Metamorphosis: Healthcare's Ongoing Transformation

Healing and cultural change have begun.

Lea A.P. Tonkin

Imagine that you and your employees could be treated as first-class customers by your healthcare providers — your time valued, your problems heard, and your needs attended to in an effective and safe manner, with no extended wait times, and that these services need not cost more than previous care. And if your hospital or doctor or other providers made an error such as giving you the wrong medication, would you expect to receive an honest report about the incident and to learn what improvements are underway to eliminate the root cause of the mistake? For many of us, this scenario is just a dream.[1,2] Yet encouraging changes are underway. Following are accounts of healthcare improvement initiatives — a number patterned after lean or continuous improvement activities that manufacturing folks have been implementing over the years.

Just as manufacturing people learned long ago, computerizing the whole healthcare shebang won't cut it.[3,4] A consistent, organization-wide focus on quality, complemented by teamwork, standardized performance criteria, information transparency, and perhaps most challenging of all, cultural change are critical to performance improvement. To learn how you can become part of this metamorphosis, read on.

In Brief

Are you and your employees treated as first-class customers by your healthcare providers, at a reasonable cost? Patient safety problems, extended wait times, and steeply rising costs are more typical scenarios for many healthcare consumers. This article offers accounts of collaborative improvement initiatives. The remedy for healthcare's ills is well-known to manufacturing types who set their sights on world-class performance: a consistent, organization-wide focus on quality, complemented by teamwork, standardized performance criteria, information transparency, and perhaps most challenging of all, cultural change .

ThedaCare's Lean Efforts

When Dr. John Toussaint, president and CEO of ThedaCare™ addressed the 2004 AME annual conference, he shared how a healthcare delivery system uses lean approaches to better its quality and cost performance. ThedaCare, an Appleton, WI-community health system, encompasses three hospitals, as well as physicians, behavioral health, at-home care, and senior services, and a retirement living community, assisted living, and skilled nursing facilities. Its joint ventures include a community clinic, the Appleton Heart Institute, an ambulance service, and ThedaCare Physicians' Shawano Family Medicine. Dr. Toussaint said the two key goals for ThedaCare's overall lean efforts are, "1) We must lower our costs, so that we can lower the price you pay for our services, and 2) we simultaneously must improve the quality of what we do to world-class levels (95th percentile)."

Thanks to their lean focus launched in 2002 and other improvement efforts, initial results are encouraging:

- Saved $154,000 in operating room procurement processes
- Improved cash flow by $8.1 million
- Reduced staff (32 staff positions) resulting in no service reduction or layoffs (turnover is about ten percent)
- Dramatically cut clinical documentation cycle time (50 percent)
- Telephone triage times decreased from 89 seconds to 28 seconds (patients connected to a nurse or appropriate personnel), while triage abandonment (people hanging up) dropped from 11.6 percent to 0.6 percent
- Improved productivity related to new staff hiring, for a $235,000 savings in staff time.

Treating Patients as Customers

These selected examples may have dollar signs attached, but the emphasis on patients — treating them as customers — is clear. "We look at what we can deliver to the customer, at the value proposition," Dr.

"We look at what we can deliver to the customer, at the value proposition." Dr. Toussaint, ThedaCare™

Toussaint said. "For example, I recently sat in with a team at one of our clinics, while they were working to reduce triage abandonment rates. They previously had patient reps answering all calls. The reps had a lot of paperwork steps to get data for the patient. The team redesigned the system so reps schedule patients for appointments and blood tests, while other requests requiring nursing feedback go into a nursing triage system. That dramatically reduced waiting time, and the patients talk to a nurse if that is needed.

"In our system, you can go online and see when the next appointment is needed. We have an open access system. Not much is scheduled, because we work on supply and demand," he continued. "You can plug in that you want a 6 p.m. appointment if that is open, on the same day.

"It isn't just about lowering costs," Dr. Toussaint added. "It's about improving service and morale. The typical healthcare administrator doesn't have a clue about connecting cost and quality. *We've got to figure this out.* American industry has been at this lean approach for a long time now. The Toyota Production System (TPS) is what our industry needs, and that doesn't make everyone in our industry happy."

Calling on manufacturing practitioners to share their knowledge about lean improvements with the healthcare industry, Dr. Toussaint noted that people from Wisconsin snow blower manufacturer Ariens had shared their lean "lessons learned" with ThedaCare personnel. "They worked with us to analyze our value streams, and we had visits back and forth," he recalled. "Industry leaders can get involved, pushing healthcare leaders to get involved in lean, because it works — affecting productivity, defect rates, and morale."

