

## Evidence-based Health Systems Strengthening

Many health experts worry that the dramatic health gains of recent years may prove temporary if external resources wane. The U.S. Global Health Initiative (GHI) outlines an ambitious agenda to permanently strengthen the health systems of the countries we assist, but there is no consensus on how to do this. One promising approach applies the lessons learned from improving care in the U.S. health system to low- and middle-income countries (LMICs). Indeed, a number of countries have already achieved dramatic improvements in this way, but most of the health care provided globally remains untouched by improvement technologies that we take for granted in the United States. We can change that.

High-income countries rarely apply the term “strengthening” to their own health systems, but both public and private organizations have developed technologies to “improve” care. Early on, improvement specialists applied a systems model to health care:

- Health care requires resources, such as trained providers and drugs.

- With these resources, providers implement a series of processes to deliver services.
- These processes produce health outcomes.

In the United States, efforts to improve outcomes focused on processes—the activities carried out by providers. For LMICs, donors have traditionally focused assistance on providing resources and measuring outcomes. Nevertheless, efforts to improve healthcare processes are worthwhile because the same processes are carried out over and over for common conditions. Thus, for a child with symptoms of pneumonia, most health systems provide evidence-based guidelines that define what the health worker should do to properly assess and treat the child. If health workers do not follow such guidelines, the benefits of that care can be seriously diminished. But we have learned that training programs alone are usually not sufficient to achieve the needed level of quality.

Administrative healthcare support activities, such as storing and retrieving medical records, incorporate standardized processes that should



**Health workers review logs at a clinic's registration table in the Morogoro Region of Tanzania, where patients receive treatment for malaria.** | Photo: Karie Atkinson/USAID

reflect a careful analysis of how to best achieve the desired outcome. Administrative and clinical processes come together when a provider sees a patient. If the provider has the knowledge, skills, and motivation to follow the guideline, has the medical record at hand, and has the needed drugs and equipment, it is because numerous processes have succeeded. But how effective are these diverse processes in the health systems that GHI seeks to strengthen? How can they be improved?

Over the past 30 years, the United States has been a global leader in developing concrete methodologies to improve the way health services are implemented. In recent years, improvement technologies adapted from industry have dominated this field, and a version of the scientific method unites the many approaches:

- Identify a change in a healthcare process that seems promising.
- Carry out a formal test of the change.
- Take action based on the results.

These steps are carried out not by consultants but by regular health workers, working in teams. Collaborating under the label “quality improvement” (QI), they interpret “quality” broadly—including issues such as efficiency and patient access to care. Their objective could be stated simply as improving health care.

### **The Case for Collaborative Improvement**

USAID has made substantial investments in adapting such quality-improvement approaches to the needs of the countries that we support.

Consider a recent example from Niger.<sup>1</sup> In 2005, teams of midwives in 33 small maternities found that they were not implementing a national guideline for preventing post-partum hemorrhage, which is central to active management of the third stage of labor (AMTSL). The basic resources required were available, so the teams focused on improving processes to meet the standard of care. These are some of the problems they solved:

- An injectable drug was needed immediately after the delivery, but it was stored in a refrigerator far from the delivery room. Teams tested a change to the daily routine, storing the drug in an ice chest, which they placed in the delivery room.
- Standard records did not include information on following the guideline. They added information to the record with a locally made stamp and inepad. With this information, senior midwives began reviewing the record of every delivery and providing feedback to the birth attendants.
- Deliveries after hours were often managed by untrained attendants who were not authorized to use the needed drug. The midwives instituted a 24-hour on-call schedule for themselves, which proved effective.

Regular health workers and supervisors conceived of these ideas and conducted the testing necessary to institute new processes. USAID's Health Care Improvement Project advisors provided only an introduction to modern improvement methodologies, and that support role was eventually transferred to local staff.

The collective impact of changes resulted in the guideline being followed for 98% of deliveries,

and the rate of post-partum hemorrhage dropped from 2.1% to 0.4%. The accompanying chart shows the dramatic improvement in delivery outcomes under the new standard of care.

These midwives demonstrated that they can apply the kind of improvement methods used widely in U.S. medical centers, and they showed good insights into the processes that had not been working for a long time. More than 20 years of studies and evaluations have reported on similar quality problems that are prevalent in other countries. A study in Burkina Faso, for example, found problems with processes at every step of patient care, with only 2% of patients presenting with common conditions receiving all of the care specified by national standards.<sup>2</sup>

Routine information systems do not capture most problems with the details of health care—this requires a special effort. Only rarely do managers know how well clinicians follow national guidelines. Admittedly, available knowledge does not allow us to estimate precisely the health impact of these widespread deficiencies. But the evidence shows that only a fraction of care that is affordable and supported by research is actually delivered to patients. Clearly, a shortage of resources accounts for only part of the problem.

