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TECHNICAL REPORT

Taking Every Opportunity to Save Lives: The Role of Modern Quality Improvement in Enhancing Maternal, Newborn, and Child Health Programs

A Synthesis of USAID Health Care Improvement Project Field Experience

JUNE 2012

This report was produced by University Research Co., LLC (URC) for review by the United States Agency for International Development (USAID) and was authored by Youssef Tawfik, Annette Bongiovanni, Sonali Vaid, Jorge Hermida, Maina Boucar, and Kathleen Hill of URC. It was developed under the USAID Health Care Improvement Project, which is made possible by the generous support of the American people through USAID.

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DISCLAIMER

The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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Abbreviations

AMTSL	Active management of the third stage of labor
ANC	Antenatal care
CHW	Community health worker
DHS	Demographic and Health Survey
EmOC	Emergency obstetric care
ENC	Essential newborn care
EOC	Essential obstetric care
FP	Family planning
HCI	USAID Health Care Improvement Project
HIV	Human immunodeficiency virus
KEMSA	Kenya National Medical Supplies Agency
LS	Learning session
MDG	Millennium Development Goal
MNCH	Maternal, neonatal, and child health
MOH	Ministry of Health
MOPH	Ministry of Public Health
MSPAS	Ministry of Public Health and Social Assistance (Guatemala)
PDSA	Plan-Do-Study-Act cycle
PPFP	Post-partum family planning
PPH	Post-partum hemorrhage
QAP	Quality Assurance Project
QI	Quality Improvement
RAMNI	Reduction of Maternal and Neonatal Mortality (Honduras)
SILAIS	Integrated Local Health System (Nicaragua)
SPA	Service Provision Assessment
URC	University Research Co. LLC
USAID	United States Agency for International Development
WHO	World Health Organization

Executive Summary

Maternal and neonatal mortality rates in many countries are not declining fast enough to achieve the Millennium Development Goals by 2015, despite the availability of evidence-based interventions to prevent or treat most of the main causes of maternal, neonatal, and child death. The slow rate of mortality reduction can be attributed, at least partially, to poor quality of care.

Several quality gaps have been documented across the continuum of maternal, newborn, and child health (MNCH) services. For antenatal care (ANC), despite the progress in increasing its coverage, quality gaps persist. Several studies show that ANC services often miss the opportunity to provide essential services such as counseling clients on danger signs of pregnancy, delivery plans, nutrition, and postpartum family planning. Similarly, services around childbirth are often provided with compromised quality. Common quality gaps include the inadequate or incorrect use of the partograph to prevent the complications of prolonged labor for the mother and the newborn, neglecting to apply active management of third stage of labor to prevent postpartum hemorrhage, poor quality of emergency obstetric care, and failure to promptly detect newborn asphyxia and apply immediate resuscitation.

Quality improvement (QI) offers a powerful a means to increase the effectiveness of MNCH programs in resource-limited countries. QI is based on the understanding that a system is designed to produce the results it produces; in order to obtain better results, the system must change. Hence, in applying QI, teams in health facilities or communities analyze the systems and processes of delivering services, test changes to obtain better results, and measure the effect of the tested changes on pre-determined indicators. Teamwork and shared learning between QI teams allow for rapid spread of best practices.

This paper discusses the role modern QI approaches can play in improving MNCH outcomes. Drawing on examples from the work of the USAID Health Care Improvement Project (HCI) in Africa, Asia, and Latin America, we demonstrate how quality gaps in the services addressing the antenatal, intra partum, postnatal, neonatal, and child periods can be closed through modern QI approaches.

QI can be applied at all levels of the health system, using existing resources, to put in place long-lasting changes in how care is provided. The first step in any QI project is to engage with national policymakers to understand their priorities and strategies. At the individual sites, process deficiencies and their associated outputs are quantified and the inner mechanisms responsible for those deficiencies, exposed. Specific barriers to implementation of effective processes are addressed with the in-depth knowledge and innovative capacity of individuals who work in those processes on a daily basis. Solutions are created by the owners of the problems who are best positioned to design and implement interventions to close the gaps in health service quality. Quality improvement uses continuous monitoring of processes to understand the effect changes have on health outcomes. When the data show that a change in the process produced an improvement, this learning is then shared with colleagues to spread the idea across facilities, districts, and regions.

Illustrative cases drawn from HCI's work exemplify how modern QI has improved processes across the continuum of MNCH care:

ANC: In rural Kenya, to increase the proportion of pregnant women who benefit from ANC services, the changes tested were to include ANC services in the ongoing outreach visits to the community and to allow health facilities to use some of their available cash to supplement the purchase of folic acid and iron tablets to prevent stock-out. Such changes led to increased early use of ANC services as well as the improvement in the quality of services provided. In Afghanistan, analysis of the root cause of low tetanus toxoid vaccination coverage led to the development of a change package to increase it, including: clarification of job descriptions and responsibilities for ANC services; refresher training to staff; a monthly discussion on compliance with ANC standards; and the establishment of pharmacy committees to ensure the availability of essential vaccines and vaccination supplies. As a result, the proportion of pregnant women who received two doses of tetanus toxoid vaccine in the target provinces leaped from a baseline of zero to 42% the month after the change package was introduced, rising to 53% a year later.

Essential Obstetric Care: The use of **partograph** increased substantially in Afghanistan and Guatemala by introducing simple modifications to the processes of providing services, including: assuring that the partograph sheet is included in every client's file on admission; assigning a specific staff person to complete the partograph for each labor; training staff on the use of the partograph; and, in Guatemala, placement of an oversized replica of the partograph on the walls of the delivery room for all to see. Modern QI has been applied in several countries to improve the application of active management of third stage of labor (**AMTSL**), including Niger, Mali, Afghanistan, Ecuador, Guatemala, Honduras, and Nicaragua. A simple change concept was initially tested in Niger and then spread to other countries: to make Oxytocin available in a ready-to-use form at every delivery, a cooler was placed in the delivery room that included syringes on ice pre-loaded with Oxytocin.

Essential Newborn Care: In Uganda, the detection of neonatal asphyxia and immediate application of resuscitation increased dramatically after changing health staff's belief that resuscitation was too sophisticated to be applied at the primary care level. In addition, training using locally made models and assuring the availability of essential supplies empowered the staff to apply the procedure promptly. The paper also includes examples of the effect of QI on improving the application of essential newborn care in Uganda and Guatemala and on decreasing newborn sepsis in Nicaragua.

Infant and Child Care: In Senegal and Honduras, HCI applied modern QI at the community level to increase the ability of community health workers (CHWs) to detect sick children within 24 hours of disease onset, initiate treatment, and refer to the nearest health facility. Interventions included updating the technical skills of CHWs and engaging the community in identifying sick children. Such interventions led to substantial increase in the early detection and treatment of childhood illness.

Post-partum Family Planning: In Mali, QI teams successfully integrated family planning counseling into post-partum care. The teams noticed that while most health facilities offer family planning services, these services are not traditionally regarded as part of post-partum care. Hence, the QI intervention simply linked the family planning unit with the post-partum ward within the same health facility. This was coupled with improving the family planning counseling skills of staff and ensuring a physical space was available to offer private counseling to post-partum women jointly with their husbands.

Scaling Up the Quality Improvement Gain: HCI applied a deliberate spread strategy at the start of each program, guided by three key questions: *What are we spreading? Where are we spreading? And, How are we spreading?* All programs included capacity building and, from the start, HCI engaged the national level policy makers in the design and monitoring of QI implementation at the service delivery level. Once a package of successful changes has been tested and proven to yield positive outcomes, HCI advocated for simultaneously spreading best practices, rather than sequentially. Participating sites shared successes, barriers encountered, and tips and tools with other sites working towards the same improvement aim. Modern QI facilitated the incorporation of successful changes into the service delivery process by making these changes part of new service delivery norms. We present examples of spread of gains through QI in Ecuador, Niger, Mali, Honduras, Afghanistan, and Nicaragua.

We conclude the paper by discussing the special features that make modern QI an asset to MNCH programs and beyond. Modern QI helps staff to thoroughly understand the current system and processes of service delivery and to test changes to produce better outcomes. Modern QI concepts underscore that without changing the system, we are bound to obtain the same results. Occasionally, injecting inputs, such as training or supplies, leads to improvement of health outcomes. However, such improvement will not last unless changes are made in the processes of service delivery.

At the core of modern QI is the improvement of health systems. HCI has supported strengthening all health system components—not just service delivery—as an integral part of the improvement process. This includes: engaging national stakeholders from the outset; improving health workforce performance; mobilizing national and local partners to improve the availability of resources, medications, and supplies; and using data to measure the impact of improvement and monitor progress over time.

I. Background

A. Purpose of the Paper

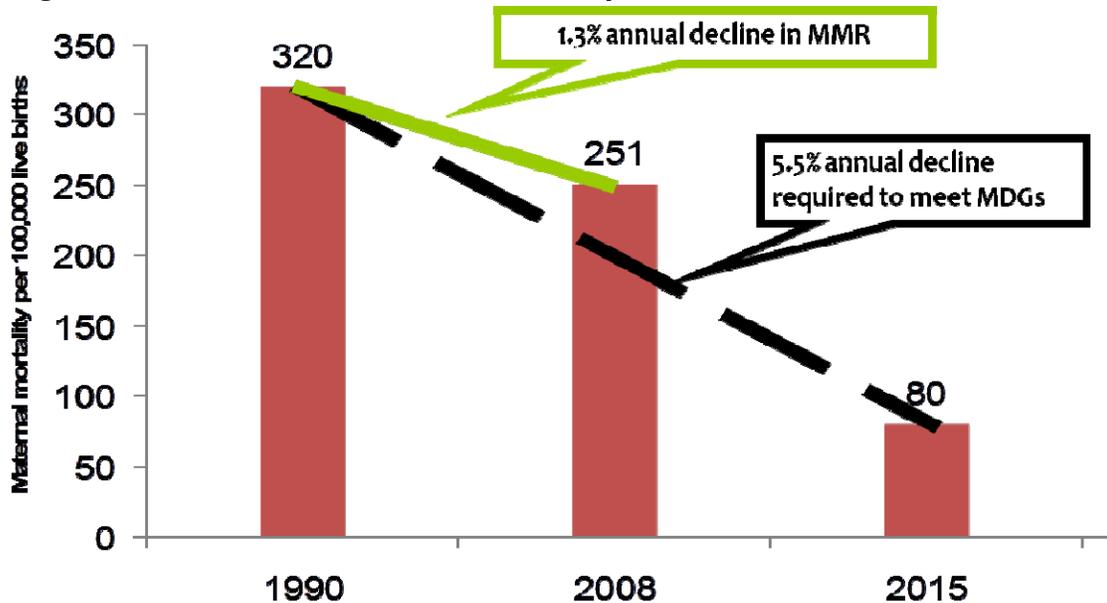
To generate declines in maternal, neonatal, and child mortality, evidence-based interventions need to be of high quality and implemented at scale. Herein, we discuss the role modern quality improvement (QI) approaches play in improving maternal, newborn, and child health (MNCH) outcomes. The underlying assumption is that the Millennium Development Goals (MDGs) will be achieved more rapidly if proven interventions are of high quality. We cite examples of gaps and constraints in the provision of quality care. Taking a life-cycle approach, including antenatal, intra-partum, postnatal, neonatal, and child periods, we demonstrate how these gaps can be closed through modern QI approaches. To that end, we delineate the basic elements of QI and describe how they are scaled up and sustained, drawing on results from the United States Agency for International Development (USAID) Health Care Improvement Project (HCI).

B. Progress toward Maternal, Neonatal, and Child Mortality Reduction

The international community established the MDGs to stimulate and measure improvement in the health of populations and access to effective health services in developing countries. For child health, MDG 4 was established to reduce by two-thirds the under-five mortality rate, between 1990 and 2015. Similarly, for maternal health, MDG 5 was established to reduce by three quarters, the maternal mortality ratio during the same period of time. Recent assessment of the progress toward achieving the MDGs concluded that there has been significant decline in under-five mortality in all regions of the world between 1990 and 2009 (1). However, the rate of decline in child mortality is still insufficient to meet MDG 4 target of 2015 (2). The reduction in newborn mortality has been particularly slow in Sub-Saharan Africa and South Asia (1).

Progress toward achieving the maternal mortality goal has been even slower. The decline in the global maternal mortality ratio was 1.3 per cent per year between 1990 and 2008, a much slower decline than the desired decline of 5.5 percent to achieve MDG5 (see Figure 1) (3). It is estimated that 87 percent of maternal deaths are concentrated in Sub-Saharan Africa and Southern Asia (1).

Figure 1: Global Trend in Maternal Mortality Rate Insufficient to Meet MDG 5



Adapted from Hogan et al. 2010 (3).