A "big believer" in standard performance criteria and public reporting, Dr. Toussaint said ThedaCare has been reporting on mortality rates for years. He is chairman of the Wisconsin Collaborative for Healthcare Quality (www.wchq.org) which advocates such disclosure. "There is a need for standard benchmarks or common definitions," he

IHI's 100k Lives Campaign

The Institute for Healthcare Improvement (IHI), joining with other healthcare organizations, launched a "100k Lives Campaign," aiming to enlist participation by thousands of hospitals across the United States. The campaign to make health care more safe and effective, achieving the best possible outcomes for all patients, is among various IHI healthcare improvement initiatives.

Contending that widely-implemented healthcare improvements can prevent 100,000 avoidable deaths a year, the IHI started with six recommended interventions:

- Deploy rapid response teams
- Deliver reliable, evidence-based care for acute myocardial infarction
- Prevent adverse drug effects (ADEs)
- Prevent central line (large IVs inserted into the neck or chest) infections
- Prevent surgical site infections
- Prevent ventilator-associated pneumonia.

"The names of patients whose lives we can save can never be known," said Don M. Berwick, M.D., M.P.P., IHI's president and CEO and an ardent champion of healthcare improvement. He added that more grandfathers will attend graduations and weddings they would have missed, grandchildren will know their grandparents they might not have known, books will be read, and gardens will be tended that, without this improvement work, would never have happened.

IHI has gathered statistics indicating that as many as 98,000 people die in U.S. hospitals each year related to medical injuries; an estimated two million patients get hospital-acquired infections every year; and that the United States spends the highest amount for healthcare among (advanced) industrialized nations while performing more poorly than most countries on healthcare quality measures.

added. "The Centers for Medicare and Medicaid are beginning to develop measures." ThedaCare also participates in the Institute for Healthcare Improvement (IHI) organization's 100k Lives Campaign goal of saving 100,000 lives in 2005 and every year thereafter through proven interventions (see the box, "IHI's 100k Lives Campaign").

"This isn't a project," Dr. Toussaint emphasized. "If it's only a project, you'll never get long-term benefits. What we need is cultural transformation."

ThedaCare's current improvement activities target three areas. First is quality. They are working to improve their smoking cessation counseling for people who have had heart attacks and ensure that discharged heart failure patients receive the most appropriate medications.

Second, they're also aiming to reduce overall expenses $10 million annually. "We're about $3 million towards that goal," said Dr. Toussaint. ThedaCare monthly spends about $64,000 to run an average 20 improvement events, while generating an average of approximately $200,000 a month in estimated annualized savings from these events.

The people side of improvement is the "third leg of the stool." Their goal is to be on *Fortune's* top 100 employer list. "If you can't afford to make improvements, then I question why you are in the business," said the doctor. "It's all about the best care and information, at the lowest cost."

Pulling Together in Iowa

The quest for healthcare improvement through collaborative efforts is gaining momentum in many areas and organizations. "In a November, 2002 Des Moines conference, 'A New Vision for Health Care — Forging Partnerships for Business, Consumers, and Health Care Providers,' lean was one of the key ideas of this new vision," recalled Paul Pietzsch, president of Health Policy Corporation of Iowa (HPCI). The conference was sponsored by numerous organizations including HPCI and the

Iowa Association of Business and Industry, the Iowa Hospital Association (IHA), the Iowa Medical Association, the Iowa Nurses Association, the Iowa Federation of Labor AFL/CIO, and the Iowa Department of Public Health. It drew approximately 250 attendees.

The Iowa Business Council helped organize a conference session on lean enterprise. An Iowa manufacturer, HON Industries (now HNI Corporation), described lean operations and related improvements. "We also had a panel discussion on lean enterprise and healthcare. We are fortunate to have Iowa manufacturers step up and be willing to assist in engaging lean in the healthcare sector," said Pietzsch. "The concept of applying lean to healthcare was new to some attendees. Besides, they were already working on improvement." But there was interest in exploring lean healthcare further.

Next, the Iowa Business Council, HPCI, and others pulled together a task force of healthcare, industry, and others to pursue the lean enterprise-healthcare connection. "In July, 2003 Maytag sponsored a value stream mapping (VSM) program at their corporate headquarters in Newton, IA," said Pietzsch. "It had three components: healthcare delivery or patient care services, administration, and customer focus. A detailed map of the current state for billing, claims, and payment processes was developed. At this point, we decided to focus on several identified 'areas of opportunity' (heartburns) and administrative costs — that's where a third of healthcare dollars go," he said of the collaborative task force efforts.

