

Original Research Article

## **Adaptive Scenarios in Quality Improvement (QI): a Case Study of an International Health Development and Research Organization Embracing Change**

Memiah Peter<sup>1</sup>, Muhula Samuel<sup>3</sup>, Oruko Happiness<sup>3</sup>, Makokha Violet<sup>2</sup>, Mahasi Gabriel<sup>2</sup>, Mtebe Majigo<sup>4</sup>, Komba Patience<sup>2</sup>, Odhiambo Fransesca<sup>2</sup>, Koki Kinagwi<sup>3</sup>, Mungai Margaret<sup>3</sup>, Ofware Peter<sup>3</sup>, Kimathi George<sup>3</sup>, Rugutt Janepher<sup>3</sup>, Wamwangi Catherine<sup>3</sup>, Nzomo Mwita<sup>5</sup>, Ndirangu Meshack<sup>3</sup>, KyomuhangiLennie<sup>5</sup>

<sup>1</sup>University of West Florida, College of Health 11000 University Pkwy, Pensacola, FL 32514, United States.

<sup>2</sup>Maryland Global Initiatives Kenya Kilimani P. O. Box 495 -00600. Nairobi, Kenya.

<sup>3</sup>Amref Health Africa in Kenya; P.O Box 30125-00100, Nairobi Kenya.

<sup>4</sup>Dept. of Microbiology and Immunology, Muhimbili University of Health and Allied Sciences P.O. Box 65001, Dar es Salaam, Tanzania.

<sup>5</sup> Amref Health Africa Headquarters, P.O Box 27691-00506, Nairobi Kenya.

Corresponding Author: Peter Memiah

Received: 08/09/2015

Revised: 25/09/2015

Accepted: 08/10/2015

### **ABSTRACT**

**Background:** Health care organizations are under immense pressure to improve the efficiency and effectiveness of care delivery. To date little research into how health organizations in resource-limited settings take up, support, and embed these changes is available on which other services can draw to inform implementation. In this paper, we examine the processes and practices in the organizational context, and showcase how Continuous Quality Improvement (CQI) is embraced in a large health care program.

**Methods:** Amref Health Africa engaged consultants to support implementation of CQI in all its programs and support services. A total of 35 Trainer of Trainers (TOTs) were drawn from different programs and trained on a learning approach focusing on specific knowledge needed to systematically identify and solve problems through case-based reasoning and root cause analysis. Developed action plans were used to provide continuous mentorship and peer-to-peer exchange. The TOTs cascaded the training to the entire organization. CQI teams were formed and quality of service standard indicators were developed for monitoring

**Results:** CQI teams at different service levels were formed and able to follow through the stages of growth and successfully complete a full improvement cycles in 3-9 months. Proportion of TB/HIV co infected clients on HAART increased by 78%. Active HIV female patients screening for cervical increased by 141%. Proportion of MPesa payment increased by 102% and 82% for 1<sup>st</sup> and 2<sup>nd</sup> MPesa payments approved within time respectively. Use of partograph improved from 8% to 30% and lost to follow up rates reduced from 56% to 24%. Linkage of HIV positive patients into care improved by 45%

**Recommendations:** Adopting CQI involved engaging diverse teams in new relationships that could support services to construct shared meaning and purpose, operationalize key concepts and tools, and develop and embed new practices into service systems and routines. Promoting CQI requires a systemic approach and organization-wide commitment in order to improve processes within an institution.

**Key Words:** Quality Improvement; Training Models; Health Care Providers.

## INTRODUCTION

One of the greatest challenges to building sustainable health systems in resource limited settings is being able to foster the capacity for the routine use of health and program information for continuous quality improvement (CQI) and to maximize health outcomes. Recently, there have been a lot of efforts in health care improvement, particularly in health services where there is considerable interest in improving the delivery of a range of core health care services. These efforts are linked at the policy level to investment in processes and mechanisms that aim to improve the standard and quality of care delivered across the spectrum of treatment, prevention, and promotion activities, and to improve access, efficiency, and safety. [1] While a number of quality initiatives are currently being employed by organizations, and there is growing experience with implementation in different settings and contexts; there is little research into how health organizations take up, support, and institutionalize CQI on which other services can draw. [2, 3]

