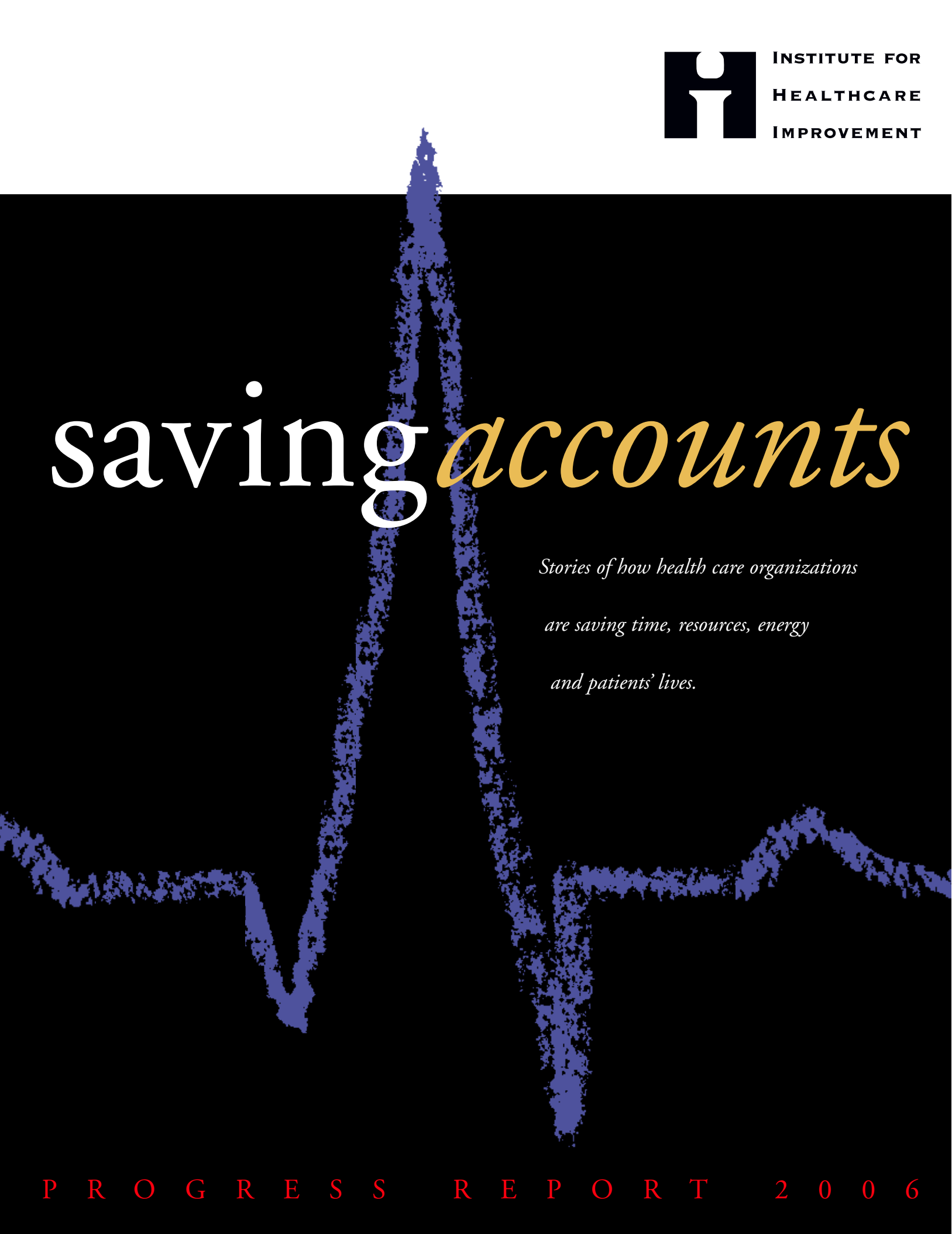
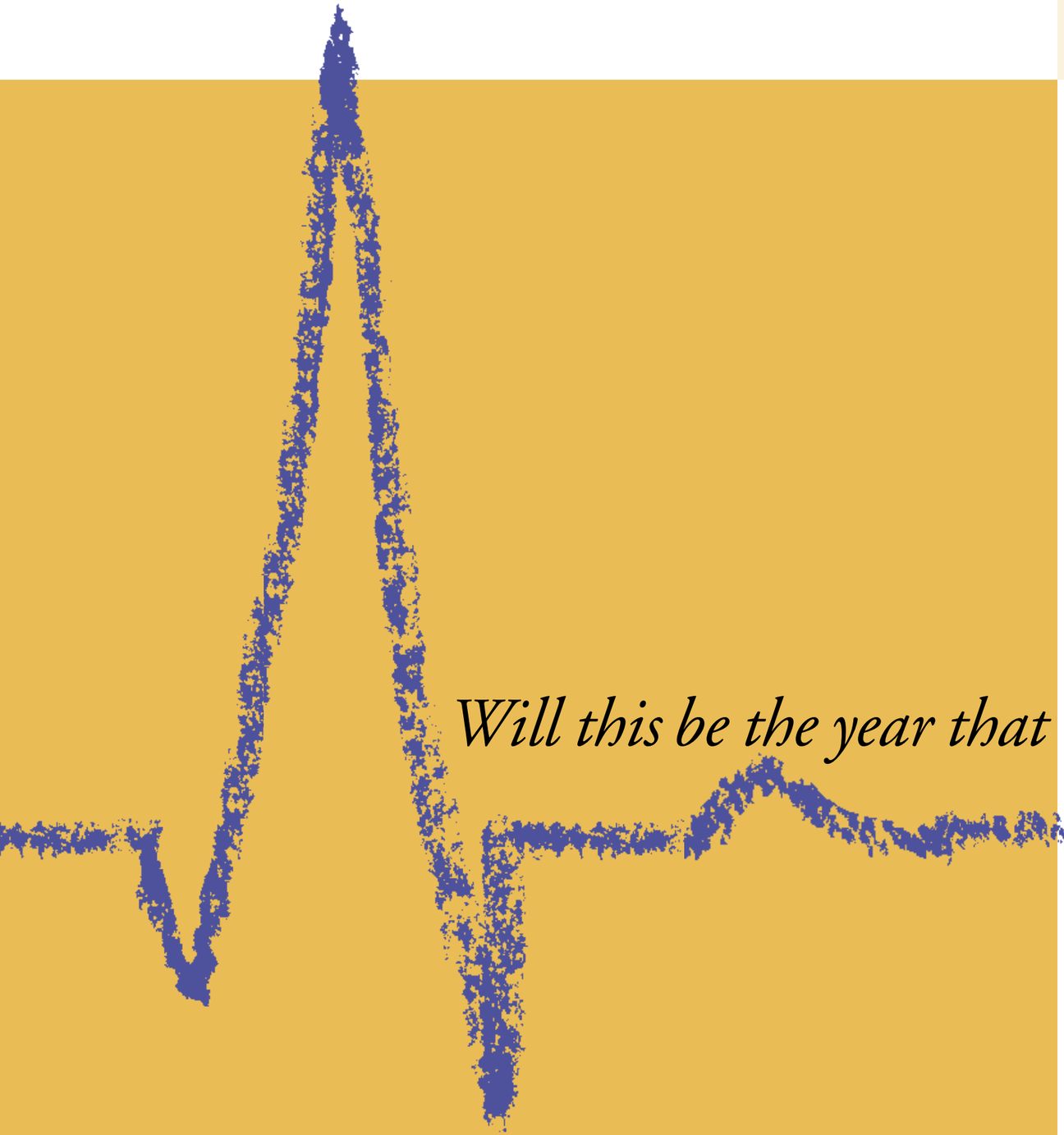


Institute for Healthcare Improvement

saving *accounts*

Stories of how health care organizations are saving time, resources, energy and patients' lives.

PROGRESS REPORT 2006



This is a remarkable time

for those of us intent on improving health care. Never before has there been such a groundswell of excitement and commitment for effective change, or so many health care leaders ready to find alternatives to the status quo.

