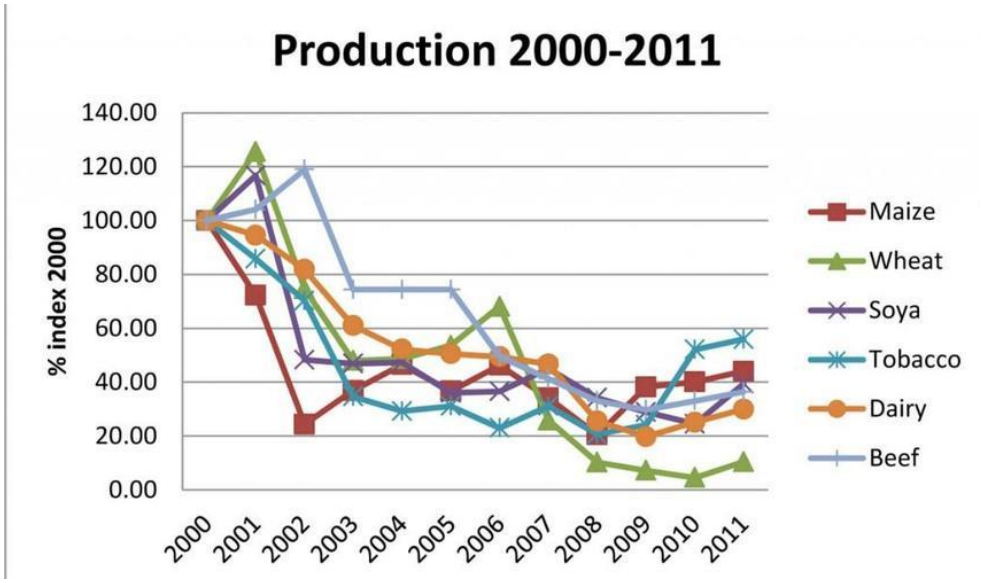
[4] "The Gini Index is a summary measure of income inequality."

[5] "Purchasing power parity (PPP) allows for economists to compare economic productivity and standards of living between countries" (12).



Source: Muchapondwa (2009) (17)

Production declined steeply following the seizures of white-owned farmland ordered by Mugabe in 2000 (18).



Source: Matandare (2017)(19)

The new farm owners were not adequately trained or supported in how to grow crops, resulting in much of the formerly productive land turning fallow and Zimbabwe becoming a net grain importer. In 2008, the country went through a period of hyperinflation, during which the Zimbabwean dollar lost 99.9% of its value against the U.S. dollar (18). Emmerson Mnangagwa, Mugabe's successor, seized power during a military coup in November 2017. Unfortunately, the business climate has not significantly improved and the country continues to suffer from soaring inflation rates (20). The struggling economy has left over 60% of the country food

insecure and lacking access to basic services including health care and safe drinking water (7,20).

Health Care System

The majority of Zimbabweans access health care through the public sector health system instead of private providers. The poor economic situation continues to drive skilled health workers abroad. If they choose to stay in the country, they gravitate towards the private sector health system, where compensation and working conditions are better. This has resulted in staff vacancy rates of up to 70% in public sector health facilities (21).

The head of the Ministry of Health and Child Care (MoHCC) is the Minister, appointed by the president. The Permanent Secretary (PS), manages the MoHCC, reports to the Deputy Minister, and is the most senior civil servant. Each of the ten provinces within the country have a Provincial Medical Director (PMD) (22). The PMDs report directly to the Permanent Secretary. The health system is set up to promote decentralization, or administrative autonomy at the subnational level. There are several subnational structures with leadership and management functions. These include the Provincial Health Executive (PHE), the District Health Executive (DHE), and the District Management Team (DMT). The PHE is a group of provincial health officers led by a PMD. Each PMD is responsible for oversight, planning, policy-making, supervision, and management of human, financial, and material resources for provincial health services (23). The PMD must also liaise with private and non-profit health service providers that work with the government to deliver care as part of the government system. Mission-run hospitals and clinics comprise 35% of the health care system nationally and deliver 68% of health services in rural areas (24). These are typically co-funded by the government.

Similar in structure to the PHE at the district level is the DHE, led by the District Medical Officer (DMO), who reports to the PMD. The DHE includes the DMO, District Nursing Officer, District Environmental Health Officer, District Health Services Administrator, District Pharmacist, and District Accountant (25). The DHE meets monthly. A broader District Management Team that meets quarterly includes not just health services staff but also representatives from other sectors, NGOs, and the community.

The HIV/AIDS unit is divided into HIV prevention, HIV care and treatment, prevention of mother-to-child transmission (PMTCT), and the STI and condom program. (See Exhibit 1 for an organogram of the HIV program). The structure below the program managers/national coordinators varies across the programs depending on funding. Most positions are seconded by partners (donor-funded), resulting in differential staffing levels based on partner interest. Staff seconded by donors and implementing partners earn salaries in US dollars, while the government pays salaries using a combination of Zimbabwean and US dollars. VMMC falls under HIV prevention. Unlike other HIV-related clinical services, the biomedical interventions falling under combination HIV prevention are not integrated. VMMC operates separately from Pre-Exposure Prophylaxis (PrEP), Post Exposure Prophylaxis (PEP), PMTCT, needles and syringes, and condoms under the public sector health system. (See Exhibit 2 for the MoHCC's

classification of combination HIV prevention interventions.) Stimulated by the Sustainability Transition Implementation Plan, a major transition is in process in the management of VMMC and locations of where VMMC procedures are done. The goal of the MoHCC is to offer VMMC as a community-based service. This means expanding the delivery of VMMC services through decentralization from tertiary (provincial) and secondary (district) to primary level facilities.

HIV/AIDS in Zimbabwe

Among all causes of death, HIV is the leading cause of death, contributing 16.37% of total disability adjusted life years (DALYs) during the period of 2009-2019 (26). When 2009 is compared to 2019, HIV/AIDS & STIs remain the top causes of death, followed by respiratory infections and TB, and maternal and neonatal diseases (27). (See Exhibit 3 for figures on HIV/AIDS in Zimbabwe compared to other causes of death.)

UNAIDS 2022 HIV and AIDS Estimates (28)

Adults and children living with HIV	1,300,000
Women >15 years living with HIV	14%
Men >15 years living with HIV	8%
Children <15 years living with HIV	6%
Adult aged 15-49 HIV prevalence rate	11%
HIV incidence per 1,000 population (adults 15-49)	1.7%
Adult and child deaths due to AIDS	20,000
Orphans due to AIDS aged 0-17	490,000

The HIV/AIDS programme is guided by the National HIV & AIDS Strategic Plan: 2021-2025. The plan emphasizes a shift towards district rather than central planning, with decentralization to the district level, and integration of HIV with other health services to transition the HIV response to sustainability. According to UNAIDS 2022 data, the number of adults and children living with HIV is estimated at 1.3 million (28). As of 2022, the Zimbabwe National AIDS Program asserts that it has achieved all three UNAIDS 95-95-95 HIV testing and treatment cascade targets:

95% of people living with HIV know their status.
99% of people living with HIV are on ART.
95% of people living with HIV who have suppressed viral loads.

Significant progress has been made in reducing the number of new HIV infections, with the number of new infections declining from 180,000 in 1990 to 19,000 in 2020 (29). However, the

rate of reduction in HIV incidence and prevalence has slowed, requiring additional effort to achieve sustainable epidemic control by 2030.

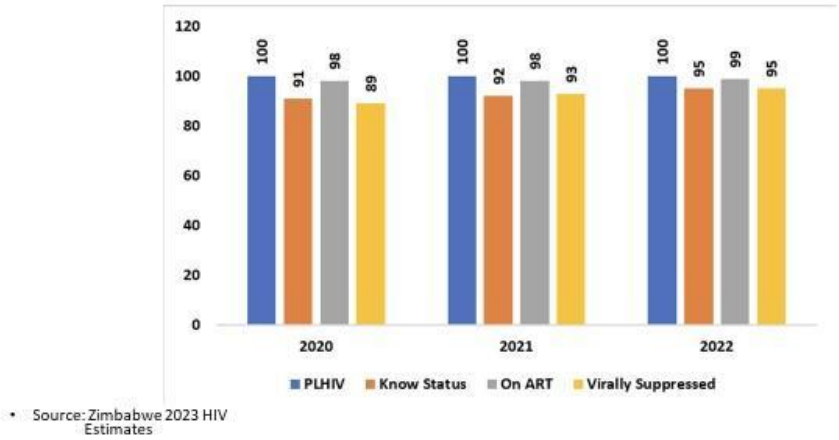


Figure 1: Zimbabwe's Progress toward the 95-95-95 Targets
Source: Ministry of Health and Child Care

VMMC in Zimbabwe

Male circumcision is not a cultural norm in Zimbabwe. There are few traditional circumcising groups in Zimbabwe, other than the small Muslim minority and the VaRemba (<0.5 % of the population) (30). Studies have shown that providers and parents are more supportive of early adolescent circumcision, when VMMC is tied to the sexual debut of adolescent boys, rather than early infant male circumcision (EIMC) (31). Lack of support for EIMC by both of these groups may also be because parents must pay out of pocket, and donors do not fund EIMC. In 2020, the MoHCC revised the minimum age for VMMC in Zimbabwe from ten to fifteen years, due to concerns about adverse events and getting informed consents from parents for minors (32). Since a substantial share of the VMMC clients were 10-14 years, this policy change, coupled with lockdowns from COVID-19 that disrupted service provision, had a negative impact on VMMC performance. As of December 2019, Zimbabwe had performed 1.8 million medical circumcisions in males of all ages (33). At its peak in 2019, the program was performing over 300,000 MCs per year (34). (See Exhibit 4 for VMMC coverage in males aged 10-29 by district.)

Prior to the integration and sustainability transition, VMMC service delivery in the public sector health system used a mix of models: 1) static sites, where the circumciser was stationed at a MoHCC health facility, and the procedure was performed on-site; 2) outreach sites, where a roving VMMC team performed procedures at multiple health facilities, often rural health centers; and 3) mobile sites, where a temporary structure such as a tent was set up in a remote area with no nearby facility for the roving VMMC team. (See Exhibit 5 for VMMCs conducted by service delivery model.) The outreach and mobile models required additional expenses for the vehicles and fuel needed to transport the roving VMMC team as well as lodging/food per diem

for the team members, all of which relied heavily on donors. With the focus on sustainability by the VMMC program, there is a drive towards increasing access for clients in rural areas by transforming more primary health centers into static sites.

VMMC Integration and Sustainability

According to the WHO, integrated "(a.k.a horizontal) services do not have separate administration or budgets and are typically delivered through health facilities that provide routine or general health services"(35). Sustainability has been defined as "the extent to which an evidence-based intervention can deliver its intended benefits over an extended period of time after external support from the donor agency is terminated"(36).

The MoHCC's Sustainability Transition Implementation Plan: 2019-2021 (STIP) was developed by engaging provincial and district leadership in health and education, donors, UN representatives, technical and implementing partners, and youth (4). It recognizes that donor funding for the program will eventually end. In preparation for the eventual withdrawal of external funding, the VMMC program must transition to a more sustainable model. The plan classifies the 63 districts within the country into two categories: 1) scale-up, where a district has not yet achieved 80% VMMC coverage and 2) maintenance, where a district has achieved the 80% benchmark and needs to sustain this coverage over time. The STIP also outlines how the VMMC program should make this transition using six pillars, which overlap with the WHO Health System Strengthening Building Blocks (See Exhibit 6 for a description of the STIP pillars and a comparison of the WHO building blocks with the STIP pillars) (37).

The funding and delivery of VMMC services was divided among several donors and technical and implementing partners, with Population Services for Health (PSH) supporting 43 (68%) districts and the ZAZIC Consortium (ZICHIRE, Zimbabwe Association of Church Related Hospitals - ZACH and Zimbabwe Technical Assistance Training & Education Center for Health) supporting 14 (22%) districts. The remaining 6 (10%) districts have reached a maintenance stage where implementing partners provide minimal support or none at all (4).

VMMC External Donors, Implementing and Technical Partners in 2020

Donors	Implementing Partners	Technical Partners
US President's Plan for Emergency AIDS Relief (CDC and USAID)	ZAZIC Consortium: Zim-TTECH, ZACH, ZICHIRE	Chemonics, WHO, UNAIDS
Global Fund for TB, HIV, and Malaria	Population Services for Health (PSH)	
Bill and Melinda Gates Foundation		

CDC: Centers for Disease Control and Prevention
USAID: United States Agency for International Development
ZACH: Zimbabwe Association of Church Related Hospitals
ZiCHIRe: Zimbabwe Community Health Intervention Research Project

To develop financial sustainability, PSH began piloting a results-based financing model in specific districts in 2022. The goal of this pilot is to move the health system away from the reimbursement of individual providers for each procedure they performed to the reimbursement of health facilities based on achieving predefined performance targets. At the same time, PSH is also changing its operational model to subgrant donor funds to Provincial and District Health Executives. The PHEs and DHEs get reimbursed on a quarterly basis after verification of invoices based upon VMMCs performed the prior quarter. According to a subgrant recipient, this new system "causes conflict as fuel reimbursement should be based on mileage [rather than] number of VMMCs done. [In] my view, it was a move to push responsibility to districts for performance despite PSH not having adequate budgets."

Problem Statement

Over time, the MoHCC at the national level assumed leadership of the program from the donors and implementing partners, with the HIV Prevention Coordinator playing a key role in pushing for integration and sustainability of VMMC. A VMMC Steering Committee, composed of the MoHCC, donors, technical and implementing partners, provides input into the strategic direction and implementation of the VMMC program and meets on a quarterly basis. However, below the central level, the program was not integrated into the overall health system and was still managed by donor-funded implementing partners in most districts. As one stakeholder explained, "PMDs and PHEs are accountable for programs, as long as they are engaged from the onset. If they are not engaged, they usually take a hands-off approach, making it difficult when a crisis occurs. At the inception, the [VMMC] program did not do much [to engage PHEs]; they tried as the program went on with scale up." Lack of ownership at the provincial level also trickled down to the district level.

Full integration of the VMMC program requires provincial and district health authorities to assume ownership and management of the program, in line with the overall goal of decentralizing the public health sector health system. At the same time, medical circumcisions need to be more available at lower-level health facilities so that the program can move away from an outreach model towards one where the service is routinely offered at facilities closer to where clients live. To further complicate this transition, the program is moving from a fee-for-service model to a results-based financing model as described above. Individual providers who performed high volumes of procedures will no longer be financially rewarded. This helped to supplement their paychecks, which have steadily lost value as the currency continues to depreciate.

With these goals in mind and mounting pressure to integrate and sustain the VMMC program, the HIV Prevention Coordinator decided to work with UCSF, a new partner, to pilot an approach to changing the operating model of VMMC in three of the ten provinces.

Decision point: Why were only a subset of the provinces selected? What criteria might the HIV Prevention Coordinator use to select the districts? Who should be involved in these decisions?

Together, they selected five districts within the three provinces to participate in the project. (See Exhibits 7 and 8 for a map of Zimbabwe and background on the OPTIMISE project.)

To illustrate the challenges and dynamics of providing sustainable and integrated VMMC service provision at district level, this case will focus on one of the five districts enrolled in the project. Hwange district in Matabeleland North province is the westernmost district in Zimbabwe, lying along the Zambia and Botswana borders. Two major tourist attractions, Victoria Falls and Hwange National Park, the largest natural reserve in the country and home to a large herd of elephants, among many other animals, are located in Hwange.

The OPTIMISE Project

In the last quarter of 2020, the District Medical Officer (DMO) for Hwange district, was invited to participate in the OPTIMISE project to facilitate the integration and sustainability of the Voluntary Medical Male Circumcision (VMMC) program. With routine health service delivery grinding to a halt from a national lockdown in March, VMMC as an elective procedure, was just one of many health services that was negatively affected. As the pandemic continued, the country was no longer on track to reach its target of 80% coverage of VMMC in males 15-29 years.

With a total of 48 health facilities, which are a mix of public and private hospitals, clinics, and rural health centers, Hwange's VMMC services were funded by the Bill & Melinda Gates Foundation with support from PSH as an implementing partner. In late 2020, Hwange had 14 static sites where VMMC was provided. Due to COVID-19 restrictions, the district had only performed 19% of its quarterly target (43 MCs out of a target of 225 MCs).