CQI uses systems thinking, process flow diagrams, and customer-centered knowledge to redesign processes and pilot-test small tests of change (STOC). By embracing a continuous quality improvement approach, a health care system has the potential to gain meaningful knowledge on how a system is performing and how the work is done, which can increase value to the clients and the staff providing the services. [4-6] However, CQI is not a method that can be installed into a system. It is a way of thinking, learning, reflecting, and working – a way of improving continually. [7,8]

CQI in public health is the use of a deliberate and defined change process, such as Plan-Do-Study-Act (PDSA), which is focused on activities that are responsive to organizational needs and improving population health. [9-11] It refers

to a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes, which achieve equity and improve the health outcomes of the community. [12,13] Improvement in skill levels, organizational capacity, organizational culture, and so on require education, practice, and time to mature. The ambition for better client experience and improved outcomes in health services requires a renewed focus on building capacity and capability for all staff to ensure they have the knowledge, skills and attitudes necessary to deliver high quality services. [14-16] to achieve this requires experiential learning as, adults learn better and retain more when they are able to see concepts in practice and perform activities hands on. [17] It's against this background that Amref Health Africa engaged a team of Quality Improvement experts to provide training and technical support in implementation of CQI in all programs and support services within the organization

## MATERIALS AND METHODS

**Setting:** The CQI activities were implemented under Amref Health Africa in Kenya which implements projects around five thematic areas namely; HIV/AIDS; TB and Malaria; Reproductive Maternal Newborn and Child Health (RMNCH); Water Sanitation and Hygiene (WASH); and Clinical and Diagnostics with Monitoring, Evaluation and Research, Advocacy and Business Development as cross cutting components in each of the thematic areas. The organization has support units, which include Finance, Communications, Human Resources Procurement, Transport, and Administration units. Amref Health Africa identified a team of QI experts to provide training and technical support in

implementation of CQI in all programs and support services.

**CQI Assessment:** The process started by conducting a CQI organizational assessment using a standard assessment tool. The tool, adapted from Quality First (Bernie Darna) measured the level of readiness and progress with CQI implementation. The tool was localized through consultation with providers and researchers with experience implementing evidence-based practices and programs and was shared with Amref Health Africa staff through survey monkey (Survey Monkey Inc; Palo Alto, California, USA: www.surveymonkey.com). The 25-item took 10-15 minutes to complete. The items assessed 5 key thematic areas for CQI 1) the management's opportunity to lead CQI; 2) internal customer focus and use of team processes; 3) understanding of quality and customers' wants and needs; 4) CQI process and 5) use of data for decision making. The results were analyzed per program/support service and by thematic areas. The results were used to build into the training material for the subsequent CQI TOT training.

**Training of Trainers:** A total of 35 TOTs were then drawn from the Amref Health Africa programs and support services. For 5 days, they were taken through understanding of CQI, case-based reasoning and root cause analysis, a learning approach that focuses on the specific knowledge needed to systematically identify and solve problems using the PDSA methodology. The PDSA approach was selected based on its goals and objectives for adoption. No additional costs were incurred to implement the methodology. The PDSA approach enabled the various departments within the organization to learn from both ideas that worked and those that did not work during and after implementing their cycles.

To continuously adapt and improve processes and pathways, participants were taken through practical methods of root

cause analysis, process mapping, analysis and work re-designs. All participants developed work plans for implementation within their program and support areas, which were used to provide continuous mentorship and peer-to-peer exchange. The TOTs were tasked to cascade the training to the departmental staff. Each project and support service units then formed comprehensive and all-inclusive CQI Teams and developed quality of service standard indicators which are reported on every month with revisions after improvement cycles. As a result of implementing CQI an organizational quality improvement manual was developed to provide guidance regarding the implementation and maintenance of CQI at Amref Health Africa.

**Implementation:** The work plans developed during training were implemented in different thematic areas within Amref Health Africa programs and support services to improve service delivery and management. CQI teams were formed and they developed quality of service standard indicators for monitoring through their different activities including;

**1. Screening of all HIV+ clients for TB:** This was implemented at Kibera Community Health Center due to low uptake of ART among TB/HIV co infected clients. The plan was to increase the proportion of TB/HIV co infected patients on ARVs from 52% to 80%. Between July 2013 and December 2013, the CQI team started by verifying the total number of TB/HIV co-infected patients on Antiretroviral (ART) and those not on ART. The team ensured active follow up of patients that were on treatment and effective tracking and linking of patients that had dropped out of treatment, prompt updating of the TB register while introducing an effective appointment system and regular reviews meetings by the staff.

