Increasing Healthcare Quality and Efficiency with
Digital Solutions in Zimbabwe

Population Solutions for Health

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INTEGRATE
Catalyzing Integrated Sustainable Subnational
Biomedical Prevention in Zimbabwe

Human Resource Constraints And Challenges With Quality Of Care

Since 2000, Zimbabwe's public sector health system has operated with less than 19% of the necessary human resource capacity. Skilled healthcare workers are moving to private practices, urban areas, emigrating, or joining donor-funded programs. This migration leaves those remaining in the public sector with heavier workloads and a lack of experienced professionals, jeopardizing the quality of care.

Key HIV prevention interventions, such as Voluntary Medical Male Circumcision (VMMC), rely on ongoing communication between healthcare providers and clients—from raising awareness about the procedure to conducting follow-up visits on days two, seven, and 42 post-procedure. Due to these staffing shortages, healthcare providers often lack the time or resources to provide adequate follow-up care, leading to unaddressed client questions and concerns. Consequently, in-person follow-ups are substituted with informal phone calls that fail to be recorded or documented.

As the health system struggles to continuously upskill existing staff, especially in specialized areas such as VMMC, escalated training costs strain already limited resources, further compromising the healthcare system's ability to maintain standards of care.

To assess quality and monitor improvements, Zimbabwe's HIV program has historically relied on multiple unlinked data collection methods. This lack of a unified system has led to fragmented and difficult-to-manage data. Fragmentation hinders health system managers from effectively tracking service continuity across various locations and creates challenges in providing consistent feedback and accessing historical data, which are essential for evaluating and improving the quality of HIV prevention services.

While the INTEGRATE project could not address all the systemic issues driving healthcare workers out of Zimbabwe's healthcare system, it provided a platform to explore immediate-term solutions aimed at increasing quality of care and reducing provider burden. This aligns with the Government of Zimbabwe's digital health strategy, which seeks to elevate healthcare delivery standards through digital technologies, enhancing efficiency and effectiveness. This involved piloting digital tools to streamline care and client follow-up, reduce training costs, and integrate VMMC quality assurance (QA) activities with broader biomedical HIV prevention quality efforts.

Digital Health Program. Zimbabwe, 2021

Proposed Digital Solutions

PSI and Population Solutions for Health (PSH) are partnering with the Ministry of Health and Child Care (MoHCC) to design and introduce digital tools to improve the delivery of HIV prevention programs, such as VMMC. The focus is on creating a digital ecosystem that complements Zimbabwe's existing "Impilo" Electronic Health Record (EHR) system. This digital ecosystem aims to address the challenges posed by human resource constraints and fragmented data systems, improving the quality of follow-up, ensuring that all client interactions are efficiently managed and documented, strengthening healthcare provider capacity, and standardizing QA and quality improvement.

These digital tools are part of a broader effort to integrate QA for VMMC with other health services, increase the pool of trained providers, and reduce health worker burden.

The Ecosystem Is Supported By Three Digital Tools Tested During The Life Of The Integrate Project

Impilo Engage – Digital Follow-up System:

To reduce the workload on healthcare workers and provide better support for clients, PSI and PSH introduced "Impilo Engage," a digital client follow-up system that facilitates two-way SMS texting between clients and providers. This system was launched in 2021-2022 at five urban and peri-urban New Start Centres, which are direct service delivery sites managed by PSH. The tool was highly acceptable among clients, with 62% of VMMC clients opting for self-care through the system and 85% of these clients experiencing no issues during follow-up. "Impilo Engage" reduces the workload, time, and costs associated with physical client follow-up.

Encouraged by the tools success reducing workload, time, and costs associated with physical client follow-up, MoHCC endorsed the "Impilo Engage" system for testing in public health facilities, focusing on extending its use to rural areas for broader implementation.

Two facilities in the Uzumba-Maramba-Pfungw district of Mashonaland East Province were selected for a public sector pilot due to their existing internet connectivity, availability of tablets, reliable backup power, and prior investments in the Impilo EHR system. During the pilot month, of the 176 male circumcisions performed at these sites, only 49 (28%) opted for virtual follow-up. This uptake was lower than the 62% achieved in urban facilities, primarily due to challenges with home connectivity, either from consistently poor mobile network coverage or network disruptions caused by power outages. Despite these challenges, implementing virtual follow-up in a rural setting still reduced the need for in-person visits. This allowed healthcare providers to reallocate resources to other critical HIV prevention services and saved clients' time. The tool shows promise for supporting virtual follow-up of clients in other health areas requiring long-term care.

