

THE
HEALTHCARE
QUALITY REVOLUTION

CELEBRATING 10 YEARS OF THE PITTSBURGH REGIONAL HEALTH INITIATIVE



ROOTS

CORE VALUES

FOR HIGH PERFORMANCE HEALTH CARE

- VALUE 1 Care systems organized to meet patient need safely, efficiently, rapidly and completely
- VALUE 2 Ambitious improvement targets
- VALUE 3 Teamwork for 100% compliance with best clinical and safety practices
- VALUE 4 Work redesign and daily problem solving
- VALUE 5 Leadership obligation to support continuous improvement

A REGION RESPONDS



The community of healthcare, business and government leaders who rallied around the Pittsburgh Regional Health Initiative (PRHI) at its founding a decade ago came together in an unprecedented show of support for U.S. Secretary of Health & Human Services Michael Leavitt's Four Cornerstones of Value-Driven Health Care.

More than 80 Southwestern Pennsylvania employers were represented at a March 2007 gathering in the PPG Wintergarden at which PRHI was designated as a Community Leader to promote the principles of transparency in cost and quality, interoperable health information systems, and incentives for high performing healthcare providers.

Pittsburgh's turnout set a national record in Secretary Leavitt's campaign to win support for reform leadership at the regional level. It brought together Democratic leaders with Republicans, for-profits and non-profits, corporate giants and small companies, top union and management officials, consumers, and the region's largest health systems and insurers.

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INTRODUCTION

Revolutions are born of hope and not despair. They come from rising expectations; visions of a better world. So it was in the '90s that across the country, in disparate cities and regions, professional and lay leaders with a common vision began planting ideas and experiments that are transforming health care. Unlike many, these pioneers weren't asking who should



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pay for health care; they questioned instead what our healthcare dollars bought. They uncovered error, waste and inefficiency, and reimbursement systems that frustrate improvements. They forged new frontiers of quality. As their ranks grew, so did national awareness that safety, quality, and efficiency were inseparable from cost and together create “value” in health care.

One association of these early pioneers took root and continues to grow. In Southwestern Pennsylvania, the Pittsburgh Regional Health Initiative (PRHI) has persisted for a decade, persevering through five phases of change: creating a vision, operationalizing the vision as an improvement method, demonstrating its value, aligning incentives, and addressing the wall of confusion and resistance that prevents spread and stabilization of change.

In the pages that follow, this special edition of **ROOTS** marks the 10th anniversary of this multi-stakeholder coalition with a portrait of the healthcare quality movement and PRHI's place in it.



Alan Guttman
*Chief Executive Officer, The Guttman Group
Chairman, Pittsburgh Regional Health Initiative
Board of Trustees*

A REVOLUTION IN PROGRESS

1. We are in the midst of a revolution that we helped incite — the healthcare quality reform revolution.

Imagine: A revolution whose early shots were fired here in Pittsburgh. It is a revolution to build value and quality in health care. It is distinguished by a commitment to remove waste, error, variation, imprecision, and inefficiency from our healthcare systems. When it runs its course, there will be wholesale changes in health economics, social relationships, education, myths, habits, expectations, transparency, roles, culture, and professional behaviors.

This revolution has been sparked by observed and documented problems in the quality of care and visible human suffering. Americans experienced a “great awakening” in the 1990s to the safety and quality problems in American health care. The origins reside in dramatic events and ideas: the experiences of Betsy Lehman, Josie King, and Mrs. Don Berwick revealed the breakdowns in safety and best practice in our nation’s finest medical complexes. This was underscored by Lucian Leape’s path-breaking documentation of hospital error, and Michael Millenson’s call to action in *Demanding Medical Excellence*.

Other prescient thinkers focused on random and often harmful variations in care, erratic execution of proven interventions, and failures to perfect performance using readily available, continuous quality improvement techniques. Brent James’ process improvement training center in Salt Lake City, Gordon Mosser and his team at the Institute of Clinical Systems Improvement in Minnesota, and Ed Wagner’s breakthrough Chronic Care Model created at Seattle’s McColl Institute all raised aspirations for performance excellence. Researchers at Dartmouth Medical School, working with Dr. Jack Wennberg, mapped the disturbing variations in care across regions. Dr. John Carter, a vascular surgeon at Beth Israel Deaconess Hospital in Needham, Mass., enlisted Harvard Business School professors Kent Bowen and Steve Spear to pioneer the application of Toyota Production System principles to remove waste and error in health care.

2. We began in Pittsburgh with a vision of the ideal, strikingly different from the current condition.

From our observations, we concluded that the answer to what ailed health care lay with frontline clinical teams to deliver care that is as perfect as possible: safe, efficient, and proven best practice. We envisioned frontline staff, in the course of their daily work, partnering to solve problems and removing impediments to perfect care using established methods for work redesign. We saw clinical caregivers liberated from daily problem *work-arounds*, eliminating the obstacles that prevented them from achieving the best patient outcomes. We identified systemic barriers to perfect performance: misaligned payment systems, the lack of training in safety science and work design principles, and leadership structures that supported neither teamwork nor problem solving.

In spite of some stiff opposition, we advocated setting performance goals at the theoretical limit of excellence, as close to perfection as possible, to incite continuous improvement as a way of life.

We were among the first to declare “value” as our goal: to eliminate the 40% waste and error in the system and move to 100% value. In our vision, our total health investment would buy only care that is proven, safe, and efficient. We anticipated that employers and consumers shopping for value, and insurers wishing to support and reward excellence, would need reliable, credible, and transparent data on cost and quality to make comparisons. We were among the earliest to call for transparency of cost and quality information. We owe a major debt to Paul O’Neill for his visionary thinking that stimulated much of our change agenda.

3. We created an action group and a climate for change.

We instituted one of the first *regional coalitions* dedicated to quality improvement and “value.” We were a product of a business group, the Allegheny Conference on Community Development, underscoring our interest in providing greater value for the healthcare investment of purchasers. We assembled all regional (and some state) stakeholders to explore how to reduce cost by increasing quality – a novel idea for health care! We did not say, let’s improve quality whatever the cost, recognizing that such an approach is neither reasonable nor feasible. Instead, we asked: “Why not? Why can’t we have better care at lower cost?”

We talked about the 40% wasted investment, some of which could be used to extend care to more people, cover mental health and substance abuse services, and train more health professionals in Perfecting Patient CareSM (PPC). To get there, we advocated applying to the health sector the industrial engineering techniques so successful in other sectors. We underscored how quality can be the best cost containment driver if it reduces waste, inefficiency, errors and substandard or unnecessary interventions.

We emphasized that all the regional players were in this together. We were early advocates for the efficacy of the multi-stakeholder, regional coalition. After all, health professionals and their families seek care from the same system in which they serve. We made known the hazards of the current condition – dangerous to patients and oblivious to the needs of the healthcare workforce. We emphasized that everyone was at risk; error and substandard practice did not recognize racial, socio-economic or geographic distinctions. Serious problems existed at community hospitals and academic medical centers, at skilled nursing facilities and community practices.

We pointed to widespread worker dissatisfaction; chaotic work environments were sapping the workers’ enthusiasm and draining their energies. We helped many “neutral” parties, payers, purchasers and consumer groups observe the current situation. We built on the scientific method to which health professionals commit; we established consensus among many “early adopters” to test these hypotheses.

4. We provided solutions to respond to the rising discontent.

We created a method for work process improvement known as Perfecting Patient CareSM based on Toyota principles. We developed a learning center to teach these methods. We ignited demonstrations that revealed clearly its potential in infection control, pathology, and chronic disease. We created a sister organization, Health Careers Futures, to enlist champions to work with us – nurses, physicians, pharmacists, CNAs, graduate students, managers, lab techs and librarians. We tested our methods in hospitals, ICUs, pathology labs, skilled nursing facilities, and community practices.

Our champions exposed the weaknesses of the status quo, showing what waste, error, inefficiencies and substandard practices were doing to patient outcomes and worker satisfaction. They documented how systems fail both workers and patients, and they showed that it was possible to fix this.

Champions set targets at the theoretical limits (as close to zero as possible) for hospital-acquired infections (HAI) and achieved those targets in ICUs and units working to eradicate central line-associated bloodstream infections (CLABS), methicillin-resistant *Staphylococcus aureus* (MRSA), ventriculostomies, urinary tract infections and others. They showed the value of human factors engineering in health settings and ensured the availability of gloves, sanitizers, sterile kits, checklists, etc. They cleaned, organized and set in order pharmacies, labs, equipment and supply rooms. They showed the value of redesigned work.

5. We partnered with outstanding thought leaders.

We formed partnerships with the Centers for Disease Control and Prevention (CDC), the Association for Professionals in Infection Control and Epidemiology (APIC), the Agency for Healthcare Research and Quality (AHRQ), the Centers for Medicare and Medicaid Services (CMS), the Pennsylvania Health Care Cost Containment Council (PHC4), the Pittsburgh Business Group on Health (PBGH), SMC Business Councils, our corporate sponsors, the Consumer Health Coalition (CHC), and national and local foundations. We work closely with our Governor, Ed Rendell, and his Office of Health Care Reform to support their Prescription for Pennsylvania. Additionally, we are honored to be selected as the only Chartered Value Exchange (CVE) in our state and region by Secretary of Health & Human Services (HHS) Michael Leavitt. We salute his Four Cornerstones of Value-Driven Health Care and their reliance on transparency and quality improvement, central to our Vision of the Ideal.

6. We learned from our successes and setbacks.

There were successes: PPC applications and learning activities, transferring ideals into action, proved uniformly viable. We succeeded in uniting methods for leaner, safer and better clinical care; setting clinical goals at their theoretical limits; staying true to our value equation. We made great headway in our Champions program. As we made our Champions the front-and-center leaders of reform at the frontline of patient care, we took a back seat in our coaching. Our focus became helping them direct and find time to work on clinical improvements as THEY and their coworkers solved problems and tested new ideas.

And there were setbacks. We started by treating efficiency (PPC), safety (100% reporting), and clinical targets as separate activities, thinking that we had three threads when we had one! Erroneously thinking that physicians would make improvements if only they saw how their performance compared with that of their peers, we kept information on clinical outcomes top secret. We now understand that transparency is essential to improvement. We certainly wasted energy believing that everyone was ready to work across competitive boundaries to jointly advance safety and best practices. As a result, we neglected to build trust and to adjust to the pace, style, culture and distractions of the healthcare institutions that hosted our improvement demonstrations.

We underestimated the intransigence of the forces against change, the well-armed defenders of the status quo. Suspicious of change, managers, clinicians, or health professional associations sometimes put our Champions at risk. We underestimated the resistance to bold quality goals and new methods for best practice and team learning. We learned how important it is to help our graduate Fellows and Champions anticipate and manage this resistance.

7. We continue to work on spread and stabilization.

The issue now is how to get beyond Islands of Excellence, what we call our “spot removal” approach. Our Champions have succeeded in creating many isolated units of excellence, but the goal remains to transform institutions and large community practices with a whole new set of clothes. But the momentum for transformation is there. Across the country, both public and private insurers are moving on payment reform, supporting training, performance excellence, and infrastructure improvement; and, conversely, they are withholding payment for “never” events and preventable error. We are working with the American Hospital Association’s Center for Healthcare Governance and Northwestern University’s Kellogg School of Management on a National Patient Safety Education Project; our governor and others across America are leading the way in quality, safety and access reform. Regional multi-stakeholder coalitions have formed a *Network for Regional Healthcare Improvement*. Most importantly, more and more champions contribute to improving the healthcare system in every corner of America.

Our new designation by the U.S. Department of Health & Human Services as a *Chartered Value Exchange* provides an opportunity to confront directly the challenge of providing consumers and employers with reliable and credible comparative data on cost and quality. How rewarding to overcome the reality of scattered and irreconcilable data – to describe with precision the current condition, to expand our evidence base for best practice, and to document the impact of change efforts! From our earliest years, we’ve committed to regional and statewide data exchange as well, and hopefully, we will have useful data registries in the near future.

We are doing more work at the community “medical home” level on chronic disease and associated substance abuse and depression. We continue to approach these health challenges as *systems* issues, requiring integrated care at the hospital, community, rehab and other venues such as long-term care, where we are also making a major investment.

Most importantly, we are investigating new partnerships and alliances to vastly expand our teaching and coaching capacities.

When will we declare victory? That’s easy – when health organizations are rewarded consistently by insurers, purchasers, and consumers for their:

- Care systems organized to meet patient need safely, efficiently, rapidly and completely
- Ambitious improvement targets
- Teamwork for 100% compliance with best clinical and safety practices
- Work redesign and daily problem solving
- Leadership obligation to support continuous improvement

HEALTHCARE QUALITY: THE HISTORY OF A MOVEMENT

The Pittsburgh Regional Health Initiative (PRHI) is “standing on the shoulders of giants” as it celebrates its tenth year as a regional quality improvement leader of national significance. The quest for quality in American medicine is not a new one. Since the early twentieth century, calls for the study and standardization of best practices have ebbed and flowed.

In 1910, for example, Abraham Flexner’s report rocked the medical profession by calling for higher standards for graduating medical students. Subsequently, as medical schools fell short of Flexner’s recommendations, they merged or were closed – about half of America’s medical schools in all.

Boston surgeon Ernest Codman self-published a report in 1914 detailing his systematic, lifelong follow-up with patients after treatment errors. He recorded the errors and classified them according to lack of skill or equipment or judgment, and linked them to outcomes. Errors, accidents and unexplained adverse events, said Codman, “should be acknowledged to ourselves and to the public and study directed to their prevention.” Later generations of reformers, such as Lucian Leape, MD, would renew Codman’s call for disclosure of errors, referring to this revolutionary idea as “transparency.”