Decision point: How was the DMO going to get the program back on track while also convincing the District Health Executive to take ownership over the program? What changes were needed to the way the program operated to sustain it and integrate it into the district health system?

The DMO had a chance to mull over these questions with other provincial and district representatives when she attended a project inception workshop in Bulawayo. At this workshop, she and participants from three other districts raised their concerns around integrating and sustaining VMMC. Together, they developed a list of challenges and opportunities around changing the operations of the program. The group also established a multidisciplinary Task Team of clinicians, administrators, and other health staff for each of the four districts. These teams agreed to meet regularly with external facilitators; the venues, and per diems were provided by the project.

At the first meeting of the Hwange District Task Team a few months later, the DMO and the other district leaders compiled the challenges and opportunities they had prioritized into a sustainability work plan, organized by the Sustainability Transition Implementation Plan pillars of 1) leadership, management, and coordination 2) service delivery; 3) demand creation; 4) financing; 5) quality; and 6) strategic information. During subsequent meetings, the Task Team developed localized definitions for integration and sustainability.

> *Integration means a supermarket approach to service delivery, with VMMC included in the routine budget and supportive supervision tool, demand creation using existing programs, and data analyzed and synthesized with other health services.*
>
> *Sustainability for VMMC is defined as an independent, readily available service that is DHE-led and owned with evident stakeholder participation and a district surgical trainer.*

Guided by these definitions, the team met quarterly with support from project facilitators, to develop and update the work plan, decide on solutions to address challenges, select metrics to measure progress over time, and gather data to inform the changes to processes that they were making. The Task Team also set up Work Improvement Teams that met independently on a monthly basis. Each team took responsibility for implementing change for a specific challenge.

As the head of Hwange's DHE, Dr. Musinami raised the leadership, management, and coordination challenges within the work plan at the monthly DHE meetings she led. She could also leverage her position to address the service delivery challenges. Of the two challenges, the more vexing problem was how to ensure VMMC services were provided at lower-level primary health facilities when the circumcisers who had been trained were leaving their jobs for better opportunities outside of Zimbabwe or within the private sector health system.

Hwange District Integration and Sustainability Baseline Work Plan

STIP Pillar/ WHO Building Block	**Challenge**	**Solution**	**Indicator**	**Baseline**
Leadership, management, coordination	Limited participation by MoHCC representatives in the Rural District Development Committee (RDDC)	Use DHE funds from quarterly reimbursements to travel to meetings	VMMC on RDDC agenda (yes/no)	No
	DHE not aware of VMMC activities and budget	Ensure VMMC on DHE agenda	# of times VMMC on agenda/total # DHE meetings	50% (1 out of 2 meetings)
Demand generation	New community health workers (CHWs) were not promoting VMMC	Train CHWs on VMMC demand creation strategies	# of CHWs trained	0/79
Service delivery	Lack of VMMC availability in Hwange Town	Engage management at 2 hospitals to activate services	# of VMMC performed by Hwange facilities	9 MCs per quarter
	Insufficient number of static sites	Train health care workers (HCWs) to address staff attrition	# of new HCWs certified/total HCWs certified	0 new HCWs certified/25 HCWs certified
Medical products, vaccines and technologies	Inconsistent availability of VMMC medicines	Engaged national pharmacy and partner organization	Duration of stockout for each drug	0

Midway through the project, the DMO needed to report back to the PMD on the Task Team's progress on the integration and sustainability plan. Her district now had a total of 9 static health facilities offering VMMC, a reduction from the 14 at the start of the project. Of these 9 facilities, 2 were hospitals, while the remaining 8 were decentralized sites where providers based at the facilities do outreach to surrounding areas. At the district hospital, staff attrition resulted in the departure of 2 of the 5 trained circumcisers. Overall, the district had a total of 27 certified circumcisers and 25 health workers who went through basic or conversion training.

According to Hwange's definition of integration, VMMC should be available to clients, along with other health services they need, at the same health facility.

Decision point: Given the continuous departure of health workers, is the goal of providing VMMC in all 48 of Hwange's health facilities achievable? What are the alternatives to this ideal situation?

Training new staff will take a minimum of 3 months. Nurse or nurse assistants who want to become circumcisers must first pass the 6-day basic VMMC training. This training involves theoretical lectures and practice in counseling and circumcising clients. They can then undergo conversion training in order to qualify for certification. During the conversion training, a trainee must complete a 3-day surgical training and assist with a minimum of 200 procedures. In order to be certified as a circumciser, a trainee must perform 20 additional MCs on the job under supervision from a mentor (4). Some provinces had to rely on supervision by the limited pool of national mentors who were in high demand. At the time, Hwange was fortunate to have access to three provincial mentors. It was possible to train additional mentors. The DMO consulted the Task Team to consider the way forward.

<u>Discussion Questions</u>

1. In light of the staff attrition challenges, how might Dr. Musiamani and her team revisit and redefine the meaning of integration in the Hwange context? Make recommendations.
2. Develop recommendations for how to make use of the existing pool of trained staff to get the district closer to its goal of sustainability.

Suggested Reading List

Ronald Heifetz and Marty Linsky. (2002) A Survival Guide for Leaders. https://hbr.org/2002/06/a-survival-guide-for-leaders

World Health Organization. (2018). Integrating health services: brief. World Health Organization. https://apps.who.int/iris/handle/10665/326459

Shediac-Rizkallah MC, Bone LR. (1998) Planning for the sustainability of community-based health programs: conceptual frameworks and future directions for research, practice and policy. *Health Educ Res*. 13(1):87-108. doi:10.1093/her/13.1.87

Richard Bolden. (2011) Distributed Leadership in Organizations: A Review of Theory and Research. International Journal of Management Reviews. https://onlinelibrary.wiley.com/doi/10.1111/j.1468-2370.2011.00306.x

Sue Goss. (2015) Systems Leadership: A view from the bridge. https://traverse.ltd/application/files/4915/3062/4273/Systems-Leadership-A-view-from-the-bridge.pdf

Exhibit 1. Structure of the HIV Programme

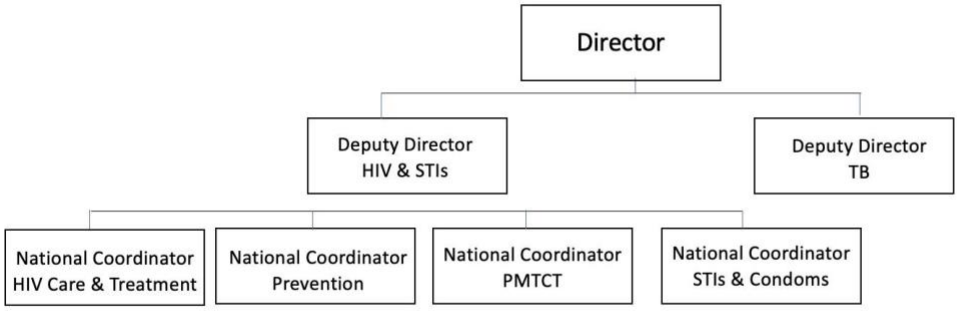
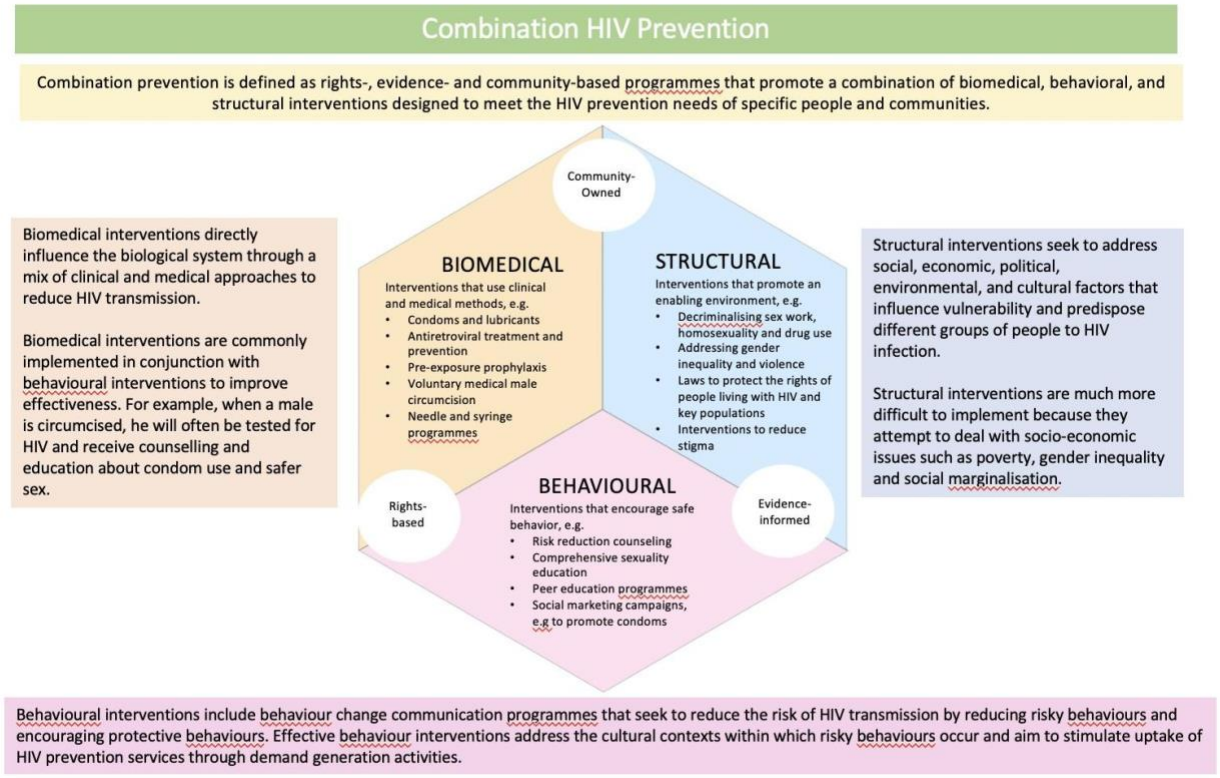
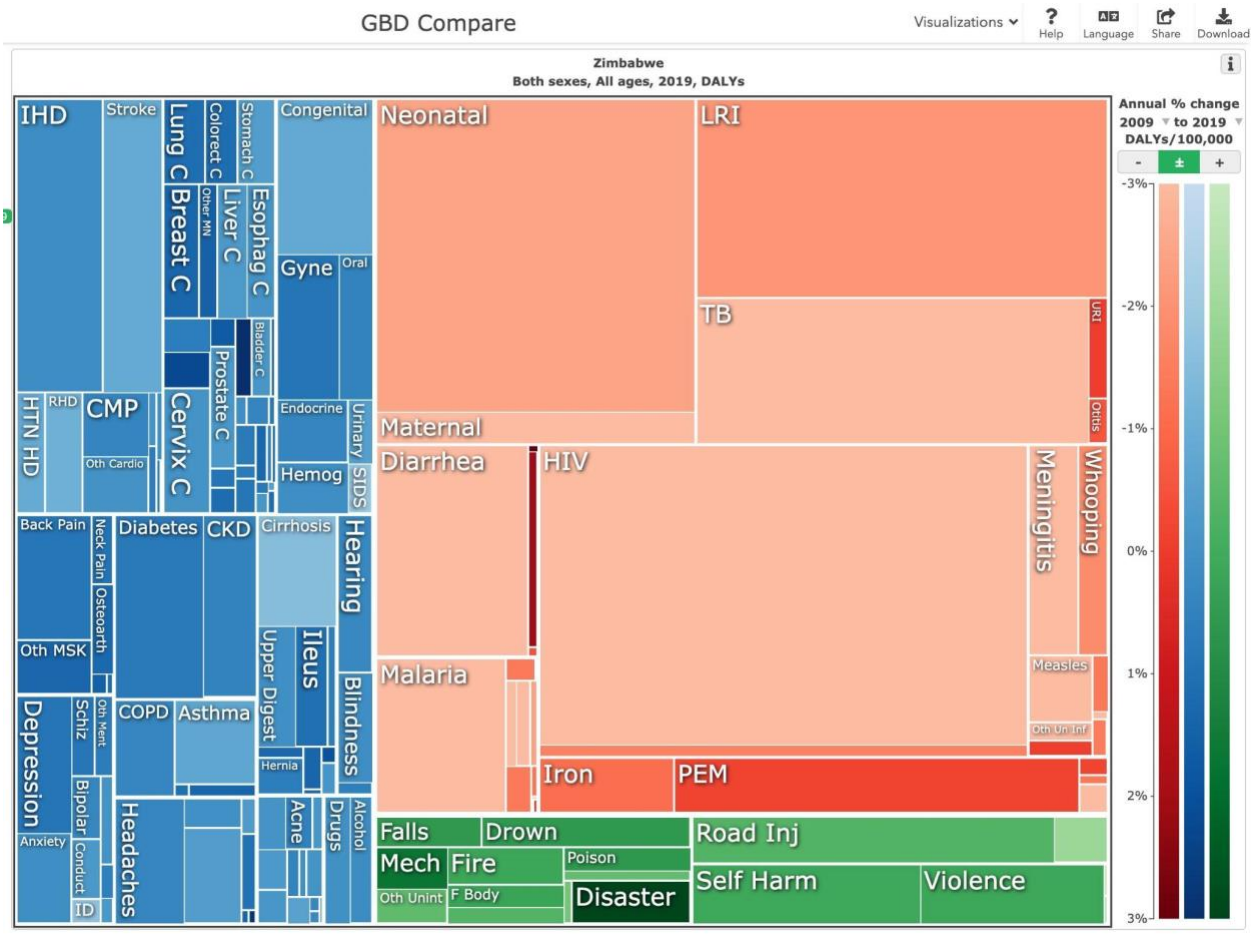


Exhibit 2. Combination HIV prevention interventions



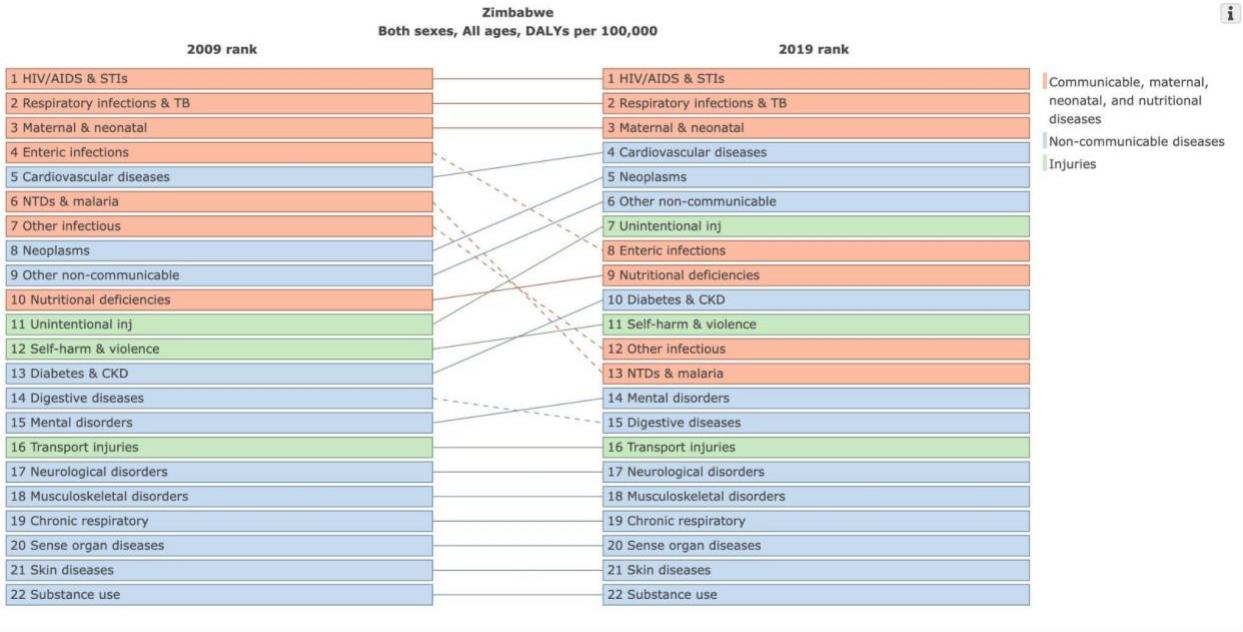
Source: MoHCC, TB & HIV Programme

Exhibit 3. HIV/AIDS in Zimbabwe



All Causes of Death in Zimbabwe, 2019 (41)

Source: Global Burden of Disease, IHME



Top Causes of Death, 2009 vs 2019 (41)
Source: Institute for Health Metrics and Evaluation, Global Burden of Disease Compare for Zimbabwe, 2009-2019

When causes of death are further disaggregated, the leading cause of death in 2019 was HIV/AIDS, with 20,722 deaths, followed by cardiovascular diseases, and lower respiratory infections (Figure 2).

