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CHILD SURVIVAL AND HEALTH GRANTS PROGRAM

TECHNICAL REFERENCE MATERIALS

2014

QUALITY IMPROVEMENT

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired immunodeficiency syndrome
ANC	Antenatal care
ASSIST	USAID Applying Sciences to Strengthen and Improve Systems
BTS	Breakthrough Series
CME	Continuing medical education
HCI	USAID Health Care Improvement Project
HIV	Human immunodeficiency virus
HMIS	Health management information systems
iCCM	Integrated community case management
IHI	Institute for Healthcare Improvement
IMCI	Integrated management of childhood illness
LMIC	Low- and middle-income country
MCHIP	Maternal and Child Health Integrated Program
MDGs	Millennium Development Goals
MOH	Ministry of Health
PBI	Performance-based incentives
PDQ	Partnership Defined Quality
PDSA	Plan-do-study-act
PEPFAR	U.S. President’s Emergency Plan for AIDS Relief
QA	Quality assurance
QAP	Quality Assurance Project
QI	Quality improvement
TRM	Technical reference material
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

INTRODUCTION TO THE TECHNICAL REFERENCE MATERIALS

The Technical Reference Materials (TRMs), products of the United States Agency for International Development, Bureau for Global Health, Office of Health, Infectious Diseases, and Nutrition (USAID/GH/HIDN), are a series of guides to help program planners and implementers consider the many elements in a particular technical area of the Child Survival and Health Grants Program (CSHGP). These guides are not an official policy for practice; rather, they are basic everyday summaries to be used as field reference documents. They also may be accessed in the form of electronic toolkits on the Knowledge for Health website.

The TRMs are organized in modules that correspond to the primary interventions and key strategies that are central to CSHGP. Each module covers the essential elements that need to be considered during implementation, resources for nongovernmental organizations (NGOs) and others implementing community-oriented programs to consult when planning interventions, and examples of tools most commonly used among CSHGP grantees to collect baseline population-level data.

The TRM modules cover the following topics:

Technical Interventions

- Family Planning and Reproductive Health
- Immunization
- Malaria
- Maternal and Newborn Care
- Nutrition
- Pneumonia Case Management and Control of Diarrheal Disease

Cross-cutting Strategies

- Social and Behavior Change
- Health System Strengthening
- Monitoring and Evaluation
- Quality Improvement

Technical specialists in the USAID Collaborating Agency community, CORE Group Working Groups, USAID technical staff, and community-oriented practitioners all contribute to updating the TRMs on an ongoing basis. The revision date for each TRM module is at the bottom of each page. The modules are living documents, and we depend on readers to tell us of the usefulness of the information, the need for additions or amendments, and general comments. This feedback will help us keep the modules alive and responsive to readers' needs. Please share comments with the Maternal and Child Health Integrated Program (MCHIP) at info@mchipngo.net.

The Quality Improvement TRM replaces the former Quality Assurance TRM. MCHIP is grateful to the USAID Office of Health Systems in the Bureau for Global Health and the USAID Applying Sciences to Strengthen and Improve (ASSIST) Project for respectively supporting and developing this module. In contrast to other TRMs, MCHIP's role was limited to one of coordination, formatting and light editing.

INTRODUCTION

This TRM reviews the importance of quality in health care and describes how quality improvement approaches can be adapted to the needs of low- and middle-income countries (LMIC) to improve health care for high-burden conditions. It describes the quality gap that persists worldwide between the care we want and the care we have, and it highlights the fact that the ultimate measure of quality of care is the health outcome that the care produces. The TRM reviews key principles of quality improvement and describes approaches commonly used to improve care, drawing on a large body of experience in applying improvement methods to facility- and community-based health care. Several examples of how improvement methods were applied in specific community health projects are highlighted in text boxes throughout the paper.

1. WHY QUALITY?

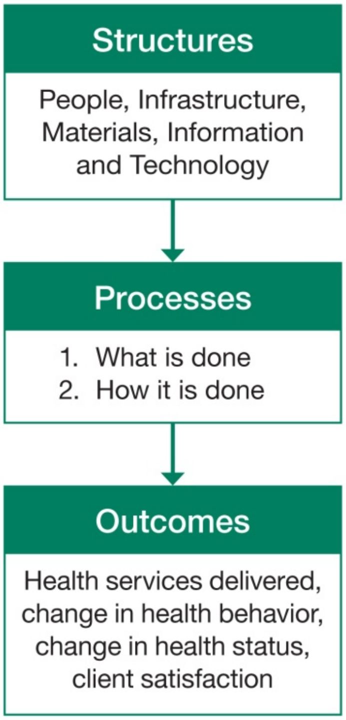
1.1 THE QUALITY GAP

Poor quality of health care is widely recognized as a major barrier to achieving optimal health outcomes and economic development, especially in LMIC. Despite an abundance of evidence-based guidelines, health care services worldwide often fail to deliver safe, compassionate care to patients when and where they need it. Studies of care delivery in LMIC demonstrate widespread deficiencies in the care provided at all levels of the health system. While there is broad global consensus on what should be done to deliver quality health care, many simple, high-impact interventions capable of saving lives and alleviating suffering are not reaching the people who most need them. Much of this implementation "know-do" gap is related to weak health systems and processes of care delivery. As World Health Organization (WHO) Director General Margaret Chan aptly noted, *"The power of existing interventions is not matched by the power of health systems to deliver them to those in greatest need, in a comprehensive way, and at an adequate scale."*

Many factors contribute to poor quality of care and weak health systems:

- **Governance and policy:** Inconsistent or ineffective national policies, standards, leadership and accountability mechanisms
- **Financing:** Lack of financing for priority services, workforce, and essential inputs
- **Essential commodities:** Lack of functional supplies at the point of service delivery
- **Health worker competence:** Weak knowledge and skills and poor maintenance of provider competence after training
- **Organization of care processes:** Poor organization of care processes and poor adherence to evidence-based standards
- **Health information systems:** Lack of routine collection and analysis of quality of care data to improve services.

In community and primary health care services, common contributors to poor quality of care include lack of clear guidelines on what community health workers are supposed to do; lack of access to life-saving commodities; overburdened health workers with too many tasks and too many households to cover; and weak linkages between community health systems and the formal health system. Indeed, community and formal health systems often co-exist in isolation, despite the fact that clients may move back and forth between the two systems. The lack of linkages between community and formal health systems often results in poor quality of care, including lack of coordination and continuity of care for clients. Despite the challenges, ample evidence from many LMIC indicate that it is possible to achieve high-quality health care, even with limited resources. Recognition is growing of the need for what a recent editorial in *The Lancet* termed a “third revolution in global health—a revolution in the quality of care” (Horton 2014).



1.2 QUALITY IS A FUNCTION OF THE HEALTH SYSTEM

If we understand health care as work produced by systems, then any health system—community or facility based—is only as strong as the outcomes it produces.

Avedis Donabedian’s conceptual model of the health system shown at the right illustrates how physical and organizational settings and resources (***structures***) are transformed by ***processes*** of care delivery and supportive functions into services for clients that determine client health ***outcomes*** (Donabedian 1980).

Many public health efforts focus on key structures or inputs (e.g., trained health workers, commodities, guidelines) and pay relatively less attention to how these inputs are translated into processes of care for clients.

One reason that health care in so many countries has safety and quality problems is because poorly organized care systems lead the workforce to fail, regardless of how hard they work. Having competent workers, needed drugs, and technology available are necessary but not sufficient to achieve appropriate care; the *process* of organizing care is critical to ensure that such inputs are appropriately used to attain the desired outcomes.

The field of complexity science offers insights about how health systems behave as complex adaptive systems, where a large number of independent interactions interconnect in sometimes unpredictable and continually changing ways (Plsek & Greenhalgh 2000). Health care involves interactions among many different actors, including handoffs, coordination across levels and specialties, and provider and client attitudes and behavior. This complexity is equally true of health care in resource-limited settings as it is in high-income ones.

There is no single definition of quality in health care. The following definitions have many elements in common:

- “The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.” (The Institute of Medicine, USA)

- “Quality care is doing the right thing at the right time, all the points of service along the continuum of care. High quality care is a function of the system's ability to produce care that will address the client's needs in an effective, responsive and respectful manner.” (David Nicholas, Director, USAID-funded Quality Assurance Project)
- “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.” (Milton Roehmer and Carlos Montoya-Aguilar, WHO)

In 2001, the Institute of Medicine of the United States published a seminal report, *Crossing the Quality Chasm*, that highlighted the chasm between the “the health care we could have and the care that we have” in the United States (Institute of Medicine, 2001). The report emphasized that “problems come from poor systems—not bad people” and that efforts to improve care must be anchored in a consideration of how systems of care operate in real-life complex delivery systems.