The American College of Surgeons, in 1918, started a Hospital Standardization Program to ensure a safe and effective system of care for people in the hospital. That program ultimately led to the 1951 formation of the hospital accreditation body JCAHO, today’s Joint Commission.

Quality emerges as a healthcare issue

In the early 1970s, amid deep skepticism and questioning surrounding the Arab oil embargo, Vietnam, and Watergate, the seeds of a healthcare revolution were quietly being sown. In Boston, Jack Wennberg, MD, and colleague Alan Gittelsohn, PhD, using a population-based methodology, discovered that the uses, costs and outcomes for health care varied tremendously from region to region across the country. The question of why there should be so little standardization in health care led Wennberg to found the Dartmouth Institute for Health Policy and Clinical Practice. His area of inquiry came to be called outcomes research.

At the time, healthcare costs consumed just over 7% of America’s GDP. And over there in the corner, about two cases in ten of the well-known pathogen, *Staphylococcus aureus*, were demonstrating resistance to one of the last-ditch antibiotics, methicillin. European countries took note and acted aggressively. The United States did not. The consequences would haunt American hospitals.

“Errors, accidents and unexplained adverse events should be acknowledged to ourselves and to the public and study directed to their prevention.”

— Ernest Codman, MD, 1914

A decade later and half a continent away, in Salt Lake City, Brent James, MD, MStat, of Intermountain Healthcare discovered the quality work of W. Edwards Deming and realized the imperative of consistently providing care based on evidence of its effectiveness. The era of “evidence-based medicine” was born.

James also came to realize the importance of tracking cost outcomes alongside clinical ones. Using activity-based costing methods, Intermountain tracked in parallel the care and costs relating to post-operative infection. As the use of evidence-based practices increased, the infections and costs associated with them decreased.

James was on to something: increasing quality avoided costs. It would prove to be a double-edged sword. Avoiding costs – simply not generating them in the first place – may actually reduce payments from insurers in some cases, a perverse financial penalty that continues to threaten clinical progress.

In the mid-1980s, the National Demonstration Project on Quality Improvement in Health Care (NDP) began to examine ways to apply modern quality improvement methods to health care. Led by Don Berwick, MD, and Vinod Sahney, PhD, the NDP, precursor to the Institute for Healthcare Improvement (IHI), began offering courses and conferences aimed at improving healthcare quality. With the formation of IHI in Cambridge, Massachusetts in 1991, program offerings multiplied.

Quality = efficiency, safety, and best practice

The new decade, the 1990s, began with a nascent understanding that the practices, outcomes, and costs of health care in America varied greatly from region to region and that these inconsistencies ought to be explored and reconciled with standard practices. “Quality,” and a way to measure it, had begun to seep into the medical lexicon. Largely unspoken were the words “error” and “waste.” That was about to change.

Psychologist James Reason weighed in with his seminal book, *Human Error*, in 1990, which included medicine in the discussion of error-prone systems. Human cognition has limitations, he said: people are hard-wired, by virtue of prior experience, in favor of committing errors. Understanding, expecting, and anticipating human limitations would lead to better designs of the systems in which people operate, especially in high-pressure, high-risk occupations.

By 1992, three Minnesota healthcare organizations – Mayo Clinic, HealthPartners Medical Group, and Park Nicollet Health Services – united to address a coalition of purchasers that wanted to combine insurance and care delivery. Visionary leaders James Reinertsen, MD, and Gordon Mosser, MD, guided the resulting organization, the Institute for Clinical Systems Improvement (ICSI). Responding to variation data from the Dartmouth group and others, ICSI viewed standardized, evidence-based medicine as the best means of achieving lasting improvements in the quality of care. The group would go on to develop a series of clinical practice guidelines (CPGs) outlining best-practice care for dozens of conditions. This early work in standardization continues.

The sentinel event that sparked a revolution

All of this preliminary work in quality went largely ignored in the beginning until the “shot heard ‘round the world” in the quality revolution. That occurred on December 3, 1994, when 39-year-old *Boston Globe* healthcare columnist, Betsy Lehman, died after four straight days of a chemotherapy overdose received in her treatment for breast cancer at Dana Farber Cancer Institute (DFCI), one of the nation’s most respected hospitals. The resulting investigations identified deficiencies in protocol, training, drug-error reporting, quality assurance, and in leadership. Over the next three years, at least 28 front-page headlines cried out for change.

According to James B. Conway, DFCI's Chief Operating Officer, and Saul Weingart, Director of the Center for Patient Safety at DFCI, the Institute adopted six fundamental reforms over the next several years that resulted in improved patient safety, renewed community trust, and reduced worker turnover. They were:

1. Safety cannot be a slogan. It must be the job of every clinical and administrative leader and trustee.
2. New systems for error-reporting and patient rounding improved vigilance for risk, error, and harm.
3. Significant investment in system design and information technology, and the development of standardized orders, helped prevent error.
4. Information sharing with partner hospitals amplified safety lessons.
5. Trust was renewed when patient and family representatives were invited to sit on major decision-making bodies.
6. Creating safe care is a job that is never finished. Every mistake, forever, must be treated as an opportunity to learn and share the information.

Published just two weeks after Lehman's death, Lucian Leape, MD's seminal article, *Error in Medicine*, advocated a systems-based approach to improving patient safety. Building on Reason's early behavioral work, Leape advocated for systems designed to assume that human errors are inevitable, and constantly look for ways to minimize their impact.

During this time, Kenneth Kizer, MD, became Under Secretary for Health in the U.S. Department of Veterans Affairs (VA), the largest healthcare system in the nation, overseeing the greatest transformation since its creation in 1946. Among the changes, Kizer oversaw the introduction of cutting-edge electronic medical records (EMR), computerized physician order entry (CPOE) and bar-code medication administration (BCMA), dramatically increasing the accuracy of physician orders and medication delivery throughout the system. The VA continues to set the standard for adoption of these innovations: over 90% of VA hospitals now have them.

Systems like the VA's might well have prevented the massive overdose that killed Betsy Lehman.

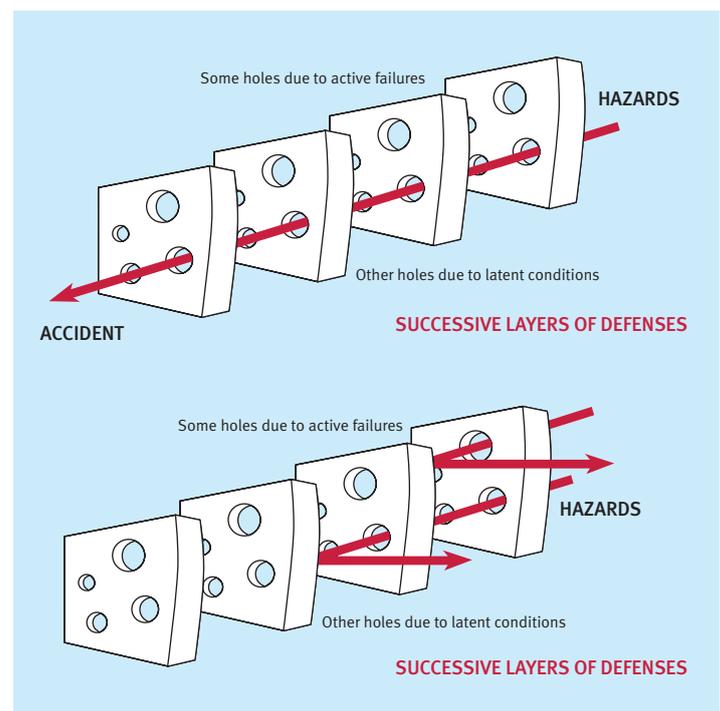
Creating error-free systems

In his 1996 work, *Managing the Risks of Organizational Accidents*, James Reason illustrated the key concepts that form the core of the patient safety movement, including the now-famous "Swiss cheese model" of errors in high-risk enterprises.

Every system, even an ideal one, has holes in it, which represent active or latent chances for failure.

For a catastrophic error to occur, the holes must line up at every step, defeating the system. The best defense is multiple layers with fewer and smaller holes, increasing the chance of halting the all-too-human error. Nearly a decade later, in his 2007 book, *How Doctors Think*, physician and *New Yorker* columnist, Jerome Groopman, MD, would echo Reason's findings as he described the mental traps that cause doctors to misdiagnose.

James Reason used a drawing of Swiss cheese to illustrate how the chances for error and accidents increase when 'holes' in a complex system line up (Illustration by permission of Duke University Medical Center).



In its six-part series, “Quality of Healthcare,” the *New England Journal of Medicine* weighed in on the inconsistency of best-practice medicine and patient outcomes from region to region across the country. The series tied inconsistent care to skyrocketing costs, which had jumped at that time to more than 12% of the GDP. (These costs now stand at 16% of the GDP, with estimates that they will top 20% by 2015.) The series answered doubts about the science of system improvement, concluding that healthcare quality can and should be measured, and hypothesizing that improving quality could reduce cost.

Overall, American hospitals posted a 38% increase in hospital-acquired infections between 1975 and 1995. And by 1995, over there in the corner, more than a third of the *Staphylococcus aureus* infections, a huge majority of them hospital-acquired, had become resistant to methicillin.

A diagnosis for what ails health care and a cure

In Pittsburgh, a unique regional consortium was taking shape. In the late 1990s, the Allegheny Conference on Community Development recognized that health care had eclipsed steel manufacturing as the region’s largest economic segment. That the region’s leading economic driver should be responsible for millions of dollars in escalating employer costs, yet deliver less-than-stellar patient outcomes concerned members of this long-established, business-led civic organization, whose membership included the chief executive officers of Southwestern Pennsylvania’s major corporations.

The Conference created the Working Together Consortium and established a sub-group to look at a community-wide healthcare approach involving all healthcare stakeholders. The consortium became the Pittsburgh Regional Health Initiative (PRHI), co-founded by Karen Wolk Feinstein, PhD, President and CEO of the Jewish Healthcare Foundation (JHF), and Paul O’Neill, then Chief Executive Officer of Alcoa, and later U.S. Treasury Secretary. PRHI engaged leaders across health care, business, and government to discuss ways of improving healthcare efficiency while lowering costs across Southwestern Pennsylvania. Initial ambitions included:

- Zero medication errors
- Zero hospital-acquired infections
- The world’s best clinical patient outcomes in:
 - Cardiac care
 - Diabetes and depression
 - Obstetrics

Two approaches distinguished PRHI from the start: its commitment to the theoretical limits of performance – the goal of “zero” and the application of systems thinking to health care. At the time, both approaches were revolutionary, not well understood – and often, not well received. The goal of zero errors was intended to encourage continuous improvement as a way of life. The systems approach would call for a redesign of the way work was done.

O’Neill believed that the Alcoa Business System, which followed the tenets of the Toyota Production System, could translate reductions in waste and error to the healthcare industry as it had done at Alcoa. The system had recently been described in the *Harvard Business Review* by professors Kent Bowen and Steve Spear, as *The DNA of the Toyota Production System*. O’Neill had used the system to reduce occupational injuries at Alcoa, making it the world’s safest workplace. He saw opportunities to cross-pollinate, introducing Toyota-style systems thinking and waste reduction in the region’s hospitals.

Further to the east, in Boston, the idea of applying Toyota-style principles to an American hospital also occurred to James Reinertsen, MD, formerly of ICSI, and now the lead at CareGroup. In his new role, Reinertsen promised a return to profitability at the system's Beth Israel Deaconess Medical Center, and decided to use Toyota methods to achieve it. The results of the work are documented in a path-breaking Harvard Business School Case Study series, *Deaconess-Glover Hospital*.

To the north, in the Puget Sound region, Ed Wagner, MD, MPH, was developing the Chronic Care Model at the MacColl Institute of GroupHealth of Seattle. Wagner identified six fundamental areas for providing high-quality care for chronic diseases, such as diabetes, asthma, heart disease, cancer and addiction. The areas include: (1) self-management, fostering a patient's sense of responsibility; (2) decision support, basing treatments on explicit, proven guidelines; (3) delivery system design, making sure all caregivers are "on the same page;" (4) clinical information system, or registry to track patients individually and in groups; (5) organization of health care to continuously improve care; and (6) community outreach, forming educational partnerships and alliances. Wagner's Chronic Care Model, developed for one region, was soon being adopted nationwide.

The Institute of Medicine joins and spurs the quality movement

Although 30 years of observation and publication had described the pillars of a safer health system, the defining moment ushering in the modern era of patient safety was the publication of the 1999 report from the Institute of Medicine (IOM), *To Err is Human: Building a Safer Health System*. Using data extrapolated from the Harvard Medical Practice Study and the Utah and Colorado Medical Practice Study, *To Err is Human* famously estimated that up to 98,000 Americans die each year from medical errors, the equivalent of a daily commercial plane crash.

Publication of the incendiary report coincided with the creation of the new Agency for Healthcare Research and Quality (AHRQ), in the Department of Health & Human Services, under healthcare visionary John Eisenberg, MD. It also coincided with the publication of another seminal work, *Demanding Medical Excellence: Doctors and Accountability in the Information Age*. In that book, author Michael L. Millenson revealed that 85% of medical treatments have no basis in clinical trials, and that treatments based on scientific evidence are only rarely applied. He points toward standardized, evidence-based care as a way to improve quality while lowering costs.

2001: A second sentinel event adds momentum

In 2001, 18-month-old Josie King, hospitalized for burns, died at Johns Hopkins Medical Center in Baltimore, one of the nation's premiere healthcare institutions. Josie's preventable death was caused by dehydration and misused narcotics. Sorell King, Josie's mother, began a nationwide campaign for rapid-response teams to bypass the chain of command to respond directly to patients whose condition seemed to be deteriorating.

