

# QUALITY IMPROVEMENT STORIES

## THE QUALITY FOR LEADERSHIP INITIATIVE

Using Quality Improvement  
to Strengthen the System of  
Care for Patients with  
HIV/AIDS in Niassa Province,  
Mozambique

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The **Quality for Leadership (QfL) Initiative**, funded through the FHI 360 Catalyst Fund award, was designed with the goal of demonstrating the added value of quality improvement (QI) for strengthening health systems and increasing the performance of public health programs. The objectives of the initiative were to:

- Achieve breakthrough improvements through specific QI projects in quality of care, coverage, and health outcomes for selected populations.
- Contribute to strengthening health systems by identifying best practices that could be scaled up to benefit other health services and conditions.
- Strengthen FHI 360's reputation and leadership in QI and health systems strengthening (HSS) by publishing and presenting results at global forums.

FHI 360 implemented the QfL Initiative in Mozambique in three health care facilities in Niassa, supported through existing FHI 360 programs. Initially, the QfL sites were supported through the HIV/AIDS Care and Support Project in Mozambique, a cooperative agreement (No. 656-A-00-06-00160-00) with USAID designed to expand and maintain PMTCT, CT, HBC, and TB/HIV activities in the provinces of Zambezia and Niassa. The initial project had the following objectives:

- Support a comprehensive ABC prevention program.
- Increase access to and quality of CT and PMTCT services.
- Increase utilization of comprehensive HIV/AIDS care and treatment services for HIV-infected children and adults across the continuum of care, including provision of clinical care, palliative care, and ART.
- Increase access to community- and home-based care and orphans and vulnerable children (OVC) programs as part of an integrated network of health services.
- Strengthen the integration of tuberculosis and HIV services.
- Strengthen the institutional capacity of key stakeholders, including non-governmental organizations (NGOs) and community-based organizations (CBOs).

Beginning in August 2010, support of the QfL pilot sites transitioned to the Clinical HIV/AIDS Services Strengthening Project (CHASS). CHASS/Niassa is a five-year project, funded by USAID, in which FHI 360 provides technical support to improve clinical HIV services in eight districts in the Niassa Province. FHI 360 implemented the project in partnership with Abt Associates, Food for the Hungry (FH), and Comissao Diocesana de Saude (CDS).

CHASS/Niassa's goal is to strengthen the Niassa provincial health system by maximizing access, quality, and sustainability in the delivery of comprehensive HIV/AIDS and related primary health services. The project's objectives are to:

- Improve the accessibility of high-quality HIV services by strengthening clinical service delivery in six key areas and improving their utilization through increased retention and demand by clients.
- Create an integrated system of HIV/AIDS and primary health care with strong linkages to community services.
- Strengthen GRM/MOH capacity at the provincial and district levels to effectively manage high-quality, integrated HIV services by building management and financial

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capacity, reducing human resource constraints, and increasing the capacity to use data for program improvements.

*While the facilities in which this program was carried out are supported by USAID funds through the CHASS Niassa project, the documentation in this paper does not represent the views of USAID, nor was the documentation of this work funded by USAID.*

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## Acronym List

<b>ABC</b>	Abstinence, be faithful, use a condom
<b>ANC</b>	Antenatal care
<b>ART</b>	Antiretroviral treatment
<b>ARV</b>	Antiretroviral
<b>CBO</b>	Community-based organization
<b>CHASS</b>	Clinical HIV/AIDS Services Strengthening Project
<b>CRC</b>	Child at-risk care
<b>CT</b>	HIV counseling and testing
<b>CTC</b>	Care and treatment clinic
<b>GRM</b>	Government of Mozambique
<b>HBC</b>	Home-based care
<b>HCW</b>	Health care worker
<b>MCH</b>	Maternal and child health
<b>MOH</b>	Ministry of Health
<b>NGO</b>	Non-governmental organizations
<b>OI</b>	Opportunistic infection
<b>OVC</b>	Orphans and vulnerable children
<b>PDSA</b>	Plan, Do, Study, Act
<b>PMTCT</b>	Prevention of mother-to-child transmission
<b>QfL</b>	Quality for Leadership Initiative
<b>QI</b>	Quality improvement
<b>SMART</b>	Specific, measureable, action-oriented, reliable, time-bound
<b>SOP</b>	Standard operating procedures
<b>TB</b>	Tuberculosis
<b>USAID</b>	United States Agency for International Development
<b>USG</b>	United States government

## Executive Summary

In October 2009, the Quality for Leadership (QfL) project was launched in three health centers in Niassa Province, Mozambique, with support from FHI 360's Catalyst Fund. The QI project focused on improving select HIV and tuberculosis services. QfL funding was used to train FHI 360 staff, health care workers, and government health officials on FHI 360's QI Model and support its application in Cuamba Rural Hospital, Mecanhelas Health Center, and Mandimba Health Center. Facility staff members identified an improvement opportunity, and using QI methods, developed indicators to track progress, proposed changes to the care processes, and drafted workplans for their implementation. FHI 360 staff provided technical assistance throughout all steps of the QI process.