The Institute for Healthcare Improvement is honored to play a leadership role in this movement. Everything we do is directed toward an ambitious set of goals adapted from the Institute of Medicine's six aims for the health system. We call this the "No Needless" list:

no needless deaths
no needless pain or suffering
no helplessness in those served or serving
no unwanted waiting
no waste
…for all

For the first time since IHI began, we are seeing a *broad-based commitment* to achieving these goals. Consider that more than half of the hospitals in the United States have joined IHI's 100,000 Lives Campaign. Never before have we seen such unity in our industry around a shared purpose, the common cause of avoiding preventable deaths.

But it goes much deeper. We are seeing the health care workforce — historically resigned to working in, and sometimes against, a deeply flawed system — rise up to take charge and create solutions. We are seeing *fundamental shifts* in how health care organizations respond to the needs of their patients. And we regularly hear stories of hope and optimism, of deep-seated and sustainable change, and of breakthrough improvements that are enhancing the lives of providers and patients alike.

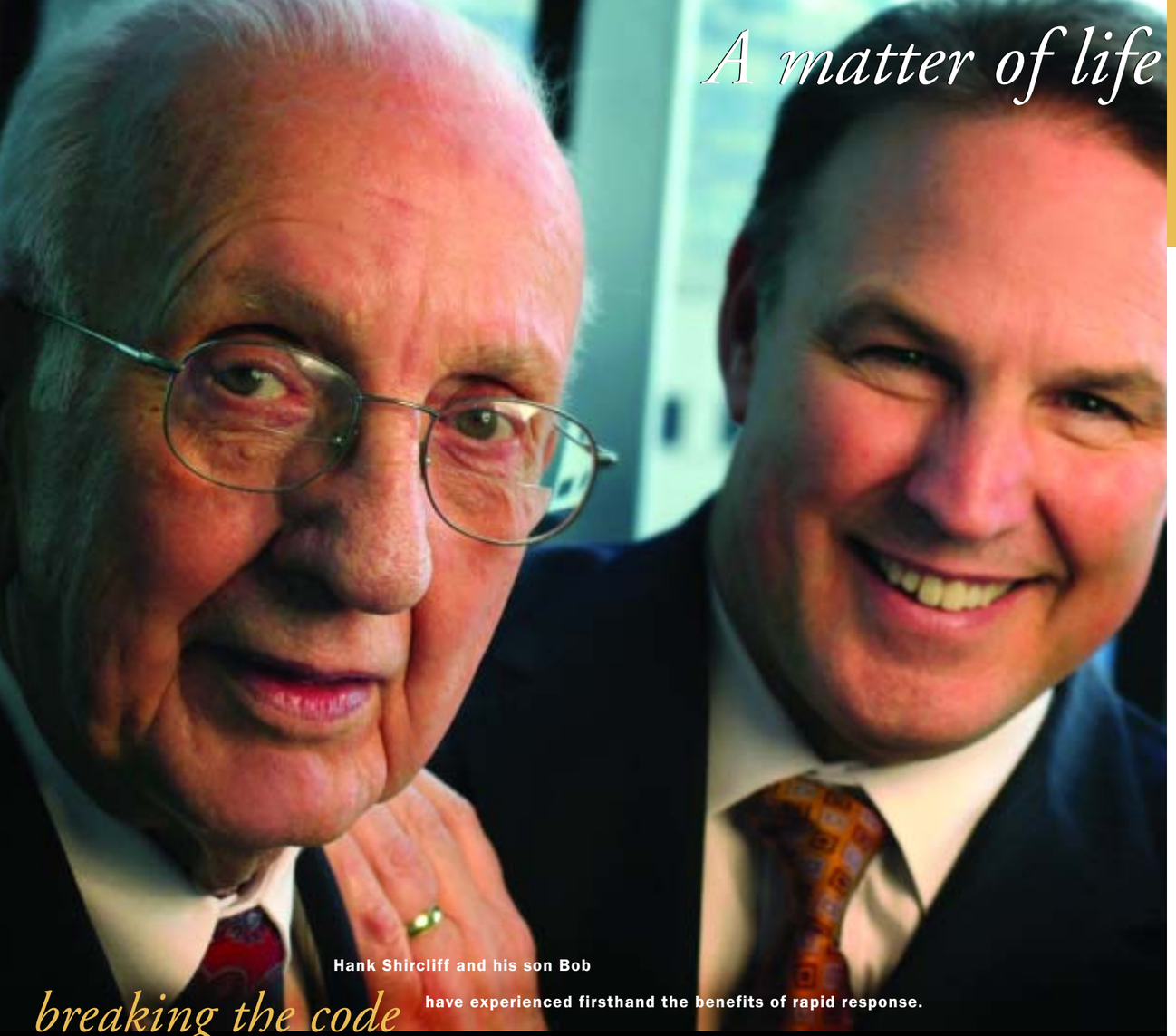
Health care improvement is about moving one step at a time toward the "No Needless" vision. It's about making the *small and large changes* that save time, resources, energy…and ultimately patients' lives.

So, we present these stories of saving: Stories of brave institutions that have found the *status quo unacceptable* and have committed to a new level of performance, and stories of some of the patients whose lives have been affected by these changes.

We hope these *"saving accounts"* inspire health care professionals around the world to commit, or recommit, to an agenda of improvement that not only saves lives, but may ultimately save the future of health care as well.

A matter of life or death

Saving a life is a thrill most people never experience. Imagine saving hundreds. Significantly reducing hospital mortality is the ultimate goal of health care quality improvement. Many hospitals are making remarkable gains in mortality reduction, applying proven interventions and reaping unparalleled rewards.



Hank Shircliff and his son Bob have experienced firsthand the benefits of rapid response.

breaking the code

When the Rapid Response Team at Jewish Hospital in Louisville, Kentucky, raced in to 77-year-old Hank Shircliff's room when he seemed headed for a heart attack, they didn't do it because of his well-placed personal contact high up in the hospital's management. They did it because that's what they do: They respond on a moment's notice to a summons from any hospital staff member who thinks a patient's condition is deteriorating.

"I got a call at 2 a.m. from a nurse saying my dad was going downhill and I needed to get there quickly," says Bob Shircliff, who happens to be the hospital's CEO. "I live 15 minutes away, and when I got here the Team was with him. I watched them put in a central line and get him stable enough to transport. He never coded, and I know for a fact that he would have. He spent seven or eight days in the ICU, and he recovered completely. He's doing well today."

Hospitals that have implemented proven interventions for avoiding preventable deaths have lowered their adjusted death rates by as much as 30 percent.

Swedish Medical Center

where the mortality rate has dropped by 19 percent

At Swedish Medical Center in Seattle, Washington, staff members have mounted a full court press on mortality in all three hospitals in its network, enhanced by lessons learned during an IHI Collaborative on improving critical care and as a member of IHI's IMPACT network. The lessons have been well applied: the unadjusted mortality rate at Swedish dropped from an already low 2.1 percent in 2001 to 1.7 percent in mid-2005.

Swedish's success at reducing needless deaths can be attributed to many ideas learned from IHI, says June Altaras, RN, BSN, Clinical Manager of four ICUs. "We've implemented the ventilator bundle, the central line bundle, multidisciplinary rounds, and the Rapid Response Team," she says. "We are also about to roll out the sepsis bundle."

Altaras says the "small test of change" approach to improvement has revolutionized the culture at Swedish, which has always been quality-focused, but is able now to more effectively harness the expertise of front-line staff in making change. "We keep testing changes until we find a reliable process, and they love that. They love being listened to."

Swedish's Vice President of Quality Integration and Improvement, Judy Morton, says that staff members have launched several other initiatives using IHI's improvement techniques. "Our stroke program, which just won the JCAHO Codman Award, developed a stroke bundle," she says. "That's a wonderful example of transferring a change concept."

Unity Hospital

where the adjusted mortality rate has fallen from 15% over the national average to 17% under

A potent combination of factors has helped to significantly reduce mortality at Unity Hospital in Fridley, Minnesota, part of the Allina Health System and a member of IHI's IMPACT network. Unity's Hospital Standardized Mortality Ratio (HSMR), a mortality metric that adjusts for multiple variables at the patient, hospital, and regional level, dropped from 113 in 2001 to 75 in 2003. The US average for those years was approximately 98 and 90, respectively.

