

QUALITY IMPROVEMENT STORIES

THE QUALITY
FOR LEADERSHIP
INITIATIVE

Using Quality
Improvement to Strengthen
the Continuum of Care
for HIV/AIDS patients in
Dodoma, Tanzania

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Quality Improvement Stories

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:

1. To achieve breakthrough improvements through specific QI projects in quality of care, coverage, and health outcomes for selected populations.
2. To contribute to strengthening health systems by identifying best practices to be scaled up that benefit other health services and conditions.
3. To enhance FHI 360's contribution to QI and HSS by publishing and presenting results at global fora.

The QfL Initiative in Tanzania was implemented in two health care facilities in the Dodoma Municipal already supported through the TUNAJALI Project, a cooperative agreement between Deloitte & Touche and USAID (AID-623-A-00-05-00317). FHI 360 was subcontracted by Deloitte & Touche to lead all technical components of the project. The objectives of TUNAJALI are:

1. To improve the capacity of all Districts—and three Regional Health Management Teams to plan, fund, scale up, sustain, coordinate and monitor care and treatment interventions across a continuum of comprehensive care services
2. To build the capacity of hospitals and health centers to develop and implement plans to achieve the national minimum Care and Treatment Clinics (CTC) accreditation standards
3. To increase accessibility and availability of quality care and treatment services to all PLHIV in the three regions
4. To mutually inform National AIDS Control Program and partners to enhance coordination and adherence to national standards and guidelines
5. To increase the role of civil society in the fight against HIV/AIDs in line with Tanzania Commission for AIDS National Strategic Framework

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Acronym List

ART	Antiretroviral Therapy
CHMT	Council Health Management Team
CoC	Continuum of Care
CTC	HIV/AIDS Care and Treatment Center
CTX	Co-trimoxazole Prophylaxis
DCT	Diocese of Central Tanganyika
DMO	District Medical Officer
HBC	Home Based Care
LTFU	Loss to Follow Up
MCH	Maternal and Child Health
PLHIV	People Living with HIV
PMTCT	Prevention of Mother-to-child Transmission
PTC	Patient Tracking Coordinator
QI	Quality Improvement
RH	Reproductive Health
RHMT	Regional Health Management Team
RMO	Regional Medical Officer
TB	Tuberculosis
TQI	Total Quality Index
USG	United States Government

Executive Summary

The Quality for Leadership (QfL) Initiative that started in 2009 through the support of the FHI 360-funded Catalyst Fund, was designed to improve the performance of FHI 360 programs and the country's health system through the use of Quality Improvement (QI) approaches. The QI pilot program was initiated in collaboration with the office of the Regional Medical Officer in Dodoma, Tanzania. The initiative involved two HIV Care and Treatment Clinics (CTCs), Makole Health Center and Dodoma Regional Hospital, a community and home-based care (HBC) organization, and people living with HIV (PLHIV) groups. Together, they used a QI model to address key service delivery and systems issues affecting the continuum of care: improvement objectives were set, corresponding indicators were developed, and changes were tested to identify the best practices for replication to all service delivery units in the region.

The four improvements objectives were:

1. To improve the efficiency of facility-based services for HIV clients by decreasing the time that clients spend at each visit to no more than 3 hours
2. To improve the linkages between facility-based and home-based services through an effective referral system
3. To improve retention in care by decreasing the number of clients lost-to-follow up
4. To improve the quality of eight essential services to HIV clients

In order to reach these objectives, a set of low-cost changes were introduced including: 1) a two-hour block appointment system; 2) the use of patient-tracking coordinators to actively search for clients (who missed appointments or who were declared LTFU) through phone calls and home visits by HBC volunteers; 3) quarterly meetings between CTC, HBC staff, and PLHIV-support groups to monitor enrollments in HBC; and 4) inserting a TB screening form in each medical record. Monthly measurements were conducted on a random sample of 30 patients' records, referral forms, and timesheets, and then plotted on run charts.

Data from March 2010 to June 2011 demonstrated that significant improvements were achieved. The percentage of patients who received services in less than three hours increased from around 60% to 100% in both CTCs. The effectiveness of the referrals between CTC and HBC improved: The percentage of HBC clients who received services at Dodoma CTC Regional Hospital increased from 33% to 100% and from 77% to 100% at Makole Health Center. The rate of LTFU decreased at both sites, from 18.7% to 3.7% in

Dodoma and from 2.2% to 0.9% in Makole. Lastly, the proportion of clients who received all eight essential care services rose from 13.3% to 100% at Dodoma Regional Hospital and from 3.3% to 70% at Makole Health Center.

A qualitative assessment highlighted several key challenges to implementation: limited initial leadership/ownership of QI activities, competing responsibilities of service providers, confusion with the QI monitoring plan and measurement errors, and a focus on the short-term measurement of changes versus planning for long-term and sustainable improvements. Most of these issues were addressed as the QI efforts evolved and the teams saw the results of their work.

This pilot demonstrated that considerable improvements in the performance of the health system for HIV patients can be achieved with a modest level of effort. When frontline workers are driving the improvement efforts, they can design local solutions that are innovative, sustainable, and have the potential to help the Ministry of Health identify best practices for replication across the entire health system.

Introduction

The Dodoma Region of Tanzania, with a population of approximately 2,100,764 and an HIV prevalence of 3.3%, has an estimated 69,325 people living with HIV (PLHIV). As part of the President's Emergency Plan for AIDS Relief (PEPFAR) funded TUNAJALI Project, FHI 360 supports the scale up of quality HIV care and treatment services in Dodoma. Out of around 800 public, faith based and private facilities delivering care and treatment services to PLHIV nationwide, 32 were located in Dodoma in 2010. Approximately 11,000 patients are currently registered as receiving HIV care & treatment services in the region, which accounts for nearly 16% of the total number across the nation.