A review of the monitoring indicators demonstrated significant variation in service quality improvement across the pilot sites. Due to conflicting documentation on improvement objectives and unreliable data, conclusions regarding the results of the QI activities initiated in Mecanhelas Health Center cannot be made.

Cuamba's QI team regularly measured three indicators. However, because health care workers had difficulties measuring two of the indicators, only one has consistent, reliable data. This third indicator, "proportion of children enrolled into child at-risk care (CRC) out of those born to HIV-positive mothers," increased to 100% in September 2009, the first month of introducing changes. This proportion was more or less maintained throughout the life of the project, never falling under 80%.

The QI team in Mandimba monitored ART adherence among patients hospitalized for opportunistic infections (OIs) on a monthly basis using the indicator "no. of patients adherent to ART while hospitalized for OI treatment/ no. of patients on ART that are hospitalized due to OIs." After implementing changes in September 2009, improvement in ART adherence among patients hospitalized for OI treatment was observed. In July 2010, the facility first reached its improvement objective of reducing ART nonadherence to 20% or less among HIV patients being treated for OIs.

A qualitative evaluation was also conducted to identify the factors affecting the success of QI activities in this low-resource setting. Ministry of Health (MOH) officials, FHI 360 staff, and health care workers (HCWs) were interviewed about the perceived benefits, challenges, lessons learned, and recommendations for scale-up of QI activities. HCWs perceived that QI efforts resulted in both improved service provision and increased patient satisfaction. Nearly every person interviewed identified the human resource shortage and staff rotation as significant challenges to implementing QI activities. Leadership and buy-in from hospital management and ongoing support to HCWs through consistent supervision and coaching in QI were also identified as key to the success and institutionalization of QI activities.

Recommendations for the sustainable integration of QI into health services include: 1) introducing a system for routine sharing of knowledge and experience among QI teams in the same district; 2) building the QI capacity of all staff in a facility through peer learning and mentoring; and 3) developing a comprehensive national QI policy. A phased strategy is currently being developed to make QI an integral component of strengthening the Mozambique health system.

## Introduction

Niassa Province, located in northern Mozambique, is the most sparsely populated province in Mozambique. HIV and tuberculosis (TB) make significant contributions to the burden of disease in this area. The HIV prevalence among men in Niassa Province is 4.3%; among women, it is 3.3%.<sup>1</sup> Nationally, Mozambique has an estimated TB incidence rate of 431/100,000 population. The case detection rate (49% in 2007) for registered new smear-positive TB cases is below the global target of 70%.<sup>2</sup> In 2008, the TB treatment success rate for new smear-positive cases was 84%.<sup>3</sup>

The Quality for Leadership (QfL) Initiative, started in 2009 through the support of FHI 360's Catalyst Fund, was designed to improve the performance of FHI 360 programs and the country's health system through the use of modern Quality Improvement approaches. In Mozambique, the QfL supported FHI 360's HIV/AIDS Services Strengthening (CHASS) Project. CHASS/Niassa is a five-year project, funded by USAID, in which FHI 360 provides technical support to improve clinical HIV services in eight districts in Mozambique's Niassa Province.

QfL funding was used to train FHI 360 staff, health care workers, and government health officials on FHI 360's QI Model and support its application in three facilities in the Niassa province: Cuamba Rural Hospital, Mecanhelas Health Center, and Mandimba Health Center. Facility staff members identified an improvement opportunity, and using QI methods, developed indicators to track progress, proposed changes to the care processes, and drafted workplans for their implementation. FHI staff provided technical assistance throughout all steps of the QI process.

This report describes the work of the team involved in these efforts between August 2009 and November 2010 and the results of a qualitative assessment conducted in December 2010, during which many stakeholders were interviewed. Due to conflicting documentation on improvement objectives and unreliable data, this document does not report on the QI activities initiated in Mecanhelas Health Center.

In Cuamba Rural Hospital, staff identified problems with the uptake of PMTCT services, specifically low rates of: pregnant women receiving HIV counseling and testing (CT) during the first prenatal care visit, HIV-positive pregnant women who attended prenatal care after testing positive, and children born from HIV-positive mothers who enrolled into the child at-risk care (CRC) system. As a result, it was decided that the improvement objective in Cuamba would be strengthening the HIV counseling and testing (CT) and the care system for pregnant women and their children.

In Mandimba Health Center, a considerable number of patients hospitalized to treat opportunistic infections (OIs) discontinued antiretroviral (ARV) treatment during their hospitalization. Therefore, staff designed their quality improvement efforts to increase ARV adherence and continuity in patients hospitalized with OIs.

