QΛ Brief

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QA Project Editorial

Quality Assurance and Performance Improvement: Important Approaches in Improving Health Systems

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THE term *performance improvement* (PI) is new to most healthcare professionals. However, those who have long worked to improve the quality of care in developing countries will quickly notice how similar PI is to approaches we have known as *quality assurance* (QA). At first blush, this may seem to be a distinction without a difference, little more than a proliferation of specialized jargon. A closer look, however, leads to a much more interesting and provocative conclusion.

For many years, the training of service providers has been the centerpiece of international assistance in health. The development of new interventions, from oral rehydration therapy to HIV/AIDS counseling, requires health workers to carry out new activities, and training is the logical place to begin. The implicit assumption was that this training, supported by the existing health system, would be enough to realize the potential of new technologies. This assumption, however, is increasingly being questioned as we gain new insights into the complexities of delivering healthcare.

The most impressive advances over the years have been in understanding the process of care itself, that is, in a better

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understanding of what providers actually do when they leave the training course and return to the work of taking care of patients. Evidence-based clinical guidelines have rapidly gained acceptance as the standard for evaluating the process of clinical care.

The principle is straightforward. In many circumstances, there is enough scientific and clinical evidence to specify what the provider should do. Translating this evidence into a practical written guideline for clinicians is more challenging, of course, particularly since the guideline must reflect what is actually feasible in a given setting. In developing countries, however, most health issues are well suited to guidelines. Further, only a limited number of such guidelines would be needed to cover most visits. The World Health Organization (WHO) guideline for the Integrated Management of Childhood Illness (IMCI) is a prominent example of such a guideline.

We are only now beginning to appreciate the far-reaching implications of this apparently simple concept. The health impact of training providers depends on influencing what they do in the clinic, and the guidelines provide a yardstick to measure the way providers are doing their jobs. Such assessments are still too few, but when they are made, they consistently show that actual care falls substantially short of the guidelines. We cannot yet specify what this shortfall means in terms of health impact, but there are

grounds for concern: training alone increasingly looks inadequate as a way to improve the quality of health care.

The fields of quality assurance and performance improvement have their origins far from the problems of lesser-developed country health systems. From a QA perspective, compliance with clinical guidelines is a central measure of quality of healthcare, and the field offers a wide range of tools for improving quality. Many of these tools reflect the efforts of thoughtful health professionals, but other approaches have been adapted from industry. The idea of a program of accreditation for facilities that is based on objective criteria, for example, comes from the health sector. Nevertheless, QA programs also make extensive use of the structured problem-solving technique of quality management first developed in industry.

Like quality management (QM), performance improvement began in industry. However, unlike QM, PI begins with a focus on the limitations of staff training rather than on the role of managers. Nevertheless,

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in their applications to health systems in developing countries, modern quality assurance and performance improvement reach surprisingly similar conclusions.

Provider compliance with guidelines is a central measure of both performance and quality. Experts in both fields agree that what providers do is influenced by the nature of the health system in which they work, as well as by training. The approach of both fields is to understand these other factors and change them in ways that support improved compliance with evidence-based guidelines.

The two fields do not have every technique in common, but the similarity of their approaches is striking. Indeed, the very fact that two distinct fields have converged on a similar overall idea of what needs to be done should give us confidence. Considering the magnitude of change in health systems that will be required, we will need that confidence.

The Importance of Involving Physicians in Quality Improvement

David Nicholas, MD, MPH, Director, Quality Assurance Project

THERE is documented evidence from countries at all economic levels that medical outcomes, both clinical and preventive, can be improved through the work of quality improvement teams. This is especially true when medical systems and work processes are changed to allow for the effective implementation of evidence-based medical guidelines. Physicians, both as leaders in their organizations and as practitioners adhering to the guidelines, are crucial to the success of these quality improvement teams.

Physicians usually play a leadership role in a medical setting: they often serve as managers and may make or influence the decision as to whether improvement activities will occur. Experience shows that if they are not actively involved as members—and often as leaders—of these teams, quality improvement work either will not start or will soon come to a halt. Furthermore, if physicians are not involved, they probably will not cooperate in implementing the changes or adhering to the new guidelines. Yet, the Quality Assurance Project experience is that it is not always easy to involve physicians in such improvement work.

Why is this so? Physicians who are primarily clinically involved may see quality improvement as a management function not related to their own responsibilities. They also often hesitate to admit that the clinical processes or standards currently in use are not the best. They may not see that clinical outcomes are tied to the processes being followed or that the results and outcomes could be improved. They may also feel that they do not have the time for such activities.

Even those physicians who have management responsibilities may not have been trained in management and may not be prone to forming or leading teams to improve organizational processes. Physicians are not usually trained to work in teams and may feel uncomfortable working as an equal member of a team of health workers with less professional training or credentials. They may see themselves more like a military platoon leader than as a coequal member of a team.

The QA Project has found that physicians can be motivated to become active participants and leaders of quality improvement activities. This begins by identifying physician leaders who are interested in improving certain medical outcomes. Success is most likely if these physicians can attend an "executive seminar" in quality improvement principles. The seminar sets the stage for the physician to provide the necessary leadership in future activities.

A physician can then involve colleagues in a review of the medical conditions for which he or she thinks outcomes could be improved. Purely administrative issues for improvement should be avoided at first unless the physician demands these priorities. During the review of medical conditions, the physician can choose one condition or area to tackle for the first improvement effort. The physician can also form a team that includes one or more physicians who are key to the process being improved. Other key health workers are also selected for the team as appropriate (nurses, laboratory technicians, pharmacists, etc.).

The team reviews the system of care and the steps in the improvement process. This review covers the diagnostic and clinical decision-making steps, as well as treatment and follow-up. For each step, the team assesses the scientific evidence justifying current practice. If evidence is lacking, the team consults the

literature and/or nationally or internationally accepted guidelines such as those maintained by the Cochrane Center in the United Kingdom or the U.S. Government (www.guidelines.gov). Interdepartmental steps and relationships, such as involving laboratory or X-ray departments, are also examined. The team may also need to consider logistical essentials, such as transportation for emergency cases. Community and patient education are other important components of both preventive and clinical services and need appropriate attention from the team.

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Finally, the team describes the new process and guidelines to be followed in treating the condition and identifies the indicators it will use to measure compliance and outcomes. Process indicators could include essential diagnostic or therapeutic tasks carried out. Sometimes "care maps" (or critical pathways) are developed. Other process steps to be monitored could include completed medical records with all essential information. Such information can be obtained by a medical audit of a sample records. (Information that is automated can be analyzed more easily.) Outcome indicators of particular interest to physicians could be case-fatality rates, mortality rates, postoperative infection rates, complication rates, hospitalization rates, client satisfaction, and cost of care.

The team works to implement the changes it has designed and to self-assess the results by assisting in the monitoring and analysis of process data and outcomes. The "story board" of the team's work can be posted on a staff bulletin board to communicate the work done, and the results can be charted on a monthly basis for all to observe. Usually the results

achieved are quite significant and provide continued motivation to the team along with encouragement to others to begin similar work. Thus, the physicians on the first team become champions of the approach, and others soon follow. This can lead to a multiplying number of improvements in clinical care.

This approach has been used in two Russian states by the Quality Assurance Project where the problems of pregnancy-induced hypertension (PIH), neonatal respiratory distress syndrome (RDS), and adult hypertension were tackled. In 18 months, there were dramatic reductions in hospitalization for PIH, deaths from RDS, and complications of adult hypertension.[1]

In Nicaragua, a similar project dealing with Essential Obstetric Care (EOC) has resulted in an increased use of partographs from a pre-project level of 3 percent to 90 percent in only 10 months. There are strong indications that maternal mortality is decreasing as well. In Bocay, one of the districts in Nicaragua where the QA Project is working, there were 10 maternal deaths in 1999. In the first 10 months of 2000, there were only two. Such visible changes are very motivating to the physicians involved. They are rewarded with a sense of greater professionalism in their work and with the gratitude of their clients and community.

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[1] *Detailed data may be found in the article on page 26: (Re)Designing the System of Care for Neonates Suffering from Respiratory Distress Syndrome in Tver Oblast, Russian Federation.*

Quality Improvement and Performance Improvement: Different Means to the Same End?[1]

Thada Bornstein, MEd, Deputy Training Director, Quality Assurance Project

PERFORMANCE IMPROVEMENT (PI) is a methodology for improving the quality of institutional and individual performance. PI, a term often used interchangeably with Human Performance Technology (HPT), has attracted much attention lately in the international development community, due largely to the enthusiasm of the USAID Office of Population, which is encouraging Cooperating Agencies (CAs) to adopt PI. The CAs are at varying stages of familiarity with both PI and quality improvement (QI). Because even seasoned practitioners have different perspectives on the relationship between PI and QI, the topic has caused lively and useful discussions in the CA community.

This article describes some of the similarities and differences between the two methodologies. It is written and should be read with the understanding that QI and PI are continually evolving and that there is no discrete boundary between them.

In both QI and PI, their application in the U.S. and other developed countries is at a later stage of evolution and experience than in developing countries. This paper is limited to the application of QA/QI and PI in international healthcare. (Many of the statements in this article apply equally to QA and QI.)

The USAID-sponsored Performance Improvement Consultative Group (PICG) is composed of CA representatives who have worked with the Office of Population to develop performance improvement strategies, tools, and approaches. The PICG has developed its own framework based on that of the International Society of Performance Improvement (ISPI). The customized version is suited to the needs and experiences of those who work in the developing world. This version emphasizes the step of obtaining stakeholder agreement to the PI process from the very beginning, before any intervention is attempted—thus avoiding the problems that can arise when there are multiple clients with different goals. PICG has agreed to use the common framework in the field in order to reduce confusion among clients, although each group will apply the PI process somewhat differently.

Origins

Although PI and QI arise from different beginnings, both take a systems view. ISPI defines HPT/PI as: "Human performance technology is a set of methods and procedures, and a strategy for solving problems, for realizing opportunities related to the performance of people. It can be applied to individuals, processes, and organizations. It is, in reality, a systematic combination of three fundamental processes: performance analysis, cause analysis, and intervention selection."[2]

HPT has deep roots in human resources, instructional design, and training, and draws on many fields, including systems theory, learning psychology and behaviorism, information technology, feedback systems, organizational development, analytical systems, ergonomics, human factors, and psychometrics.[3] PI grew out of the realization that

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[1] *In general, the Performance Improvement framework is an evolving concept with new concepts emerging as work continues in this field. The concepts presented here reflect the current thinking when this article was prepared.*

[2] *International Society for Performance Improvement. 2001.*

[3] *M. Rosenberg, W. Coscarelli, and C. Hutchison. 1992. "The Origins and Evolution of the Field" in Stolovich and Keeps, eds.,* Handbook of Human Performance Technology. *San Francisco: Jossey-Bass Publishers.*

poor job performance seldom is due solely to the performer's lack of skills and knowledge, but usually to other factors in the system.

PI is based on the theoretical framework of HPT, a systematic method based on data, aimed ultimately at improving human performance by addressing the gap between the present state and the desired state. Its foundation is the belief that to improve human performance, one must manage the performance improvement system, which must be the core of an organization's human resource efforts.[4]

Progressive companies in private industry have practiced both PI and QI since the '70s. Performance improvement is helping to change the widespread notion that all performance problems are best addressed by training. Traditionally, management viewed poor performance as a lack of knowledge or skills, without regard for a variety of internal and external determinants of performance, such as motivation, incentives, environmental factors, resources, feedback, coaching, supervisory support, and others. This mentality leads managers to think that workplace performance problems can be "fixed" by training, so training became a panacea for those problems but rarely solves them. Even when training *is* required, it alone is often insufficient to improve job performance ("training transfer"). Without certain supports present in the workplace, performance may improve for a short period following training, and then erode.