To address the problem of poor systems, the Institute of Medicine defined six aims for what constitutes quality and value in health care:

- **Safety:** Health care should avoid injury/harm to patients and clients.
- **Effectiveness:** Services should be based on scientific evidence.
- **People-centered:** Care should be respectful of and responsive to individual patient or client preferences, needs, and values.
- **Timeliness:** Care delivery should minimize client waits and avoid harmful delays.
- **Efficiency:** Care should maximize outputs for given inputs.
- **Equity:** Access to care and care quality should not vary due to client gender, ethnicity, geographic location, socioeconomic status, or other personal characteristics.

These aims are equally useful for understanding health care quality gaps in LMIC. Together they provide a useful gauge for assessing whether care, be it at the facility or community level, provides quality and value: Is it safe? Is it effective? Is it people-centered? Is it timely? Is it efficient? Is it equitable?

The definition of quality also depends on the perspective of who is defining it. The Institute of Medicine aims to address multiple perspectives—those of managers, providers, clients, and the broader community. With the Institute’s acknowledgement that different actors may have differing points of view about what constitutes quality indicates the need to engage all these different perspectives in quality improvement efforts.

Save the Children’s Partnership Defined Quality (PDQ) approach describes a four-step process for involving communities in efforts to improve the quality and availability of health services (Lovitch et al. 2003). Providers and community members work together in a series of structured meetings to identify and address priority problems (Save the Children 2004). PDQ posits that quality may be defined from different perspectives (those of clients, those of providers) and that providers and clients can work together as allies to address problems and develop a common vision for quality care.

The adaptation of delivery services to address client cultural preferences is an example of client-centered obstetric care. In Ecuador, health workers, traditional birth attendants, community leaders, and pregnant women came together to define what would be considered high quality, culturally acceptable delivery care, taking into account both evidence-based clinical practices and cultural preferences, such as delivery position and presence of birth companions during delivery. The cultural adaptation intervention showed that rates of institutional delivery increased when health facilities addressed these cultural preferences (Hermida et al. 2008).

Partnership Defined Quality

Save the Children developed Partnership Defined Quality (PDQ) as a systematic method to bring health care providers and community members together to identify and address priority problems. The method consists of four steps to ensure that the quality improvement effort is truly a joint activity:

1. Build support to secure buy-in from all stakeholders.
2. Explore quality by using separate analyses with providers and community members, including non-users, to identify perceptions about quality.
3. Conduct a bridging-the-gap workshop for representatives from both groups to share perceptions and develop a common vision for quality care.
4. Establish a quality improvement team to represent both groups.

2. HOW DO WE IMPROVE QUALITY?

I think it is a disservice to the sciences of improvement to reify the term "quality improvement" as if it were a device or even a stable methodology. Making patient care better is always a good idea, and there is no harm at all in using the term "improvement" to describe that quest. However, treating the pursuit of improvement (no initial caps) by searching for a boxable, boundable formula, let alone canonizing it with a proper-noun label—"Quality Improvement" (initial caps)—is misleading. The ways in which people and organizations try to overcome the destructive forces of entropy in complex systems and to continually improve the work that they do on behalf of patients are numerous and, thank goodness, will forever evolve.

--Donald Berwick, *JAMA*, May 16, 2012

There is no single best way to improve quality of health care; however, several basic principles underlie the most successful improvement efforts:

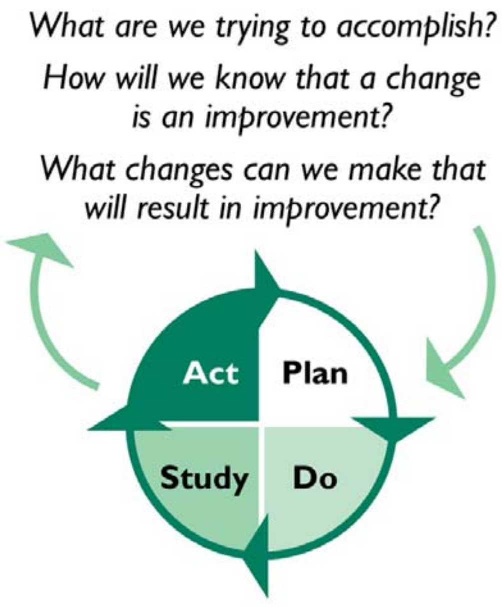
- Understand health care in terms of processes and systems and seek better care by making changes to processes.
- Promote team work: engage all relevant actors at all system levels in improvement.
- Take regular measurement and use data to track progress for action (e.g., routinely measuring adherence to standards to identify gaps and tracking the results of improvement efforts).
- Focus on client needs, values, and preferences.
- Regularly share learning across multiple teams engaged in trying to improve care in a common technical area.

2.1 A MODEL FOR IMPROVEMENT

Quality of health care can be improved through various means. Experience over the past 100 years, beginning in industrial and commercial settings and eventually spreading to service sectors like health care, has shown that there is a scientific basis to improving work—a "science of improvement"—which is essentially about how to make change effective.

The science underlying improvement draws on psychology, organizational behavior, adult learning, and statistical analysis of variation, and it is grounded in a systems understanding of work. It draws on the work of W. Edwards Deming, who inspired the quality movement in Japan in the 1950s and is considered by many as the father of quality management.

One widely used approach to improve health care is



the model for improvement (Langley et al. 2009). The model, shown at the right, is a change management strategy that stems from the work of Deming and the plan-do-study-act (PDSA) cycle developed by industrial engineer Walter Shewhart in the 1920s.

The model includes three basic questions to help structure improvement through trial and learning:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What changes can we make that will result in improvement?

A key tenet of improvement is that making care better always requires change, but not all change necessarily leads to improvement. Without “change,” every system will continue to produce the same results it has always produced. In other words, *“every system is perfectly designed to get the results it gets”* (Paul Batalden). Managing change is central to improvement efforts, whether or not such efforts are prospective (e.g., defining aims and proactively testing changes to processes of care to try to reach the aim) or retrospective (e.g., auditing records to identify quality failures to identify and correct root problems that contribute to poor quality).

The PDSA cycle in the model for improvement guides tests of change by health care teams to determine if a change leads to improvement. Improvement teams typically comprise front-line health care workers, supervisors, and others involved in care, either as providers or recipients, who identify and test feasible changes to usual processes to improve care in their local setting.

While context has a strong influence on which changes may be most feasible and effective for overcoming gaps in a specific setting, categories of quality and system gaps and effective changes

Evolution of Efforts to Improve Health Care Quality

Traditional health care improvement strategies in USAID-assisted countries have focused on adding more or different inputs or greater use of control systems or structures to enforce or assure quality. Such approaches were often referred to as **quality assurance** (QA). Such strategies have included developing standards and policies that articulate expectations for quality; organization of quality structures (such as national quality assurance programs) and dissemination of standards and best practices through education materials and guidelines; training health workers to increase their knowledge and skills; and assessment of whether minimum conditions are being met by health workers or health facilities as part of licensing or accreditation activities.

Today, consensus is widespread in the field of quality improvement that QA approaches in the absence of interventions to change care processes have not yielded impact, largely because such efforts tend to **address only inputs** to health systems with little or no focus on processes of care delivery (Davis et al. 1992; Oxman et al. 1995; Wensing et al. 1998; Massoud et al. 2006).