Impilo Fundo – Online Training Platform:

As skilled healthcare workers migrate or shift sectors and funding for provider training declines, a significant gap in expertise emerges. E-learning platforms can bridge this gap by providing accessible, scalable, and cost-effective training solutions. By reducing reliance on traditional in-person training methods, e-learning cuts down on training costs and offers a platform to train a larger number of healthcare workers simultaneously. This approach increases the availability and quality of healthcare services by expanding the pool of trained professionals.

PSI and PSH partnered with the MoHCC to develop an online training platform that delivers comprehensive healthcare worker training. The MoHCC will own and manage the platform, which will be housed on their server and will host all e-learning content across health areas in Zimbabwe. The initiative began with a pilot VMMC service provider module designed to test the acceptability and feasibility of an e-learning platform in Zimbabwe. Based on feedback from VMMC service providers, the platform has been refined to better meet their needs. It is projected that within six months, at least 50% of sites will have at least one clinician trained in VMMC service delivery theory, who can assist certified providers during VMMC service provision.

The platform now features a series of VMMC-specific e-learning modules. The VMMC surgical and device service delivery training content, originally developed by South Africa's National Department of Health, was adapted to the Zimbabwean context. PSI's

Digital Health Monitoring team worked closely with MoHCC and other local VMMC providers to refine and validate the surgical and device service delivery content, ensuring it met local needs and standards.

To strengthen demand for VMMC, PSI and PSH developed specialized e-learning modules focused on strengthening community healthcare workers' communication skills. These modules are being piloted across eight districts, providing cost-effective, continuous education and skills development. They prepare community health workers to effectively promote and manage VMMC services.

The platform's content is expanding beyond VMMC to include an updated STI training module developed by MoHCC and other partners. The goal is for the e-learning platform to house all MoHCC's training and continuing medical education materials across all health areas.

Impilo Assure – Digital QA system:

To address issues with fragmented data and standardize QA across HIV services, PSI and PSH developed a digital platform called "Impilo Assure," also known as the Health Network Quality Improvement System (HNQIS). Introduced in 2017, this platform enables local health authorities to systematically assess the quality of services provided at health facilities through a set of detailed questions and checklists.

Demand creation activities were integrated into the health facilities' operational plans and budgets. They regularly reported to the district steering committee, supporting coordination and strengthening the overall effectiveness and sustainability of the VMMC program.

Impilo Assure is an interactive tool designed to optimize the allocation of resources dedicated to health facility supervision visits. It consists of five modules that help QA officers:

- Plan their supervision visits to providers
- Assess providers' performance in service provision
- Improve quality audit reporting and feedback
- Improve providers' knowledge and skills
- Monitor providers' performance over time

The adoption of Impilo Assure is facilitating real-time feedback on healthcare services and improving access to and analysis of QA reports across Zimbabwe's VMMC program. In 2022, the MoHCC expanded the use of this system to include other HIV prevention servicess such as Pre-exposure Prophylaxis, condoms, treatment of sexually transmitted infections, and HIV testing services.

With the support of the Bill & Melinda Gates Foundation in 2023, PSI and PSH assisted 27 district management teams in adopting Impilo Assure for integrated HIV prevention QA. As of March 2024, 23 districts were independently conducting their own QA processes using the Impilo Assure system. Despite health system challenges, such as cholera and polio outbreaks, 12 districts achieved integrated QA results during this period, with QA scores for VMMC consistently above 90% (improved from a baseline of 70-80%). This demonstrates that regular and structured QA processes can lead to significant improvements in program performance.

KLKMB Campaign, Digital Health Program. Zimbabwe, 2016

Impact of the Digital Ecosystem

Increased MoHCC Visibility and Ownership:

Data from Impilo digital tools are being centralized in the MoHCC data center, providing MoHCC with visibility and ownership of these digital health solutions. The MoHCC now hosts quarterly meetings and has activated the digital health technical working group, where PSI and PSH offer regular updates.

Streamlined QA:

The "Impilo Assure" digital QA system is used across multiple HIV prevention interventions, including those funded by USAID, CDC, and the Bill and Melinda Gates Foundation. This system streamlines QA processes and increases program performance.

Common E-Learning Hub:

Plans are underway to integrate additional training modules into the MoHCC e-learning platform, promoting continuous education and skills development. As the platform scales, it is expected to further reduce training costs.

Improved Client Follow-Up:

Digital solutions like "Impilo Engage" have improved client follow-up processes, reducing the burden on healthcare workers, increasing service efficiency, and lowering client follow-up costs. This allows providers to focus their time on clients needing the most attention.

Challenges and Lessons Learned

Time and Resources Required to Customize and Align Digital Tools with MoHCC Standards:

Adapting digital tools to meet MoHCC data center standards is challenging. This process demands substantial time and financial resources, leading to extended pilot phases and delays in full-scale implementation.