Quality assurance (QA) and its component, QI, originated in engineering and manufacturing where systems theory, statistical process control, and continuous quality improvement were combined with general management methods. Both QA and QI have long since been adopted and adapted by healthcare systems in many developed countries.

Theory and Principles

Simply stated, QI examines processes in order to improve them. Like the other components of QA, QI relies on the guiding principles of teamwork, systems and processes, client focus, and measurement. The focus on *teamwork* recognizes that team members bring valuable insights regarding the process to be improved because of their knowledge of and experience in it, and are more likely to implement improvements they helped to develop. The focus on *systems and processes* recognizes that providers must understand the service system and its key service processes in order to improve them; resolving the problem of unclear, redundant, or incomplete processes or systems yields better results than placing blame on individuals. Focus on the *client* emphasizes that services should be designed so as to meet the needs and expectations of clients and community. Focus on *measurement* means that data are needed to analyze processes, identify problems, and measure performance. This focus promotes taking action based on facts rather than on assumptions.

A more complete examination of the fundamental principles of QI are presented in "Advances in Quality Improvement: Principles and Framework," on page 13 of this issue. However, it is good to remember that the one of the simplest definitions of quality, "Doing the right thing, right," illustrates that author's two major components of care: content (doing the right thing) and process (doing it right).

Methodology

PI

PI addresses human performance within organizations at the individual, process, and organizational levels. It uses a systematic method that has five stages: (a) getting agreement on the project goal from the

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[4] *International Society for Performance Improvement, 2001.*

clients, stakeholders, and PI practitioner; (b) conducting a performance needs assessment (identifying performance gaps and their root causes); (c) designing the interventions to close the gap; (d) implementing the interventions, and (e) evaluating the change in the performance gap.

The PICG has identified the following conditions[5] needed for people to perform well:

- Clear job and performance expectations
- Clear and immediate feedback on performance
- A supportive environment, including adequate and proper tools, supplies, and work space
- Motivation to perform to expectations (intrinsic motivation to do the job)
- Organized support in terms of strategic direction, leadership and management communication, organizational structure, and well-conceived job roles and responsibilities

- Knowledge and skills to do the job (technical competencies that match the requirements of the job)

The types of interventions most often recommended by PI address the performance factor deficiencies, including: information systems, job aids, job and work design, leadership, organizational design, performance support, staffing selection, supervision, appraisal systems, career development, coaching/mentoring, culture change, compensation, documentation, environmental engineering, health/wellness, team building, training, and education.

As illustrated in Figure 1, PI is a systematic process that considers the institutional context, identifies gaps between actual and desired performance, determines root causes, chooses one or more solutions aimed at closing the gap, and measures the change in performance. The performance needs assessment identifies current performance or competence, comparing the

Figure 1

The Performance Improvement Process
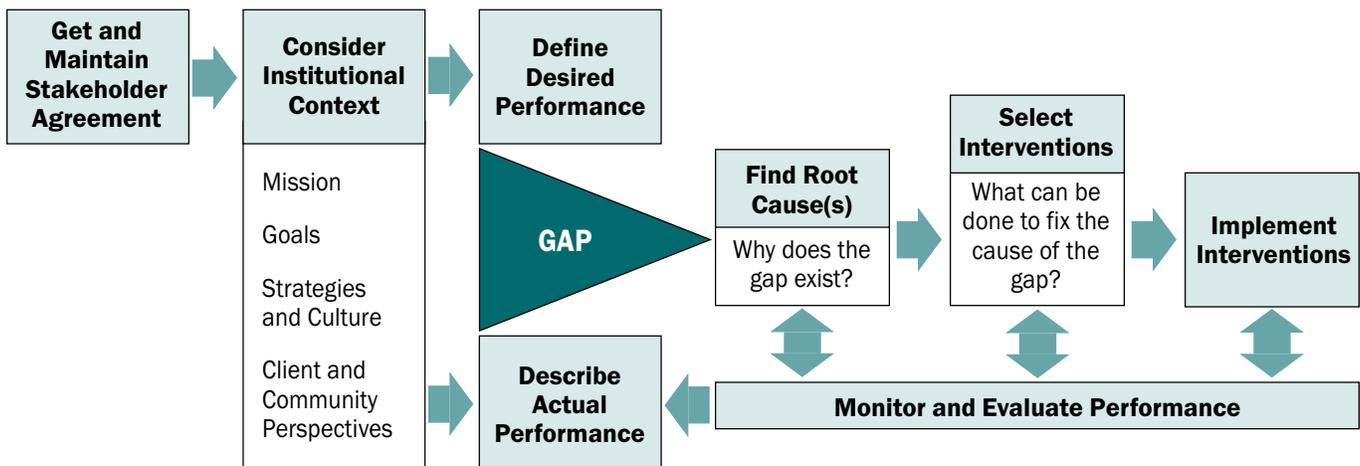
[5] U.S. industrial models of performance factors differ from these and include categories such as Capacity, which refers to individual capability and aptitude for the job, as well as selection of the right person for the job, and Incentives, which encompasses adequate pay and non-pay incentives made contingent upon performance, clear consequences for performance, and absence of disincentives, such as rewarding poor performance or negatively rewarding good performance.

desired state to the actual state, and seeks the root cause of poor performance.

PI practitioners also identify the need for future training when new tasks, equipment, or techniques are introduced, anticipating future performance deficiencies as the worker's job changes. Root-cause analysis ensures that the interventions recommended are based on data and are what is really needed. Often a combination of multiple interventions is implemented as part of a comprehensive solution. While PI's focus may range from the micro level (individual performers) to the macro level (the organization), its roots and close alignment to human resources, training, and organizational development may influence its practitioners to favor certain types of interventions.

QA/QI

The Quality Assurance Project illustrates QA activities as three points on a QA triangle (see Figure 2). The points are: defining quality (QD), measuring quality (QM), and improving quality (QI). QD means developing statements regarding the input, process, and outcome standards that the healthcare delivery system must meet in order for its patients to achieve optimum health gains. Such statements are used to define expected quality in all aspects of healthcare. QM consists of quantifying the current level of compliance with standards. QI involves using appropriate methodologies to close the gap between the current and expected levels of quality; it uses quality management tools and principles to understand and address system deficiencies.

Approaches to conducting QI activities are numerous and lie along a continuum from simple to complex. Four basic approaches are: (a) individual problem solving, (b) rapi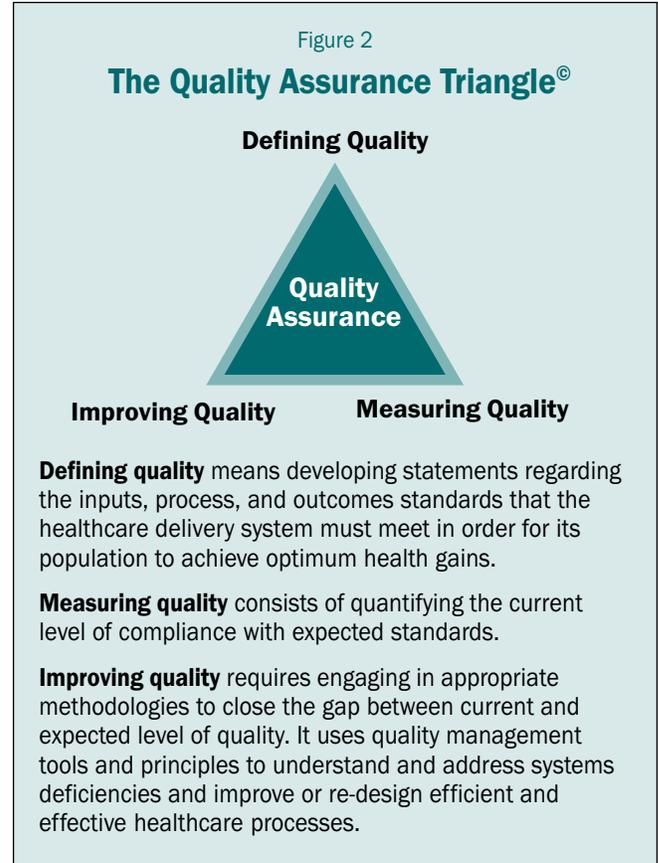d team problem solving, (c) systematic team problem solving, and (d) process improvement. (These four approaches are explained in "Advances in Quality Improvement: Principles and Framework" on page 13). The PI approach is most

Figure 2

The Quality Assurance Triangle©

Defining Quality

Quality Assurance

Improving Quality   **Measuring Quality**

Defining quality means developing statements regarding the inputs, process, and outcomes standards that the healthcare delivery system must meet in order for its population to achieve optimum health gains.

Measuring quality consists of quantifying the current level of compliance with expected standards.

Improving quality requires engaging in appropriate methodologies to close the gap between current and expected level of quality. It uses quality management tools and principles to understand and address systems deficiencies and improve or re-design efficient and effective healthcare processes.

similar to the third, systematic team problem solving (see Figure 1).

QI activities are conducted using variations on a four-step method: (a) identify (determine what to improve), (b) analyze (understand the problem), (c) develop hypotheses (determine what change[s] will improve the problem), and (d) test and implement, or Plan, Do, Study Act (PDSA). In the fourth step, the solution is tested to see whether it yields an improvement; 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 process cycles back to the third step for reiteration. If the results are achieved, the solution is implemented on a larger scale and monitored over time for continuous improvement.

QI does not end with step four; it is an ongoing process. In fact, QI is generally considered in the context of QA, itself an ongoing process.

QI vs. PI

Although both QI and PI take a systems view, a noticeable difference between them is that PI places more emphasis upon human performance while QI focuses on processes. Both assert the need for data.

The QA Project recommends a flexible stance in deciding how to perform the analysis step, i.e., whether to conduct a root-cause analysis, whereas PI holds firmly that root-cause analysis should be performed. When root-cause analysis is conducted in QI, hypotheses are produced using a variety of techniques, such as generating possible causes and organizing them on a fishbone (Ishikawa) diagram, or using the Tree Diagram technique ("Five Why's"), narrowing down the most likely causes, and developing simple data collection tools to verify which one is the actual root cause. Descriptions of root-cause analysis in PI often exclude the verification step.

Rapid approaches employ solutions from a list of known change strategies that have a history of results in reducing errors and rework.

The QA Project advocates not performing root-cause analysis when the cause is obvious (this usually applies when the individual approach is used), or when the problem solvers are sufficiently knowledgeable about the process to make educated guesses as to the cause (often used by teams using the rapid or process improvement approach). These approaches yield a quicker result, but require a level of QI expertise to know when they should be applied. Rapid approaches employ solutions from a list of known change strategies that have a history of results in reducing errors and rework.

Another significant difference between PI and QI is that PI is usually led by a specialized practitioner,

while QA and QI have always been intended to be managed by the health program staff itself. This approach supports the institutionalization of quality in many of the countries where the QA Project works and is exemplified in the autonomous and continuous character of QI teams, which are central to the sustainability of QI. QI teams are usually self-directed groups of facility-based health workers.

The teams are developed and supported by coaches who provide them with both formal and just-in-time training in QI—the process, tools, and techniques—and on team process matters such as: the functions and roles of team members; communication skills (e.g., active listening, giving and receiving feedback); decision making; planning, conducting, and documenting team meetings; and presenting team results to managers.

Teams use the QI process to decide what they want to improve, and are thus empowered to improve their work conditions and outcomes, often making systemic transformations to their work environment. This contrasts with PI, which does not emphasize the use of teams. QI team members are selected for their expert knowledge of the process being improved or other special skills. This combination of knowledge and skills gives the team the expertise that enables them to deal with complex systems and processes. Often a QI team is wholly responsible for the process they are improving (process improvement teams). Such teams can continually seek opportunities for improvement, and design, test, and implement solutions without requiring higher authority to initiate the effort.