The Quality for Leadership (QfL) Initiative, initiated in 2009 through the support of the FHI 360-funded Catalyst Fund, was designed to improve the performance of FHI 360 programs and the country's health system through the use of evidence-based Quality Improvement approaches. 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 two facilities in Dodoma.

The HIV Care and Treatment Centers (CTC) of Makole Health Center and Dodoma Regional Hospital were chosen as the two sites to introduce quality improvement (QI) activities for several reasons. First, at the time the QI pilot was launched, Makole Health Center served 1,152 PLHIV and Dodoma RH served 2,700 PLHIV, covering 35.5% of the total number of patients receiving services in Dodoma Region at that time. Additionally, the sites were relatively close to each other—and to the Dodoma TUNAJALI office—which was convenient for provision of technical assistance and joint meetings that included staff from both CTCs. Lastly, the selection of these sites allowed for the QI methodology to be introduced at two different levels of the health system: a regional hospital and a health center.

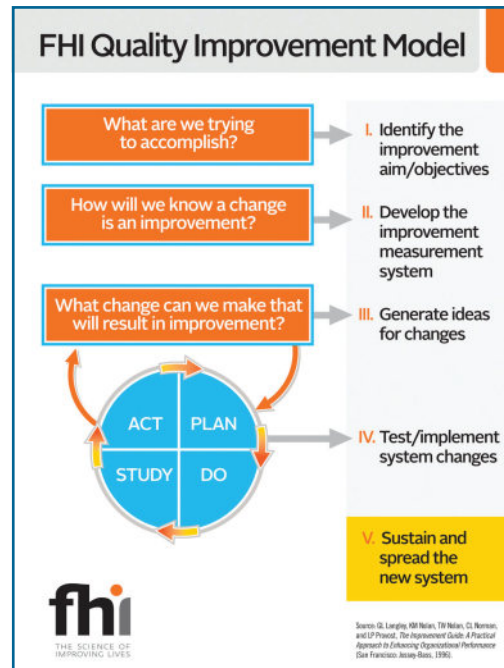
This report describes the work of the teams involved in the Continuum of Care improvement project between August 2009 and June 2011 and the results of a qualitative assessment conducted in February 2011, during which a variety of stakeholders were interviewed.

FHI 360's Model for Quality Improvement

FHI 360 used a quality improvement model¹ represented below (see Figure 1). This model guides a team of service providers test system changes through the use of the PDSA tool². The four main steps are:

1. *Identify explicit improvement aim and objectives* that express in measurable term a benefit for the beneficiaries/population.
2. *Develop the improvement measurement system* where the improvement team collects a few indicators, frequently, on a small sample of sites or beneficiaries, and plot the results on run charts.
3. *Generate ideas for changes*, using brainstorming, benchmarking, and a list of known change concepts.
4. *Test/Implement system changes (with 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 monitoring 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 Model for Quality Improvement



Development of Aims and Objectives

The most appropriate structure for the quality improvement initiative was identified through discussions with FHI 360/Tanzania senior management and the acting Regional Medical Officer in Dodoma, Dr. Godfrey Mtey. Given the situation on the ground, it was decided that the quality improvement initiative would focus on improving the provision of essential health services across a continuum, rather than designing new services usually

¹Langley GL, Nolan KM, Nolan TW, Norman CL, Provost LP. 2009. The Improvement Guide: A Practical Approach to Enhancing Organizational Performance, Second Edition. San Francisco: Jossey-Bass.

²Plan, Do, Study, Act: A tool for introducing a change and testing its effect on an improvement objective

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not provided by the health system or currently very rarely provided by the non-health sector.

Five types of stakeholders were selected to participate in the start-up workshop: CTC staff from Dodoma Regional Hospital; CTC staff of Makole Health Center; staff from a faith-based organization providing home-based care services, Diocese of Central Tanganyika (DCT); two representative leaders of patients support groups; and the office of the RMO. A representative from the district medical office (DMO) and from the social welfare department were later invited.

A two-day workshop in Dodoma launched the Continuum of Care Project, during which the following activities were carried out:

- The leadership management team selected a team leader, Dr. Zainab Chaula, and a secretary, Dr. Hamud NDenge, and decided of a program of regular QI meetings.
- The Improvement Model was presented, and fundamental concepts and principles of quality improvement were explained.
- The continuum of care model was presented, and participants listed the services that they currently provide, their working relationships and the main issues that they face.
- Participants started the analysis of the current system and learned how to develop a system' view and flowchart; they also developed a cause-and-effect diagram.
- Participants drafted improvement objectives and indicators (see Table 1).

Table 1: Quality Improvement Objectives and corresponding indicators

Improvement Objective		Indicator(s)	
1	To improve the efficiency of facility-based services for HIV clients by decreasing the time that clients spend at each visit to no more than 3 hours	Proportion of patients spending < 3 hours at each facility visit	
2	To improve the linkages between facility-based and home-based services through an effective referral system	Proportion of CTC-referred clients who are enrolled in HBC	
		Proportion of HBC-referred clients receiving CTC services	
3	To improve retention in care by decreasing the number of clients lost-to-follow up	Proportion of patients lost-to-follow-up	
		Proportion of patients who miss their appointments	
4	To improve the quality of 8 essential services to HIV clients	Proportion of patients receiving 8 essential services (Total Quality Index):	TB screening at each visit
			Counseling at each visit
			CTX prophylaxis
			Lab exams every 6 months
			CD4 count every 6 months
			Referral to HBC
			Family planning counseling
Prevention for positives			

The national guidelines for HIV Care & Treatment in Tanzania specify eight essential services that should be provided to HIV clients. The fourth quality improvement objective was designed to strengthen the provision of these essential services.

Establishing a Quality Improvement Monitoring System

Following the finalization of improvement objectives and indicators, a monitoring system was developed to track progress over time. The comprehensive system included the definition and source document for each indicator (see Appendix 1 for more details). The QI team measured the indicators on a monthly basis using an Excel-based template that was designed to easily create run charts for each of the six indicators.