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<sup>1</sup> 2009 National Survey on Prevalence, Behavioral Risks and Information about HIV and AIDS in Mozambique (INSIDA)

<sup>2</sup> World Health Organization. "Tuberculosis in Mozambique." <http://www.who.int/countries/moz/areas/tuberculosis/en/index.html>

<sup>3</sup> World Health Organization. "Mozambique: Tuberculosis Profile." [https://extranet.who.int/sree/Reports?op=Replet&name=%2FWHO\\_HQ\\_Reports%2FG2%2FPROD%2FEXT%2FTBCountryProfile&ISO2=MZ&outtype=html](https://extranet.who.int/sree/Reports?op=Replet&name=%2FWHO_HQ_Reports%2FG2%2FPROD%2FEXT%2FTBCountryProfile&ISO2=MZ&outtype=html)

## FHI 360's Model for Quality Improvement

FHI 360 used the quality improvement model<sup>4</sup> represented in Figure 1. This model guides a team of service providers as they test system changes through the use of the PDSA tool.<sup>5</sup> The four main steps are:

1. *Identify the explicit improvement aim and objectives.* These should express a benefit for the beneficiaries/population in measurable terms.
2. *Develop the improvement measurement system.* In this system, the improvement team collects a few indicators on a frequent basis, using a small sample of sites or beneficiaries, and then plots the results on run charts.
3. *Generate ideas for changes.* Accomplish this step through brainstorming, benchmarking, and referring to a list of known change concepts.
4. *Test and implement the system changes (with the PDSA cycle).* Changes are introduced on a small scale (a few units), either one by one or as a package of changes, and their effect on the improvement aim/objectives is assessed through the measurement system established in step 2. If a specific change yields improvement, it is sustained and replicated into the rest of the system. If the change does not yield the expected improvement, it is then abandoned and another change is tested.

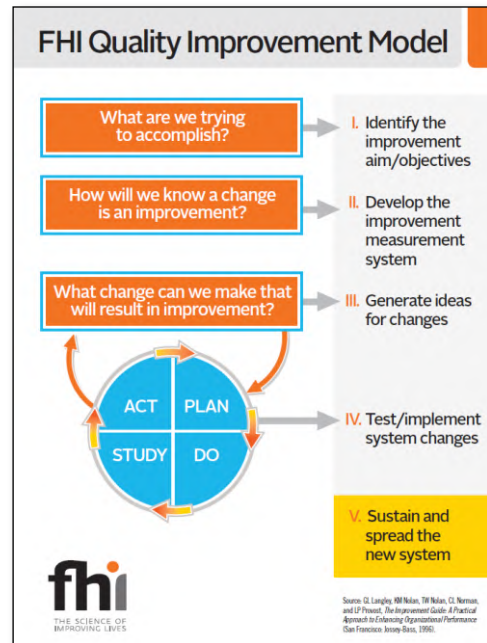


Figure 1: FHI 360's QI model

## Development of Aims and Objectives

An FHI 360 QI expert trained FHI 360 staff, health facility staff, and Ministry of Health (MOH) managers in the QI model. During the training, QI teams in each facility were established, composed of nurses, doctors, and lab technicians. The training emphasized application of the QI model in real scenarios, in order to learn how to apply specific QI tools.

Participants employed QI systems analysis tools—including affinity analysis, root cause analysis, and prioritization matrices—to fine-tune the problem statement(s) and improvement aims and objectives (see Table 1). Efforts were made to ensure that objectives were as SMART<sup>6</sup> as possible.

<sup>4</sup> Langley GL, RD Moen, KM Nolan, TW Nolan, CL Norman, and LP Provost. 2009. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*, Second Edition. San Francisco: Jossey-Bass.

<sup>5</sup> Plan, Do, Study, Act: A tool for introducing a change and testing its effect on an improvement objective

<sup>6</sup> Specific, measurable, action-oriented, reliable, and time-bound



**Table 1: Problems, improvement topics, and objectives for QfL pilot facilities, as selected and stated by service providers**

	Cuamba Rural Hospital		Mandimba Health Center
Problem(s) identified	Loss of opportunities for counseling and testing (CT) during prenatal care.	During prenatal care, low follow-up of pregnant women who tested positive for HIV and low follow-up rates of children from HIV-positive mothers.	Patients hospitalized to treat opportunistic infections (OIs) discontinued their HIV treatment (TARV), and there is no system in place to monitor adherence to TARV during hospitalization.
Root causes	<ul style="list-style-type: none"> <li>MCH services are fragmented: staff and consultation rooms were separated for ANC, CT, PMTCT, and CRC.</li> </ul>	<ul style="list-style-type: none"> <li>Limited hours for consultations, which are conducted only in the morning.</li> <li>Consultation rooms are inadequate, without the appropriate equipment and consumables.</li> <li>No strategy to communicate norms and references.</li> <li>No monitoring of conformity with norms.</li> </ul>	<ul style="list-style-type: none"> <li>Specialization of activities.</li> <li>Low participation of patient's relatives.</li> <li>Patients do not disclose their HIV status to their family.</li> <li>Home care strictly limited to patient's home.</li> <li>Taboos/communication misses.</li> <li>Patients did not bring the ARV drugs with them, thinking that they would get them from the hospital.</li> </ul>
Improvement aim	Strengthen the HIV system of care for pregnant women and their children.		Increase ARV adherence in HIV patients hospitalized with OIs.
Improvement objectives	<ul style="list-style-type: none"> <li>Increase the percentage of pregnant women counseled and tested during the first prenatal care visit to 90% by February 2010.</li> <li>Increase the follow-up of HIV-positive pregnant women and their children (enrollment in CRC services) to 70%.</li> </ul>		<ul style="list-style-type: none"> <li>Reduce nonadherence to ARV treatment among HIV patients being treated for OIs to 20%.</li> </ul>

## Establishing a Quality Improvement Monitoring System

After developing improvement objectives, each QI team developed a quality improvement monitoring system to measure the progress of QI efforts. The monitoring system defined indicators for each improvement objective, the source of the data (e.g., PMTCT register), the method of data collection, and how often the indicator is collected (or calculated). The detailed QI monitoring plans for each facility are provided in Tables 2 and 3.