**2. Scaling up Cervical Cancer Screening:** Cervical cancer screening

among HIV positive women in an informal settlement was planned after noting that majority of female patients attending a HIV clinic at the Kibera Community Health Centre were not adequately being screened for cervical cancer. All Health Care Providers were trained on the importance of Cervical Cancer screening and conducted active screening between May 2012 and May 2013. Patients with positive lesions were referred appropriately.

**3. Efficiency on Mpesa payments:** Improvement on mobile money transfer through Mpesa (Mobile funds transfer) was planned after noting delays in processing of Mpesa payments for staff conducting field activities. The plan was to ensure that 80% of Mpesa payments are approved within one day for first approval and one day for second approval in the Enterprise Resource Planning (ERP) system. From May 2014 to October 2014, all Mpesa requests for project activities were entered into ERP system and the respective staff requesting the amount notified on expected date of payment.

**4. Quality of Maternal & New-born Health (MNCH):** In Kanzoeka community there was inadequate MNCH skills among health workers. The plan was to use of partograph in the management of labour by ensuring correct plotting and interpretation. From February 2013 to January 2014, CQI teams were formed jointly with the sub-county health management teams (SCHMT). Health workers were re-trained on correct plotting and interpretation of partographs. The partographs show labour progress and when HealthCare Workers should conduct deliveries and referrals to higher-level facilities on need basis. The SCHMT team conducted supportive supervision and mentorship visits on correct plotting and interpretation of partographs.

**5. Reduction of Loss to follow Up:** The baseline in LTFU proportions was established at Kibera Community Health

Center and found to be 56%. The data team produced a list of patients who missed appointments; they then validated the list with the pharmacy database. The list was then shared with the Community Health Workers (CHWs) for tracing of LTFU patients. All patients on ART were reminded of their appointment dates through calls. Immediate home visits were by a CHW for those who did not respond to phone calls. Patients were provided with clinic phone number to call for rescheduling of visits. All newly enrolled patients on ART were attached to a CHW for follow up and educational support.

**6. Linkage of HIV positive clients to care:** The team at the supported clinics embarked on active adherence counseling and posttest counseling of patients identified to be positive. There was continuous follow-up of clients not ready to start treatment either at the clinic or clinics of their choice. The counselors conducted focused enrollment preparation sessions and ample time was given to educating the patients about ARVs before commencing treatment. Regular review of CD4 count and prompt follow up of clients was conducted.

**7. Household with latrines:** Within a period of 18 months the WASH CQI team used a Community Led Total Sanitation (CLTS) approach, which demanded involvement from communities, local government and the other private sector actors. The approach triggered the desire for an open-defecation free community by raising collective awareness of the open defecation problem. The team used trained CLTS facilitators who were sent to communities/ villages to initiate participatory analysis of the communities' existing sanitation practices, and the consequences and implications of such practices to the community. The facilitators held discussions with the community members in public places. They involved a "walk of shame" where villagers would go on a tour within the

villages to indicate where people defecate. The facilitators then helped people analyze how fecal contamination spread from the exposed excreta to their living environments and food and drinking water. This process, also known as triggering was designed to catalyze collective community desire and action to become Open Defecation Free (ODF) by constructing latrines. The community members then came up with action plans on how to make the construction of latrines happen, with limited follow-up and support from the project team and Public Health officers from the Ministry of Health.

## RESULTS

The proportion of TB/HIV co infected clients on HAART increased by 78%. A total of 828 out of 1071 (77%) active female patients who attended HIV clinic were screened for cervical which is 141% increase. Proportion of 1<sup>st</sup>MPesa payments approved within time increased from 44% to 89% while 2<sup>nd</sup>MPesa payments approved within time increased by 82%. Use of partograph by HCWs improved from 8% to 30% and lost to follow up rates reduced from 56% to 24%. Linkage of HIV positive clients to care improved only by 45%. The proportion of households with latrines improved from 17% to 100%. (Figure 1)