Amy Susag, RN, Clinical Nurse Specialist, says a contributing factor in this considerable reduction was the introduction of hospitalists in the fall of 2002, and the resulting increase in continuity and communication. The hospitalists see patients "every single day and really stay on top of things," says Susag.

Additionally, the ICU has implemented the ventilator bundle and significantly reduced ventilator-associated pneumonia, going as long as 448 days without a single case.

Newer initiatives include tight glucose control for all ICU patients, says Judy Hoaglund, RN, MA, ICU Nurse Manager. "Patients with two glucose readings of 150 or more are placed on insulin infusions," she says. "We are aggressive about that." In addition, Rapid Response Teams race to patients' beds when nurses sense trouble, resulting in 40 percent fewer code events since they began in late 2004.

Tallahassee Memorial Hospital

where the mortality rate has decreased by 21 percent

At 770-bed Tallahassee Memorial Hospital in Tallahassee, Florida, a participant in the Pursuing Perfection initiative, fewer people are dying than ever before. This is thanks to the hospital's sharp focus on reducing mortality. Between 2001 and 2004, the hospital's unadjusted mortality rate fell from 2.08 to 1.64, a drop of 21 percent.

Contributing to the overall drop in mortality was a 53 percent decrease in deaths from heart attacks; 62 percent fewer deaths from heart failure; 41 percent reduction in death from stroke; and a 46 percent decrease in the number of deaths from pneumonia.

Tallahassee has implemented all six of the interventions recommended by IHI's 100,000 Lives Campaign, which has helped them address many of the issues they uncovered when their analysis of 50 unexpected deaths showed a pattern of three problems: failure to communicate, failure to recognize when a patient's condition was worsening and take action, and failure to plan.

"IHI taught us to look at improvement systematically rather than by diagnosis," says Winnie Schmeling, PhD, RN, former Vice President of Organizational Improvement and Planning and executive-in-charge of Pursuing Perfection. "If you fix the system, you're addressing the issues more broadly. As a result, our mortality rate is down among all the leading conditions."

It's about time

Getting health care right means providing the right care to the right patient at the right time. Sometimes timing is everything, as in the case of heart attack treatment. But time spent waiting for less urgent care is also part of the care experience, whether it's a two-month wait for an appointment or a two-hour wait in the waiting room. They say time is money, but sometimes time is also health.

Advocate Good Samaritan Hospital

where the average "door-to-balloon" time is 68 minutes

Time is muscle, say emergency medical professionals who treat heart attack patients. The sooner the blocked artery that causes the heart attack is reopened, the less heart muscle dies, and the faster and more complete the patient's recovery.

At Advocate Good Samaritan Hospital outside of Chicago, Illinois, part of the Advocate Health System, the average "door-to-balloon" time — from when the patient enters the Emergency Department (ED) to the moment that the artery is cleared by balloon dilation in the catheterization lab — is 68 minutes, well under the recommended standard of 90 minutes.

Good Samaritan staff speed the reliable delivery of evidence-based care for acute myocardial infarction (AMI), one of the six interventions in IHI's 100,000 Lives Campaign, by doing things simultaneously that they used to do sequentially. "We used to average 20 minutes to the first EKG, 25 until the ED physician saw the patient, and 45 until the cath lab was notified," says Colleen Kordish, RN, Cardiovascular Outcomes Coordinator.

Today, when paramedics call in a possible or known AMI, the ED physician, one or two ED nurses, the EKG technician, and often a cardiologist are waiting, says Kordish. Cath lab staff members have perfected the "five minute patient prep," quickly draping, clipping and sterilizing the cath site. "They practice on non-emergency patients who usually like it," says Kordish. "Some even help time them."

Healthserve Community Health Center

where waits for appointments were reduced to zero days

Same-day appointment access is a gift that Healthserve Community Health Center in Greensboro, North Carolina, gives its patients every day. Healthserve is part of the Moses Cone Health System, a member of IHI's IMPACT network. "We are the primary care provider for the uninsured and underserved in our community," explains Healthserve Director, Chris Wilson. "Our patients might be transient, or have transportation problems. They don't always have the means to schedule and keep routine appointments in advance. They come in when they have an urgent need."

Before Healthserve created its current advanced access scheduling system, both patients and staff were frustrated by the lack of flexibility in the schedule. The wait to the third next available appointment — a common measure of access — was 47 days. Since applying tools learned in an IHI Collaborative on improving access and efficiency in primary care, Healthserve has reduced that wait time to zero.

"The hardest part is getting everyone on the same page," says Wilson. "Everyone has to understand what it means to work down the backlog, for example. Everyone has to understand the big picture." Wilson reports that staff members grew so energized by their success that they immediately asked, "What's next?" Wilson says now they are turning their attention to improving care for patients with chronic conditions.

Organ Donation Collaborative

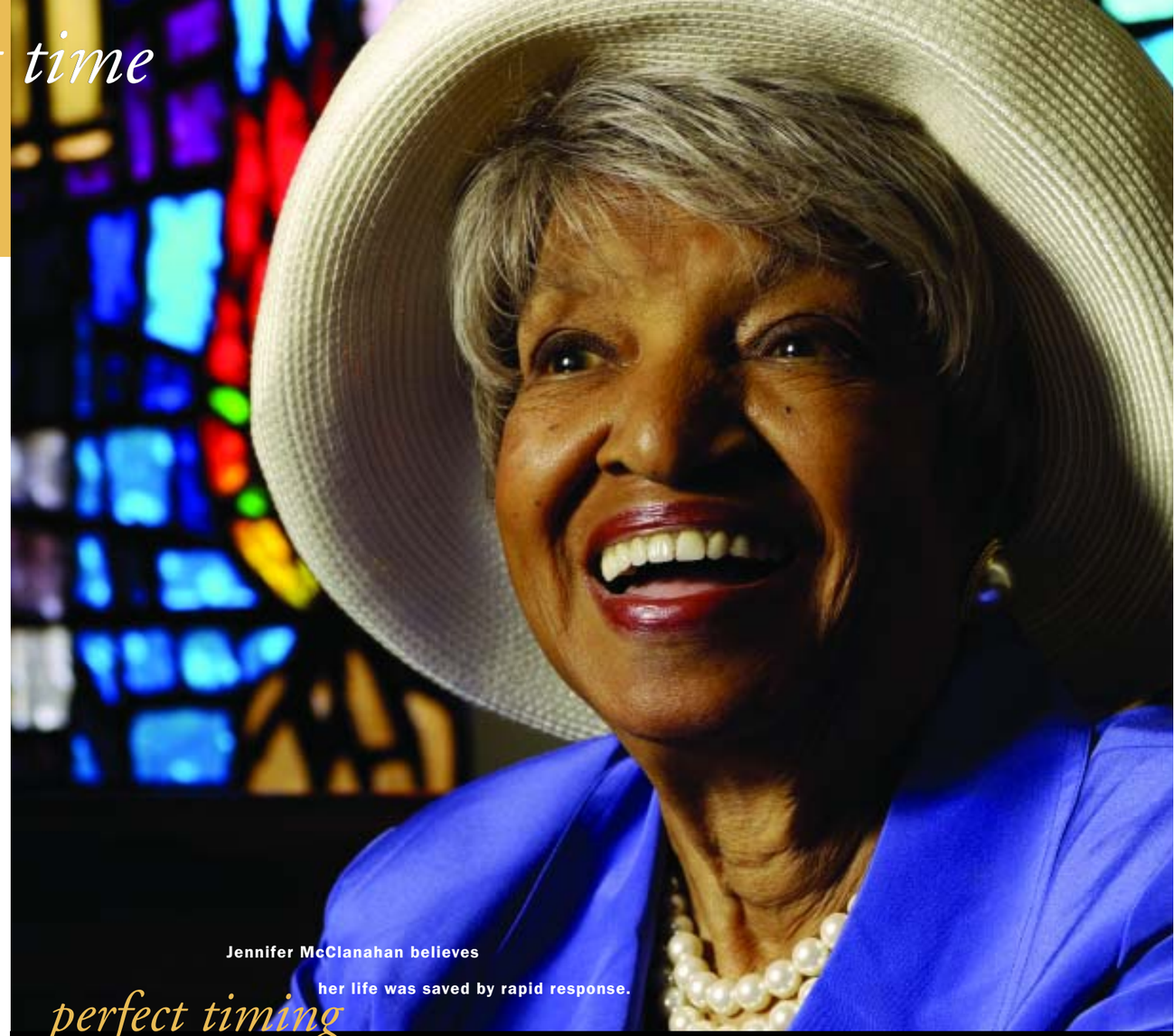
where an unprecedented increase in donations has saved 3,000 lives

It's hard to overstate the complexity that surrounds organ donation, both clinically and psychologically. Add to that the need to move quickly, sometimes with little advanced warning, and it becomes clearer why historically fewer than 50 percent of US organ donation candidates actually donated.