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The Total Quality Index (TQI) was developed to measure the quality of essential services for people living with HIV (Objective 4). The index is a composite measure of the capacity of the facilities to deliver essential services to registered HIV-infected people, based on the concept of “all or none” measurement and promotes an assessment of how comprehensively patients’ needs are addressed. The list of eight essential services includes:

1. Tuberculosis (TB) screening at each visit
2. Counseling for treatment adherence at each visit
3. Family planning need assessment at each visit
4. Cotrimoxazole prophylaxis if CD4 count <350
5. Referral to HBC if not yet enrolled in HBC
6. Laboratory tests for clients on antiretroviral treatment every six months
7. CD4-count determination every six months
8. HIV prevention counseling (prevention for positives) at every visit

Photo 1: Data Collection Monitoring Form for Total Quality Index

Each service reflects a process of care and its output, and their combination reflects the overall performance of the system of care. The TQI allows for measuring the proportion of patients receiving all services as needed, rather than having eight individual measurements.

Implementing changes

Beginning in March 2010, a host of changes were introduced into the pilot sites in order to reach the improvement objectives.

For Objective 1, to decrease the time that clients spend at each visit to no more than three hours, a block appointment system was introduced. Thirty patients were given an appointment every two hours; three time blocks were established for Dodoma Regional Hospital (8:00am, 10:00am and 12:00pm) and two blocks for Makole Health Center



Photo 2: Patient Tracking Coordinator and Counsellor, Sr Grace Kaishozi meeting with a client (Dodoma Regional Hospital)

(8:00am and 10:00am). Additionally, stable patients were advised to schedule visits less frequently, from monthly to every two months. Patients who arrived for their appointment at their assigned time were rewarded and seen first. The medical record filing system was also reorganized to allow for easy and orderly retrieval of patient files.

Key changes introduced to improve the referral system between home-based care and the HIV/AIDS Care and Treatment Centers (Objective 2) included:

- 1) establishing quarterly meetings of CTC staff with HBC and PLHIV support groups during which the CTC would share the list of names of patients referred for HBC; 2) providing reimbursement to patients for transport costs to CTC; and
- 3) offering of HBC staff to escort patients to the CTC. Furthermore, a better measurement system was established to track effective referral at the HBC, using national forms and facility ID numbers.

For Objective 3, to improve retention of patients in care, the role of the facility-based patient tracking coordinators (PTC) was strengthened. PTCs were advised on 1) processes to identify and contact clients lost to follow up (LTFU) through phone calls and other methods of contact; 2) prevention of LTFU by contacting clients who missed appointments on a daily basis; and 3) reinforcement of messages on HBC during adherence counseling, including the distribution of HBC leaflets to new clients. Retention of patients was further enhanced by supporting home visits to LTFU clients by HBC volunteers.

Lastly, a variety of changes were introduced to achieve Objective 4, to improve the quality of eight essential services to HIV clients (see Table 2).

Table 2: Summary of changes introduced to improve Total Quality Index score

Sub-Objectives for Total Quality Index	Change(s) introduced
TB screening at each visit	Sensitization of service providers to use a one page 12-month TB screening form included in all patient files
Treatment adherence counseling at each visit	The importance of using and completing the counseling check list from the file was repeatedly emphasized to staff by their supervisors
CTX prophylaxis if CD4 <350	Standards were displayed as job aids and checklists
Lab exams every 6 months	Nurses draw blood specimen and send to lab, instead of sending patients to the lab
CD4 count every 6 months	Lab processes CD4 count daily instead of twice per week
Referral to HBC	Sensitization about HBC and Opt out offered to all CTC clients; referral slips follow up with DCT HBC office; regular meetings of CTC and DCT staff
Family planning counseling	Medical form designed as job aid and checklist
Prevention for positives secondary prevention	Medical form designed as job aid and checklist; focus on couple counseling, instead of individual

Studying the changes

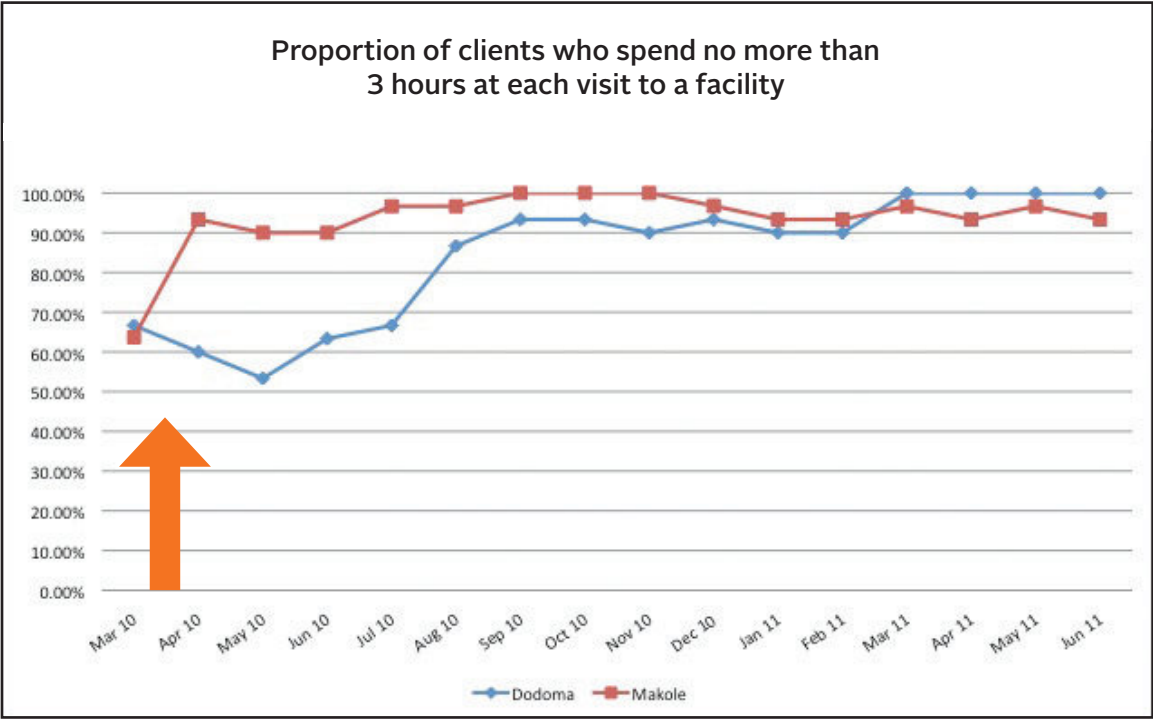
Run charts were used to study the performance of the process. They provided a simple method to 1) display data to make process performance visible; 2) determine if changes tested resulted in an improvement; and 3) determine if improvement was sustained.

