



CASE STUDY:

Botswana's Fight Against Cervical Cancer: Nurses Leading the Way to Support Girls and Women

Barriers to accessing cervical cancer screening – in any form they take – can place women's lives in danger. For many women in Botswana, new cervical cancer prevention methods have made screening and treatment easier and more accurate, representing major upgrades over previous methods that have been used for decades. Further, they can expand the number of women willing to access critical preventive care.

As in many other low- and middle-income countries, the most common method used for screening Botswanan women for precancerous cervical lesions has been visual inspection with acetic acid (VIA). This procedure is relatively painless, but requires every woman to undergo pelvic examination using a speculum, which many women prefer to avoid. Though the Botswana government provides VIA services free of charge, the speculum examination is a barrier that can make screening easy to skip, especially when compounded by long travel and wait times.

Botswana's influential network of nurses is key to the country's success in implementing more effective and acceptable tools to prevent cervical cancer. Jhpiego is working with Botswana to scale up HPV testing of self-sampling, enhancing privacy and autonomy while reducing the burden on both women and health providers. Botswana is also expanding access to thermal ablation as a more portable means to treat precancerous lesions. The following key principles underpin Botswana's success in adding new cervical cancer prevention strategies:

- Funding is but one necessary resource.
- Empower women.
- Involve implementers.
- Elevate critical health voices to leadership roles.

Botswana is increasingly transitioning to more private, more accurate, and less invasive testing for high-risk strains of the human papilloma virus (HPV), the virus that causes the vast majority of cervical cancer, as well

as new methods of treating precancerous cervical lesions. These new cervical cancer technologies are being championed by the country's strong network of nurses, who have leveraged both high-level political commitment and the perspectives of the women they seek to protect to catalyze improvements.

Cervical cancer in Botswana and Southern Africa

Cervical cancer is the most common cancer among women in Botswana, and is the most common cause of cancer death in the small nation of 2.3 million people, regardless of gender.¹ 334 Botswana women were diagnosed with cervical cancer in 2018, and 166 women died of the disease. Botswana's cervical cancer burden is compounded by the country's high HIV prevalence, which was 25.1% in women ages 15-49 in 2019.² These women are a particularly important group to access these services. Women living with HIV are at least five times more likely to develop cervical cancer, while infection with specific strains HPV doubles the risk of contracting HIV.³

New global programs have emerged to change this reality. The Go Further program – a collaboration between the U.S. President's Emergency Plan for AIDS

Relief (PEPFAR), the George W. Bush Institute, the Joint United Nations Programme on HIV/AIDS (UNAIDS), and Merck – has committed US\$ 93 million over a three-year period to increasing cervical cancer screening across 12 sub-Saharan African countries, including Botswana.⁴

Botswana has been fortunate to have national champions spearheading efforts to reverse these negative trends. One such champion is Kereng “Molly” Rammipi, coordinator of Botswana's National Cervical Cancer Prevention Program (NCCPP), and a nurse by training. Under the NCCPP, Botswana pledged to provide cervical cancer screening services free of charge decades ago. Health professionals such as Molly are working hard to continue to reduce cases. “We have the will, the staff and the resources to save lives,” says Ms. Rammipi.

Improved access to cervical cancer screening in Botswana has been complemented by the nation's rapid scale-up of HPV immunization, which was first introduced in 2015. Currently 80% of eligible young women and girls in Botswana have been vaccinated, approaching the recommended 90% country coverage target outlined in the World Health Organization's newly ratified cervical cancer elimination strategy.^{1,5}



Photo credit: Kate Holt/Jhpiego

Despite these promising trends, thousands of women across Botswana are still not accessing cervical cancer screening, and not only due to aversion to speculum examinations. Time and transportation remain significant barriers. Women must choose whether or not to travel long distances to overburdened screening service providers, only to endure long waiting times. Often long hours or even days pass between being screened and receiving results, and in many cases, women never even receive their results.