Indicators were plotted on histograms or run charts on a monthly basis to track the progress of the improvement objectives. In Mandimba, computerized systems were used for storing and analyzing data. In Cuamba, data on the QI indicators initially were stored electronically. However, the computer at the facility was stolen, which resulted in a disruption of data collection for several weeks. Currently, data are managed in paper-based registers.

**Table 2: Cuamba quality improvement monitoring system**

Objectives	1. Increase the number of pregnant women counseled and tested during the first ANC visit to 90% by February 2010	2. Increase the follow-up of HIV-positive pregnant women and their children to 70% by February 2010
Indicators	<ul style="list-style-type: none"> <li>No. of women counseled in the first ANC visit / total number of women attending ANC visits</li> <li>No. of women tested in the first ANC visit / total no. of women attending ANC visits</li> </ul>	<ul style="list-style-type: none"> <li>No. of HIV-positive pregnant women who went to at least three ANC visits / total no. of HIV-positive pregnant women who attended any ANC visit</li> <li>No. of children who failed to complete at least three consecutive visits in a row / total no. of children born to HIV-positive mothers who were referred as an at-risk child</li> <li>No. of children born to HIV-positive mothers referred as an at-risk child / total no. of children born to HIV-positive mothers</li> </ul>
Data sources	<ul style="list-style-type: none"> <li>PMTCT records for pregnant women</li> <li>ANC records</li> </ul>	<ul style="list-style-type: none"> <li>PMTCT records of HIV-positive mothers</li> <li>Records of children referred as at-risk</li> <li>Birth records (from maternity wards)</li> </ul>

**Table 2: Cuamba quality improvement monitoring system (continued)**

<b>Methods</b>	Data collection was performed by the local nurse and aggregated by the core district quality team. After three months, an external team (two members from FHI 360 and three district health officials) met with the district team to analyze the data.	Data collection was performed by the local nurse and aggregated from each facility by the core district quality team. After three months, an external team (two members from FHI 360 and three district health officials) met with the district team to analyze the data.
<b>Frequency</b>	Monthly, with quarterly visits from the external team	Monthly, with quarterly visits from the external team

**Table 3: Mandimba quality improvement monitoring system**

<b>Objective</b>	1. Reduce, in a period of six months, nonadherence to ARV treatment among HIV patients being treated for OIs to 20%.
<b>Indicator</b>	No. of patients on ARV treatment who are adherent / total no. of patients on ARV treatment
<b>Data sources</b>	<ul style="list-style-type: none"> <li>• ART records</li> <li>• ARV treatment enrollment records</li> <li>• Pharmacy records (list of patients on ARV treatment)</li> <li>• Pre-counseling/individual interview regarding ART adherence</li> </ul>
<b>Methods</b>	<ul style="list-style-type: none"> <li>• Record review</li> <li>• Individual patient interview; interview with person accompanying patient</li> </ul>
<b>Frequency</b>	Monthly

## Implementing Changes

As part of the QI training, a brainstorming session was held, during which staff from each facility proposed a set of changes to address the respective improvement objectives. The changes were bundled together at each pilot site and were generally introduced at the same time. Table 4 details the changes that each facility planned to introduce.

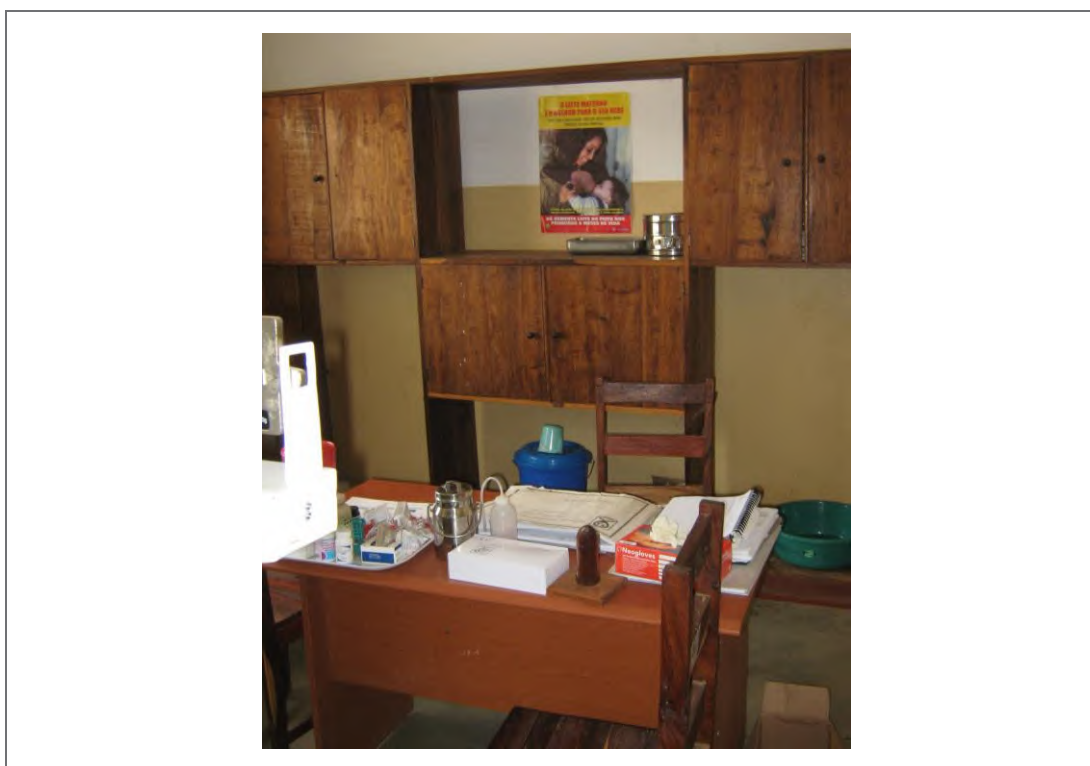
**Table 4: Changes implemented by facility**

