Feasibility and acceptability of HPV self-collection and testing using Xpert® HPV in Botswana

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Abstract
Cervical cancer is the leading cause of cancer-related deaths among women in Botswana. The burden of HPV-related disease is exacerbated by the high rate of HIV infection, which has an estimated prevalence of 22.8% among adults aged 15–49. We implemented a demonstration programme to evaluate the feasibility and acceptability of HPV self-collection and testing using Xpert® HPV in Botswana.

Background
Cervical cancer is the leading cause of cancer-related deaths among women in Botswana. The burden of HPV-related disease is exacerbated by the high rate of HIV infection, which has an estimated prevalence of 22.8% among adults aged 15–49. The national cervical cancer prevention strategy has set an ambitious target of 80% testing coverage for women 30–49 years of age. Reaching this target will be a challenge using only the current screening technologies: cytology (pap smear) and VIA. HPV testing offers the potential for increasing coverage and improving programme performance. This is in line with the advice of the World Health Organization’s Expert Panel [1], as follows:

‘Use a strategy of screen with an HPV test and treat, over a strategy of screen with VIA [visual inspection with acetic acid] and treat. In resource-constrained settings, where screening with an HPV test is not feasible, the panel suggests a strategy of screen with VIA and treat.’

We implemented a demonstration programme to evaluate the feasibility and acceptability of HPV self-collection and testing using Xpert® HPV in Botswana.

Demonstration programme
Women aged 30–49 were invited to self-collect vaginal samples for HPV testing using Viba-Brush® (Rovers Medical Devices BV, Oss, the Netherlands) at five sites over a 6-month period (Figure 1). These samples were sent for testing using the Cepheid Xpert® HPV assay at one central point, the Scottish Livingstone Hospital at Molepolole, Botswana. Cepheid provided training and leased the Xpert® machine to Jhpiego and the Ministry of Health for this purpose. All women testing positive for HPV were offered either visual assessment for treatment (VAT), followed by cryotherapy or the loop electrosurgical excision procedure (LEEP) as appropriate, or biopsy in the case of suspected cancer.

Demonstration programme outcomes
Initial screening of over 1000 women across the five sites showed a high level of feasibility and excellent linkage from screening to treatment.

Sample self-collection was reported to be highly acceptable to the women who participated, with most reporting no, or minimal, discomfort during the procedure. When offered a choice regarding location of sample self-collection, slightly more women said they would prefer to do this at a clinic rather than at home, with most of the remainder saying they would do this anywhere provided that there was privacy. The ease, speed and accessibility of self-collection led to increased demand for testing, and the approach
Barriers and challenges for scalability
The demonstration project highlighted potential barriers and challenges to expanding and scaling up nationally the use of HPV testing and self-collection. At the individual level, some women were fearful that self-collection might be painful or inadequate, and lack of money for transport could be a barrier, especially for those needing to attend for VAT and treatment. The very success of the programme led to problems by increasing screening uptake, thus creating work overload for VAT and cryotherapy clinicians.

Next steps
HPV testing of self-collected vaginal samples is feasible and it is a good opportunity to increase screening coverage. The Xpert® platform was easy to use, with no reported technical or operational challenges. Using existing Ministry of Health and Wellness platforms and logistics provided good leverage for implementation, and HPV testing of self-collected samples could become a useful screening option for cervical cancer prevention. Some issues will need to be overcome in scaling up provision, and the study results have informed the development of the Botswana national strategy on cervical cancer and control. Jhpiego, jointly with the Ministry of Health and Wellness in Botswana, is in the process of developing manuscripts on this study to share the final results and programme learnings for publication in peer-reviewed journals.

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Cepheid does not endorse the testing of alternate specimen types (specimen types that are not cleared/approved/registered by any regulatory body, per the package insert). If you choose to use the assay with alternate testing types, it is your laboratory’s responsibility to validate the assay for each alternate specimen type in accordance with federal, state, and local laws.

Reference
1. World Health Organization. Guidelines for screening and treatment of precancerous lesions for cervical cancer prevention. 2013. Available at: www.who.int/reproductivehealth/publications/cancers/screening_and_treatment_of_precancerous_lesions/en/ (accessed January 2019).