On the following flow charts, the arrows indicate when the changes described above started to be implemented. Overall, the QI effort started in December 2009 with the first QI meeting and the actual implementation of changes started in March 2010.

Objective 1: To improve the efficiency of facility-based services

As shown in Figure 2, since the launch of the QI pilot, the proportion of clients who spend no more than three hours at each visit to the CTC remains stable at between 95-100% for both facilities. Dodoma demonstrated the most significant improvement, averaging approximately 60% in the first five months of the project (March 2010–July 2010) and since increased to 100% the last four months of the period of measurement (March 2011–June 2011).

Figure 2

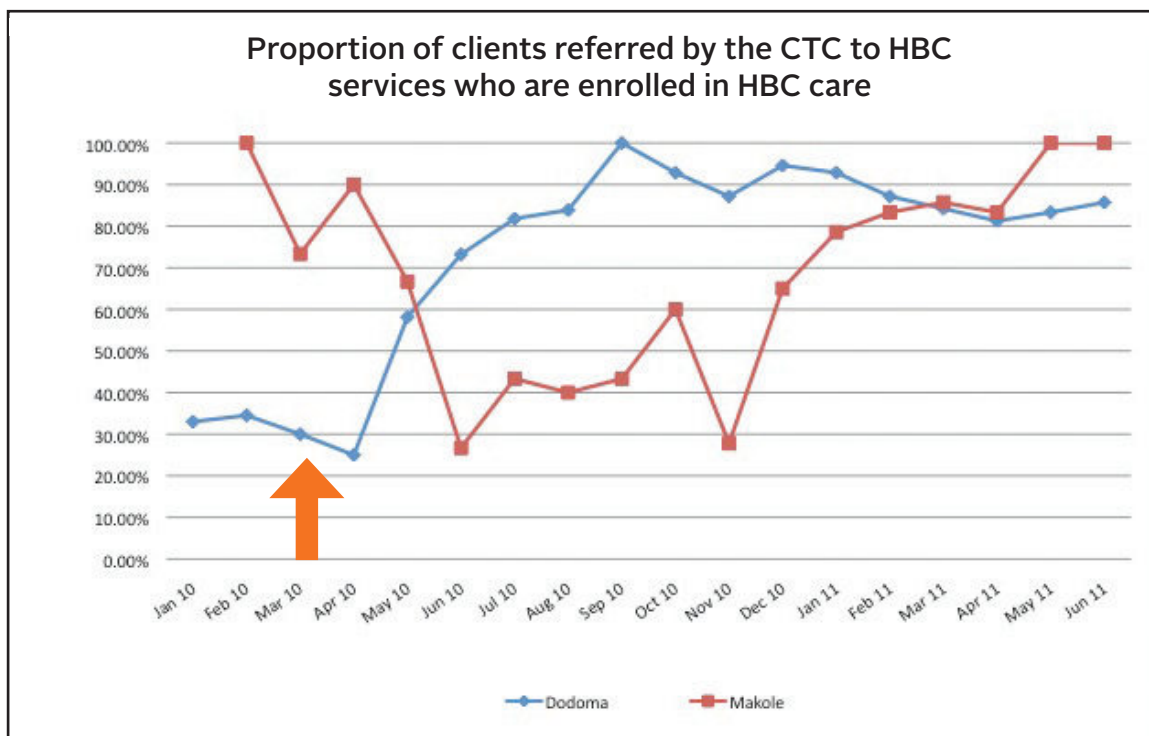


Objective 2: To improve the linkages between facility-based and home-based services

Following the changes implemented during the QfL pilot, the proportion of effective referrals between CTC to HBC (measured through the HBC enrollment rate) increased greatly in Dodoma, from 33.0 % in January 2010 to 100% in September 2010, after which the proportion has remained stable around 85% (see Figure 3).