Photo credit: Kate Holt/Jhpiego

Nurses: The Vanguard of the Botswana Health Response

Botswana women voiced the need for improved screening and access, but who was listening, and who could drive much-needed changes? Botswana's strong and largely female community of nurses represents over two-thirds of the country's health workforce. Molly Rammipi's role as the head of the NCCPP underscores the

influence of the country's nursing network across the nation's health system. Despite having tasks constantly shifted their way, Botswanan nurses have proven capable, highly adaptable and well-placed to receive and internalize feedback from their female clients.

Collaborative efforts with TogetHER for Health's partner, Jhpiego, have sought to amplify and focus these efforts for cervical cancer. "Our program seeks to empower the nurses who form the backbone of the nation's health workforce, to be prepared and capable to work collaboratively with other health work cadres and taking charge for cervical cancer screening and treatment at the frontline. In Botswana, we have nurses who have acted as researchers, providers, program managers and public health experts," says Veronica Reis, Jhpiego's Women's Cancer Senior Technical Advisor.

A New Paradigm for Cervical Cancer Screening – HPV Testing of Self-Sampling

In Botswana, nurses have played an instrumental role in assessing the acceptability of a new approach for screening: self-collection of HPV DNA samples either at the clinic itself, or in community settings utilizing a mobile truck with a private room. Women are provided swabs along with simple instructions on how to sample themselves. Once collected, samples are then brought to a central location with viral testing capabilities for analysis. Women who test positive for HPV are notified and asked to return for visual assessment for treatment to determine if further intervention is necessary.

Botswana nurses were critical in the implementation of an acceptability and feasibility study for HPV DNA testing of self-collection of samples that enrolled over one thousand women.⁶ The study found that over 97% of participants found the procedure easy to perform and almost painless and would recommend it to other women. Further, turnaround time on results was greatly improved, with almost one out of three women receiving same-day results and 93 percent receiving results within one week. In total,

HPV SELF-TESTING DURING COVID-19

As the world grapples with the COVID-19 pandemic, concerns about exposure to the SARS-CoV-2 virus has led to rapid declines in the number of women being screened and treated for cervical cancer. In Botswana, weekly screenings by the Infections Disease Control Centers (IDCC) dropped from an average of 300 per week to below 30 weekly during the period of mandated extreme social distancing.

This unprecedented disruption in screening puts many women at increased risk of having precancerous lesions go unidentified, and in turn, increases the probability that those lesions may develop into cancer, especially in countries with high HIV burden. As with screening, national immunization programs are likely to be challenged by serious decline in HPV vaccination rates due to the pandemic.

Self-sampling for HPV DNA offers a means to continue to screen women that reduces the need for women to present to clinical settings. Botswana's burgeoning success in scaling up HPV testing may inform countries seeking to sustain cervical cancer prevention services while simultaneously combating COVID-19.

Scaling up HPV testing during the pandemic has meant looking beyond Botswana's borders for inspiration. The Jhpiego team has been conducting trainings virtually and supplementing with weekly calls, following the example of other countries. To further sustain the connection between programs and their clients, linkage officers were recruited to engage women during the period of social distancing, and have since taken a larger role in reaching out to women who may have skipped treatment when visiting clinics was discouraged.

Despite the potential for self-collection to circumvent in-person visits to clinics, challenges remain. Viral testing machines which analyze the sample for HPV DNA are currently being prioritized for COVID-19 testing. Nevertheless, if more of these machines are purchased to meet demands of viral COVID-19 testing, their use may eventually be expanded for HPV testing.

The future of the COVID-19 response remains uncertain, and will have far-reaching and permanent impacts on efforts to reduce multiple disease burdens in low- and middle-income countries. Technologies and strategies that can help sustain progress in cervical cancer prevention in a challenged environment will be necessary if global elimination is to be a reality.

Providers remain committed to saving women's lives. "No life should be lost through cervical cancer," said one program implementer. "It is preventable. The message remains relevant despite challenges."

33.7% of women screened were HPV-positive, necessitating a follow-up visual assessment for triage and treatment. Thus, the remaining two-thirds (66.3%) were not required to present for follow-up screening, reducing the burden on health worker capacity.

The success of assessment ensured support for the initial national rollout of HPV self-sampling and subsequent HPV DNA testing, which has prioritized HIV-

positive women between the ages of 25 and 49, the population most at risk for developing cervical cancer.