<b>Cuamba</b>	
<b>Improvement objectives:</b>	<ol style="list-style-type: none"> <li>1. Increase the proportion of pregnant women counseled and tested during the first prenatal care visit to 90% by February 2010.</li> <li>2. Increase the follow-up of HIV-positive pregnant women and their children (enrollment in CRC services) to 70%</li> </ol>
<b>Changes:</b>	<ul style="list-style-type: none"> <li>• All consultation rooms will provide integrated care in maternal and child health (MCH).</li> <li>• All consultation rooms will have available the SOP for integrated services to mother and child.</li> <li>• Two new consultation rooms will be available to provide MCH services to women below the age of 25.</li> <li>• All nurses will dedicate their time to assist MCH and will rotate to maternity-only duties no more than once a week for just one period (morning or afternoon).</li> <li>• Registry books will be available within all consultation rooms</li> <li>• Community health agents will be involved to improve the outreach to pregnant women who have tested HIV-positive.</li> </ul>
<b>Mandimba</b>	
<b>Improvement objective:</b>	<ol style="list-style-type: none"> <li>1. Increase adherence to ART among HIV patients being treated for OIs to 20%.</li> </ol>
<b>Changes:</b>	<ul style="list-style-type: none"> <li>• Redesign the client flow at the health center.</li> <li>• If the patient is on ART, obtain information from the pharmacy, hospital registry, or family member, and include this information in the CARDEX (prescription form).</li> <li>• Encourage the participation of a family member or friend in at least one counseling session for ART.</li> <li>• Develop a specific protocol to assist OI patients on ART.</li> </ul>

The proposed changes were introduced with various levels of success across the pilot sites.

In Mandimba, staff successfully implemented all changes that were proposed and reached their target within several months. Before the QI project, a considerable proportion of patients hospitalized to treat opportunistic infections (OIs) discontinued ART, and there was no system in place to monitor adherence to ART during hospitalization. The QI team updated the list of patients on ART, which is made available to the pharmacy and health units; developed a protocol for screening patients and identifying those on ART; and established a new flowchart for treatment of OI patients, which specified tasks for staff caring for HIV patients hospitalized for treatment of OIs.

In Cuamba, five of the six proposed changes were introduced. Before the QI project, MCH services were fragmented. Staff and consultation rooms were separated for ANC, CT, PMTCT, and CRC, decreasing the opportunities to integrate CT during prenatal care and resulting in low follow-up of pregnant women who tested positive for HIV and low follow-up rates of children from HIV-positive mothers. The QI team developed a new client flowchart for assisting pregnant women and at-risk children; changed nurses' job functions for the provision of integrated services in maternal and child health, and opened two new consultation rooms that are fully equipped for assistance in prenatal care (see Photo 1).



**Photo 1: Renovated MCH consultation room in Cuamba**

## Studying the Changes

After implementing the changes, the QI indicators were monitored monthly. HCWs were instructed to plot the indicators on run charts to determine the effect of the introduced changes. Results of QI efforts varied across facilities.

### Cuamba

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#### *Improvement Topic:*

Strengthen the HIV counseling and testing (CT) and care system for pregnant women and their children

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Cuamba's QI team regularly measured the following indicators:

- No. of pregnant women receiving HIV counseling during the first prenatal care visit / total no. of pregnant women attending their first prenatal care visit
- No. of pregnant women tested for HIV during the first prenatal care visit / total no. of pregnant women attending their first prenatal care visit
- No. of children born to HIV-positive mothers enrolled in CRC / no. of children born to HIV-positive mothers

The data related to the HIV counseling and testing of pregnant women, though regularly measured, were not reliable. Staff encountered problems with correctly determining the proportion of women who received these services. As a result, no data for the first and second indicators are included in this report, and no determination can be made about whether or not the facility reached its objective of increasing the proportion of pregnant women counseled and tested during the first prenatal care visit to 90%.