To address this, in September 2003 the US Health Resources and Services Administration, Division of Transplantation, launched the Organ Donation Collaborative, modeled on IHI's Breakthrough Series Collaborative. The idea, says Collaborative Director Dennis Wagner, MPA, was to widely spread best practices for obtaining consent from families for organ donation. This and subsequent Collaboratives have fundamentally changed the way families are approached for consent, resulting in unprecedented new levels of organ donation.

In 2004, organ donation increased by a record 10.8 percent across the nation, and by another seven percent through the first nine months of 2005. These back-to-back increases are unparalleled in the history of the field, and have already resulted in an estimated 3,000 additional life-saving and life-enhancing transplants.

Now the focus includes increasing the number of organs transplanted per donor from the current average of three. "Every donor has the potential to save or enhance eight lives," says Wagner. "We'd like to see that become the norm."



Jennifer McClanahan believes her life was saved by rapid response.

perfect timing

Although delays plague the health care system, many delays can be reduced or even eliminated without adding resources by equalizing supply and demand.

Jennifer McClanahan's recovery from quadruple bypass surgery at Kansas University Medical Center seemed to be going well. But a week after surgery that changed. The transport aide bringing her back from X-ray noticed she wasn't responding well to questions. The aide alerted the hospital's Rapid Response Team, a group of critical care specialists available to rush care to any patient who seems to be heading for trouble. Rapid Response Teams are one of the elements in IHI's 100,000 Lives Campaign. "All of a sudden all these people came running," reports Mrs. McClanahan's daughter, Jennifer Owens.

Mrs. McClanahan, 78, had a buildup of blood in her chest, and after the Team stabilized her, she was taken to surgery. "I wouldn't be here if they hadn't responded so quickly," says Mrs. McClanahan. "They prevented my death, and I feel so blessed." Her daughter says, "There are no words to express how grateful we are. Everything worked perfectly. Now my mother is committed to maintaining her good health to prove that what they did wasn't in vain."

Safe care saves lives

By now it is well known that too many people are harmed or even killed by mistakes made in the delivery of their care. What isn't as well known is how much progress has been made in understanding and applying the tools that reduce errors. Using those tools, health care organizations of all kinds are increasingly demonstrating unprecedented improvement in patient safety.

Sorrel King has devoted herself to making the system safe.

a tragic beginning

Josie King's death at 18 months — the tragic result of medical errors and poor communication — helped fuel the patient safety movement. Through the Josie King Foundation, Josie's mother, Sorrel King, and her uncle, Jay King, have worked with the Johns Hopkins Health System to create the Patient Safety Group (PSG). PSG's mission is to create tools that improve the ability of health care organizations to communicate, collaborate, improve, and share lessons learned.

PSG's web-based Patient Safety Program helps hospitals document and track specific safety incidents or concerns, and share their resolution. "The information becomes a shared story everyone can learn from," says Sorrel. PSG has also worked with the University of Pittsburgh Medical Center (UPMC) Shadyside to implement Condition H (for Help), in which family members can call the Rapid Response Team if they feel their loved one is in danger because of a breakdown in communication or confusion about care. "I'm very excited about this," says Sorrel. "UPMC Shadyside is changing the culture to validate the important role that family members play."

The estimated number of people who die from medical errors each year in the US is equivalent to a jumbo jet crashing every single day.

Our Lady of Lourdes

where 178 days (and counting) have passed without a central line infection

Some clinical advances are the result of new science or new technology. Some, such as preventing infections from central lines, depend more on education and re-training. But that doesn't mean it is easy.

"The culture change is actually the hardest part," says Robert Taylor, MD, Chief Medical Officer at Our Lady of Lourdes Hospital, an Ascension Health hospital in Binghamton, New York. Lourdes, as it is known locally, has dropped its rate of catheter-related bloodstream infections dramatically by reliably implementing the central line bundle, one of the six interventions in IHI's 100,000 Lives Campaign. Using this protocol of five essential elements in central line management, Lourdes has routinely gone well past its initial goal of 90 days without an infection. "We are currently at 178 days, which is our record," says Jill Patak, RN, Quality Engineering Specialist.

"The big advantage of the bundle is that it is tried and true," says Taylor. "You implement it and you get results." And those results fuel the culture change. "When you have local evidence that this is working, you have a very powerful argument that silences a lot of skeptics." And providers who wonder if all the elements are necessary every time for every patient are advised to ask themselves, "Which element would I leave out if this were my mother?"

Metropolitan Hospital

where dispensing errors in the pharmacy dropped by 40 percent

For the cost of a roll of red tape, the pharmacy at Metropolitan Hospital in Grand Rapids, Michigan, created a simple but effective way to improve medication safety. "The pharmacy is a busy place," says its Director, Peter Haverkamp, RPh. "Pharmacists often get interrupted as they check a prescription." So with red tape they created a Safe Zone. "When a pharmacist steps into the Safe Zone to check something, he or she is not interrupted." When the order is checked, it is passed across the red tape to the "To Go" counter. "No more asking, 'Is this ready to go?'" says Haverkamp. This simple intervention, along with others implemented in the pharmacy, reduced errors by 40 percent in the first full quarter after they were put into effect.

In fact, this is just one simple change in a long series of more sophisticated steps that Metropolitan staff members have taken to reduce adverse drug events, something they've focused on for many years, both as participants in an IHI Collaborative on medication safety and as members of IHI's IMPACT network.

With a culture that supports non-punitive medication error reporting, Metropolitan has effective processes in place to reconcile drugs on admission, improve the safety of narcotic use, eliminate wide-ranging doses, and standardize pain medication orders that eliminate handwriting, a common source of errors.

NHS Tayside, Scotland

where the Safer Patients Initiative has led to reductions in mortality and adverse events

With the support of a £4.3 million grant from The Health Foundation, an independent charity in the United Kingdom, IHI has launched an ambitious program called the Safer Patients Initiative. The initiative is designed to create centers of excellence in patient safety in acute care trusts (provider systems) in each of the four countries in the UK. New clinical and organizational methods for preventing, detecting, and mitigating patient safety problems will ultimately be spread throughout the UK.

At NHS Tayside in Scotland, which provides primary and secondary care for 400,000 residents in Dundee and surrounding communities, five teams are working on specific areas of safety improvement, including medication safety, the use of Rapid Response Teams, use of IHI's ventilator bundle to reduce the incidence of ventilator-associated pneumonia, reduction of infections for surgical patients, and better methods of communication among staff.

Gail Pennington, Patient Safety Coordinator for NHS Tayside, says that although it is still early in the initiative, they are already seeing a decrease in mortality figures."There has also been a fall in the volume of adverse event rates per 1,000 patient days, from seven percent in October 2004 to 1.5 percent in July this year," she says. Tayside is working in collaboration with the other safety sites to identify and share best practices.

Conquering inequality with quality

Not everyone is reaping the benefits of clinical and quality advances. Disparity in care is still a frustrating reality for many in the US as well as globally. The cost is both societal and individual, including preventable morbidity, disability, and lost productivity. The good news is that improvement efforts to close the gap are producing encouraging results. In the US, some of the best care is available to some of our poorest citizens.