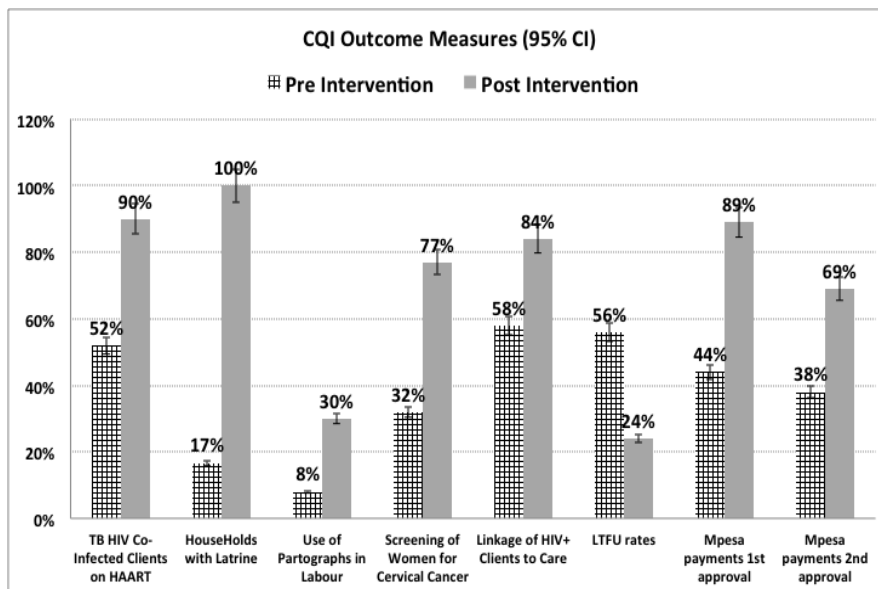


Figure 1: Pre and Post Intervention CQI Outcome Measures

## DISCUSSION

Continuous quality improvement means different things to different people. For the purposes of the training, continuous quality improvement (CQI) was defined as the complete process of identifying, describing, and analyzing strengths and problems and then testing, implementing, learning from, and revising solutions. It relies on an organizational culture that is proactive and supports continuous learning. CQI is firmly grounded in the overall mission, vision, and values of the agency. Through the

standardized training content, all Amref Health Kenya staff had the opportunity to become proficient in improving the services they provide for example making sure people are safer, receive treatment at the optimal time, and restore their quality of life more quickly. CQI is dependent upon the active inclusion and participation of staff at all levels of the organization and stakeholders throughout the process. [18, 19]

Leadership and management were critical to successful uptake. [20-21] two important functions seem to have been carried out by program leaders in this

respect. They played a key role in shaping an organizational vision for what could be achieved through investing in quality improvement and in articulating how to build capacity for achieving that. They also masterminded broad strategies for implementation and provided a mandate to proceed. For those who experienced success in achieving uptake saw the changes required for embedding CQI as structural and behavioral. They exercised judgment in how they went about motivating staff and operated at multiple levels to alter the local environment in ways that could enable staff to participate and put into place new structures and routines to support them. Leadership guided the integration of support services CQI and program level CQI for the overall goal of improving health program impact plus improved health outcomes. They did so incrementally, building on small successes and adapting and trialing different strategies, chipping away over time.

## CONCLUSION

Uptake of CQI is a complex process that involves engaging multiple stakeholders in new relationships that can support services to construct shared meaning and purpose, operationalize key concepts and tools, and develop and embed new practices into service systems and routines. Some clear messages for health authorities interested in implementing quality improvement systems emerge from this study. First, promoting quality improvement requires a system approach and organization-wide commitment. At the organization level, a formal high level mandate, leadership at all levels, and resources to support implementation are needed. Leadership is critical to success and strategies for training and mentoring