Mrs. King's lobbying found fertile ground at UPMC Shadyside Hospital in Pittsburgh, the first place in the nation to answer her call for rapid response teams. Today, UPMC has also adopted Condition H, an internal 9-1-1 system for patients and families seeking immediate attention and assessment by a fresh set of eyes when things just don't seem right.

That same year, the second IOM report, *Crossing the Quality Chasm: A New Health System for the 21st Century*, focused on the gap between known, best-practice care and the care people actually receive. This report became the first in the Quality Chasm series of books on quality and safety improvements in health care published regularly by the IOM.

In Pittsburgh, PRHI, in partnership with the Centers for Disease Control and Prevention (CDC) and with financial support from AHRQ, convened hospitals from across the region and across competitive lines to collect regional data to measure progress on infections and medication errors. Representatives from more than 40 regional hospitals participated in these two clinical working groups. (In 2002, PRHI authors would publish *A Region Addresses Patient Safety* in the American Journal of Infection Control describing the region's infection control work. The following year, Health Affairs would publish *Pittsburgh Regional Health Initiative: A Systems Approach for Achieving Perfect Patient Care*.)

PRHI also convened the Cardiac Working Group, and surgeons from Southwestern Pennsylvania's 14 competing cardiac surgery centers collaborated in the interest of advancing best-practice care. The group created a regional cardiac registry to track processes of care for patients undergoing coronary artery bypass graft surgery. The model for the work was the New England Cardiovascular Study Group, which used their registry to determine that four specific processes of care led to better patient outcomes.

Simultaneously, PRHI and several hospital partners agreed to pilot Toyota-style improvements in various units. PRHI's adaptation of Toyota principles to health care was called Perfecting Patient Care.SM PRHI recruited engineers and quality experts with experience applying these principles in other industries, and work began in healthcare units across Pittsburgh. The first on-site pilot projects were established at:

- The Western Pennsylvania Hospital Ambulatory Surgery Center to reduce waiting time
- VA Pittsburgh Healthcare System (VAPHS) to reduce the antibiotic resistant strain, MRSA
- UPMC Shadyside to improve overall efficiency on the floor, a program lauded by JCAHO
- UPMC South Side to improve efficiency in the pharmacy

Aiming for perfection

When PRHI was founded, talk of “zero” as the ultimate improvement goal was met with stiff resistance. With mere mortals at the helm, how could any endeavor ever become error free? But making “zero” the goal, the theoretical limit of performance, establishes its importance and keeps people pressing toward it. Continuous progress toward the ideal becomes the way the work is done.

In 2001, a subtle shift in the healthcare conversation took place when the Robert Wood Johnson Foundation (RWJF), expressing interest in PRHI's foundational ideas, initiated a round of national grants entitled *Pursuing Perfection*. Organizations accepting the RWJF challenge would pursue “perfection,” or zero defects, as their goal. PRHI's “zero goal” had penetrated the national healthcare conversation.

Paul O'Neill, former U.S. Treasury Secretary and former Chief Executive Officer of Alcoa, hosts health policy-makers, including U.S. Senators Ted Kennedy and Bill Frist, and U.S. Secretary of Health & Human Services Tommy Thompson, during a 2001 visit to PRHI that helped shape legislation to reduce medical errors.



PRHI's co-founder, Paul O'Neill, by then Secretary of the Treasury under President George H. W. Bush, further raised Pittsburgh's national healthcare profile, arranging for a group of Washington healthcare heavyweights to tour the region's hospitals. Included in the party were Senator Edward M. Kennedy, Senator William Frist, MD, Secretary of Health & Human Services Tommy Thompson, and White House Aide Mark McClellan, MD. The officials were introduced to the early results of the regional collaboration to improve quality and reduce costs. PRHI leader Karen Wolk Feinstein, PhD, was called to testify on Capitol Hill about healthcare safety, and PRHI was included in discussions with HHS as it drafted the Patient Safety Improvement Act. The following year, a delegation from the National Committee for Quality Assurance (NCQA), a quality accrediting body, visited PRHI partner hospitals.

Acting regionally and thinking nationally would prove to be a PRHI strength. That year, PRHI invited representatives from other regional coalitions to Pittsburgh, forming the National Clinical Improvement Network or NCIN – the forerunner of the Network for Regional Healthcare Improvement (NRHI). Sharing what other regions faced and learning together along the journey has led to many insights over the years, and has ratified the notion that regional efforts can foster both local and national change.

The war against MRSA and HAIs

In 2002, encouraged by the strength of the young regional collaborative, and intrigued by the application of Toyota principles, the CDC approached PRHI with another idea. Could Perfecting Patient CareSM be used to combat the growing menace of the antibiotic-resistant *Staphylococcus aureus* called MRSA?

By 1995, fully half of all staph infections in the United States showed antibiotic resistance. (In Scandinavia, where the outbreak was managed seriously starting in the 1970s, the rate remains less than 2%.) The organism, originally strictly a virulent hospital-acquired infection (HAI), had jumped the hospital walls and had mutated into a community-acquired strain, leading to much-publicized deaths among people in close contact, such as athletes, students, and inmates.

Could hospital-acquired MRSA be contained by applying systems thinking Toyota-style? The VA Pittsburgh Healthcare System, eager to reduce its already-low MRSA rate, agreed to host the pilot site on 4 West, a post-surgical unit. A three-way consortium, between the CDC, PRHI and the VAPHS, made great strides in the effort.

Led by a PRHI staffer who was an engineer, and by a respected VA nurse, the unit began to solve problems methodically, one by one, making it easier for workers to observe known guidelines, like hand hygiene, gloving, and gowning. They screened every patient for MRSA on admission, transfer and discharge, to be sure which patients needed to be isolated, and to keep reliable data on infection rates. They cleared up misunderstanding about the CDC's hand-hygiene guidelines, which emphasize the use of alcohol-based hand gels to combat MRSA. PRHI and VA personnel worked together to publish a hand-hygiene educational module on the VA website.

Over a three-year period, the unit posted an 85% decline in the MRSA rate, as verified by the CDC. In 2006, the work led to the national adoption throughout the entire VA Healthcare System, of 100% MRSA screening for patients on admission, transfer, and discharge.



Sign for Hand Hygiene.
The Bug Stops Here! Wash or
sanitize your hands.

Dr. Rajiv Jain
VA Pittsburgh's Chief of Staff

The actions came none too soon. In October 2007, CDC researchers reported in the *Journal of the American Medical Association* that MRSA was responsible for an estimated 94,000 life-threatening infections and 18,650 deaths in 2005 – more deaths than from AIDS. The news hit the American media with fanfare, as the rest of the country awakened to the MRSA threat that the Pittsburgh region had been taking steps to contain for nearly a decade.

The VAPHS assault on MRSA was front and center in Atul Gawande's 2007 book, *Better*. Dr. Gawande had burst upon the healthcare scene with articles in *New Yorker* magazine and his first book in 2002, *Complications*, which shed light on the imperfections of medical practice. That year, IHI Founder Don Berwick, MD, added a first-person account of his wife, Ann's encounter with the healthcare system. In *Escape Fire: Lessons for the Future of Health Care*, Berwick described the system problems leading to adverse medical events during Ann's hospitalization. These and other influential physician writers added their voices to a growing chorus demanding improved quality.

Perfecting Patient CareSM: a method

In 2002, PRHI staff collected the available educational material for the teaching of the Toyota Production System and fashioned a special curriculum for those in the field of health care. The result was the Perfecting Patient CareSM University, a series of intensive courses for healthcare workers in system improvement.

The course was a watershed for several reasons: it showed the power of such an offering from a neutral, non-profit entity. It showed that these ideas could be spread far and wide. Rejecting the idea of expensive, exclusive seminars, PRHI offered the course at cost to any and all in the community who wanted to learn and implement these methods.

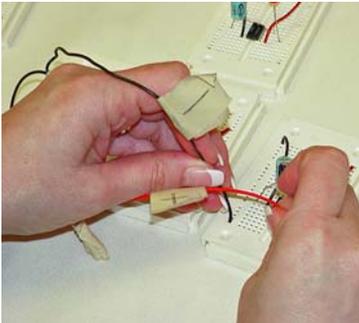
Every year since, the University curriculum has undergone change, consolidation, and improvements, honing its healthcare focus. Several thousand clinicians and administrators from across the country have received its training.

Patient safety as a discipline

By 2003, healthcare safety and quality had come of age as public issues. A RAND study, published in the *New England Journal of Medicine*, showed that patients receive just over half of recommended care. The Malcolm Baldrige National Quality Award extended criteria to health care. And following the untimely death of patient safety pioneer and AHRQ founder, John Eisenberg, MD, a team at the University of California San Francisco led by Robert Wachter, MD, began an online forum Eisenberg had envisioned. The *AHRQ Morbidity and Mortality Weekly* has become a national patient safety sounding board, monitored by thousands of physicians nationwide.

In 2004, Wachter and co-author Kaveh Shojania, MD, wrote *Internal Bleeding: The Truth Behind America's Terrifying Epidemic of Medical Mistakes*, describing the flawed systems behind medical errors and confirming the value of "systems thinking" in health care. Later that year, Michael Porter's *Redefining Competition in Health Care* in the *Harvard Business Review* called for competition in health care to be based on quality and patient safety.

In Pittsburgh, a PRHI-led infection control initiative that ranked as the largest of its kind at the time was helping 32 Southwestern Pennsylvania hospitals wage a dramatic assault on central line-associated bloodstream (CLAB) infections in their intensive care units. The CDC would later confirm that the regional central line infection rate declined by 68%, between 2001 and 2005, a feat of national significance reported in the *Journal of the American Medical Association*.



A participant in the Pittsburgh Regional Health Initiative's Perfecting Patient CareSM University works on assembling a circuit board as part of a lesson where teams break an unfamiliar process into steps to achieve quality and efficiency.

Meanwhile, at Allegheny General Hospital, Richard Shannon, MD, began to apply Perfecting Patient CareSM to reduce CLABs in two ICUs. Within 90 days, CLAB rates in those units would plummet to near-zero and remain there. Shannon's work and that of his successor, Jerome Granato, MD, MBA, spread to other units across the hospital, where similar reductions occurred. For one 15-month stretch in 2006-07, the cardiac care unit held the rate at zero. The Emergency Department also marked a year with zero infections.

Regional results and the work at Allegheny General raised national awareness about what was possible. No longer could central line infections be viewed as an inevitable but regrettable part of complex medical care: they were preventable.

In rapid succession, the Joint Commission included infection reduction as one of its patient safety goals and, inspired by Shannon's application of Perfecting Patient Care,SM IHI adopted "zero central line infections" as a hallmark of its lauded 100,000 Lives Campaign in 2005. A year later, a group led by Peter Pronovost, MD, posted a 66% decrease in central line infections over 18 months in 103 Michigan hospitals. Shannon's team published their findings in 2006 in *Using Real-Time Problem Solving to Eliminate Central Line Infections*, in the *Joint Commission Journal on Quality and Patient Safety*.

A *Harvard Business Review* cover story that year, Steven Spear's *Fixing Healthcare from the Inside*, *Today* highlighted PRHI's system improvements both at The Western Pennsylvania Hospital and at an extended care facility. At the state level, PRHI testimony before a healthcare subcommittee in Harrisburg raised awareness of patient safety and infection control and of the role Southwestern Pennsylvania was now playing in the national discussion.

Pathology accuracy and Toyota applications

While analogies between manufacturing and medicine are few, there exist certain places within a hospital that resemble assembly lines. The similarities are perhaps clearest in pathology labs. In 2005, UPMC pathologist Stephen Raab, MD, and his colleagues took training in Perfecting Patient CareSM and began applying the basic Toyota-inspired principles in the lab. Raab and his team published findings that included faster specimen processing and, in the case of Pap smears and thyroid biopsies, improved communication with surgeons and physicians that also yielded better results. Dennis English, MD, expanded the work with Pap smears at Magee Womancare Associates under the auspices of a Physician Champion grant. And under a grant from AHRQ, Raab, recently named Pathology Vice Chairman at the University of Colorado Health Sciences Center, continues to work on quality and process improvement in concert with pathologists at nine institutions across the country.

The pathology work in Pittsburgh inspired others as well. In Detroit, Richard Zarbo, MD, came to Pittsburgh for PPC training and decided to apply the principles in his pathology lab at Henry Ford Hospital. The results, published by Zarbo and his colleagues, included a doubling of volume and faster results with the same number of staff members.

Moving system redesign into the community

At its founding, PRHI contracted with the Pennsylvania Health Care Cost Containment Council (PHC4) to understand the dimensions of the problem of chronic disease in Southwestern Pennsylvania. The study showed that depression and diabetes were epidemic, with complications from those diseases causing needless suffering and expense. Amplifying its efforts to improve chronic care across the region, PRHI hosted the community-wide Diabetes and Depression Resource Showcase in 2003 to connect the region's chronic care providers.

Practitioners across the community agreed that the nationally recognized Wagner Chronic Care Model held the most promise for progress. The difficulty was in applying those known practices in every patient encounter. Practitioners began to explore ways of using Perfecting Patient CareSM to apply the Wagner Model successfully.

Federally Qualified Health Centers (FQHCs) became ground zero for diabetes care improvement. Experiments at the UPMC St. Margaret Family Health Center in Lawrenceville and the East Liberty Family Health Care Center showed that Perfecting Patient CareSM had just as much utility for implementing the new model in outpatient settings as it had for improving efficiencies in pathology labs or fighting infections in hospital units. Those experiments also challenged the notion that the people served by FQHCs, who are often vulnerable and poor, are “noncompliant” and can be expected to have poorer outcomes. Since these experiments began, more people are being served efficiently, disease is being addressed earlier, and outcomes are improving as costs decline.

Likewise, an experiment in comprehensive care at the VA Pittsburgh Healthcare System under Harsha Rao, MD, yielded more complete information for patients at each visit, more efficiency, better outcomes and greater satisfaction among patients and staff alike.