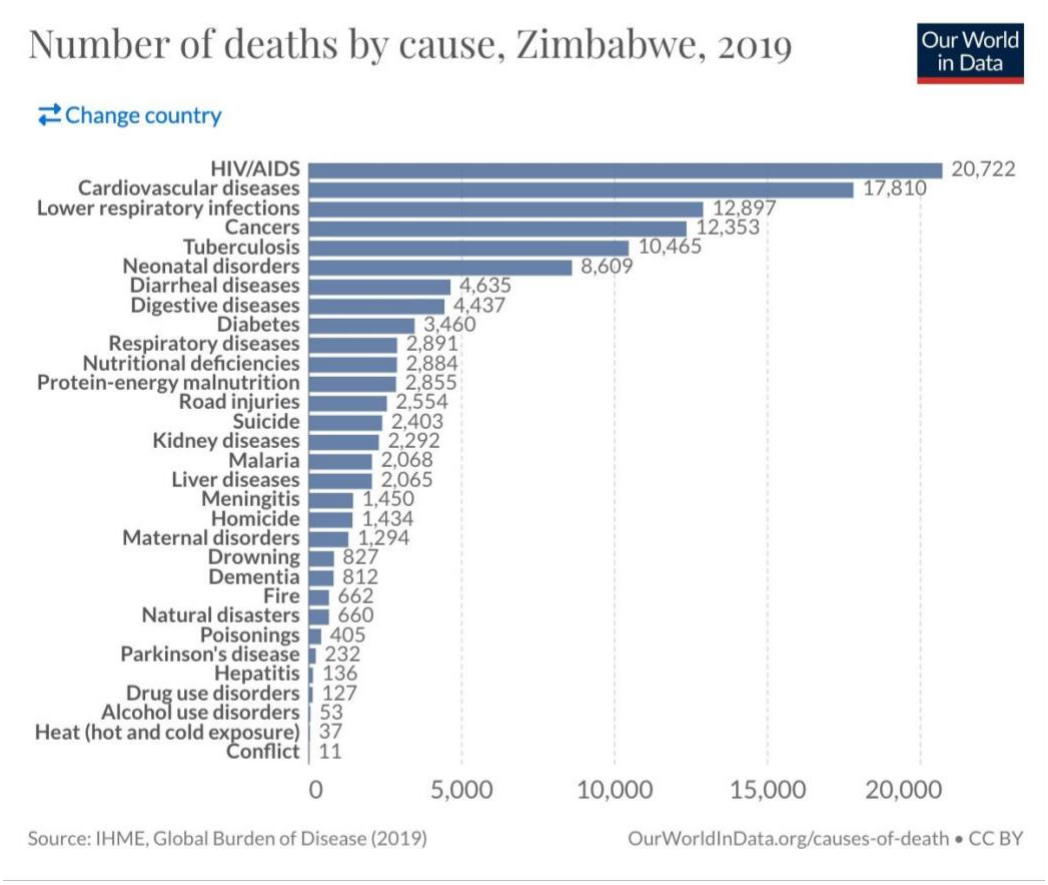


Figure 2: Number of deaths by cause, Zimbabwe, 2019 (27)
Source: Our World in Data, IHME

Exhibit 4. VMMC district coverage in males aged 10-29, 2018

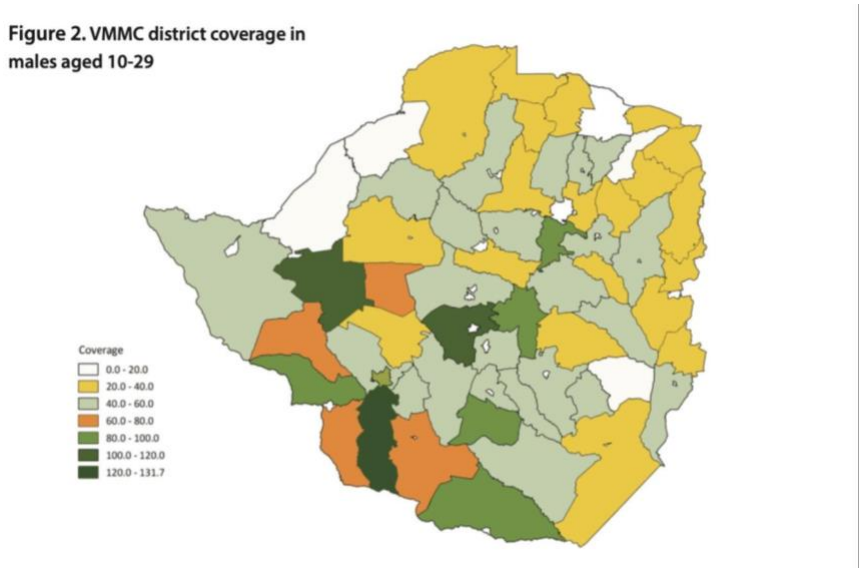


Exhibit 5. Proportion of national VMMCs done by service delivery model in 2018

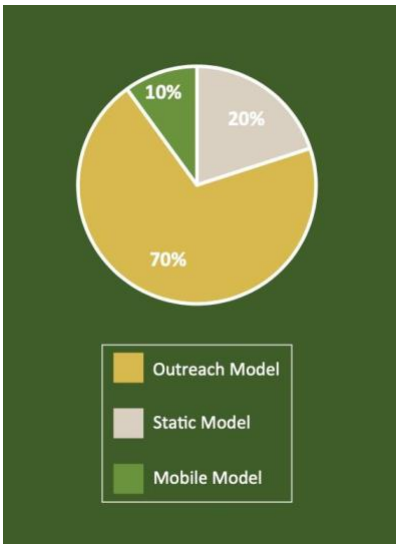
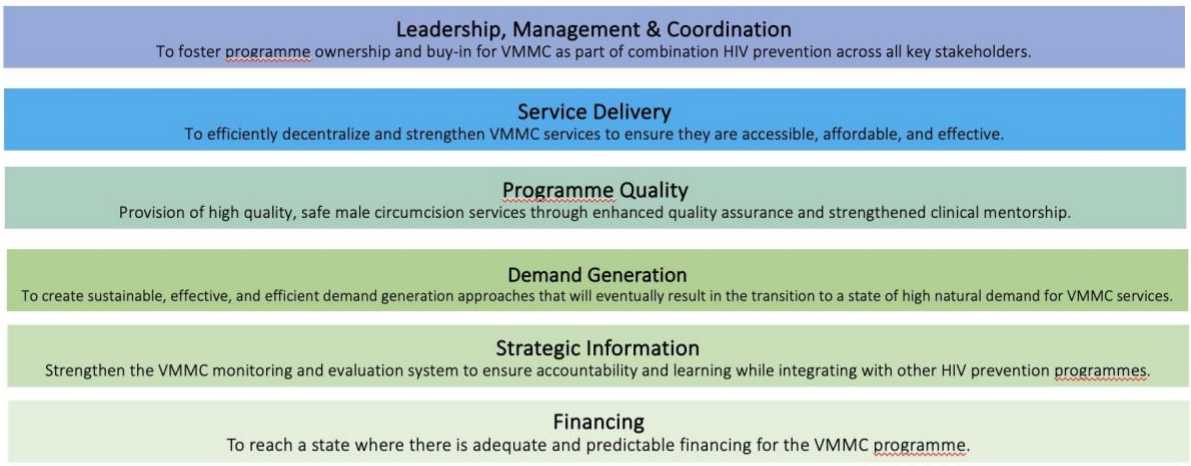


Exhibit 6. The Six VMMC STIP Implementation Pillars



Source: Ministry of Health and Child Care

Comparison of WHO Health System Strengthening Building Blocks and STIP Pillars

WHO Building Block	**Sustainability Transition Implementation Plan Pillar**
Leadership and governance	Leadership, management, and coordination

Service delivery	Service delivery
Health system financing	Financing
Health information systems	Strategic information
Health workforce	
Medical products, vaccines and technologies	
	Demand creation
	Quality

Exhibit 7. Map of Zimbabwe with OPTIMISE Provinces and Districts

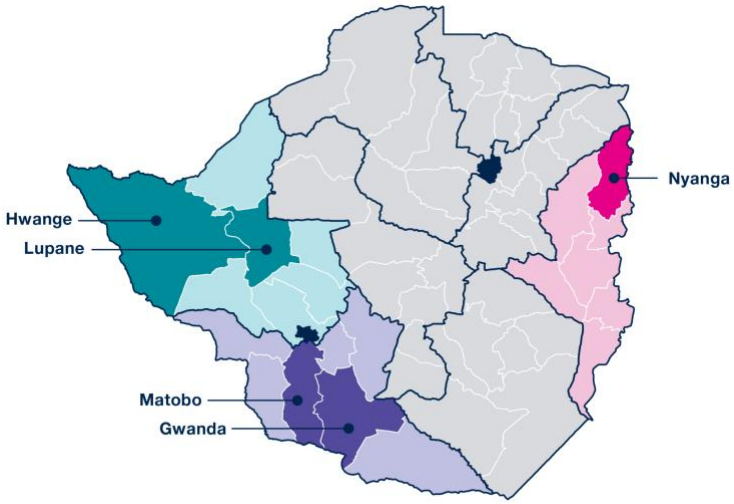


Exhibit 8. Overview of the OPTIMISE Project

The OPTIMISE project was implemented by the University of California, San Francisco (UCSF) in collaboration with Precious Innovations, a local Zimbabwean organization, Women's University in Africa, and the University of West of England. The goal of the project was to support the Ministry of Health and Child Care in Zimbabwe in integrating and sustaining the Voluntary Medical Male Circumcision program from a vertical, donor-funded and partner-implemented program to a Ministry-led and operated HIV prevention service within the health system. UCSF collaborated with the MoHCC, its partners, donors, and other stakeholders, working with district health teams to:

1. Identify integration and sustainability challenges and opportunities.
2. Resolve challenges, leverage opportunities, and integrate the VMMC program with the HIV prevention program.
3. Ensure it can be sustained within the mainstream health system.
4. Strengthen capacity within the health system to manage similar changes in the future.
5. Collate and disseminate learnings.

The project employed the LEAD (Leadership and Engagement for Improved Accountability and Delivery of Services) Framework, a participatory approach to strengthen team leadership and management among malaria programs (38). The framework combines organization development, participatory action research, and quality improvement principles, with a focus on strengthening the management capacity of subnational health program teams. LEAD has been used to resolve operational challenges at the district level related to malaria elimination in Eswatini, Namibia, and Zimbabwe (39,40).

Abbreviations

CDC	Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
CHW	Community health worker
CIA	Central Intelligence Agency
DHE	District health executive
DMO	District medical officer
DMT	District management team
EIMC	Early infant male circumcision
GDP	Gross domestic product
HIV	Human immunodeficiency virus
LEAD	Leadership and Engagement for Improved Accountability and Delivery of Services
MC	Male circumcisions
MoHCC	Ministry of Health and Child Care
NGO	Nongovernmental organization
PEP	Post exposure prophylaxis
PHE	Provincial health executive
PMD	Provincial Medical Director
PMTCT	Prevention of mother to child transmission
PPCL	Professional Practice in Change Leadership
PPP	Purchasing power parity
PrEP	Pre-exposure prophylaxis
PS	Permanent Secretary
PSH	Population Solutions for Health
RDDC	Rural District Development Committee
STIP	Sustainability Transition Implementation Plan
TB	Tuberculosis

UCSF	University of California San Francisco
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
VMMC	Voluntary medical male circumcision program
VTAD	VMMC Transition Assessment Dashboard
WHO	World Health Organization
ZACH	Zimbabwe Association of Church Related Hospitals
ZiCHIRE	Zimbabwe Community Health Intervention Research Project

PAPER 2: SUSTAINABLE INTEGRATION OF A VERTICAL VOLUNTARY MEDICAL MALE CIRCUMCISION PROGRAM INTO ROUTINE HEALTH SERVICES IN ZIMBABWE: A MIXED METHODS PROCESS EVALUATION OF A PARTICIPATORY CHANGE INTERVENTION

Abstract

Introduction: The global health community has recognized the importance of integrating and sustaining health programs and decolonizing global health. Corresponding with these broad objectives, international aid donors are embracing the principle of localization, shifting of power and funding to local implementing partners. The Voluntary Medical Male Circumcision (VMMC) in Zimbabwe is a large vertical HIV prevention program primarily funded through development assistance for health. The purpose of this paper is to describe the process of facilitating the sustainable integration of the program into routine health services.

Methods: We describe the processes, outputs, and outcomes of a participatory action research (PAR) project called OPTIMISE. This employed a bottom-up systems change approach to support the integration and sustainability of the VMMC program within routine health services in Zimbabwe. Our secondary objectives were to increase demand and improve delivery of VMMC. At the district level, we facilitated changes to accelerate integration and sustainability, taking a diagonal approach to a health program, which combines a targeted vertical intervention with wider horizontal support to strengthen the health system. We used a mixed methods design, analyzing district-level work plans with qualitative and quantitative indicators, along with a survey administered at midline and endline to district teams.

Results: Within five pilot districts, we facilitated the transition of VMMC into a locally-owned and managed program while also strengthening individual and team capacity. District team actions included greater engagement of multisectoral stakeholders, better use of existing resources, and changes to operating models. We observed improvements across all World Health Organization health system building blocks, suggesting that the intervention strengthened the overall health system. The sustainability survey showed a reduction in funding stability but a significant increase in communications, program adaptation, and organizational capacity.

Conclusions: We accomplished our objectives through continuous engagement with the program at different levels of the health system. Compared to traditional top-down change initiatives, the participatory approach to integration proved to be an effective way of addressing specific VMMC challenges at the district level with management and oversight at provincial and national levels. However, the program cannot mobilize sufficient domestic resources due to finite financial resources to ensure its sustainability. Donors should continue

to support the investment they made in strengthening governance of the health system and leverage the momentum we created by empowering and further capacitating government stakeholders to lead the program. Other health programs in low/middle income countries seeking to integrate and sustain health services should consider this diagonal, bottom-up model to prioritize local leadership development and health system strengthening.

Introduction

Despite growing emphasis on sustainability and integration in health programs (42–45), major funders such as the United States Government and the Global Fund to Fight AIDS, Tuberculosis, and Malaria continue to make large investments in vertical health programs in countries that rely on international development assistance for health (DAH) (46,47). While we saw record spending for COVID-19 in 2020-2021, DAH for many other health areas did not grow (48). Additionally, domestic governments of low-and middle-income countries face increasing pressure to allocate at least 15% of their government spending towards health expenditure (48). International aid donors are also embracing localization, the shifting of power and funding to local implementing partners (IPs), which is aligned with the broader goals of integrating and sustaining health programs and decolonizing global health.

Voluntary Medical Male Circumcision (VMMC) in Zimbabwe is delivered through a large hybrid HIV prevention program, largely funded through donor assistance for health, where half the national VMMC program still operates independently from government health services. Although the 14 remaining PEPFAR-funded districts have been integrated, most of the remaining districts are vertically run, relying on external funding and leadership by donors and partners, rather than being domestically financed and government owned and operated. This can be seen as a historically emerging process. Beginning in 2008, VMMC was rolled out as a fully donor-funded operation, forming part of the emergency response to HIV in fifteen eastern and southern African countries (49). Over the past fifteen years, these VMMC programs successfully reduced HIV risk in male and female populations, with projections to avert at least 4.5 million new HIV infections by 2050 (49). Moreover, VMMC provides additional health benefits to both males and females, reducing the risk of STIs such as HPV, bacterial vaginosis, herpes simplex virus-2, and Trichomonas vaginalis as well as lowering the risks of cervical, prostate, and penile cancers (50–52).