Elisa Munoz and her mom Nina find answers and support.

every mother's child

Sometimes even a mother's tender loving care isn't enough when children are sick. Nina Munoz remembers when her daughter, Elisa, was little and would cough so hard she couldn't sleep. "I would give her medicine, or honey and lemon, but it didn't help." When she took Elisa to her doctor at Cambridge Health Alliance, an integrated health system based in Cambridge, Massachusetts, she found out why. "He told me Elisa has asthma."

Now, ten-year-old Elisa and her mom know all about asthma. "We are very careful in the apartment. We have no curtains, we have no pets," says Nina Munoz. Elisa regularly measures her lung capacity with a peak flow meter, and uses a nebulizer or takes medication when necessary to prevent an asthma attack. Elisa and her mother are beneficiaries of Cambridge Health Alliance's sophisticated and comprehensive asthma management program.

"Elisa is a very special girl," says her mother. "She loves to dance. She loves to draw. She writes poetry. I am very proud of her."

Communities of color suffer disproportionately from diabetes, heart disease, HIV/AIDS, cancer, stroke, and infant mortality. Targeted improvement efforts have shown that we can change this.

Cambridge Health Alliance
where children with asthma are staying out of the hospital more

Pediatrician David Link is clear about the impact of asthma on children. "No single childhood illness causes more school absenteeism or is a greater impediment to a child's health and sense of well-being," says Link, Chief of Pediatrics and Program Director of the Pediatric Asthma Program at Cambridge Health Alliance, an integrated delivery system based in Cambridge, Massachusetts, serving a broadly multicultural population.

Through its participation in the Pursuing Perfection initiative, the Alliance enhanced its already strong asthma program, creating a comprehensive Childhood Asthma Registry for its more than 1,500 young asthma patients, and implementing the Planned Care Model, which replaces the old reactive style of care with proactive asthma management. As a result, asthma-related ED visits have fallen by as much as 80 percent, and hospitalizations by up to 75 percent.

What really distinguishes the Alliance's asthma program is the integrated patient support system that encompasses clinic, home, and school settings. The information in the Asthma Registry is made available to parents and, with their permission, other adults who could also benefit: physicians, teachers, school nurses, and a network of health providers. No matter where a child enters the health care system — at the pediatrician's office, through the school nurse, or the ED — providers have access to his or her asthma information.

Rochester, New York
where a unique coalition is reducing disparities in care

A public and private coalition in northeast Rochester, New York, where the median household income is less than $22,000, is working to reduce disparities in care. Reweaving the Safety Net, an ambitious project begun in 2003, is aimed at linking poorer residents with needed health care and social support services.

Included in this broad initiative is the Clinical Transformation Project, launched initially in five local practices and now spread to ten. Developed by IHI and the Institute of Medicine, and directed by IHI faculty member L. Gordon Moore, MD, a local family physician, the project seeks to significantly increase the efficiency and efficacy of care. "We believe better systems produce much better outcomes for patients," Moore says.

The practices are working toward three goals: to create and support high-functioning clinical teams where workflow is efficient and staff members are properly trained; to implement open access scheduling so patients can make same-day appointments; and to implement systems and tools that support consistent delivery of routine and disease-specific preventive care.

The work is paying off. "So far the project has touched about 23,000 lives. Our best-performing teams are showing a 14 to 24 percent decline in emergency room visits for their Medicaid patients. As more teams succeed, we expect to see a significant decline in hospital admission for conditions like diabetes and asthma," says Moore.

South Africa
where collaborative methods are rapidly spreading AIDS care

Disparities in care can seem especially dramatic on the global level. But IHI's methods of rapid improvement and collaborative learning are applicable anywhere, as demonstrated by the encouraging early results of an improvement project currently underway in South Africa.

In partnership with governmental, academic and non-governmental organizations, IHI is working in five of South Africa's nine provinces to improve HIV/AIDS care. The project's aim is to reduce morbidity and mortality by improving access to antiretroviral therapy (ART) and integrating disparate components of comprehensive HIV/AIDS care.

Led by Pierre Barker, MD, IHI's work in South Africa is broader than the specific project aims. "IHI has conducted two formal Learning Sessions in South Africa on improvement methodology for leaders in our partner and governmental organizations," says Barker.

The results are promising. In most projects, the monthly rate of initiating ART has doubled or more within a few months of health systems redesign. Some of the most encouraging results are in very resource limited rural areas. In Mhlontlo District, Eastern Cape Province — with a population of 200,000 and an estimated HIV prevalence of 12.5 percent — ART initiation rates have quadrupled.

The project aims are compelling — each additional person given access to ART represents a life saved.

Getting it right every time

Making care more effective involves applying evidence-based processes and techniques to improve outcomes. This can mean changing habits that have been ingrained for years, even decades, often requiring new ways of thinking and collaborating. But the work generates its own motivation in the form of better patient outcomes. When more patients get better faster, it's easy to give up the old ways of doing things and embrace the new.

ESRD Network Program

where ingrained habits are giving way to best practice

Approximately 400,000 US patients with kidney failure, or end-stage renal disease (ESRD), depend on regular dialysis to survive. Exactly how the dialysis machine is connected to the patient's blood vessels can make a significant difference in life expectancy and the rate of complications. Thanks to a large and aggressive nationwide program to spread best practices in vascular access, more and more dialysis patients are getting the best evidence-based care. IHI supported this initiative in partnership with the Centers for Medicare and Medicaid Services and the 18 regional ESRD Networks.

Called Fistula First, the initiative seeks to reduce the use of synthetic grafts and catheters, which lead to complications estimated to cost Medicare over $1 billion annually, and increase the rate of arteriovenous (AV) fistula use in hemodialysis patients, which evidence shows reduces mortality and morbidity as well as cost. An AV fistula creates access for the dialysis machine by surgically joining a vein and an artery.

Lawrence Spergel, MD, FACS, Director of the Dialysis Management Medical Group of San Francisco, California, and Clinical Chair of Fistula First, says the challenge is "reversing several decades' worth of medical practice." So far, it's working: In 2001 the rate of fistula use for ongoing (not new) patients was about 31 percent. By August 2005, that rate had risen to 40.1 percent.

Porter Hospital

where the surgical site infection rate has dropped to zero

Forty-five-bed Porter Hospital, located in Middlebury, Vermont, is demonstrating that improving care and outcomes isn't strictly the purview of large institutions. Since participating in an IHI Collaborative and joining IHI's IMPACT network, Porter has dropped its surgical site infection rate from almost three percent in October 2004 to zero — meaning 357 infection-free surgical cases, and counting — through September 2005.

Porter staff members have reliably implemented ideal perioperative care for all surgical patients, one of the six interventions in IHI's 100,000 Lives Campaign. This includes appropriate use of antibiotics before and after surgery, razorless hair removal (or none at all), and maintenance of normal body temperature during and after surgery. "We use a machine that scans the temporal artery, which is equivalent to core body temperature so we're always sure the patient is warm enough," says Performance Manager, Ann Beauregard, RN, BA. Beauregard says they are also beginning to implement tight glucose control after surgery.

Monthly data reports are widely distributed (and eagerly anticipated by staff). The hospital's small size means everyone stays in the loop — "we all eat lunch together," says Beauregard — but doesn't mean they think small. "We are beginning two more big projects with IHI: redesigning the office practice, and improving patient flow through the hospital."

Community Hospital East

where 25 months have passed without a VAP in the CCU

It's an unofficial competition, but one that Community Hospital East in Indianapolis, Indiana, may well be winning, having gone 25 months without a case of ventilator-associated pneumonia (VAP) in its critical care unit. In fact, advanced ventilator protocols, including the elements of the ventilator bundle, one of the six interventions in IHI's 100,000 Lives Campaign, are in place at each of the hospitals in East's parent organization, Community Health Network (CHN).

Several other ICUs in the system are closing in on the two-year VAP-free mark, says Theresa Murray, RN, MSN, CCRN, Critical Care Clinical Nurse Specialist for CHN. "We feel like we're the gold standard when it comes to preventing VAP."