C. Proven MNCH Interventions

This sluggish reduction in mortality occurs even though proven interventions are known to mitigate the causes of maternal and child deaths. Globally, the main causes of under-five mortality continue to be pneumonia, diarrhea, malaria, malnutrition, and neonatal-specific causes, such as infections, asphyxia, and preterm birth. Most maternal mortality reported in developing countries is caused by hemorrhage, infection, hypertensive disorders, and obstructed labor. Evidence-based interventions to prevent most maternal and child mortality have been identified across the continuum of care: antenatal care, delivery, postnatal/post-partum care, care of infants, and care of children. Such interventions have contributed to reducing maternal and child mortality through health facility and community services (4).

II. Gaps in the Quality of MNCH Services

Across the continuum of MNCH services, gaps in the effectiveness of health services have been documented. This section presents an analysis of the quality of MNCH services based on evidence from existing literature and supported with data from Demographic and Health Surveys (DHS) and Service Provision Assessments (SPA) in African and Asian countries. The Demographic and Health Surveys provide data for population-based health indicators, whereas the Service Provision Assessments provide information about the specific characteristics of health facilities and services available in a country. The information provided supports the premise that MNCH shortcomings remain because of inattention to the quality of the services delivered. This section does not aim to be a comprehensive gap analysis of MNCH services; it aims only to demonstrate some illustrative examples of such gaps.

A. Gaps in Delivering Effective Antenatal Care

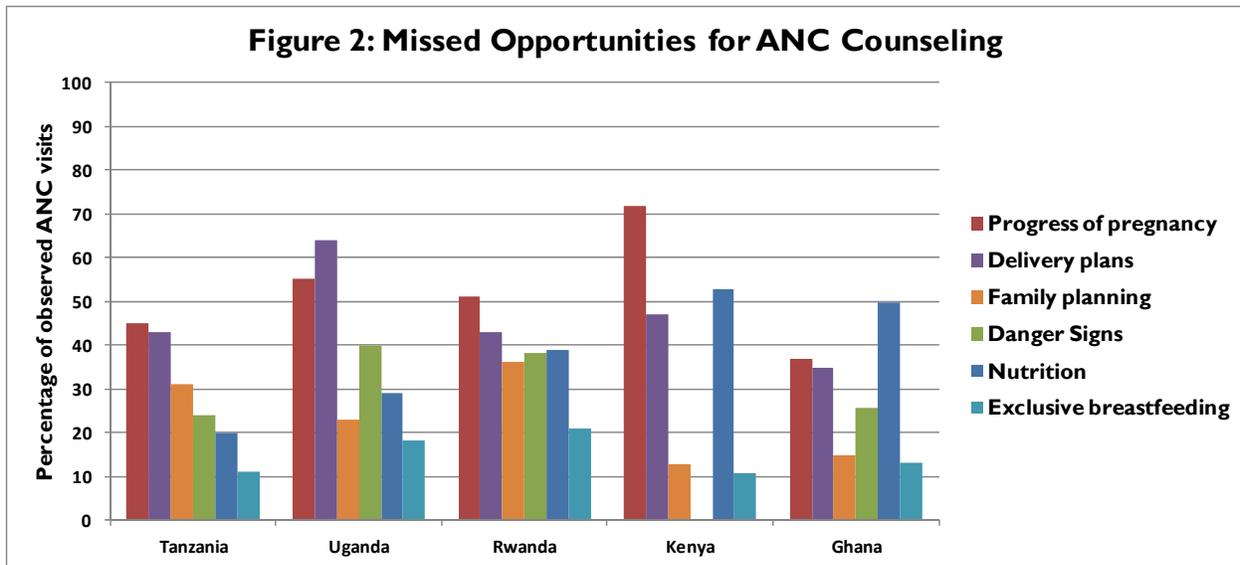
Coverage of antenatal care (ANC) services has increased substantially in every region of the world. The proportion of pregnant women in low- and middle-income countries who have at least one ANC visit increased from less than 64% in 1990 to 81% in 2009 (1). Despite this impressive progress in the increase in proportion of women making one ANC visit, the percentage of women completing the recommended minimum of four ANC visits has only increased to 51% in 2009, up from 35% in 1990 (1).

Our understanding of the optimal number, timing, and content of ANC visits is continuously evolving. While it is critical to expand our knowledge of evidence-based interventions, it is equally important to implement them and move forward with “what works”. (5) The World Health Organization (WHO) has laid out clear guidelines which draw upon the best-available evidence regarding ANC norms. This includes testing for anemia, iron and folate supplementation, syphilis testing, tetanus immunization, provision of anti-malarials and anthelmintics, HIV testing and counseling, screening for pre-eclampsia, counseling for birth preparedness, and counseling for family planning (4). Despite debates about the direct impact of ANC on maternal mortality (6), the ANC period presents an important entry point for improving subsequent health outcomes throughout the continuum of maternal and child care.

Analysis of SPA data from several countries (SPA: Tanzania 2006, Uganda 2007, Kenya 2004, Ghana 2002, Rwanda 2007) shows that ANC services are often incomplete and lack several essential interventions. Only 24-37% of all observed facilities in the five countries met basic requirements for infection control; the majority lacked ANC supplies such as gloves, soap and disinfecting solutions. In addition, facilities did not have adequate ANC client cards, guidelines, or visual aids. The analysis also reveals missed opportunities for counseling antenatal clients on delivery plans, danger signs of pregnancy, nutrition, and family planning (see Figure 2).

B. Safe Delivery: Gaps in the Services Associated with Childbirth

Access to emergency obstetric care (EmOC) is essential to meeting MDG 5. Yet improving access without ensuring the effectiveness of EmOC services leads to missed opportunities to avert deaths and inefficient use of scarce resources. Global assessments of EmOC facilities in low- and middle-income



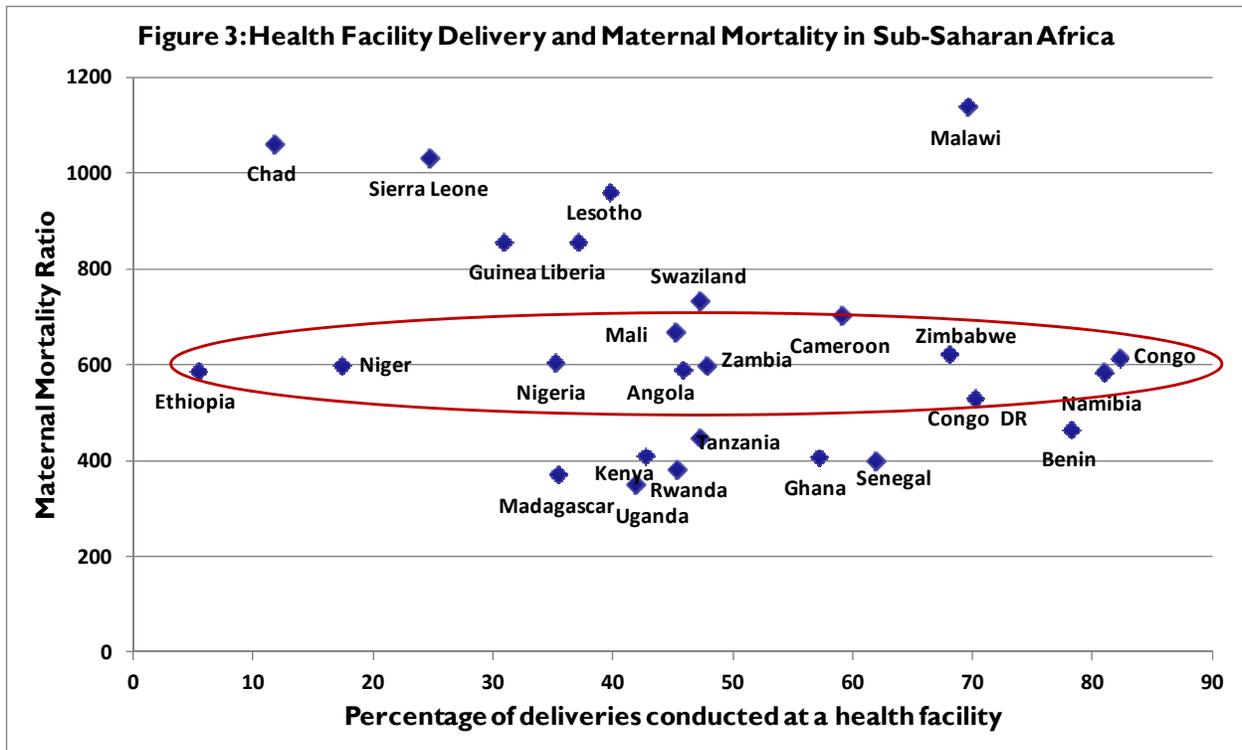
countries have demonstrated that not only are EmOC facilities insufficient in number, but a large majority of facilities designated as EmOC centers fail to provide minimum standard of care (7, 8).

Health facilities are often unable to provide even basic care for obstetric emergencies for several reasons, including lack of: a) essential drugs and equipment, b) skilled staff, c) monitoring and supervision, and d) commitment. In their efforts to meet the MDGs, government and donors are addressing these shortcomings by emphasizing the quantity of service delivery points and the number of facilities that offer the service, over the quality of the services offered.

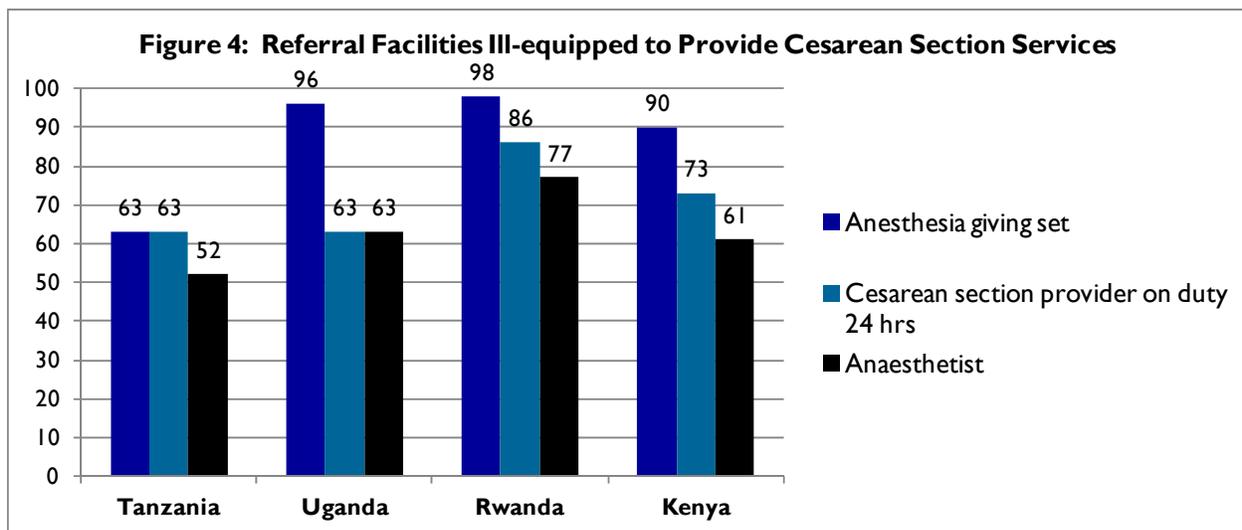
Delivery by a skilled birth attendant in a health facility is recommended as one of the most important strategies to reduce maternal mortality. Many programs aim to increase the proportion of deliveries that take place at facilities rather than at home. Innovative interventions such as subsidizing the cost of transport of pregnant women to assure that they deliver in a health facility succeeded in increasing the proportion of institutional deliveries in India. In Cambodia, incentives-based interventions succeeded in raising the proportion of deliveries in health facilities from 22% to 54% (Source: Cambodia DHS, 2005 and 2010). Other programs emphasize “birth preparedness” to ensure that transport and a companion are arranged in case maternal complications require transferring delivering women to referral hospitals.

The assumption is that it is safer for the pregnant woman to deliver at a health facility should a complication arise during delivery, such as obstructed labor or hemorrhage, and the health facility will be equipped to deal with such complications. Unfortunately, however, this assumption is not always true. The ability of health facilities to offer basic or emergency obstetric care varies greatly. This is best demonstrated by exposing the great variation between the maternal mortality rates of countries with similar percent of women delivering at a health facility. Analysis of DHS data in sub-Saharan Africa reveals that while Democratic Republic of Congo, Zimbabwe, and Malawi have about 70% of deliveries taking place at a health facility, the maternal mortality ratio in these three countries varies from about 500 to about 1,100 per 100,000 live births.(9) Similarly, the analysis shows that countries with a similar maternal mortality ratio, around 600/100,000 live births, have various proportions of deliveries taking place at a health facility, from 5% in Ethiopia to about 80% in Namibia (see Figure 3).