In a related project, the Cardiac Registry overseen by PRHI’s Cardiac Working Group targeted tight postoperative control of blood glucose for patients undergoing coronary artery bypass graft surgery, because increased glucose levels correspond to increased postoperative infections. Dr. Rao introduced Perfecting Patient CareSM methods for tight glucose control with success, and the unit saw a decline in postoperative infections.

Today, PRHI chronic care work is leveraging these gains. One project on the drawing board targets improvements in outpatient care and upon hospital discharges to help reduce readmissions for patients suffering from chronic obstructive pulmonary disease (COPD). With PRHI support, clinical partners will implement Wagner Chronic Care Model interventions, such as use of non-physician care managers. The goal is to demonstrate that the cost of these interventions can be offset with savings from averted hospital admissions.



(From Left) Greater Pittsburgh Chamber of Commerce Chairman David Malone and Pittsburgh Regional Health Initiative President and Chief Executive Officer Karen Wolk Feinstein, PhD, meet with Governor Edward Rendell following a 2007 presentation at the Regional Investors Council of the Allegheny Conference on Community Development.

Another chronic care demonstration will redesign care for patients whose chronic illnesses are complicated by substance abuse. The project is expected to incorporate promising new brief screening tools and interventions in “medical homes.” With improved office-based treatment and follow-up, the goal is to detect and treat substance abuse early enough to prevent addiction and also to reduce emergency room visits, hospitalizations and recurrent detoxifications.

PRHI’s work in chronic care and other aspects of safety and quality became a major influence on Pennsylvania Governor Edward Rendell’s Prescription for Pennsylvania, a sweeping healthcare reform proposal unveiled in 2007. Some of the provisions, including one on infection control, were passed into law the same year, while others became part of the Governor’s 2008 health-care agenda. Governor Rendell also appointed PRHI’s CEO to his Chronic Care Management, Reimbursement and Cost Reduction Commission.

Nurses, physicians and pharmacists join the cause as ‘champions of quality’

Consistently over its decade of existence, PRHI has championed the work that occurs at the point of patient care. With every new pilot project and every new application of Perfecting Patient Care,SM it has become increasingly evident that the most dramatic improvements, and the culture change that goes with them, occur at the frontline of care – but only when top clinicians and leaders are fully involved.

PRHI, with backing from the Jewish Healthcare Foundation, initiated three complementary programs – a Physician Champions Fellowship, a Nurse Navigator Fellowship and a Fellowship for Pharmacy Agents of Change – to showcase the improvements passionate clinicians can make. The Fellowships have unfolded over three years, illustrating the power of PRHI’s Toyota-based tools in the hands of strong clinical leaders.

The Nurse Navigators (2006) included:

- Kimberle A. Barker, RN, BSN
Grove City Medical Center
Patient Identification
- Laura Mainarich, RN, BSN, CPN
Children’s Hospital of Pittsburgh of UPMC
Standardization of a Patient Care Hand-off Process
- Kathleen McPherson, RN, BSN
Alle-Kiski Medical Center
Emergency Department Facelift
- Albert H. Minjock, RN, MSN, CCRN, FCCM
UPMC Shadyside
Nurse-Driven, Goal-Directed Therapy
- Lynda Nester, RN, BSN
Monongahela Valley Hospital
Fall Prevention
- Jacqueline M. O’Brien, RN, MSN
UPMC St. Margaret
Preventing Infection
- Christopher Saunders, RN, BSN
UPMC Presbyterian Shadyside
Stopping Staff Turnover
- Maureen Saxon-Gioia, RN, BSN, CNRN
Allegheny General Hospital
Meeting the Needs of the OB Patient in Medical Crisis
- Deneen Sobota, RN
Family Services of Western PA
Redesign Initial Clinical Evaluation in Outpatient Mental Health Center



The Pittsburgh Regional Health Initiative helped Nurse Navigators selected for a Jewish Healthcare Foundation fellowship program learn the principles of process improvement and apply them at the bedside.

The Physician Champions (2006-2007) included:

- Eileen Boyle, MD
East Liberty Family Health Care Center
Transforming Diabetic Care through the Wagner Chronic Care Model
- Michael Culig, MD
The Western Pennsylvania Hospital
Improving the Flow of Cardiothoracic Patients
- Dennis English, MD
Magee-Womens Hospital of UPMC
Improving the Reliability of Pap Test Samples
- Jerome Granato, MD, MBA
Allegheny General Hospital
Eliminating CLAB Infections by Training Staff in Perfecting Patient CareSM
Principles
- Fred Harchelroad, MD
Allegheny General Hospital
Elimination of CLAB Infections Using a HAZMAT Approach in the Emergency Room
- Harsha Rao, MD
VA Pittsburgh Healthcare System
Transforming Diabetic Care through an Individualized Team Approach
- Adele Towers, MD, and Eric Rodriguez, MD
Benedum Geriatric Center
Improving Post-Surgical Care of Geriatric Patients



Under the Jewish Healthcare Foundation's Physician Champions Fellowships, eight doctors used the Pittsburgh Regional Health Initiative's Toyota-based Perfecting Patient CareSM method to reduce infections, implement new models for treating diabetic patients, and improve pathology samples, among other things.

The Pharmacy Agents for Change (2008), now beginning their clinical pharmacy programs, include:

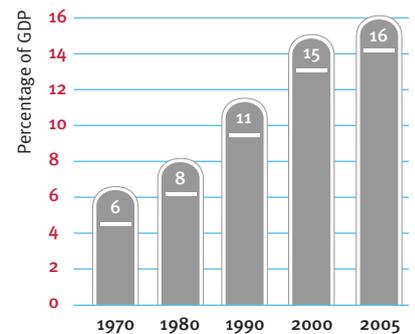
- Matthew Eberts, PharmD, MBA
The Western Pennsylvania Hospital
Polypharmacy
- Rhonda Horton, PharmD
Allegheny General Hospital
Discharge Medications and Polypharmacy
- Lori Mezeivtch, RPh
University of Pittsburgh
Decreasing Adverse Effects of Polypharmacy – HIV
- Jamie Montgomery, RPh
Western Psychiatric Institute and Clinic
Bridging Transitions from Hospital to Home – Medication Discharge Program
- Julie Nowak, PharmD
Magee-Womens Hospital of UPMC
Decreasing Polypharmacy
- Karen Pater, PharmD
University of Pittsburgh School of Pharmacy
Supportive Housing and Long Term Care-Based Clinical Pharmacy in Decreasing Adverse Effects
- Irina Sheyko, PharmD
Jefferson Regional Medical Center
Polypharmacy as a Disease State: Clinical Pharmacy and Patient Outcomes
- Kara Lee Shirley, PharmD, BCPP, BCPS
Western Psychiatric Institute and Clinic
Polypharmacy- Reducing Falls in the Elderly

Quality and payment: misaligned incentives

Two studies issued in 2007 served as bookends on the issues of cost and quality, showing a distinct lack of progress on the national scene. The Commonwealth Fund issued a study revealing that “compared with five other nations – Australia, Canada, Germany, New Zealand, the United Kingdom – the U.S. healthcare system ranks last or next-to-last on five dimensions of a high performance health system: quality, access, efficiency, equity, and healthy lives.” The Kaiser Foundation, meanwhile, reported that the “United States, which not only spends much more per capita on health care than any other country...also has one of the fastest growth rates in health spending among developed countries. Despite this higher level of spending, the United States does not achieve better outcomes on many important health measures.”

PRHI has recognized that quality improvement alone, however dramatic and significant, cannot meet its promise to lower costs in the absence of reimbursement reform. As long as waste and error are compensated, as they are in the current payment system, the incentive for improvement remains strictly altruistic. In some cases, such as the one described by Robert Mecklenburg, MD, of Seattle’s Virginia Mason Hospital in the *Wall Street Journal*, improved efficiency can even be a money-losing proposition for hospitals.

American Healthcare Costs as Percentage of GDP



U.S. healthcare costs continue to climb and are projected to reach 20% of GDP by 2016.

Pressure has mounted since the NQF's 2002 publication of a consensus report on 28 “never events” – events so egregious and preventable that physicians widely agree that they should never happen. Examples of “never events” include the wrong surgery, or surgery on the wrong body part or the wrong patient; foreign object left inside the body; patient death or serious disability associated with an air embolism, medication error, or wrong blood type; artificial insemination with the wrong donor sperm or wrong egg; and infant discharged to the wrong family. In October 2008, Medicare will phase out payments for pressure ulcers, catheter-associated urinary tract infections, central line-associated bloodstream infections, mediastinitis after coronary artery bypass graft surgery, hospital-acquired injuries, and three “never events” (air embolism, blood incompatibility and object left behind in surgical patient). Other insurers are bound to follow suit. In anticipation, many hospitals across the country have already stopped billing for them.



(From right) Pittsburgh Regional Health Initiative President and Chief Executive Officer Karen Wolk Feinstein, PhD, hosts keynote speakers at the Network for Regional Healthcare Improvement's 2007 Summit on Creating Payment Systems to Accelerate Value-Driven Health Care: Elliot Fisher, MD, Dartmouth Institute for Health Policy and Clinical Practice; Mark McClellan, MD, Director of the Engelberg Center for Health Care Reform at Brookings Institution and former Administrator of the Centers for Medicare and Medicaid Services; and Peter Lee, JD, Executive Director for National Health Policy of the Pacific Business Group on Health.

Again, regional leadership has helped hasten change. PRHI helped found the Network for Regional Healthcare Improvement, hosting its kickoff summit in Pittsburgh on the topic of reimbursement reform. A cover story about PRHI's work in the December 2007 edition of *Modern Healthcare* highlighted payment perversities, including PRHI research showing the financial penalties hospitals sometimes suffer for reducing infections.

Regional improvement: national recognition

In 2007-08, the state and federal governments underscored the importance of regional action in bringing about the improvements needed to make health care safer, less prone to error, more efficient and more affordable. With these initiatives, PRHI comes full circle, reinforcing its original role in the arena of healthcare quality improvement: after a decade, it is more than ever a regional initiative of state and national significance.

In 2006 with Pennsylvania's governor in attendance, PRHI unveiled the Pittsburgh Prescription for improving healthcare value, which included a call for regions to work together to improve quality and drive costs down.

A 2006 Executive Order signed by President Bush announced the Four Cornerstones of Value-Driven Health Care, to be administered under the U. S. Department of Health & Human Services. Those Cornerstones are:

1. Promote interoperable health information technology (health IT standards) for improved efficiency through electronic data exchange that is private and secure.
2. Measure and publish quality information (quality standards) agreed upon by multi-stakeholder groups. In a new level of transparency, consumers will have access to quality information.
3. Measure and publish price information (price standards), again, so consumers can compare prices for services, especially in the treatment of common chronic diseases.
4. Promote quality and efficiency of care (incentives), to include pay-for-performance reimbursement for providers or the offering of consumer-directed health plan products.

In 2007, PRHI received the HHS designation as a Community Leader for Value-Driven Health Care, which HHS Secretary Michael Leavitt conferred on regional coalitions that support the Four Cornerstones. In the largest showing of support anywhere in the nation, more than 80 Southwestern Pennsylvania healthcare stakeholders, including many of the region's largest employers, joined PRHI in a signing ceremony to endorse the principles.

In 2008, the U.S. Department of Health & Human Services selected PRHI as one of the nation's first Chartered Value Exchanges (CVEs). PRHI will participate in a nationwide network with 13 other coalitions in Madison, WI; Memphis, TN; Williamsville, NY; Portland, OR; Seattle, WA; Salt Lake City, UT; Baton Rouge, LA; Scarborough, ME; St. Paul, MN; Watertown, MA; Grand Rapids, MI; Albany, NY; and Detroit, MI. The network will receive Medicare data and technical assistance to analyze and report differences in care delivered in medical practices within their regions.

The physician-level data are intended to give consumers and corporate purchasers information on the relative performance of physician groups. Medicare already publishes hospital quality data, and the Pennsylvania Health Care Cost Containment Council reports hospital quality indicators and physician-level performance data on certain surgeons. CVE data will add previously unavailable information on the relative performance of other physicians, including primary care doctors.

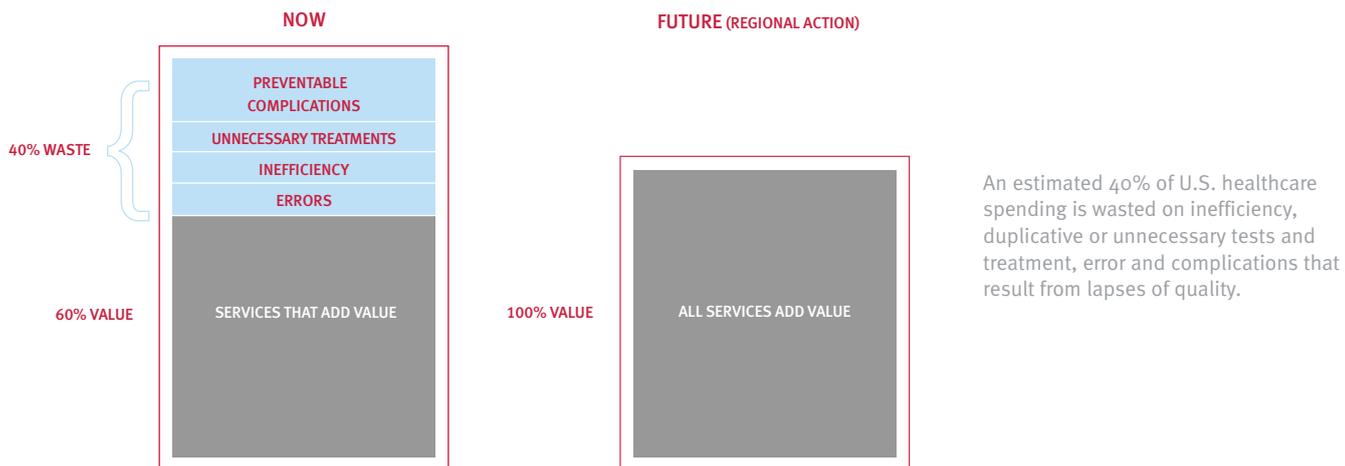
Tomorrow's HealthCare: Perfecting Patient CareSM as a national knowledge network

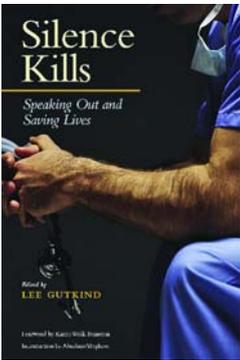
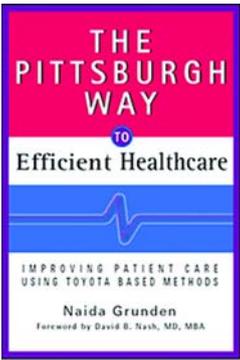
Later in 2008, with backing from the Jewish Healthcare Foundation (JHF) and assistance from online education developer CECity, PRHI will launch Tomorrow's HealthCare, a web-based "virtual community." Tomorrow's HealthCare will connect doctors, nurses and administrators engaged in healthcare process improvement with training anchored in Perfecting Patient CareSM as well as worldwide research and demonstration projects, peer support networks and information exchanges.