In early 2004, the Iowa Coalition for Innovation and Growth, sponsored by the Iowa Business Council and the Iowa Chamber of Commerce, and HPCI formed a healthcare Hot Team of business leaders, healthcare providers, the IHA, the insurance industry, and others. Among corporations represented on the Hot Team have been senior executives from Pella Corporation, HNI Corporation, Vermeer, and Rockwell Collins.

The Hot Team decided to do kaizen (improvement) events during the summer of 2004 at three hospitals in Iowa — the University of Iowa Hospitals and Clinics in Iowa City, Unity Health System in Muscatine, and St. Luke's in Cedar Rapids. Working with the consulting firm TBM (they volunteered) and volunteers from industry as well as the IHA, the Hot Team looked for ways to introduce lean to the patient care side of healthcare through kaizen event pilots or demonstrations. Results from these three pilots included: 1) Removed a two-week CT (computerized tomography) scan process backlog, processing four more patients a day; 2) implemented a process to increase the percentage of time a patient is transported within a 20-minute window from 90 percent to 98 percent; and 3) decreased patient leadtime for acute care processing by 25 percent. The Hot Team is planning a second round of kaizen events. HPCI is continuing to work with healthcare organizations, employers, lean practitioners/experts, and others to create better linkages and common metrics between healthcare providers and the external customer.

University of Iowa Hospitals and Clinics: Patients Wait Less, Higher Productivity

Trimming wasted, non-value-added (NVA) steps during one of the Hot Team's 2004 pilots helped personnel at the University of Iowa Hospitals and Clinics (UIHC) in Iowa City get patients in more promptly for their CT scans, for example. "Fortunately, executives from Pella and Maytag were with us during a kaizen event, for an entire week," said Ann Madden Rice, chief operating officer. "While we had invested in equipment that worked well, we had a lot of wait time between scans. During the kaizen event, we eliminated the waiting time between when a patient goes to the registration clerk and when the patient is given a contrast fluid to drink." They also placed a small refrigerator near the registration desk for the fluid, and gave

the registration clerk a script so that the patient received standardized information. Once the patient drank the contrast fluid, a nurse was called to start an IV (generally needed when a patient takes the contrast fluid), eliminating another waiting period. They also found that medical assistants (instead of radiology technicians doing this task) could position patients with the equipment and help in multiple rooms, giving radiologists more time to complete the scan. "By following and mapping footsteps of who moved where, we found that the staff previously made many extra steps," said Rice. "We were able to increase the number of scans a day by about 20 percent. Patients are always happy when they have to spend less time waiting for a test, and the staff felt that their time was used more productively."

Encouraged by these initial results, University of Iowa Hospitals and Clinics personnel have more kaizen projects such as catheterization labs and out-patient clinics in mind, Rice said. More lean training through the Iowa Business Council and Rockwell Collins personnel were on the agenda early this year. Rice believes that improvement activities, using a variety of tools, not only eliminate waste but also contribute to reduction in potential errors.

Hot Team's Revving Up More Collaboration

"One of the things that developed out of these initial kaizen events in Iowa was that all three hospitals got excited about rapid process improvement utilizing the kaizen methodology. By sharing their findings with others in the healthcare field, they generated more interest from other Iowa healthcare providers. To date, at least three additional hospitals have asked for industry to come alongside and jumpstart their improvement efforts," said Vince Newendorp, chairman of the Iowa healthcare Hot Team and vice president of administration for Pella, IA-based Vermeer Manufacturing Company.

"One of the many things we've learned in industry is that there's a need to develop

a pull system based on customer needs," said Newendorp. "By demonstrating that the lean enterprise tools are applicable in healthcare, genuine interest in the process has begun and industry is being asked to participate alongside additional healthcare providers. In addition to our involvement promoting kaizen events, our lean healthcare Hot Team has developed four supporting projects in 2005. One of these projects is a resource kit to be made available to the healthcare providers in Iowa, explaining lean enterprise methodology, an understanding of the tools that are available to them, offering real life testimonials of what lean has done in Iowa hospital settings, and identifying industry experts where lean has become a culture, not just a 'flavor of the month' in making significant improvement in quality, cost, delivery, and safety through waste elimination and process improvements. Another one of our projects includes inviting healthcare professionals to participate in future industry and healthcare kaizen events in Iowa — to be part of our improvement events — to get exposure to what lean is all about. We are also developing an understanding of what others are doing in the area of lean in healthcare outside of Iowa and what we could apply to the work we are doing here."