"All our ventilated patients receive a standard order set," says Dan Kidwell, RRT, RCP, Clinical Practice Specialist for respiratory care. "Deviations from the standard must be documented." In addition to the bundle elements — elevating the head of the bed, daily sedation management and weaning readiness assessment, peptic ulcer and DVT prophylaxis — CHN emphasizes hand washing and mandatory glove use, and interrupting the ventilator circuit to clean or replace parts only when absolutely necessary.

Focused on reducing VAP since 1998, CHN was an early participant in the IHI/VHA Idealized Design of the ICU initiative. "Now we get a lot of calls from other hospitals who want to learn from us," says Kidwell.

Alicia Lang fights back and wins at managing her disease.

advantage alicia

To be effective, health care should match science. As medicine grows more and more complex, decision support tools become critical elements in providing effective care.

Like most 13-year-olds, Alicia Lang likes to hang out with her friends, talk with them on the phone, and exchange email and Instant Messages. And that's when she's not in school, or on the tennis court. As a member of her school's tennis team, Alicia trains five days a week, and recently helped the team score a second-place finish at a regional championship tournament. Playing singles, she won two of her three matches.

The following day she was admitted to Cincinnati Children's Hospital Medical Center, a participant in the Pursuing Perfection initiative, for her semi-annual "clean out." Alicia has cystic fibrosis (CF), and a remarkably active life. Those two statements are compatible because of the effective care and support she receives from one of the country's best CF programs. With CF-related diabetes, Alicia's needs are multi-layered, and so is her care. "I'm not the fastest runner on the team," she says, "but I can do everything I want."

Working smarter not harder

Working harder is a very poor strategy for improving care. Most health care professionals already work plenty hard. In many cases, in fact, they are working too hard because they have to maneuver through a system that gets in their way. Making systems changes to improve efficiency and reduce waste — of time, money, energy — benefits patients and caregivers alike.

Rebecca Bryson helps her providers simplify patients' lives.

getting on the same page

Rebecca J. Bryson was frustrated that communication among her health care providers was poorly coordinated. And no wonder: With diabetes, cardiomyopathy, congestive heart failure, and several other significant conditions, Ms. Bryson was at one time seeing 14 doctors and taking 42 medications."I have great doctors, but whenever I got a new drug, dosage, or diagnosis," she recalls, "I had to communicate the change to all my providers. It was an enormous burden."

Ms. Bryson brought her invaluable perspective to the table as a patient representative when a group of providers in Whatcom County, Washington, sought to improve communication between provider sites as part of the Pursuing Perfection initiative. The results included the Shared Care Plan — a single paper- or web-based document patients can use to gather and maintain all their health-related information — and Clinical Care Specialists, who serve as liaisons between patients and their medical care teams, especially in times of crisis. "That is the biggest relief of all, knowing that I have someone who both checks on me and can bypass all the barriers," says Ms. Bryson. "With Nancy, I get care faster."

Health care organizations are successfully using strategies and processes adapted from other industries — trucking, airlines, manufacturing, and hospitality — to improve efficiency and patient flow.

Whatcom County, Washington

where a community is unified around simplifying care processes

Two powerful innovations are helping patients and providers work together effectively and efficiently in Whatcom County, Washington. A community-based participant in the Pursuing Perfection initiative, Whatcom County's Community Health Improvement Consortium is focused on improving safety and efficiency, reducing costs, and eliminating barriers across the entire system of care.

First, patients are offered the option of creating and maintaining a Shared Care Plan (SCP), a user-friendly tool for storing and retrieving important health-related information such as the patient's personal profile, names of health care team members, chronic and long-term diagnoses, self-management and lifestyle goals and action steps, treatment goals, names of medications, a list of allergies, and advance directives.

Patients with Internet access can store their SCP on a secure website and can give permission to others to view it as well. "Approximately 70 percent of the 750 patients with SCPs have used them when they've gone to the emergency room," says Kelly Hawkins, the SCP web coordinator. "They are an efficient way of providing important information quickly."

Second, patients with more complex needs are assigned a Clinical Care Specialist (CCS), a nurse or social worker who serves as the patient's coach, advocate and guide. One patient says simply, "My CCS has helped me in too many ways to comment."

Kaiser Foundation Hospital-Roseville

where patient discharges are scheduled to improve throughput

It makes sense when you think about it. Hotels establish a check-out time so they can plan for the next wave of visitors. Why can't a hospital do the same?

Discharge appointments are one of the tools IHI recommends for improving the flow of patients into, through, and out of the hospital. Kaiser Foundation Hospital-Roseville in Sacramento, California, a participant in the Transforming Care at the Bedside initiative, has put this and other flow improvement tools to good use.

Patients at Kaiser-Roseville were sometimes "parked" in the Emergency Department or in recovery after surgery while they waited for a bed. "It was a huge patient dissatisfier," says Sandy Sharon, RN, MBA, Assistant Administrator for Patient Care Services. Analysis of patient flow revealed that most discharges and admissions occurred on the evening shift. "So we set a goal of having 40 percent of discharges occur before 11 a.m.," a goal the hospital achieved in October 2005.

Now, discharge rounds are conducted daily at 11:30 a.m. to start the ball rolling for the next day's discharges. "We identify patients we think will be discharged the next day, and get any pending lab work going, get orders for discharge meds into the pharmacy, notify the family, and tie up any loose ends. PT knows which patients to see first the next morning. Housekeeping knows which rooms will turn over and when. It really benefits everyone."

County Council of Jönköping, Sweden

where streamlined processes mean less waiting and less expense

The County Council in Jönköping, Sweden, responsible for delivering health care to 330,000 residents, has overseen a wide and varied array of improvement projects during the past several years, strengthened by their participation in the Pursuing Perfection initiative.

Improving patient flow through the system — by broadly implementing open access scheduling and by simplifying handoffs of patients with multiple needs — has been a focus and strength. For example, at the Jönköping County Orthopedic Clinic, the process of care for patients with wrist injuries — either fractures or carpel tunnel syndrome (CTS) — has been simplified and standardized. Occupational therapists play a bigger role now; patients with CTS and fractures get all their follow-up care from the therapist, seeing the doctor only if needed. "Our goal is for patients to get the right competence at the right time," says Mari Bergeling-Thorell, Occupational Therapist and Project Leader. "It reduces doctor visits which means less waiting and less expense."

Another improvement project focused on shortening the journey for patients with wrist fractures who need X-rays. Patients who once waited as long as two-and-a-half hours for an X-ray are now routinely seen in less than half that time. Technology enabling doctors to view X-rays on any computer also helps eliminate wasted time.

Putting patients in their place

Patients have always been at the center of care, of course, but care has not always been patient-centered. Patient-centered care means working in partnership with patients to set goals and create care plans. It means respecting patients' individual differences, and recognizing their needs, perhaps even before they do. When patients help make decisions about their health, they are more committed to doing their part.

Memorial Hermann Hospital

where family members are included in rounds

At Memorial Hermann Hospital in Houston, Texas, the primary teaching hospital for the University of Texas Medical School and a member of IHI's IMPACT network, patient-centeredness takes many forms.

For example, family members were once barred from the Shock Trauma ICU during rounds. But that has changed, says Lynn Maguire, RN, MSN, CNA, Administrative Director of Trauma, Transplant and General Surgery Services. "We had a waiting room full of people who wanted to know exactly what we were discussing." Now, family members stay during rounds, which not only provides them with the most complete and current information about their patient, but also saves physicians time they would spend later talking with the family.

Family members are not simply bystanders, says Maguire. "We teach them how to do small things like oral care. It helps prepare them for the caretaker role later on."

On the neuro trauma ICU, a series of patient/family interviews has helped caregivers learn how to communicate more effectively with patients and families, many of whom are overwhelmed by a sudden trauma. "It's been especially valuable for the doctors," says Audrey Fiske, RN, MBA, CPHQ, Administrative Director of Neuro Sciences. "They have learned how they sound to a frightened family member. They are learning when to provide more information, when to go over something again, when to take a break."