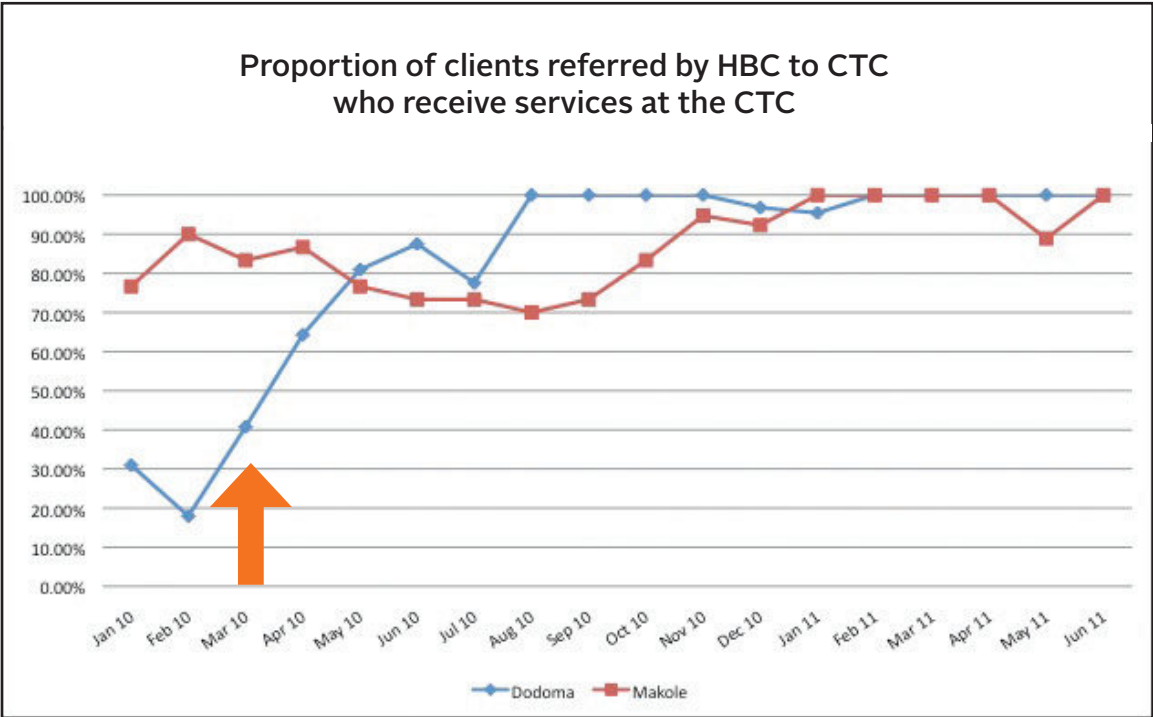
The enrollment of CTC patients from Makole into HBC care, however, experienced some variation and has not stabilized yet. Referral was likely underestimated early in the project due to an error in the measurement of the denominator. This was addressed in the subsequent measurements.

Figure 3



In terms of referral rates from HBC to CTC, both pilot sites demonstrated an increase following implementation of the changes (see Figure 4). In Dodoma, the proportion of clients referred who received CTC services reached 100% in August 2010—from a low of 18% in February 2010. This rate has since remained stable. While not as dramatic as Dodoma, the referral completion rate for Makole also increased—from 76.7% in January 2010 to 100% in January 2011, where it has largely remained.

Figure 4

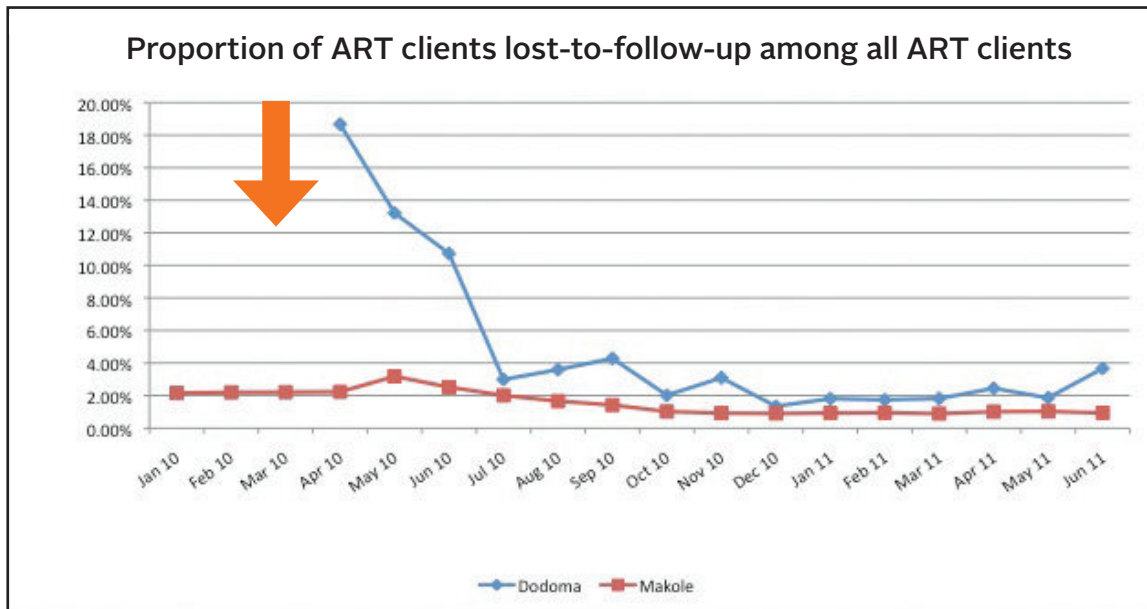


Objective 3: To improve retention in care

Overall the rate of lost-to-follow-up among ART clients and the proportion of clients who missed their appointments in Makole decreased over the course of the pilot.

