

A region addresses patient safety

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The Pittsburgh Regional Healthcare Initiative (PRHI) is a coalition of 35 hospitals, 4 major insurers, more than 30 major and small-business health care purchasers, dozens of corporate and civic leaders, organized labor, and partnerships with state and federal government all working together to deliver perfect patient care throughout Southwestern Pennsylvania. PRHI believes that in pursuing perfection, many of the challenges facing today's health care delivery system (eg, waste and error in the delivery of care, rising costs, frustration and shortage among clinicians and workers, financial distress, overcapacity, and lack of access to care) will be addressed. PRHI has identified patient safety (nosocomial infections and medication errors) and 5 clinical areas (obstetrics, orthopedic surgery, cardiac surgery, depression, and diabetes) as ideal starting points. In each of these areas of work, PRHI partners have assembled multifacility/multidisciplinary groups charged with defining perfection, establishing region-wide reporting systems, and devising and implementing recommended improvement strategies and interventions. Many design and conceptual elements of the PRHI strategy are adapted from the Toyota Production System and its Pittsburgh derivative, the Alcoa Business System. PRHI is in the proof-of-concept phase of development. (Am J Infect Control 2002;30:248-51.)

To err may be human, but failure to share those errors, learn from them, and prevent them from happening again is unforgivable. Cloaked in darkness, secrecy, and fear of reprisal, medical mistakes are not used for learning, so they are repeated. Like Sisyphus—condemned to roll a boulder up a hillside, only to have it roll down again—we err and err again because we do not fix our systems after each error to prevent future ones.

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During the past 2 decades, health care delivery in the United States has produced phenomenal medical research and discovery, yet our health systems chronically underperform when it comes to applying this knowledge to practice. Inefficiency and error are built-in features of the health care system, resulting in danger for patients and frustration for health care

workers. The Institute of Medicine report, *To Err is Human*,¹ suggested that medical errors kill as many as 100,000 hospital patients a year—more than AIDS, breast cancer, or highway accidents. The report indicated that 1 out of 7 hospital patients contracts a preventable infection and 1 % experiences a medication error.

The defensive response of many health care organizations exacerbates the situation. Reported errors may result in punishment, a practice that results in fewer and fewer reports and, by extension, fewer and fewer opportunities to understand the process flaws that generate poor patient outcomes. And although the emphasis remains on cost-cutting as a means for driving efficiencies and performance, in this, the most expensive health care system in the world, few have been tracking patients to see whether they actually get better as a result of their care.

Physicians, nurses, and other health care providers are among the most well-trained and highly motivated workforces in any industry. Yet these dedicated caregivers are embedded in systems that accommodate error. Is it possible to change a culture that blames individuals when systems are at fault? Can an entire region come together to create a design for change?

From the Pittsburgh Regional Healthcare Initiative.

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The 6-county area surrounding Pittsburgh has recently become the first community in the country where more than 30 regional hospitals, including competitors, began reporting and sharing data on hospital-acquired infections and medication errors for the purposes of learning and improvement. With use of a common reporting tool derived from the National Nosocomial Infection Surveillance System (NNIS), all of the region's hospitals are now sharing data reports on central line-associated bloodstream infections in intensive care units. The intent is to dramatically accelerate the process of learning how to reduce the number of these infections throughout the entire region. Similar efforts are under way to address the pervasive problem of medication errors.

This level of cooperation among such diverse constituencies represents a dramatic and fundamental change, and the initial results in Pittsburgh are promising. How did this come about? What is this design for change?

A DESIGN FOR CHANGE

Three years ago, leaders of the Jewish Healthcare Foundation, a Pittsburgh-based hospital "conversion foundation," met with Alcoa's then-Chief Executive Officer, Paul O'Neill (now Secretary of the Treasury), to discover how his company was addressing safety, costs, and quality simultaneously and achieving remarkable results. On the basis of that encounter and with support from the Conference on Community Development, a civic organization comprised of influential business leaders, the Pittsburgh Regional Healthcare Initiative (PRHI) was formed.