Translating these study results to a national program is still a major effort. Service delivery models for deploying self-collection devices and returning them need to be tested and scaled.⁷ The technical capacity to process HPV DNA tests hinges on procuring the machines that analyze the samples, machines which are both relatively

expensive and in high demand now that they can be used for COVID-19 testing. (See insert.) But, enthusiasm for HPV testing provides momentum for expanding self-collection of samples, even as community health workers in some parts of Botswana continue to promote VIA-based screening as they wait for access to the newer testing method.

Thermal Ablation: A New Treatment Technology Turns Up the Heat

For many years – and for much of the world, from low-income countries to rich nations – cryotherapy has been the primary method of treating cervical precancer, using nitrogen to freeze off cervical lesions before they can develop into cancer. However, this method's utility in many low-resource settings has been limited by the need to transport heavy tanks of gas, and by the relative difficulty in being able to reliably source the gas itself.

To increase treatment rates for cervical pre-cancers, Botswana is looking into alternatives. Complementing the scale-up of HPV DNA testing of self-sampling is a new generation of WHO-recommended battery-powered, portable devices that treat precancerous lesions, a process that most women have described as causing minimal discomfort. Rollout of this method, known as thermal ablation, is being better facilitated by the recent publication of guidelines from the WHO.⁸

Four districts in Botswana are currently piloting thermal ablation with support from TogetHER's Cervical Cancer Grants Program, with 20 new devices having been procured with supplemental funding from PEPFAR. Already expectations are rising that the technology could be scaled up nationally. "Our experiences to date show that thermal ablation, which can be easily performed in outreach mobile clinics, would enable treatment in settings we couldn't reach before," says Bakgaki Ratshaa, Jhpiego's technical lead for cervical cancer and prevention in Botswana and herself a nurse by training.

Driving Results

Botswana's success in scaling up cervical cancer screening and treatment improvements alongside systemic rollout of HPV vaccine will translate into lives saved. The following aspects of the country's experience can inform cervical cancer prevention efforts in other contexts.

- **Funding is but one necessary resource.** Botswana's public support for cervical cancer prevention – vaccination and free screening – provides a strong basis for results, but the country's experience shows that funding only goes so far if women lack time and transportation and if healthcare providers such as nurses lack capacity.
- **Listen to women.** Innovative women-centered healthcare solutions like HPV DNA testing of self-sampling are far more likely to succeed when they address women's needs and preferences. Self-sampling removes the need for transportation as well as long waiting times, improves the accuracy and reporting of results, and eliminates the invasive nature of screening – all key barriers for many Botswanan women.
- **Involve implementers.** Ensuring that nurses and other health practitioners had a role in the design and deployment of HPV DNA self-sampling approaches has leveraged key perspectives from both women and health providers, while promoting the success of acceptability research and wider implementation.
- **Elevate critical health voices to leadership roles.** Molly Rammipi's high-level role as the head of the NCCPP positions her as one of a number of leaders providing guidance informed by practical experience in the provision of the program's services. Bringing relevant program experience to the policy process ensures a key understanding of providers' capabilities and challenges to implement sustainable solutions.

Global Potential

A critical pillar of the World Health Organization strategy for the elimination of cervical cancer is expanded screening, aiming for 70% of women to receive some form of screening at ages 35 and 45, respectively. For many low-resource settings, building the capacity to achieve such screening levels in a clinic setting is a daunting task, especially since many countries face similar barriers to access as Botswana, without the national support for free services.

HPV testing of self-sampling offers a paradigm shift that enhances privacy and autonomy while reducing the burden on both women and health providers. Thermal ablation can expand the portability of critical treatment. While many communities that could benefit from these technologies are years from gaining access, Botswana's experience can be instructive to supporting advocacy for improvements in cervical cancer prevention and guiding context-appropriate implementation in similar settings.

Acknowledgements

To learn more about Jhpiego's cervical cancer work in Botswana, visit <https://www.jhpiego.org/countries-we-support/botswana>

To learn more about TogetherHER's work to support cervical cancer elimination, visit togetherforhealth.org

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