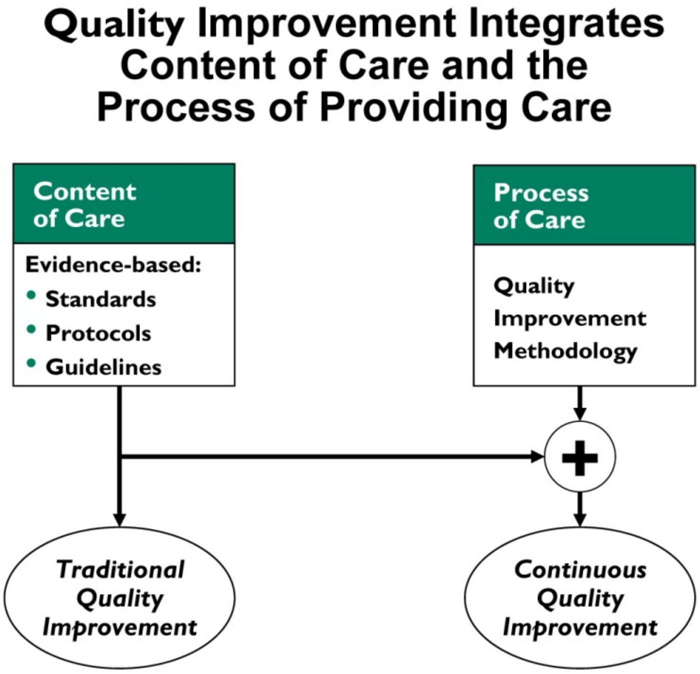
By the early 1990s, the improvement approaches in USAID-assisted countries began to build on traditional strategies to adapt and incorporate modern quality improvement approaches (Massoud et al. 2001). These approaches were applied to the delivery of priority health services, including obstetric care, immunizations, management of diarrhea, pneumonia, and malaria; and family planning (Heiby 1998). Based on results achieved, interest in improvement grew rapidly, with many organizations developing branded models and applying them in USAID-supported programs. While these models use different terminology, they often share common core elements, such as process analysis, use of standards, identification of key barriers, and closure of gaps between ideal and observed performance through active change to care processes, defining priorities for the improvement effort, empowering providers to identify problems and find solutions, and monitoring results (Tawfik et al. 2010). The repeated presentation of similar sets of ideas and methods under different names and terminologies has been termed “pseudoinnovation,” which can lead to inefficiencies and confusion (Walshe 2009).

The field of modern quality improvement is increasingly focused on how to improve care at scale (McCannon et al. 2007; Massoud et al. 2010). WHO’s efforts to mobilize action on simple safety interventions like hand hygiene and the surgical safety checklists through global campaigns are promising (Haynes et al. 2009).

(solutions) are often common across settings. Diverse settings can learn from each other to overcome common quality and system gaps. Increasingly, many improvement approaches mobilize teams to work together across health system levels and geographic sites to identify, test, and share successful changes for overcoming important quality and system gaps. Promoting regular shared learning among teams helps to accelerate and scale up best practices for overcoming common barriers to delivery of high quality of care.

2.2 INTEGRATING EVIDENCE-BASED PRACTICES INTO CARE PROCESSES

Closing the know-do gap between proven, high-impact interventions and their reliable implementation as part of everyday processes of care for every patient when needed is at the heart of improving the **effectiveness of care,** one of the six dimensions of quality defined by the Institute of Medicine.



Adapted from Batalden and Stoltz (1993)

Multiple studies demonstrate that even relatively simple clinical interventions, such as immediate post-partum administration of oxytocin to reduce risk of post-partum hemorrhage, require deliberate change efforts to integrate a best practice (i.e., an evidence-based standard) into a process of immediate post-partum care for every woman. Improving health care processes requires integrating content of care (proven best practices) into the improvement of care processes (Batalden & Stolz 1993).

A strong design of improvement efforts that clearly defines and prioritizes evidence-based best practices based on high-burden conditions is essential for improving health outcomes. The investment of resources in the initial design phase of an improvement effort pays dividends in the long run.

To achieve the aims, it is essential to define clear, measurable improvement aims, based on proven interventions for an important health or social problem, in association with a set of simple process and outcome measures to track whether progress is being made. Equally important is identifying specific local barriers to achieving the aims and deliberately planning tests of change to overcome these barriers.

2.3 IMPROVING HEALTH SERVICES AT THE COMMUNITY LEVEL

While improvement methods have been widely applied to clinical health care, there is a growing body of evidence for the application of improvement methods to community-level health and social services and to health system issues such as community health worker performance management, supply chain management to the “last mile”, information systems, and financial management (Heiby 2014).

These experiences indicate that community-based and community-led improvement approaches hold great promise for increasing access to priority services, as well as their coverage, effectiveness and people-centeredness. In particular, community-participatory or community-led improvement efforts can help build community engagement and ownership of health services, including development of locally feasible and sustainable solutions to common bottlenecks.

Basic principles of improvement—understanding care processes, making changes to those processes, and using data to track progress—have proven relevant and feasible for community-level improvement interventions and improvement teams. Maps and simple flow charts using pictures or photographs and pictorial ways to convey quantitative results can be readily understood by team members with low literacy.

Like facility-based efforts, community quality improvement efforts benefit from the clear definition of measurable improvement aims based on evidence-based, high-impact interventions for important health problems. Such improvement aims need to be complemented by clear definitions and feasible measurement approaches to track process and outcome measures toward achieving the defined aims and regular testing of changes to processes of care to deliver the best practices. For example, improving and sustaining adherence to post-partum home-based newborn care best practices (i.e., identification and management of danger signs, counseling, support for exclusive breastfeeding) requires clarity about the improvement aim and a clear statement of how progress (or lack of progress) toward the aim will be measured.

One difference between facility and community-level improvement efforts is who participates on improvement teams. The Maternal and Newborn Health in Ethiopia Partnership (MaNHEP) found that orienting and gaining buy-in from community members and leaders and asking them to decide who would be the quality improvement team members was critical for community engagement. Engaging community leaders in support of improvement efforts is essential to gain credibility and community participation. Unlike in a facility, where the staff is subordinate to the facility head and improvement work can be considered part of their regular job duties, community involvement in improvement requires buy-in by leaders, who can then convince the community that the improvement effort is a worthwhile and necessary effort (Stover et al. 2014).

Many successful community and facility-based improvement efforts create quality improvement (QI) teams that include community stakeholders, clients, community health workers, and facility-based providers. Such mixed teams may be particularly effective for building linkages between community and facility services and for improving people-centered care, co-defined by providers and clients and their families. Much of the power of improvement interventions is their focus on continuous change and measurement toward a clear aim. This focus provokes new ways of thinking about how programs and services can be organized to achieve effective, safe, equitable, and people-centered care. Thinking more systematically and purposefully about change, what change might be possible (as opposed to just working harder, applying more resources, or hoping for the best), and how to measure the effects of change for achieving important health and social outcomes is at the heart of improvement.

2.4 MAJOR IMPROVEMENT APPROACHES

As stated above, there is no single best method to improve quality of care, but rather core principles that underpin most successful improvement efforts. The right improvement approach for a particular setting and quality of care problem depends on many contextual factors, such as resources available, improvement expertise, time, and scale of the effort. A recent meta-analysis of approaches to organizational performance concluded that no one strategy will work in all settings and that the selection of strategies should depend on the context (Pallas et al. 2012).

The following section highlights several common improvement approaches and provides several examples of community QI efforts that have incorporated different combinations of improvement approaches.

Audit and feedback is an assessment of health care provided in relation to standards and guidelines. Through audit and feedback, data are collected on adherence of services provided to standards and linked to a process of feedback that may be directed to individual providers or health care teams. The feedback may include a comparison of individuals' performance patterns with those of immediate peers, with aggregate performance data for large groups of providers, or with accepted standards. Feedback interventions assume that notifying individuals or groups about deviations from peer behavior or accepted criteria will lead to improved performance.

Audit and feedback processes may include peer review, supervisor assessment, clinical record or community or facility register review, adverse events audits, self-assessment, and accreditation surveys.

Peer-mediated strategies may include formal peer review, participatory guideline development, and team-based process improvement and problem solving. Peer review typically involves review of a provider's performance by peers from the provider's cadre (e.g., community health worker or midwife). Peer review uses the expertise, influence, and pressure of people in a provider's social network to try to influence individual provider performance. Several studies have found that peer review is more effective in changing practice routines when applied as part of a broader quality improvement approach that includes participatory development of criteria, quality circles, and group discussion and feedback (Lin & Franco 2000).

Clinical audits are systematic reviews of registers or patient charts to determine the care given in relation to the standard of care; they are done by sites for monthly monitoring and conducted externally for data validation. Audit of adverse events and near-miss audits allow teams to reflect on, understand, and learn from rare, catastrophic or near-catastrophic events through peer review of cases that caused concern, affected patient safety, or resulted in an adverse outcome.

Self-audit or self-assessment may be conducted by an individual health care provider, often as part of a continuing education activity to reflect on his or her own performance strengths and weaknesses to identify learning needs and areas for improvement (Bose at al. 2001). Self-assessment also may be conducted by a team that reviews records for a facility or for all community health workers in a community to measure performance across all providers in the facility or community. Improvement collaboratives typically rely on monthly team self-assessment of compliance with standards to track the effects of changes made to improve care.

Because team-based peer review and support approaches tend to be directed at improving care in a facility as a whole rather than at the individual practitioner level, they may be more useful as part of strategies to achieve performance according to standards on an institutional level (Kim et al. 2000, Kelley et al. 2002). Regardless of the type of audit and feedback process used, it is important to keep in mind that audit and feedback alone, without action to correct problems, may not improve care, but can provide valuable insights into critical quality gaps to support change and solutions for improvement.