The PRHI coalition has grown to include 35 hospitals, 4 major insurers, more than 30 major and small-business health care purchasers, dozens of corporate and civic leaders, organized labor, and partnerships with state and federal government. Together, participants agreed on PRHI's simple, focused, and audacious objective of delivering perfect patient care throughout Southwestern Pennsylvania. Through the pursuit of this goal, PRHI partners believe they will address many of the major challenges facing health care in Southwestern Pennsylvania and the country. We believe that these challenges (eg, waste and error in the delivery of care, rising costs, frustration and shortage among clinicians and workers, financial distress, overcapacity and lack of access to care) are all symptoms of the same root problem: failure to focus on the patient at the point of care.

PRHI partners believe that they have collectively discovered a design for change with stunning potential. First, all participants must envision and embrace a single morally irrefutable outcome: perfect patient care. Second, because of the complexity of the health care delivery system and supporting processes, participants identified strategic points of entry. The PRHI collaborative is focusing on the following:

- Patient safety: reducing hospital-acquired infections and medication errors to 0 (zero).
- Five clinical goals: achieving the world's best patient outcomes in obstetrics, orthopedic surgery (hip and knee replacement), cardiac surgery (cardiac bypass surgery, angioplasty, and diagnostic catheterization), depression, and diabetes.

Third, with use of data collected from throughout the region, PRHI is mapping patients' outcomes (how well patients recover) and correlating them to processes of care (what is done to patients while they are under medical supervision). Fourth, guided by the new understanding of where we are and where we want to be, PRHI is experimenting with a design to affect desired change.

The design and conceptual elements are adapted from one of the most successful business improvement models in the world: the Toyota Production System and its Pittsburgh derivative, the Alcoa Business System. This approach helps systems to operate something like the human body, with their parts connected, yet with each area adjusting continuously to remedy problems and changes. Groups of people actually performing the work experiment with ways to solve problems, down to the root cause, with use of scientific method and then measure the results and share what is learned. Instead of ordering changes from the top down, managers become partners in solving problems "from the ground up." Simple in concept but challenging in execution, this design has proven to be powerfully effective for Toyota and Alcoa.

Can this industrial design be applied to health delivery systems? Can we address simultaneously the problems of quality and costs in health care by taking everything we know about the best way to deliver care and applying it at the point of patient care, in every encounter, efficiently, and without error? Can this system actually benefit patients, physicians, health professionals, plans, and purchasers at once?

In Pittsburgh, we believe that it may be possible. However, such a vast change will require many

“firsts.” The health care stakeholders of an entire region must work together without regard for competitive barriers, form a vast learning laboratory, and draw insights from one another. They must be organized and managed according to patient need, rather than the needs of stakeholders (hospitals, clinicians, insurers, or providers). They must create a nonpunitive working environment in which mistakes are viewed as opportunities to learn. They must collaborate to learn together with other regions that have structured their hospitals and units similarly. Eventually, if successful, they must share their design with government policymakers to help guide health care reforms “from the ground up.”

PATIENT SAFETY: A COMMITMENT TO PERFECTION

PRHI’s Patient Safety Initiatives are designed to establish the means for continuously improving safety and performance in each partner organization, its units, and the teams of workers who compose those units. These initiatives are dedicated to establishing a sustainable, region-wide structure that supports the delivery of exactly what patients need, when they need it, and without waste or error. This effort rests on participants’ shared belief that any time *perfect* patient care does *not* occur, whether the patient is harmed or not, is an opportunity to remedy flawed work processes and improve systems of care.

PRHI partners identified patient safety, specifically hospital-acquired infections and medication errors, as an ideal starting point for the following reasons:

1. Patient safety is a prerequisite for perfect patient care that is grounded in the traditional edict for all health care professionals, “First do no harm.” Following this imperative puts the patient first—not the hospital, clinician, or insurer. The goal of 0 (*zero*) patient safety failures also helps avoid the pitfall of benchmarking on the basis of average performance and placing too much emphasis on transient improvement.
2. Hospital-acquired infections and medication errors represent many of the health care system’s problems endemic to health care delivery. They remain pervasive, even though practices and standards for care are accepted and defined.
3. Patient safety deficiencies are largely recognized as products of flawed systems and, as a result, should not be attributed to the actions of individuals. They require responses rooted in systems and processes—where the work is done.