Companies Teaming Up with Healthcare Providers

These healthcare improvement projects also blend well with the Iowa Coalition for Innovation and Growth's business-boosting work, aimed at making the state more attractive to business, according to Dean Bliss, senior lean electronics consultant for Rockwell Collins, Cedar Rapids, IA. The coalition is a function of the Iowa Business Council (a board of CEOs of the 25 largest employers in Iowa).

"Healthcare costs are growing faster than any other element of cost," Bliss said. "What we've done in Iowa can be done through other organizations around the country. "At the same time, the quality of patient care and patient safety cannot be compromised."

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Insurance Provider: A Need to Build Trust

One of the challenges confronting healthcare improvement practitioners is the belief that lean means skimpy services. Or that computerizing and automating processes will solve problems. "We need instead to find the root causes of problems or errors and then to eliminate them," said Dale Andringa, M.D., a member of the Iowa healthcare Hot Team and vice president of health management/chief medical officer for Wellmark Blue Cross and Blue Shield in Iowa. Dr. Andringa has been a physician for 28 years, and before joining Wellmark, he worked in private practice, the insurance industry, and corporate healthcare.

"There was little communication between providers of healthcare and employers in the past," he said. "While there are differences, we are finding more similarities. Clearly industry has been on a best practice path longer. We need to collaborate and exchange information." He noted that many healthcare providers traditionally focused more on increasing revenue than on reducing costs.

While he strongly supports the Leapfrog Group (see the box, "The Leapfrog Group") efforts to broadly improve healthcare, Dr. Andringa perceives great value in "narrow, deep" improvement activities. "There has to be a commitment to bring all of the parties together in a non-threatening way," he said. "You need dialog to build trust, to create understanding that it's not about eliminating services." Shorter waiting times and improved accuracy in medication records, for example, find cheerleaders among the healthcare provider community as well as patients.

The insurance industry also needs to work on process improvements, said Dr. Andringa. "We at Wellmark have as a core value that we will be the easiest plan to do business with — responding quickly and when needed, with the right response," he said. An example is the company's medical review process. They are looking for root causes of errors when claims are filed, and then educating providers about how to file correctly to eliminate payment delays. "An example of eliminating NVA activities is that we have found mailing questions about incorrectly-filed claims leads to longer processing time," the doctor said. "Sometimes a quick phone call eliminates many of the questions as well as the old batch and queue system."

Dr. Andringa offered several suggestions for collaborative healthcare improvement champions: 1) build trust and relation-

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The Leapfrog Group

Leapfrog Group members believe that, together, they can drive "great leaps" in patient safety and healthcare quality. These healthcare purchasers advocate using standard criteria for selection of hospitals, physicians, and other healthcare providers. Safe practices to promote patient safety recommended by the organization include:

1. Computer physician order entry (CPOE)
2. Evidence-based hospital referral (EHR)
3. ICU physician staffing (IPS)
4. National Quality Forum (NQF) safe practices.

The first three criteria are recommended as the basis for healthcare provider performance comparisons as well as hospital recognition and reward. Research conducted by John D. Birkmeyer, M.D. of Dartmouth Medical School indicated that as many as 58,300 lives could be saved and 522,000 medication errors could be avoided annually from these three practices if they were used in all non-rural U.S. hospitals. The group noted that their recommendation does not imply a lack of other methods for assuring or improving patient safety (website www.leapfroggroup.org).

ships for mutual advantage; 2) people who can commit time over an extended period are needed from hospital, physician, industry, and other groups (if initial participation is meager and results require patience, that is not unexpected); 3) view these efforts as a journey rather than as a passing fad. During the past three years, Six Sigma efforts at Wellmark netted $41.4 million in cost savings. "I believe that with Six Sigma and rapid process improvement, this will increase exponentially," Dr. Andringa said.