Improving Quality of Maternal and Newborn Care through Community-Facility Micro-networks in Ecuador

The Essential Obstetric and Newborn Care (EONC) Micro-Networks Project in Cotopaxi, Ecuador, sought to reduce maternal and newborn mortality in the 21 parishes of the province with the highest poverty level. Parish-level micro-network teams, comprising community and social organization representatives, traditional birth attendants (TBAs), and midwives and doctors, met regularly (usually monthly) to plan and coordinate care for mothers and newborns in their parish and to find ways to improve both quality and coverage of EONC. TBA members of the parish micro-network teams actively searched for pregnant women in their communities, and then reported to the parish micro-network team during monthly meetings on the status of pregnant and post-partum women and newborns in their villages. TBAs received ongoing support during initial training sessions and subsequent monthly meetings to provide home-based, high-impact routine pregnancy and post-partum services; referred pregnant women to health centers for delivery; and learned to recognize, screen, and refer to the health center any women and newborns with risk factors or danger signs. Parish micro-network teams used project-wide standard referral coupons with culturally adapted pictorial images that TBAs could easily mark off at the time of a referral to indicate the reason (e.g., fever or prolonged labor).

Parish micro-network teams used improvement approaches to adapt and change facility childbirth services to be more responsive to the needs and preferences of indigenous women and their families. For example, as a result of project activities, women are now actively supported to include their companion of choice during labor and delivery and to give birth in their preferred position (usually kneeling in the arms of their partner).

In addition to increasing access and use of high-impact services, the project also worked with facility-based quality improvement teams to conduct monthly audits of their compliance with Ministry of Health EONC quality standards and implement improvement actions to correct deficiencies. The project also assessed the quality of home visit activities conducted by trained TBAs, through observation of live or simulated home visit sessions with the use of a mannequin and a checklist. TBA compliance with post-partum counseling standards increased from 3% at baseline in 2010 to an average 70% compliance with post-partum counseling standards in the last quarter of 2012.

Source: Center for Human Services, 2013

2.4.2 SUPERVISION

Supervision is the process of directing and supporting staff so that they may effectively perform their duties. Supervision may include periodic events, such as site visits or performance reviews, but it also refers to the ongoing relationship between a staff member and a supervisor.

In health care settings, supervision often includes oversight and implementation of clinical and non-clinical tasks and activities that affect the organization, management, and technical delivery of health services, such as control of work processes and systems, maintenance of facilities and infrastructure, and monitoring and improvement of system-wide performance. Beyond this technical role, there is also an important human dimension to the supervisor-health worker relationship. In low-resource settings, where many health providers work alone or in small groups in remote sites, the supervisor may be the only link to the larger health system.

Supervisory audit of health worker performance is one of the few audit and feedback interventions widely used in LMIC. Anecdotal evidence and the few published studies suggest that supervisory audit can be effective in increasing performance according to standards. A Quality Assurance Project study in Niger measured the impact of structured supervisory feedback on health worker adherence to Integrated Management of Childhood Illness (IMCI) standards for assessment, treatment, and counseling of sick children. The study found that supervisory feedback had a significant short-term impact on IMCI performance, although the effect was not universal across all IMCI skill areas; it had the greatest effect in areas where health workers had been performing poorly (Kelley et al. 2000).

Supervision has traditionally been viewed as a key approach to improving the quality of health care and the performance of health care providers, especially given the labor-intensive nature of health service delivery. This is particularly true in developing countries, where supervision remains one of the most direct ways for an organization to affect what its staff does. At the same time, adequate supervision is frequently not realized or sustained, and many supervisors lack the knowledge, skills, and tools for effective supervision.

Governments and donors have invested significant resources to strengthen supervision systems in LMIC through supervisor training and supervisory tools and checklists. The Government of South Africa, for example, has made primary health care supervision as cornerstone of the national health care system. The Department of Health’s Primary Health Care Supervision Manual contains guidelines for quality supervision, use of supervision support checklists, conduct of in-depth technical program reviews, and tools for working with Primary Health Care Facility Committees (Department of Health 2009).

International health agencies have reached consensus in recent years about the key functions of supervision: setting objectives, providing training and guidance, monitoring and evaluating performance, providing feedback, motivating staff, and providing support to solve problems (Marquez & Kean 2002). At the same time, a growing body of experience from different settings suggests that broadening and enhancing how supervision functions can be performed—by involving health workers themselves, peers, and even communities. Evidence suggests that these alternative approaches achieve better health worker performance and outcomes than traditional supervisory approaches, and some evidence indicates that these approaches may be more sustainable.

2.4.3 PROCESS IMPROVEMENT, DESIGN AND REDESIGN

As applied to health care, process improvement is a method to introduce changes in core health care processes to improve adherence to identified best practices (Massoud et al. 2001). Such changes could include removing unnecessary steps in a process, adding new steps, reducing waste, or standardizing the process to increase its reliability.

Process redesign applies the same approach to completely redesign or restructure an existing process to address opportunities for improvement, while taking into consideration the needs of internal and external clients, as well as available resources. (Process design applies similar methods to create a new process where one did not exist previously.)

Improving Community Case Management of Childhood Illness through Supervision and Performance Feedback in Rwanda

The Kabeho Mwana Project, implemented by Concern Worldwide, in partnership with the International Rescue Committee and World Relief in six districts of Rwanda, used several quality improvement strategies in a project designed to scale-up integrated community case management (iCCM) of malaria, diarrhea, and pneumonia:

- Equipped and trained community health workers (CHWs) to carry out community case management (CCM) for malaria, diarrhea, and pneumonia.
- Organized CHW peer-support and collaboration groups (heavily modified Care Groups, since referred to as CHW peer support groups)
- Supervised CHWs by Cell Coordinators (CHW peers) and Community Health In-Charges, with funding provided to health centers to support supervision visits by the In-Charges every three months.
- Assessed and provided feedback from supervisors based on the standards supervision checklist developed by the Ministry of Health (MOH).
- Provided job aids to support behavior change communications.
- Developed an IMCI Bulletin or scorecard that provided feedback every six months to districts and health centers on the quality of their services based on their performance on a set of indicators for compliance with agreed-upon standards.
- Held feedback meetings where Cell Coordinators, Data Managers, and Community Health In-Charges reviewed the scorecard, discussed its meaning, problem-solved around implementation challenges, and planned next steps.

MOH staff interviewed during the project's final evaluation "generally and often spontaneously referred quite positively to the experience with the Bulletin and the feedback meetings, described as a set package." The project achieved a high-level of appropriate care seeking for fever in the six districts, at 75%, with appropriate treatment increasing from 20% to 43% of cases from 2006–2011. Other indicators also improved, such as vitamin A coverage (from 66% to 86%), point-of-use water treatment (31% to 65%), and handwashing (2% to 19%).

Source: Sarriot & Kabeho Mwana Final Evaluation Team, 2011.

Process improvement and redesign teams comprising health workers, supervisors, and community members analyze where current gaps in performance or service delivery processes exist and where changes can be made. Improving processes requires detailed knowledge of the area identified for improvement and ongoing data collection to monitor the process over time. Teams may use a number of tools for analyzing the underlying process, such as flowcharts and cause-and-effect analysis. Time series charts are a useful data presentation tool for analyzing the performance of a process over time to determine whether changes introduced have improved the process (HCI 2008a; Zeribi & Franco 2010).

After a team thoroughly understands the problems with the current process, it can develop and implement changes, study the results, and test changes based on the results. A commonly used iterative testing approach is the PDSA cycle, which is also used in the Model for Improvement (Taylor et al. 2014).

A helpful resource for process improvement is *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance* (Langley et al. 2009). Part One of the book addresses the basic skills needed to support process improvement: (1) using and learning from data, including understanding variation in data; (2) understanding processes and systems of work, and the relationships among the processes that make up the activity you are trying to improve, (3) how to apply creative thinking and other strategies to come with ideas to test; (4) how to organize tests of these ideas; (5) how to implement (scale-up) an idea or set of ideas that work; and (6) how to engage people in supporting and embracing change.

The Improvement Guide also includes a "Resource Guide to Change Concepts" that provides an inventory of generic ideas of how to change any process, organized by nine categories of change: (1) eliminate waste, (2) improve work flow, (3) optimize inventory, (4) change the work environment, (5) enhance the producer-consumer relationship, (6) manage time, (7) manage variation, (8) design systems to avoid mistakes, and (9) focus on a product or service.

