



Improving Health Care Quality and Safety in Low- and Middle-Income Countries: Where Do We Go from Here?

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A significant gap continues to exist between actual and achievable health care outcomes, primarily because efficacious interventions are not effectively implemented for every patient every time needed. This paper highlights reasons for this situation and poses questions for improving health care going forward.

What is the current state of quality and safety in health care?

A major gap exists between our knowledge of the interventions that improve health care outcomes¹ and how we actually provide care for our patients on an everyday basis: that is, the gap between the actual and the achievable. This gap has been identified as a key issue for many years. The Institute of Medicine report, “Crossing the Quality Chasm,” concluded that “between the care that we have and the care that we can have lies not only a gap, but a chasm” . . . and. . . “the problems come from poor systems – not bad people.”² This statement applies not only to the USA and other high-income economies but equally if not more so to resource-constrained environments.^{3 4} A decade later, Margaret Chan, the Director General of the World Health Organization (WHO) reiterated a similar concept, saying, “The reality is straightforward. The power of existing interventions is not matched by the power of health systems to deliver them to those in greatest need, in a comprehensive way, and at adequate scale.” Moreover, the roadblocks to effective delivery systems are not simply resources or knowledge, which are currently the focus of much global health activity. The African Academies of Science meeting in Accra in December 2009 issued the following statement “Four million women, newborns and children in sub-Saharan Africa could be saved every year if well-established, currently available, affordable health care interventions could be implemented across the region.”⁵

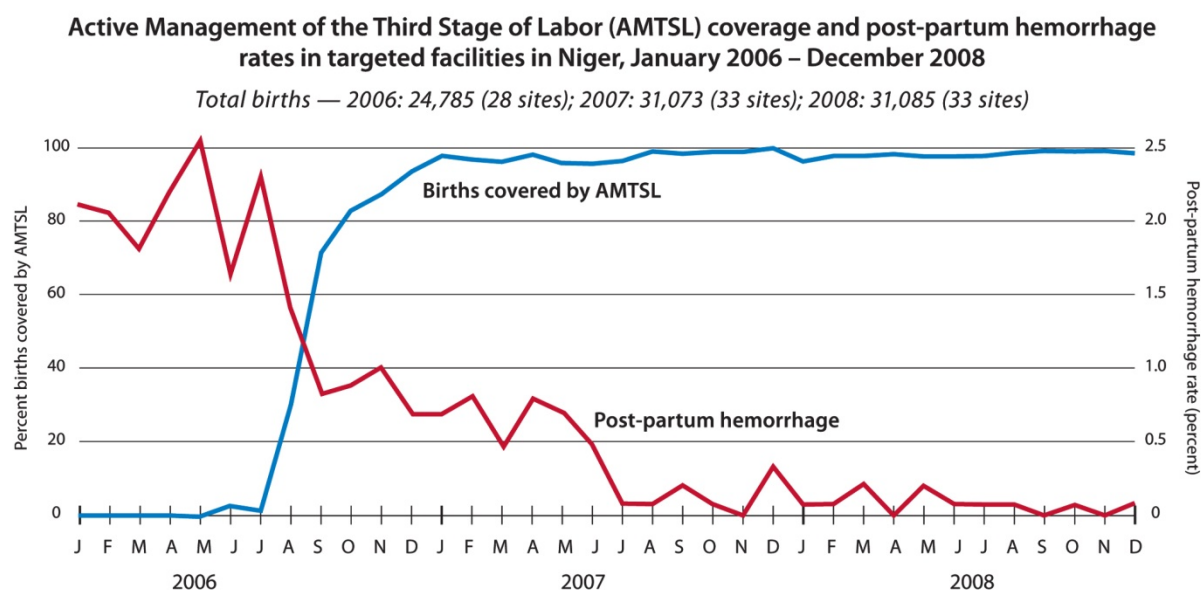
Organizing care delivery in ways that allow the effective implementation of efficacious interventions is at the heart of bridging the gap.^{2 3 4 6 7 8} This requires changes in care delivery at the operational level. These changes differ from context to context. For example, successful implementation of the Active Management of Third Stage of Labor (AMTSL) bundle in Niger was implemented through the use of prefilled oxytocin syringes on ice packs⁹ (see *Figure 1*). Such a solution worked well to keep the thermally unstable drug cool in a hot country like Niger, where refrigerators are not available in every delivery room. However, this operational change would not be applicable in other contexts where refrigerators are available.