Virginia Mason Medical Center: Seeking Zero Defects Through the Application of the Toyota Production System

A few months following a chance meeting on an airplane between J. Michael Rona, the president of Virginia Mason Medical Center (VMMC) and John Black of Shingijutsu, USA (a former Boeing executive) in the fall of 2000, senior leadership at VMMC became convinced that there was a compelling connection between the future of healthcare delivery and the Toyota Production System (TPS, or lean) concepts. Leadership's commitment and understanding of how these principles could make healthcare safer and less expensive for the consumer grew after a series of training sessions and visits with Wiremold, Boeing, and Genie executives — all of whom had transformed their organizations by adopting TPS principles. Within months of first hearing about "lean," Dr. Gary Kaplan, chairman and CEO of VMMC and Mike Rona insisted that the most senior leaders at VMMC experience Toyota first hand. "The trip to Japan, which included visits to Toyota and a gemba kaizen event at Hitachi, revealed the tremendous level of commitment required for an organization to implement lean the way it should be — organization-wide," said Christina Saint Martin, administrative director of governance and administration. "Lean is not a quick fix; it takes decades to fully realize the tremendous opportunities kaizen has to offer," she said. "We came back with a commitment that this was the way we would go

about our work — the way, from now on, that our processes would be improved."

Executives and administrators were trained intensively for six to eight months. Following a rigorous external assessment of the trainees, certification was awarded to those who passed the criteria and could competently run a Rapid Process Improvement Workshop (RPIW). RPIWs are week-long, intensive workshops where the people who do the work improve their process and test the results. "We started with about 20 RPIWs the first year," said Saint Martin. Doctors, nurses, and others on a team (usually five to eight members/stakeholders) test and make changes during the week, then fully implement the changes the following week. "In 2004, we had about 220 RPIWs. We currently have 65 certified leaders; each one is required to run three workshops per year to maintain certification. Certification is a requirement for all executives and administrative directors. We've worked diligently on leadtime reduction (less patient waiting time), eliminating defects, processing time, staff walking distance, patient walking distance, inventory, productivity, and setup reduction. We have actually eliminated large waiting rooms in some areas where patients used to have several waiting periods," said Saint Martin. "Current RPIW targets are much more specific than in initial events, bringing even better results in primary care, the hospital, and our administrative services. We share our results at report-out every Friday and staff members can also access database information on the RPIWs to share improvements across the organization and avoid 'reinventing the wheel.'

"It's all based on the value stream map (VSM), eliminating waste and providing only value to our customers. For example, eliminating NVA activities for nurses gives them more time to spend with patients," continued Saint Martin. "Managers are required to attend VSM, standard operations, 5S, and mistake-proofing classes and complete assignments for each course. We see training as a key component in our success and we also have training for our 4500 non-management staff.

"We're not going to solve world

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> *Christina Saint Martin, Virginia Mason Medical Center (VMMC)*

hunger in one workshop — there's a need to be aware of 'scope creep," Saint Martin said. "You need to be specific. For example, reducing leadtime for the clinical laboratory collection list. One RPIW team created standard work, went from batch processing to one-piece flow, and designed a Just-In-Time (JIT) dispatch system. They reduced staff walking time 42 percent, decreased leadtime 50 percent, eliminated more than half the work in progress (WIP) bottlenecks, and improved productivity by 20 percent."

Saint Martin added that RPIWs help to streamline administrative processes such as capital budgeting. The old batch process used to leave people in the dark about their requests for as much as 16-18 months. An RPIW team spent a week improving the process and developing standard processes and filters for making requests, she said. Requests must include information about what the applicant wants and why (ask why five times to get to the reason — patient safety, cost reduction, etc.). The new single-piece flow brings a response within ten days. Many requests are handled quickly by an administrative director who can approve items $10,000 and below, or by managers who can approve requests at $2500 and below.

Patient Safety: 5S, Andon Lights, "Stopping the Line"

Patient safety is the most important focus at VMMC. Staff members used exercises to think "out of the box" for ways to eliminate mislabeling patient records, IVs, etc. They reference the Institute of Medicine's (IOM) related counsel. One solution is the "It Takes Two" approach — meaning that it takes two identifiers such as birth date or Social Security number to identify a patient (in case a patient is incoherent or a patient's armband is incorrect, for example). 5S efforts, over time, ensure that equipment, manuals, charts, furniture, files, etc. are where they are supposed to be. Andon lights on some equipment remind staff to test daily when needed.