Mobilizing Community Teams to Support HIV Chronic Care in Uganda

In Uganda, village health teams (VHT) promote primary health care and community participation, but they had not played a role in community-based chronic care of patients with HIV. Since 2012, the USAID Health Care Improvement (HCI) Project and subsequently the USAID ASSIST Project, has supported a community-level improvement effort to support chronic care for HIV in Buikwe District, targeting VHTs in 10 villages. The intervention was based on working with the existing community-level structures and actors to overcome barriers in care for chronic conditions.

The intervention focused on improving the ability of informal community structures to support HIV patients by identifying, following up, and supporting them to manage their condition. It also focused on creating linkages between health facilities and communities, as well as helping patients address other social-economic and psychological challenges that affect their health. Community quality improvement teams were formed and included representatives from village health teams, patients, health workers, local leaders, women groups, religious leaders, schools, savings groups, and other community-based organizations' representatives. This constituted a network of community resources to expand community support for patients with HIV. The community group representatives mobilized HIV support organizations, formed patient-to-patient linkages, sensitized members of the community through village meetings, schools and churches, and coordinated with facility-based health workers to follow up with patients who had missed appointments.

Data were collected each month from community registers by project coaches and community teams on the number of HIV patients identified, patients with poor clinical status (low or unstable weight, non-functional, or with medical complaints), patients who were setting and implementing health plans to manage their condition, and patients who had improved clinical status. At baseline (June 2012), the number of HIV patients known and followed up by the community was 15. By April 2013, the cumulative number of HIV patients known and followed up was 526, of whom 465 were on antiretroviral therapy (ART). (At baseline, no patient was enrolled on ART.) All patients on ART were assessed for clinical improvement and classified as poor if they had low or unstable weight, were non-ambulatory, or had medical complaints. As a result of the intervention, community teams improved their ability to identify patients with poor clinical status to support them in developing health improvement plans. By the end of April 2013, the community improvement teams could identify 230 (43%) of patients with poor clinical status. Of these, 212 (92%) were helped to developed health plans, 194 (84%) implemented them, and 125 (64%) of those who implemented goals had their clinical status improve.

2.4.4 COLLABORATIVE IMPROVEMENT

Collaborative improvement is a variant of process improvement that organizes a large number of teams or sites to work together for a 12- to 24-month period to achieve significant improvements toward a set of common aims in a specific technical area (e.g., community case management of childhood illness.). The collaborative approach combines traditional quality improvement methods of team work, process analysis, compliance with standards, measurement of quality indicators, training, job aids, and coaching with techniques based on social learning and diffusion of innovation theories.

The Institute for Healthcare Improvement (IHI) pioneered the improvement collaborative approach in 1995 to address a common problem in the health care system in the United States: while evidence existed for a particular standard of care, it was not routinely practiced. IHI designed the Breakthrough Series or BTS Improvement Collaborative model to overcome obstacles to the consistent application of evidence-based practices and, at the same time, increase the pace and efficiency of improvement in health care (IHI 2003).

CHW Improvement Collaborative in Ethiopia

Since its inception in 2003, Ethiopia's Health Extension Program has deployed over 30,000 health extension workers (HEWs) to rural communities across the country. HEWs are paid government health workers who deliver some 17 different services covering disease prevention and control, hygiene and environmental health, family health, and health education and communication at the village level. A 2008 evaluation of the Health Extension Program found that while community demand for HEW services was high, HEWs had too great a workload and inadequate skills to address all the health issues they faced. To address these challenges, in 2011 the USAID Health Care Improvement (HCI) Project was invited to implement a CHW improvement collaborative to bolster linkages between the informal community system and the formal health system, improve the effectiveness of HEWs, and improve the capacity of community groups to take ownership of health programs.

Implemented in Illu and Tole districts (*woredas*) of Oromia Region, the improvement collaborative brought together key stakeholders to form improvement teams focused on strengthening the community health system, with particular attention to HIV/AIDS and hygiene services. These improvement teams, comprising key community stakeholders and representatives of key community groups, formed the foundation of a community health system to support HEWs in service delivery.

Before the community improvement teams were established, HEWs were going house to house to identify pregnant women and provide basic antenatal care (ANC) information and services. Since they were not able to go to every household, the number of pregnant women identified by HEWs was low. But after community groups started sensitizing their members' families, the number of pregnant women identified by the community groups and the number of pregnant women who visited the health post for ANC increased. For example, nine health posts in Illu district identified 259 women in an eight-month period and registered 86% of them for ANC at the health post. The changes that led to improvement were house-to-house visits and mobilization of Idir (community funeral cooperative) and other community groups to support the identification of pregnant women. In a similar fashion, another health post community improvement team in Illu increased the number of households with latrines from 30% to 60% and the proper use of latrines from 36% to 76%. The change ideas that led to this increase involved community leaders, funeral cooperatives (*Idir*), savings and credit groups, and religious groups to reach out to the community. The nine health posts that participated in the improvement collaborative in Tole registered increases in the number of pregnant women tested for HIV from 36 in September 2011 to 191 in June 2012. The improvement teams also offered a venue for HEWs to raise concerns or challenges with service delivery and receive support and guidance.

Source: Shrestha 2014.

In collaborative improvement, teams in different sites (i.e., facilities or communities) work independently to test out changes in how to improve the delivery of care. Teams use a common set of indicators to measure the quality of the care processes the collaborative is trying to improve and, where possible, the desired health outcomes. The collaborative organizes regular sharing of results among teams through learning sessions where teams learn from each other about which changes have been successful and which were not. These learning sessions result in a dynamic improvement strategy, and many teams working on related problem areas can learn from each other to facilitate rapid dissemination of successful practices. In its emphasis on spread and scale-up of improvements, the improvement collaborative model offers a powerful tool in the arsenal of proven improvement methods.

USAID has supported the widespread adaptation and application of the collaborative improvement approach in more than 20 countries since 2003. USAID-funded health care improvement collaboratives have involved mainly teams of public sector health care providers and implementing partners (Catsambas et al. 2008). These efforts, begun under the Quality Assurance Project and continued under the USAID Health Care Improvement (HCI) and USAID Applying Science to Strengthen and Improve Systems (ASSIST) projects, made a number of adaptations to the BTS Improvement Collaborative model to accommodate government health system structures, introduce more content on improvement methods and measurement in learning sessions, and emphasize the role of coaches in guiding and motivating site teams (HCI 2008b). Like the collaboratives supported by IHI in the United States and other countries, USAID-supported collaboratives have achieved rapid and significant improvements in the quality of diverse health services and demonstrated that the gains made in quality of care through collaboratives could be maintained over time (Franco & Marquez 2011).

USAID-supported collaborative improvement applications have found that shared learning among teams engaged in collaborative improvement accelerates the adoption and spread of evidence-based approaches across sites. While collaborative improvement has been extensively applied to clinical care processes (both preventive and curative), it has also been applied to non-clinical areas such as human resources management, information systems, supply management, health promotion, community-based care for vulnerable children, and social services (Crigler et al. 2011; Were et al. 2013).

2.4.5 ORGANIZATION OF WORK

Organizational interventions are often used to facilitate and reinforce health care performance in accordance with standards (Marquez 2001). Such interventions provide additional resources or equipment; introduce organizational changes, such as redistribution of tasks; or redesign processes to embed measures to facilitate correct performance or prevent incorrect performance. Principal advantages of these interventions are that they are usually inexpensive and under the control of managers.

Increasing concern with preventable medical errors has fostered support for organizational interventions. An Institute of Medicine report on ways to reduce medical errors strongly advocated process redesign to simplify and standardize key health care processes and to design tasks in ways that ensure safety and facilitate correct performance (Kohn et al. 1999). Key principles of such process redesign efforts are to avoid reliance on memory and use of constraints or forcing functions that guide the health care provider to the next appropriate action to make it hard to do the wrong thing. An example of this type of constraint is the auto-disable syringe, which is designed to jam up after one injection to prevent its re-use.

Organizational interventions to improve work processes play a prominent role in much of health care quality improvement activities in LMIC, but often have not been subject to rigorous evaluations of their effectiveness. The USAID-supported Maximizing Access and Quality Initiative identified a set of guiding principles to improve the organization of health care delivery (Population Reports 2004):

- Use evidence-based practices to provide effective health care efficiently.
- Improve links with other services and delivery sites so that clients can obtain care appropriate to each level of the health care system.
- Minimize paperwork and maximize information use.
- Pay attention to the physical factors of service delivery, which include supplies, equipment, and workspace.
- Tailor service hours and schedules to meet both clients' and providers' needs.
- Examine client flow to make sure waiting times are minimized, giving more time for clients to interact with providers.
- Define division of labor and job responsibilities to let staff know what is expected and to enable them to make decisions and take action.
- Consider social factors, such as good supervision, to motivate and support staff and encourage skill development.