On the other hand, PI is often initiated at a client's request and directed by a PI practitioner. While teams are formed to design and implement interventions,

there is less indication that, after the original performance problem is improved, self-directed facility-level teams continue to initiate PI activities independently as part of their regular way of doing business. However, many CAs are now conducting PI training to develop the capacity of field staff and host country counterparts to use PI independently of headquarters.

Because of its roots in human resources (HR) and training, PI is more inclined than QI to consider HR-related causes and solutions, for example, clear job expectations, performance feedback, motivation, and incentives. And QI is more predisposed toward looking at processes and systems, a focus that generates a broader array of interventions. One example of such complex interventions is an accreditation system that may incorporate both internal and external monitoring and improvement. Another is the systematic monitoring of Health Management Information Systems (HMIS) data to generate opportunities for continuous QI.

> *QA recognizes that standards must be in place and met for these inputs, processes, and outcomes in order to maximize the potential for desired health outcomes.*

However, there is increasing evidence of common ground between QI and PI: QA/QI is developing and testing so-called "HR"-type interventions, such as supervisory feedback and health worker motivation, while PI is identifying systemic causes such as lack of systematic monitoring and evaluation.

Many system-wide intervention mechanisms (e.g., licensure, accreditation, regulation, and certification) that are tailored to healthcare and employed by QI have not yet been adopted in the current practice of PI.[6] Accreditation can take any of several forms:

focused accreditation (focused on a single service) and facilitated accreditation with self-appraisal are two such complex interventions that improve quality in an organized way. Another solution that can arise from QI is Quality Design, which employs a well-developed methodology to create new services or processes.

QI is only one methodology in the larger QA system, and as such, it is not the sole entry point for improving the performance of a healthcare system. One can just as easily begin with QD or QM. In fact, there are many entry points by which quality can be introduced into a healthcare system. It is a function of QA's maturity, and the great needs of healthcare systems in developing countries, that the interventions mentioned in this article can be implemented and achieve results without necessarily going through the QI process.

Both QA/QI and PI emphasize standards, but the former is more systematic and comprehensive. In QA/QI, standards are classified into two domains: technical (clinical, based on evidence-based medicine) and administrative. In each domain, there exist model standards for inputs (e.g., staff, equipment, supplies), processes (e.g., patient care, admission, housekeeping), and outcomes (the results of the inputs and processes: e.g., delivery of a baby, health gain of a patient, mother appropriately following a health provider's guidance for the care of her child). QA recognizes that standards must be in place and met for these inputs, processes, and outcomes in order to maximize the potential for desired health outcomes.

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[6] *This statement excludes Joint Commission Resources, Inc. (JCR), an internationally focused subsidiary of the US-based Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and JCAHO, who use the term "Performance Improvement" slightly differently from the PICG. For more information on JCR, see their website at <www.jcrinc.com>.*

In PI, the term "standards" is most often applied to worker performance expectations, namely job descriptions or specifications although, as mentioned above, clinical guidelines are a well recognized performance factor and solution in PI. However, PI uses terminology for performance factors (e.g., "environment") that include elements QI would call "input standards." The different terminology can cause confusion. QI and PI may both recognize the same deficiencies, but while one sees the lack of a standard, the other sees a lack of an environmental support mechanism. In this case, the two perspectives may lead to the same conclusion, but QI/QA's more comprehensive and systematic process for developing, communicating, and implementing standards around those or similar factors appears more likely to achieve success, and successes are sustained longer if staff retain, refer to, and follow standards.

Summary

Both QI and PI use a systems approach and are data-based. They also share some tools and techniques. Because proponents of each approach who work in the international arena may not be well versed in both, they don't always recognize how much they have in common. However, each has developed unique approaches, along with deep knowledge in specialty areas that the other, in the spirit of continuous improvement, would do well to embrace.

For example, PI practitioners could draw on QI's use of faster approaches and expand its use of interventions to include already developed methodologies such as QD, etc. QI could benefit from formalizing the stakeholder process and placing a greater importance on human performance support systems such as capacity and selection, individual job descriptions, motivation, and incentives.

As CAs better define the commonalities and improve our understanding of these two approaches to achieving improvements, we will be better equipped to draw on the strengths of both. USAID has made a significant contribution by bringing both of these approaches to the table, and the clients are the ultimate beneficiaries.

Advances in Quality Improvement: Principles and Framework

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EXPERIENCE with implementing quality improvement in different settings has led to a better understanding of how the methodology can be applied to the healthcare field and to further development of the methodology. Advances include the simplification of the methodology, its further application to a wide range of circumstances, and the integration of evidence-based medicine in clinical quality improvement efforts.

This article outlines the key principles and framework of quality improvement. They comprise the fundamental principle of improvement, the four principles of quality management (i.e., Focus on the Client, Understanding Work as Systems and Processes, Teamwork, and Focus on the Use of Data), and the framework for clinical quality improvement. The article also describes the four-step quality improvement methodology (i.e., Identify, Analyze, Develop, and Test/Implement). Lastly, it illustrates the application of this methodology to a spectrum of quality improvement approaches. Four points along this spectrum have been chosen to illustrate a range of approaches (e.g., individual problem solving, rapid team problem solving, systematic team problem solving, and process improvement) that can utilize the quality improvement methodology.

Key Principles and Framework

The Fundamental Principle of Improvement

The central idea underlying modern quality improvement is captured in the words of D. M. Berwick: "Every system is perfectly designed to achieve exactly the results that it achieves." The level of performance (results) is a characteristic of any given system of work. A system left unchanged can only be expected to continue to achieve the same results it has been achieving. To achieve a different level of performance, it is essential to change the system in ways that enable it to achieve a different level of performance. QI methodology identifies unnecessary, redundant, or incorrect parts of processes, and then changes processes in ways believed to yield improvements. However, because not every change is necessarily an improvement, a change must be tested and studied to determine whether it has actually resulted in improvement.

The Principles of Quality Management

There are four main principles of quality improvement.

Focus on the client. Services should be designed to meet the needs and expectations of clients and community. An important measure of quality is the extent to which customer needs and expectations are met.

Understanding work as systems and processes. Providers need to understand the service system and its key processes in order to improve them. Using tools of process engineering allows simple visual images of these processes and systems.

Teamwork. Because work is accomplished through processes and systems in which different people fulfill different functions, it is essential to involve in the improvement representatives of the people who fulfill these functions. This brings their insights to the understanding of changes that need to be made and to the effective implementation of the appropriate processes, as well as to the development of ownership of the improved processes and systems.

Focus on the use of data. Data are needed to analyze processes, identify problems, and measure performance. Changes can then be tested and the resulting data analyzed to verify that the changes have actually led to improvements.

The Framework for Improving Clinical Quality

Improvement looks at two major components: what is done (content) and how it is done (process of care). Either component could lead to improvement, but the most powerful impact occurs by addressing both simultaneously. A key advancement in the use of this framework has been to develop norms, standards, protocols, and guidelines based on clinical evidence. In so doing, the literature on clinical practices is reviewed and the content developed based on the highest levels of evidence available. Where evidence for practices is weak or inconclusive, this is also acknowledged. This concept[1] is illustrated in Figure 1.

Quality Improvement Methodology

Quality improvement methodology consists of four key steps, as shown in Table 1.

Step One: Identify

The goal of the first step, *identify,* is to determine what to improve. This may involve a problem that needs a solution, an opportunity for improvement that requires definition, or a process or system that needs to be improved. Examples of problems or processes that are commonly identified include unavailability of drugs, lost laboratory reports, and waiting time.

This first step involves recognizing an opportunity for improvement and then setting a goal to improve it. Quality improvement starts by asking these questions:

- What is the problem?
- How do you know that it is a problem?

Table 1

Key Steps of Quality Improvement

Identify	Determine what to improve.
Analyze	Understand the problem.
Develop	Hypothesize what changes will improve the problem.
Test/ Implement	Test the hypothesized solution to see if it yields improvement. Based on the results, decide whether to abandon, modify, or implement the solution.

- How frequently does it occur, or how long has it existed?
- What are the effects of this problem?
- How will we know when it is resolved?

Step Two: Analyze

Once we have identified areas for quality improvement, the second step is to *analyze* what we need to know or understand about this opportunity for improvement before considering changes. The objectives of the analysis stage can be any combination of the following:

- Clarifying why the process or system produces the effect that we aim to change
- Measuring the performance of the process or system that produces the effect
- Formulating research questions, such as the following:
  - Who is involved or affected?
  - Where does the problem occur?
  - When does the problem occur?
  - What happens when the problem occurs?
  - Why does the problem occur?

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[1] *Adapted from P.B. Batalden and P.K. Stoltz. 1993. A framework for the continual improvement of healthcare: Building and applying professional and improvement knowledge to test changes in daily work.* The Joint Commission Journal, *424–52.*

Figure 1

How QI Integrates Content of Care and the Process of Providing Care

Content of Care:

What is done
- Norms
- Standards
- Protocols
- Guidelines

+

Process of Care:

How it is done
- Quality improvement approaches
- Cycle of learning and improvement

=

Output/Outcome:

Improved quality of care and health status
(e.g., standards developed and applied)
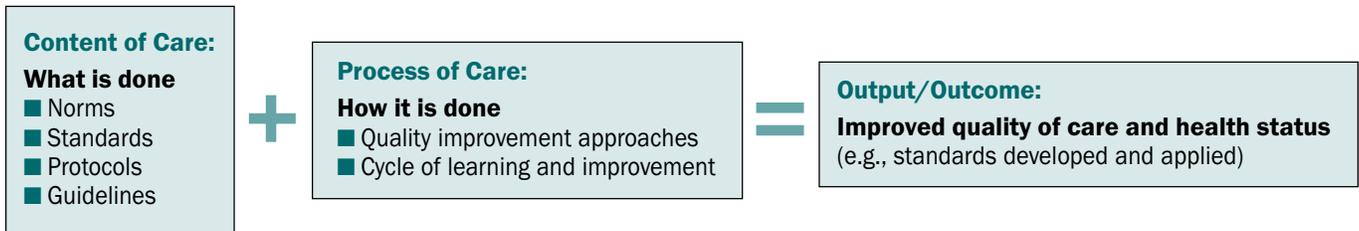
- Learning about internal and external clients through the tools available

To reach these objectives, this step requires the use of existing data or data collection. The extent to which data are used depends on the quality improvement approach chosen. A few techniques to analyze problems include:

- Clarifying processes through flowcharts or cause-and-effect analyses
- Reviewing existing data
- Collecting additional data

Step Three: Develop

The third step, *develop*, uses the information accumulated from the previous steps to explore what changes would yield improvement. Hypotheses, tentative assumptions used to test consequences, are formulated about which changes, interventions, or solutions would reduce the problem and thus improve the quality of care. Hypotheses are based on people's knowledge and belief about the likely causes and solutions of the problem. It is crucial to remember that at this point the hypothesis remains a theory, as it has not yet been tested.

Step Four: Test and Implement

This step, *test/implement,* builds on the first three. A hypothesis is tested to see if the proposed intervention or solution yields the expected improvement. Because interventions that prove to be effective may not yield immediate results, allowing time for change to occur is important in the testing process. The results of this test determine the next step (Table 2).