There could be multiple reasons for this variation, ranging from the difference in HIV prevalence to nutrition status and level of poverty, or political instability and conflict. But, it is also possible that the substandard delivery services and the inadequate basic or emergency obstetric care services at health facilities could be important factors that determine the delivery outcome and contribute to the variation in health outcomes in countries with comparable service provision.



Analysis of SPA surveys also reveals that poor quality emergency obstetric care is all too common in referral health institutions. Among all facilities that are supposed to offer cesarean section services, there is a serious shortage of anesthesia equipment, anesthetists, or trained cesarean section providers on duty (see Figure 4).



The analysis also reveals a shortage of basic supplies needed during deliveries such as syringes and needles, suture materials, and intravenous drips. Availability of all basic delivery supplies in hospitals varied from 51% in Ghana to only 6% in Tanzania.

Indeed, poor quality of obstetric services explains a proportion of the maternal deaths among facility-based births. An important indicator of quality obstetric services is correct and timely application of the active management of the third stage of labor (AMTSL)—an evidence-based clinical practice to reduce

post-partum hemorrhage. A review of hospital records of deliveries in 15 Guatemalan public hospitals revealed 87% of women received a uterotonic (10). However, only 61% of them received the medication during the correct stage of delivery, and fewer (21%) received it within one minute of delivery (10). Only 7% of the 172 women observed benefited from timely and correct application of AMTSL (10).

III. Modern Quality Improvement

A. What Is Quality Improvement?

The World Health Organization (WHO) defines the quality of health care as the “proper performance (according to standards) of interventions that are known to be safe, that are affordable by the society in question, and that have the ability to produce an impact on mortality, morbidity, disability and malnutrition.” A more recent WHO publication suggests the key components that define quality health care as depicted in Table I.

Building on WHO’s definition of quality health care, QI has been defined as “a cyclical process of measuring a performance gap; understanding the causes of the gap; testing, planning, and implementing interventions to close the gap; studying the effects of the interventions; and planning additional corrective actions in response” (11).

The main implication of this definition is that strategies for QI are not “fixed.” On the contrary, QI is a continuous and dynamic process that measures and responds to the results of interventions.

B. A New Paradigm for Quality Improvement

The USAID Health Care Improvement Project has spearheaded a new paradigm for QI as a means to increase the effectiveness of MNCH programs in resource-limited countries. The traditional approach to improving health care quality has been to apply evidence-based guidelines; conduct training; introduce job aids, materials, and equipment; improve supervision; and instill regulation, such as licensing and accreditation. The new paradigm is based on the understanding that a *system is designed to produce the results it produces*; in order to obtain better results, the system must change. Hence, the emphasis is on analyzing the systems and processes of delivering services and testing changes to obtain better results. This requires thorough analysis of the existing procedures and steps of service delivery to identify areas of potential problems or delays and hence areas where change can result in an improvement. Resolution of unclear, redundant, or incomplete processes within a broader context is more practical and palatable than placing blame on individuals or on the lack of resources.

The modern paradigm for QI puts the emphasis squarely on the client rather than the disease, as is the case with a traditional medical model. A client-centered perspective emphasizes his/her needs and expectations and frames them within his/her community—not within a health facility.

Teamwork is another basic tenet of modern QI. Team members bring valuable insights, not only in identifying and prioritizing problems, but also in the development of innovative solutions—solutions

Table I: Key Components of Quality Health Care as Defined by WHO

Safety: health care should not harm patients.

Effectiveness: Services should be based on scientific evidence and be shown to benefit those who receive them.

Patient-centered: Care should be respectful of and responsive to individual patient preferences, needs, and values.

Timeliness: Health care delivery should minimize patient waits and avoid harmful delays.

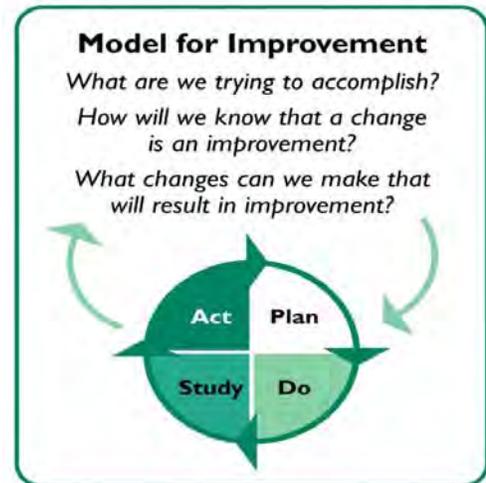
Efficiency: Care should avoid waste.

Equity: Care provided should not vary in quality because of patient gender, ethnicity, age, geographic location or socio-economic status.

which QI teams will implement themselves with their available resources. Similarly, collection of data by end-users spurs the analysis process and feeds back real-time results which allow the teams to make evidenced-based decisions instead of operating from a basis of assumptions. Results measurement is important to obtain needed data for analysis, problem identification, and performance measurement. Shared learning between participants is an integral element of the QI process that allows for the rapid spread of tested innovations.

One change model used to improve health care processes is called the **Model for Improvement** (see Figure 5). The model asks three key questions which guide the improvement activity: “*What are we trying to accomplish?*” “*How will we know that a change is an improvement?*” and “*What changes can we make that will result in improvement?*” This is followed by the Plan-Do-Study-Act (PDSA) cycle in which the solution is tested to see whether it yields an improvement, and the results are then used to decide whether to implement, modify, or abandon the proposed solution. If the tested solution does not achieve desired results, the solution can be modified, and the PDSA cycle is repeated. If the results are achieved, the solution is implemented on a larger scale and monitored over time for robustness of the result. QI does not end with the last step—it is continuous.

Figure 5: The Model for Improvement



Adapted from Associates in Process Improvement

C. Quality Improvement Project Design

HCI designs QI programs to fit within existing Ministry of Health (MOH) structures in order to build capacity and ensure sustainability. To meet this end, the project works in close collaboration with Ministries of Health at the national level to: 1) determine priorities for improvement, 2) select regions or districts where the implementation will be demonstrated, 3) develop a monitoring system to strengthen and build on the existing health information system, and 4) understand which stakeholders should be involved at each level. Together with the host government, we develop a process to support the teams working at the facility and/or community levels. This support process includes: 1) the design of capacity-building mechanisms for coaches and QI teams; 2) identification of national, regional, and district authorities to whom we will report and seek guidance and advice; 3) coordination with other implementing partners; and 4) development of sharing mechanisms (e.g., how to organize learning sessions around financial and language constraints, etc.).

A key feature to ensure the scale-up of improvements is to consider spread (scale-up) during the design phase of a new project. To incorporate spread into the design, it is essential to identify and include all the relevant stakeholders who will assume responsibility for QI from the beginning. This is essential to sustain and spread the gains and to inculcate a culture of change. Rather than create parallel systems, QI can enhance the government’s existing reporting and supervision mechanisms (i.e., district and regional meetings, routine supervision visits, and communication channels). QI project implementation is a dynamic process that should remain flexible to allow adjustments to QI interventions as needed.

HCI often provides basic training in quality improvement for QI teams and the coaches who support them, but most of the learning is derived through hands-on practice—from “doing”. At the beginning of a project, MOH coaches and HCI staff work jointly to support QI teams. HCI staff’s role diminishes as soon as possible as MOH capacity grows. As QI teams begin to see improvements in their indicators, they are eager to share the changes that produced those outcomes with colleagues on other teams.

IV. Closing the Quality Gap in MNCH and Family Planning Programs

Examples of successful MNCH and family planning (FP) interventions abound in the global landscape. Yet, many development approaches tend to be linear, input-driven, and based on top-down solutions in the form of central-level directives. Conventional approaches to improve health outcomes often follow this ideal constellation: policies are revised based on evidence, programs are designed according to international standards, trainings are implemented, routine supervision is expected, and monitoring of results is encouraged. However, sometimes the best of intentions fall short of being sustainable because of a lack of attention to the processes for delivering care.

Modern QI approaches cut across levels of the health system, work within the available resources, and provide long-lasting change. The first step in any QI project is to engage with national policymakers to understand their priorities and strategies and align subsequent QI efforts with national health priorities. At the individual sites, process deficiencies and their associated outputs are quantified, and the inner mechanisms responsible for those deficiencies are exposed. Specific barriers to implementation of effective processes are addressed with the in-depth knowledge and innovative capacity of people who work on those processes on a daily basis. Solutions are created by the owners of the processes who design and implement their interventions to close the gap in providing quality health services. At all levels of the health system, QI processes require continuous data monitoring to understand the effect that packages of changes (i.e., modifications to current processes of service delivery) are having on health outcomes. When the data show that a change in the process produces an improvement—and even when it does not—experiences are shared with colleagues and peers across districts and regions. Learning from each other is one of QI's more powerful aspects that accounts for its ready adoption in a variety of settings.

In this section, we present illustrative examples from the USAID Health Care Improvement Project that exemplify the modern QI difference. We present our work across the life cycle of maternal and child health beginning with antenatal care and essential obstetric care, moving next to essential newborn care (ENC), then on to infant and child care, and ending with post-partum family planning (PPFP).

A. Antenatal Care

I. Improving coverage and quality of ANC in rural Kenya

In Kenya, the utilization of ANC in rural areas is below the national average, and the women who do use ANC, tend to use it late in pregnancy. The national standards for ANC provision include measuring blood pressure and hemoglobin level, the distribution of three months' supply of folic acid (folate) and iron tablets, and documenting the blood type of the pregnant woman. In Kwale, a remote district, QI teams from all health facilities, with support of coaches (members of the district health management team who support the QI process), analyzed the root causes of the late utilization and the poor quality of ANC services using QI tools such as “process mapping” and “cause-and-effect analysis”(12). Results of the analysis were discussed with staff members who provide ANC services in the district. Innovative solutions (changes to the current processes) were suggested and selected for testing.

One of the aims of the activity was to ensure women enroll in ANC care early in their pregnancy. A change idea to improve this indicator was to add an ANC component to the ongoing community outreach visits normally used for child vaccination coverage. A nurse/midwife was added to the outreach team to enlist and provide services to pregnant women in the community, such as measuring blood pressure and referring them to the health facility to receive further ANC services.

Another gap detected by the QI teams was the low stock of folate. Team decided, as an intermediary step, to mobilize some of the cash collected from fees-for-services to purchase folate for the district. To devise a long-term solution, the QI teams investigated the root cause of the chronic shortage of folate: a procurement problem at the central level. The MOH attempted to procure one drug that combines

folate with iron; however, no vendors responded since they only had formulations for single medications. As a result, no folate was procured in any form. Through the impetus of the QI teams, the Kenya National Medical Supplies Agency (KEMSA) assured that folic acid is included in future national drug procurement so that Kwale District will be adequately supplied. This QI effort resulted in increasing the early use of ANC services as well as the quality of services provided (see Figures 6 and 7).

Figure 6: Percent of Pregnant Women with First ANC Visit Before 16 Weeks Gestation, Kwale District, Kenya, January-November 2011