HealthPartners Medical Group

where patients are at the center of "prepared practice teams"

Patients are increasingly working in partnership with their health care providers, no longer simply the passive recipients of care. But it takes planning for this new model of provider-patient interaction to be effective.

At HealthPartners Medical Group (HPMG), a group practice based in Minneapolis, Minnesota, and a participant in Pursuing Perfection, the reactive, visit-by-visit form of care has been replaced by the HealthPartners (HP) Planned Care Model. In this model, prepared practice teams actively anticipate the needs of patients, and involve them in goal setting and care planning.

Prepared practice teams include physicians, registered nurses, licensed practical nurses, and clerical staff such as receptionists. A diabetes nurse specialist, nutritionist, and/or pharmacist are added to teams as necessary. The HP Planned Care Model puts the patient at the center of the team, and supports them in becoming informed and activated patients.

HPMG identifies four phases of engagement with patients — pre-visit, visit, post-visit, and between-visit — each of which has its own set of tasks and expectations. The approach has improved patient and staff satisfaction, and, most important, care itself. More patients are receiving the complete set of appropriate screening tests for their age group, says Beth Waterman, RN, MBA, HealthPartners' Vice President for Primary Care and Clinic Operations.

Prairie Lakes Hospital

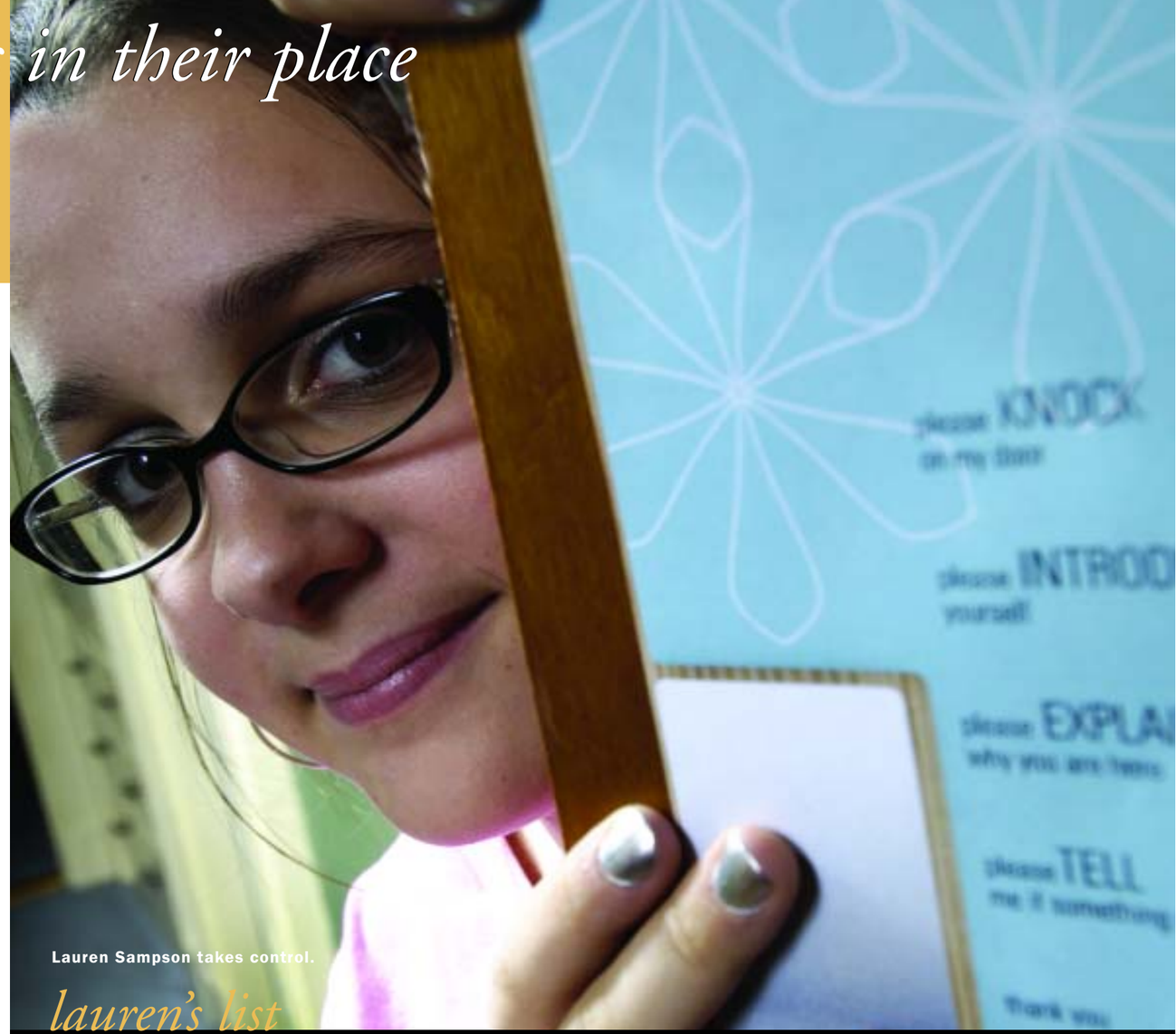
where nurses are responsible for "the whole patient"

There are some things all patients want — respect, information, compassion — but cultural and regional distinctions must also define patient-centeredness.

At Prairie Lakes Hospital in Watertown, South Dakota, part of the Transforming Care at the Bedside initiative and a member of IHI's IMPACT network, staff members keep on top of patients' needs without being on top of patients. "Our patients are Midwesterners," says Shelly Turbak, RN, Director of Medical and Surgical Services. "They don't want a crowd of people in their room. They just want to get better and go home." So when staff members hold their daily interdisciplinary care conference, they don't troop the care team into patient rooms.

But the patient is still the focus when representatives from physical therapy, social work, home health, and pastoral care meet. Led by the bedside nurse, the group reviews the patient's status, and plans for a smooth transition home. "Nurses are traditionally very task oriented, focused on the plan for the day," says Jill Fuller, RN, PhD, Chief Nursing Officer. "We are taking advantage of their critical thinking skills by giving them more responsibility for the whole patient and the whole stay, from admission to post-discharge."

The approach pays off in several ways. "Our patients say they feel prepared when they leave, our readmission rates are very low, and our nurses are empowered to use all their skills," says Fuller.



Lauren Sampson takes control.

lauren's list

Research shows that patients are more likely to follow a care plan and take medications prescribed to them if they are involved in creating the treatment plan.

Scary and confusing. That's how 13-year-old Lauren Sampson describes how it felt to be a young child in the hospital. Lauren's pancreatitis has led to more than 50 inpatient stays at Boston's Children's Hospital. She didn't like the way some doctors would come in without warning and then not explain things clearly, she recalls. "I wanted to know who they were and what they were going to do," she says. And she wanted them to tell her the truth if something was going to hurt.

So with the help of her mom, Sally Sampson, and the hospital's Child Life Specialist, Lauren put her wishes in writing and posted them on her door. "It gave her a sense of control," says Sally Sampson, "and she was more cooperative when they respected her wishes." Now Sally Sampson is a parent advisor for the National Initiative for Children's Healthcare Quality, IHI's sister organization for pediatrics, bringing the patient and family perspective to the table. Children's Hospital in Boston is currently testing "Lauren's List" for potential wider use. "It feels better to be respected," says Lauren.

Saving money while saving lives

People no longer wonder whether or not improved quality costs less. Data show that better care produces better outcomes, often with less cost. Healthier patients require less care, that's obvious. But finding leaner ways to work — like improving patient flow so more patients can be seen in less time or less space — offers creative solutions that prove quality and cost reductions are not mutually exclusive.

Carl Swanson discovers the value of a system that works.

life savings

Carl Swanson makes an unintended pun when he describes the care he got at Detroit's Henry Ford Hospital after he suffered a heart attack. "They didn't miss a beat," he says. "They were like a well-oiled machine. Everyone was practically standing at attention when I got there." Swanson arrived by ambulance from nearby Henry Ford Bi-County Hospital, where his EKG showed he needed a balloon angioplasty to open his blocked artery, a procedure he would undergo in the Detroit hospital soon after his arrival.