What is needed to improve health care? Aim setting, leadership, and skills for strengthening health systems to deliver better outcomes

Aim Setting

In 2000, the United Nations launched the Millennium Development Goals (MDGs) initiative,¹⁰ a major effort to improve social, economic, and health outcomes globally. Since then, global health efforts have

Figure 1.



worked with countries worldwide to set targets for key indicators in health care to be attained by the year 2015. Unfortunately, and in spite of much progress, many resource-constrained settings are far from being on track to attain their MDG targets^{4 10 11} (see *Table 1*). For example, only 23 countries are currently estimated to be on track for achieving the 75% maternal mortality reduction MDG by 2015. With the exception of the Americas, Europe, and the Western Pacific region, many countries are not making sufficient progress on the MDGs – particularly those directed at improving women’s and children’s health.^{10 11} The MDGs were premised on a body of evidence-based interventions that can predictably improve individual and population outcomes. However, attaining the MDG targets requires making substantial improvements in the quality and safety of health care in resource-constrained settings.

Table 1.

	World	Africa	Americas	Eastern Mediterranean	Europe	South-East Asia	Western Pacific
Under 5 mortality per 1000 live births	65	142	18	78	14	63	21
Measles immunization % coverage	81	73	93	83	94	75	93
Maternal mortality per 100 000 live births	400	900	99	420	27	450	82
Skilled birth attendant % births	66	47	92	59	96	49	92
Contraceptive use % married women aged 15–49	62	24	71	43	68	58	83
HIV/AIDS prevalence % adults aged 15–45	0.8	4.9	0.5	0.2	0.5	0.3	0.1
Malaria mortality per 100 000 population	17	104	0.5	7.5	—	2.1	0.3
TB treatment success rate %	86	79	82	88	67	88	92
Water % using improved sources	87	61	96	83	98	86	90
Sanitation % using improved facilities	60	34	87	61	94	40	62

on track
 insufficient progress
 off track

Data from World Health Statistics 2010

Different regions will have their own unique contextual and epidemiological conditions. These conditions – and the interactions between them – influence the success of interventions; better understanding context-specific conditions is key to identifying and prioritizing interventions for improvement. Greenhalgh et al., in their review on diffusion of innovations in service organizations, concluded that “interactions that arise in particular contexts and settings are precisely what determine the success or failure of a dissemination initiative.”¹³ We need to know more about the interactions between the interventions we propose and the factors they interact with in the local context. For example, in many low- and middle-income economies, maternal and infant mortality remains high despite well-known interventions capable of saving lives; children still die of diarrheal disease or related malnutrition at alarming rates despite long-standing evidence for effective and low-cost interventions. It is important to identify these “know-do” gaps as key priorities and to use proven improvement efforts to address them.^{2 4 6 7 8 14}

Priorities in different settings may also change over time. For example, only a decade ago African countries suffering from the HIV epidemic were losing many lives due to the inability to put these patients on treatment. Today, while the pandemic is still very much with us, many patients are now receiving treatment, resulting in new priorities such as retaining patients in care over time and managing HIV as a chronic condition.¹⁵ A key question is, how can we ensure alignment of improvement efforts with the priorities of different contexts, especially given the evolving nature of priorities and the contextual nature of the interventions needed?

Leadership

Improving health care is the responsibility of health care leaders.^{2 7 8 14} Engagement, commitment, and competence of leadership are crucial determinants of health system outcomes. The more significant the scope and scale of improvement, the greater the need for effective leadership to drive this change. For example, improvement of the health of a district population requires leadership at the district level but also is facilitated or impeded by national level policies and processes, so national leadership is required as well. The leadership must make the case for an improvement based on evidence, create a supportive environment for change, optimize resource allocation, and engage and motivate appropriate staff. Another key function of leadership, which is becoming increasingly apparent, is managing and spreading the knowledge of the health care workers engaged in similar improvement activities across the health system. Much can be learned – and much reinvention avoided – if leaders can promote learning systems that encourage health workers to learn from and teach each other. Although this leadership is seen in many countries, it is not encountered everywhere. The key question is, how does one identify and nurture this leadership for improvement at all levels in the health system?

Skills

Since the early 19th century, when residency training became the standard for in-service skills building, the medical and allied health professions have struggled to keep its professionals in the field ahead of the ever-growing wave of new techniques, technologies, and medicines. In health-based development projects around the world, skills training is by far the most common element. Yet recent evidence is clear: skills training alone does not achieve impact.^{2 3 7 8 16} What is needed is a new paradigm in skills training that would include “systems-oriented skills,” and “data management skills.” The former is described in the section on strengthening health systems to deliver better outcomes. The latter includes skills that capture how available data can be used effectively and how basic analytic skills can be used to interpret the information effectively; skills in the use of data routinely to make informed, timely decisions about

priorities and guide ongoing improvement. This paradigm in training and education will put ability ahead of answers and process ahead of product. A systems-oriented skills training approach will also increase involvement and feedback from patients and the community on their health care experiences and, importantly, engage them in the improvement of health care processes. This approach would draw multiple sources of learning into continuous learning cycles. It would also focus providers at all levels on the ability to generate, understand, and use data to improve health care of their own patients and those of their colleagues.^{2 6 7} A key question here is, how do we develop this new paradigm?