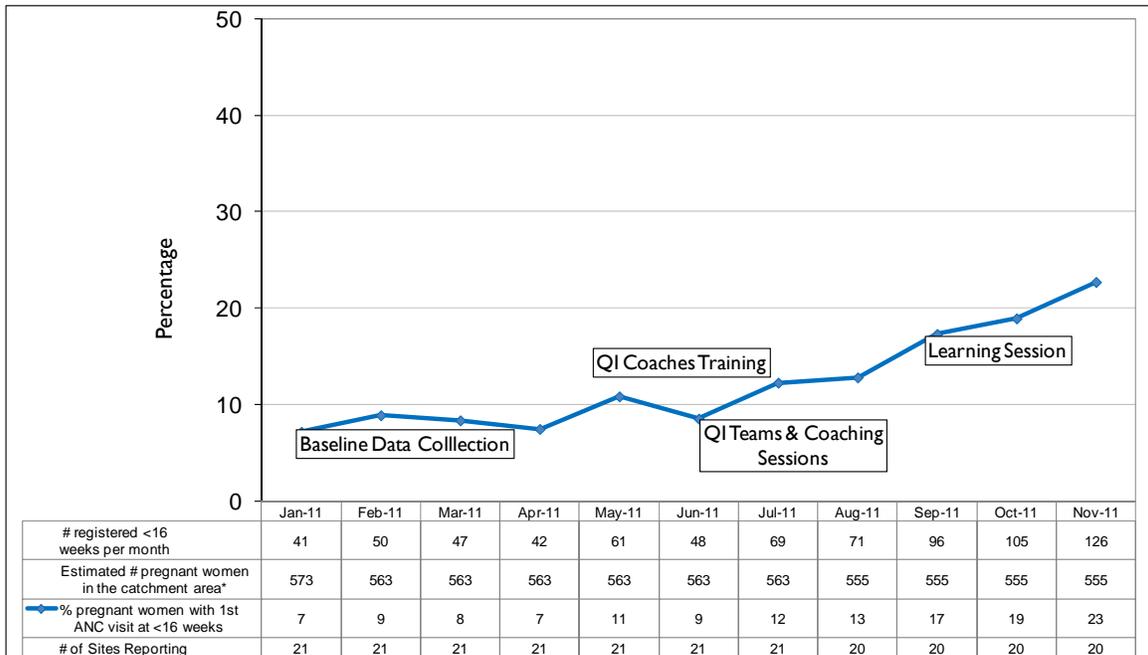
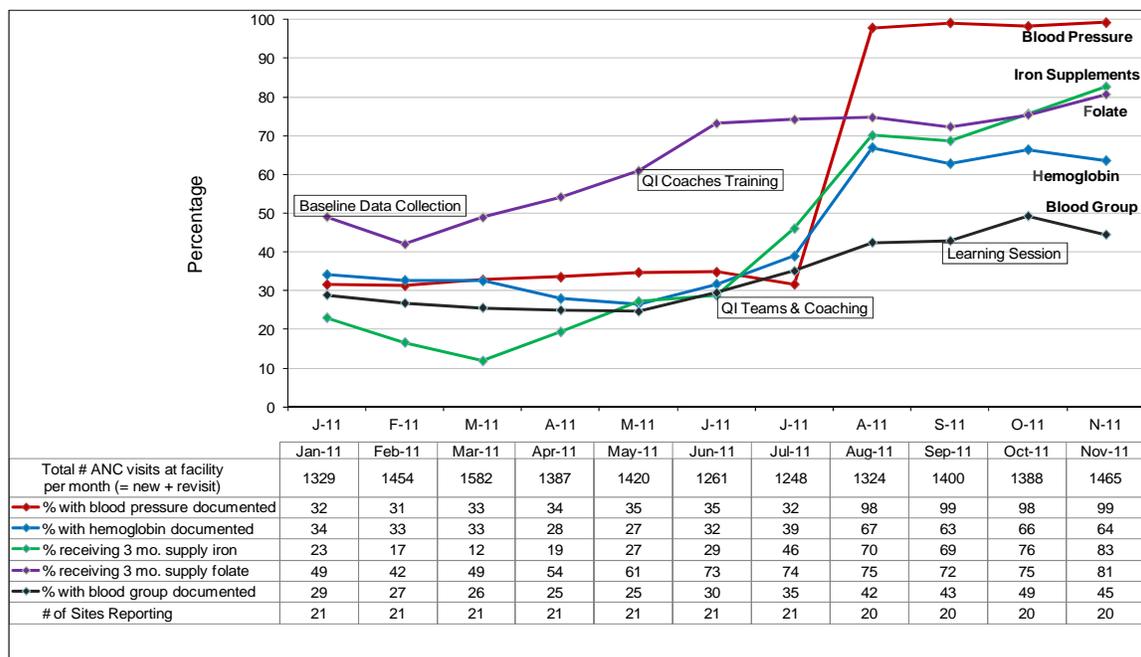


Figure 7: Percent of Pregnant Women Receiving ANC Services According to Standards, Kwale District, Kenya, January-November 2011



2. Increasing tetanus toxoid vaccination of pregnant women in Afghanistan

In Afghanistan, HCI supported the Ministry of Public Health (MOPH) in establishing a national QI Unit to lead health services improvement efforts across the nation and to develop national standards for MNCH services. The project is partnering with the MOPH to improve the quality of MNCH services in some 10 provinces. Increasing the coverage of tetanus toxoid vaccination among pregnant women, as a primary measure to prevent neonatal tetanus, has been identified as an important objective to improve the quality of ANC. The process of QI included analysis of the root cause of the low tetanus toxoid vaccination coverage and the development of a change package to increase it including: clarification of job descriptions and responsibilities for ANC services; refresher training to ANC staff members; a monthly discussion on compliance with the standards of ANC which helped solve operational obstacles; and the establishment of pharmacy committees to ensure the availability of essential vaccines and vaccination supplies. In Parwan Province, the proportion of pregnant women who received two doses of the tetanus toxoid vaccine leaped from a baseline of zero to 42% the month after the first change package was introduced. A year later, in September 2011, that rate reached 53%.

B. Essential Obstetric Care

I. Increasing the use of the partograph in Afghanistan and Guatemala

The partograph is a simple and effective tool to monitor the fetal heart rate and uterine contractions during labor and determine whether the labor is complicated and may require obstetric interventions. Studies show that using the partograph can be highly effective in reducing complications from prolonged labor for the mother (postpartum hemorrhage, sepsis, uterine rupture) and for the newborn (asphyxia, infections). HCI has applied QI to ensure that the partograph is used routinely in every labor in several countries. We present two examples, in Afghanistan, where the use of partograph was grossly neglected, and in Guatemala, where its use was high, but not to the desired level. In these examples, QI approaches were used to ensure that, regardless of the starting baseline level, a change in the process of providing labor care should result in having the partograph used routinely in labor care. Results are summarized in Figures 8 and 9.

Figure 8: Percent of Vaginal Deliveries for Which the Partograph Was Completed, Kunduz Province, Afghanistan, June 2009-September 2011

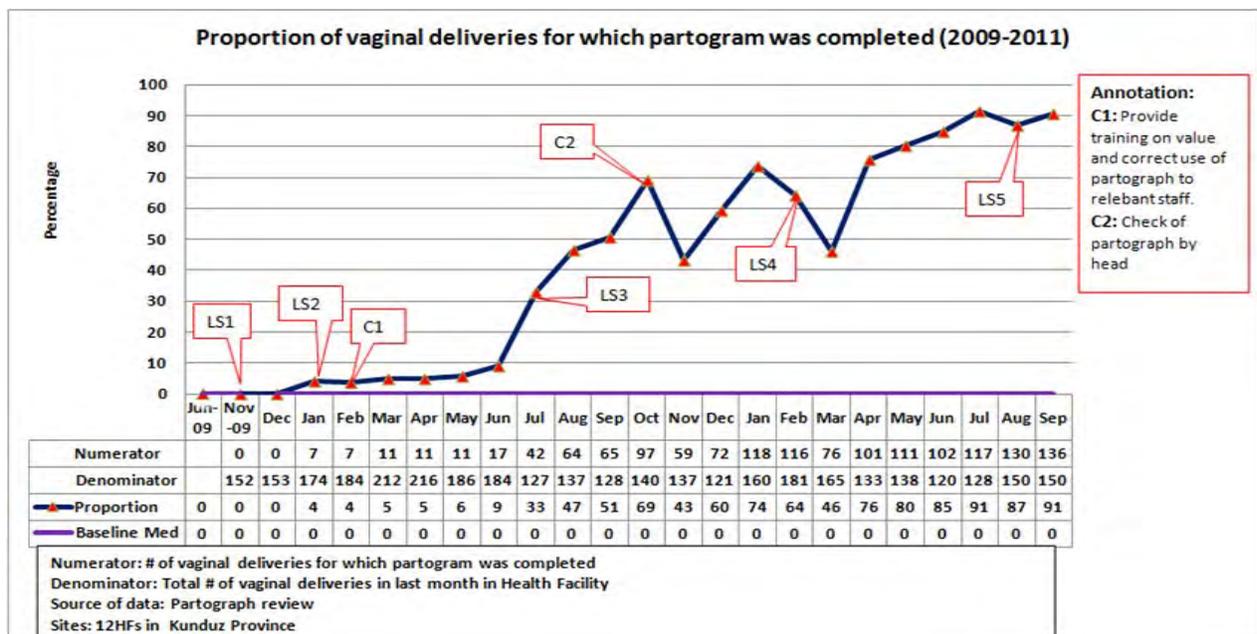
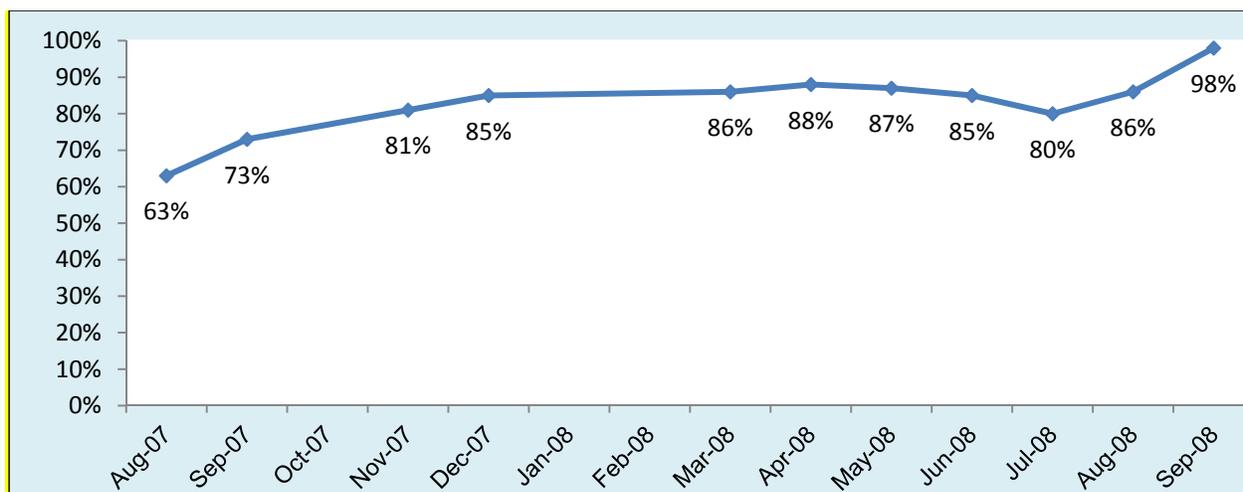


Figure 9: Percent of Completed Criteria in the Use of the Partograph, San Marcos Health Area, Guatemala, August 2007-September 2008



A simple analysis of the current process of delivering care at the labor ward revealed that despite the availability of partograph forms, several gaps existed that may have led to skipping its use in some clients. The main interventions to assure that partograph was not skipped included: ensuring that the partograph sheet is included in every client's file on admission; assigning a specific staff person to complete and monitor the partograph for each labor; and training staff in the use of the partograph and its interpretation. In Guatemala, QI teams reproduced the partograph in a very large, oversized format and placed it on the wall of the delivery room for all to see. The patient's medical records were expected to include a copy of the completed partograph.

2. Increasing the application of AMTSL and decreasing post-partum hemorrhage in Niger, Mali, and Afghanistan

The active management of the third stage of labor (AMTSL) is included in the national obstetric care guidelines in most countries. However, despite the overwhelming evidence of its effectiveness in reducing post-partum hemorrhage (PPH), AMTSL is often neglected. Here we give examples of how applying QI led to the change in the process of service delivery to ensure that AMTSL is routinely provided for every vaginal delivery.

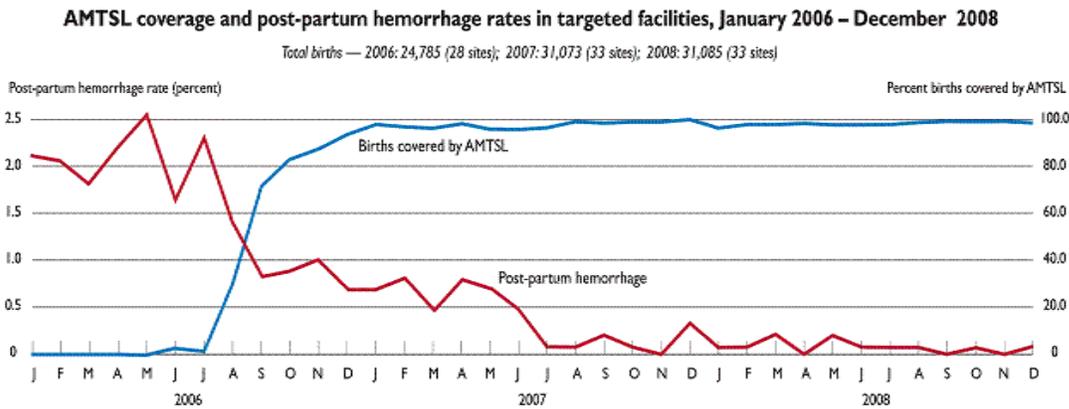
Health care providers usually receive their directives from the central and regional levels and are not active participants in problem-solving. But QI approaches empowered front line providers in Niger to examine their own process of service delivery and suggest changes to make it better. The application of QI helped clarify roles and responsibilities in childbirth. The QI process allowed health providers to describe how their role within the process affected other providers' ability to carry out their responsibilities. QI also developed the ability of staff to use data to monitor service quality.