Henry Ford Hospital is one of thousands using a heart attack protocol that is part of IHI's 100,000 Lives Campaign. It calls for patients to receive very rapid treatment, because the faster the blockage is cleared, the better and faster the patient's recovery. "They were like a drill team. They knew exactly what they were doing. Even though I was scared, I felt reassured by how organized they were." Swanson, 69, has returned to good health and the antique shop he runs.

In the US, research shows that states with higher quality of care generally have lower per capita health care costs. Errors and inefficiencies are costly in more than just human terms.

Allegheny General Hospital
where lower infection rates have lowered costs

The human and financial cost of hospital-acquired infection is huge. At Allegheny General Hospital, a 580-bed teaching hospital in Pittsburgh, Pennsylvania, a sharp focus on preventing infection has resulted in significant savings in both categories.

"We began with a focus on prevention and accurate diagnosis of nosocomial infections," says Sharon Kiely, MD, Chief of Clinical Quality. "In managing complex, very sick patients our staff learned that a multidisciplinary approach was necessary to reduce infection, as well as targeting appropriate treatment to the patient."

Under the leadership of Richard Shannon, MD, Chair of the Department of Medicine, Allegheny General implemented the interventions in IHI's 100,000 Lives Campaign to prevent ventilator-associated pneumonia (VAP) and central line-associated bloodstream infections (CLI) in two ICUs. The results were dramatic: Within one year, the VAP rate dropped by 83 percent and the CLI rate fell by 87 percent.

Leaders at Allegheny General estimate that patients diagnosed with VAP average a 34-day stay, with a net loss to the hospital of $24,435 after reimbursement; patients diagnosed with CLI average a 28-day stay, at an operating loss of $26,839. For an investment of about $35,000 in improvement work, Shannon estimates that the hospital experienced a $2 million improvement.

Virginia Mason Medical Center
where lean management principles drive out waste

Virginia Mason Medical Center in Seattle, Washington, routinely finds ways to improve patient care while saving money. This is due to development of the Virginia Mason Production System (VMPS), a management methodology based on principles of lean management from the Toyota Production System, and applied in IHI's IMPACT network.

For example, Virginia Mason applied the principles of VMPS when designing its new Center for Hyperbaric Medicine. Originally, staff felt that larger hyperbaric chambers would require the construction of a new building. But careful analysis proved otherwise. The team not only found they were able to build the new Center in an existing hospital space, which saved $2 million in construction costs, but they were also able to design the Center so that more patients can receive treatment simultaneously, eliminating waiting time. The new Center can also accommodate emergency cases without interrupting regularly scheduled patient care.

The Center's location within the hospital also eliminates the need for patients to be transported via ambulance to a separate campus site for care, saving approximately $55,000 annually in ambulance expenses alone.

"We are continually identifying ways to provide quality care and eliminating non-value-added elements of the patient experience," says Gary Kaplan, MD, Virginia Mason Chairman and CEO.

Charleston Area Medical Center
where sensible antibiotic use saves money

Clinicians at Charleston Area Medical Center (CAMC), the largest health care system in West Virginia and a member of IHI's IMPACT network, are experts at infection control. As participants in the CMS Surgical Care Improvement Project (SCIP), as well as IHI's 100,000 Lives Campaign which calls for reducing surgical site infections, CAMC has proven that judicious administration of antibiotics to surgical patients pays off in three ways.

First, says Dale Wood, Vice President for System Improvement and Chief Quality Officer, appropriate antibiotic use for surgical patients helps reduce the rate of infection. At CAMC, for example, fewer infections after joint surgery have contributed to one of the lowest readmission rates in the SCIP project.

Second, by limiting post-surgical antibiotics to the minimum effective dose — discontinuing 24 hours after surgery instead of 48 — CAMC is reducing the opportunity for antibiotic resistance, while maintaining top-decile infection control.

And third, says Wood, "Decreasing the number of postoperative antibiotics doses from a baseline of 7.9 to 2.4 has resulted in significant savings, both from the reduced doses and the reduced amount of time required of nurses." Specifically, says Wood, over a three-year period, "Spreading improvements to non-CMS surgical cases resulted in a $3 million savings for drug and supply costs."

Moving into the mainstream

IHI is proud to have played a part in the remarkable success stories presented in this report. These inspirational "saving accounts" are *extraordinary testaments* to the progress made by health care institutions throughout the world in the past few years. But even more inspirational is the abundance of outstanding stories from which we selected these few.

Quality improvement successes were once infrequent and unremarkable. Now, extraordinary change is an everyday reality for health care organizations — and their patients — everywhere.

Quality improvement is no longer a fringe philosophy in health care. It is now the mainstream approach for ensuring that the best possible care is delivered to every patient, every day — and it is rapidly becoming the core business strategy for survival in an increasingly competitive marketplace.

The momentum is mounting.
The tipping point is here.
From IHI's perspective, the proof is plain to see:

More than 220 member organizations in IMPACT

The IMPACT network is IHI's "association for change." By simultaneously engaging senior leaders and front-line teams in an ambitious improvement agenda, IMPACT provides a potent framework for organizations to achieve system-wide change. With the assistance of IHI faculty, IMPACT members collaborate on cutting-edge innovations and share best practice ideas, setting new standards of care that "raise the bar" on health care performance. Launched in 2002, IMPACT had grown to more than 220 member organizations by the end of 2005.

More than 5,000 people at the National Forum

IHI's National Forum, the premier "meeting place" for people committed to the mission of improving health care, has steadily grown into the world's largest health care quality event. In December 2005, onsite attendance surged past the 5,000 mark for the first time, while thousands more participated via satellite broadcast. IHI's International Summits on Office Practice and Hospital Care also continue to see rapidly expanding participation each year.

More than 3,000 US hospitals in the 100,000 Lives Campaign

The 100,000 Lives Campaign challenged the nation's hospitals to take on a dramatic task — prevent the deaths of 100,000 Americans who, without the science-based changes recommended by the Campaign, would otherwise die in their hospital stay. At the end of 2005, more than 3,000 hospitals — representing what we estimate to be approximately 80 percent of US hospital beds — had joined the Campaign, testimony to the fact that improvement has indeed moved into the mainstream. In the process, a national infrastructure for change has been created that will help drive future broad-scale improvement initiatives — as well as future Campaign buses.

IHI staff at the send-off of the 100,000 Lives Campaign bus tour, September 2005.

More than 5,000 "visitors" to IHI's website every day

IHI.org is the online authority for anyone, anywhere whose aim is to improve health care. With more than 5,000 visitors per day on average, the site contains a wealth of helpful improvement ideas, tools and resources to support change efforts in any health care setting. In addition, IHI's newsletter, *Continuous Improvement,* provides electronic updates on improvement activities to more than 50,000 subscribers every month.

1,000s of patients' lives touched through Pursuing Perfection

What if health care delivery aimed to be perfect? What would it look like? We now have some preliminary answers, thanks to the Pursuing Perfection initiative — a multi-year project funded by The Robert Wood Johnson Foundation and led by IHI. The work, which began in 2001, is anchored by a shared desire to totally transform health care delivery. There are 13 participating organizations in the US and Europe, and their efforts, taken as a whole, offer some of the best evidence yet that fundamental improvement in patient care is possible across and within a wide range of health systems.

We invite you and your organization to join IHI in the important work of improving health care.

About IHI

Our Cambridge Staff

The Institute for Healthcare Improvement is a not-for-profit organization leading the improvement of health care throughout the world. Founded in 1991 and based in Cambridge, Massachusetts, IHI is a reliable source of energy, knowledge, and support for a never-ending campaign to improve health care.

Employing a staff of more than 85 people and maintaining partnerships with over 200 faculty members, IHI offers comprehensive products and services that improve the lives of patients, the health of communities, and the joy of the health care workforce.

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"The names of the patients whose lives

we save can never be known.

Our contribution will be

what did not happen to them."

Donald M. Berwick, MD, MPP, President and CEO,

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