LEARNING TO COUNT TOGETHER

PRHI’s patient safety work is performed on the basis of the dynamic use of systems-based approaches to identify and address problems as they arise. To fix and continuously improve processes of care and their resulting outcomes, PRHI partners are deploying common mechanisms for identifying, capturing, sharing, and acting on the basis of incidents in which process performance is not optimal. PRHI partners are learning to count together. Multifacility, multidisciplinary advisory committees that represent PRHI partner hospitals have selected and are now implementing the same incident reporting systems for hospital-acquired infections and medication errors.

In partnership with the Centers for Disease Control and Prevention (CDC), PRHI partner hospitals developed a variant of the NNIS for use at each facility. PRHI selected NNIS because the surveillance and reporting standards are widely accepted and it is the oldest, largest, and best understood hospital-acquired infection surveillance system. The CDC permits NNIS to be used by all PRHI facilities (even those that do not meet criteria) and manages and analyzes data submitted. Similarly, PRHI’s medication programs are deploying MedMARx, a reporting product from US Pharmacopeia, that has its basis on the NCC MERP taxonomy.

The PRHI committees use data derived through these systems to do the following:

1. Bring patient safety and performance issues to the fore and demonstrate that quality is correlated with success.
2. Drive process and protocol change on the basis of performance (care delivery systems and outcomes). Evidenced-based change strategies depend on timely, targeted reporting on key processes, outcomes, and environmental measures.
3. Support care teams in developing efficient, evidenced-based, and root-cause problem-solving and measurable process change.
4. Permit the continuous evaluation of data reporting, analysis, and use to continually hone the surveillance and reporting tools and strategies for change.
5. Provide the information, operations support, and environment necessary to proliferate these change strategies within organizations and the health care delivery system.

It is what is done with the data and with whom and how they are shared that is crucial to creating infor-

mation; knowledge; learning; and, ultimately, sustainable processes for improving health care delivery. De-identified facility-specific reports are disseminated to the PRHI advisory committee, and aggregate reports are provided to each hospital's administration and key clinical personnel.

INFECTION CONTROL: INITIAL AREAS OF WORK

PRHI's surveillance and data collection, initiated April 1, 2001, targets catheter-associated bloodstream infections on intensive care units. This starting point affords several advantages, described in the following:

1. Data regarding this category of infection are already collected by area facilities. (However, before deploying NNIS regionally, the methodology was not consistent between facilities).
2. The frequency of catheter-associated bloodstream infections is low relative to other categories of infections, which minimizes required resources.
3. Reduction of catheter-associated bloodstream infections represents a significant opportunity to improve patients' clinical outcomes and quality of life while providing financial benefits.
4. Best practices for catheter-associated bloodstream infections are clearly defined and accepted.

Experience garnered in working with catheter-associated bloodstream infections should facilitate the relatively rapid expansion of the system into other categories of infection. Targeted areas of work include nosocomial antimicrobial-resistant organisms and wound site infections.

Pilot projects, sponsored by the CDC, are under way at 2 locations that are applying the Toyota Production System process improvement model to infection control.

ACCELERATING LEARNING

On the basis of PRHI's patient safety component, the health care industry in Southwestern Pennsylvania should derive tremendous improvements in patient outcomes, operations efficiency, and worker satisfaction. To accelerate progress toward these objectives, this patient safety work will soon support broader integration with PRHI's 5 clinical areas. PRHI's clinical programs are pursuing a similar strategy, in which procedural changes are made on the basis of process and outcomes data. Initially, the content and operations expertise of the patient safety efforts will be focused on specific challenges surfaced by PRHI clinical programs, such as the prevention of wound site infections and insulin control. Over time, the activities of the clinical and patient safety programs will merge.

Importantly, PRHI's Patient Safety Initiatives are designed to be instrumental in the transition from more conventional performance improvement approaches to the application of comprehensive methodologies pioneered in other industries, such as the Toyota Production System. The Patient Safety Initiatives will help in the establishment of elements essential for the effective deployment of these change strategies, improvement focus, process stabilization, safety/quality culture, and evidence-based problem-solving. Experiments with these approaches are being undertaken in parallel with PRHI's community-wide patient safety activities.

Through the pursuit of perfect patient care, PRHI partners believe that they will address many of the major challenges facing the health care industry in Southwestern Pennsylvania and the country. As all PRHI hospitals begin to share information on specific infections, learning will be leveraged throughout the region, accelerating process remedies and creating a powerful learning network.

Reference

1. Institute of Medicine. *To err is human*. Washington (DC): National Academy Press; 1999.