## Globalizing Change

Is it feasible to improve a great number of flawed healthcare processes on a global scale? As the Niger example illustrates, modern quality improvement can be carried out by regular health workers, who are potentially available in large numbers to become the face of change. As the interest in QI

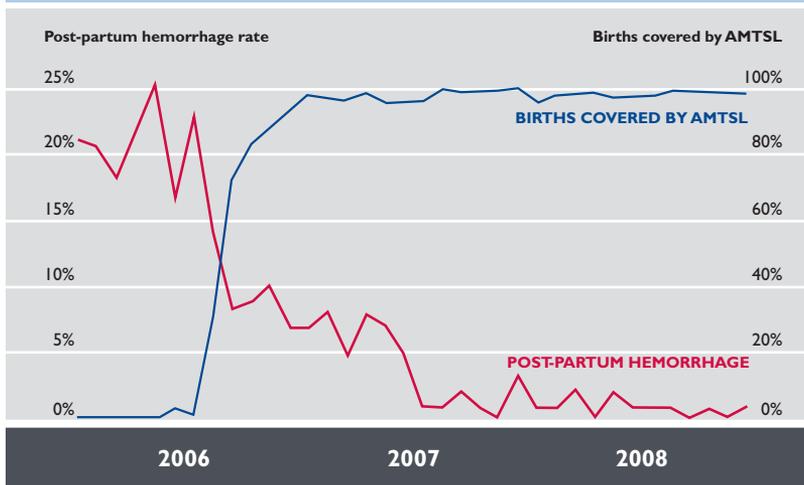
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1 USAID, Health Care Improvement Project, "Sustaining Better Maternal and Newborn Care and Quality Improvement in Niger: Challenges and Successes," March 2011.

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2 G. Krause, M. Borchert, J. Benzler, and H.J. Diesfeld, "From Diagnosis to Drug Taking: Staff Compliance with Guidelines and Patient Compliance to Prescriptions in Burkina Faso," *International Journal for Quality in Health Care* (2000: 12), 25–30.

## NIGER: REDUCTION IN POST-PARTUM HEMORRHAGE



**Chart of AMTSL coverage and post-partum hemorrhage rates in USAID-targeted facilities in Niger, from January 2006 through December 2008**

Source: USAID, "Niger: Quality Improvement for Maternal-newborn Health Services," May 2008.

grows worldwide, there are many encouraging examples like that of Niger. That said, numerous small-scale success stories seem to be unconvincing for many decisionmakers, who give only lukewarm support to QI programs.

A recently published analysis of 27 USAID-funded QI interventions in 12 countries breaks new ground, substantiating the average level of improvement in a key process—provider compliance with evidence-based guidelines. All major USAID health priorities were represented in this analysis. At baseline, the mean level of provider compliance was 38.3%. The mean increase was 51.9 percentage points. On average, these facilities reached 80% compliance within 9.2 months. The majority sustained performance above 80% for more than a year of observation. These results represent the work of 1,338 facility improvement teams. This is convincing evidence, but we don't yet see a global movement for QI.

Certainly, we have a lot to learn about this promising new field. We are only beginning to see these approaches used to treat AIDS as

a chronic disease and to improve prevention. Early experience with non-clinical issues, such as human resources management, has been encouraging. Documented improvements in social services for vulnerable children suggest the potential for process improvement beyond the health sector.

But much of the recent expansion of QI in LMICs has contributed little to the global learning agenda: A large proportion of QI interventions have been poorly documented, and potentially useful knowledge from these experiences has been lost. Evaluations of these programs are rare, and we lack a consensus on their design. We have minimal health-systems research for use in improving QI programs. Nevertheless, we are still in the early phases of expansion for QI in most health systems, and there is still time to take advantage of a historic opportunity—to develop an initiative under GHI to support process-improvement programs, using an evidence-based strategy that can be shared widely. It's the knowledge the teams gain from improvement activities—the changes



**A Democratic Republic of the Congo (DRC) Ministry of Health employee (right) administers a polio vaccination to a Congolese child during the first day of a national polio mass immunization campaign in Lubumbashi on October 28, 2010. Fifteen African countries held similar campaigns for 72 million children.** | AFP Photo: Gwenn Dubourthoumieu

made and how they made them—that they need to share with other teams around the world. GHI can provide technical assistance to transfer the evidence-based strategy. Such an initiative should address the following issues:

**Documentation.** So that we may begin to capture and share experience gained from important lessons, QI programs must keep better records of testing—details of both the process changes and their impacts on care. As memories fade, we are losing important insights.

**Global knowledge management.** QI is not research, but it generates knowledge about healthcare processes that may be useful for others facing similar problems. When the improvement knowledge from Niger was applied in Mali, mothers began to receive the required standard of care, and a similar reduction in the rate of post-partum hemorrhages followed. Although there are no established institutions to collect and share this kind of knowledge, modern information technology offers a feasible solution.

**Evaluations.** Most QI programs have never been formally evaluated, which diminishes their potential contribution to global knowledge. Formative evaluations, addressing how to improve these programs, are urgently needed.

**Research.** QI implemented in LMICs to date has benefitted little from formal research, but a small group of recent studies show the value of such research. A cost-effectiveness analysis of the Niger example showed that implementing the improvements developed by the teams reduced the government's cost for attending a birth from \$35 to \$28—a critical consideration for policymakers.

**Scaling up.** Because most process improvements do not require external resources, it is financially feasible to implement them on a large scale. Several well-developed models address the process of spreading improved practices through a health system.

**Institutionalization.** Making improvement a permanent, integral part of delivering health services requires concrete organizational changes and a clear strategy. Research and evaluation efforts in this area are urgently needed.

**QI applications outside of service delivery.** Initial experiences with applying QI methods to improve management have produced encouraging, quantitative results. This line of research should be expanded.

A substantial body of evidence shows that modern QI approaches can strengthen health systems in a way that complements other assistance strategies. A better understanding of health-care processes may permit donors to target material resources where they will do the most good. More research and evaluation is needed to refine these approaches, but LMIC health systems are already moving to expand QI programs. This presents a one-time opportunity to incorporate a global learning agenda into this expansion.

With modest investments, donors could help these health systems to make evidence-based improvement a permanent, integral part of service delivery. If health systems can learn from one

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another, improvement approaches can become increasingly efficient. Healthcare processes that are continually improving and leading to better outcomes can and should become a global norm. The potential health benefits of launching such an initiative are difficult to overstate.

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