Strengthening health systems to deliver better outcomes

The level of performance of a system is a characteristic of that system. This fundamental principle underlies improvement as we know it today. In Paul Batalden's words: "Every system is perfectly designed to achieve exactly the results it achieves." It follows that so long as the care delivery system remains unchanged, we can expect to get the same level of performance that we are currently getting.^{6 7} For much of the recent past, the paradigm for improving system performance has been focused on the addition of resources and improving clinical skills.^{8 12} If we want to see a different level of outcome, we have to change the system to get better results. Improvement requires change; however, not every change yields improvement. Some changes make matters worse. This seemingly simple notion is second nature to many people. However, time and again, we encounter situations where there is an insistence on keeping the status quo while demanding better results from it, or trying to improve outcomes by increasing inputs (human resources, equipment, and other materials) without adequate attention to care delivery processes. A key question here is, how can we change the conversation about improving health systems from just "where will we get more resources?" to include "what ideas can we harness to improve the system"?

What is possible?

There is no shortage of examples of improvements in quality and safety of health care in resource-constrained settings brought about through improvement science.^{4 7 8 14 17} Examining an array of quality improvement initiatives around the globe can inform current efforts to speed up and scale up effective interventions for health improvement in priority areas. The following are only three illustrations of how the gap between the actual and the achievable has been realised for different aims in widely varying settings.

In developed economies like those of the U.S. and Europe, quality improvement "campaigns" have been rapidly adopted on a large scale as a way to decrease unnecessary deaths and injuries to patients.¹⁴ These campaigns used a systematic approach to ensure that a set of evidence-based "bundles" of care targeted preventing the primary causes of preventable death and injury, were used every time by every provider for every patient, thereby improving their reliable implementation. Using tools that guide the work of airline pilots before and during flights, Atul Gawande and others further demonstrated that the reliable implementation of a simple checklist could dramatically reduce mortality and infection rates in operating rooms in a variety of high-, middle-, and low-income countries.¹⁸

Abundant evidence to support the promotion of quality and safety was found in the study of 27 collaborative improvement projects in 12 resource-constrained settings.⁴ The study demonstrated that

* Carol Haraden, Vice President, Institute of Healthcare Improvement, defines bundle as a structured way of improving the processes of care and patients outcomes: a small, straightforward set of evidence-based practices – generally three to five – that, when performed collectively and reliably, has been proven to improve outcomes.

significant improvement in compliance with health care standards and improvement in health outcomes were achieved across a number of priority areas, including maternal and neonatal health, malaria, tuberculosis, and HIV/AIDS. Notably, improvement happened irrespective of the initial levels of compliance.

A study in South Africa showed the importance of grafting a quality improvement learning collaborative intervention to an adaptive health system that introduced policy changes, as well as strategic addition of resources to improve performance of an HIV-AIDS treatment program in that country.¹⁷ Importantly, this study shows how combining improvement with other health system interventions in an adaptive way allows for accomplishing better results.

When the WHO Patient Safety Programme began in 2004, its first task was to prioritize a set of basic health care safety issues that could be addressed with low-cost, simple means that would have a major impact on patient outcomes in both developing and developed countries. These Global Patient Safety Challenges focused first on hand hygiene (Clean Care is Safer Care) and second on safe surgery (Safe Surgery Saves Lives).¹⁹ Distinct from other quality improvement efforts, the key element was political commitment at the highest level before all else. Ministers of Health were "challenged" to sign up to address safety problems. However, a key lesson of the Global Patient Safety Challenges was how important the evidence "machine" at WHO was in creating the technical guidelines and checklists that supported the programmes even while political commitment was being garnered. The result: over 125 countries are globally engaged in major safety improvement campaigns, the quickest global engagement in WHO's history.²⁰

Conclusions, including ongoing challenges and "What's next?"

In view of the status of health care in different countries and the abundance of known interventions¹ that can save lives, we see three imperatives for taking the health care improvement agenda forward; reliable implementation of these interventions, large-scale implementation of these interventions, and creating national systems capable of continually implementing these interventions. The science that underpins the new knowledge required to support this agenda needs better articulation. More innovation is required to continue to develop better models for implementation of effective large-scale programs. Novel and more rigorous designs are needed to evaluate these models. The opportunity now exists for effective implementation methods to put the abundant existing evidence to better use to dramatically improve global health.

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