Another organization-wide patient safety initiative is the Patient Safety Alert System (PSAS). After studying the Toyota system which enables workers on the production line to "pull the cord" if errors occur during production (stopping the line until the error is eliminated), they developed the PSAS for all staff so that unsafe processes or individuals practicing in an unsafe manner can be "taken off the line" when there is a problem such as medication safety (for example, wrong blood type about to be administered to a patient). When such an alert occurs, the area manager and vice president and/or clinical chief go to the area, the Patient Safety Department is notified, and they do root cause analysis to resolve the issue within 24 hours.

VMMC's work over the past three years created a revolutionary change in its culture of medicine and healthcare management. Their personnel learned that they could progress toward the goal of becoming a quality leader in healthcare by following Toyota management principles: Put the customer first; be relentless about quality and zero defects; create an absolutely safe environment; create a work environment in which workers can excel; and eliminate waste in all processes. They also learned that the rigorous pursuit of quality would be profitable because of the elimination of waste and dramatic productivity improvements.

Cancer Treatment Centers of America: Lean Thinking Reduces Errors

Properly applied, lean thinking principles enhanced patient safety by reducing errors, added Carol Lepper, RN, MBA, director of Lean Operations for Cancer Treatment Centers of America at Midwestern Regional Medical Center, Zion, IL.[5] For example, patient safety is the most important factor of pharmaceutical services, she said. They set a goal to increase patient safety by improving turn-around-time (TAT) 20 percent for the preparation, dispensing, and delivery process for chemotherapy medication orders. A lean team composed of pharmacy staff used tools such s VSM, 5S visual workplace, standard work instructions (SWIs), work flow redesign, and inventory management in the pharmacy area. They document-

ed and eliminated waste in areas such as information flow (duplications, other wastes), unnecessary walking, scheduling, load balance issues, queue time, and supply disruptions.

After developing a chemotherapy safety log, SWIs, a just-in-time inventory management system for IV supplies, and visual workplace changes (such as visuals for work flow and standard locations for supplies), they recorded dramatic improvements. Process steps decreased 50 percent; walk distance (feet per day) dropped 43 percent; average TAT for chemotherapy improved 37 percent. Self-reported chemotherapy errors also decreased. "Lean thinking is a new way of thinking," Lepper said. "We learned to triage our orders by complexity, thus reducing overall TAT without compromising patient safety."

Partnership, Disclosing Errors Without Blame, and Other Critical Success Factors

An emphasis on process improvement encompassing seven Critical Success Factors (CSFs) for reducing hospital errors was suggested by Dr. Kathleen L. McFadden of Northern Illinois University (NIU), Elizabeth R. Towell of Carroll College, and Gregory N. Stock, NIU.[6] The CSFs included 1) partnership of all stakeholders — gathering information from a variety of perspectives; 2) reporting errors without blame — replacing the fear of retribution for reporting healthcare errors; 3) open-ended focus groups; 4) cultural shift — where knowledge is shared and information flows freely in an open environment; 5) education and training programs; 6) statistical analysis of error data; and 7) system redesign — it may encompass reduction of scope (possibly using simple procedures to replace one that is more complex), the addition of process steps/constraints/new technology, or other changes that make it difficult or impossible to make certain errors.

Although there are significant differences between aviation and healthcare, McFadden and Towell noted that there are similarities with implications for error management.[7] For example, aviation near misses as well as failures are reported and analyzed, then root causes of error are determined so they can be eliminated. A more recent report by McFadden and colleagues G. Stock and C. Gowen, based on a survey sample of 133 hospitals, indicated that the more importance a hospital places on the qualitative seven CSFs, the more likely it is to implement them.[8] Their research also showed that hospital managers need to remove barriers that may limit needed cultural changes or other improvements. "What's important is that hospitals implement process changes as a 'package' together," said McFadden.

"No One Goes to Work Intending to Hurt Anybody"

Lean is not about eliminating the compassionate, personal approach or eliminating professional judgment in healthcare. It is finding ways to make people's jobs better and easier so they can eliminate errors and waste, spending more time with patients and working on healthcare quality improvements, according to Cindy Jimmerson, principal of Lean Healthcare West consulting firm.[9] Much of her healthcare improvement work stems from earlier research funded by the National Science Foundation.

Jimmerson advocates using TPS principles to reduce errors and waste, while improving workplace morale. In one hospital intensive care unit improvement event example, a team looked for ways to eliminate medication errors related to the wrong IV drip rate; seven such errors had been reported in a three-month period. Work improvements made by the team included standardizing the way to calculate medication drip rates and report activity, and calibrating all IV monitoring machines the same. The result was no medication errors related to the wrong rate in the subsequent three months and a feeling of confidence by the staff that all medications were being delivered safely.