Looking critically at their own data motivated staff to come up with innovations to increase the practice of AMTSL. The staff realized that the lack of readily available Oxytocin in the delivery room was an important impediment to delivering AMTSL. They tested two changes to address this problem: first, placing a cooler with a pre-filled syringe of Oxytocin at the bedside of a laboring woman, and second, adding a small reminder to the clinical record to ensure that all three steps of AMTSL were followed (see Figure 10). These small but significant changes produced dramatic results in several sites, as shown in Figure 11. Within a few months of intervening, provider behaviors changed and the changes were sustained over time. As the application of AMTSL increased, sites saw a corresponding drop in PPH. We attribute this to the fact that the implementers designed their own change package and shared their ideas with colleagues in other facilities.

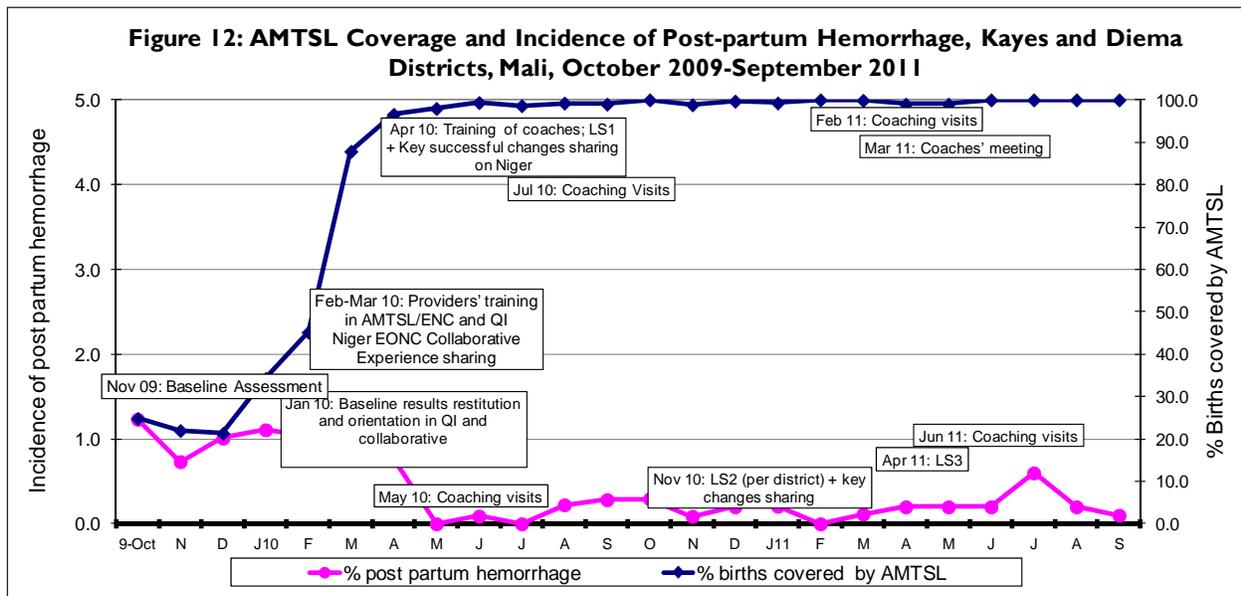
Figure 10: Cooler to Store Pre-filled Syringes with Oxytocin and Locally Made Stamp to Add Recording of AMTSL to the Maternal Medical Record, Niger



Figure 11: AMTSL Coverage and Incidence of Post-partum Hemorrhage, Niger, January 2006-December 2008

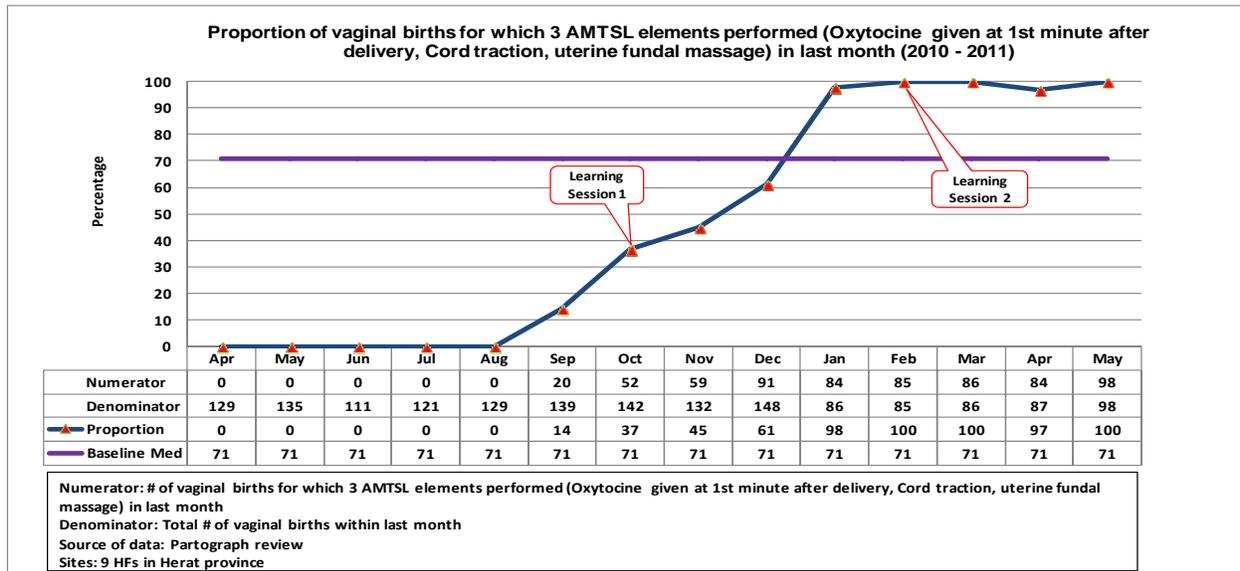


The demonstrated success in Niger has quickly spilled over to advance the adoption of AMTSL best practices in the neighboring country, Mali. Our Malian counterparts were exposed to the impressive results achieved in Niger, and they endorsed the same change package for testing in Mali. Figure 12 shows the rapid increase in the practice of AMTSL after the QI intervention.



From Niger and Mali to Herat Province, Afghanistan, the testing of innovative changes to increase the application of AMTSL and the sharing of learning between sites allowed the identification and the spread of best practices. Figure 13 shows a similar improvement of the increase of the use of AMTSL in Herat Province. Similarly impressive results were obtained in Uganda and several Latin American countries, such as Ecuador.

Figure 13: Percent of Births for Which Three AMTSL Elements Were Performed, Herat Province, Afghanistan, October 2010-May 2011



C. Essential Newborn Care

I. Improving newborn resuscitation in Uganda

Evidence indicates that newborn resuscitation can significantly reduce asphyxia-related newborn mortality, one of the leading causes of newborn death. In Uganda, HCI applied the modern concepts of QI to increase health facilities' ability to routinely resuscitate asphyxiated newborns in Masaka and Luwero districts. Initial systems analysis revealed that health staff at the primary care level thought that resuscitation of a newborn was a sophisticated procedure that could only be performed by a specialist at the referral hospital. Unfortunately, since resuscitation has to be performed in the first minute after birth, this meant that most of the asphyxiated newborns would die before reaching the referral site. Hence, the QI change concept developed was to bring resuscitation to the primary care level, meaning that every health facility should have delivery staff who are competent in detecting asphyxia and applying resuscitation within one minute of delivery and the basic supplies necessary for resuscitation.

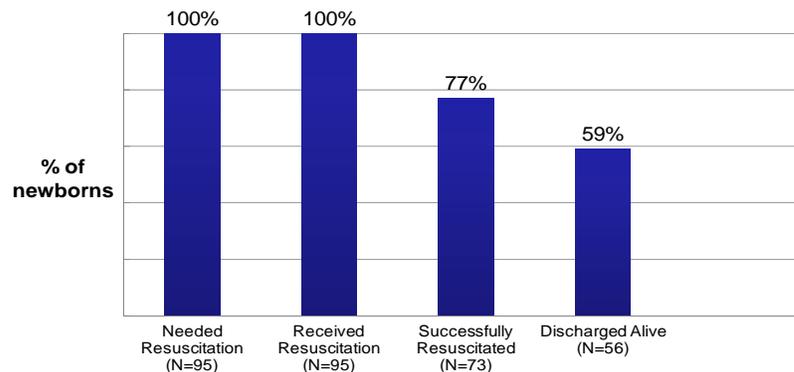
Training on resuscitation was conducted using locally developed training models, and when available, other training models were provided by the national Helping Babies Breathe program. Skills were maintained through regular coaching visits during which coaches observed providers in carrying out the steps in newborn resuscitation. All facilities were also provided with a locally made resuscitation table. The QI teams also worked with the Village Health Teams, which are community-level teams, organized to engage the community and facilitate linkages with the health facility. In addition, the program liaised with the national level Helping Babies Breathe initiative to assure that basic resuscitation equipment, such as a mucus suction device and a bag and a mask, were available in every facility. Figure 14 shows the equipment mobilized locally to enable providers in Masaka and Luwero districts to perform newborn resuscitation.

Figure 14: Locally Made Newborn Resuscitation Table and Training Models Provided to Facilities in Luwero and Masaka Districts in Uganda



As a result, between June and September 2011, the proportion of providers that could correctly carry out all the resuscitation steps increased from 16% to 62% in Luwero District and from 51% to 65% in Masaka District. In September 2011, these practical skills translated to all newborns who needed resuscitation receiving it, and most of them (77%) being successfully resuscitated (see Figure 15). Fifty-nine percent of those newborns who needed resuscitation left the health facility alive. While we have no baseline data to compare to, it is believed that most of these newborns would have died without the resuscitation intervention.

Figure 15: Coverage and Effectiveness of Newborn Resuscitation, Luwero and Masaka Districts, Uganda, September 2011



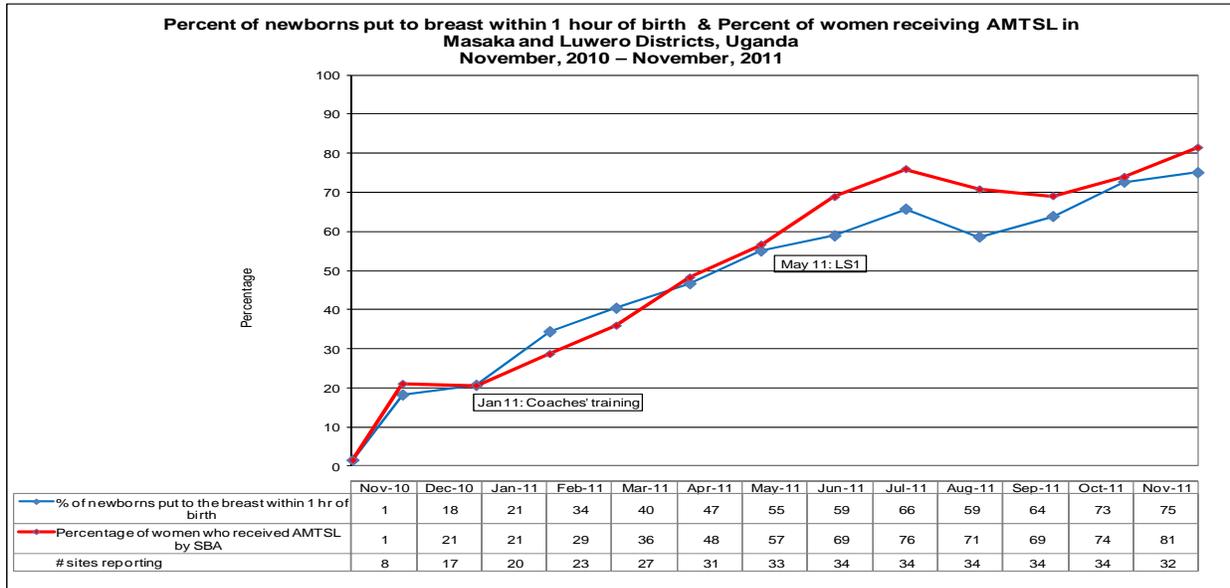
2. Integrating essential newborn care and maternal care in Uganda

The value of integration of health services is universally recognized, however the challenge remains in defining what services to integrate and how to achieve such integration. The modern QI approach provides a simple and practical answer: start with the obvious missed opportunity for integration and build on it. An obvious missed opportunity is the lack of integration of maternal and newborn care in the delivery room. Traditionally, after delivery, newborn care is provided separately from post-partum care. HCI has helped providers integrate the two services in several countries.

We present here an example from Uganda where the application of QI helped health staff clarify their specific roles after the delivery of the newborn and used checklist reminders to ensure that none of the

essential steps for caring for the mother or the newborn are neglected. QI teams in health facilities in Masaka and Luwero districts applied the new system and collected data to monitor results. Figure 16 presents the results: compliance with both AMTSL and essential newborn care standards (as indicated by the percent of newborns put to breast feed within one hour of delivery), dramatically increased. Similar improvement was documented in other elements of essential newborn care, such as drying the newborn; assessing breathing and resuscitation, if needed; skin-to-skin contact on mother's chest; covering newborn, including head; cord care; and eye care.