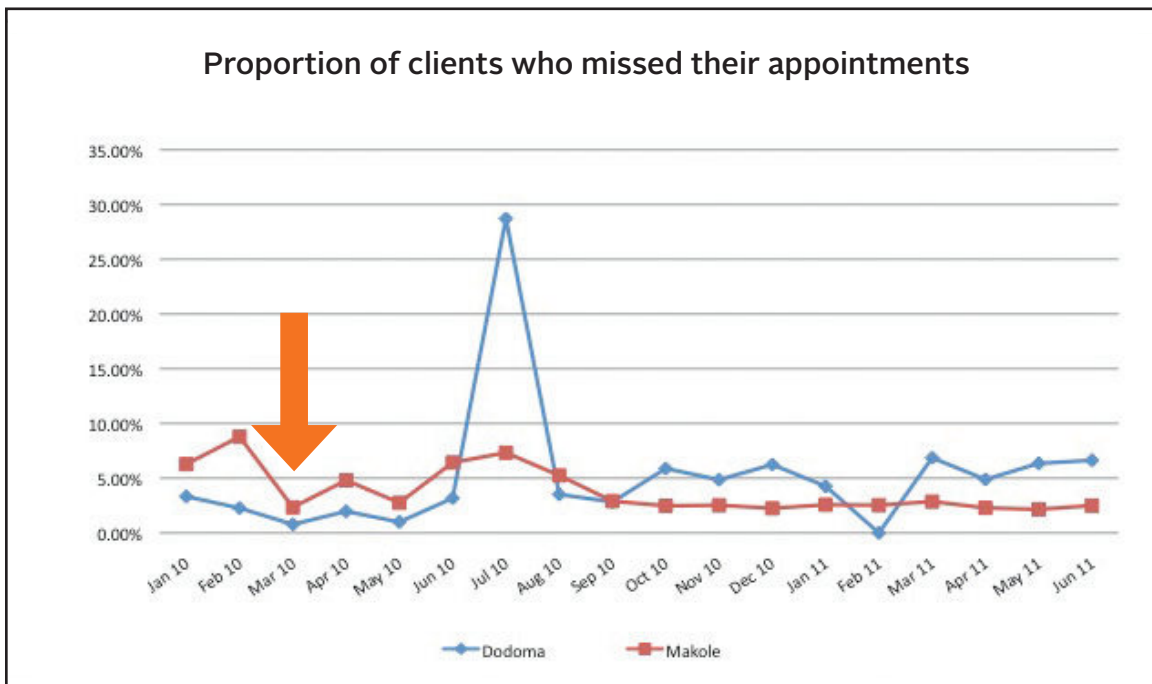
Despite the low rate of LTFU of ART clients initially in Makole, a slight increase was observed (see Figure 5). In particular, the LTFU rate decreased from 2.2% in March 2010 to 0.9% in June 2011 in Makole. The LTFU rate of ART clients in Dodoma steadily improved during the QfL pilot, which can be explained by the changes in the scope of work of the PTC. In April 2010, the LTFU rate in Dodoma was 18.7%; by June 2011 this rate had decreased to 3.7%.

Figure 5



The proportion of HIV clients who missed appointments highlighted differences between Makole and Dodoma (see Figure 6). From a high of 8.8% in February 2010, the proportion of clients who missed appointments at Makole reached 2.5% in October 2010, where it consistently remained through June 2011. In Dodoma, a peak in missed appointments was observed in July 2010; this result was due to errors in the data collection and reporting, which were subsequently addressed. Further investigation is necessary to determine why the average proportion of clients who missed appointments increased in Dodoma.

Figure 6

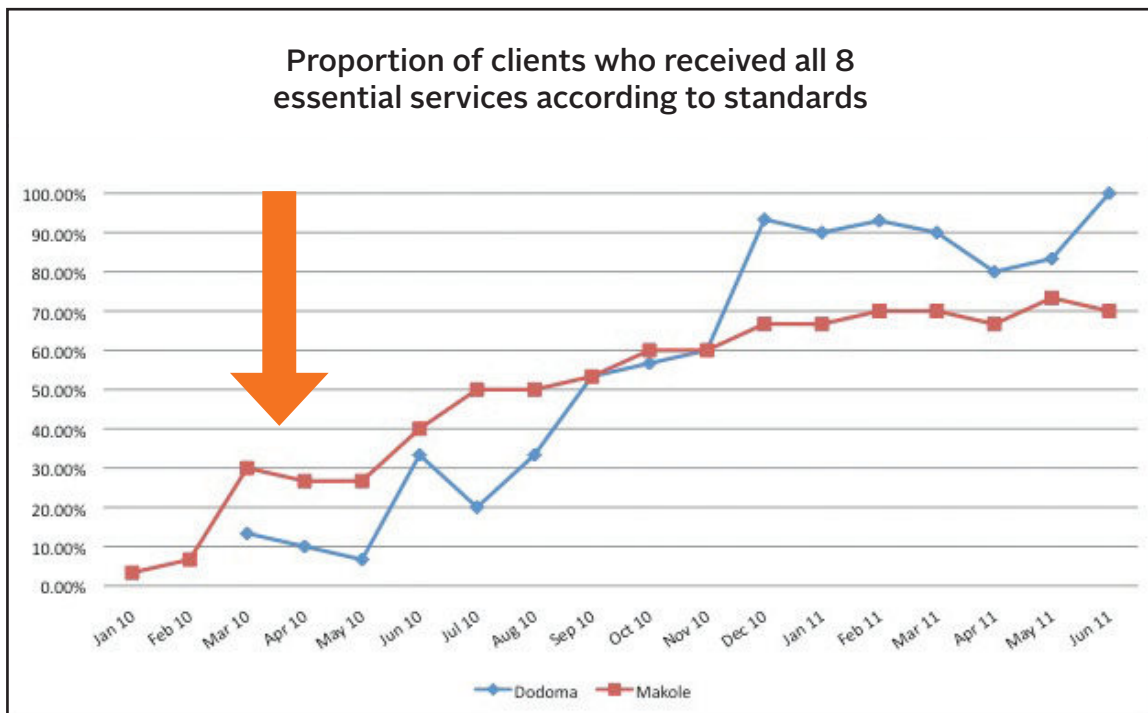


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Objective 4: To improve the quality of 8 essential services to HIV clients

Lastly, the proportion of HIV clients who received all eight essential services, i.e. the Total Quality Index, improved considerably among both Makole and Dodoma over the course of the QfL pilot (see Figure 7). Makole improved from 3.3% in January 2010 to 70% in June 2011. Similarly, Dodoma improved from 13.3% in March 2010 to 100% in June 2011.

Figure 7



Perceived Benefits of the QfL Pilot and QI

A qualitative assessment of the QfL pilot was conducted in February 2011 to document the results, challenges, lessons learned, and recommendations for scale-up. The assessment included visits to both pilot sites and interviews with over 20 stakeholders.

Overall, monitoring of the QI indicators demonstrated a variety of improvements in the provision of HIV services in the two pilot sites. Beyond these improvements, stakeholders identified additional benefits of introducing the QI approach through a “spillover” effect on other services, but they were not able to mention specific results. Nearly every person interviewed believed that the pilot strengthened the linkages between staff, other departments, and the community responsible for caring for PLHIV including: reproductive health, maternal and child health, prevention of mother-to-child transmission, tuberculosis, and home-based care.