The third indicator—proportion of children enrolled into child at-risk care (CRC) out of those born to HIV-positive mothers—increased to 100% in September 2009, the first month of introducing changes (see Figure 2). This proportion was more or less maintained throughout the life of the project, never falling under 80%.

### Mandimba

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#### *Improvement Topic:*

Increase ART adherence in HIV patients hospitalized with OIs

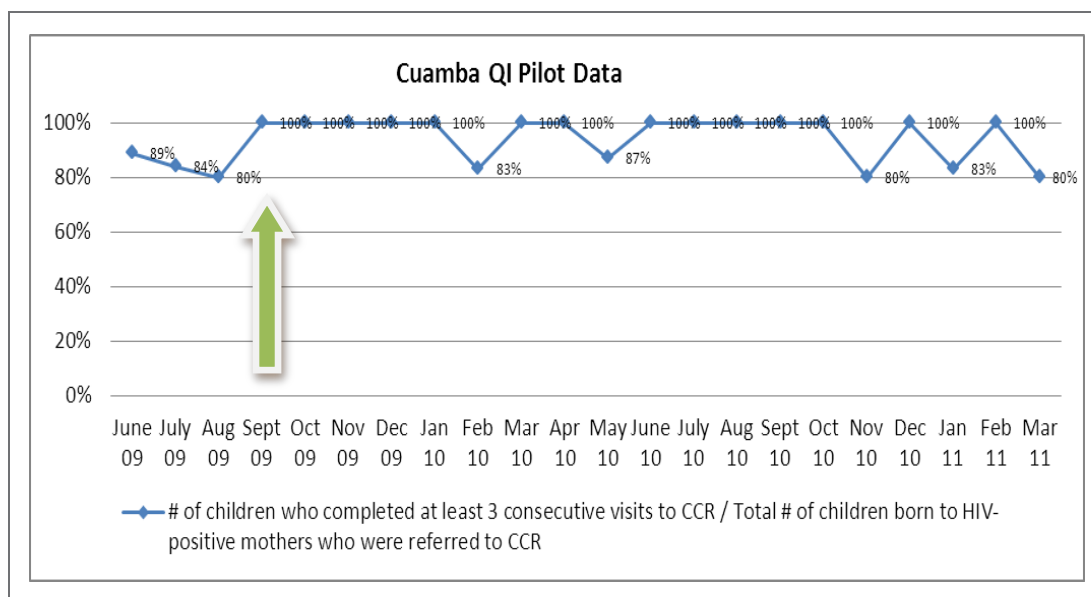
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The QI team in Mandimba monitored ART adherence among patients hospitalized for opportunistic infections (OIs) on a monthly basis using the following indicator:

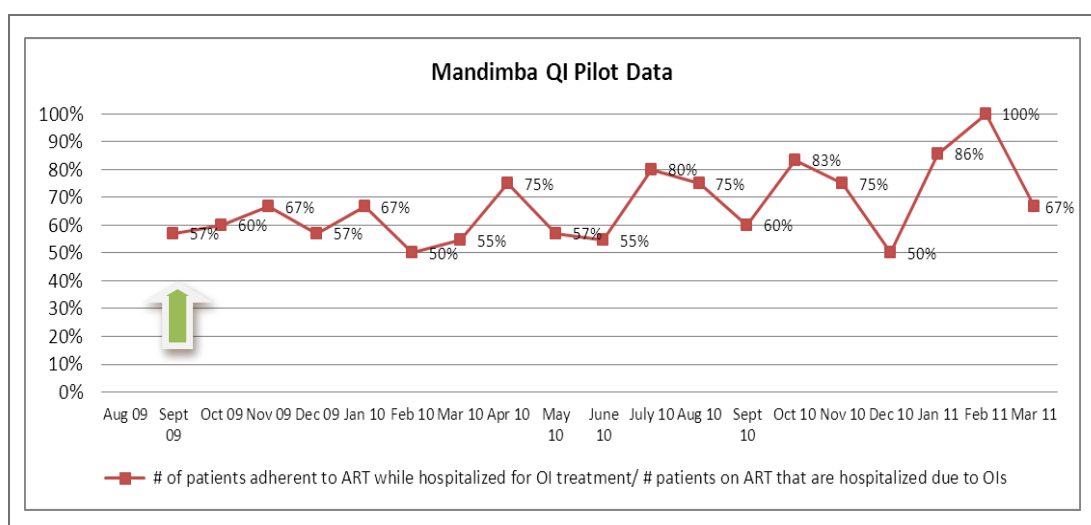
- No. of patients adherent to ART while hospitalized for OI treatment / no. patients on ART that are hospitalized due to OIs

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After implementing changes in September 2009, improvement in ART adherence among patients hospitalized for OI treatment was observed (see Figure 3). In July 2010, the facility first reached its improvement objective of reducing ART nonadherence to 20% or less among HIV patients being treated for OIs. Although this result was not maintained, the trend of improving ART adherence was clearly observed. The small monthly denominator explains the large variations, however; the absolute number of HIV patients hospitalized for OI treatment remained relatively consistent, averaging seven per month. The proportion of the patients who were monitored for ART adherence reached 100% upon initiation of the pilot in September 2009, and it remained at this level throughout the life of the project.