Figure 16: Percent of Women Receiving AMTSL and Percent of Newborns Put to Breast within One Hour of Birth, Luwero and Masaka Districts, Uganda, November 2010- November 2011



3. Improving essential newborn care in Guatemala

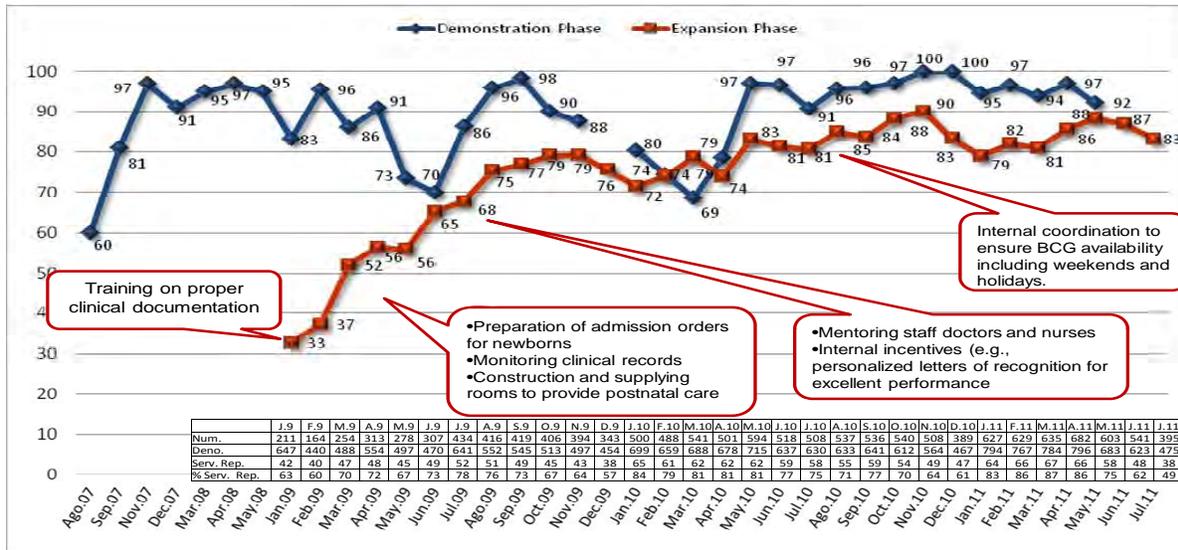
With the involvement of the Ministry of Public Health and Social Assistance (MSPAS), HCI developed an approach to assure essential obstetric and newborn care comprised of three lines of action: community mobilization, basic care, and care of complications. To ensure the provision of essential newborn care, the coaches worked with QI teams in participating health facilities to clarify roles and responsibilities. This was coupled with training on essential obstetric and newborn care, data recording and interpretation, and forecasting the need for medications and supplies.

Twenty-two health centers in the Department of San Marcos were initially selected for a demonstration phase. Later, the intervention was spread to seven other departments. Figure 17 shows the improvement achieved in the demonstration and spread phases. It is worth mentioning that, due to the sharing of experience and lessons learned from the demonstration phase, the improvement obtained in the spread phase was steadier and achieved in a shorter period of time.

4. Decreasing newborn sepsis in Nicaragua

In its QI effort to decrease newborn sepsis in Nicaragua, HCI conducted an initial assessment that revealed that hygienic measures for cord cutting and care, infection prevention measures at delivery, and identifying and treating sexually transmitted diseases among pregnant women were adequate. The gap was in the ability of health facilities to detect early and treat newborn infections. Communication between the pediatric department and the laboratory was weak, and high-risk newborns were not identified or followed up. In addition, data to monitor newborn sepsis were not tracked. Hence, a QI intervention was designed to specifically address the identified gap.

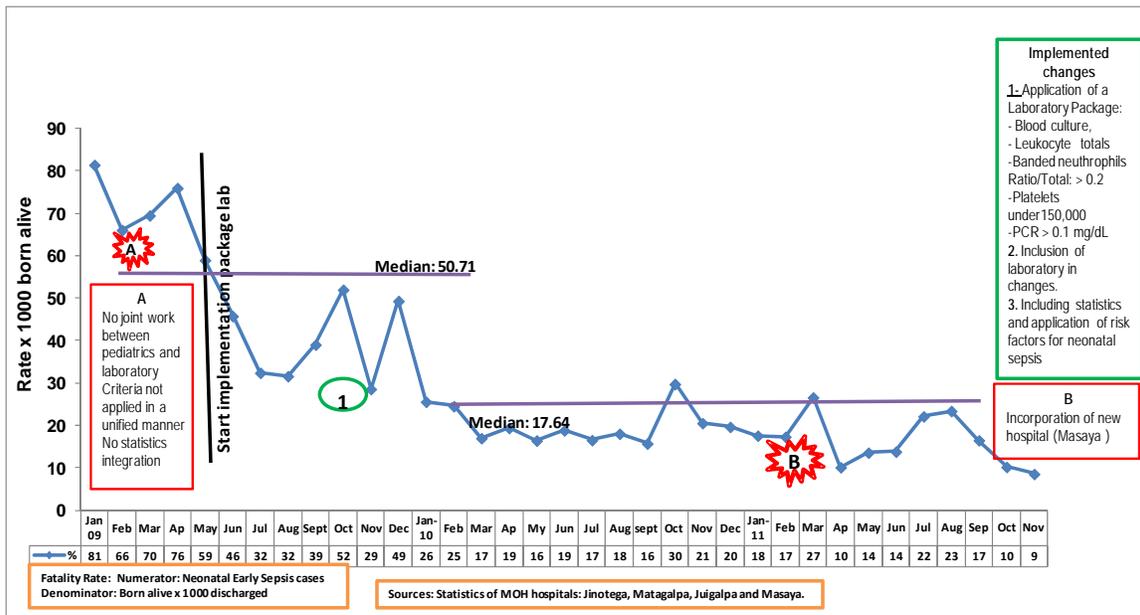
Figure 17: Percent of Newborns Receiving Essential Care According to Standards, Comparison of San Marcos Department with Seven Other Departments, Guatemala, August 2007-July 2011



Scale-up Phase: 67 services reported during 2009; 77 services reported during 2010 and 2011.
 Source: USAID/HCI Consolidated Date Base for Guatemala. January 2009 to July 2011 (preliminary data).

Tested in four hospitals, the package included: identifying pregnant women in the third trimester with urinary tract infection and appropriately treating their infection, identifying “high risk” newborns (those whose mother had a history of urinary or genital tract infection), and conducting laboratory tests to detect newborn sepsis early and administer appropriate antibiotics for treatment. The intervention included strengthening the ability of the laboratories to perform blood culture, white blood cell count, and improving coordination with the pediatric department to monitor sepsis among high-risk newborns at six, 24, and 72 hours after birth. Special attention was given to data collection and monitoring.

Figure 18: Incidence of Early Neonatal Sepsis, Four Hospitals, Nicaragua, January 2009- November 2011



D. Infant and Child Care

Early detection and treatment of child illness and prompt referral can make the difference between life and death. Integrated community case management of child illness has been heralded as an efficient approach to identify sick children and initiate early treatment.

I. Improving community case management of child illness in Senegal

In Senegal, CHWs provide services from community-supported “Health Huts.” In addition, a “Community Health Committee”—comprised of prominent civil society leaders and health providers from nearby facilities—serve as social auditors, ensuring the adequate delivery of community health services by selecting and supporting CHWs.

In partnership with ChildFund International, HCI applied modern QI approaches at the community level in two districts, Mbour and Tivaoune, to increase the ability of CHWs to detect sick children within 24 hours of disease onset, initiate treatment as appropriate, and refer to the nearest health facility. Interventions included updating the technical skills of CHWs to detect and manage childhood pneumonia, malaria, and diarrhea—the three diseases responsible for most of the post-neonatal mortality among children under five years old. Such tasks were within the role of CHWs as specified in the national policy guidelines. In addition, the Community Health Committees were engaged in communicating the importance of early detection and management of childhood illnesses to the community in general and to caretakers of children in particular. Community meetings were organized with participation of CHWs and staff from the nearest health facility. This served to increase the referral of cases from the CHW to the health facility.

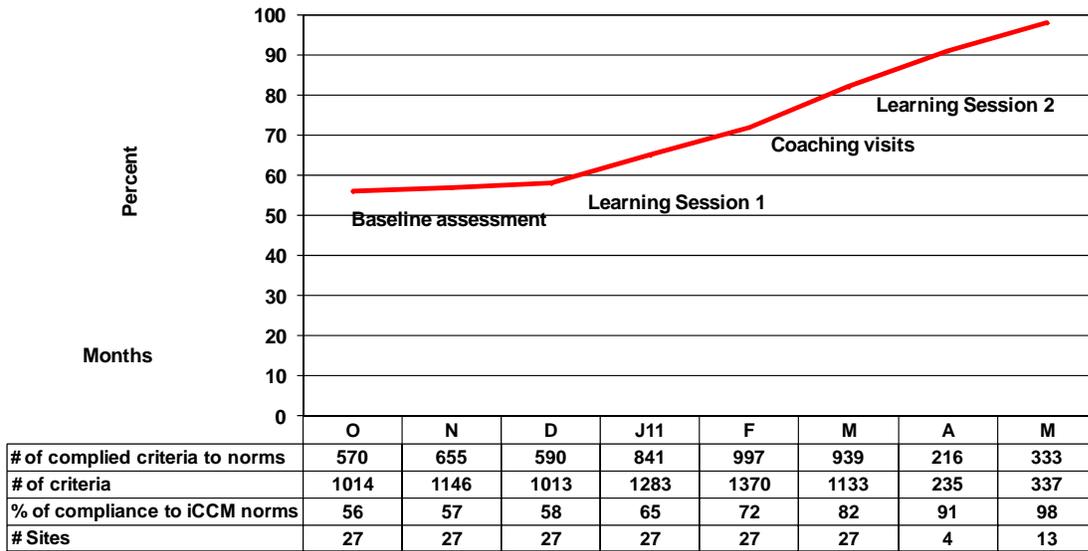
QI interventions included the formation of QI teams comprised of CHWs, selected members of the Community Health Committee, and a provider based in the nearest health facility. CHWs were trained to register basic data on each childhood illness identified, onset of disease as described by the child’s main caretaker, the treatment initiated by the CHW, and the referral of the sick child. CHWs were taught to plot and interpret basic information such as the number of sick children, the number who received initial treatment, and number referred to the nearest health facility. The Community Health Committee also assured the availability of a short list of essential drugs at the Health Hut for initiating treatment for childhood pneumonia, malaria, and diarrhea.

Through learning sessions, QI teams from different communities shared their interventions, challenges, and results. Figure 19 depicts the timing of the QI interventions and the corresponding increase in the percentage of children seen at the community within 24 hours of the onset of illness. Within an eight-month period, the percentage of sick children promptly seen more than doubled (from 40% to 89%), reflecting the effect of developing QI skills, coaching CHWs, and sharing lessons learned.

2. Combating childhood illnesses at the community level in Honduras

HCI advised the Honduran government on the design of a national policy for health care quality focused on standardization and monitoring quality metrics. Simultaneously, HCI helped improve the management of obstetric and newborn complications, improve the referral system, and improve the management of child pneumonia and acute diarrheal disease. The latter intervention covered four of the nine networks in La Paz Region over a 15-month period. A key factor in the development of the intervention was securing financing from the regional level for basic supplies needed to implement the changes identified by QI teams. These changes included simple inputs like documentation journals to register the identified sick children, the initiation of treatment at the community level by CHWs, and clear referral protocols to ensure that referred children received priority attention at the health facility. Among a host of changes, one innovation stands out. QI teams engaged the mayors and their staff to sensitize them on integrated infant and child health care and to solicit their help to reinforce messaging on the recognition of danger signs and early treatment at a health facility. These municipal officers supported and provided oversight to community volunteers as well.