A number of stakeholders noticed that the QI approach had fostered a change in the attitude of service providers. For example, it cultivated a process of self-reflection, in contrast to a “business as usual” mentality. Regular QI meetings created a sense of teamwork among the staff, and implementation of the PDSA cycle encouraged them to identify problems and develop solutions themselves. Some staff found the approach to be applicable throughout the health system.

In terms of technical support, the service providers and health managers involved with the pilot were satisfied with the technical support provided by TUNAJALI/FHI 360. Multiple service providers specifically mentioned the strong technical support provided in the areas of data collection and interpretation. This support also boosted the motivation and enthusiasm of service providers to implement and monitor QI activities.

Nearly every person interviewed mentioned that the QI pilot had a positive effect on service providers themselves. Specific benefits included:

- Improved morale and commitment;
- Better efficiency of service delivery, leading to reduced time constraints (due to changes in the appointment system and better organization of files);
- Greater sense of which services should be provided regularly, at each visit basis and every six month (due to development of the HIV service checklist); and
- Strengthened the respect for CTC staff among clients (due to clients’ perception that quality of services improved).

Regarding client satisfaction, stakeholders perceived an increase in client satisfaction in the pilot sites. Due to reduced waiting times and greater efficiency of services, the majority of stakeholders felt that clients were more comfortable. Moreover, clients seemed to be more aware of the services that they should be receiving and would specifically request certain services, such as CD4 count enumeration. However, the evaluation did not include interviews with clients and we could not confirm this impression.

Identification of Gaps & Challenges

Stakeholders identified staff motivation and capacity-building as the two main challenges in launching QI activities in Dodoma. Service providers were unhappy that extra allowances were not provided as part of the pilot, nor were other perks such as refreshments or snacks. Staff that participated in the two day QI workshop indicated that they felt overwhelmed with the material and believed that more staff should have been included. The monitoring plan seemed to be a particular problem, specifically in terms of the definition of indicators and how to collect data. Following the workshop, service providers did not have a sense of clear roles, responsibilities and next steps, which stalled progress.

Challenges experienced during the implementation of the QI pilot centered on four themes: lack of local leadership/ownership, competing responsibilities, confusion over monitoring plan, and misunderstanding of quality improvement methodology. These issues are expected and well known at the beginning of such QI effort, which requires a new way of working and getting familiar with a new model.

Limited local leadership/ownership. From the beginning, the QI pilot was introduced as a FHI 360 Catalyst Fund endeavor, which may have led regional and district health management to perceive the pilot as an external activity and discouraged their support for building momentum in scaling up. Stakeholders described uncertainty about who is responsible for scaling up and coordinating QI efforts. Furthermore, given the expectation of external funding and technical support for HIV services, there was little motivation or interest for the regional medical office to commit funding for continuing or scaling up QI activities.

Competing responsibilities. Attendance to the QI team meetings was inconsistent. Not all team members representing the five organizations involved were present at each meeting, due to competing priorities: CTC of Dodoma regional hospital; CTC of Makole health center; DCT, the home-based care organization; two representative

leaders of patients support groups; and the office of the Regional Medical Officer (RMO). Moreover, existing TUNAJALI technical staff were providing support for the pilot, in addition to their full-time responsibilities.

Confusion with the monitoring plan. Service providers were not always clear on how to implement the QI monitoring plan, such as collecting the data, calculating the indicators and interpreting them. As a result, accurately tracking whether improvements occurred became difficult. FHI 360 technical staff provided a considerable amount of technical assistance to the pilot sites on how to carry out the monitoring plan.

Focus on measuring versus improving. Proper understanding and application of QI methodology requires considerable time and mentorship. The qualitative assessment highlighted the fact that many service providers involved in the pilot focused exclusively on measuring the indicators, rather than critically analyzing the results and introducing new changes to foster improvement.

These key challenges were addressed by TUNAJALI staff in close collaboration with the RMO in the first QI cycle through supportive supervision and mentoring. Staff is now more comfortable with the theory and application of the QI model and so presumably the effect of these challenges would be less in subsequent QI cycles.

Lessons Learned

The Quality for Leadership Pilot demonstrated that implementing a participatory approach to address day to day issues can show tangible results. The QI methodology promoted team work between facility and community providers as well as managers, improved the efficiency and quality of service delivery in the pilot sites, and improvements were accomplished with minimal resources.

Furthermore it was shown that through a disease specific QI initiative, the overall health services can benefit as staff morale improves and efficiency measures at one outpatient clinic can easily be replicated to other clinics for the benefit of the overall general out-patient services.

The use of a patient tracking coordinator allowed, in coordination with HBC service providers, to locate about 300 clients LTFU at Makole and about 400 at Dodoma CTC

and bring these clients back into the care and treatment centers. By doing so, the teams learned about the most cost-efficient way to retrieve clients and the preventable causes that can be addressed to prevent future LTFU.

Lastly, the pilot reinforces the importance of developing a clear monitoring system, which requires adequate training and mentoring. The system must take into account baseline measurement, critically consider how a service is actually measured and design indicators accordingly, and establish a mechanism for ensuring the quality of the data.

Recommendations and Additional Considerations for Next Steps

The stakeholders involved in the QI pilot indicated a very strong desire to scale-up QI activities, both within the facilities and to other health facilities. They provided suggestions for scale-up, which involve national, programmatic (TUNAJALI), regional, district and facility levels (see Table 3).