The Digital Divide Poses Challenges for Sustainability:

Limited access to airtime creates barriers for clients in engaging with digital platforms. This digital divide undermines the sustainability of the tools, as funding is often required to provide internet access or airtime for clients to participate effectively.

Lower-Level, Peripheral Facilities May Lack the Necessary Infrastructure to Support Digital Tools:

Lower-level healthcare facilities encounter challenges related to internet connectivity and intermittent power outages. This can hinder the integration and functionality of digital tools, impacting their reliability and effectiveness.

Healthcare Providers Require Capacity Building and Training to Effectively Use Digital Tools:

Healthcare workers may need training and capacity building to effectively use digital tools. The adoption of new technologies may be met with resistance or reluctance among some staff, necessitating training programs to ensure successful implementation and usage.

Time and Resources Needed for Data Security and Privacy:

The digitalization of healthcare services introduces concerns regarding data security and privacy. Safeguarding sensitive patient information and ensuring compliance with data protection regulations are critical challenges that require careful consideration and the implementation of robust security measures.

Digital Tools Need Regular Maintenance:

Maintaining digital infrastructure and ensuring the sustainability of digital solutions pose ongoing challenges. Regular updates, technical support, and financial resources are essential to address issues related to system maintenance and to ensure the long-term viability of digital healthcare initiatives.

Pathway for Gaining MoHCC Buy-In and Leadership

The success and sustainability of these digital tools hinge on MoHCC's buy-in, support, and desire to take ownership of these interventions. PSI/PSH secured this support through:

Strategic Alignment with MoHCC Policies:

All digital tools align with MoHCC's eHealth/ Digital Strategy 2021-2025, ensuring that the tools and processes complement existing policies and frameworks, increasing the likelihood of integration and acceptance.

Data Transparency and Integration:

Demonstrating to MoHCC the tools' capability to synchronize with the Impilo EHR system, ensuring efficient data transfer directly into MoHCC's servers. This approach highlighted the practical benefits of integration, emphasizing ease of use and improved data management without disrupting existing healthcare processes.

Interdepartmental Collaboration:

Engaging various departments within MoHCC, such as HIV and Health Informatics, and collaborating with diverse HIV partners to ensure a unified approach and to leverage collective expertise.

Co-Creation:

Adopting a co-creation model that involves MoHCC officials and other stakeholders in the development and refinement of digital tools, fostering a sense of ownership and a tailored fit for the Zimbabwean context.

Experiential Learning and Demonstrations:

- **Site Visits:** Organizing site visits for MoHCC officials to see firsthand the operational benefits of digital tools.

- **Peer Learning:** Facilitating peer-to-peer learning exchanges with other countries to share best practices and lessons learned.

- **Learning Trips:** Bringing MoHCC representatives to PSI's Digital Health and Monitoring Hub in Nairobi to observe the impact of digital health solutions in a similar setting, increasing their understanding of potential benefits for Zimbabwe.

- **Tool Integration Demonstrations:** Showcasing how the new digital tools could integrate seamlessly with the existing 'Impilo' EHR system, thereby increasing its functionality without disrupting existing workflows.

- **Evidence-Based Advocacy:** Presenting data and evidence from evaluations like Impilo Engage to demonstrate the effectiveness and impact of the digital tools on improving healthcare delivery and client management.

KLKMB Campaign, Digital Health Program. Zimbabwe, 2016

Next Steps

For sustainability and scalability of these digital solutions, PSI and PSH are collaborating closely with the MoHCC on several strategic initiatives:

Transition of Ownership and Data Hosting:

PSI and PSH are working with the MoHCC to transfer ownership of the "Impilo" applications (Assure, Fundo, and Engage) and migrate data hosting from external cloud servers to local servers, aligning with Zimbabwe's data protection standards. This shift ensures that all digital innovations are locally owned and managed by the MoHCC, increasing their sustainability and integration into national health strategies.

Government Commitment to Infrastructure Improvement:

The Government of Zimbabwe is committing resources to improve internet connectivity across all public health facilities. This investment aims to strengthen the EHR and digital infrastructure, including servers at the MoHCC data center, necessary devices, secured connectivity, and reliable backup power systems.

Rebranding Initiative for Greater Adoption:

MoHCC's rebranding of digital tools demonstrates a commitment to scaling these technologies. By presenting these tools under a unified and recognizable "Impilo" brand, the MoHCC seeks to foster greater acceptance and use among healthcare providers and stakeholders.

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Additional Resources:

The Impilo Engage Demonstration **Video**.

Digital Health Program. Zimbabwe, 2021