Portals, maintained by gatekeepers and content developers for various medical specialties, will be added to the site over time. Specialties will be chosen based on process improvement areas that PRHI has supported, including infection control and pathology. Tomorrow's HealthCare will offer some of the performance improvement programs and continuing medical education credits that are becoming a required part of continuing professional development for physicians and other health professionals. All modules will emphasize the applicability of the Perfecting Patient CareSM model to various healthcare disciplines.

Pittsburgh Prescription for Healthcare Reform

What we pay for





(top) On the eve of the Pittsburgh Regional Health Initiative's 10th anniversary, Productivity Press published a book of case studies showing clinical and process improvements achieved using PRHI's Toyota-based methods for Perfecting Patient Care.SM

(bottom) *Silence Kills* was the second volume in a series of anthologies the Jewish Healthcare Foundation, parent of the Pittsburgh Regional Health Initiative, underwrote to bring attention to medical errors with stories told by patients and healthcare providers.

Books document the successes of Perfecting Patient CareSM

Coinciding with PRHI's 10th anniversary is the release of two books. *Silence Kills: Speaking Out and Saving Lives*, is an anthology of stories chartered by JHF that chronicles the importance of healthcare workers speaking out when they encounter errors or potential errors.

The Pittsburgh Way to Efficient Healthcare: Improving Patient Care Using Toyota Based Methods compiles inside stories about the process improvement work undertaken in healthcare organizations of Southwestern Pennsylvania over the prior 10 years. The book describes PRHI's Perfecting Patient CareSM methodology as it was applied in setting after setting, resulting in improvement after improvement. Together, the stories offer a vision of healthcare reform where the quality of care improves, sparing patients needless harm while sharply reducing runaway costs.

Looking to the future: transformation and the value equation

The national conversation on healthcare quality is getting louder – a conversation shaped in part by regional coalitions like PRHI, which demonstrated how major improvements can take place. Yet this national discussion has not yet translated into action on a broad scale.

So today, while 47 million Americans do without health insurance, the rest receive recommended treatment only half the time, preventive care rarely, and all are still subject to appalling rates of error and harm. MRSA – a pathogen that many European countries long ago controlled – has moved out of American hospitals and into the community at-large where it continues its spread. Meanwhile, studies confirm that about 40% of what we spend on health care is wasted.

In other words, our healthcare system ranks among the world's most expensive and least effective.

Although politics in this election year now color the healthcare discussion, improving quality is an idea that goes beyond politics. If universal health coverage were mandated today, our current low-value, high-waste system would not be able to provide adequate health care for every American. And if it could, it would break the bank. Amid the cacophony and finger-pointing about how much it's all costing, one telling footnote is this: physicians in Denmark, a country long respected for its high-quality, efficient, universal healthcare system, are vitally interested in learning more about applying Toyota principles to health care. Why? *Because they seek to raise quality and lower cost.*

By wringing the waste out of the healthcare system and providing evidence-based care in the most efficient and effective way known at every health encounter, quality will improve. As quality improves, people become healthier and costs can go down.

That's the value equation, more timely and urgent than ever. PRHI has presented this consistent message and backed it up with a method for improvement, for a decade, and will continue to do so. There is work to be done.

International Rankings and National Health Expenditures

	AUS	CAN	GER	NZ	UK	US
OVERALL RANKING	4	5	1	2	3	6
Patient Safety	4	5	2	3	1	6
Effectiveness	4	2	3	6	5	1
Patient-Centeredness	3	5	1	2	4	6
Timeliness	4	6	1	2	5	3
Efficiency	4	5	1	2	3	6
Equity	2	4	5	3	1	6
HEALTH EXPENDITURES PER CAPITA*	\$2,903	\$3,003	\$2,996	\$1,886	\$2,231	\$5,635

Note: 1 = highest ranking, 6 = lowest

* Health expenditures per capita figures are adjusted for differences in cost of living

U.S. health care is the costliest in the world, but ranks lowest, or near the bottom on important measures of performance, according to a 2007 Commonwealth Fund Report.

MILESTONES IN
QUALITY

THE HEALTHCARE MOVEMENT

(1975–2007)

Movements are made of people and events. Often, the players are separated by place and time; for long periods, their disparate actions may seem unrelated. But there comes a point when individuals and events informed by the same ideas and passions no longer are seen in isolation. Their voices merge; their labors, victories and discoveries cohere; a movement gains identity and strength.

Alarms about healthcare quality went off at least as early as the mid-19th century. For sounding them, professionals at the time were ostracized, even branded madmen, like Ignaz Semmelweis, whose pioneering understanding of obstetric infections became the basis for infection control today. A healthcare quality movement would not begin taking hold for a hundred years after Semmelweis' death. Following are some of the milestones that helped advance it to where it is today.

PATIENT SAFETY AND QUALITY OF CARE: A TIMELINE

(1975 – 2007)

- National Events
- Pittsburgh Regional Events

1975

Jack Wennberg, MD, founds the organization that becomes the Dartmouth Institute for Health Policy and Clinical Practice. He asks heretical questions about why costs and outcomes vary so greatly from region to region in the U.S.

1985

Brent James, MD, MStat, of Intermountain Healthcare, starts looking at standardizing clinical care through data collection and analysis, beginning the drive toward evidence-based medicine.

1975–1990

1986

The National Demonstration Project on Quality Improvement in Health Care (NDP) looks at applying modern quality improvement methods to health care. This organization is the precursor to the Institute for Healthcare Improvement (IHI).

Pioneering anesthesiologist, David Gaba, MD, begins work on first patient simulator, ultimately revolutionizing training in patient safety.

1990

Cambridge Press publishes clinical psychologist James Reason's seminal *Human Error*, which introduces modern error analysis to medicine.

National Committee for Quality Assurance (NCQA) formed, offering quality accreditation.

1991

Institute for Healthcare Improvement founded, Cambridge, MA.

1992

Institute for Clinical Systems Improvement (ICSI) founded in Minnesota by HealthPartners Medical Group, Mayo Clinic and Park Nicollet Health Services. Gordon Mosser, MD leads the effort.

1991–1994

1994

December 3, *Boston Globe* healthcare columnist, Betsy Lehman, dies at Dana Farber Cancer Institute of a massive chemotherapy overdose, received over four straight days.

Published two weeks after Lehman's death, Lucian Leape, MD's seminal article, *Error in Medicine*, advances a systems-based approach to improving patient safety. He advocates systems that assume human errors will occur and are designed to minimize them.

Kenneth Kizer, MD named Under Secretary for Health in the U.S. Department of Veterans Affairs (VA), the largest healthcare system in the nation. In this role, he oversaw the greatest transformation of VA healthcare since its creation in 1946.

Institute for Safe Medication Practices (ISMP) founded under U.S. Pharmacopeia (USP), reviews voluntary reports submitted to the USP Medication Errors Reporting Program (MERP).

1996

In *Managing the Risks of Organizational Accidents*, James Reason illustrates the key concepts that form the core of the patient safety movement, including the now-famous "Swiss cheese model" of errors in high-risk enterprises, which shows the difference between active and latent errors.

In a six-part series, the *New England Journal of Medicine* (NEJM) concludes that healthcare quality can and should be measured.

1997

National Patient Safety Foundation (NPSF) founded: an independent, nonprofit research and education organization dedicated to making patient safety a national priority and promoting a culture of safety.

Ed Wagner, MD, MPH, develops the Chronic Care Model at the MacColl Institute of GroupHealth, Seattle.

1996–1997

Under the auspices of the Allegheny Conference on Community Development, in recognition that health care is the largest segment of the economy in Southwestern Pennsylvania, the Working Together Consortium begins working on a community-wide healthcare approach.

All involved come to realize that health care is the region's leading economic driver, costing employers millions of dollars, and yet delivering patient outcomes that could be better.

The consortium becomes the Pittsburgh Regional Health Initiative (PRHI), co-founded by Karen Wolk Feinstein, PhD, President of the Jewish Healthcare Foundation (JHF), and Paul O'Neill, CEO of Alcoa (later to become Secretary of the Treasury).



PITTSBURGH REGIONAL HEALTH INITIATIVE

Spreading Quality, Containing Costs.

1999

The first IOM report, *To Err is Human: Building a Safer Health System*, decries the quality of U.S. health care, ushering in the modern era of patient safety. Using data extrapolated from the Harvard Medical Practice Study and the Utah and Colorado Medical Practice Study, the report famously estimated that up to 98,000 Americans die each year from medical errors (equal to a daily airplane crash).



Kenneth Kizer, MD, named founding leader of National Quality Forum (NQF), dedicated to national voluntary standards for measuring and reporting healthcare quality.

Agency for Healthcare Research and Quality (AHRQ) created.

Demanding Medical Excellence: Doctors and Accountability in the Information Age. Michael L. Millenson reveals serious flaws in contemporary medical practice and describes how to improve care and save lives.

In *Decoding the DNA of the Toyota Production System*, Harvard professors Steven Spear and Kent Bowen unlock the principles behind this quality model.

1999

PRHI, now a community consortium, convenes leaders from health care, business, and government to discuss ways of improving healthcare efficiency and lowering costs across Southwestern Pennsylvania.

2000

The first Beth Israel Deaconess Medical Center case study, published by Harvard Business School details efforts to adopt Toyota-style improvements at Boston's CareGroup hospital.

2000

Robert Wood Johnson Foundation grants \$1.2 million for PRHI startup funding.

Initial areas of inquiry will include:

- Zero medication errors
- Zero hospital-acquired infections

The world's best clinical patient outcomes in:

- Cardiac care
- Diabetes and depression
- Obstetrics

2001

Josie King, age 18 months, dies at Johns Hopkins Hospital due to dehydration and misused narcotics. Sorell King, Josie's mother, campaigns for rapid-response teams to bypass the chain of command to respond directly to patients whose condition seems to be deteriorating.



Second IOM report, *Crossing the Quality Chasm: A New Health System for the 21st Century*, launches a Quality Chasm series of books on quality and safety improvements in health care. This report focuses on closing the gap between what we know to be good health care and the health care that people actually receive.

Robert Wood Johnson Foundation initiates Pursuing Perfection grants.

2001

PRHI and Centers for Disease Control and Prevention (CDC) begin collecting regional data on central line-associated bloodstream infections (CLAB), methicillin-resistant *Staphylococcus aureus* (MRSA), and medication errors to measure progress. AHRQ grants \$4.8 million to fund the work, of which \$1.6 million is earmarked for PRHI.

CDC expands support to encompass MRSA prevention at VA Pittsburgh Healthcare System (VAPHS).

PRHI member hospitals visited by U.S. Treasury Secretary Paul O'Neill, Senator Edward M. Kennedy, Senator William Frist, Health & Human Services (HHS) Secretary Tommy Thompson, and White House Aide Mark McClellan, MD.

Cardiac Registry and Forums begin.

PRHI invites representatives from other regional coalitions to Pittsburgh, forming National Clinical Improvement Network (NCIN) – the forerunner of the Network for Regional Healthcare Improvement (NRHI).

2002

Baldrige National Quality Program extends to hospitals.

Complications, by Atul Gawande, MD, sheds light on the imperfections of medical practice.

In *Escape Fire: Lessons for the Future of Health Care*, IHI Founder Don Berwick describes the system problems leading to adverse medical events during his wife's hospitalization.

NQF issues first consensus report on "Never Events," calling for elimination of 28 serious, preventable medical errors.

2002

First Perfecting Patient CareSM (PPC) on-site pilot projects established at Western Pennsylvania Hospital Ambulatory Surgery Center (reduce wait time) and VAPHS (reduce MRSA), UPMC Shadyside (efficiency on the floor), and UPMC South Side (pharmacy).

Centers for Medicare and Medicaid Services (CMS) awards \$1.5 million to PRHI.

Joint Commission on Accreditation of Healthcare Organizations (JCAHO) lauds PPC model as practiced at UPMC Shadyside. NCQA sends delegation to visit PRHI.

Feinstein gives testimony on Capitol Hill and PRHI is included in discussions with HHS on the Patient Safety Improvement Act.

PPC University is launched.

American Journal of Infection Control publishes *A Region Addresses Patient Safety*, by PRHI authors.

2003

RAND study by Elizabeth McGlynn, published in the *New England Journal of Medicine*, shows patients receive just 55% of recommended care.