In the current stage of the HIV epidemic, VMMC programs are pressed to change in response to three major factors:

1) The target population for VMMC programs now comprises adolescents/young men (ages 10-29 years), particularly in areas where older sexually active males have already been circumcised (49,53). This shift in the target priority age group implies a reduction in the volume of VMMC procedures required, with fewer adolescents eligible for the procedure. Widespread availability and accessibility of VMMC services across geographical areas would allow programs to better reach the pool of eligible males.

2) Major bilateral donors are reducing their contributions to AIDS financing (54). While these donors have committed to continued investment in VMMC for the next five years, VMMC programs, along with other HIV prevention methods, face the challenge of maintaining adequate financing beyond this period (55).

3) Countries with VMMC programs aim to assume greater ownership of the program while integrating VMMC into their general health services, in accordance with the Paris Declaration of Aid Effectiveness of 2005 and the Accra Agenda for Action of 2008 (56). The trend towards localization aligns with transition strategies of international aid, including the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) (57).

As countries strive towards achieving universal health coverage, the lack of consensus surrounding the definitions of integration and sustainability hinders the progress of donor-funded global health programs towards achieving integration and sustainability. Both of these are essential components of bilateral donors' strategies, such as PEPFAR's new approach, and feature prominently in the policies of multilateral donors, including the Global Fund for AIDS, TB, and Malaria's Sustainability, Transition, and Co-financing Policy (45,58).

Sustainability remains a donor-driven process. Due to the unstable political and economic situation, there are no immediate plans to fill any funding gaps left by donors with domestic funding. The World Health Organization (WHO) has identified a research gap concerning participatory, implementation approaches for integrating VMMC with other health services (53). According to a WHO policy brief on whether vertical programs have a place in the health system:

> *"Where vertical governance, funding and service delivery systems exist, integration will be difficult and changes in service delivery must be underpinned by legal and regulatory adjustments aimed at linking the governance, organization and funding of vertical programmes with mainstream health systems"* (35).

Therefore, this paper describes the processes and results of using the Leadership and Engagement for Improved Accountability and Delivery of Services (LEAD) Framework to support the integration and sustainability of the vertical VMMC program into routine health services in Zimbabwe. We provide further details of the LEAD Framework, a multi-pronged systems change approach combining organization development, quality improvement, and capacity strengthening. A key characteristic of the LEAD Framework lies in its application of participatory, bottom-up techniques that foster buy-in across the entire system, from community and district to provincial and national levels.

This research contributes in two major ways: (i) by offering empirical evidence of how VMMC services can be integrated into a health system in a participatory, sustainable manner and (ii) by introducing a bottom-up intervention methodology that may facilitate practical and effective integration, expediting the pathway to sustained VMMC implementation. We will present

results in four stages: 1) Task Team and Task Force formation; 2) work plan and leadership development; 3) work plan implementation results; and 4) findings from a program sustainability survey. For the purpose of this paper we define integration and sustainability as the following:

> *"In the integrated model (a.k.a horizontal), services do not have separate administration or budgets and are typically delivered through health facilities that provide routine or general health services"* (35).
>
> -World Health Organization

> *"Sustainability is the extent an evidence-based intervention can deliver its intended benefits over an extended period of time after external support from the donor agency is terminated"* (36).
>
> -Shediac-Rizkallah and Bone

Background

The overarching goal of the two-year University of California, San Francisco (UCSF) OPTIMISE project was to enhance leadership and management capacity within the Ministry of Health and Child Care (MoHCC) to implement significant changes in parts of the health system.

VMMC in Zimbabwe

According to 2022 UNAIDS estimates, Zimbabwe has 1.3 million adults and children living with HIV (28). The World Health Organization (WHO) and UNAIDS designated Zimbabwe as a priority country for voluntary male medical circumcision (VMMC) due to the country having one of the highest adult HIV prevalence in the world (11%), with unprotected heterosexual sex as a driver of HIV transmission (28). The VMMC program is transitioning from a vertical to a horizontal program. A vertical health program focuses on addressing a single disease and is funded and managed by external donors and partners, operating independently from the routine health system. In contrast, a horizontal health program is publicly financed, integrated into the health system, and aims to improve overall health outcomes. As of 2020, the VMMC program was in a hybrid state of transition, with 10% of the 63 districts fully government owned and operated, while the remaining 90% continued to be managed by IPs (59). The transition to sustainability was guided by a Sustainability Transition Implementation Plan (STIP) that prioritizes integration, decentralization, affordability, accessibility, acceptability of services, and local ownership of the program. According to the STIP, a fully sustainable VMMC program will have reached an ideal stage when it achieves:

> *"[A] successful transition from a vertical, heavily partner and donor supported programme to a more locally-owned and managed intervention"* (59).

From 2013-2017, boys aged 10 to 14 years contributed almost 50% of all male circumcisions (59). However, a noteworthy policy change took place in mid-2020, when the program raised

the age threshold for circumcision eligibility, increasing it from 10 to 15 years. This policy change reduced the total pool of males available to be circumcised.

Progress towards integration and sustainability

Before 2020, certain IPs had already initiated the integration of the VMMC program into routine health services. From program inception, the PEPFAR-funded ZAZIC Consortium took steps toward integrating the VMMC program into MoHCC facilities, collaborating with MoHCC teams across 21 districts starting in 2013 (60). Vu et al. provided a comprehensive account of their recommendations and insights gained during the transition of a USA-based organization to local management and ownership (61). However, in the majority of the remaining districts, where Population Services for Health (PSH)/ Population Services International (PSI) operates as the implementing partner, the process of integration did not commence until 2018. During this time, PSH piloted an approach in five districts to transfer program leadership, management, and coordination to a district VMMC focal person. Unfortunately, this process encountered obstacles as a result of limited or no involvement of the District Health Executives.

To monitor the national transition to sustainability, in 2019 the MoHCC worked with technical partner Clinton Health Access Initiative (CHAI) to develop a VMMC Transition Assessment Dashboard (VTAD). This dashboard is updated annually, using the six pillars of the STIP, to evaluate each district's progress towards achieving VMMC program sustainability. CHAI also supports strategic planning and target-setting for HIV prevention, including VMMC, at the central level.

In 2020, the MoHCC sought additional support from the UCSF, complementing the efforts of CHAI and PSH in transitioning the VMMC program to sustainability on both national and subnational levels. The start of the project coincided with disruptions to health service due to the COVID-19 pandemic, which significantly affected the majority of the 15 VMMC priority countries in eastern and southern Africa. As a result, these countries missed the cumulative 2016-2020 target of 25 million VMMCs by 7 million (34). At its peak, Zimbabwe performed over 350,000 male circumcisions in 2019 (34).

Methods

LEAD Framework Toolbox

The study presented in this paper utilizes the LEAD Framework as the primary intervention method (38). The facilitators contracted by UCSF adapted the approach and tools for this project from those they had developed in a previous intervention to address operational challenges and strengthen leadership and management capacity in malaria programs in Eswatini, Namibia, and Zimbabwe (39,40,62). Building on these achievements, we adapted our approach to address VMMC challenges in Zimbabwe. At the core of the LEAD Framework is the application of participatory action research (PAR) - a methodology that enrolls stakeholders in a process of studying, thinking about and reflecting on current challenges to bring about improvements within a given health system. It is based on the principle that the actors involved

in delivery of outcomes are the ones best placed, with facilitative support, to identify problems and implement solutions and system changes (63). Key components of PAR and the LEAD Framework include workshop and meetings-based exercises to facilitate communication, teamwork, and problem identification and resolution through the iterative development of work plans and metrics to measure progress over time (Figure 3). For details on the organizational development and quality improvement tools and techniques used to transition the VMMC program, refer to Appendix 1. Throughout the project, UCSF facilitators provided both in-person and virtual mentoring and coaching to teams and individuals. They provided this support through instant messaging, videoconferences, and mobile calls, ensuring continuous guidance and assistance during the implementation process.

Figure 3. LEAD Framework cycle. The LEAD Framework cycle improves processes through the convening of stakeholders at all levels, action planning and implementation through iterative Plan-Do-Study-Act cycles, continuous mentoring and coaching, training of facilitators, and feedback of results to support continuous improvement.

Partnerships

UCSF launched the OPTIMISE project with support from the Bill & Melinda Gates Foundation (BMGF). During an initial meeting with the MoHCC in May 2020, UCSF and the MoHCC collectively agreed on the goals of the OPTIMISE project, the overall approach to problem-solving, and engagement of the MoHCC at different levels of the health system. The MoHCC invited UCSF to join the national VMMC Steering Committee. This committee comprises partner and donor organizations and meets quarterly to provide advice on VMMC strategy and implementation. In close consultation with the MoHCC, UCSF selected three intervention provinces and five pilot districts, with the Steering Committee's approval (Table 1).

The project partners considered the following factors in selecting participating provinces and districts: 1) representation of northern and southern regions; 2) stage of sustainability (scale-up or maintenance); 3) support from donor and implementing partners; and 4) accessibility by road (Figure 1).

Table 1. OPTIMISE Project Areas

Province	District	Funding Source	Implementing Partner
Matabeleland South	Matobo	CDC†	ZAZIC Consortium (ZICHIRE‡)/ MoHCC
	Gwanda	USAID	PSI§/ MoHCC
Matabeleland North	Lupane	CDC	ZAZIC Consortium (ZACH)/MoHCC
	Hwange	BMGF¶	PSI/MoHCC
Manicaland	Nyanga	GOZ/unfunded light-touch BMGF	MoHCC

† Centers for Disease Control and Prevention
‡ Zimbabwe Community Health Intervention Project
§ Population Services International
¶ Bill & Melinda Gates Foundation

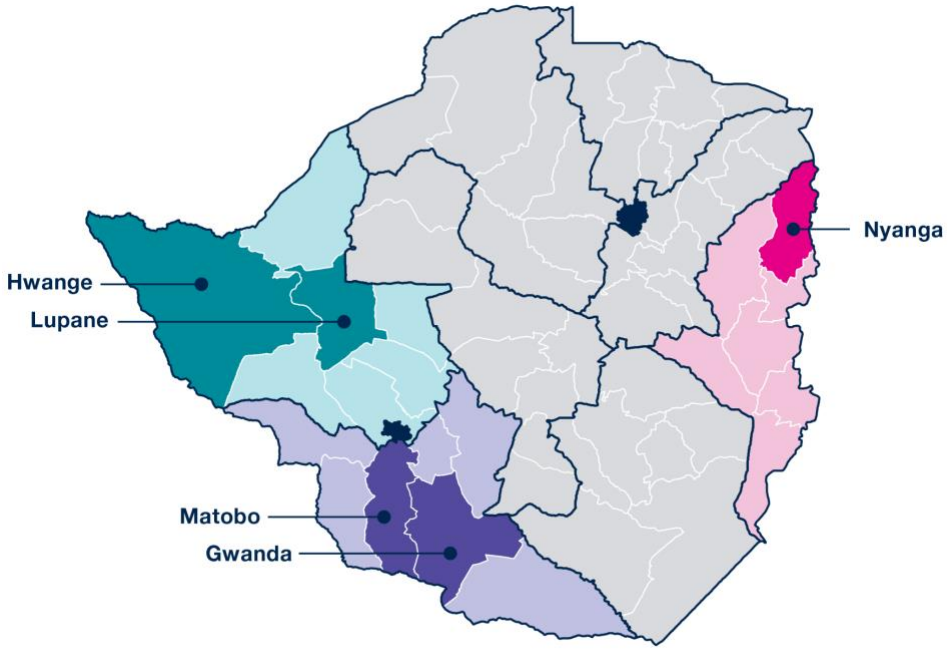


Figure 1: Map of OPTIMISE Project Districts This map shows the three project provinces and their five corresponding districts (Hwange and Lupane in Matabeleland North; Gwanda and Matobo in Matabeleland South; and Nyanga in Manicaland.)

To illustrate the process of enhancing subnational capacity for leadership and management in the context of integrating a hybrid health program, we utilized a logic model, as depicted in Figure 2. This model provides a comprehensive framework for readers interested in understanding the steps and outcomes of the project's capacity-strengthening efforts.

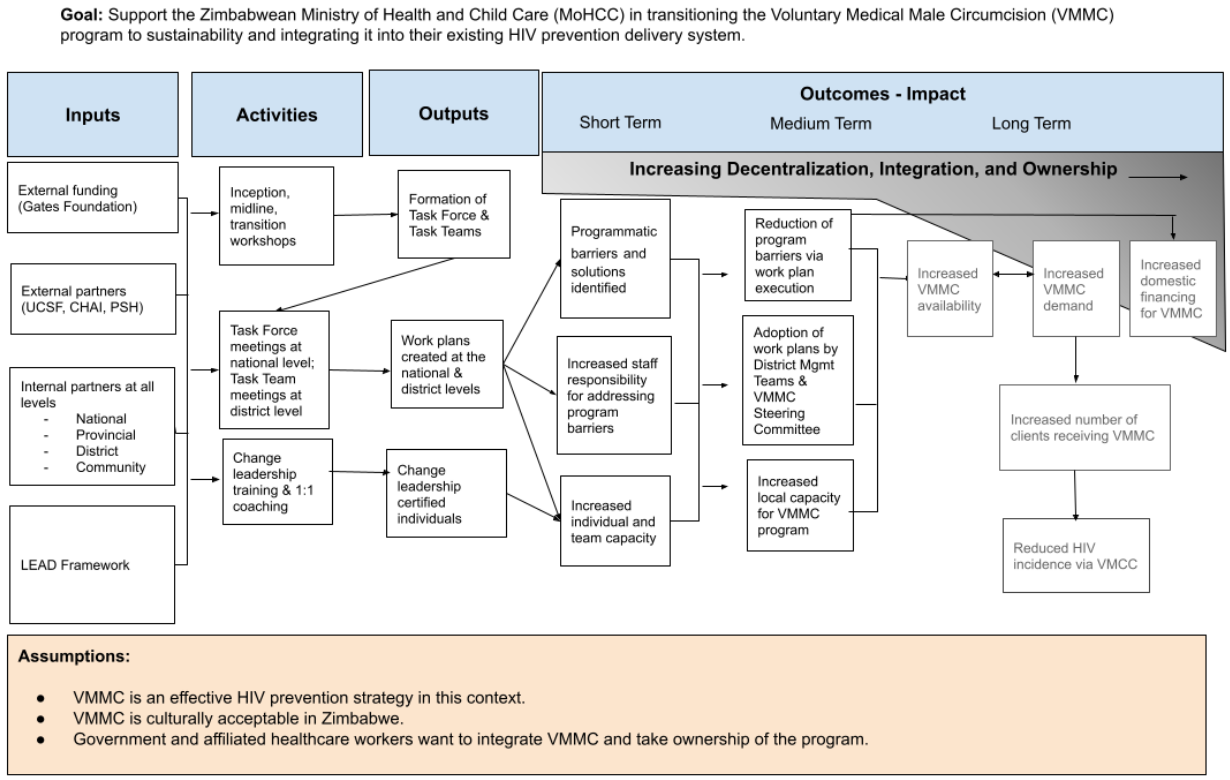


Figure 2: OPTIMISE Logic Model

Outcomes and definitions

Adhering to the project logic model (Figure 2), we will describe the outputs, short-term, and medium-term outcomes of the project, providing further context and understanding of the intervention and its immediate impacts. These outcomes are 1) reduction of program barriers via execution of work plans; 2) adoption of district work plans by District Management Teams and the national work plan by the VMMC Steering Committee; and 3) increased local capacity for the VMMC program. We have organized the first set of outcomes by the WHO Health Systems Building Blocks (37,64). The WHO building blocks are a framework for describing a health system by six core components: 1) leadership and governance; 2) service delivery; 3)

health workforce; 4) supplies and equipment; 5) strategic information; and 6) finance. These building blocks are critical components in the planning for sustainable VMMC services (1) and provide a common language used across health programs. Throughout this paper, we have used the following WHO definition for integration and the Shediac-Rizkallah and Bone definition for sustainability to ensure clarity and consistency in terminology (35,36).