Table 2

Test Results Determine Next Step

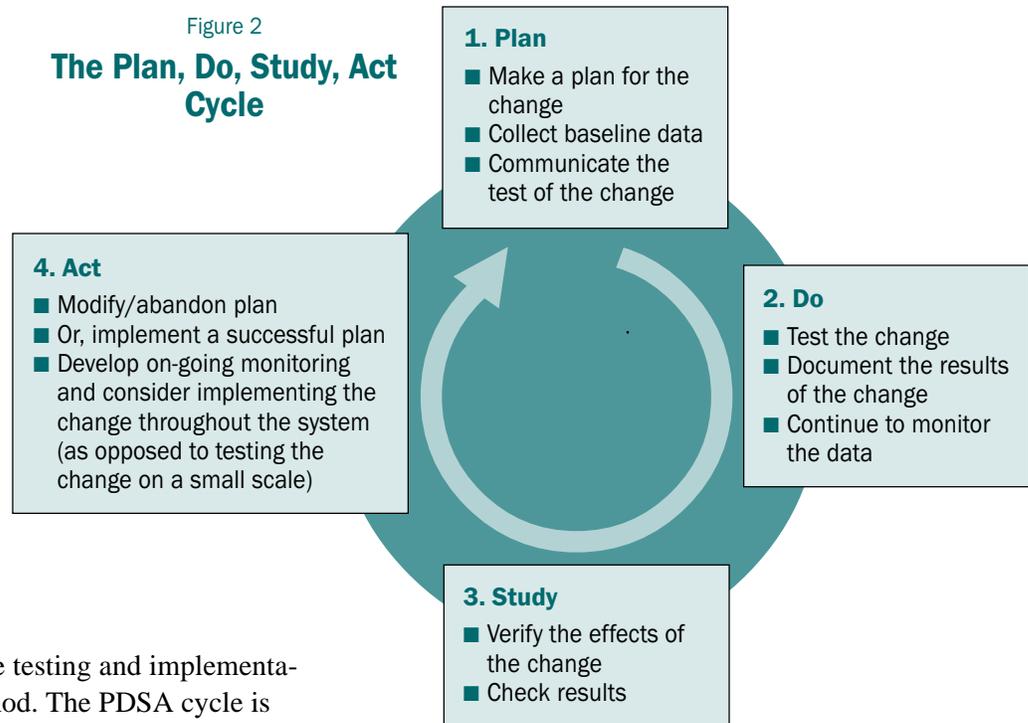| Test Result	Next Step
Proposed change did not produce an improvement	Start the improvement process again or look for flaws in the proposed change
Proposed change yields improvement that is not completely satisfactory	Modify the proposed change and then re-test the modification
Proposed change yields satisfactory improvement	Begin the implementation of the change or intervention

Testing a Hypothesis

The scientific method generally involves planning a test, conducting the test, and studying the results. Quality management has adapted this method, expanding it by adding "act on what is learned." Thus, the expanded method includes *plan, do, study,* and *act* (PDSA), also referred to as Shewhart's Cycle for Learning and Improvement.[2] PDSA is a four-step process included in the testing and implementation stage of every QI method. The PDSA cycle is represented in Figure 2.

Figure 2

The Plan, Do, Study, Act Cycle

1. Plan
- Make a plan for the change
- Collect baseline data
- Communicate the test of the change

2. Do
- Test the change
- Document the results of the change
- Continue to monitor the data

3. Study
- Verify the effects of the change
- Check results

4. Act
- Modify/abandon plan
- Or, implement a successful plan
- Develop on-going monitoring and consider implementing the change throughout the system (as opposed to testing the change on a small scale)

The Spectrum of QI Approaches

Many approaches to quality improvement exist; deciding on which one to use depends on the circumstances. Some problems are simple and can be resolved rapidly, while others involve core processes and require extensive research. The approaches can be visualized along a continuum of complexity of increased time, resource allocation, and group participation. Along this continuum, the QA Project has identified four points that represent four approaches to quality improvement. They are not the only points along the continuum of complexity, but they do illustrate how quality improvement approaches differ.

Individual problem solving occurs when an individual identifies an apparent problem, recognizes his or her ability to fix it, and feels empowered to make necessary changes. Although teamwork is an essential part of quality improvement, the QA Project has learned from experience that the simpler or more urgent improvement needs do not necessitate lengthy team-based approaches. The hallmark of individual problem solving is its use to address problems that are not interdependent, meaning that one person can make and implement the decisions necessary to address a problem. Individual problem solving tends to require little time or data and is methodologically the least complex of the approaches. It is seen in organizations where each individual recognizes the overall goal of delivering quality care and acts accordingly when needs arise that he or she can personally address.

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[2] *W. Shewhart. 1934.* The Economic Control of Quality of Manufactured Products. *New York: D. Van Nostrand. (Reprinted by the American Society of Quality Control, 1980).*

Rapid team problem solving is an approach in which a series of small incremental changes are tested in a system for improvements in quality. This approach can be used in any setting, although it generally requires that a team has some experience in problem solving and/or seeks a mentor for help in managing this approach quickly. This approach is less rigorous in terms of time and resources required because it relies largely on existing data and the team's understanding of the cause(s) of the problem and likely solutions. Teams are ad hoc and disband once the desired level of improvement has been achieved.

Systematic team problem solving is often used for complex or recurring problems that require detailed analysis. The mainstay of this approach is a detailed study of the causes of problems and then the development of appropriate solutions. This detailed analysis often involves data collection, and therefore often requires more time and resources. Although systematic team problem solving can be used in any setting, its in-depth nature makes it most appropriate when the ad hoc team is able to work together over a period of time.

Process improvement is the most complex of the four approaches because it involves a permanent team that continually collects, monitors, and analyzes data to improve a key process over time. It is generally used in organizations where permanent resources are allocated to quality improvement. This permanent team can use more than one approach, for example, forming ad hoc teams to solve specific problems. Process

Figure 3

Spectrum of Approaches to Quality Improvement

Complexity

Individual Problem Solving — Rapid Team Problem Solving — Systematic Team Problem Solving — Process Improvement
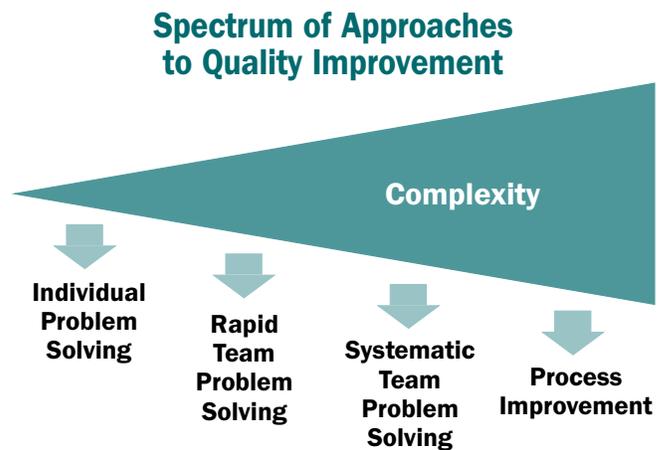
improvement is often used to assure the quality of important services in a health facility or organization.

In sum, experience with quality improvement has rendered it a simpler, more robust methodology, and the application of QI methodology to a wide range of settings has become clearer. The settings include both clinical and nonclinical environments, with the approaches ranging from individual problem solving to core-process improvement by permanent teams. In all of these approaches, the methodology and principles remain unchanged though their different aspects are stressed differently.

COPE: A Process and Tools for Healthcare

Erin Mielke, MPH, Program Manager for Quality Improvement, EngenderHealth
Karen Beattie, MA, Senior Director, EngenderHealth

COPE is both a process and set of tools designed to help healthcare staff at a service delivery site continuously assess and improve the quality of their services.[1] COPE, which stands for "client-oriented, provider-efficient services" is built on a framework of client rights and staff needs adapted from Huezo and Diaz.[2] COPE's four tools are: (a) self-assessment guides (one for each client rights or staff need), (b) a client interview guide, (c) a client-flow analysis, and (d) an action plan. The self-assessment guides encourage staff to review the way they perform their daily tasks and serve as a catalyst for analyzing the problems they identify. The guides contain key questions based on international clinical and service standards. The guide on safety includes a medical record review. The tools also highlight client-provider interactions and other client concerns.

The COPE Process

When introducing COPE, all site staff (or representatives of all departments at large sites) describe the key elements of quality services that they would like to receive if they were a patient at the facility. As part of this exercise, the staff reviews the concept of client rights and provider needs.

Clients have a right to:

- Information
- Access
- Informed choice
- Safe services
- Privacy and confidentiality
- Dignity, comfort, and expression of opinion
- Continuity of care

Staff need:

- Facilitative supervision and management
- Information, training, and development
- Supplies, equipment, and infrastructure

Next, working in teams, the staff uses two main tools for identifying problems: the self-assessment guides and the client interviews. Teams analyze the root causes of the problems, asking "Why?" multiple times. All staff meet together to develop an action plan to resolve the problems identified. Then the site establishes a quality improvement committee to oversee the implementation of the action plan and organize future COPE exercises. Subsequent exercises generally take place every three to four months. In these exercises, the staff reviews the status of the previous action plan and continues to identify new problems through various COPE tools (client-flow analysis, modules for maternal care, child health services, etc.).

Why Use COPE?

The health staff members, who are held accountable for the quality of services provided, have few tools to help them gauge their performance or identify factors that affect their ability to provide client-centered

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[1] *AVSC International. 1995.* COPE: Client-oriented, provider-efficient services. *New York: AVSC International.*

[2] *C. Huezo and S. Diaz. 1993. Quality of care in family planning: Clients' rights and providers' needs.* Advances in Contraception. *9:129–39.*

services. Many find COPE user-friendly. Simple and practical, it creates ownership of the quality improvement process by involving all levels of staff. It helps staff to put standards and guidelines into practice, as well as to identify where they are unclear about the standards and guidelines. COPE builds teamwork and provides a forum for staff to interact. It is adaptable and transferable—it has been used in more than 35 countries and translated into 14 languages.

Self-assessment guides have been adapted for family planning, reproductive health, maternity care, child health, and post-abortion care. COPE is cost-effective because it relies on local experts—the staff itself—to identify and resolve problems related to the quality of services. It promotes initiative and innovation, encouraging staff to consider the best possible use of existing resources. It is empowering, providing staff with the tools and opportunity to take concrete action to improve the quality of their work, their competency, and their interactions with clients.

In the words of a clinic cleaner, "No one ever asked me before what I thought about services, and I do have ideas."[3] Similarly, one hospital supervisor said, "I did not know that I could ask for the suggestions of junior staff. Now we work as a team."

Why Use Self-Assessment?

Healthcare staff want to perform their jobs well. COPE is based on the value of self-assessment to help staff do just that. Some argue that, compared to external assessment, self-assessment lacks objectivity and validity and is not based on standards. COPE is not intended to replace periodic, external, objective assessments. Rather, the process can complement and enhance medical monitoring, supervision, and evaluation activities by internal and external supervisors. It

is an ongoing process that integrates routine self-evaluation into service delivery.

COPE tools guide staff members' assessment of their service delivery practices through specific, closed (yes/no) questions that are based on international standards. Staff then interpret the results of their own discussions, as well as the client interviews and client-flow analysis, and apply their understanding of their working environment to propose solutions that make sense given their resources and setting. Staff and supervisors have an incentive to be honest about problems because they generally benefit from the solutions. The staff responds more positively to self-assessment than they do to inspection and feel greater ownership of the QI process. As a result, they are better prepared to collaborate with internal and external supervisors in a more objective evaluation of their work.

Some Results to Date

Through COPE, hundreds of sites have solved a variety of problems. Some typical examples follow.