AHRQ begins *Morbidity and Mortality Weekly* online, edited by a team at University of California at San Francisco led by Robert Wachter, MD. This online patient safety forum had been envisioned by late safety pioneer and AHRQ leader, John Eisenberg, MD.

The WISER medical simulation center at University of Pittsburgh Medical Center (UPMC) becomes one of the most active training and simulation centers in the country.

2003

PRHI's preliminary data on CLABs show region-wide decline in ICUs.

Health Affairs publishes *Pittsburgh Regional Health Initiative: A Systems Approach For Achieving Perfect Patient Care*.

PRHI hosts community-wide Diabetes and Depression Resource Showcase to connect chronic care providers.

Cardiac Registry grows to 25 institutions, focuses on four procedures known to improve patient outcomes.

2004

A first: JCAHO issues Patient Safety Goal #7, "Reduce the risk of healthcare-acquired infections."

Internal Bleeding: The Truth Behind America's Terrifying Epidemic of Medical Mistakes, by Robert Wachter, MD, and Kaveh Shojania, MD, describes flawed systems behind medical errors.

Michael Porter's *Redefining Competition in Health Care* in the *Harvard Business Review* states that competition should be based on quality.

Atul Gawande, MD, writes *On Washing Hands* for *New England Journal of Medicine*; and *The Bell Curve* for *The New Yorker*.

2004

Allegheny General Hospital (AGH), under Dr. Richard Shannon, applies Perfecting Patient CareSM techniques in two ICUs and within 90 days, brings rates of CLABs to near-zero.

CDC and VA Pittsburgh Healthcare System confirm 85% decline in MRSA on 4 West, using Perfecting Patient CareSM. PRHI and VA publish web-based curriculum on hand hygiene.

In testimony before the HEART Healthcare Subcommittee in Harrisburg, PRHI helps raise the patient safety discussion at the state level.

UPMC Shadyside begins applying PPC in pathology. Detroit's Henry Ford Health System soon follows.

2005

The Harvard Business Review cover story, *Fixing Healthcare from the Inside, Today*, by Steven Spear, highlights PRHI's work.



Year-long IHI 100,000 Lives Campaign focuses on hospital-acquired infections inspired by PRHI hospitals' joint venture and Dr. Shannon's work at Allegheny General Hospital.

2005

PRHI and JHF select and initiate training of Nurse Navigators, a select group of nurses trained to apply Perfecting Patient CareSM principles to their work. All post improvements after one year.

Cardiac Registry targets post-operative glycemic control: Dr. Harsha Rao at VAPHS introduces Perfecting Patient CareSM methods in post-op glucose control with success.

Children's Hospital of Pittsburgh's Child Development Unit applies Perfecting Patient CareSM cutting appointment wait times by over 50%.

Diabetes care improvement at a Lawrenceville health clinic proves that Perfecting Patient CareSM can be applied in Federally Qualified Health Centers, and that it is useful for implementing the Wagner Chronic Care Model.

2006

In *Full Disclosure and Apology – An Idea Whose Time has Come*, an article in Physician Executive, Lucian Leape, MD, explains the ethical and clinical imperatives for patients of disclosure and apology after medical errors.

Peter Pronovost, MD, in NEJM, posts 66% decrease in CLABs sustained over 18 months in 103 Michigan hospitals.

The Journal of Patient Safety publishes *Engagement of leadership in quality improvement initiatives: executive quality improvement survey results*, showing a strong correlation with improved quality among hospitals whose Boards work on quality and safety 25% of the time.

Allegheny General Hospital's Dr. Richard P. Shannon testifies before the U.S. House of Representatives: *Hospital-Acquired Infections: The Conspiracy of Error and Waste in Healthcare*.

2006

Journal of the American Medical Association (JAMA) publishes *Reduction in Central Line–Associated Bloodstream Infections Among Patients in Intensive Care Units – Pennsylvania, April 2001–March 2005*, detailing the 68% region-wide decline in CLABs over the 4-year study period.

Using Real-Time Problem Solving to Eliminate Central Line Infections, published in Joint Commission Journal on Quality and Patient Safety, details the CLAB reduction work using Perfecting Patient CareSM at Allegheny General Hospital.

PRHI and JHF initiate Physician Champions program, with select physicians applying Perfecting Patient CareSM in clinical programs: chronic care, Pap smear reliability, transfer from hospital to nursing home, and CLAB work.

Perfecting Patient CareSM University curriculum updated and streamlined. Several thousand clinicians and administrators from across the country have received its training.

2007

Physician and *New Yorker* columnist, Jerome Groopman, MD, publishes *How Doctors Think*, describing the mental traps that cause doctors to misdiagnose.

The opening sequence in Atul Gawande, MD's latest book, *Better: A Surgeon's Notes on Performance*, features PRHI and the VA Pittsburgh's MRSA work.

U.S. Department of Health & Human Services Secretary Michael Leavitt announces Four Cornerstones of Value-Driven Health Care, encourages communities to get involved.

Commonwealth Fund's Study *Mirror, Mirror on the Wall: An International Update on the Comparative Performance of American Health Care*, reveals that "compared with five other nations – Australia, Canada, Germany, New Zealand, the United Kingdom – the U.S. healthcare system ranks last or next-to-last on five dimensions of a high performance health system: quality, access, efficiency, equity, and healthy lives."

2007

AGH CCU celebrates one year without a CLAB. Emergency Department also achieves zero CLABs.

Pennsylvania Gov. Edward Rendell's "Prescription for Pennsylvania" is unveiled, with key provisions on infections, chronic care and other safety and quality issues reflecting significant input from PRHI.

PRHI named Community Leader by HHS.

With PA's governor in attendance, PRHI unveils Pittsburgh Prescription for improving healthcare value.

Network for Regional Healthcare Improvement (NRHI) kicks off with summit in Pittsburgh addressing reimbursement.

Pennsylvania Gov. Edward Rendell establishes a Chronic Care Management, Reimbursement and Cost Reduction Commission. PRHI actively engages.

PRHI and JHF initiate Pharmacy Agents of Change, applying PPC methods in clinical programs.

PRHI initiates "Tomorrow's HealthCare," an online learning tool; and an initiative to improve care and streamline reimbursement for treatment of COPD.

PRHI's results are compiled into *The Pittsburgh Way to Efficient Healthcare: Improving Patient Care Using Toyota Based Methods*.

Silence Kills anthology, chartered by JHF, chronicles the importance of reporting errors.

PRHI: MINI HISTORY

Ahead of the Curve

In 1997 the small nonprofit, Pittsburgh Regional Health Initiative (PRHI), convened medical professionals, business leaders, insurers, and others to discuss ways of making healthcare delivery in Southwestern Pennsylvania safer, better, and less expensive. The group focused efforts not on cost-cutting, but on quality. They began by calling for elimination of hospital-acquired infections and medication errors, and for best practices to be applied 100% of the time. Transforming health care through improved quality, they believed, would lead to unimagined improvements in patient outcomes and, ultimately, vastly reduced cost.

These discussions preceded by two years the landmark 1999 Institute of Medicine (IOM) Report, *To Err is Human*, which stunned the nation with findings that medical errors kill as many as 98,000 Americans every year. According to the report, medical error represents the third leading cause of death in the U.S. That such substandard care should consume 15% of the country's gross domestic product defied understanding. Later studies would add that 2 million patients fall victim to avoidable infections each year in U.S. hospitals, resulting in another 90,000 deaths and that American patients, on average, receive only about 55% of treatment appropriate to their medical conditions.

While debate raged about the IOM report – whether it exaggerated or actually understated the number of deaths – PRHI partners quietly began a bold experiment. They started applying principles borrowed from engineering and industry to eliminate waste and error from healthcare systems.

Aiming for zero

Of all the hopeful ideas to come out of PRHI in its youth, none provoked more controversy than the goal of “zero” errors. Many professionals believed that hospital-acquired infections, for example, could never be eliminated; infections were widely deemed an unfortunate but inevitable part of complicated medical care.

Over time, the conversation began to shift. The goal of “zero” gained greater acceptance as more clinicians started to see it from a patient's perspective. When you're a patient, how many errors are allowable? Who would volunteer to be harmed or have harm inflicted on a loved one in such a lottery? And yet, if the only acceptable number of errors is, indeed, zero, how can fallible human beings working within fallible systems begin to approach that goal?

The question evolved from the accusatory, “Why don't you?” to the curious, “Why can't we?” Instead of blaming individuals who made all-too-human mistakes, why couldn't the underlying system be redesigned to respond to every worker, making it nearly impossible for mistakes to occur? And shouldn't mistakes be brought to light, so that their causes could be examined and addressed? These questions formed the basis of PRHI's Perfecting Patient CareSM method, which set about to improve care at the bedside, one encounter at a time.



“As Chair of the Allegheny Conference, when such institution gave birth to PRHI, I have watched it grow, prosper and exceed expectations in its ambitions and reach. Proudly, and with considerable admiration, I observed it plant the seeds of a quality movement in health care, conserving lives and resources. With all its many accomplishments, the Initiative is still a ‘work-in-progress.’”

— Charles J. Queenan, Jr., former Chairman of the Allegheny Conference on Community Development

A decade after it evolved among PRHI partners, the idea of “zero” as the only acceptable goal no longer is controversial. Likewise, the idea that systems, not people, must be transformed is now widely held. Terms like “zero goals,” “perfect care,” “systems thinking” and “transparency,” which have been part of PRHI’s lexicon since its founding are standard vocabulary in the burgeoning quality improvement movement.

The current portfolio

Since its inception, PRHI and its partners have tackled some of the most damaging, costly and seemingly intractable problems in health care. The healthcare community has come to rely upon PRHI as a neutral convener through which practitioners from across the region can discuss and share ideas about how to improve care, and where they can turn for information and education on systems improvement.

The current portfolio includes:

- Chronic care and preventable readmissions – supporting development of new models of care for chronic diseases such as chronic obstructive pulmonary disease (COPD) and leading research to understand and avert problems and lapses of care that lead to hospitalizations and readmissions.
- Addictions – supporting the use of medical homes, new tools for brief screening and intervention and new payment methods to improve care and outcomes for patients whose chronic illnesses are complicated by substance abuse.
- Long-term care and end-of-life – building quality, safety and efficiency in nursing facilities, the fastest growing segment of health care, while building professional and public awareness about palliative care options at end of life.
- Pharmacy – supporting expanded roles for pharmacists in medication management and administration to improve the safety and quality of care for patients, while possibly reducing costs that arise from complications of poly-pharmacy.
- Systems change and payment reform – initiatives to develop and demonstrate new methods of healthcare reimbursement that reward the best practices of care while eliminating perverse incentives that currently reward poor quality.
- Public reporting – participating in the U.S. Department of Health & Human Services’ nationwide network of 14 Chartered Value Exchanges, which will receive, analyze and publish data showing differences in care provided by physician groups in their regions.

PRHI focuses its organizational resources in areas where there is broad interest and opportunity for transformation. All of PRHI’s projects are designed to produce replicable models for transforming care throughout Pennsylvania and elsewhere in the country. At the same time, the transformations in care achieved through these projects are expected to lead to reductions in cost and to the kinds of cultural changes in health care that will help the industry attract and retain workers amid worsening labor shortages.

Regional Discussions: Regional results yield national models

Some of PRHI's earliest regional demonstrations drew national interest and inspired emulation. Among them was the largest infection control effort mounted in the United States.

A 2000 Centers for Disease Control and Prevention (CDC) study estimated that 2.1 million hospital-acquired infections occur annually in the United States, causing or contributing to 90,000 deaths. (These deaths are over and above the 98,000 referred to in the IOM's *To Err is Human*. At the time of that report, hospital-acquired infections were not counted as "medical errors.")

Starting in 2001, infection control practitioners and infectious disease physicians from across the region gathered at PRHI-sponsored meetings, sharing ideas as a collective working group about the best practices for preventing the spread of infection. They agreed to report to the neutral CDC every quarter on the progress combating one type of hospital-acquired infection, the central line-associated bloodstream infection (CLAB).

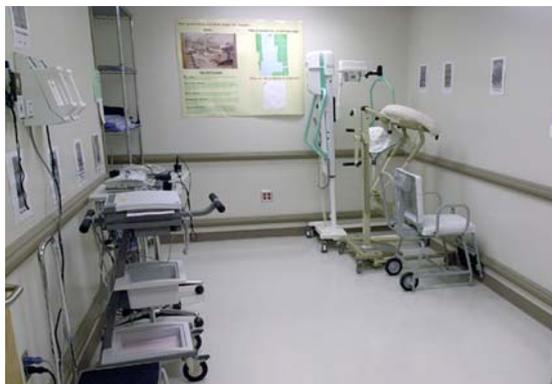
Between the third quarter of 2001 and the fourth quarter of 2004, more than 30 hospitals turned in their infection data. Quarter after quarter, the numbers showed a region-wide decline. At the project's conclusion, at the end of March 2005, the hospitals posted a 68% reduction in the number of central line infections – a remarkable achievement with national implications lauded by the CDC.

PRHI's work with central line-associated bloodstream infections, especially as applied at a pilot unit at the West Penn Allegheny Health System flagship, Allegheny General Hospital, led the Institute for Healthcare Improvement (IHI) to adopt this work as one of the central planks in the nationally acclaimed *100,000 Lives Campaign*.

PRHI creates a community resource: Perfecting Patient CareSM

Realizing that health systems needed fundamental changes in work design, PRHI in 2001 began helping Pittsburgh hospitals apply Toyota-based principles to improve healthcare processes – in essence, making it easier for workers to follow safety and quality protocols and harder to make mistakes. The resulting system is called Perfecting Patient CareSM (PPC). Adapting these industrial process engineering principles for health care and applying them in dozens of demonstrations made PRHI unique among the regional health coalitions that sprouted around the country. Other regional and national efforts have promoted data collection and collaboration among "stakeholders," but none has developed an actual on-the-ground method to propel dramatic improvement.