Jimmerson shared lessons learned

from healthcare improvement activities at various hospitals: Senior leadership buy-in and participation are critical to the success of these efforts; be thoughtful about aims/goals; have courage to make way for new processes and ideas, despite some-times-strong resistance; communicate effectively; invest in support for long-term cultural change.

"We need to make a case for change," Jimmerson said. "No one goes to work intending to hurt anybody. But healthcare systems are complex. We need to get people to stop and look at their work differently, and we need people in manufacturing and others to share how they've implemented lean and how it can be applied in healthcare."

The Need for Greater Transparency

Is there a means to "spread the gospel" of healthcare improvement more widely? Among the organizations working toward improving healthcare quality and efficiency is the Consumer-Purchaser Disclosure Project. It is a coalition of purchaser, consumer, and labor organizations that have joined forces to improve the availability of information about the performance of hospitals, physicians, and other providers. "The unique aspect of the Disclosure Project is that we've united the 'buy side' of the market and are collaborating to ensure that many of the national quality efforts underway in the marketplace reflect the needs of purchasers and consumers," said Katherine Browne, managing director of the Consumer-Purchaser Disclosure Project.

Francois de Brantes, General Electric's program leader for healthcare initiatives in Corporate Health Care, said the first goal of the Consumer-Purchaser Disclosure Project is to create greater transparency. "There is very little information you can rely on for finding better-performing hospitals and physicians," he said. "We need better information on our suppliers to act in a rational way. There is no reason to treat healthcare differently from the way you would treat any

other supply chain. The major source of information corporations rely on is cost, which is insufficient. We have found that higher quality can be associated with lower cost, but not always, so you need more reliable information in the market." The Disclosure Project has issued a set of guidelines that all health plans can apply to increase the amount of information on physicians and hospitals in a uniform manner.

de Brantes noted that the American Medical Association has worked with the National Quality Forum, the National Committee for Quality Assurance, and other organizations to develop clarity in performance measures. If providers are asked to meet inconsistent standards, the result would be more costly and disruptive. "We don't want to make this punitive. But providers and consumers are not getting the right types of signals," said de Brantes. "We need consistency across the country to say that it doesn't matter if you are in Peoria or Columbus — you should be able to know if a doctor delivers quality in diabetes care, for example."

Having performance information publicly reported and changing the way providers are reimbursed is critical so that high quality and efficient care are rewarded. "Let's install normal market discipline, directing incentives to doctors and hospitals for those who do well, and incentives for consumers to consume in the right places — such as co-pays based on the value created by the doctor or the hospital," de Brantes said.

GE supports the efforts of the Leapfrog Group (using standard criteria for selecting hospitals — see the related accompanying box) and Bridges to Excellence (see below) on the physician side. "We've created incentives for physicians to improve their performance," de Brantes said. "The message is that if you meet performance measures and deliver good care, we will give you more money."

The Bridges to Excellence coalition is an organization of large employers, health plans, the National Committee for Quality Assurance, and other groups that supports physician pay-for-performance efforts. The

Resources

- **ASQ:** See the organization's website (www.asq.org); among recent newsroom headings was, "Children's Hospital Using Six Sigma to Improve Imaging Technology;" ASQ Quality Press offers a Healthcare Library of published materials.

- **Baldrige Award** (Malcolm Baldrige National Quality Award); at the website www.nist.gov, search for the awards, then among the recipients you can check health care recipients, then see quality and improvement results, and related areas.

- **Bridges to Excellence**: "Rewarding quality across the healthcare system" is the objective of this organization. They seek to create programs that will align everyone's incentives around higher quality: reengineering care processes to reduce mistakes, reducing defects to decrease waste and inefficiencies in the healthcare system, and raising accountability as well as encouraging quality improvements by releasing comparative provider performance data to consumers (website www.bridgestoexcellence.org).

- **Consumer-Purchaser Disclosure Project**: employer, consumer, and labor organizations working together to ensure that Americans have access to publicly-reported healthcare performance information; at their website www.healthcaredisclosure.org, more information is available about their vision that Americans could select physicians, hospitals, and treatments based on nationally-standardized measures (clinical quality, consumer experience, equity, and efficiency) and related strategies.

- **HealthGrades**: This healthcare quality ratings and services company studies patient safety incidents and other healthcare issues, recognizes hospitals for distinguished patient safety performance, offers healthcare provider ratings/profiles, and has "how to choose" information on methodologies (website www.healthgrades.com).