■ Changes in service hours and staff assignments to better meet client needs

■ Reductions in client waiting time for services through reorganization of staff time

■ Improved client-provider interaction and counseling following counseling training and periodic technical updates

■ Improved infection-prevention practices throughout a facility, including such solutions as providing decontamination supplies to all wards and departments

■ Digging a well to provide a reliable water supply to a site

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[3] *J. Bradley. 1998. Using COPE to improve quality of care: The experience of the Family Planning Association of Kenya.* Quality/Calidad/Qualité, *No. 9, New York: Population Council.*

- Repairing more than 200 beds in one hospital using local resources

- Improved understanding by site managers and providers of user fees introduced as part of health sector reform

In a study of 11 clinics in four African countries, 109 problems were identified: 59 percent were solved. Of the problems that could be solved without outside help, 73 percent were solved.[4]

COPE Is Not a Magic Bullet

COPE alone cannot sustain the QI process at a site. It is only one of a package of approaches. *Facilitative supervision*, for example, emphasizes coaching, joint problem solving, and two-way communication between the supervisor and those being supervised. *Whole-site training* evolved to meet the learning needs of all levels of staff at a site through skills training, updates, and orientations. It emphasizes training at the site level and the link between supervision and training. *Inreach* increases the integration of services and reduces missed opportunities to serve clients by providing information about the facility's services to staff, clients, and potential clients in all departments of the facility; improving linkages and referrals between departments; posting signs about services throughout the facility; and orienting staff from other departments about reproductive health services.

Newest COPE Modules

The original COPE handbook focuses on standards of care for family planning services. Over time, our partners have requested that we adapt the tools for other health services. As a result EngenderHealth has published a working draft of the reproductive health COPE guides addressing twelve specific reproductive health services/issues[5] and a draft of guides on child health services.[6]

Expanding the Reach of COPE

EngenderHealth is developing and testing a new process and tools to involve the community in site-level quality improvement. In collaboration with community leaders, staff from a service-delivery site engage the community in a process to assess the quality of services at the site and to determine how the site might better meet client needs. With this information, staffs use the same COPE process to develop an action plan for enhancing areas where they excel and addressing areas where the community has suggested improvement.

> *EngenderHealth, formerly AVSC International, provides technical assistance to reproductive health programs in more than 30 countries.*

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[4] *P. Lynam, L. McNeil Rabinovitz, and M. Shobowale. 1993. Using self-assessment to improve the quality of family planning clinic services.* Studies in Family Planning *24(4):252–60.*

[5] *AVSC International. 1999.* COPE Self-Assessment Guides for Reproductive Health Services, Work in Progress. *New York: AVSC International.*

[6] *AVSC International. 1999.* COPE for Child Health: A Process and Tools for Improving the Quality of Child Health Services, Draft. *New York: AVSC International.*

Facilitating Accreditation:
The South African Experience

Stuart Whittaker, Managing Director, The Council for Health Services Accreditation of South Africa

THE seven-year-old Council for Health Service Accreditation of Southern Africa (COHSASA) is a not-for-profit company that has been working in more than 230 health facilities (public and private sector hospitals and clinics) on the subcontinent. It recently developed a facilitated accreditation program to assist hospitals in meeting accreditation standards and thus expedite the introduction of an accreditation system in some provinces.

The evolution and development of the facilitated accreditation program (FAP) was undertaken as a result of the difficulty that healthcare facilities experienced in attempting to meet the standards set by medical, nursing, and other healthcare professional representative associations. The standards define systems and processes designed to help healthcare services and departments within healthcare facilities provide quality care in a safe, legal, effective, and efficient environment.

The first step in assisting hospitals to meet the standards was to devise a process to record, measure, and report on the degree to which a facility meets the standards based on the findings of surveyors. A decision was made to develop an instrument that could provide both qualitative and quantitative information. A computerized information system was developed to score the standards based on the degree of compliance, and scores were weighted according to the impact of any improvement on patient care and/or the operation of the facility.

In addition to providing a scoring system, the information system also captured and processed the reasons for non-conformance to the standards and criteria. This made it possible to produce reports assessing the degree of compliance of all services (clinical, support, and management services), and to list reasons for non-compliance categorized in terms of the seriousness of non-compliance and how urgently it needed to be addressed.

The data and information generated in these processes were found to be of fundamental and far-reaching value not only in the standard assessment process, but also in the management of a facility. The reports, for example, could be used to identify deficiencies and to monitor interventions that addressed problem areas at facility, district, regional, and national levels.

COHSASA's Facilitated Accreditation Program is based on the premise that healthcare facilities should perform as integrated, multi-system environments in which all services and departments are, to a lesser or greater degree, interlinked and interdependent. To achieve this integration, the program requires that a multidisciplinary steering committee, with representatives from clinical, non-clinical, and management services, drive and guide the standard implementation phase of the facility improvement process.

The standard improvement process is initiated by assisting the facility in carrying out a hospital-wide self-assessment against the standards. The results are then processed by COHSASA. The detailed reports provided to the facility form the basis of the ongoing quality improvement program, which is then initiated throughout the facility.

A critical component of the facility re-engineering process is the appointment and training of small quality teams within each section/department of the hospital to examine problems and solve them as part of the overall hospital quality improvement program. (The teams are linked through the steering committee.) This has led to a project management approach in which all sections/departments establish a clear

mission and objectives, set priorities, and implement coordinated changes to meet the requirements of the standards. This approach is based on the principles of Continuous Quality Improvement (CQI).

COHSASA's experience has shown that the facilitated accreditation approach needs to be guided by facilitators who visit the hospital at least every six weeks until compliance with the standards has been achieved. Over the years, COHSASA has learned that there are specific areas that require dedicated training to assist hospitals to improve. These include CQI methods, health and safety, infection control, and clinical audits.

More recently, a comprehensive technological audit program has been introduced to help the facility use its technology effectively and efficiently. It is aimed at ensuring that programs for procurement, maintenance, and replacement of equipment are introduced and that training programs for both users and maintenance staff become routine.

COHSASA's experience is that poorly performing hospitals (i.e., lacking in management expertise and leadership and often accompanied by a badly resourced environment) require at least 18 months to two years to bring about the necessary improvements for meeting professional standards. When it is clear that substantial compliance with the standards is being attained, the hospital conducts a second self-evaluation as part of its preparation for an external survey. A team of independent COHSASA surveyors consisting of a doctor, nurse, and an administrator (not linked in any way to the facilitators) carry out an external survey. This survey is an intensive three-day evaluation process of a hospital's performance against the standards.

In an open and transparent validation process, the facility receives a draft report for comment prior to submission of the report to a technical committee. The technical committee, comprising clinical, nursing, and administration specialists, evaluates the hospital's quantitative and qualitative reports. If it is satisfied that there is no indication of serious risks to patients and/or staff, that legal requirements have been met, and the facility, in general, operates efficiently and effectively, the facility is granted accreditation status for a period of two or three years.

This status is conferred on the facility according to recommendations made by COHSASA's Technical Committee to its Board; this process is defined by COHSASA's structure as a national collaborative effort among the state, private sector, consumers, and health professionals.

After assessing the external survey report of a facility in terms of its compliance with professional standards, the Technical Committee, composed of representatives from the medical, nursing, and pharmaceutical professions and healthcare facility administrators, makes recommendations to the 18-member COHSASA Board. The Board members represent a wide range of interests, including provincial and local health authorities, the private hospital sector, mining hospital groups, managed healthcare organisations, a statutory consumer group, and healthcare funders. In addition to determining overall policy, the Board's most important function is to consider the recommendations of the technical committee and decide whether a healthcare facility merits accreditation or not.

For hospitals that do not initially achieve accreditation, but have made significant strides since baseline and are close to substantially complying with the standards, COHSASA has introduced a Graded Recognition Program. Program criteria define the requirements of each of the two levels of Graded Recognition: Entry Level and Intermediate Level. Facilities achieving these levels are awarded recognition in the form of certification for a defined period and are encouraged and motivated to proceed to higher levels.

Lessons Learned

COHSASA's experience with the facilitated accreditation programme indicates that improved performance appears to be related to several key factors:
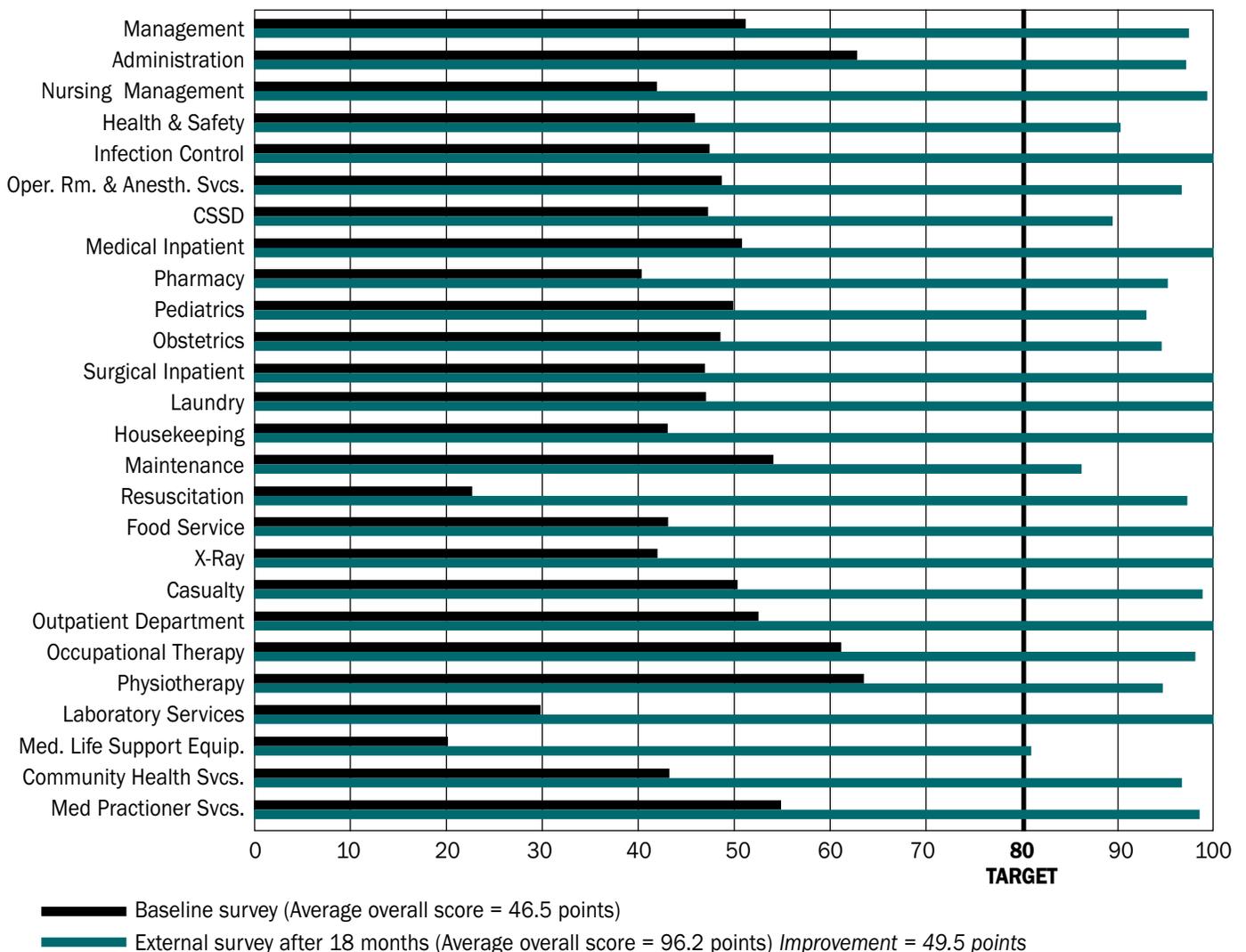
- Staff stability (frequent changes of staff impair the process)

- Commitment of the governing authority to provide resources and support for the process

- Essential gains sustained by means of a systematic a maintenance program

- Advances in quality can frequently be achieved more by reorganization than by extra funding

- Hospital management commitment and effective leadership

In general, the higher the level of commitment, the more likely the hospital will achieve compliance with

Baseline and External *(After 18 Months)* Survey Scores Compared With Target, Hospital C

Baseline survey (Average overall score = 46.5 points)

External survey after 18 months (Average overall score = 96.2 points) *Improvement = 49.5 points*

standards. Once appropriate organization and leadership has been established, priorities can be objectively set for improvement.