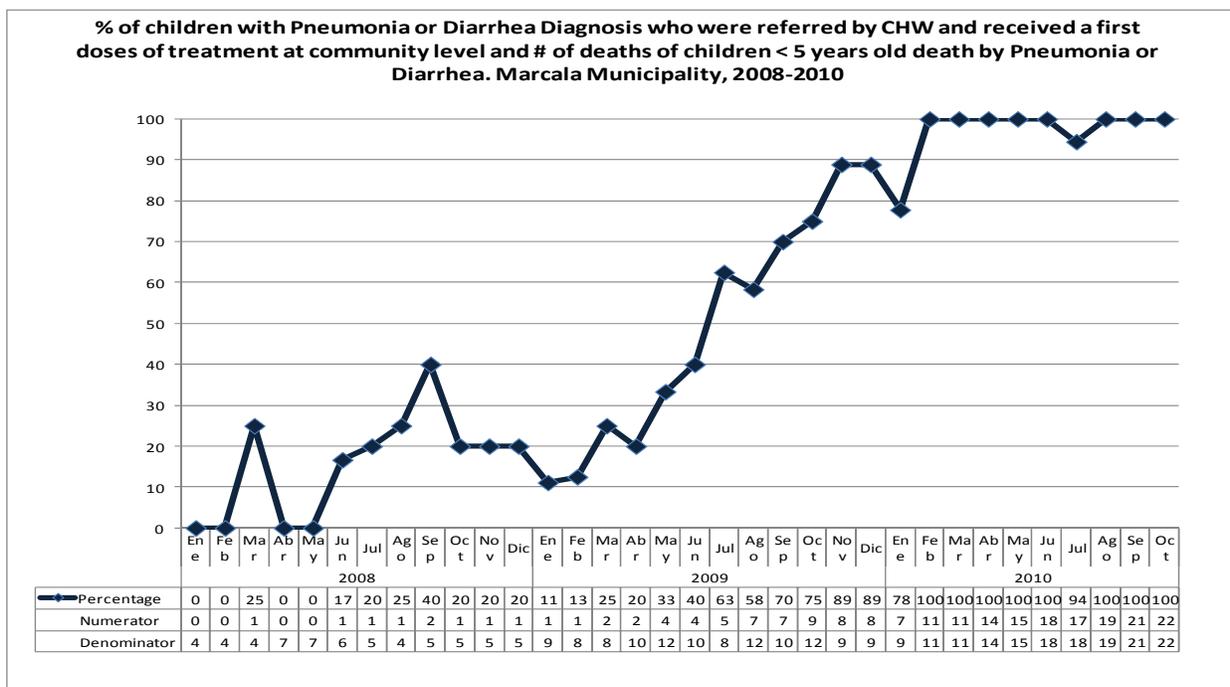
Figure 19: Percent of Children Seen within 24 Hours of Illness Onset, Mbour and Tivaoune Districts, Senegal, October 2010-May 2011



While no causal association can be made, it remains noteworthy that the number of deaths from pneumonia and diarrhea dropped in the region during the intervention period (2008-2010). There was a 31% decrease in the number of pneumonia deaths and 20% drop in the number of diarrhea deaths. Despite the small numbers, this is an impressive decline.

Figure 20 shows data from one health center confirming the important role CHWs can play vis-à-vis health-seeking patterns for childhood illnesses. After an initial response followed by a lag period, the results of the CHWs' interventions resulted in steady climbs to reach 100% compliance with referral of children suffering from pneumonia or diarrhea, even after the number of communities was doubled.

Figure 20: Percent of Children with Pneumonia or Acute Diarrhea Who Received Initial Treatment from a CHW in the Community Prior to Referral, Marcala Maternal Clinic, Honduras, January 2008-October 2010



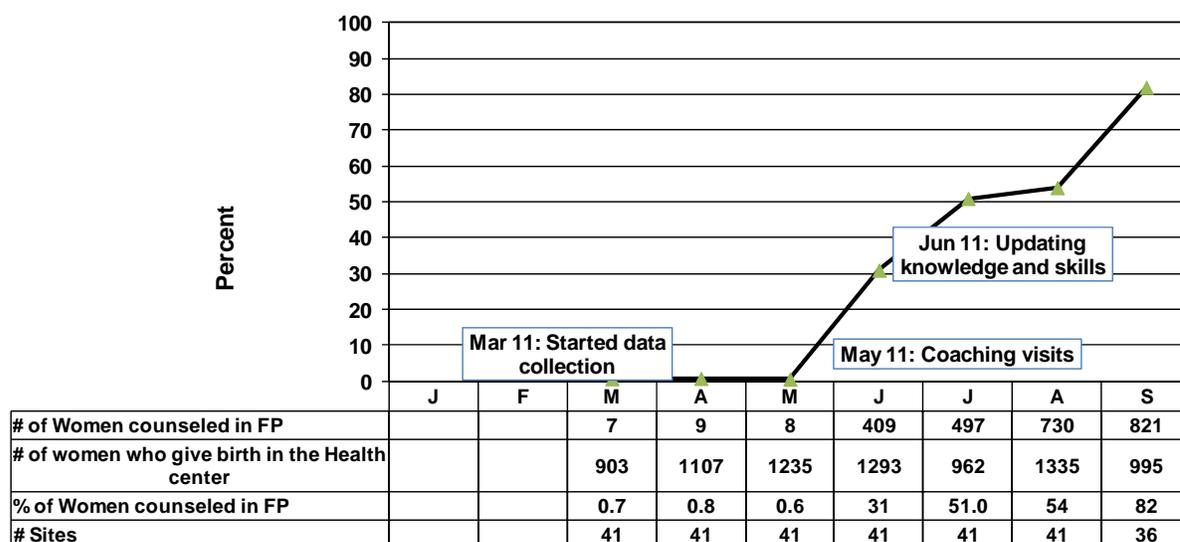
E. Post-partum Family Planning

I. Integrating family planning counseling with post-partum care in Mali

Globally, it is estimated that 25-40% of maternal mortality can be prevented if unwanted pregnancies are avoided. The majority of post-partum women (97%) do not want to have another pregnancy for at least two years, however only 40% of them use family planning (13). This discrepancy poses a great unmet need for family planning services.

Mali has one of the world's highest fertility rates and a high unmet need for family planning. QI teams in a remote and under-resourced setting successfully integrated family planning counseling into post-partum care in two districts: Kayes and Diema. QI teams in 41 participating health facilities noticed that while most health facilities offered family planning services, these services were not traditionally regarded as part of post-partum care. The QI intervention simply linked the family planning unit with the post-partum ward within the same health facility. This was coupled with improving the family planning counseling skills of staff and ensuring a physical space was available to offer private counseling to post-partum women jointly with their husbands. Figure 21 shows the results: family planning counseling has been instituted as a routine post-partum service. Four months after the first coaching visits, 82% of post-partum women received family planning counseling before discharge, a laudable response to a baseline of practically nil.

Figure 21: Percent of Women Who Gave Birth at the Facility and Received Family Planning Counseling, Kayes and Diema Districts, Mali, March-September 2011



Pivotal to this accomplishment was the origination of solutions from the targeted health workers themselves. Change ideas emerged from the bottom up and spread laterally across facilities and districts. The district level intervention was coupled with central level advocacy that created a supportive environment for the institutionalization of these changes. Inherently, QI works within systems, often making only minor changes that can have big effects when delivered at scale.

V. Scaling Up Improved Systems of Care Delivery

There are three key questions to guide the spreading of demonstrated improvements: *What are we spreading? Where are we spreading? And, How are we spreading?* The answer to the first question describes the changes in the system that led to the adoption of the high-impact, evidence-based

interventions. Regarding the extent of spread, ideally, the scale of spread will eventually reach all the relevant catchment areas. It is not always possible to work at a national level from the onset. In those cases, a phased approach to scale-up incorporates new sites along the way. To answer the third question, we take into consideration both the content and the breadth of the spread. For instance, content that is simply a minor change in the service delivery process might be spread through executive decision and communication to relevant health staff at a wide scale, whereas more complicated changes (e.g., AMTSL) that require developing clinical skills might require hands-on training .

All HCI field projects include capacity building—not only of technical skills but more distinctively, on the QI approaches which can be applied beyond the boundaries of MNCH. From project start-up, HCI engages national-level policy makers in the design and monitoring of the QI project implemented at the district level. This is achieved through forming steering committees and technical advisory groups. One of the most important aspects of a spread phase is MOH leadership and ownership of the program. As an external project, HCI can provide technical support, guidance, and capacity building, but spread will only be successful and sustainable if the MOH spearheads the process. Spread happens through existing MOH structures and is used to enhance and improve those structures. Strong advocates, coaches, and teams from the demonstration phase—dubbed as champions—build capacity during a spread phase.

Once a QI change package has been tested and proven to impart positive outcomes, HCI advocates for spreading best practices simultaneously rather than sequentially. Participating sites work together on average for 6-18 months to design and test a package of changes to care processes. Participating sites share successes, barriers encountered, and tips and tools with other sites working towards the same improvement aim. Teams address lessons learned and adapt changes to their local context.

Modern QI facilitates the spread (scale-up) of successful changes into the service delivery process by making these changes part of service delivery norms and routine practices. Another intervening factor that fosters spread is building capacity in QI methods. HCI's capacity building goes far beyond teaching providers how to properly apply a best practice. By applying modern QI approaches, HCI encourages communities, facilities, and ministries to examine the current process of service delivery to identify where changes are needed—to eliminate bottlenecks and reduce unnecessary steps. These small changes have a cumulative effect and *de facto* strengthen the health system as a whole. Simultaneously, shared learning within and across districts and regions builds momentum to spread a new norm or a new way of doing business, across a health system.

A. Country Examples of Scale-up of Quality Improvement Gains

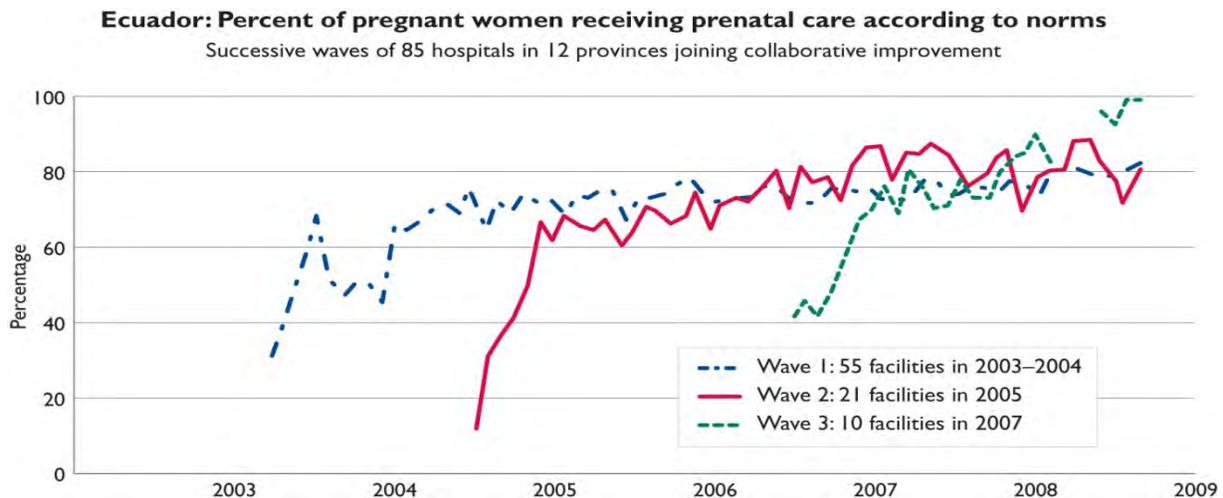
I. Scaling up essential obstetric care in Ecuador

With USAID technical support, Ecuador's Ministry of Health began in 2003 to apply collaborative improvement to address essential obstetric care. The program started with eight sites and within the first year grew to 55, all working on improving antenatal and delivery care. QI teams were formed and trained to monitor indicators of quality and test changes to ensure that evidence-based practices were routinely implemented. In about a year, the percentage of prenatal visits conducted according to standards began to stabilize near 80%.

Spread took place in three phases (waves), shown in Figure 22. The first wave (group of health facilities) of implementation was followed in 2005 by a second wave of sites that joined the collaborative and had the advantage of the learning that had been generated by the first wave. These second-wave sites received less support from external technical advisors and more from the MOH. In 2007, without external technical support, MOH staff initiated another wave of improvement activities in 10 new sites. As the graph shows, using learning from the previous wave, each successive wave achieved faster scale-up of best practices. By the end of 2007, all 86 hospitals in 12 provinces were reporting data and showing consistent results, with most women receiving care according to standards. In 2007, the MOH

scaled up the AMTSL component to all remaining provinces, and in 2009, extended the entire essential obstetric and neonatal package to five more provinces with its own funding.

Figure 22: Percent of Pregnant Women Receiving Antenatal Care According to Standards, 85 Hospitals, Ecuador, 2003-2009



2. Spreading innovation from Niger to Mali

The success of the implementation of QI in Niger that led to high, sustained coverage of AMTSL was shared with health officials in neighboring Mali. Subsequently, HCI was invited to implement QI in Kayes, a remote, resource-poor region. Benefiting from the experience and lessons learned in Niger, the implementation of changes in Kayes was swift and soon demonstrated a substantial improvement in the uptake of AMTSL and a decrease in post-partum hemorrhage. The MOH's Division of Reproductive Health convened a national meeting where results from Kayes were presented, and the MOH requested USAID and HCI to spread the QI program to other regions and other health services in Mali. As a result, plans were developed to scale up QI in MNCH and family planning in Mali, including:

- Collaborating with national programs to strengthen the gains made in two districts of Kayes Region and extend them to all districts in the region, starting with Kita
- Expanding the use of QI to improve postpartum family planning counseling and services in Kayes Region
- Building national capacity and assisting national programs in extending the best practices of the QI approach to improve maternal and newborn care in Segou Region
- Extending the application of QI to contribute to reducing the persistent high level of maternal and child anemia in Sikasso Region.