The terms “integration” and "sustainability" are closely interconnected. The ultimate long-term objective of an integrated program is to achieve local ownership and sustainability, ensuring that the program continues to function effectively even after external support diminishes or ends (65). However, sustainability is predicated on adequate funding to maintain the program’s operations and impact. Both integration and sustainability are also best considered as existing along a continuum rather than being viewed as binary outcomes (66). A common feature of vertical programs is that they express the priorities of ‘global health’, not necessarily identical to the most urgent health priorities identified by local populations. Yet they offer multiple non-monetary benefits beyond the clinical and epidemiological. Amongst these are enhanced opportunities for local staff to participate in advanced learning, research, publication and career development. In addition to sustainability and integration, we define a vertical health program as one that focuses on a single disease or population group, while a horizontal program has a broader scope and longer term goals centered on primary care or general health services (67). A diagonal approach tackles specific diseases through health system strengthening (68,69). Finally, a hybrid program is transitioning from a vertical to a horizontal approach.

Four stages of iterative data collection and data analysis

Stage 1: Task Team and Task Force formation
We reviewed documents such as meeting reports and participant lists to confirm these structures had been established and were conducted as planned by analyzing these documents along with a two-year project work plan.

Stage 2: Work plan and leadership development
We used the same documents from the first stage to confirm work plan development. We reviewed leadership projects to corroborate leadership development. The work plans and completed projects were evidence that the teams and leadership cohort were applying the LEAD Framework tools, such as root cause analysis and prioritization matrices, that we had shared with them.

Stage 3: Work plan results
We reviewed documents, assessing the progress made by the Task Teams in resolving the challenges to integration and sustainability within the district work plans. We compared baseline to endline quantitative and qualitative indicators within the work plans. We determined integration had been achieved when existing district management structures assumed responsibility for oversight of VMMC services, incorporating VMMC activities into their plans, budgets, and reviews. In addition to the district work plans, we used *Spotlights* -

evidence-based change ideas to improve processes and strengthen the health system that can be replicated by others - generated by the five district Task Teams - as evidence of how district teams adapted what they were doing to overcome the challenges of integration and sustainability.

Stage 4: Program sustainability survey results

We employed a Program Sustainability Assessment Tool (PSAT), a 40- item survey with, 7-point Likert scale. We administered this survey anonymously at midline and endline to members of the Task Teams. The PSAT was developed by the Center for Public Health Systems Science at Washington University in St. Louis. This instrument has been used by 252 public health programs and tested for reliability but not validity (70). We collected midline survey data in November 2021, after the third meetings of the Task Teams, from a total of 54 respondents. We administered the survey a second time at the endline of the project in August 2022, after the sixth and final meetings of the Task Teams, collecting responses from a total of 59 respondents. We aggregated PSAT results across all five districts. Since the surveys were administered anonymously, it was not possible to match the mid and post test scores for each respondent. For each of the eight domains (e.g. organizational capacity), we calculated the mean midline and endline scores.

We collected evaluation data during project activities: inception, midline, and transition workshops, Task Force and Task Team meetings, and leadership development training sessions.

We obtained ethical approval from the Medical Research Council of Zimbabwe (A2670), Research Council of Zimbabwe, and the University of California, San Francisco (20-39761).

Results of Process Evaluation

The project ran from May 2020-October 2023. All activities were implemented as planned, producing the following outputs: 1) formation of the national Task Force and district Task Teams, 2) national and district work plan development, and 3) a cohort of health professionals certified in change leadership.

Stage 1: Task Force and Task Team Formation

Inception workshops took place at the national and provincial levels to orient stakeholders on the goal of the OPTIMISE project and approach, to conduct an initial situation analysis, and to form Task Teams and a Task Force comprising more senior staff at national level to oversee the project activities. A midline workshop was held with all five districts to facilitate inter-district sharing of change ideas to improve processes (Spotlights or poster presentations) and progress on work plans. At the conclusion of the project, transition workshops were held in each of the three provinces and at national level to review work plans and performance measurement, present new Spotlights, and determine how change management processes and leadership development could be institutionalized into existing structures such as District Health Executive meetings.

Stage 2A: Work plan development

The cadence of meetings to develop work plans varied depending on the level of engagement. At the subnational level, meetings took place on a quarterly basis to ensure regular, periodic engagement of stakeholders as they made progress on work plans and applied quality improvement (QI) tools. At the national level, less frequent meetings informed stakeholders of district-level actions and helped address central bottlenecks. See Figure 3 for the LEAD Framework process improvement cycle and Figure 4 for a timeline of project activities.

- A national-level Task Force held bi-annual meetings to consider challenges and develop a workplan to address challenges common across the five pilot districts for a total of four meetings.
- Our team of senior local facilitators convened and designed quarterly district-level Task Team meetings to develop a workplan to resolve challenges, implement change ideas, and measure progress for a total of six meetings. In the latter stages these meetings were co-facilitated by some of the MoHCC staff who were attending the PPCL, as part of the practice requirements of that course (see below).
- The district also held monthly, self-directed Work Improvement Team meetings to assign challenges to specific individuals, who were responsible for advancing the solutions within the district-level work plans.

Stage 2B: Leadership development

We strengthened organization development, leadership, and facilitation skills through a year-long university accredited postgraduate training program entitled 'Professional Practice in Change Leadership' (PPCL). We recruited the PPCL cohort from across the system hierarchy. They represented various disciplines contributing to VMMC service delivery, including clinical staff, epidemiologists, health promotion officers, administrators, and partner organization staff from PSH and CHAI. We deliberately ensured that frontline workers learned alongside more senior staff, such as Provincial Medical Directors, District Medical Officers, and central program staff. We provided supervised practice and formal mentoring of student project work over the life of the module, which was a critically important overarching aspect of the PPCL learning approach.

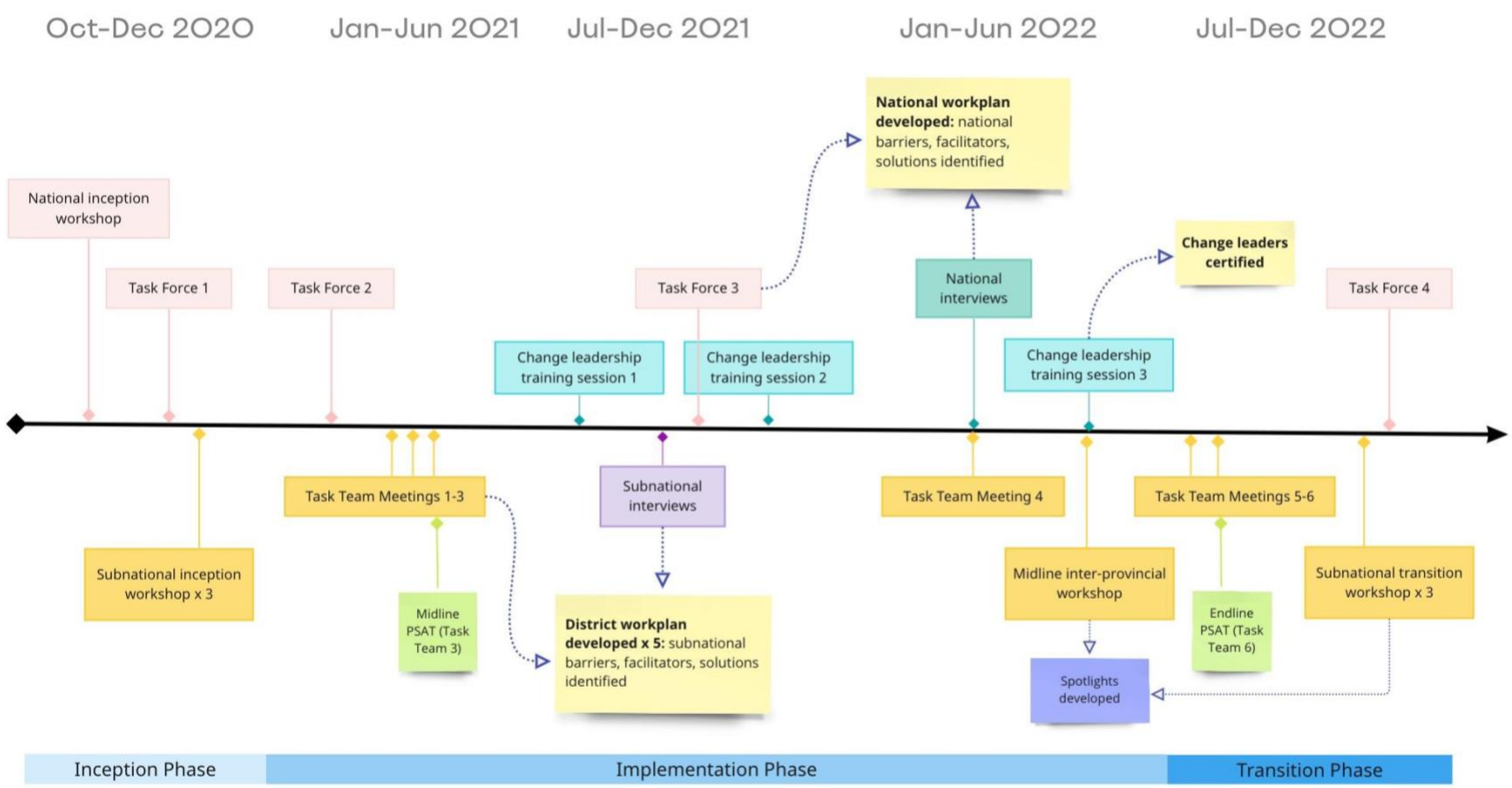


Figure 4. OPTIMISE Project Activities. Project activities took place at the national and subnational levels in Zimbabwe during a two year period from December 2020-October 2022.

The aim was to build sufficient skills for LEAD interventions to be sustained beyond the life of the OPTIMISE project. This certification was co-administered by the University of West of England and Women's University in Africa, Zimbabwe. See Appendix 2 for more details on the content covered during the PPCL program.

Stage 3: Work plan results

Our focus is on reporting medium-term outcomes, the results that were achieved during a two year time period. These outcomes involved actions by district Task Teams to reduce barriers and leverage opportunities for integration and furthering sustainability through work plan execution. Resolution of a majority of these barriers demonstrated increased capacity of the VMMC program. We have organized these results by the WHO Health System Building Blocks, including the components for each building block that relate to sustaining VMMC services, and distilled them from the district level work plans (see Tables 2-5) (1). Additional results in the form of *Spotlights* are available at https://gatesopenresearch.org/documents/7-95 (71). At the end of the project period, these work plans were institutionalized into existing structures. All five district work plans were adopted by the District Health Executives. At the national level, all components of the Task Force work plan were integrated into the activities of the VMMC Steering Committee or the technical working groups associated with this committee.

Leadership and governance results

Prior to our intervention, the implementing partner in each district oversaw the program without involvement by the District Health Executive (DHE), the governing body for all health programs within a district. At the end of our project, the DHE demonstrated increased responsibility for the VMMC program in all five districts. Although evidence of the DHE taking on greater accountability varied by district, the inclusion of VMMC on regular meeting agendas indicated that these management structures were now overseeing the program, making decisions about VMMC activities, budgets, and performance that they had previously left to their implementing partner (see Table 2). In one district, this increased awareness and involvement resulted in improved acceptance of VMMC at schools and communities, leading to the activation of 15 additional school health masters and improved receptivity of local leaders granting access to their communities. In another district, this change prompted increased sharing of budgets between programs and faster decision-making.

Table 2. District Level Leadership and Governance Results

Challenge	Solution	Indicator	Baseline	Endline	District
Limited participation by MoHCC representatives in the Rural District Development Committee (RDDC)	Use DHE funds from quarterly reimbursements to travel to meetings	VMMC on RDDC agenda (yes/no)	No	Yes: improved acceptance of VMMC at schools & communities resulted (increase of 15 school health masters activated for demand creation)	1
DHE not aware of VMMC activities and budget	Ensure VMMC on DHE agenda	# of times VMMC on agenda/total # DHE meetings	1/2 meetings (50%)	3/3 meetings (100%): increased sharing of budgets between programs, faster decision-making	1
Lack of integrated planning & review	Incorporate VMMC into meeting agendas	# of meetings where VMMC included/ total # of meeting type	0/5 (0%)	5/5 (100%; EPI, OI/ART, VIAC, RBF, DHE)	2
			0/2 (0%)	2/2 (100%; DHE, DMT)	3
		# of meetings where VMMC included/quarter	0/3 (0%)	3/3 (100%)	4
DHE not informed of VMMC activities	Add VMMC to DHE agenda, VMMC focal person, DHIO to share reports, regular review of VMMC data	# of meetings where VMMC is on agenda, data reviewed, & action taken	0/quarter	4/quarter	5

Service delivery results

Within one project district, the Task Team improved accessibility by activating VMMC services at a hospital that had not been offering VMMC, resulting in an increase in performance from 9 male circumcisions (MCs) per quarter at baseline to 101 MCs per quarter at endline (Table 3). In other districts, the Task Teams empowered and engaged people to improve VMMC acceptability through village chief and religious leader dialogues, door to door campaigns, a music gala, a focus group with the target age group of males 15-29 years, and demand creation training. A fifth district reoriented its service delivery model by first reviewing the outputs for outreach visits. To cut down on travel time and gas usage, VMMC teams were dropped off at locales closer to where clients lived, where they would camp and use local hospital vehicles for outreach travel. This change resulted in a doubling of outputs from 15 MCs/week at baseline to 30 MCs/week at endline.

Health workforce results

Expanding the health workforce who can perform VMMC is imperative in an environment such as Zimbabwe where there are high levels of staff attrition. At the national level, the Task Force focused on the inclusion of VMMC in the pre-service nurse training curriculum, blended learning, and ways to expedite in-service certification. At the district level, all five Task Teams concentrated on training, certifying, and mentoring additional nurses (Table 4). Two districts that were successful in certifying providers to work independently had access to a provincial trainer. In other districts that had to depend on verification by the limited number of national trainers coming from Harare, they either dropped certification from their work plan or were not able to certify more than one circumciser. In another district, the loss of 14 certified circumcisers in one district meant that they had four fewer facilities that could offer VMMC. This district was able to make a minimal increase in its pool of trained circumcisers due to the inability of several health centers to release their healthcare workers for training due to staff shortages and the reallocation of funds that had been designated for training. To compensate for these health workforce shortfalls, the Task Team created service delivery clusters that outreach teams would then visit. In another district, the Task Team mobilized funds from a local source in order to support the DHE in providing supportive supervision to circumcisers.

Table 3. District Level Service Delivery Results

Challenge	Solution	Indicator	Baseline	Endline	District
Lack of VMMC availability in district town	Engage management at 2 hospitals to activate services	# of VMMCs performed by district facilities in town	9 MCs per quarter	101 MCs per quarter; remaining facility still needs to be activated	1
Lack of program uptake	Hold quarterly meetings with key stakeholders	# of times key stakeholder meeting held/# of quarters	0/4 (0%)	4/4 (100%; 5 village chief community dialogues, door to door campaign, music gala, focus group with target age group)	2
Lack of community based demand creation	Identify stakeholders through mapping, conduct community trainings	# trained in demand creation # of times demand creation plans reviewed	110/165 (67%) trained 0/52 (0%) plans reviewed	160/165 (97%) trained 52/52 (100%) plans reviewed	3
Insufficient demand creation due to COVID-19	Conduct sensitization trainings	# individuals trained	0	17 nurses 253 VHWs 22/24 DAAC members	4
Limited MC outputs for fuel consumption, vehicle use	Review outputs for outreach visits, transport teams to camping spot, use local hospital vehicles for outreach travel	# of MCs per outreach visit/week	15 MCs/week	30 MCs/week	5
Religious barriers affecting VMMC uptake	Create demand platform through apostolic religious leaders	# of apostolic churches engaged	0 churches	10 churches	

Table 4. District Level Health Workforce Results

Challenge	Solution	Indicator	Baseline	Endline	District
Inadequate service delivery capacity due to resignation of 10 nurses	Train nurses from each facility	# of facilities with trained nurses/total facilities	11/28 (39%)	27/28 (96%)	2
Insufficient # of nurses certified	Certify nurses	# of nurse certified/# of nurses trained	3/34 (10%)	12/34 (35%)	
Lack of supportive supervision	Mentor nurses	# of facilities where nurses mentored/total facilities	0/28 (0%)	9/28 (32%)	
Staff attrition	Train health care workers	# of new HCWs certified/total HCWs certified	0 new HCWs certified/25 HCWs certified (0%)	1 HCWs certified/22 HCWs certified (5%)†	1
Insufficient number of trained circumcisers	Convert and certify providers	# of providers converted/total providers # of providers certified/total providers	Converted: 0/26 (0%) Certified: 7/21 (33%)	Converted: 5/26 (7%) Certified: 11/21 (52%)	5
Insufficient number of RHCs with 2 trained circumcisers	Train & mentor HCWs	# of nurses trained/total nurses	3/48 (6%)	13/48 (27%); funds diverted from TOT, mentoring by partner	4
Lack of funds for VMMC supportive supervision	Train DHE members on CQI tools to conduct quarterly visits, request funds from DAAC	DAAC contributions to supportive supervision	None	DAAC to contribute to transportation and lunch allowance for trainers	
Attrition resulted in loss of 14 certified circumcisers (24→10), fewer sites with trained circumcisers (8/14→4/14)	Create service delivery clusters and outreach teams	# of clusters # of outreach teams with vehicle	0 0	4 clusters 2 outreach teams with vehicles	3
Insufficient number of trained circumcisers	Create duty roster, conduct refresher, conversion, basic trainings	# of duty rosters created # of HCWs trained (refresher, conversion, basic)	0/12 rosters refresher: 1/yr; converted: 3/yr; basic: 9/yr	9/12 rosters created refresher: 1/yr; converted: 6/yr; basic: 0/yr‡	

†3 of the 4 healthcare workers who left the district were certified in VMMC.