The impact of the facilitated accreditation approach is currently being examined in a collaborative research project conducted by the South African Medical Research Council, the World Health Organisation in Geneva, and the University Research Corporation of the United States of America.

Entitled the South African Accreditation Impact Research Project (SAAIRP), the research is in the form of a randomised control trial in the KwaZulu-Natal Province and involves a group of 10 randomly selected intervention hospitals that entered the COHSASA program at the onset of the project matched with a group of 10 control hospitals. Results are expected in late 2001.

Figure 1, for example, shows the improvement possible when a high level of commitment to the process of accreditation is present. Unless such commitment is present, lesser gains will be achieved. However, the initial results of the research have shown that even poorly performing hospitals do better than matched control hospitals.

Identifying Root Causes:
A Step in the Problem-Solving Process

Djibrina Sabou, MNS, RN, QA Specialist

FOR several years, immunization coverage rates were unsatisfactory in the Rwamagana district of Rwanda. The measles immunization coverage rate, for example, declined from 50 percent in 1998 to 24.4 percent in 1999 among children in the catchment areas. At first, staff at the Mukarange Health Center did not know what to do about it, but with proper training and adequate coaching, a quality assurance team[1] addressed this challenge.

The staff used a simple problem-solving method to increase the measles vaccination coverage rate to as close to the national target of 80 percent as possible. First, the team identified a number of root causes for the low coverage through a population-based survey and the use of simple tools (flowchart and cause-and-effect diagram). The causes included the following:

- Missed opportunities because healthcare workers did not systematically check immunization status during curative clinics

- Low awareness of the need for and availability of immunization protection on the part of the mothers

- Poor counseling of mothers on when to bring a child to the clinic

- Limited geographic access to a curative clinic

The team implemented four interventions: (a) training of the staff for systematic checking of the immunization status of every child coming to the health center, (b) sensitization of mothers by community health workers, (c) outreach immunization sessions in villages, and (d) improved counseling of mothers as to the date the child should be brought back for measles immunization and checking their understanding of this instruction.

The results presented in Figure 1 are typical of the outcomes occurring when basic quality management principles and tools are applied by a team empowered by using a simple QA method. These results are encouraging because it seems that the work of the team resulted in an improvement in vaccination coverage. However, to confirm that systems performance has improved in a sustainable way, one needs to look at data over a longer period of time to account for normal variation.

Figure 1

Monthly Evolution of the Measles Immunization Coverage Rate for Children in 2000
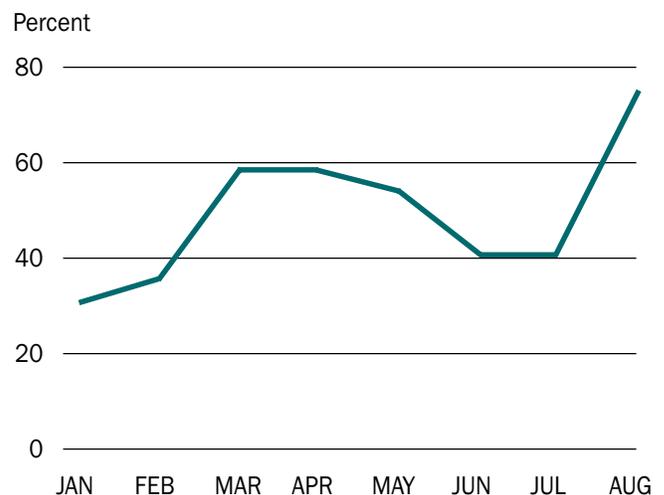
(Re)Designing the System of Care for Neonates Suffering from Respiratory Distress Syndrome in Tver Oblast, Russian Federation

M. Rashad F. Massoud, MD, MPH

Associate QA Project Director, Russia, NIS, Asia, and the Middle East

OVER the past two years, the QA Project has worked collaboratively with Russian counterparts on (re)designing the system of care for neonates suffering from neonatal respiratory distress syndrome (RDS). In the five hospitals where this collaboration took place, there has been a 63 percent decrease in neonatal mortality due to RDS. This article describes the collaboration that led to this achievement.

In 1998, the QA Project embarked on a quality assurance (QA) project in the Russian Federation. The scope of work consisted of:

- Reaching consensus on concepts and terms in healthcare quality and publishing a bilingual glossary of healthcare terminology

- Developing a set of indicators of healthcare quality

- Training a core team of Russian professionals in QA methodology

- Developing demonstration projects in improving quality of care in maternal and child health (MCH) and in primary care

- Publishing a Russian Continuous Quality Improvement Guide

- Disseminating success stories of Russian quality improvements in healthcare

Tver Oblast was chosen as the pilot site for the quality improvement demonstration in MCH. In 1997, RDS in the Tver Oblast was the fourth most frequent cause of newborn morbidity and the most frequent cause of early-newborn mortality (67 percent of premature newborn mortality mostly associated with premature births; which in turn were associated with pregnancy-induced hypertension). In 1994, mortality of children with RDS was 13 percent; in 1997, it was 20 percent. One problem with treating newborns with RDS is that many die prior to arrival at the hospital for newborns: inadequate care may be provided in the maternity hospital, during transportation to the hospital for newborns, and in the emergency room at the hospital for newborns.

Project Design

Five facilities—three urban (Maternity Hospital #1, Children's #1 Hospital, and Oblast Children's Clinical Hospital in Tver City) and two rural (Vishni Voloshek and Torjok Raion Hospitals)—participated in the project, representing all three levels of neonatal care in the Russian Federation. They comprised maternity, general, pediatric, and referral hospitals. Multi-disciplinary teams representing the different staff functions at each of the facilities were established. A Steering Committee was created to oversee the project. This committee was made up of the leaders of the teams in the participating facilities, Oblast senior physicians, and healthcare leaders from Tver Oblast. Technical assistance was provided by the QA Project, consultant neonatologists for the QA Project, the Agency for Health Care Policy Research, MedSocEconInform, and the Moscow Institute of Pediatrics and Children's Surgery.

Methodology

The quality assurance approach integrates "improvement knowledge," or quality management, with "content knowledge," or subject-matter knowledge.

Quality management utilizes the systems approach, a team-based problem-solving methodology, a focus on internal and external customers, and the testing of changes for improvement. Evidence-based medicine is emphasized as the basis of content knowledge and is used to develop updated clinical guidelines. Indicators of quality are defined and measured before, during, and after the introduction of changes.

Key Changes Made to the System of Care for Neonates with RDS in Tver

The new system of care has now been redesigned. A central referral neonatal unit is being set up at Children's Hospital #1 in Tver City. This unit has neonatal ventilation capability. Neonates from all over Tver Oblast who are suffering from respiratory distress and are in need of referral, should be referred to this unit, where the following changes have been made: a neonatal ambulance system consisting of four equipped vehicles has been put in place and neonatal resuscitation training has been conducted for pediatricians, obstetricians, midwives, and nurses outside the neonatal referral unit.

This system will allow neonates suffering from RDS to be resuscitated, stabilized, and transported to the central unit in Tver City. Other key changes made to the system of care for neonates with RDS include the following:

■ Clinical guidelines have been developed for all stages of the new system of care

■ Existing "directives" and "methodological recommendations" are being changed to facilitate the implementation of the new system

■ Necessary reorganization and resource reallocation have been undertaken to equip and staff the new neonatal center in Children's Hospital #1

■ A permanent Perinatal Committee has been formed to oversee the continuous improvement of perinatal care services in Tver Oblast

Key Indicators of Quality

The following measures of improvement are currently being tracked in order to demonstrate improvements in the system of care for neonates with RDS in Tver Oblast:

■ Successful resuscitations at maternity hospitals in both urban and rural settings

■ Successful transportation to the referral neonatal unit

■ Fewer complications associated with RDS

■ Lower RDS mortality rate

Results

In the five hospitals where the (re)design of the system of care for neonates with RDS has been developed, the following results have been noted.

■ A 93 percent increase in the seven-day survival rate after initial resuscitation

■ A 46 percent increase in neonates transported to a neonatal intensive care center (NICU) with normal body temperature

■ A 63 percent reduction in neonatal mortality due to RDS

Progress to Date and Next Steps

The redesign of the system of care for neonates with RDS was developed together with the new clinical guidelines, and the new system of care was implemented in the five pilot facilities starting September 1999. Tver Oblast Health Authority has been able to utilize its World Bank loan to acquire the required neonatal ambulances, incubators, ventilators, and other essential supplies. Indicators continue to be monitored. The new system of care is currently being expanded to all 42 hospitals providing neonatal care services to the two million people in Tver Oblast.

Quality Improvement Increases Compliance with Standards

Karen Askov, MHS, QA Specialist

IT IS estimated that at least 23,000 women die from pregnancy-related causes each year in Latin America and the Caribbean (LAC).[1] Compared to the United States, a woman born in LAC is 27 times more likely to die during pregnancy than a woman born in the U.S.[2] These numbers illustrate the need for the prompt access to quality essential obstetrical care (EOC) in Latin America to treat unpredictable complications that occur during pregnancy, labor, and the postpartum period.

A foci of the Latin America Maternal Mortality (LAMM) Initiative[3] is to improve the delivery of basic EOC at the first level of care and of comprehensive EOC at referral hospitals in Ecuador, Honduras, and Bolivia. These improvements aim to strengthen the clinical EOC skills of providers while also improving the quality of key EOC services.

One way that the LAMM Initiative is working to improve the quality of EOC services is through multidisciplinary QI teams. This approach has been particularly evident in Ichilo, Bolivia, where the QA Project team established in May 2000 a new approach to quality improvement that focuses on compliance with standards. In a one-day workshop, the team learns about quality improvement methodology,

selects a component of EOC that it believes to be high risk and problem prone, revises standards of care for the selected EOC component, and develops a list of indicators to measure the standards. With this set of indicators, the team then collects the data needed to develop interventions, and then tests and implements those interventions. Table 1 lists the quality improvement teams in each hospital and the areas selected for improvement.

All of the teams have developed and implemented solutions to problems identified through the measurement of compliance with standards for prenatal care or labor and delivery. One example of the application of the QI methodology in Bolivia is the work of the team at Yapacani hospital, which chose to improve compliance with the standards for monitoring patients in labor and delivery. This team identified eight standards (six technical, two administrative) critical to the quality of care during labor and then developed indicators to measure compliance with those standards. Examples of these standards and corresponding indictors are shown in Table 2.

Next, the team collected data to measure the indicators for each of these standards. The baseline measurement of these indicators revealed that:

Note: This article is based on work led by Rosmery Chavez, RN, MPH, QA Project Field Coordinator for the Latin America Maternal Mortality Initiative in Ichilo, Bolivia.