Table 3

Level	Stakeholder Recommendations for Scale-up
National Health Authorities	<ul style="list-style-type: none"> Engage continuously the QI unit in the Ministry of Health and Social Welfare and the QI Initiative of the NACP. Share results and lessons learned of existing QI efforts regularly and inform national authorities of planned QI efforts.
Development and Implementing Partners, including TUNAJALI	<ul style="list-style-type: none"> Promote the integration of QI into HIV/AIDS care and treatment projects. Ensure the availability of QI qualified staff to coach facility staff in implementation. Keep USG and implementing partners informed of QI activities. Document and communicate the QI pilot, include costing data. Use results of QI activities to inform the development of standards on minimum service quality and system's performance.
Regional/District Health Management Teams	<ul style="list-style-type: none"> Effectively involve regional and council health management teams in supervision and mentoring of QI efforts. Identify and support one or more health managers at regional, council and facility level to plan and spearhead QI efforts.
Facility	<ul style="list-style-type: none"> Consider the specific context of the facilities in which QI will be introduced. Provide adequate training that uses national language and focuses on practical examples and case studies. Involve staff participating in the QI pilot in scale-up activities through study tours, peer learning/mentoring. Support staff motivation through supportive supervision, encouragement and regular feedback; certificate of recognition; acknowledgement; and acceptable incentives.

The overarching issue is how to sustain the improvement dynamic in Dodoma and structure the QI component within the regular regional and district health planning, all of which must be developed in line with national guidelines to promote supportive supervision, mentoring and QI.³

Clearly, the regional health management teams should continue to take the lead with technical partner support if required. In turn, Council or District Health Management Teams need to be sensitized, trained and plan financial support through their Council Comprehensive Health Plans and annual budgets. It will require continuous leadership and commitment. For TUNAJALI (or any follow up project) to effectively build the capacity of its partners and support their improvement efforts, full-time staff well-versed in QI methodology and tools should be identified, who will guide and mentor regional and local teams.

Finally, lessons learned from Dodoma can benefit other regions and be applied to other services and priority issues. Three such opportunities are: 1) to expand the QI efforts to other regions, especially Iringa, where the HIV prevalence is the highest among the four regions covered by Tunajali; 2) to use the QI model to address issues with PMTCT, HBC, other clinical and public health services within a facility; and lastly 3) to incorporate QI methodology into health management services by RHMT and CHMTs.

³National Guidelines for Quality Improvement of HIV and AIDS services, NACP/MOHSW 2010.

Appendix 1: Improvement Monitoring System

Improvement Objectives	Improvement Measures	Indicators	Denominator	Numerator
1. Improve the efficiency of facility-based services for HIV clients by decreasing the time that clients spend at each visit to no more than 3 hours	Time spent by clients at a facility (CTC Dodoma and Makole health center)	1. Proportion of clients who spend no more than 3 hours at each visit to a facility, from the time they are registered to the time they leave	Sample of 10 clients per week (40 per months) for whom the total time through a facility is measured	Number of clients who spend 3 hours or less from registration to exit
<i>Source of Information</i>			<i>Timesheets</i>	<i>Timesheets</i>
2. Improve the linkages between facility-based and home-based services to clients to ensure continuity of care, through an effective referral system	Effective referral of clients between facilities and HBC providers	2A. Proportion of clients referred by facilities to the HBC services who are enrolled in the HBC care	Randomly selected sample of 30 clients (or total number) referred by Dodoma and Makole to HBC organization (DCT)	Number of referred clients who are enrolled in HBC services
<i>Source of Information</i>			<i>Facility Referral forms</i>	<i>Counter-Referral forms and DCT database of enrolled clients</i>
		2B. Proportion of clients referred by the HBC service providers to a facility who receive services at this facility	Randomly selected sample of 30 clients (or total number) referred by DCT to Dodoma and Makole facilities	Number of referred clients who went to Dodoma & Makole facilities to receive services
<i>Source of Information</i>			<i>DCT Referral forms</i>	<i>Counter-Referral forms and facility database of enrolled clients</i>
3. Improve retention in care by decreasing the number of clients lost-to-follow up	Clients lost to follow-up	3A. Rate of ART clients lost to follow-up among all ART clients	Number of current ART clients registered in each facility 3 months ago	Number of ART clients declared lost to follow-up this month

Improvement Objectives	Improvement Measures	Indicators	Denominator	Numerator
<i>Source of Information</i>			<i>Facility database or registers of current ART clients</i>	<i>Facility registers</i>
		3B. Proportion of clients who missed their appointments	Number of clients scheduled for an appointment	Number of clients who missed their appointment
<i>Source of Information</i>			Facility appointment books	Facility appointment books
4. Improve the quality of 8 essential services to HIV clients	Total Quality Index	4. Proportion of clients who receive all 8 essential services according to standards	Randomly selected sample of 30 clients who came this month	Number of clients who received all 8 services
<i>Source of Information</i>			<i>CTC2 form and patient medical record</i>	<i>CTC2 form and patient medical record</i>
		4A. TB screening at last visit	30	Number of filled TB screening forms at last visit
		4B. Counseling session at last visit	30	Number of filled counseling page at last visit (page 2 of CTC2 form)
		4C. Cotrimoxazole prophylaxis	Number of clients meeting the eligibility criteria among the 30 medical records	Number of clients prescribed CTX, as recorded on last page of CTC2 form
		4D. Laboratory exams for clients under ART	Number of clients under ART among the 30 medical records	Number of clients who received all lab exams in the past 6 months
		4E. CD4 count check in the past 6 months	30	Number of clients whose one CD4 count is recorded in the past 6 months, on the first page of the CTC2 form

Quality Improvement Stories

Improvement Objectives	Improvement Measures	Indicators	Denominator	Numerator
		4F. Linkage with HBC program established	30	Number of clients referred to HBC services, as recorded on page 1 of CTC2 form under code 2
		4G. Family planning needs discussed	30	Number of clients over 18 for whom the counseling column on “reproductive choices”(page 2) is checked
		4H. Prevention measures discussed	30	Number of clients over 14 for whom the counseling column on “prevention, abstinence, safer sex and condoms” (page 2) is checked Number of clients over 18 for whom the counseling column on “reproductive choices”(page 2) is checked

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