Strengthening Health Facility Capacity and Community-Facility Linkages in Nepal

The Partnership for Maternal and Neonatal Health Project implemented by HealthRight International in two rural districts of Nepal tested an intensive intervention to strengthen community health management systems to increase the availability of high-quality facility-based maternal and newborn care services and linkages to them. The intervention included these strategies:

- Health Facility Management Strengthening Program (HFMSP) with Health Facility Operation and Management Committees (HFOMCs)
- A maternal and newborn care (MNC) quality improvement process with health workers in eight health facilities that involved self-assessments
- Maternal and newborn near-miss and death review process
- Provision of essential newborn care equipment to the five health posts and the district hospital to which they referred patients

The aggregated MNC quality assessment scores from the eight health facilities in the intervention exceeded the 80% target for all the nine tools, with a marked increase in average scores, especially on Tool 1: Infection prevention, Tool 2: Focused ANC, Tool 3: Complication during delivery, Tool 4: Normal delivery and immediate newborn care, Tool 7: Complication during labor and childbirth and Tool 8: Assessment of newborn with problem.

Source: HealthRight International 2013

2.4.6 REMINDERS

The major assumption underlying reminder interventions is that provider forgetfulness and lack of awareness are major barriers to performance in accordance with standards, as opposed to deficiency in knowledge or skill. Reminders consist of prompts either before or during a client or patient encounter to suggest that a specific behavior should or should not be performed. The reminder may consist of a checklist, wall poster, flowchart, or other paper-based job aid that guides the health worker through the appropriate steps in a process.

Several systematic reviews have concluded that reminders have been proven effective in increasing provider adherence to preventive care standards and prescribing guidelines. The effects of reminders often disappeared after the reminders were stopped, suggesting that to be effective, reminders must be applied continuously and incorporated into daily routines (Marquez 2001).

Job aids are a type of reminder and have been widely used in developing country settings, especially with community health workers (Knebel 2000). Job aids are visual tools used by the provider during a health care activity that give direction on what actions to take and how. The purpose of the job aid is to reduce the amount of recall necessary to correctly perform the task. Job aids are thought to be most appropriate when provider forgetfulness or lack of recall is an important barrier to performance, such as when the task to be performed is complex or infrequent.

Studies by the USAID-funded Quality Assurance Project (QAP) in Benin (Jennings et al. 2010), Niger (Edson et al. 2004), Uganda (Kerstiëns et al. 2004), and Zambia (Harvey et al. 2008) found that job aids could be feasible and effective in hospital, primary care and community settings to prompt health workers and community volunteers to perform key tasks or communicate specific messages during patient counseling. In addition, job aids can contribute to help shift tasks from higher skilled to lower skilled health workers (Jennings et al. 2011).

2.4.7 STANDARDS AND EVIDENCE-BASED GUIDELINES

Standards are explicit statements of expected quality in the performance of a health care activity. They may take the form of procedures, clinical practice guidelines, treatment protocols, critical paths, algorithms, or standard operating procedures, among other formats (Ashton 2001).

Standards communicate expectations for how a particular health care activity will be performed to achieve the desired results and define, for both health workers and clients, what is needed to produce quality services. Standards are thus the cornerstone of most health care improvement approaches, including audit and feedback, accreditation, process improvement , and collaborative improvement.

In fields like health care that are continuously evolving with the development of new technologies, drugs, and procedures and that have an enormous body of scientific evidence available to support clinical decision-making, ensuring that standards are regularly updated, communicated to providers, and evidence-based is critical in assuring health care effectiveness and outcomes.

Adherence to evidence-based standards has been shown to be associated with improved health outcomes; moreover, failure to provide clinical care in accordance with standards has serious negative effects on patient outcomes.

To achieve expected health outcomes, standards must be clearly presented, achievable, and available to health care workers. While the MOH is the body that issues official standards for health services, often standards are not well communicated to frontline health workers or non-governmental organizations working in the health sectors. Ensuring that standards are achievable in the health care setting where they are to be applied is particularly important; standards must be locally appropriate and reflect both the expected competencies of health care providers in that setting, as well as the equipment, drugs, and supplies available to them. But even when locally appropriate, evidence-based standards exist, health workers may not follow them routinely, suggesting that standards in and of themselves are not enough to produce quality care.

A substantial body of research on guidelines implementation suggests many reasons why standards-based performance is often difficult to achieve and sustain. At the most basic level, health workers simply may not be familiar with standards because these have not been clearly communicated. In other cases, systemic factors, such as a lack of the necessary supplies or equipment to perform according to standards, delayed dissemination of standards from national to facility levels, poor monitoring and evaluation of guideline implementation, and a lack of human resources can affect implementation of standards. Motivating and enabling health workers to perform according to standards is one of the biggest challenges to producing quality health care (Rowe et al. 2005).

Health care professionals need to engage in educational opportunities to give them up-to-date knowledge and skills. Continuing medical education (CME) in the form of in-service training for physicians, nurses, and other health care workers has traditionally used short courses, conferences, seminars, medical rounds, small group sessions, workshops, tutorials, and other didactic methods to transfer clinical and other information to individuals and groups.

Numerous reviews, drawing primarily on studies in North America, have concluded that formal CME without support to enable or reinforce standards-based performance in actual practice has little or no impact on provider performance; however, when training events were complemented by other interventions to reinforce compliance, performance improvements were more likely to be demonstrated.

Despite the accumulated evidence pointing to the lack of effectiveness of traditional didactic training, expert-led teaching still prevails as the most common form of CME in developing and developed countries; however, the influence of adult learning theory on undergraduate and postgraduate medical education recently has resulted in increased interest in experiential learning methods and alternative educational formats and their application. These include inter-professional education, small group learning, learning contracts, telemedicine, and computer-based training.

USAID has invested considerable resources in improving the quality of in-service training for health care providers and supported the development of many online resources to strengthen the quality and effectiveness of training interventions. The Human Resources for Health Global Resource Center offers extensive resources related to education and training of health workers, covering continuing education, distance education, in-service training, pre-service education, and training methodologies.

With funding from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), the USAID HCI Project facilitated a global process that engaged training program providers, professional and regulatory bodies, Ministries of Health, development partners, donors, and experts to develop and reach consensus on a set of practice recommendations to improve in-service training effectiveness, efficiency, and sustainability. The resulting Global Improvement Framework for Health Worker In-service Training provides guidance to training program providers, professional associations, and regulatory bodies on what practices are important to improve sustainability, effectiveness, and efficiency of in-service training to develop and maintain health worker competencies (ASSIST 2014). A related tool is the Training Evaluation Framework and Tools developed by the International Training and Education Center for Health, University of Washington, to help evaluators, implementers, and program managers at all levels plan successful evaluations of in-service training program outcomes.

Key Resources on Health Worker Education and Training

- Human Resources for Health Global Resource Center
- Global Improvement Framework for Health Worker In-service Training
- Training Evaluation Framework and Tools

2.4.8 REGULATORY APPROACHES

Regulatory approaches help maintain and improve quality, ensure patient safety, provide legal recognition to qualified health professionals, and verify that design or maintenance specifications are met. The main regulatory approaches used to enforce health care quality include accreditation (facility), certification and re-certification of professionals and facilities, and professional licensure and renewal (Rooney & van Ostenberg 1999).

2.4.8.1 ACCREDITATION

Accreditation is a formal process used by a recognized body—either governmental or nongovernmental—to assess and recognize that a health care organization meets pre-established performance standards. Accreditation standards usually are regarded as optimal yet achievable and are designed to encourage continuous improvement efforts within accredited organizations.

The standards used to assess performance for accreditation are commonly developed by expert committees working with the accrediting body and revised periodically to reflect advances in technology, treatment regimes, or policy changes. Evaluation for accreditation is performed by a group of surveyors that carry out a variety of assessment techniques, such as a review of documents and records, interviews, observation, inspections of the facility, and evaluation of achievements. Based on the results of this thorough evaluation, the survey team recommends whether the facility should be accredited or should implement further improvements and be re-evaluated in the future. Renewal of accreditation status is usually required every two to three years.