PRHI has developed an extensive curriculum to teach PPC to healthcare workers. To date, more than 3,000 clinicians and healthcare managers have received this training. The PPC curriculum and PRHI's on-site applications were national forerunners in the movement to bring engineering disciplines to clinical practice. A 2005 report in which the IOM and the National Academy of Engineering called for widespread application of engineering principles in health care, titled *Building a Better Delivery System*, made frequent reference to PRHI's demonstrations.



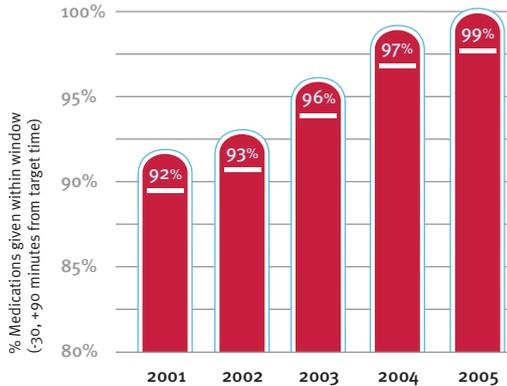
Using the Pittsburgh Regional Health Initiative's Toyota-based principles for Perfecting Patient CareSM, many healthcare units have gained significant safety and efficiency improvements from something as simple as reorganizing a cluttered equipment room.

PPC: Proof of concept

Clinical applications of PPC have met with encouraging success. With a rigorous implementation, for example, West Penn Allegheny Health System's flagship Allegheny General Hospital (AGH) quickly beat the averages in PRHI's region-wide central line infection initiative. Within the first year of the demonstration, the hospital applied PPC in two intensive care units, driving the number of CLAB infections to six, from 49 when the team began systematizing care. Ventilator-associated pneumonias (VAPs) also fell sharply, from 49 to eight. Because central line infections are often lethal – 50% of afflicted patients die from them – the importance of the decline can't be overstated: compared to the norm, more than 20 lives were saved in a single year in just these two hospital units. One of the units has since sustained zero infections for 15 months straight, winning national and international recognition. AGH teams continue to eliminate variation and educate more staff on the principles of PPC and to “spread” the work to other devastating infections, such as an antibiotic-resistant strain of bacteria known as methicillin-resistant *Staphylococcus aureus* or MRSA.

Medications On Time

VA Pittsburgh Inpatient Surgery Unit: 30-Day Moving Average
Medications Delivered Within Window



The VA Pittsburgh Healthcare System's quest to reduce antibiotic-resistant staph infections using the Pittsburgh Regional Health Initiative's Toyota-based method for Perfecting Patient CareSM led to many changes, including improved delivery of medications.

As AGH and other Southwestern Pennsylvania hospitals set out to show the headway they could make against central line infections, PRHI, in partnership with the CDC, also helped the VA Pittsburgh Healthcare System mount an assault on MRSA in its flagship hospital's inpatient surgical unit. Dozens of small system improvements accrued over time, resulting in an 85% reduction in MRSA and other infections as well.

The VA Pittsburgh demonstration underscored the need – and benefits – of a “systemic” improvement approach; incremental changes and improvements in infection protocols helped clinicians back-chain their way to other improvements. Among other things, on-time performance in medication delivery rose to 99%; information at shift change became more complete and occurred in a fraction of the time it had earlier taken; and clean, appropriate wheelchairs, which often had been unavailable previously, were supplied within minutes – not just on that unit, but eventually at all three of the system's hospitals. Hand-hygiene improved throughout the system.

In concert with the VA, PRHI created a ‘how-to’ manual titled, *Program for Getting to Zero on MRSA for the VA Healthcare System*. The *Program*, continually reviewed and revised, is posted on PRHI's website (www.prhi.org) for any institution to use and copy.

As a result of the VA demonstration and others, PPC has won credibility as a replicable model for transforming care, and the VA Pittsburgh's infection control program is now being used as a national model throughout the VA health system.

Influencing policy

Just as the VA is attempting to “spread” its successful MRSA campaign to other hospitals, other national and state organizations and agencies also have tapped PRHI-inspired projects and protocols to militate against healthcare-acquired infections. The Pennsylvania Health Care Cost Containment Council (PHC4) in 2006 began requiring Pennsylvania hospitals to report all hospital-acquired infections using CDC's 13 body-site categories, e.g., urinary tract, surgical site, pneumonia, blood-stream, bone and joint, central nervous system, cardiovascular, gastrointestinal, lower respiratory tract, reproductive tract, skin and soft tissue, and systemic. The reporting mechanism continues to undergo refinement, but hospitals across the Commonwealth of Pennsylvania are examining their infection rates as never before.

The Pennsylvania Patient Safety Authority (PSA) began in 2004 to require mandatory reporting of errors and near-misses in hospitals, birthing centers, and ambulatory surgical facilities. As it was for the PHC4 initiative, PRHI was consulted as a regional resource as the PSA program began.

Supporting Champions: Change from within

Applying the principles of PPC in a clinical workplace is difficult and requires strong organizational commitment. But with every encounter, PRHI learns more and applies what it learns.

For example, PRHI has found that it takes much more than the goodwill of frontline workers. It takes an entire organization aligned around the idea of improvement and committed to its success. Only when championed by insiders passionate about transformation, can organizational alignment and transformation occur.

To seed transformations, PRHI has sought clinical partnerships with committed clinical leaders. Backed by its parent, the Jewish Healthcare Foundation (JHF), PRHI began the Physician Champion, Nurse Navigator and Pharmacy Agents for Change programs. Participating doctors, nurses and pharmacists receive training in PPC methods and on-site coaching for process improvement demonstrations. JHF provided stipends to institutions hosting the demonstrations. So far, nine Physician Champions, 15 Nurse Navigators and eight pharmacists have spearheaded improvements within key clinical categories that PRHI identified as having significant potential for improvements in quality, efficiency, and/or cost. All have committed to sharing their findings with one another and with the community at-large.

What began with a small band of “revolutionaries” in the Pittsburgh region has gained momentum and sustainability in recent years. High aspirations, which once seemed quixotic, are now seeding a transformation in health service delivery. As PRHI redoubles and upgrades its efforts to help Southwestern Pennsylvania’s health providers improve patient outcomes and document the business case for quality, regulators, payers and patients are calling for greater accountability throughout the healthcare industry. Under a 2005 law, the Agency for Healthcare Research and Quality recently drafted regulations for establishing federally mandated Patient Safety Organizations nationwide. Some states, such as Pennsylvania, already have set up Patient Safety Authorities – or equivalents – to mandate reporting of infections and other medical errors. PRHI’s original “value proposition” – that the best cost containment strategy for health care is quality achieved through best practices, safety, and efficiency – permeates the agendas of organizations such as the Institute for Healthcare Improvement and the Leapfrog Group, as well as new regulatory environments at the Pennsylvania Department of Health and the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO). Medicare and a handful of private insurers have begun Pay-for-Performance (P4P) reimbursement methods in an effort to reward quality with payment incentives.

Again, PRHI is at the forefront of reform efforts, working with other regional coalitions through the Network for Regional Healthcare Improvement (NRHI) to promote even more radical changes in the healthcare reimbursement system. At an NRHI-hosted summit in March 2007, some of the nation’s leading authorities on health care and reimbursement drafted a slate of recommendations to wholly restructure payments for various kinds of care. The consensus was that P4P, while well-intended, risks adding another layer of payments to a reimbursement system biased more toward the volume of care patients receive than toward quality and outcomes. Summit attendees agreed that new payment methods should be tested at the regional level to inform national policy. PRHI is in the design stage of two such demonstrations.



There can be no doubt about PRHI’s prescience. Its emergence a decade ago was a harbinger of the revolution that is now overtaking health care. Its early support for quality engineering has given Southwestern Pennsylvania’s healthcare institutions tools for answering the increasing demands for quality they now confront as Medicare and other insurers unveil plans to deny payment for egregious medical errors, such as wrong-site surgeries, and certain kinds of infections.

PRHI will continue to serve as a unique community resource, providing frontline healthcare workers with the training and tools to dramatically improve patient safety and healthcare quality through reductions in medical error, use of evidence-based practices and elimination of waste. With evidence from demonstrations in its region, PRHI also will continue to inform policy at state and national levels. The aim of all of these efforts is achieving ideal care.

A Decade of Dividends

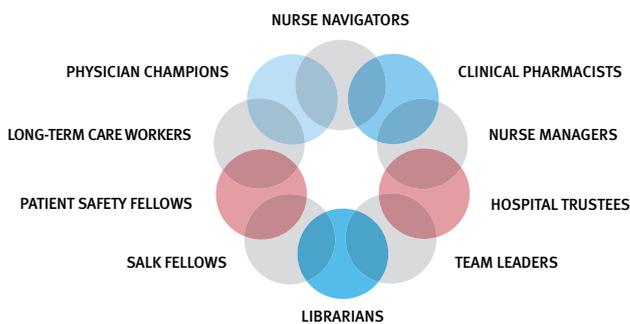
What began as a consortium of Pittsburgh-area medical, business, and civic leaders has helped to change the way the nation thinks about health care. The Pittsburgh Regional Health Initiative in 1997 became one of the earliest community greenhouses to experiment with transferring ideas from industry to improve safety and quality in health care. Its founding premise – that quality would pay for itself and more – was revolutionary in its time.

Dozens of PRHI-led demonstrations of Toyota Production System principles in health care have since been described in detail in *The Pittsburgh Way to Efficient Healthcare*, a book released by Productivity Press as PRHI began its tenth year in operation.

Organizations and policymakers from across the state and the country have consulted with PRHI and followed the progress of this Southwestern Pennsylvania collaborative. Among other instances:

- The Pennsylvania Health Care Cost Containment Council (PHC4) expanded some core PRHI gauges of clinical performance statewide, and worked with PRHI on an infection control pilot in five hospitals across the state.
- The Pennsylvania Office of Health Care Reform drew on PRHI's experience in shaping Governor Edward Rendell's Prescription for Pennsylvania, a healthcare agenda presented in 2007. The plan called for quality reform measures, such as improvements in hospital infection control and new models for caring for patients with chronic illnesses, to improve healthcare outcomes and lower costs. PRHI President and Chief Executive Officer Karen Wolk Feinstein, PhD, has since been appointed to Governor Rendell's *Chronic Care Management, Reimbursement, and Cost Reduction Commission* and co-chairs the Commission's subcommittee on aligning incentives.
- The Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the Centers for Disease Control and Prevention (CDC), the Centers for Medicare and Medicaid Services (CMS) and the Agency for Healthcare Research and Quality (AHRQ) have supported PRHI's work, and in many cases, have woven it into their quality improvement platforms.
- The Institute for Healthcare Improvement (IHI) integrated much of PRHI's infection control work into its nationally lauded *100,000 Lives Campaign*.
- The U.S. Department of Health & Human Services in 2008 designated PRHI as one of 14 Chartered Value Exchanges established to report on differences in care given by physician groups in regions across the country. Previously, HHS had designated PRHI as a Community Leader in promoting Value-Driven Health Care.

Raising an Army for Quality Improvement



The Pittsburgh Regional Health Initiative trains healthcare workers and others through Fellowships supported by the Jewish Healthcare Foundation.

- PRHI became a founding member of the Network for Regional Healthcare Improvement (NRHI), a national organization of multi-stakeholder coalitions dedicated to working at the community level to improve the quality of health care, lower healthcare costs and demonstrate payment methods that encourage the best, evidence-based practices of medicine. NRHI in March 2007 held an invitation-only *Summit on Creating Payment Systems to Accelerate Value-Driven Health Care* for 100 of the nation's foremost experts in healthcare policy and reimbursement. The Commonwealth Fund, which co-funded the Summit with the Jewish Healthcare Foundation and the California HealthCare Foundation, published the framing paper that guided discussions at the Summit. The Jewish Healthcare Foundation and PRHI published the conferees' conclusions and recommendations.

Through work in its region, PRHI has become a national leader in bringing industrial process improvement practices to health care and in championing improved quality as the key to containing healthcare costs. It developed and teaches a quality engineering method known as Perfecting Patient CareSM (PPC). PRHI modeled PPC on the Toyota Production System, adapting core principles for healthcare settings and continually refining curriculum with lessons from clinical field work. Several thousand clinicians have come from across the community and across the nation to learn the principles that can transform health care.

Working with physicians, nursing staff, pharmacists and managers across the spectrum of healthcare settings, PRHI has helped prove the value of PPC in demonstrations targeting both clinical and operational problems.

CLINICALLY

Measures of success across settings

The PPC method has helped improve work flow, reduce hospital-acquired infections, improve care for diabetic patients, reduce pathology errors, lower the number of patient falls in hospitals and nursing homes, aid employee retention and improve cardiac care, among other things. Among specific clinical accomplishments are:

- A 68% reduction in central line-associated bloodstream infections among more than 30 hospitals that participated in a region-wide demonstration. Using PRHI's Toyota-based process improvement methods, one of the participating hospitals virtually eliminated CLABs from its cardiac and medical intensive care units and, in 2007, marked 15 months without a single CLAB in one of the units.



(Center) U.S. Health & Human Services Secretary Michael Leavitt presents Pittsburgh Regional Health Initiative with an engraving to mark PRHI's designation as a Chartered Value Exchange at a 2008 meeting where community leaders gathered to help chart PRHI's participation in proposed HHS demonstrations.