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[1] *Maternal mortality is "the death of a woman while pregnant or within 42 days of termination of pregnancy, from any cause related to or aggravated by the pregnancy or its management." (WHO, 1999). Mortality or morbidity may result from complications of pregnancy, labor, or in the postpartum period due to hemorrhage, sepsis, eclampsia, obstructed labor, and complications of unsafe abortion, as well as interventions, omissions, incorrect treatment, or events resulting from any of these. Deaths can also be related to diseases arising during pregnancy, i.e., malaria, anaemia, HIV/AIDS, and cardiovascular disease. (WHO 1992).* International Classification of Diseases and Related Health Problems. Tenth Revision. *World Health Organization: Geneva.)*

[2] *UNICEF. 1996.* Revised 1990 Estimates of Maternal Mortality: A New Approach by WHO and UNICEF. *World Health Organization: Geneva.*

[3] *The QA Project provides technical assistance to the LAMM Initiative with the support of the Bureau for Latin America and Caribbean at the United States Agency for International Development. The LAMM Initiative also incorporates the technical assistance of the Pan American Health Organization and local nongovernmental organizations.*

Table 1

Selected Areas for Improvement

Health Facility Ichilo, Bolivia	Component of EOC
Buena Vista	Prenatal care/labor monitoring
Jampicuna	Prenatal care
Yapacani	Labor monitoring
San Carlos	Prenatal care/labor monitoring

- 67 percent of women in delivery did not receive laboratory tests

- 100 percent of women in labor were not monitored for vital signs or bleeding every 30 minutes during the first two postpartum hours

- 100 percent of women admitted did not receive instructions on respiratory exercises and positioning for delivery

With this data, the Yapacani quality improvement team had substantial information to identify opportunities for improvement in the labor monitoring of obstetric patients. The team decided not to prioritize the problems to address but, rather, to address all of the problems, either through an individual action or a team-based intervention.

For instance, the data indicated that 100 percent of women in labor were not monitored with a partograph. The team decided that the first step towards improving the lack of compliance with this standard would be for the hospital director to initiate this activity. If compliance did not improve, the team would investigate what other interventions could be developed.

The team decided to tackle the other problems identified: laboratory tests were not conducted, vital signs were not regularly monitored, and patients were not provided with information on respiratory exercises and positioning for labor. The team worked together to analyze these problems, using tools such as the flowchart and the fishbone diagram (see examples on the next page).

This information has helped the Yapacani team to develop interventions that will aim to improve these identified problems. These interventions are:

- Providing practical training for healthcare providers in the medical laboratory every three months

Table 2

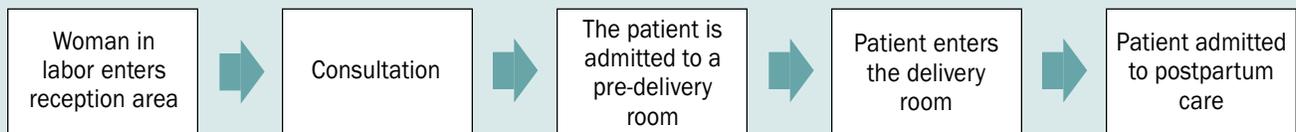## Standards and Indicators Chosen by the Labor Monitoring Teams at Yapacani Hospital

Standard	Indicator
All women in delivery should have the following laboratory exams (Ht, Hb, VDRL, and Rh Group)	Percent of attended deliveries with laboratory exams (Ht, Hb, VDRL, and Rh Group)
All women should be monitored for vital signs and vaginal bleeding every 30 minutes for the first 2 hours of the postpartum period	Percent of women monitored for vital signs and vaginal bleeding every 30 minutes for the first 2 hours of the postpartum period
All women in labor should receive information about the importance of respiratory exercises and the positioning of the mother and child	Percent of women in labor given information about the importance of respiratory exercises and the positioning of the mother and child

Example

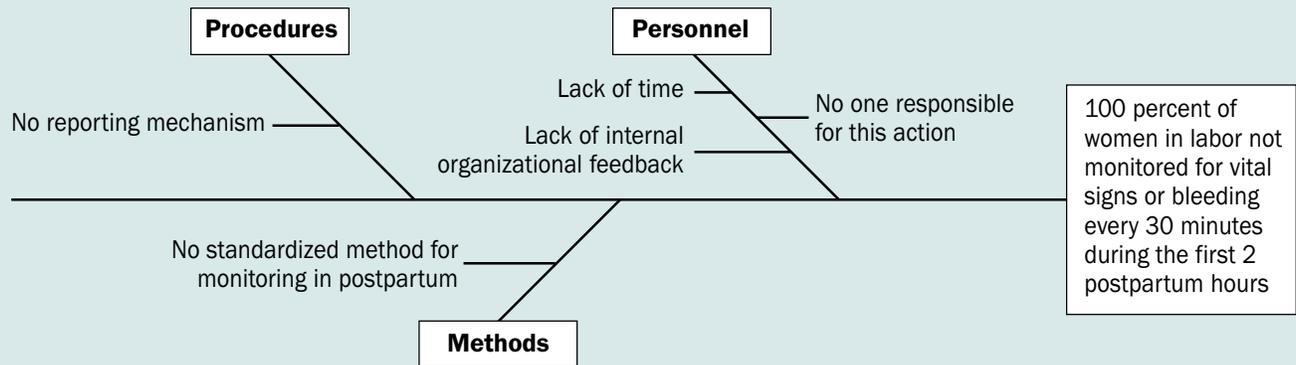**Problem:** 67 percent of women in labor do not receive laboratory exams during labor and delivery

Tool: Flowchart of the process for labor and delivery

| Woman in labor enters reception area | → | Consultation | → | The patient is admitted to a pre-delivery room | → | Patient enters the delivery room | → | Patient admitted to postpartum care |

Example

Problem: 100 percent of women are not monitored for vital signs or bleeding during the first two postpartum hours

Tool: Fishbone diagram of the potential causes for lack of postpartum monitoring

Procedures
No reporting mechanism

Personnel
Lack of time
Lack of internal organizational feedback
No one responsible for this action

100 percent of women in labor not monitored for vital signs or bleeding every 30 minutes during the first 2 postpartum hours

No standardized method for monitoring in postpartum

Methods

- Rotating staff so that the vital signs of postpartum patients are continuously monitored
- Providing educational materials (e.g., visual aids, talks) on respiratory exercises for patients
- Carrying out a client satisfaction survey for feedback on educational material

The labor and delivery quality improvement team at Yapacani Hospital has achieved impressive results that have been widely recognized over the past year. In fact, the Bolivian Ministry of Health recently declared Yapacani Hospital as the fourth best hospital nationwide due to its high quality care and client satisfaction.

Quality Improvement Teams in Guatemala: Working to Improve Healthcare Access and Quality

Joanne Ashton, RN, MN, Senior QA Advisor
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THE Quality Assurance Project provided technical assistance in the regions of Quetzaltenango, Chimaltenango, Totonicapán, Sololá, and San Marcos from February 1999 to July 2000 to assist in the implementation of health sector reforms that call for improved access to primary healthcare and improvement in the quality of care. It is by virtue of these health sector reforms that the Guatemalan Ministry of Health contracted non-governmental organizations (NGOs) to reach remote areas with primary healthcare services and refer patients to health centers and hospitals when needed.

This new system of healthcare delivery necessitated coordinated efforts between the NGOs working in communities with the district health centers and satellite health posts. Multidisciplinary quality improvement (QI) teams were initiated with QA Project technical assistance to bring the different stakeholders together to solve problems.

The QA Project initiated work in quality improvement by inviting representatives from NGOs and district health centers from three regions—Sololá, San Marcos, and Chimaltenango—to participate in a three-day workshop to learn QI methodology and form action plans to resolve problems.

Fifteen quality improvement teams decided that each team would address one of three main problems: low vaccination coverage, lack of compliance with standards, and poor collection of community information. These multidisciplinary teams consisted of representatives from the local NGOs; personnel from local health centers and posts; and on some teams, district leaders and community members.

Thus, the quality improvement effort not only provided a tool for improving the quality of services, but also integrating the work of segregated actors in the health system in a healthcare improvement effort. Table 1 highlights some of the solutions developed by problem-solving teams.

The work of the problem-solving teams yielded mixed results. Although one team achieved a 30 percent increase in vaccination rates (see *Case Example*), other teams encountered resistance from leaders and

Case Example

District of Comitancillo, San Marcos

This problem-solving team identified the low vaccination rates, 51 percent for children younger than one year of age and 12 percent for pregnant woman, as an opportunity for improvement. The team brainstormed about possible causes for these low vaccination rates, such as inconvenient hours of services, inadequate technical procedures for vaccination, and a lack of community knowledge about the importance of vaccination. Based on this information, the problem-solving team developed a number of solutions to address these causes, including promoting vaccination services (e.g., through radio spots) in the local language, placing vaccination services in community meeting areas, identifying women and children who had not been vaccinated (through community mapping), and providing monthly follow-up. The team measured several key indicators to determine the effect of these solutions on vaccination rates and noted a 30 percent increase in vaccination coverage in children under the age of five.

Table 1

Problems Identified and Solutions Developed by QI Teams

Problem Identified	Solutions Developed
Low vaccination rates for pregnant women and children under 1 year of age	■ Produce and distribute a family vaccination card; train participants on how to fill out the card ■ Increase the promotion of and information about health services in communities (in local languages) ■ Make schedule of visits more convenient for communities ■ Provide training to collect the data needed to understand the current vaccination coverage for these populations
Lack of compliance with standards	■ Plan discussions based on use of the standards manual and provide incentives for its use ■ Provide a standards manual for service providers and verify that the manual is always readily available ■ Introduce a pocket manual
Incomplete and inaccurate information from monitoring system	■ Plan training sessions in data collection ■ Coach participants in filling out data collection forms at all levels ■ Provide incentives to those community facilitators and volunteers who submit the data forms promptly ■ Hold monthly meetings for analysis of information, decision making, and dissemination of information ■ Create joint planning sessions between the district health facilities, administration, and health personnel

colleagues that delayed the success of their plans. One clear success in the use of the QI methodology was revealed during a focus group discussion on the evaluation of the QA Project/Guatemala in July 2000.

At that time, team members commented that they did not perceive problem solving as extra work; instead they viewed it as an important tool to identify and solve problems. Applying the QI methodology gave team members ownership over problems and the ability to resolve them. Problem solving became engrained as a thought process for many team members.

Several focus group participants stated that because the methodology proved to be so useful for solving problems at work, they had started to use the methodology to identify and solve problems individually. This response indicates that an important step towards institutionalizing quality assurance has been taken when team members identify problems and take personal responsibility for solving them.

The QA Project decided to extend quality improvement activities within communities by adapting the QI methodology to the format of the agendas for monthly community meetings. Communities with the most complete data were provided with QA Project support when forming problem-solving teams. Data were organized and presented to the community in a way that was easily understood by community members.

Data were also used to identify and to set priorities for problems, as well as to develop and implement solu-

tions to those problems. The problems identified by communities addressed topics such as vaccination coverage, a need for drainage systems, and a need for latrines.

For example, a community in Coatepeque identified the lack of a drainage system as presenting major health threats to their community. The community, initially provided with support and training from the QA Project, is working with the local health committee to raise funds to put in a drainage system. Another community, Hacienda La Zarca, decided to address low vaccination coverage for children under one year of age and for pregnant women. The community, in cooperation with the NGO primary healthcare team, implemented solutions; these included providing advance notice of the vaccination schedule through community health volunteers and educating families about the importance of vaccinations and possible secondary reactions to vaccinations.

In Guatemala, quality improvement was particularly effective in integrating segregated parts of the health system through the use of multidisciplinary teams. These teams promoted cooperation and coordination among communities, NGOs, and district health facilities by working together to address common problems. Community-based problem solving was an unexpected side effect of the work of the district and NGO quality improvement teams.

Qualitative research revealed that the QI methodology was well received in communities where it was adapted to an agenda format following the style of traditional community meetings in Guatemala. These initial experiences in quality improvement provided many lessons learned and opportunities for future growth of quality assurance in Guatemala.

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Community-Based Problem Solving:
Improving the Health of Women and Children

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THE Quality Assurance Project was invited to assist the Ministry of Health (MOH) in Guatemala in extending healthcare coverage to underprivileged populations, most particularly indigenous Mayan populations living in remote regions of the Guatemalan highlands. The government designed a new model for healthcare delivery entitled Sistema Integral de Atención en Salud (SIAS).