‡Three rural health centers could not release their healthcare workers for training due to staff shortages. Furthermore, funds for basic training were reallocated.

Supplies and equipment results

Rather than using disposable surgical instruments that are costlier, wasteful, and affected by supply chain challenges, two districts focused on autoclaving in order to sterilize reusable instruments (Table 5). In one district, the Task Team identified a local funding source in order to procure two additional autoclaves. In another district, the team formed a partnership with a private hospital, exchanging the use of a public hospital's operating room and incinerator for access to the private hospital's autoclave. This partnership resulted in an increase from sterilizing 15 packs/month in a quarter at baseline to 300 packs/month in a quarter at endline. Vehicles and fuel to transport VMMC outreach teams is another challenge common across districts, due to the need to use vehicles for other health program activities. Some districts have donor-funded vehicles. In the absence of such a vehicle, a third district Task Team identified local funds for vehicle servicing and fuel and created a vehicle servicing schedule, going from having no funds for these expenses and no schedule at baseline to having a budget of $4,000/year for vehicle servicing and $1792/year for fuel and a regular servicing schedule at endline.

Strategic information results

The same Task Team that mobilized funds for vehicle serving and fuel also focused on VMMC data quality at facility level. In order to address incorrect, incomplete data, the team supplied forms to all health facilities and conducted quarterly on-site data verification. Their supportive supervision visits increased from 1 site visit/year at baseline to 29 site visits/year at endline (Table 5).

Financing results

In the same district where the team instituted supportive supervision visits to improve data quality, they also mobilized local funds to prevent power interruptions affecting data quality. They identified funds to procure fuel for generators, with no budget at baseline to $1,120 as a dedicated budget line item for generator fuel. Another district team allocated GOZ funding towards VMMC activities. At baseline none of the DHE budget funded VMMC, while at endline, 10% of the total DHE budget was used for VMMC outreach and mentoring. The share of the budget for VMMC would have been larger if the DHE had not diverted funds for fuel elsewhere (Table 5).

Table 5. District Level Supplies and Equipment, Strategic Information, and Financing Results

Challenge	Solution	Indicator	Baseline	Endline	District
Availability of autoclaves at all facilities	Identify source of funding and procure autoclaves	# of facilities with autoclaves/total facilities	26/28 (93%)	28/28 (100%)	2
Insufficient autoclaving capacity	Formed partnership with private hospital	# of VMMC packs available/quarter	15 packs per month/quarter	300 packs per month/quarter	1
Inoperable vehicles, lack of fuel for VMMC	Identify funds for vehicle servicing and fuel, create servicing schedule	Funds mobilized Schedule developed	Servicing: $0 Fuel: $0 Schedule: no	Servicing: $4,000/year Fuel: $1792/year Schedule: yes	5
Incorrect, incomplete facility data	Supply forms to all facilities, conduct quarterly on-site data verification, mentoring	# of sites visited/year	1 site/year	29 sites/year	5
Power interruptions affecting data quality	Identify funds to procure fuel for generators	GOZ funds mobilized	$0	$1,120	5
Insufficient funds for VMMC activities	Allocate GOZ funding towards VMMC	Funds for outreach, fuel, mentoring	0	10% (funds for fuel were diverted towards emergencies)	4

Stage 4: Program sustainability survey results

An increase in capacity to identify programmatic barriers, opportunities, and solutions was further supported by the results of a program sustainability assessment, discussed below. An additional output of localized definitions of integration and sustainability enabled the district teams to build consensus on what they were trying to achieve. See Appendix 3 for an example of a district's definitions of these terms. We examined progress towards program sustainability using a standardized Program Sustainability Assessment Tool (Figure 5) to supplement the work plan results. By aggregating the results across all five districts, calculating the means for each domain, and performing Mann-Whitney tests, we found a significant difference between midline and endline measurements for three of the eight domains: communications (p=0.05), program adaptation (p=0.05), and organizational capacity (p=0.02). The most substantial increases in absolute values were in the domains of communications (+0.05), program adaptation (+0.04), organizational capacity (+0.04), and partnerships (+0.04). The only decrease in absolute values between midline and endline results was in funding stability (-0.04).

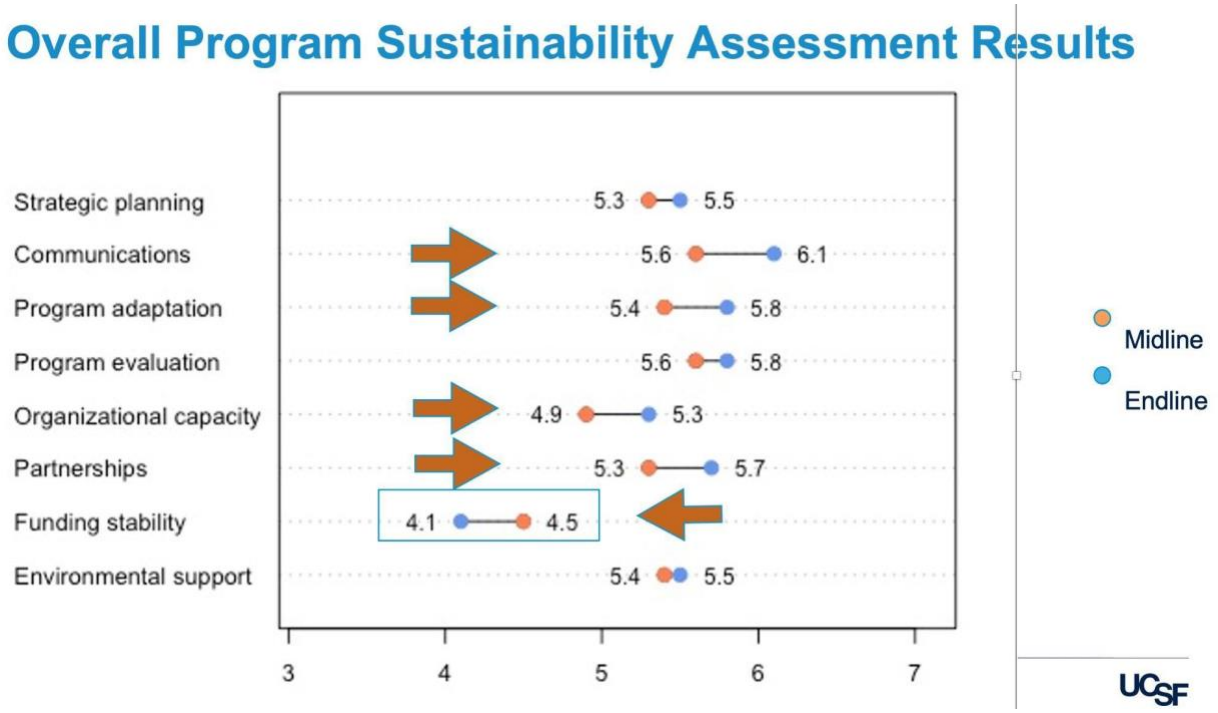


Figure 5. Overall program sustainability assessment results. Substantial increases in absolute values between midline and endline mean measurements were in communications, program adaptation, organizational capacity, and partnerships. The only decrease was in funding stability.

Discussion

In light of the interest to sustain the VMMC program and insufficient domestic resources, donors should continue to invest in this important HIV prevention strategy in Zimbabwe. We set out to integrate the VMMC program into routine services while also furthering sustainability in five pilot districts. Improvements occurred across the board for all health system building

blocks, suggesting that the intervention strengthened the overall health system and supporting the idea of taking a diagonal approach to health programs, combining targeted vertical interventions with wider horizontal support (68,69). In all five districts, accountability for the VMMC program by District Health Executives increased, with the adoption of VMMC activities in work plans. Most solutions to improve service delivery involved better engagement of the community to increase demand. Due to staff attrition, the continual need to train the in-service health workforce did not always yield a sizable increase in the total pool of circumcisers. However, a reorientation of services, either by clustering teams by geography or having outreach teams extend their stay in one location, helped to address this issue and demonstrated program adaptation. These actions also reduced vehicle and fuel use and staff travel time, contributing to an overall increased volume of MCs performed. Creation of a duty roster was another innovation that could be used for other health services to create greater equity and staff satisfaction. More attention should be focused on addressing staff burnout and attrition, examining reasons for dissatisfaction and departures, and considering what incentives would work to mitigate these problems. This is important as these factors affect the entire health system, and Zimbabwe is just one of many low/middle income countries where health worker migration has serious adverse effects (72).

While UCSF was involved in adapting the LEAD Framework for this project, scaling of the approach can be done by trained local facilitators. After the initial pilot stage of this project, which amounted to $150,000/year, these local facilitators have expanded the approach to additional districts, at an approximate cost of $30,000 per district. The cohort of trained change leaders within Zimbabwe will also support these expansion efforts, receiving coaching and mentoring until they are able to facilitate the process independently. Readers interested in applying a similar approach to strengthen the health system and leadership and governance capacity within their health programs can refer to the LEAD Framework User Guide (https://shrinkingthemalariamap.org/sites/default/files/tools/lead-user-guide-final-updated-12-7-2021.pdf).

Within the five pilot districts, we successfully facilitated transition readiness and a change in mindsets that VMMC should be a locally-owned and managed program. The VMMC program was integrated with other health services to the extent that existing district management structures took responsibility for oversight of VMMC services, incorporating VMMC activities into their plans, budgets, and reviews. In one district, further decentralization occurred, with the delivery of VMMC through two additional health facilities that provide routine health services. However, across the five districts, there was an overall reduction in the number of static health facilities offering VMMC. At the start of the intervention, the 5 districts had a total of 31 static health facilities offering VMMC. By the end of the intervention, there was a decrease to 27 static health facilities. If sustainability is contingent upon decentralization, the MoHCC will need to address several barriers to achieving this goal. The decrease in static facilities occurred for several reasons: 1) one district lost four trained circumcisers due to staff attrition; 2) in another district, 12 staff were awaiting training, as the provincial trainers were not permitted to certify circumcisers; and 3) in a third district, a room that had been used for

VMMC was designated for COVID-19 activities. At the same time, service delivery at all general health facilities is not necessarily desirable nor attainable with such high levels of staff attrition.

Despite this drop in the total number of static health facilities, the total number of male circumcisions performed increased over this period. We further examined improved performance despite reductions in static facilities by using one district as an example. This district has a total of nine static health facilities offering VMMC, a reduction from the 14 at the start of the project. Of these nine facilities, two are hospitals, while the remaining seven are decentralized sites where providers based at the facilities do outreach to surrounding areas. At the district hospital, staff attrition resulted in the departure of two of the five trained circumcisers. Despite the human resource shortage, the district still increased VMMC performance from 5% of its quarterly targets (43 MCs/898 MCs planned in Quarter 4 2020) to exceeding the targets in some quarters, up to 105% (710 MCs/675 MCs planned in Q4 2021 and 543 MCs/540 MCs planned in Q2 2022).

We can learn lessons from Kenya, a country which started the integration and sustainability process earlier than Zimbabwe. A recent study from 2021 showed that a mixed model, whereby circumcisers provide both static and mobile (outreach) services, was more efficient and performed better than static models (73). Both this study and another Kenya case study pointed to inadequate domestic financing as a barrier to the country's progress towards sustainability. The case study also cited the lengthy process of integrating services into public health facilities and low support for infant male circumcision as additional challenges (74).

Limitations

There were several limitations to our project. First, we were not able to measure performance across districts using a common set of metrics because we gave the district teams the agency to develop their own indicators, resulting in variation across the five districts. While we did gather data on trained circumcisers, facilities offering VMMC, and overall VMMC performance, this was either incomplete or not consistently uniform, which prevented comparison across most parameters. Second, the standardized program sustainability survey was not administered at baseline, as we only became aware that it would assist with evaluation midway through the project. Therefore, we only have comparisons of midline and endline data. Third, one district could not improve drug stock outs, and our project could not influence this. The issue was not resolved for two months due to shortages at the national level. Fourth, we did not design our intervention to determine whether focused efforts on the VMMC program influenced the performance of other health programs. While several districts attested that they had applied the skills they learned in root cause analysis to reduce maternal mortality and increase COVID-19 vaccination rates, we were not able to determine whether focusing on VMMC had a negative impact on the performance of other health services. Although we suggest that the LEAD Framework contributed to the results, we cannot be certain about attribution without doing an impact evaluation. We were also not able to isolate the impact on project outcomes of COVID-19 disruptions in VMMC service delivery and subsequent resumption of services. In addition, while there are more components to each WHO health system building block that contribute to VMMC program sustainability, we chose to focus on a subset for the sake of

brevity. Finally, we conducted an internal evaluation, where the funder supported both this process and the evaluation.

Conclusions

Through application of the LEAD Framework, we successfully facilitated transition readiness and a change in mindsets within the five pilot districts that VMMC should be a locally-owned and managed intervention, while also strengthening individual and team capacity. District teams assumed the planning, oversight, and budgeting of VMMC, furthering the integration of the VMMC program and strengthening the health system. District team actions included greater engagement of multisectoral stakeholders, better use of existing resources, and changing operating models. The approach also introduced a more effective way of articulating and resolving granular VMMC challenges at the district level with management and oversight at provincial and national levels. LEAD resulted in improved system communications and management for VMMC services. Our approach is worth consideration by other vertical health programs and low/middle income countries that have a goal of integrating and sustaining health services while strengthening their health systems using a bottom-up model that prioritizes localization. LEAD is now being scaled to other districts and considered by other donors for strengthening leadership and governance within Zimbabwe. However, further work is needed to identify funding sources for expert facilitators within mainstream health services. As the approach is further developed and adapted, we anticipate formalizing the levels of expertise required for program facilitation, similar to that used by LEAN/Six Sigma.

Sustaining the VMMC program in Zimbabwe will require a change in who provides and controls the funding for VMMC. Donors and implementing partners are making progress in this area with the piloting of different funding mechanisms. Beginning in 2018, PEPFAR set explicit targets for shifting financial control from external to local entities (75). This needs to be coupled with greater domestic resource mobilization for HIV, such as through the National AIDS Council, a national AIDS levy, or other local stakeholders, which will contribute to sustaining the program in the long run. Until then, donors should continue to support the investment they made in strengthening governance of the health system and leverage the momentum we created by empowering and further capacitating government stakeholders to lead the program. That way, the VMMC program can continue to serve as an important entry point for males who might not otherwise engage with the health system while also contributing to ending the HIV epidemic. Finally, the national program should consider the potential of integration of infant male circumcision into its maternal and child health services.

PAPER 3: UNDERSTANDING STAKEHOLDER PERSPECTIVES ON INTEGRATING AND SUSTAINING VOLUNTARY MEDICAL MALE CIRCUMCISION INTO ROUTINE HEALTH SERVICES IN ZIMBABWE: A QUALITATIVE STUDY

Background: The transition of Voluntary Medical Male Circumcision (VMMC) services in Zimbabwe from a donor-funded to a government-owned program involves the collective efforts and alignment of various stakeholders, including national and provincial government leaders, district managers, health care providers, village health workers, community members, donors, and implementing partners. We sought to understand stakeholders' perspectives on barriers, facilitators, and recommendations as the vertical VMMC program transitioned to an integrated, government-led model.