- An 85% reduction in methicillin-resistant *Staphylococcus aureus* (MRSA) infections in the post-surgical unit of a Pittsburgh VA hospital. The MRSA project led to a host of other quality and efficiency gains at the Pittsburgh VA, as clinicians back-chained to identify problems elsewhere in their institution that contributed to the spread of infections. Among the gains was a 10% improvement in on-time delivery of medications, which raised the rate to 99%. (Delayed antibiotic administration had been a factor in the incidence of MRSA.) Lessons from the VA MRSA project also have since been rolled out nationwide, throughout the VA Healthcare System.
- Reductions ranging from 23% to 82% in three different hospital-acquired infections (HAIs) targeted variously by five hospitals across the state as part of a demonstration supported jointly by PRHI, the Jewish Healthcare Foundation and the Pennsylvania Health Care Cost Containment Council.
- Significant efficiency gains and improved care processes at the VA Pittsburgh Healthcare System's diabetes clinic, including a 20% increase in the number of patients the clinic can schedule; a 68% reduction in waiting times for patients; a doubling of the time patients spend with clinicians; and an increase in the comprehensiveness of care because of a newly implemented team approach involving a diabetes educator, a pharmacist, a nutrition counselor, as well as an endocrinologist. Findings (withheld pending academic publication) suggest that patient outcomes (as measured by key indicators of disease control) have improved as well.
- A 17% reduction in patient waiting times at an outpatient psychiatric clinic that enabled a comparable increase in the time patients spend with clinicians.
- A 50% reduction in tissue sampling errors associated with Pap tests in a large gynecology practice.
- A 61% reduction in the need for repeat testing among patients undergoing thyroid biopsies at a major teaching hospital.
- Improvements in stability of the region's healthcare workforce; an organ transplant unit in a major academic hospital, for example, reduced nursing staff turnover to zero, from 12%, during a PPC implementation that also generated an annual savings of \$880,000 because of the improved retention. Informal surveys and anecdotal observations among clinicians in other PPC demonstrations suggest that, in addition to being a powerful tool for clinical and operational improvement, PPC may prove equally valuable in healthcare workforce recruitment and retention.
- Improvement in care processes – and outcomes – for diabetic patients at a Federally Qualified Health Center implementing the Wagner Chronic Care Model; patients at the clinic receive recommended care more frequently and saw some key indicators of health improve. For example, average hemoglobin A1C levels fell to 7.6 from 9, and the percentage of patients whose blood pressures were at or below 130/80 increased to 34.7% from 27.8%.

- A move to “open access” scheduling at a Federally Qualified Health Center that decreased no-shows from 40% to 15% and improved productivity (measured by the number of patients seen per hour) by 30%.
- A streamlining of procedures in a community hospital ER that reduced the time for beginning IVs in patients from an average of 20 minutes to 10 minutes and reduced average supply costs per patient by 6%, for an annual savings of nearly \$18,500.
- Standardization of ICU nursing protocols that enabled nurses at one hospital to start common procedures immediately and reduced length of stay by more than 2.2 days per patient – totaling a \$1.5 million savings in bed days alone. The measures also reduced ventilator usage by 12 to 26 hours.
- Reduced the time needed for information exchange at change of nursing shifts from an hour to less than 15 minutes at a VA Pittsburgh hospital by adopting Toyota-based, quick-change procedures. The quality of information also improved.
- Improved on-time rate among patients transferred to surgery from 50% to 98.6% in one week at a major teaching hospital.
- Improved timeliness of first appointments for children being evaluated for autistic spectrum disorder from 11 weeks to 6 weeks, despite increased demand.
- Reduced the number of defective steps in pathology processing from 27.9% to 12.5% within one year of introducing PPC systemization, despite a 6% increase in work load at Henry Ford Hospital in Detroit.

REGIONALLY

PRHI as an economic generator

- PPC University has attracted clinicians from across the country.
- PRHI and its PPC demonstrations have attracted more than \$10 million in funding to Pittsburgh’s healthcare community from federal, state and private sources.

PRHI has enhanced Southwestern Pennsylvania’s reputation for healthcare quality and given it a reputation for leadership and cutting-edge performance in healthcare process improvement:

- PRHI staffers have been invited to give hundreds of presentations across the country.
- PRHI’s methods and demonstrations have elicited hundreds of print news stories, features, and broadcast interviews as well as articles in trade publications and peer-reviewed journals.
- PRHI has been featured in two nationally-aired documentaries and has seen its work mentioned or featured in numerous books, including *Building a Better Delivery System*, a report from the Institute of Medicine and the National Academy of Engineering that advocated widespread adoption of industrial process improvement methods in health care, and the newly-published *The Pittsburgh Way to Efficient Healthcare*, which is dedicated to case studies of PRHI’s demonstrations.

NATIONALLY

PRHI inspiring a revolution in health care predicated on safety, quality and efficiency

PRHI was a forerunner in advancing what are now increasingly recognized as pivotal concepts for any lasting healthcare reform, including:

- Improvements in quality, safety and efficiency are essential to containing cost.
- The improvements of greatest value in health care are only achievable at the front line.
- Without payment reform, healthcare reform is all but impossible.
- Health care can benefit from the same work redesign and process improvement methods that reshaped American manufacturing industries.
- True value in health care is a combination of the highest quality at the lowest possible cost.

PRHI inspired and supported formation of other like-minded coalitions elsewhere in the country.

5 PITTSBURGH REGIONAL HEALTH INITIATIVE PHASES OF REFORM

PHASE 1 Defining a Vision and Strategy to Deliver Value

Establishing the trilogy of improvement: efficiency, safety, best practices

Focusing at the frontline

Reaching consensus on core principles:

- Care systems organized around patient need
- Ambitious improvement targets
- Teamwork for ongoing problem solving
- Leadership's obligation to support continuous improvement

PHASE 2 Operationalizing our Vision

Developing an improvement method: Perfecting Patient CareSM (PPC)

Creating an education system

Enlisting Champions of Reform

PHASE 3 Demonstrating the Value of PPC

Testing PPC in different settings and across professions

Exposing weaknesses of current condition

Challenging Champions to higher performance

Raising expectations

PHASE 4 Aligning Incentives

Creating a climate and infrastructure for change

Changing policy and regulations

Building transparency

Reforming payment systems

Rewarding teamwork

Helping consumers and purchasers shop for care

PHASE 5 Spread and Stabilization

Knowledge networks pushing the frontier

Quality management tools supporting quality champions

Good data making transparency credible

Transformation

Stakeholder behavior is aligned to deliver value

Leadership is obligated to govern and manage accordingly

The novelty and vision of the Pittsburgh Regional Health Initiative, its Toyota-based method for Perfecting Patient CareSM, its four-day PPC University program and the quality improvement demonstrations it has supported, have been widely lauded in academic journals, books, Congressional testimony, two nationally televised documentaries and hundreds of newspaper and magazine articles. Following is a small sampling of PRHI's press coverage from the past decade.

Industry Preaches Safety in Pittsburgh

Healthful practices

by Joseph P. Shapiro

ARTICLE AS IT APPEARED IN:
U.S. News and World Report
2000

In Pittsburgh, even the ketchup maker and the aluminum company are passionate about cutting medical errors. The area's largest private employers, including H. J. Heinz Co. and Alcoa, this year began an innovative partnership with area hospitals, physicians' groups, and insurers to improve health care. Its goal for hospitals is audacious: to cut medication errors and infections picked up in hospitals to zero. Called the Pittsburgh Regional Healthcare Initiative, or PRHI, the effort is meant to give an economic boost to the Pittsburgh area, where health care is the largest employer. For the businesses taking part, it also promises better quality care for their employees.

These days, it's not unusual for corporate customers to pressure hospitals to cut medical errors. Some of the country's largest employers recently started the Leapfrog Group. Members, which include General Motors and General Electric, agree to sign contracts only with hospitals that promise specific steps to reduce errors. But the Pittsburgh initiative also includes innovative steps to transfer safety breakthroughs from other industries to medicine.

That's why doctors and other health care leaders have started attending "Alcoa University." At the five-day course given by the aluminum maker, they learn how it painstakingly overhauled its manufacturing process in an effort to cut accidents to zero. Paul O'Neill, Alcoa's chief and a leader of the health care initiative, says hospitals, too, will find that detailed scrutiny of their systems will lead to new efficiencies as well as fewer accidents.

MODEL PHARMACY

Innovation also comes from unexpected corners of the initiative—like Citizens General Hospital. Steel-mill closings and an aging population have hurt this community hospital in New Kensington, upriver from Pittsburgh. Yet step inside the pharmacy and it becomes clear why Citizens General is a national model for ending medication errors. There, a robot spins and whirs in a glass closet filled with medications. The robot (nicknamed Fred, as in Flintstone) reads bar-coded prescription orders and then pulls the right pills for every patient. The hospital and McKessonHBOC Automated Healthcare, a nearby medical technology firm that designed the system, teamed up to test the robot before joining PRHI. But as part of the program they will now share their expertise with competing hospitals.

On the patient floor, nurse Charlotte Grossheim uses a handheld computer to scan the bar code on each separately bagged medication and check it with the bar code on a patient's wristband. In the past, says project manager David Lincoln, hurried nurses sometimes cut corners by, say, giving a patient his 8 p.m. and 10 p.m. pills both at 9 p.m. The new system catches that kind of cheating. And it corrects another problem: Confused elderly patients sometimes wander into the wrong room and fall asleep there. By scanning a patient's wristband, Grossheim always gets the right pill to the right patient. Many patients now sleep with their arms outstretched so nurses can scan their wristbands in the middle of the night.

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Healing health care

Our health-care system is expensive, unfair, wasteful and unsafe.

by Karen Wolk Feinstein, PhD

ARTICLE AS IT APPEARED IN:
Pittsburgh Post-Gazette
March 02, 2008

Big health-care promises are playing a big role in the presidential primaries, as usual. But talk, as the saying goes, is cheap, and health care, as we all know, is not.

As in past campaigns, the focus this year has been on expanding insurance coverage, with little discussion about how to pay for it and even less about how to reduce costs by improving the safety and quality of health care. These are paramount concerns in any meaningful health-care reform.

Polls suggest Americans want in health care what they want in fast food: convenience, efficiency, affordability and super-sized portions. They're not getting what they order.

A recent RAND Corp. study suggested that U.S. patients get only half of the care that has been proven effective for their conditions. Although U.S. health care is the world's most costly, it ranks last or next to last among Western nations when it comes to quality, access, equity, efficiency and outcomes, according to a 2007 Commonwealth Fund report. In other words, it is relatively expensive, unfair, wasteful and unsafe.

Nearly a decade since reports from the Institute of Medicine and the Centers for Disease Control and Prevention found that 180,000 U.S. patients die annually of health-care-acquired infections or medical errors, too little has been done to fix the system. There's been shockingly little political debate about these fatalities even though they equal in magnitude a weekly reprise of 9/11.

No one is immune—not me, not you, not our families. Not the late Boston Globe reporter Betsy Lehman nor Hollywood star Dennis Quaid's infant twins—three of the more high-profile victims of medication errors.

Credible estimates suggest 40 percent of our health-care spending is wasted. Treatment for complications from errors and avoidable infections accounts for some of the lost dollars. Other spending is simply useless, from duplicative or unnecessary tests and treatments, to the wasted time and motion of daily work in chaotic delivery systems. Misspent energy wears down health-care workers, draining them of the will and time to perfect patient care.

But what if every dollar spent bought care of proven value, delivered efficiently? We know it's possible.

With support from the Pittsburgh Regional Health Initiative, physicians in our region have proven time and again that much higher standards of quality and efficiency can be met. In small demonstrations, they've shown infections can not only be reduced, but eliminated; that people living with diabetes need not be blind nor have amputations; that lab tests can be conducted without misinterpretation or mishandling, saving lives and money by reducing the number of costly procedures delivered unnecessarily, or worse, too late. They've even shown that outpatient clinics can reduce waiting times and run smoothly with same-day or next-day scheduling. Imagine—an appointment the day you call the doctor!

From these and other projects, the PRHI has identified five hallmarks of excellence:

- Well-organized care systems;
- Ambitious targets for eliminating errors, waste and obstacles to the best care;
- Team commitment to 100 percent compliance with proven clinical and safety practices;
- Frequent redesign of work procedures to quickly solve problems that arise;
- Support from leaders at every level to demand continuous improvement.

Too often, however, initiatives to improve health-care safety, quality and efficiency are like isolated, hothouse experiments. The results might be published, only to gather dust on a shelf. In other industries, such innovations would quickly spread and safety improvements would not be optional. Consumers would demand with their dollars higher quality at lower cost.

Why we demand less when we shop for health care than for a toaster is the riddle, though one plausible explanation is that as health-care consumers we have too little basis for comparison.

Americans are born shoppers. Arm them with enough information about price and quality and most seek out the best buy on a car, a computer or a TV.

As it celebrates its 10th anniversary, the PRHI hopes to help empower southwestern Pennsylvania consumers to demand similar value in health care. The U.S. Department of Health and Human Services is promoting “value-based” care by forming a network of Chartered Value Exchanges that will report on quality and cost differences among physician groups in 14 regions across the country. The PRHI recently was selected as one of the exchanges, all of which will receive data from Medicare to help consumers shop more wisely for what is arguably the most important service they buy.

Health insurers must start shopping, too. The things health plans reward, the questions they ask and the information they give corporate purchasers matter a lot. They must build an incentive system that encourages quality so that first-rate health-care providers make more money, not less, for delivering value.

Of course, providers also will be able to use the Medicare data to target improvements on their own.

We should not assume that health-care reform can come almost solely at the national level or that there is little we can do regionally to cut costs by eliminating waste, error and inefficiency.

We are hearing lots of ideas from the presidential aspirants this year. Maybe their promises will withstand the vagaries of the political process. Maybe they won't.

But whatever their future, let's do our part locally. Let's ask the right questions, choose providers carefully, reward quality-driven practices and participate in managing our own health care.

We can't promise that we'll get it all. But we can get better care at lower cost.

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