Standards and criteria for accreditation generally are developed through consensus among stakeholders, such as medical associations, Ministries of Health, and nongovernmental organizations. Accreditation programs generally are funded through survey fees or government or donor support, and may be expensive for individual facilities to finance. Even if facilities or non-governmental organizations do not elect to undergo the full accreditation process, the use of accreditation standards for internal self-assessment can help in identifying areas where a facility or organization needs to improve to reach expected levels of care quality. Accreditation traditionally has been a voluntary process sought by hospitals, although in a few countries, accreditation standards have been issued for services at lower-level facilities. More recently, however, some countries have made participation of health care organizations in accreditation programs compulsory. Other countries, such as the United States, have tied accreditation systems to financing mechanisms, thereby creating a strong incentive to achieve and maintain accredited status.

The introduction of accreditation programs into developing-country public-sector health systems has resulted in recognition of the need to adapt traditional accreditation methodologies to the realities of the severe resource constraints and weak underlying performance of many health systems. Providing sufficient resources to effectively implement an accreditation program is also critical because starting up an accreditation program without assuring its continued funding is likely to waste resources. USAID-supported evaluations of accreditation in South Africa (Salmon et al. 2003) and Zambia (QAP 2005) did not find strong evidence of sustainable impact of accreditation on quality of care.

A recent adaptation of the traditional accreditation model is *focused accreditation,* which looks at a specific service or area of care. In focused accreditation programs, health care organizations that meet certain pre-established standards receive recognition from the assessing body and may be awarded a symbol (e.g., gold star, special plaque) or designation (e.g., “adolescent-friendly clinic”) to recognize their achievement. The symbolic quality award or designation and ensuing public recognition is intended to encourage desired organizational performance. Many hospitals and clinics operated by non-governmental organizations will be familiar with the UNICEF-sponsored “Baby-Friendly Hospital” initiative and seek accreditation by submitting an application, which includes a letter of intent, a fee, and self-appraisal on adherence to the “10 steps to successful breastfeeding” established by UNICEF and WHO.

2.4.8.2 CERTIFICATION

Certification is a voluntary process undertaken by a provider or a facility to demonstrate special competence or capability in a particular area. To undergo certification, an established authority, such as a government agency, professional association, or specialty board, evaluates and recognizes either an individual or an organization as having met pre-determined criteria, such as expert knowledge, skills, and demonstrated competence in a specialty area. These criteria go beyond the minimum requirements set for licensing (Rooney & van Ostenberg 1999).

The intent of certifying health care providers is to show evidence that the provider has successfully completed an approved educational program and evaluation process and possesses the knowledge, skills, and educational experience required to provide quality patient care in a specific field. Certification also may be tied to scopes of practice, which are legally sanctioned definitions of what types of services a particular health professional may deliver.

Professional societies in many countries exercise a function of certifying competence in their specific clinical specialty. For example, certification of professional nurse-midwives by the American College of Nurse Midwives requires graduating from an accredited teaching program, passing a national certification exam, seeking continuing education, and, more recently, re-taking the certification exam every eight years. When applied to a facility or an organization, certification implies that the facility or organization has additional services, technology, or capacity beyond those found in similar facilities or organizations. Certification distinguishes the facility or organization as capable of practicing or delivering services in a specialty area and may even grant the organization the legal authorization and funding to perform specialized activities. For example, certification of readiness to provide HIV/AIDS treatment and care is a prerequisite in many countries for a facility to receive and dispense antiretroviral drugs.

2.4.8.3 LICENSING AND REGISTRATION

Licensing is a form of quality regulation of health care services. It is a statutory mechanism a governmental authority uses to grant permission to either an individual health care practitioner to engage in an occupation or to a health care organization to operate and deliver services. Licensing allows governments to ensure basic public health and safety by controlling the entry of health care providers and facilities into the country’s health care market and by establishing standards of conduct for maintaining that status (Rooney & van Ostenberg 1999).

Licensing differs from other approaches to quality regulation; it is mandatory and performed uniquely by a government agency. Licensing regulations also specify the period of time period that the license is valid and the required procedure for maintaining or renewing the license. Assuming that problems with the provider or facility have not been identified or reported, licenses often may be renewed with the payment of a specific fee or submission of documentation.

Licensing standards typically are set at a minimum level, defined by the government as that needed to ensure health and safety in the country. For individual providers, licensing standards are usually defined by training (e.g., completion of degree from an acceptable training institution) and demonstrated technical competence (e.g., passing of a licensing examination).

The licensing of health care facilities differs from accreditation and certification; it is mandatory, thus providing the government control over the entry and operation of facilities in the health sector (Zeribi & Marquez 1995). In some countries, however, a new registration or licensing process has been proposed for existing health care facilities that more closely resembles accreditation in the sense that detailed standards covering various functional areas have been proposed, with initial and subsequent evaluation of compliance, and the possibility of assistance to facilities to help them achieve the standards.

A critical requirement for achieving the intended impact of licensing is to build in mechanisms to ensure that the desired performance or competence is sustained over time. Time-limited licenses and clear requirements for renewal are essential to create an incentive for providers to remain current through continuing education and for organizations to maintain physical infrastructure and capacity. A related issue is the need for enforcement of sanctions or consequences for loss or reversal of licensing status. This includes procedures for disciplinary action against licensees who fail to maintain the conditions of licensing and procedures for reporting and handling impaired or incompetent providers and facilities.

Performance-based incentive (PBI) schemes are used increasingly in developing country health systems to induce health-related actions or performance targets. Supply-side PBIs—used to improve the quality and availability of services—are given either to health care providers or managers at the facility, district, or national level, conditional on achieving certain service delivery or public health goals. Supply-side PBIs often are being incorporated into national public health delivery systems, social insurance schemes, contracts with service delivery organizations, and safe motherhood schemes in low- and middle-income settings (Witter et al. 2012).

Demand-side PBIs that encourage the demand for essential health services and access to them are provided directly to households or patients to change certain health-related behaviors. Conditional cash transfer programs are a commonly used demand-side PBI scheme.

Historically, PBIs in low-resource settings have provided incentives to units of care, such as an attended birth, rather than performance measures linked to quality of care (that is, what was done in the care process). Recognition is increasing of the potential negative, unintended consequences of productivity-driven performance incentives on quality of care, as well as recognition of the potential benefits of quality performance measures in low-resource settings to improve delivery of best practices (Ergo et al. 2012).

Providing incentives to motivate providers and organizations to participate in quality performance and maintain it is as important as sanctions, particularly in voluntary programs like accreditation. Financial incentives, such as linkages to payment systems and quality bonuses, can be powerful motivators to maintain high compliance with quality standards and reward organizations' superior performance. Symbolic rewards, including professional and public recognition through publicity or special awards, also can be highly motivating, particularly if these are perceived to endow the provider or organization with a competitive advantage.

3. MEASURING QUALITY TO DRIVE IMPROVEMENT

3.1 WHY IS MEASUREMENT IMPORTANT?

Regular measurement and analysis of quality measures is a core principle of all improvement work; however, measuring quality is not simple in any setting, as highlighted in a recent article in the *Journal of the American Medical Association*: "Quality measurement is in rapid flux….despite the challenges of a rapidly expanding number of quality measures, much of health care remains poorly measured or unmeasured" (Panzer et al. 2013).

Measures of quality can encompass any of the quality aims discussed earlier, including timeliness of care (waiting time), clinical effectiveness of care (compliance with standards), safety of care (frequency of adverse events), equity of care (care utilization by subpopulations), efficiency (cost per outcome achieved), and others. Often stakeholders think only of effectiveness (adherence to best practices) when they hear the word "quality," yet other measures can be equally important.

It is useful to consider which stakeholders need which quality of care information and for what purpose. For example, community- and facility-based health workers may benefit from tracking process measures related to the quality of specific services they provide. District and regional managers may benefit from tracking performance of essential system functions at the district level, such as distribution of commodities and functionality of referral systems, in addition to tracking a few sentinel quality of care process measures in the facilities they supervise.

National policy makers may find it most useful to track health outcome measures and incorporate a few sentinel measures of quality into routine information systems so as not to burden the health management information system (HMIS) with too many indicators.

3.2 MEASUREMENT METHODS

Many methods can be used to measure quality of care. Table 1 illustrates common methods of assessing quality, including advantages and disadvantages for specific methods. Individual methods have unique strengths and weaknesses, depending on the purpose and context of the measurement exercise. It is important to tailor the method to the specific need, including the specific quality dimension being measured. For example, a client interview may be the best method to assess client-centeredness of care, but it may not be a reliable method to measure adherence to treatment standards because the client may not be aware of what treatment should have been provided. Often a combination of methods can yield a fuller picture of quality than any one single method. Similarly, measurement methods feasible for use as part of a one-time assessment of quality of care (e.g., to evaluate a program intervention) may be impractical for use for routine measurement of care quality.