**Figure 2: Run chart showing % of children completing CRC in Cuamba**



**Figure 3: Run chart measuring ART adherence among patients hospitalized for OIs in Mandimba Health Center**

Staff were pleased by the results and recognized the benefit of applying a QI methodology to other problems. The QI team in Mandimba disseminated the QI Model with an expanded group of HCWs across the facility and developed an additional QI project to improve sanitization within the health unit. As part of this project, a new ditch was built to dispose biological waste.

## Perceived Benefits of QfL Pilot

To our knowledge, this is the first time that health care workers in Mozambique used a modern approach to quality improvement that put them in the driver's seat, with a focus on the service delivery processes that are under their control. Initial results are encouraging, and as health care staff become increasingly familiar with the approach, they are likely to benefit from the lessons learned about what worked and what did not.

Health care providers who attended the QI training expressed their satisfaction with the content and quality of the instruction. In fact, one HCW from Mandimba commented, "It was the best training I ever had." When asked specifically about supportive supervision and mentoring, HCWs were generally satisfied with the technical support in QI provided by FHI 360.

Nearly every person involved with the QfL pilot identified the improvement of services and better patient satisfaction as key benefits of QI. For instance, HCWs from Cuamba mentioned that in addition to increasing the proportion of pregnant women tested for HIV, implementing the QI approach also led to an overall improvement in the provision of PMTCT services at the facility. Specifically, they noted that: 1) the facility now collects standardized data about CT for pregnant women; 2) there has been a reduction in waiting time; and 3) the community has been sensitized to the fact that HIV-positive mothers can have HIV-negative children.

Additionally, most HCWs described an increase in job satisfaction as a result of employing QI tools. They felt that the QI approach supported the provision of improved services to patients and were proud of the positive results. HCWs in Mandimba explained that implementing a QI approach has supported a sense of teamwork among staff in the facility and has made them more confident in their ability to solve problems themselves. They feel that the use of QI has demonstrated that often they can develop solutions to problems at the facilities themselves and do not always have to depend on external assistance.

## Identification of Common Gaps and Challenges

As mentioned earlier, inconsistent and inaccurate data collection was a major challenge at each of the pilot sites due to staff turnover and limited capacity in data collection and monitoring. A computer where the Cuamba QI pilot's indicators were recorded was stolen; as a result, several months' worth of data were lost. Data are now stored in hard copies at the facility, rather than electronically. Additionally, staff made errors in recording data in the registers. For example, at the time the pilot project began, there were multiple books to log different PMTCT-related indicators. Development of a new, comprehensive PMTCT register



## Quality Improvement Series

by the MOH has since been disseminated, which should organize PMTCT-related data in one location and reduce errors in recording data.

In terms of challenges, nearly every person interviewed identified human resources as a significant challenge to implementing QI activities, a significant yet common challenge to the provision of health care services in resource-constrained settings. HCWs believe the number of staff at their facilities is inadequate overall, and this problem is compounded when staff members are sick, away at training, or are on leave. The ability to cover for absent staff is quite weak. Additionally, rotation of staff trained in QI to other facilities had a negative effect on implementing and institutionalizing QI activities, particularly in terms of data collection and monitoring.

A small number of health care staff did not have a clear understanding of quality improvement theory and of how to apply it in the management and delivery of health services. This suggests that a key aspect of QI—identification of problems—was not understood, which helps explain why each facility was not prepared to initiate additional QI efforts.

Beyond staff shortages in general, HCWs expressed that there were not enough staff members per facility who had been trained in QI, which they identified as a key gap to QI implementation. They expressed a need for additional capacity-building activities to expand the pool of staff at each facility who are capable of implementing QI efforts. FHI 360/Mozambique staff also expressed a need for additional QI training. They feel that they do not possess sufficient expertise to lead a QI training session themselves and are requesting support from external QI experts.

The challenges encountered by the HCWs and the FHI staff who are supporting them indicate that the CHASS program would benefit from a more explicit description of QI roles and responsibilities. In terms of project management, no one staff person was charged with managing and coordinating FHI 360's overall QIL pilot in these sites. Currently, responsibilities are shared among several staff members who are based in the national, provincial, and district offices; roles and accountability for the project have not been made explicit.

The majority of HCWs indicated an interest in sharing their experience with staff from other health facilities implementing QI activities. HCWs in the pilot sites are aware that QI activities are underway in other facilities, as they were trained together, but they do not have information about the effectiveness, challenges, and status of other QI efforts. Because sharing results and new knowledge about the health system is part of a successful QI project, this is a legitimate request.

Finally, FHI 360 staff identified the accessibility of health centers as a challenge, in terms of the distance and poor condition of the roads. As QI is introduced into additional facilities, accessibility will make organizing coaching visits more challenging.

## Variations in Performance Between Sites and Factors Affecting Them

Some staff at Cuamba identified material needs when asked about challenges to QI. Responses included uniforms, shoes, masks, syringes, a computer, more staff, etc. Staff also faced the challenge of stock-outs of HIV tests, which negatively affected the ability to

identify HIV-positive mothers. Transportation has also been a challenge, as following up with clients in the community is a key component of the PMTCT intervention.