The new model provided additional primary care services in these communities and included a plan for community involvement in improving healthcare. Community involvement included forming community health committees and organizing community healthcare personnel, including a community facilitator and volunteers (vigilantes). The overall objective was to apply quality methodology to improve the health of women and children. The QA Project was responsible for working in the departments of Totonicapán, Quetzaltenango, San Marcos, Sololá, and Chimaltenango.

Problem-solving methodologies were introduced to area healthcare teams by the QA Project through workshops held in October 1999. These teams were successfully implementing their quality improvement action plans. The QA Project then decided to extend quality activities to the community health committees. A community-based problem-solving methodology was developed in the format of an agenda for application to monthly community meetings.

The QA Project/Guatemala team selected five communities in which to introduce the methodology. The communities were selected based on their interest and motivation to participate in the study, the community organization, and whether community health data had been collected (e.g., vaccination rates, water and latrine use, mortality and morbidity data).

The members of the QA Project/Guatemala team and a quality advisor from Washington, DC, met with community healthcare leaders (healthcare volunteers, community healthcare facilitator, and midwives) and area healthcare personnel to review the methodology and teach them how to conduct a meeting using the methodology.

The first step was to review the healthcare data available in the community. Typically these data were displayed in posters on the wall of the healthcare center in a format understood by healthcare workers. However, the general public, most of whom could not read or write, had no idea of what the data meant. The

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participants were asked to be creative in designing new ways to display the data so that the public could understand the information and be able to identify problems.

The participants then developed an agenda for the community meeting. Agendas varied among communities depending on their traditions. The problem-solving methodology, including identifying problems and setting priorities for and seeking causes and solutions to the problems, was introduced into the agenda as agreed by the participants. The end result of the community meeting was development of an action plan based on the problem identified for resolution.

The participants were coached in a practice session on conducting a meeting using the methodology. This first teaching session took approximately three to four hours to complete.

The QA Project/Guatemala team met with each of the communities approximately three times prior to their community meeting to assist them in preparing their data and conducting the meeting. The community health leaders determined the most appropriate means of promoting the event and invited community leaders to participate, including the mayor, area health authorities, religious leaders, etc.

The meeting was held in a location and at a time and date convenient to the community, and it was conducted in the local language. Each meeting was attended by QA Project staff who provided guidance and support. The average meeting lasted three to four hours.

The community-based problem-solving methodology was designed to be simple and easy for the public to understand. It also was designed to correspond with the current structure of community meetings.[2] Thus, the basic principles of problem solving were incorpo-

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rated into the format of a meeting agenda (Table 1). Each community selected one problem for resolution.

Facilitating and Constraining Factors

The QA Project/Guatemala team met to discuss the factors that facilitated or constrained their ability to implement the community-based problem-solving methodology. Table 2 shows the results of that discussion.

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[2] *Guatemalans conduct meetings in a formal manner.*

In sum, the community-based problem solving approach allowed the community to identify health problems within the community meeting, and the methodology was broken into steps that the community could understand. A key lesson learned from this experience was that participation of both families and the healthcare teams and presence of local authorities and the MOH contributed to the resounding success of the community meeting.

Table 1

Agenda for Community-Based Problem Solving

Agenda	Presentation Guide
Welcome	Invite a community leader, e.g., mayor, to open the meeting as a means of showing support.
Introduce visitors	The meeting facilitator introduces the community leaders and other visitors present.
Objective of the meeting	An example: "The objective of the meeting is to present the community healthcare data, identify the healthcare problems, and look for solutions. The goal is to have an action plan at the end of the meeting."
Presentation of the community health information	Review the community health information. ■ Census (population, number of houses, families, etc.) ■ Healthcare providers in the community (e.g., health promoters, midwives) ■ Morbidity and mortality (the five most prevalent health problems in the community) ■ Health environment (latrines, water, trash) ■ Vaccination rates (children, pregnant women)
Identification of problems	Ask the participants: "What healthcare problems do we have in our community?" Make a list of the problems identified.
Prioritize the problems	The participants will select one problem to resolve using the following criteria: ■ Simple to resolve ■ Can be resolved with few resources ■ Can be resolved rapidly (The manner of voting should be decided prior to the meeting.)
Determine the causes of the selected problem	"What are the causes of this problem?" or "Why do we have this problem in our community?" (A list may be developed or a tree may be used to depict the roots of the problem.)
Select solutions	"What can be done to improve this problem?" Make a list of the potential solutions. "Of this list of potential solutions, which solutions are most likely to resolve the problem, are simple, can be implemented with few resources, and can achieve results rapidly?" A means of selecting the solutions that the group wants to try needs to be established, (e.g., voting).
Develop an action plan	Use a matrix to identify the actions to be taken, the person responsible, and the date of action. Include the next community meeting in the action plan.
Closure	Thank the participants for their participation. If possible, provide refreshments.

Table 2

Factors Influencing Ability to Implement Community-Based Problem-Solving Methodology

Facilitating Factors	Constraining Factors
Leadership of the Institutional and Community Facilitator ■ Leadership of the Institutional Facilitator and Community Facilitator, especially if they reside in the community and speak the indigenous language ■ The level of education and experience of the Institutional Facilitator and Community Facilitator	
Community Factors ■ Health information available in the community ■ Time commitment of the community to implement method ■ Positive relationships between the community, healthcare team, community leaders, and authorities	**Community Factors** ■ Local problems ■ Distance between communities ■ Mountainous terrain ■ Need to work vs. attend meetings ■ Lack of confidence in healthcare due to previous experiences ■ Establishing a date for meetings
Healthcare Team ■ Positive attitude and willingness of the healthcare team to participate ■ Good communication between the community healthcare team and the district personnel ■ Participation of the district healthcare personnel	**Healthcare Team** Lack of support and integration between the community healthcare team and the district personnel
QA Project Staff ■ Good communication and mentoring from the QA Project team ■ Follow through on the timeline ■ Flexibility about the meeting date and time ■ Assistance with materials to make the presentations, e.g., posterboard, markers	
Promotion ■ Written invitations to the local authorities ■ Involving the local authorities, community health committee, and the community healthcare team	
Methodology ■ Problem-solving methodology was simple and offered a step-by-step way to resolve problems ■ Training and practice of the health team in applying the methodology ■ The use of an agenda to apply the method ■ Presenting the information at a level of understanding for the community	**Methodology** Preparation time (4-5 visits of 3-4 hours each to prepare the community health leaders to conduct the meeting)
Mayan Culture ■ Oral tradition and use of community meetings to resolve problems ■ Involvement of community elders; increased community participation	

New Computer-Based Learning Tool Available for Improving Healthcare Services Delivery in Developing Countries

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MANY organizations worldwide have begun to rely on new technologies, such as computer-based training (CBT) and web-based training (WBT), to support healthcare and to maintain a humanitarian goal of harnessing information technology for a social purpose. CBT courses are being used to train healthcare professionals, build human capacity, guarantee transfer of critical skills, increase access to health information, and address training for health issues that are specific to a particular country or region.

"The new focus on CBT is a smart move," explains Dr. James Heiby, USAID Project Manager for the Quality Assurance Project (QAP). "Recent research suggests that classroom-based training, the approach typically funded by international health donors, organizations, and ministries, has had limited impact on the quality of care, despite large investments. It is unrealistic to expect donor agencies and developing countries' health systems to continue to finance the costs of traditional classroom training when a cheaper and more flexible training strategy is available. With computer-based training, the quality of instruction is consistent for all students who use the product and most studies show there is cost savings," he adds.

To expand the boundaries of health worker training and address the critical skill deficiencies and information access issues, the QA Project, under its contractual mandate to "take advantage of major training interventions and innovative training approaches that offer the potential for improved cost-effectiveness," is developing, testing, and evaluating a number of CD-

ROM products. In addition to the recently launched Tuberculosis Case Management CD-ROM, the Project has finalized the Quality Assurance Theories & Tools CD-ROM (QA Kit) and is in the early stages of its global launch. Both products are part of the QA Project's Quality Performance Learning Series, which was developed to strengthen health worker performance and affect health outcomes.

The QA Kit, an interactive, easy-to-use CD-ROM, was designed to give healthcare professionals in Africa, Asia, Latin America, and Eastern Europe a blueprint to evaluate and improve healthcare delivery in low-income countries. The tool provides a step-by-step guide for process and program analysis, redesign, and evaluation to strengthen competencies and improve organizational performance. "This is the only product designed to be a 'learning and doing' tool for quality management," notes Edward Kelley, Ph.D., one of two Quality Assurance Specialists who developed the QA Kit. "I know of no other product on quality that has been created for developing countries." The learning-by-doing approach teaches teams how to define standards, analyze problems, and take steps to improving program performance and effectiveness.

The QA Kit offers ten computerized tools, case studies, and QA training and resources. Features include easy-to-use navigation and instructional presentation; cause-and-effect diagrams; time line and Gantt charts; specialized matrices; and budget, survey, flowchart, and system modelling tools. The product also contains a comprehensive collection of publications and training materials, a built-in interface with direct links to

key QA websites, a glossary of QA terms, and a computer tutorial for new computer users.

The QA Kit can be purchased for $42.50 (includes shipping and handling). If you are interested in receiving a copy of this product, send an email to qapdissem@urc-chs.com or for more information call 301-941-8524. This pricing applies only to orders from North America and Western Europe. Individuals from Africa, Asia, the Caribbean, Eastern Europe, and Latin America may receive a single copy free upon request. Quantity discounts are available.

The USAID-funded Quality Assurance Project is dedicated to improving the quality of health, population, and nutrition services in more than 30 developing countries through technical support to service delivery institutions, Ministries of Health, USAID Missions, and field-based cooperating agencies. The Quality Assurance Project is a division of the Center for Human Services, the nonprofit affiliate of University Research Co., LLC, in Bethesda, MD.

New Products from the QA Project

Marquez, L. and J. Kolodner. 2001. **Managing Quality through Regulation Conference CD-ROM.**

Proceedings from the first (October 4–5, 2000) global conference to address the regulation of healthcare quality from the perspective of developing and middle-income countries.

This conference, held in Washington, DC, was jointly sponsored by USAID, the QA Project, the Pan American Health Organization, and the World Health Organization. It addressed four major themes: the Regulatory Role of Government, Licensure of Providers and Facilities, Certification, and Accreditation of Health Delivery Institutions. The CD-ROM has summaries of all conference presentations, PowerPoint files, handouts, related website links, sponsor publications, and contact information of speakers and participants.

Ashton, J. 2001. **Monitoring the Quality of Hospital Care.** *Health Manager's Guide* 2(1).

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Technical Report Summaries (TRS):

Legros, S., R. Massoud, O. Urroz, and E. Kelley. 2000. **The Chile Quality Assurance Project: Final Evaluation.** *TRS* 1(2)

Legros, S., E. Goodrich, and H. Abdallah. 2000. **The Niger QAP/BASICS Joint Project.** *TRS* 1(1)

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Case Studies (CS):

Lin, Y., and P. Tavorw. 2000. **Assessing Health Worker Performance of IMCI in Kenya.** *Quality Assessment CS.*

Marquez, L. 2000. **Development of Family Planning Standards in Jamaica.** *Standards Development CS.*

Durán, H. and S. Fuentes. 2000. **Designing Obstetric Servies to Reduce Maternal Mortality in Guatemala.** *Quality Design CS.*

Lin, Y. 2000. **Designing Quality Essential Obstetric Care Services in Honduras.** *Quality Design CS.*

All QA Project publications are available by email (write to <qapdissem@urc-chs.com>) and/or can be downloaded from the QA Project website: <www.qaproject.org>.

QΛBrief

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