For facility-level improvement work, standardized individual patient records that capture patient-specific and clinical care data serve two important functions: (1) they support real-time clinical decision-making at the point of care; and (2) they permit data extraction for calculation, aggregation, and analysis of quality measures across different units of the system (e.g., provider-specific, facility-specific, district, national). Many health systems in low-resource settings do not have individual medical records, particularly at lower level facilities, and instead use registers to track patient-specific information. Such registers are often no more than columns drawn into a notebook and may contain varying amounts of patient-specific clinical data, depending on the register. Nevertheless, such registers can be manually adapted to capture simple routine best practices (e.g., addition of column to note counseling) while stronger patient records and more robust information systems are being developed.

Although measurement methods such as observation and client and provider questionnaires may be useful for one-off periodic assessments, such methods typically are not sustainable for routine measurement of quality in low-resource settings. Routine measurement of care quality may require a combination of measurement approaches, including adaptation of local records and registers, periodic client and provider interviews, and periodic observation of care. Even when primary data are available in local records, data are often inconsistent and of poor quality.

The challenges of documenting and tracking quality of care indicators as part of community QI efforts is particularly challenging. Basic information systems (registers, indicators, ongoing measurement processes) are often rudimentary to non-existent at the community level. Building community- and facility-based staff capacity to document, capture, and extract data to calculate quality measures is central to building capacity for continuous improvement at both community and facility levels in low-resource settings.

Table 1: Common Methods of Measuring Quality of Health Care

Measurement Method	Advantages	Disadvantages
Observation	▪ Considered gold standard ▪ Only method that measures performance of health service (as opposed to provider knowledge and competence, which may not correlate with provider performance) ▪ May be best method for assessing the quality of complex tasks	▪ Observer effect ▪ Resource-intensive ▪ Difficult to sustain in routine practice
Client Interview (e.g., exit interview; household interview)	▪ Client-centeredness of care ▪ May be reliable for simple measures of whether a particular service was provided	▪ Recall problems ▪ Unequal knowledge between health workers and clients ▪ Client reluctance to give honest feedback for fear of negative consequences
Death and Near-miss Audit	▪ Targets adverse outcomes ▪ May identify common quality deficits ▪ Accountability	▪ Retrospective (after the fact) ▪ Limited evidence for association between routine audit and improved outcomes
Simulation	▪ Next best method after observation for complex procedural tasks	▪ Resource intensive ▪ Unclear relationship between simulated competence and actual performance
Health Worker Questionnaire	▪ Assesses health worker knowledge, self-reported practice, and attitudes	▪ Does not assess provider competence or performance
Facility and Patient Records Individual patient record Registers	▪ Relatively sustainable and low-cost ▪ May encourage better documentation and point-of-care use of data for decision-making	▪ Records are often inadequate or absent altogether (e.g., no standardized individual patient record)

• Other facility documents		▪ Providers and supervisors may falsely document data (intentionally or unintentionally)
Routine Information System	▪ Efficient extraction of data	▪ Most HMIS track few quality of care measures ▪ HMIS may be rudimentary or non-existent at community level

Measuring quality of care is difficult in any setting; however, routine measurement of quality is especially challenging in low-resource settings, such as these factors:

- Relative absence of quality of care (content) measures in many routine HMIS in low-resource settings
- Absence of standardized individual patient records or registers in many facilities and community efforts
- Lack of primary data to permit calculation of quality indicators (e.g., registers and individual records lack essential data; records may not be standardized; if standardized, records may not include essential information)
- Multiple competing vertical registers often containing duplicative data (e.g., pregnancy register, iCCM)
- Few routine indicators of performance of essential system functions (e.g., percentage of CHWs with stock of oral rehydration salts for community-based management of diarrheal illness
- Inadequate data management skills among providers and managers; lack of literacy among community workers and clients

3.3 DEFINING QUALITY INDICATORS

Quality of care measures can be constructed in varying ways, depending on the specific technical content, data source, and measurement method and feasibility in an individual context. In most cases, quality of care process indicators measure the adherence of the care provided to evidence-based standards. Two approaches can be used to measure adherence to standards: (1) all-or-nothing, where all elements of the standard must be met for the encounter to be judged as acceptable quality or (2) percent adherence across all possible standards:

- **Percentage of cases adherent to standards, *all or nothing adherence,*** such as percentage of diarrheal cases managed per *minimum* standards)

- **Average percentage adherence to minimum standards,** such as average percentage of adherence with diarrheal case-management standards; n=30 cases reviewed x 6 minimum standards per case = 180 possible standards to be met)

All-or-nothing adherence may be useful for simpler interventions, such as administration of vitamin A; average percentage adherence may be more useful for tracking more complex interventions, such as community case management of febrile illness, where achieving adherence with essential standards may be more gradual.

Regardless of the construction of the measure, it is very important to standardize operational definitions of quality of care indicators (performance measures) to include, at a minimum,: (a) clear numerator, (b) denominator, (c) source of data, and (d) frequency of data collection (see Table 2). The specific measurement method that is best suited to a particular indicator depends on a range of factors, including feasible data sources and those factors must be considered when constructing an indicator. For example, it is difficult to measure the quality of counseling provided to a pregnant woman by auditing a register. Instead, periodic observation of actual counseling or simulated counseling using a structured checklist may be the most appropriate measurement method.

Table 2: Illustrative Quality of Care Measures—Effectiveness of Care

Quality of Care Measure	Operational Definition		Data Source, Sample (measurement method)	Frequency of Data Collection
	Numerator	**Denominator**		
Percentage of pregnant women seen at the health post who had blood pressure measured at their last ANC visit	Number of pregnant women seen in the health post in the last month who had their blood pressure documented	Total number of pregnant women seen for ANC in the health post in the last month	Antenatal care register in health post	Monthly
Average adherence to with post-partum counseling standards for mother	Number of observed post-partum care counseling sessions in the last month adherent with specified standards	Total number of post-partum counseling sessions observed in the last month	Structured observation using checklist by supervisor or peer	Monthly

4. CONCLUSION

Regular activities to improve health care are increasingly expected on the part of managers, clients, the community, donors, and payers as a routine part of delivering health care services. PEPFAR recently issued the PEPFAR Quality Strategy to guide countries and implementing partners to improve PEPFAR-funded HIV programs and the services they provide (PEPFAR 2014).

As the global community and individual countries rally to meet the MDGs, the importance of quality for achieving the MDGs and eventual post-MDG goals is increasingly recognized. Global plans, such as the Every Newborn Action Plan endorsed by the World Health Assembly in the spring of 2014, are actively seeking to define measurement and implementation strategies that incorporate a strong focus on quality. Indeed, improving quality is one of Every Newborn Action Plan's five strategic priorities.

As illustrated in the country case examples throughout this brief, many lessons are being learned about how to improve quality and coordinate life-saving health care services from the household to the health post to the health center to the district and regional hospital. Applying improvement approaches to continuously strengthen and link community services to the formal health system is at the heart of achieving coordinated equitable, client-centered, effective, and safe health care services to end preventable deaths and achieve better health outcomes.

A Global Seminar on Making Health Care Better in Low- and Middle-Income Countries held in Salzburg, Austria, in 2012 brought together 58 health care leaders from 33 countries to synthesize lessons learned, discuss challenges and opportunities, and recommend next steps to stimulate a global movement for improvement in the quality and safety of health care (Massoud et al. 2012). The seminar participants issued a Call to Action (The Salzburg Statement) for governments, health policy leaders, communities, development partners, non-governmental organizations, health care workers, and patients to improve quality of care, urging the following actions:

- Health policy leaders to adopt and promote quality improvement as a cornerstone for better health for all
- Clients and patients to be empowered and at the forefront of their country’s shared vision for better health for all
- Communities to actively advocate for quality health care as part of their rights and responsibilities
- Health care workers to continuously improve the delivery of expert and compassionate care to patients and their families
- Those providing technical assistance in global health to incorporate evidence-based improvement methods in their work
- Development partners to invest in approaches that drive sustainable context-specific improvements in global health
- Governments to be accountable for the improvement of health care through legislation, policies, and necessary resources

All need to a role to play in making health care better.

HYPERLINK REFERENCES

(In order of appearance in the text; Please see References section for hyperlinks to additional resources.)

Knowledge for Health website, http://www.k4health.org/toolkits

Key Resources on Health Worker Education and Training
Human Resources for Health Global Resource Center, http://www.hrhresourcecenter.org/
Global Improvement Framework for Health Worker In-service Training.
https://www.usaidassist.org/resources/global-improvement-framework-health-worker-service-training-guidance-improved
Training Evaluation Framework and Tools, http://www.go2itech.org/resources/TEFT

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