Methods: We conducted 54 semi-structured stakeholder interviews at the national and subnational levels. Interviews were audio-recorded, transcribed, and thematically analyzed using domains from the WHO health system building blocks.

Results: Participants highlighted a range of psychological and structural barriers and facilitators to integrating and sustaining the VMMC program. Respondents mentioned financing and staffing barriers to integration, particularly a lack of domestic resources, the transition from a fee-for-service to a facility-based performance model, and staff attrition. Notably, resistance to changing the VMMC program's operations was a significant barrier that may be tied to individual psychological barriers such as loss of power and job security. Donors and partners continued to control the funding for VMMC, even though the Ministry of Health and Child Care (MoHCC) should be making the decisions. However, there is an opportunity for increased responsibility and a greater sense of ownership at the subnational level through the decentralization of governance.

Conclusions: To achieve integration and sustainability of the VMMC program, stakeholders must address both psychological and structural barriers and align their perspectives on the transition. Individual providers have valid concerns about their personal financial security and taking on additional responsibilities without adequate financial compensation. Donors and partners need to reduce involvement and oversight. Resolving the financing barriers that prevent the government from having complete control will require empowerment of local government stakeholders to fully own the program.

Background

Problem statement

HIV is the leading cause of death and disability adjusted life years in Zimbabwe.(76) According to 2022 UNAIDS estimates, Zimbabwe has 1.3 million adults and children living with HIV (11%) (28). The World Health Organization (WHO) and UNAIDS designated Zimbabwe as a priority country for voluntary male medical circumcision (VMMC), due to unprotected heterosexual sex as a local driver of HIV transmission (28,77). The sustainability of the VMMC program is critical for ending the HIV epidemic in Zimbabwe. In the short term, VMMC can reduce a male's heterosexual acquisition of HIV by 60% through a one-time procedure that provides life-long prevention benefits (3). In the longer term, VMMC can reduce the risk of STIs and penile and prostate cancer in males and the risk of STIs and cervical cancer in females (50–52,78).

As a key part of the Government of Zimbabwe's overall HIV strategy, VMMC was introduced in 2009. It was primarily a vertical program, with a focus on a single disease, driven by external donors and implementing partners for the first decade (32,59). This vertical approach worked well for launching and scaling the program. However, vertical, donor-dependent health programs in low and middle-income countries (LMIC) face the risk of discontinuation when external funding is withdrawn, especially if they are not integrated into the broader health system. Currently, VMMC has secure donor funding until at least 2027 (55). According to the WHO, "in the integrated model (a.k.a horizontal), services do not have separate administration or budgets and are typically delivered through health facilities that provide routine or general health services" (35). The Ministry of Health and Child Care (MoHCC) is committed to transitioning the VMMC program from a vertical to an integrated program in order to sustain the epidemiological benefits. This transition is guided by the Sustainability Transition Implementation Plan (59).

The transition of VMMC services in Zimbabwe from a donor-funded to government owned and operated program will require the collaborative efforts and alignment of various stakeholders: national and provincial government leaders, district managers, health care providers, village health workers, community members, donors, and non-governmental organizations or implementing partners. This transition is particularly difficult due to the unstable political and economic situation in the country. Staff retention is a major issue, with many vacant health posts, as trained staff leave for jobs outside of the government or emigrate (79,80). Additionally, government staff is paid in Zimbabwean currency, with high rates of inflation resulting in a devaluation of the wages they are paid (81,82). With the uncertainty of long-term donor commitment of funds for the program, VMMC needs to be integrated and sustained within the health system (55). We sought to understand factors that would influence the

transition from a vertical to an integrated program to inform the government's approach to changing the VMMC operating model.

The description of India's HIV program transition to government ownership, where the government increased its financial commitment to the HIV/AIDS budget by 400%, is one of the few studies detailing the specific processes that contribute to the successful transfer of ownership and integration of a large-scale, donor-funded vertical health program (83). Vu et al. also described the transition of the VMMC program in PEPFAR funded districts in Zimbabwe from management by a USA-based organization to a local organization (61).

The aim of this specific study was to understand and examine the perspectives of individuals in various stakeholder roles at multiple levels regarding the barriers, facilitators, and recommendations for transitioning the VMMC program from donor-led to government owned and operated. This research was situated within a larger systems change intervention using the Leadership and Engagement for Improved Accountability and Delivery of Services (LEAD) Framework (described in another paper), to further inform the process of integrating and sustaining the vertical VMMC program into routine health services in Zimbabwe.

Methods

Study design

We conducted a cross-sectional qualitative study employing an implementation science approach to gather stakeholder perspectives from multiple levels and inform adaptation and future implementation of the LEAD Framework (84). The LEAD Framework is a bottom-up organizational development and quality improvement systems change approach that enables teams to identify, prioritize, and resolve operational challenges. We have previously demonstrated its effectiveness in improving processes, strengthening leadership, and management capacity in malaria programs in Eswatini, Namibia, and Zimbabwe (39,40,62). The larger project using the LEAD Framework within which this project is embedded was "Optimising Stakeholder Operating Models for HIV Prevention in Zimbabwe" or OPTIMISE project.

The research team was led by the principal investigator, based at the University of California San Francisco (UCSF), who conducted prior research in Zimbabwe. The PI collaborated closely with a team of local Zimbabwean experts, including independent consultants and MoHCC representatives, two of whom were co-PIs of the study. Their contributions included the formulation of research questions, selection of methods, and data collection. Additionally, implementing partners based in Zimbabwe provided valuable input to the analysis and interpretation of results. Post pre-testing, the majority of interviews were conducted by a local

market research firm, who had limited prior exposure to and experience with the health program under investigation.

Recruitment

We used purposeful sampling in consultation with the national VMMC program as it was cost-efficient and made use of individuals who are particularly knowledgeable about the subject, yielding information-rich cases until we reached theoretical saturation (85,86). We conducted interviews at the subnational level and national level. Interviews at the subnational level included participants in five districts. The MoHCC sent out invitation letters to facilitate recruitment. The majority of national interviews were conducted in Harare.

Data collection procedures

We employed separate interview guides for government, implementers, donors, subnational health officers, and community influencers. These interview guides were translated from English to Shona and Ndebele and piloted before use. Most national level interviews took place between April 2021 and February 2022. While a local market research firm did most of the interviews face to face during OPTIMISE project workshops, the team conducted some by phone. Interviews ranged from 20 minutes to 90 minutes, with an average duration of 35 minutes. Audio recordings of all interviews were translated into English transcriptions for analysis. All data was saved on a secure, password-protected cloud-based platform to which only research team members had access.

Data collection domains

We used eight domains in our interview guides, which were adapted from the WHO health system building blocks. The domains are listed and defined in Table 1. Domains ranged from decentralization to the transition of the program from implementing partners to the government.

Domain	Topics covered by domain
Transiti	How VMMC program components financed, managed, and/or operated by external partners will be transferred to government
	Current state of integrating VMMC into routine health services, lessons learned from other integration efforts, current or potential challenges and mitigation strategies/opportunities
	Challenges and mitigation strategies/opportunities for improving the success of the VMMC program in the context of decentralization
	Challenges from declining donor financial support for the program, and mitigation strategies/opportunities for ensuring the financial sustainability of integrated VMMC services
	Challenges, motivation, incentives, and recommendations to address attrition, capacity gaps
	How the program works with the community to ensure uptake and acceptability of VMMC services, perceptions, experience, barriers, challenges, recommendations
	Concerns about how transition process will impact the quality and accessibility of VMMC services, how to address concerns
	Current gaps/challenges in VMMC data systems, changes to ensure the effectiveness and sustainability of relevant information systems

Table 1. Interview guide domains and topics

Analysis approach

We used the framework method to analyze the interview data, due to the exploratory nature of our study and multidisciplinary makeup of the research team (87). The framework method is an approach to thematic analysis where researchers construct a matrix with rows for cases (interviewees) and columns for codes to help summarize the data. Three UCSF researchers familiarized themselves with the data, using the audio recordings and/or the transcripts. All team members independently coded the same initial transcripts, employing a hybrid approach that incorporated deductive and inductive codes (88). Subsequently, the team met to compare the codes they had applied, ensure coding consistency, and develop a evolving codebook with parent and child codes that emerged from the data. Throughout the process, we discussed our interpretation of the data, identifying some themes in advance while deriving other themes

from the data. Finally, we compiled our findings into a summary document organized by themes with illustrative quotes.

Validation approaches

To enhance the validity and credibility of the data analysis, we presented preliminary findings by theme with illustrative quotes through member checks with interview participants and other stakeholders (84,89). These in-person workshops, held in April 2022, included stakeholders at the community, facility, district, provincial, and national levels. We made minor adjustments to the representation of some concepts at that time. We conducted additional member checking during video calls with the MoHCC and implementing partners in June-July 2022. We also validated our findings and incorporated multi-level stakeholder feedback during the final OPTIMISE in-person workshops in September 2022.

Research ethics

Prior to each interview, we obtained written or verbal consent from participants. Respondents were compensated US$10 in cash for their participation. The research protocol was approved by UCSF's Institutional Review Board, the Medical Research Council of Zimbabwe, and the Research Council of Zimbabwe. We ensured confidentiality of all respondents by de-identifying the transcripts, assigning a code to each individual so that no names or titles were associated with the interviews.

Results

Study participants

Fifty-four individuals participated in the semi-structured in-depth interviews: 43 stakeholders from various levels within the health system and 11 interviews with national-level stakeholders (Table 2). Most of our interviewees were male (70%). Participants were geographically distributed across the selected provinces.

National Roles	Provincial Roles	District Roles	Facility/ Community Roles
Ministry staff	Provincial Medical Director	District Medical Officer	Nurse circumciser
Technical/ implementing partner staff	Provincial VMMC Officer	District Nursing Officer	Nurse in charge

Donor staff	Provincial Maternal and Child Health Officer	District Health Information Officer	Pastor
	Provincial Education Officer	District Schools Inspector	Chief
	Provincial HIV Focal Person	District Team Leader	
		District Health Services Administrator	
		District VMMC Focal Person	
		District Health Promotion Officer	
		District Pharmacy Manager	
		District AIDS Coordinator	

Table 2. Roles of interview respondents within the health system

Barriers, Facilitators, and Recommendations for Integrating and Sustaining VMMC

Respondents identified four major themes affecting the sustainability and integration of VMMC services within routine clinical care: 1) financing, 2) staffing, 3) service delivery, and 4) leadership and governance. These domains encompass both psychological and structural barriers and facilitators. We will present barriers and facilitators in order of their relevance to integrating and sustaining VMMC, as well as the recommendations that participants raised to mitigate or leverage these factors. We found substantial alignment among the barriers, facilitators, and recommendations articulated by the respondents and the strategies devised by district health teams during a workshop setting. However, the concerns around job security for implementing partners and the influence that donors and partners have on the program due to their control of the financing were sensitive topics that were only shared in confidence during individual interviews.

To further triangulate the data, we conducted a document review, analyzing the challenges and solutions within the five OPTIMISE intervention district work plans (84,89). The work plans were developed by each of the district task teams to address and resolve challenges to integration and sustainability of the VMMC program. We compared the data in the work plans to themes arising from the semi-structured interviews around challenges, facilitators, and recommendations around integrating and sustaining the VMMC program. We found significant

overlap between the work plan inputs and the interviews, which helped to corroborate our findings.

1. Financing

Financing challenges, particularly concerning domestic resource mobilization, budget silos and transparency, and remuneration, impact the sustainability of the VMMC program at both the programmatic and individual provider levels.

Donor and domestic funds

Most participants understand that a critical focus for any sustainable program is the replacement of donor funds with domestic resources. Shifting the program from its current reliance on external donors is an aspirational long-term goal, due to the unstable economic situation, but one that will move the program towards sustainability. As put by a participant:

"As for now it is mainly partner supported. So in the absence of the partner, it can be tricky to sustain the gains we have realized so far. The ultimate call for the MOH is to have complete ownership and prioritizing funding for VMMC." (District officer)

Respondents expressed concerns about insufficient local funding for VMMC, especially when the national health budget is already underfunded, and a majority of the total HIV budget goes towards treatment rather than prevention (90). Some participants worried about the need for trade-offs with other health priorities like maternal and child health, given the finite nature of health financing. To address these financing challenges, recommendations included incorporating VMMC into results-based financing and mobilizing domestic resources.

"*We need a sustainable way to actually fund our VMMC activities. This may probably mean that the source of funding should be from government as opposed to donor funds."*

-Provincial officer

Budget silos and transparency

Although not mentioned as frequently as concerns around the withdrawal of donor funds, disease-specific funding tends to create silos rather than encourage integrated planning. Participants expressed a desire to see greater alignment across national-level strategic plans and donor investments. They also suggested that implementing partners may not be motivated to integrate, as it could result in a loss of control over financing.

"It's frustrating when you're asked to do things, and you don't see the purse [money]*. You don't have control of the purse. It's hard to implement. But when you are holding the purse, you are*

able to drive your team. So the money will be the big game changer, how it moves."

-Implementing partner staff

Remuneration

In addition to the programmatic financing challenges, many respondents highlighted the evolving nature of remuneration and its impact on individual providers. Initially, providers were compensated on a per-procedure basis, which allowed them to supplement their regular incomes. Several respondents expressed concerns that the reduction in financial incentives for VMMC services could impact staff motivation and retention.

"When the program started, the cost-benefit reimbursement was quite good. A lot of people benefitted from this program. So as we move towards sustainability, that means the incentive may not be there…People keep on moving until they are given what they want. It requires higher authorities to ensure that they appreciate the work that's being done by health workers, and their remuneration is one of the most serious things, because if people have got good remuneration, they rarely move from one place to another."

-District officer

2. Staffing

A second major domain of structural challenges to integration reported by most participants pertained to staffing shortages due to attrition, which create service delivery gaps and loss of organizational memory. To motivate and retain staff, respondents had recommendations related to training and other non-financial incentives.

Attrition

Health workers leave government jobs for various reasons, including the poor economic situation, low wages, delays in receiving payment, and under-resourced working conditions. These factors were not specific to VMMC but were widespread issues throughout the health system and not unique to Zimbabwe alone. Ensuring the availability of VMMC services at lower-level facilities entails maintaining and retaining an adequate number of trained circumcisers and trainers. Training circumcisers requires a substantial investment in funding and time. Additionally, there is the opportunity cost associated with having fewer providers available to serve clients while they undergo training.

"The Ministry and the partners have invested a lot of money in training those people. The reasons given [during] the exit interview should be used as a baseline for coming up with ways of dealing with staff attrition. Mainly it's on the financial aspects, people are looking for places where they can actually survive and keep their families."

-District officer

Service delivery gaps and loss of organizational memory

Participants pointed out various negative impacts of staff attrition, such as the inability to accommodate walk-in VMMC clients. Additionally, the health system suffers from the loss of organizational memory when experienced staff members depart.

"I will still go back to the fact that the facilities do not have trained cadres, which means clients are going, but they are not being circumcised."

-District officer

Training and other staff incentives

To help facilitate program integration among health care providers, some respondents mentioned non-financial incentives, such as training, a sense of purpose, and contributing to reduced disease burden, as key motivators for staff that could also promote retention.

"What also incentivizes health care workers is a well-run program…People get discouraged once consumables are not readily available or once results are not being met. But if the program runs well with targets being achieved, and being celebrated, the health care workers appreciate it."

-Provincial officer

3. Service delivery

A transition to sustainability will also involve decentralization of service delivery to primary health care facilities, which will be primarily challenging due to limited space and staff capacity. If the program can address these challenges, increased accessibility, trust, and timeliness of services are facilitators for program integration that could make it more patient-centered.

Inadequate space, staff capacity, and patient confidentiality as barriers

Subnational leaders consider catchment areas and coverage rates in deciding which primary health facilities should offer VMMC. Respondents raised insufficient space and the challenge of maintaining sterility as obstacles to service delivery at lower-level facilities. Given that the procedure involves the removal of the penile foreskin, the client needs ample space to ensure comfort and privacy.

"So apart from staff, the other shortage is space, especially at our local clinics…Now you are adding a VMMC service to a 2-room clinic. Our infrastructures were built for a few health programs, but over the years…other health programs…have come and recently there's COVID,

where you need a dedicated room. So imagine you are just adding more and more programs to a fixed site. Where would these programs be taking place?"