## REFERENCES

1. Gardner KL, Dowden M, Togni S, Bailie R. Understanding uptake of continuous quality improvement in Indigenous primary health care: lessons from a multi-site case study of the audit and best practice for chronic disease project. *Implement Sci.* 2010; 5:21. doi: 10.1186/1748-5908-5-21
2. Franco LM, Marquez L. Effectiveness of collaborative improvement: evidence from 27 applications in 12 less-developed and middle-income countries. *BMJ QualSaf.* 2011; 20(8):658–665. doi: 10.1136/bmjqs.2010.044388.
3. Memiah P, Shumba C, Henley Y, Mwakyusa S, Maghimbi A, Komba P, Mlila A, Haule V, Tulli T, Kristen S, Etienne-Mesubi M, Alexander C. "Know your CD4 campaign": 6-year outcomes from a quality improvement initiative to promote earlier initiation of antiretroviral therapy in Tanzania. *Int J Med Public Health* 2014; 4:194-9
4. Donabedian A. The quality of care: How can it be assessed? *J Am Med Assoc.* 1988;260(12):1743–8. doi: 10.1001/jama.1988.03410120089033.
5. Donaldson MS (ed.): *Measuring the quality of health care.* Washington DC: National Academies Press; 1999.
6. Chassin MR, Galvin RW. The urgent need to improve health care quality: Institute of Medicine National Roundtable on Health Care Quality. *J Am Med Assoc.* 1998;280(11):1000–5. doi: 10.1001/jama.280.11.1000.
7. Berwick DM. Continuous quality improvement as an ideal in health care. *New England J Med.* 1989;320(1):53–6. doi: 10.1056/NEJM198901053200110.
8. McLaughlin, Curtis P., and Arnold D. Kaluzny. *Continuous Quality Improvement in Health Care: Theory, Implementation and Applications.* Gaithersburg, Md: Aspen Publishers, Inc, 1994.
9. Pronovost P, Needham D, Berenholtz S, Sinopoli D, Chu H, Cosgrove S, Sexton B, Hyzy R, Welsh R, Roth G, Bander J, Kepros J, Goeschel CA. An intervention to decrease catheter-

- related bloodstream infections in the ICU. *NewEngl J Med.* 2006 Dec 28; 355(26):2725-32.
10. Berwick DM. Developing and testing changes in delivery of care. *Ann Intern Med* 1998;128:651–6
  11. Moen R, Norman C. Circling back: clearing up the myths about the Deming cycle and seeing how it keeps evolving. *Qual Progress* 2010;42:23–8
  12. Langley GJ. *The improvement guide: a practical approach to enhancing organizational performance.* 1st edn. San Francisco: Jossey-Bass Publishers, 1996
  13. Batalden P. *Building knowledge for improvement-an introductory guide to the use of FOCUS-PDCA.* Nashville, TN: Quality Resource Group, Hospital Corporation of America, 1992
  14. Glisson C, Durick M. Predictors of job satisfaction and organizational commitment in human service organizations. *Admin Sci Quart.* 1988; 33:61–81. doi: 10.2307/2392855.
  15. Green AE, Albanese BJ, Cafri G, Aarons GA. Leadership, organizational climate, and working alliance in a children’s mental health service system. *Community Ment Health J.* 2014; 50:771–7. doi: 10.1007/s10597-013-9668-5.
  16. Henderson A, Paterson K, Burmeister L, Thomson B, Young L. Staff perceptions of leadership during implementation of task-shifting in three surgical units. *J NursManag.* 2013; 21:368–76. doi: 10.1111/j.1365-2834.2012.01401.x
  17. Mezirow J. Transformative learning: Theory to practice. In: Cranton P, editor. *Transformative learning in action: Insights from practice.* New directions for adult and continuing education, no. 74. Jossey-Bass; San Francisco: 1997.
  18. Jeffs L, Sidani S, Rose D, Espin S, Smith O, Martin K, Byer C, Fu K, Ferris E. Using theory and evidence to drive measurement of patient, nurse and organizational outcomes of professional nursing practice. *Int J NursPract.* 2013; 19:141-8
  19. Eccles M, Grimshaw J, Campbell M, Ramsay C. Research designs for studies evaluating the effectiveness of change and improvement strategies. *QualSaf Health Care.* 2003; 12:47-52
  20. Agyepong IA, Sollecito WA, Adjei S, Veney JE (2001) Continuous quality improvement in public health in Ghana: CQI as a model for primary health care management and delivery. *Qual Manag Health Care* 9: 1–10. doi: 10.1097/00019514-200109040-00002
  21. Dixon-Woods M, McNicol S, Martin G. Ten challenges in improving quality in healthcare: lessons from the Health Foundation's programme evaluations and relevant literature. *BMJ Qual Saf* 2012; 21:876–84.

How to cite this article: Memiah P, Muhula S, Oruko H et al. Adaptive scenarios in quality improvement (QI): a case study of an international health development and research organization embracing change. *Int J Health Sci Res.* 2015; 5(11):285-291.

\*\*\*\*\*