When asked about the benefits of using QI methodology, many HCWs in Cuamba pointed to physical support, such as refurbishments and provision of equipment and supplies. They were unclear as to what support (infrastructure, materials, etc.) were due to the QI pilot specifically or provided under general CHASS support.

Finally, the management in Cuamba is unclear as to how to end or transition QI activities after an improvement objective has been met. Despite positive results in QI efforts to improve CT for pregnant women and care for exposed children, there seemed to be some hesitation in considering the application of QI methodology to another problem.

Implementation and institutionalization of the QI methodology in Mandimba was quite successful. Other than the human resource shortage and some challenges with calculating proportions, staff did not identify additional gaps or challenges to the implementation of QI activities.

## Lessons Learned

Lessons learned were gleaned from interviews with HCWs, MOH officials, and FHI 360 staff. The factors below explain the variations observed across QI teams in terms of successful results, understanding of QI, and willingness to integrate it into daily work.

- Introducing a QI approach in resource-limited settings is possible with limited funding. Most HCWs are motivated and expressed a desire to improve the quality of the services for their clients.
- Ownership and leadership are key to supporting the sustainability of QI efforts in the future. It is very important to involve the district and hospital management team—and to make sure that they understand the value of QI. For example, Mandimba has made considerable progress in integrating the QI methodology into its routine management system due to strong leadership and support from hospital management. Weekly meetings are held where staff members from each department discuss the problems they are experiencing.
- Even though people receive formal QI training, they need follow-up and regular supervision and coaching. Both FHI 360 staff and health care workers appreciate ongoing support and reinforcement of QI concepts by QI experts.
- An orientation/briefing on QI for staff who are unable to attend the formal training may contribute to ownership and integration of QI within the facility. Following the formal QI training, for instance, participants from Mandimba facilitated an orientation and training on QI for the remaining staff at the facility. Using this approach, all staff were aware of basic QI theory and the launch of QI efforts.
- QI methodologies should be integrated within existing health care services, rather than as a stand-alone endeavor. Integration may contribute to building awareness, capacity, and institutionalization of QI throughout the facility.

## Recommendations and Additional Considerations

A review of FHI 360's experience implementing the QI pilot in Mozambique offers suggestions and additional considerations for improving the contributions of QI to the CHASS program and other FHI 360 programs in Mozambique.

- Introduce a system for regular contacts among QI teams in the same district so that they can share their experiences. These meetings should be organized according to the learning sessions of the QI Collaborative model.<sup>7</sup> Mandimba staff are eager to support the scale-up of QI into neighboring facilities; FHI 360 should capitalize on this enthusiasm for peer learning.
- Provide QI capacity-building opportunities across the board, due the common issue of staff rotation. QI expertise, aside from local FHI 360/Moz staff, would be required to facilitate the training. Perhaps training could be held in several phases as part of a broader capacity-building strategy so that greater numbers of staff can be trained—which will help mitigate the effect of staff rotation and support integration of QI into health facilities. QI training should be offered to HCWs as well as FHI 360 staff. The large number of staff could be a challenge, so a capacity-building model with peer learning and mentoring might be more efficient than training all staff members. This approach will require effective coaching from supervisors.
- Ensure that new HCWs are briefed on QI methodology and any current QI activities that are being implemented in their facility.
- Ensure that consistent technical support/coaching specific to QI is provided. This support would include:
  - Identifying data collection/monitoring issues
  - Identifying additional problems to which QI could be applied
  - Supporting the management of health facilities in building their capacity and confidence to apply QI throughout the facility
- Consider an FHI 360 staff position dedicated to QI. Some HCWs, as well as FHI 360 staff, recommended that a person be devoted to providing QI support. This person would:
  - Coordinate and manage all QI activities in FHI 360-supported facilities
  - Facilitate QI training
  - Provide QI technical support to maintain and scale up QI activities
  - Provide an abbreviated training/orientation on QI to other HCWs who were not able to receive the full training
  - Identify QI best practices and innovations in the supported sites
  - Coordinate learning sessions between facilities
  - Document QI processes and results

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<sup>7</sup> The Collaborative Model for Improvement is appropriate for the management of a large-scale QI effort and the scaling up of best practices identified during a small-scale pilot QI effort.

- Add specific topics and learning objectives to future QI trainings, such as:
  - Provide more information or be more explicit as to how a QI intervention can evolve after the desired improvement has been achieved (e.g., moving from monthly monitoring to quarterly monitoring, etc.).
  - Provide guidance on how to institutionalize QI in the facility (perhaps using Mandimba as an example).
  - Stress the importance of providing some level of education on QI to all HCWs and informing them of any ongoing QI activities in the facility. Even if formal training is not feasible, trained staff can brief their colleagues.
  - Advocate for preservice training in QI at the national level to promote sustainability.
- Make efforts to maintain and build upon the momentum for QI. The expansion of CHASS offers FHI 360/Moz an exciting opportunity to become a QI leader. The QI approach could be incorporated systematically throughout FHI 360's programs.
- Support the development of a national QI policy in Mozambique.