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*Applying Science to Strengthen  
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## CASE STUDY

### The impact of quality improvement projects on TB treatment outcomes in Piggs Peak Hospital, Swaziland

#### Summary

TB is the most common opportunistic infection for people living with HIV in Swaziland. A problem of unfavorable treatment outcomes identified in Piggs Peak Hospital was addressed through training and implementation of quality improvement projects with support from the USAID ASSIST Project. The TB Unit in Piggs Peak introduced changes to several care process which contributed to ART uptake increasing to 85%, reduction of patients lost to follow-up, and reduction of cases not bacteriologically confirmed to 3%. TB patient treatment success rates increased from 80% in 2011 to 86% in 2013, suggesting that the improvement projects had positive results on patient outcomes.

#### Background

TB is the most common opportunistic infection for people living with HIV in Swaziland. Although HIV testing is offered to all TB patients, the HIV testing and counseling uptake remains below 90%. Moreover, although HIV-infected patients are referred for CD4 count tests, the results are not always recorded in the TB register. Initiation on ART is still inconsistent and not a priority in TB diagnostic units. These factors result in delayed initiation of co-infected TB patients on ART and are probably one of the reasons for the high mortality rates among TB patients, even before patients complete the intensive phase of treatment.

Located in the Hhohho Region, the Piggs Peak Government Hospital had issues with unfavorable treatment outcomes and decided to introduce quality improvement approaches with support from the USAID ASSIST Project.

The Piggs Peak TB Unit aimed to reduce clinically diagnosed cases to less than 5%, increase ART uptake among co-infected patients to 80%, and reduce loss to follow-up rates to less than 5%, ultimately improving treatment outcomes. The facility implemented quality improvement projects (QIPs) in 2012 which were planned to be completed by December 2013.

#### Starting the Improvement Effort

With support from USAID ASSIST, the Piggs Peak staff took steps to introduce a number of changes to improve TB patient treatment. First, hospital and TB Unit staff were trained on quality improvement methodologies and the use of documentation tools to track improvement indicators. In addition, staff were encouraged to display annotated run charts and storyboards in order motivate the staff. After the QI training, there was consistent mentoring and support supervision of the TB focal persons by the Project Improvement Advisor, the TB Programme Regional Coordinator, and the Strategic Information Officer. With the support of the TB Program Regional Coordinator and USAID ASSIST, the facility QI team identified a number of issues within the TB patient management system.

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The TB Unit introduced the following changes to address unfavorable treatment outcomes:

1. Strengthened documentation through a daily review of laboratory results, treatment outcome results in the treatment cards, and the TB register of bacteriologically confirmed cases
2. With the introduction of the nurse-led ART initiation in Swaziland, nurses within the TB clinic were identified and trained on the provision of ART to enable integration and timely initiation of ART to avoid preventable deaths among TB/HIV co-infected patients before completing TB treatment
3. Introduced the GeneXpert Machine and ensured close collaboration with the hospital laboratory to support a quick turnaround of laboratory results
4. Engaged hospital management to assign a medical officer to examine TB patients on completion of treatment
5. Improved patient follow-up and adherence through assigning a vehicle for patient follow-up and support in the community; this facilitated the outreach clinic team to provide medical review and refills for patients unable to travel to the health facility from the communities
6. Established collaborative learning and sharing sessions which included a multi-disciplinary team review and unit-based reviews with QI teams to provide feedback, which helped the Piggs Peak QI team reflect on its performance, identify gaps and ineffective changes in a timely way, and implement corrective actions

## **Results**

Data were collected for patients enrolled on TB treatment between January and December 2012. Data on treatment outcomes were routinely collected into a QI team documentation journal to monitor trends over time. The key variables collected were treatment outcomes (cured, completed, died, lost to follow-up, or defaulted and treatment failure). Data were entered and analyzed in Microsoft Excel, which calculated treatment outcomes.

At the end of the QIPs, the TB Unit staff found that their changes yielded improvements, and they wanted to sustain effective changes as standard practices for improving patient treatment outcomes. The treatment success rates showed improvement over time from 80% in 2011 to 86% in 2013, achieving the WHO recommendation of 85%. The cure rates ranged from 70% to 76%. This showed that most patients were bacteriologically confirmed and cured at the end of treatment. The loss to follow-up rate remained at 0% during the period of evaluation.

## **Lessons Learned**

Through the introduction of QI methods, the TB Unit found that successfully implementing and sustaining better performance led to improved treatment outcomes. They found it is also important to ensure that the majority of the patients enrolled on treatment are bacteriologically confirmed and that smear follow up is done for good treatment outcomes. To improve certain quality performance indicators, facility staff must ensure that cure rates are higher than treatment completion rates. Finally, a motivated and committed staff was vital to initiate improvement efforts and sustain good TB-HIV treatment performance.

The views expressed in this case study are those of the authors and do not necessarily represent the views of the U. S. Government or USAID.