-Implementing partner staff

Participants also mentioned limited staff capacity as a barrier to decentralization of services.

"In May we were doing national immunization, HPV, PCV and so forth. You find most of our health workers were taken to do that but at the same time we need those health workers to do VMMC, so that could be a challenge."

-District officer

Some respondents expressed concerns about provider-patient confidentiality in the context of decentralization. They raised the possibility of reduced privacy when clients and providers live in close-knit settings.

"So the moment we decentralize, or we say we are doing it at clinic level, if I am a nurse at the clinic, I know John, Peter, and Stephen and know where they stay. The moment I circumcise them, they will think that I will tell everyone that I have circumcised them."

-Implementing partner staff

Increased accessibility, trust, and timeliness of services

Although there are significant challenges associated with decentralizing services, respondents suggested that implementing these changes could yield several advantages for patients: enhanced accessibility, increased trust and timeliness of services, and a reduction in waiting times and referrals.

This may make the numbers increase, why people at a certain area, they feel secure, if they are dealing with the nurses they know... They don't normally trust people, whom they think are strangers. They want their local people. They [are] listening better to their local people than to see a new face coming to start talking about VMMC. Decentralization… will help."

-District nurse

<u>4. Leadership and governance</u>

A lack of alignment around ownership of the program, employment uncertainty, top-down planning, and competing health programs are barriers to program transition, but increasing ownership by subnational stakeholders is a facilitator that should be leveraged.

Power dynamics around agenda setting and strategy development

The main goal of the transition to sustainability is government ownership and operation of the program at national and subnational levels. A major obstacle influencing organizational readiness for change is that participants disagreed about who currently holds the power to lead the program, such as setting the agenda and developing strategies.

"The Ministry [sets the agenda by] doing the HIV estimates. It also does the Demographic Health Survey, which is done every four years. So on an annual basis, the government sets what the needs are and then presents this to partners."

-Ministry staff

For some, the MoHCC, rather than donors and partners, has the power to set the direction of the program. Others acknowledged there is a power asymmetry between the MoHCC, donors, and partners. These individuals equated the control of money that partners and donors have with the ability to influence program strategies. Foreign aid is funneled to implementing partners, rather than given directly to the government, due to the unstable political and economic situation (91). Given this arrangement, external donors have an interest in seeing how their funds are used so they are not diverted to other areas.

"[Donors] have a hand in how the country strategies are shaped because after funding, they are actively involved in the implementation of the grant, so development of strategies."

-Implementing partner staff

Control over setting the agenda and driving the program also plays out at the subnational level because donor-funded partners have the money. According to respondents, the availability of funds for regular convening to discuss program-related matters plays a pivotal role in subnational ownership by management structures, such as Provincial or District Health Executives (PHE/DHEs).

"There is supposed to be a subnational level provincial health team meeting four times a year. It rarely ever happens unless it's funded by someone who determined the agenda of that meeting. At district level, they're supposed to have bi-annual district health team meetings. They rarely ever happen, and when they happen, they are funded by someone who determines the agenda."

-Implementing partner staff

Employment uncertainty and job loss

In addition to the desire of donors to oversee how their funds are used, employment uncertainty may influence the decision-making and actions of implementing partners. Resistance to the transfer of program control from partners to the government may be

connected to the influence of change valence, degree to which organizational members deem the change to be beneficial, worthwhile, important, or necessary, especially when a program transition would result in the loss of their jobs (92).

"I think that what ends up being a challenge a lot of times is that, when you say working yourself out of a job, it actually means some individuals might actually not have a job anymore because [the partner is] no longer funded to be doing the thing that they were doing before. And I think that doesn't actually sit well."

-Donor staff

Planning and target setting: need for more subnational inclusivity

With the shift towards government ownership, subnational stakeholders will take on increased leadership and management responsibilities. Participants highlighted limited local engagement by donors and partners in planning and policy development as a major obstacle. These processes are currently conducted in a top-down manner that could be more inclusive, incorporating the needs and priorities of local communities.

"Sometimes [implementing partners] do not plan with the Provincial Health Executive (PHE). They plan with their [satellite] office without planning with the PHE. So they have to plan together, and they have to really come on board to solve our problems because we have to identify the gaps and fix and cover the gaps together."

-Provincial officer

Agenda and target setting should also aim to be more inclusive of subnational stakeholders, such as the PHEs, DHEs, health facilities, community-based organizations, and local leadership. Some participants emphasized the need for district level targets, in addition to provincial level targets set at national level.

"The partner and the Ministry, they try to engage [stakeholders], but probably they need to engage them on a quarterly basis or on a monthly basis to come down on the ground to the communities that we serve. They [could] follow up and even [use an] interview tool, interview local leadership to find out how best it can be implemented and then the service provider for service delivery and find out how best the program can be managed."

-District officer

Competing health priorities and silos

Vertical funding and organizational structures have contributed to a mindset that integrating and sustaining the VMMC program may negatively impact other health programs. Respondents noted that VMMC is not always prioritized by frontline workers or seen as a key component of

HIV prevention.

"*People may not fully appreciate the role of VMMC in HIV prevention. They might want to sideline it and give much more time in the focus on other departments and programs."*

-District nurse

Increasing ownership and empowerment as motivators

By engaging local stakeholders in the program's governance, the Ministry has a valuable opportunity to enhance ownership of the VMMC program and empower subnational stakeholders. This empowerment can be highly motivating, as it instills a sense of responsibility for the positive changes they enact and the tangible improvements resulting from their decisions and actions.

"I've seen people are supported…where districts and facilities own or identify the challenges that they're facing, and prepare plans to turn around those challenges, and track certain indicators on a regular basis... And they're actually owning those changes, in terms of the numbers changing in the direction that they were looking for. And the more the staff see improvements, they feel more motivated actually to do better, using their data for decision making."

-Implementing partner staff

Despite the additional burden of taking on more responsibilities, subnational interviewees would be receptive to being more accountable for the program. In fact, perceptions about the program might change from being perceived as partner-driven to community-owned.

"We are ready. It's not like right now we're not doing anything…[Decentralization] will actually empower us more and allow us to apply things that are applicable and relevant to our provinces."

-Provincial officer

"We want the community to own [the program]…We want them to feel that they are part and parcel of this program and move away from thinking it's partner funded and everything, but we want them to actually own it and support it." -Provincial level trainer

Discussion

Respondents highlighted financing and staffing as barriers to transitioning the program. Most respondents were apprehensive about the potential negative consequences of donor funding withdrawal, particularly when not adequately replaced with domestic sources. Transitioning from a fee for service model for individuals to results based financing, which relies on facility performance, will negatively impact the circumcisers who benefited from the supplemental income for each procedure they performed. Attrition prevents the program from decentralizing service delivery.

Our findings align with existing literature and experiences in other regions. For instance, a study in Cambodia and Pakistan found that donors influence priority setting and the entire policy process through their control of financial resources (93). The VMMC program has not reached a comparable stage as the India HIV program, due to the unique challenges of channeling donor funds directly to the government of Zimbabwe or generating sufficient domestic resources.(83) Our results also confirm Weiner's theory of organizational readiness for change. This theory emphasizes the importance of psychological, not just structural factors, in influencing organizational members' shared change commitment and collective judgment about their capacity to enact change, or change efficacy (92). Change commitment is in turn influenced by motivation theory, which posits that the degree to which members value the proposed change will influence their engagement in change implementation. Additionally, our findings echo the global phenomenon of brain drain, where training equips health workers with skills desired in other countries, thereby facilitating their migration to high-income nations (94). Factors contributing to the persistence of vertical or stand-alone HIV clinics in Uganda include a shortage of trained staff, insufficient space, and an increased workload on health workers (95). Moreover, a study in Zimbabwe showed that individual providers were more motivated when paid per circumcision, leading to rapid achievement of performance targets (96). This agrees with our observations on the impact of financial incentives on healthcare providers. Finally, a study of the sustainability of U.S. government-funded health projects in five countries in Central America and Africa found that unstable political and economic conditions in Africa impeded sustainability (97).

Our study differed from others in the literature in that it involved perspectives from stakeholders at various levels of the health system, including health care providers, national government officers, technical and implementing partners, and donors. We uncovered a significant lack of consensus among these stakeholders concerning the actual leadership and control of the program. This divergence of opinions, with some attributing program governance to the government and others to donors and implementing partners, was not consistent even

within the same stakeholder group. Furthermore, our study differs in its focus on financing, staffing, and leadership and governance, in contrast with the focus of much of the research on the integration of vertical health programs which focuses on service delivery (98–100).

Implications of our work include the need for both pre-service and in-service training to ensure a sufficient pool of circumcisers. Decentralization of governance represents an opportunity to enhance responsibility and foster a deeper sense of ownership among subnational stakeholders for planning, managing, and financing health services. It also allows for tailoring of the program to local conditions. Involving subnational entities in governance of the program can motivate them and cultivate accountability for its success. Engaging in supra-national collaboration with donors to reconfigure the operating model holds the potential to mitigate the issue of fragmented, disease-specific donor financing, which often neglects health system strengthening. A shift of focus towards incorporating local needs into program planning is also imperative, ensuring that initiatives are driven by grassroots priorities. While some health programs can operate effectively as vertical structures alongside the general healthcare system and remain sustainable, the current state of the VMMC program is at significant risk of discontinuation if donor funding is abruptly withdrawn without securing adequate domestic resources and political commitment to bridge the gap.

Further research is needed to investigate the feasibility of mobilizing domestic resources, particularly within the challenging context of an unstable political and economic climate. This exploration is critical to determining how a sustainable healthcare financing model can be established under these circumstances. To tackle attrition and retention problems among trained health workers, research should identify strategies that can effectively mitigate the brain drain and incentivize healthcare personnel to take up and remain in government positions. This research is pivotal in addressing the persistent shortage of healthcare workers, a global concern. Additionally, it is crucial to assess the impact of withdrawing donor support, especially in districts where VMMC coverage levels have reached 80% or more. Investigating whether these districts can maintain their performance targets in the absence of donor funding will provide valuable insights into the program's sustainability and the resilience of the healthcare system.

In the design of our study, we acknowledge several limitations. First, our interviews were confined to four of the five districts in three provinces where we implemented our project. Consequently, our findings do not represent the entire country, nor did we intend them to be generalizable. A second limitation stems from the fact that most of our respondents were actively engaged in our intervention. This involvement introduces an element of uncertainty regarding how being part of the OPTIMISE project may have influenced their responses. Third,

the data collection team did not consistently probe during the interviews, as they were not familiar with the subject matter. Finally, qualitative data analysis inherently relies on interpretation by individuals closely engaged with the data. We mitigated this subjectivity by having three individuals code and analyze the data and reflecting our findings back to respondents and stakeholders at various stages of the intervention to ensure consensus and validate the findings. Despite these limitations, results provide critical insights into integration and sustainability of VMMC in Zimbabwe.

Conclusions

Integration is seen as a way to enhance effectiveness, sustainability and national autonomy, but it challenges the status quo in various ways, including the role and power of aid donors, control and accountability of donated funds, and subnational policy and governance. For the VMMC program to achieve integration and long-term sustainability, it must address both psychological and structural barriers associated with these challenges. Donors need to be assured that the government will institutionalize VMMC into routine health services and that it will be fully accountable for funding these services. Decentralization of VMMC to lower-level facilities will be challenging, particularly if staff attrition remains a major obstacle. The program should also leverage opportunities that will facilitate this transition, making it more patient-centered and connected to the community. Zimbabwe's experience in navigating this transition of its vertical health program can serve as a valuable case study for other low and middle-income countries undergoing similar shifts. By learning from Zimbabwe's experiences and challenges, these countries may glean insights into how to effectively manage the transition toward integrated and sustainable healthcare programs.

CONCLUSION

I undertook this dissertation with the goal of informing the transition of the vertical Voluntary Medical Male Circumcision program in Zimbabwe to being sustainably integrated into primary health care services. This study took place in the context of a new global pandemic, the movement to decolonize global health, and increasing interest by external donors to shift power and funding to local partners. The movement to decolonize global health is long overdue, and the pandemic helped to shift power dynamics in the right direction. Although I was based at UCSF as the PI, my research has always sought to elevate the voices of frontline workers, increase their agency, and strengthen their leadership and management capacity. They are the local stakeholders closest to the challenges and best equipped to resolve them. Moreover, due to limitations on travel when the study launched, my Zimbabwean and South African collaborators were the individuals who represented our work in person for the majority of the 2.5-year project period. I played a less prominent role behind the scenes, which is the way studies led by researchers in the Global North should be conducted. My collaboration with partners in the Global South also resulted in the establishment of a South African-based non-profit organization that could be the recipient of any future funding.

Although my collaborators and I had first piloted the LEAD Framework in 2016 with malaria programs, this study was the first time it was adapted for an HIV program.[6] It was also novel to use LEAD to facilitate change at the national level. This added benefit resulted in the elevation of operational challenges common across districts to the national level, where they could be more appropriately addressed.

Each of my dissertation papers touched upon a different facet of the transition to sustainable integration of the VMMC program. In the first paper, I demonstrated that district stakeholders could take ownership over the program when they shared leadership and decision-making. They were motivated to make changes to the operating model when they were empowered to identify and prioritize challenges, determine solutions, and select their own metrics to measure change over time. These district stakeholders also had to adapt, pivoting after a period of disruption caused by the COVID-19 pandemic and adjusting their original plans of making VMMC available at all health facilities when confronted with staff attrition.

[6] The Leadership and Engagement for Improved Accountability and Delivery of Services (LEAD) Framework supports programs in defining, prioritizing, and solving operational challenges while also leveraging opportunities for process improvement and building management and leadership skills.

In my second paper, I focused on evaluating whether using the LEAD Framework succeeded in strengthening leadership and management capacity and facilitating changes to further integration and sustainability of the VMMC program. The findings of this paper suggest that district stakeholders bought into the intervention and made significant changes to operations. The intervention also strengthened the overall health system. However, future research is needed to inform whether program stakeholders were able to maintain the momentum after external financial and technical support was withdrawn and whether similar progress can be made when adaptations are made to expand the intervention using locally trained facilitators. Furthermore, as integration and sustainability of a health program can be viewed as a continuum, the government and other program stakeholders still have more work to do, especially for the program to achieve financial sustainability.

My third paper highlighted the conflicting views of the government, implementing partners, and donors regarding the governance of the program. Until there is a shift in how global health is funded and the government has full control of funding for the program, the Ministry of Health and Child Care will not have complete decision-making power. Moreover, due to the unstable political and economic situation and insufficient domestic resources, external donors will need to continue funding the program, unless they want to risk discontinuation of the program. Further investment is needed to maintain momentum and continue strengthening leadership at all levels of the program and the overall health system. It is unclear whether the program has the capacity to return to its pre-COVID levels of performance, when it was conducting over 300,000 male circumcisions per year.

In addition to the MoHCC, donors (CDC, USAID, BMGF) and technical (UNAIDS, WHO) and implementing partners (Clinton Health Access Initiative, Population Services for Health, ZAZIC Consortium) all have a stake in the program with different and sometimes conflicting ideas about how the program should be run, integrated, and sustained. There is a need for alignment on how to move forward to sustain the program. At the same time, there are larger issues that must be addressed before the program can make significant progress in this transition. The migration of health care workers will persist until the economy stabilizes. At the moment, they are not compensated adequately for rising inflation, nor do they work in facilities with adequate resources. Furthermore, as long as corruption continues, donors will be unwilling to fund the government directly, as they lack assurance that the government will use development funds for their intended purpose. This is unfortunate, given that the government has the capacity and desire to lead the program and donors aspire to delegate control and ownership to the government, aligning with the objective of decolonizing global health. Given the opportunity to undertake similar work in the future, I would build in more time to ensure local capacity was sufficiently strengthened to carry the work forward with adequate resources

and support. In more stable democracies, accountability and oversight of the public sector is shared among civil society organizations, an independent press, academic institutions, and an independent judiciary. The Global Fund to Fight AIDS, Malaria and Tuberculosis has experimented with support to civil society organizations to provide oversight at the national level. More efforts to strengthen such independent institutions are needed. In other settings, independent academic evaluation of the impact of public programs has played a similar role. Continued, prolonged investment in capacity strengthening for individuals and the entire health system, including oversight/accountability, and a commitment by both the government and donors to sustain the momentum we had created are all needed to ensure that the VMMC program is truly integrated and sustained.

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