3. Scaling up essential newborn and obstetric care in Honduras

In Honduras, the application of QI to improve maternal and newborn care began in two hospitals and three maternal and child health clinics in the Lempira Region in 2004. In the next two years, the QI experiences from this region spread to four other health regions—Comayagua, La Paz, Copan, and Intibuca. Starting in 2007, QI best practices were expanded to another six regions for a total of 11 out of 20 regions in the country applying QI. The MOH's Department of Quality Assurance spearheaded the scale-up without external assistance, reaching 13 health regions to date. Fifteen of the nation's 28 public hospitals, 40 of the 56 maternity clinics, 215 of the 380 health centers with doctors, and 63 of the 1006

rural health posts are now engaged in QI activities. This rapid scale-up in Honduras is attributed to the following facilitating factors:

- Stakeholders were impressed when they started to see maternal and neonatal mortality rates decline in their respective regions. They attributed these improvements to the motivation of providers and community health workers. This culture of change was reflected by increased involvement of central level MOH officials who channeled sufficient funding to support QI activities. Best practices and lessons learned were spread across regions and led to an overall strengthening of the health system, covering 65% of the total health regions in the country.
- The MOH's conceptual framework and strategic design served as the policy framework for guiding implementation. Clinical practice guidelines and training manuals facilitated the translation of policy into practice.
- The launch of a 2008 National Policy to Accelerate the Reduction of Maternal and Neonatal Mortality (known by its Spanish acronym, RAMNI) further reinforced the central level mandate to improve quality.
- All of the quality indicators for essential obstetric and newborn care being monitored in the field by QI teams were included within the national monitoring system designed to measure RAMNI's progress. In addition, a scorecard to monitor the quality of hospital obstetric and newborn care was developed and used by hospital staff.

The map in Figure 23 delineates the phases of scale-up of QI program in Honduras according to three phases or waves of implementation.

Figure 23: Phases of QI Scale-up in Honduras



4. Spreading the improvement of maternal newborn and family planning services in Afghanistan

From the beginning of its efforts in Afghanistan, HCI established a strong partnership with the Ministry of Public Health at the national level. The project put emphasis on building the capacity of national counterparts and engaging them in the design, implementation, and monitoring of QI interventions to

The MOH was keen to scale up QI processes nationally and indeed was successful in 16 out of the 17 health regions (SILAIS). Table 2 details the spread of best practices in essential obstetric care (EOC) to most hospitals and clinics in the country between 2003 and 2007.

Table 2: Progressive Scale-up of Coverage of EOC Interventions in Hospitals and Health Centers in Nicaragua

SILAIS (Health Department)		Hospitals	Health Centers	% of total health centers in the SILAIS
2003: Demonstration Phase				
1.	Matagalpa	“Cesar Amador Molina”	15	88.2% of 17
2.	Chinandega	“Mauricio Abdalah”	13	76.5% of 17
3.	RAAS	“Ernesto Sequeira”	7	100%
Total	3 SILAIS	3 hospitals	35 health centers	
2004: First Spread Phase				
4.	Nueva Segovia	“Alfonso Moncada”	12	100%
5.	Madriz	“Juan Brenes”	9	100%
6.	Estelí	- “San Juan de Dios” - “La Trinidad”	6	100%
7.	Granada	“Amistad Japón - Nicaragua”	4	80% of 5
8.	Boaco	“José Nieborowski”	6	85.7% of 7
9.	Chontales	“La Asunción”	14	93.3% of 15
10.	Jinotega	“Victoria Motta”	8	
11.	RAAN	“Nuevo Amanecer”	5	100%
12.	Río San Juan	“Luis Felipe Moncada”	6	75% of 8
Total	9 SILAIS	10 hospitals	70 health centers	
2005: Second Spread Phase				
13.	León	“Oscar Danilo Rosales A.”	12	92.3% of 13
14.	Masaya	“Humberto Alvarado”	10	100%
Total	2 SILAIS	2 hospitals	22 health centers	
2007 (Spread Phase)				
15.	Rivas	“Gaspar García Laviana”	10	100%
16.	Carazo	“Santiago”	8	100%
Total	2 SILAIS	2 hospitals	18 health centers	
Total Facilities (2007)				
Grand Total	16 SILAIS	17 hospitals	145 health centers	92% of 157 health centers

Source: QAP/USAID Annual Reports (2004 and 2005 – 2006) and MINSA (MOH) Nicaragua 2007

VI. Discussion

The MNCH community is fortunate to have an arsenal of evidence-based interventions that have been proven to enhance health outcomes. However, much attention has been paid to documenting the impact of such best practices on health outcomes and not on how such interventions can be implemented routinely and become the norm of service provision. This paper presents concrete examples of how modern QI approaches have helped to make that translation in a rapid and sustained fashion. In order for evidence-based interventions to become the norm, the system and processes of service delivery need to be designed to allow the routine delivery of such interventions for every client. This requires a thorough understanding of the current system and process of service delivery, including roles and responsibilities, and testing changes to produce better outcome. Modern QI concepts stress that without changing the system, we are bound to obtain the same results. Occasionally, injecting inputs, such as training or supplies, leads to improvement of health outcomes. However, such improvement will not last unless there is a change in the processes of service delivery. In addition, modern QI allows for testing changes and for the spread of successful changes through shared learning.

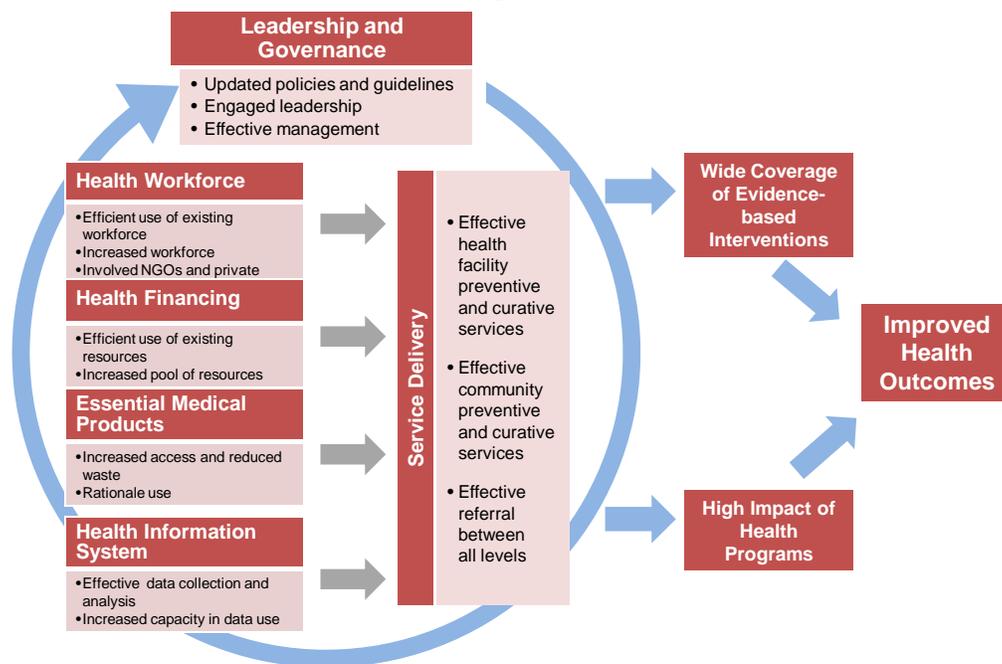
The USAID Health Care Improvement Project has demonstrated the power of modern QI in improving outcomes across the continuum of MNCH care. Table 3 summarizes the main change concepts, specific changes to service delivery processes, and the settings in which HCI has applied modern QI in the area of MNCH.

Table 3: Examples of Change Concepts Tested in MNCH Programs

MNCH Area	Change concept	Specific Change	Setting
Antenatal Care	<ul style="list-style-type: none"> Utilization of ANC will increase if ANC is provided in outreach services 	<ul style="list-style-type: none"> Provide local transportation for health facility nurse to conduct monthly ANC outreach visits 	Kenya
Essential Obstetric Care	<ul style="list-style-type: none"> The uptake of AMTSL will increase if Oxytocin is made available and ready to use at the delivery room 	<ul style="list-style-type: none"> Assure the availability of a small cooler including ready-to-inject Oxytocin at the delivery room A stamp at every delivery room including a reminder/checklist of the three steps of performing AMTSL 	Mali, Uganda, Niger, Ecuador and Afghanistan
Essential Newborn Care	<ul style="list-style-type: none"> Improving the availability of essential resuscitation materials in the delivery room combined with increasing resuscitation skills of maternity staff will lead to increasing resuscitation of asphyxiated newborns 	<ul style="list-style-type: none"> Provide a locally made resuscitation table in every delivery room Provide an aspirator and a resuscitation bag and mask to every delivery room Provide every facility with a locally made training model for practicing immediate newborn care steps 	Benin, Mali, Uganda, Guatemala, Nicaragua, Honduras, and El Salvador
Child Survival	<ul style="list-style-type: none"> Engaging communities in child health will lead to detecting and initiating treatment of sick children 	<ul style="list-style-type: none"> Organize community teams to provide community case management of child illness Provide community teams with essential drugs for the treatment of childhood malaria, pneumonia and diarrhea 	Senegal
Family Planning	<ul style="list-style-type: none"> Increase in competency in FP counseling in addition to ensuring privacy of counseling at maternities will lead to increase in the use of post-partum FP 	<ul style="list-style-type: none"> Arrange a private room for family planning counseling at post-partum care units Train maternal health staff on effective family planning counseling and provide them with job aids 	Afghanistan and Mali

At the core of modern QI is the improvement of health systems. In all the HCI programs described in this paper, all components of health systems, not just service delivery, were included as an integral part of the improvement process. This included: involving national stakeholders from the beginning; improving health workforce efficiency; soliciting contribution of national and local partners to improve the availability of financial resources, medications and supplies; and the emphasis on using data to measure impact of improvement and monitor progress over time. Figure 25 presents the conceptual framework for the contribution of modern QI to strengthening health systems and improving health outcomes.

Figure 25: Contribution of Modern QI to Strengthening Health Systems and Increasing Health Outcomes



We leave the reader with six key messages that encapsulate the modern QI difference:

- Modern QI bridges the know-do gap by focusing on **how** frontline health providers and CHWs can change processes to achieve better results. We all work from two known variables: evidenced-based interventions (i.e., AMTSL) and healthy outcomes (reduced rates of PPH). What distinguishes QI from more conventional approaches is that it focuses on the **processes** to link these two variables and translates knowledge into practice. QI approaches hone in on the translation phase which often entails careful scrutiny of detailed processes previously thought to be outside the realm of control. However, by learning through their peers' experiences, people are encouraged to apply the best practices to their own situation; they become motivated when they see firsthand the direct effect of their changes.
- QI builds capacity and empowers frontline providers to make changes and measure results. A culture of change promptly ensues once people realize that they can step outside the boundaries of their perceived roles and influence the results of their labor. When MOH officials, providers, and CHWs begin to assess and monitor indicators directly linked to their interventions, they have a sense of control which transforms their perspectives. Improvement is everyone's responsibility, not just of administrators at the central level. This heightened awareness leads people to actively seek solutions to their problems and take pride in their results.

- QI creates a supportive environment for change. District health officers and supervisors learn the benefits of positive reinforcement and take on new roles as coaches. They no longer look for problems with a person's performance; instead, they actively engage with health providers in joint problem solving. The culture of change permits everyone to realize areas where they can improve and work toward that direction. With a modern QI approach, providers and CHWs respond with enthusiasm and have a sense of healthy competition with their colleagues.
- Effective QI program design improves knowledge management to allow for information flow across different levels of the health system. This enables timely and adequate transfer of frontline experiences—including their challenges—to decision makers. In this manner, the system can be more adaptive, responsive, and prepared for future scale-up.
- QI enables scale-up because the emphasis is on identification of effective changes and employing shared learning as a means of spreading them. For far-reaching spread, shared learning is especially important to accelerate scale-up. As with all QI efforts, the starting point is with the MOH who takes ownership of the scale-up early on during the design phase.
- Key to sustaining improvement is building capacity at the local level, including coaching and problem-solving skills, measuring progress, and sharing knowledge. Learning is continuous and kinetic and inclusive of everyone involved in the process of delivering quality care. Ministry officials, providers, administrators, laboratory technicians, receptionists, and CHWs, all help to design their changes, and therefore, own them. They are armed with documented results of their changes to share and help others implement the changes in their own settings.

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