- **Institute for Healthcare Improvement (IHI) organization**; information on its 100k Lives Campaign and other activities is on the website www.ihi.org

- **Leapfrog Group (The)**: Their website www.leapfroggroup.org offers information about initiatives to improve patient safety and healthcare quality; the organization encourages the use of standard criteria for selecting hospitals and other healthcare providers. Information on additional healthcare performance improvement initiatives is provided — for example, National Quality Forum (NQF) Safe Practices, plus links to groups such as Employer Health Care Alliance Cooperative (www.alliancehealthcoop.com), The National Business Coalition on Health (www.nbch.org), The Joint Commission Accreditation of Health Care Organizations (www.jcaho.org), The American Hospital Association (www.aha.org), and others.

- **National Patient Safety Foundation®**: This national organization offers a broad range of education and awareness programs and resources as well as links to patient safety websites (see their website www.npsf.org). It aims to improve patient safety in the delivery of healthcare by identifying and creating a core body of knowledge, identifying pathways to apply this knowledge, develop and enhance the culture of receptivity to patient safety, and raise public awareness about patient safety.

- **National Quality Forum (NQF)**; the private, not-for-profit membership organization seeks endorsement of consensus-based national standards for measurement and public reporting of healthcare performance data offering information about whether care is safe, timely, beneficial, patient-centered, equitable, and efficient. Among reports are national priorities for quality measurement and reporting, national voluntary consensus standards for nursing-sensitive care, etc. (website www.qualityforum.org)

not-for-profit group encourages significant improvements in healthcare quality by recognizing and rewarding healthcare providers demonstrating delivery of safe, timely, effective, efficient, and patient-centered care. The National Business Coalition on Health (NBCH), an organization of employer-based coalitions, selected four Bridges to Excellence demonstration sites. They paid out $800,000 to 35 medical groups in the Boston area to reward systems implementation and leveraging information technology to track and educate patients, maintain medical records, prescribe medicines, and ensure appropriate follow-up.

Peg Healthcare Buys to Quality

Quality-based purchasing of healthcare services is drawing greater attention and converts. The Employer Health Care Alliance Cooperative (The Alliance) hosted a related conference in Madison, WI last year to bring together executives from various companies implementing practices such as lean manufacturing and Six Sigma with healthcare providers, representatives from ASQ, and others.

"One of the many challenges in transforming health care is a deeply-rooted cultural norm that venerates professional autonomy," said Chris Queram, CEO of The Alliance. "Many healthcare professionals believe that you can't standardize protocols and treatments. However, there is growing consensus that standard protocols and procedures can reduce variation in care and improve performance in a large number of conditions and diagnoses."

Queram added, "We as purchasers need to do a better job of developing healthcare purchasing specifications. We can insist on more evidence of quality improvement activities. We can showcase and support early adopters, to learn from them what's worked and how we can replicate these efforts. As an example, we are in the early stages of reengineering our contracting activities so as to place a greater emphasis on improving healthcare quality. In the past, multi-year contracts were tied to cost of living or other measures. Now we are in the process of tying these agreements to quality improvements."[10]

Editor's note: The assistance of Paul Pietzsch, HPCI; Cindy Jimmerson, Lean Healthcare West; and Ev Dale, Dale & Associates in the development of this article is appreciated.

Lea A.P. Tonkin, Woodstock, IL is the editor of Target *Magazine.*

Footnotes

1. Wachter, Robert M., M.D. and Kaveh G. Shojania, M.D., *Internal Bleeding; The Truth Behind America's Terrifying Epidemic of Medical Mistakes,* Rugged Land, LLC, New York City, NY, 2004, pp.83-98.
2. "HealthGrades Quality Study: Patient Safety in American Hospitals, July 2004," released by HealthGrades, 2004; see the organization's website, www.healthgrades.com; the report indicated that, despite widely-publicized information on preventable deaths caused by medical errors in U.S. hospitals, little evidence could show patient safety improvement during the past five years. The study referenced an earlier Institute of Medicine (IOM) report that an estimated 98,000 Americans are lost from preventable deaths related to medical errors every year (see, *To Err is Human: Building a Safer Health System*, edited by L.T. Kohn, J.M. Corrigan, and M.S. Donaldson, National Academy Press, Washington, 1999).
3. Gibson, Rosemary and Janardan Prasad Singh, *Wall of Silence; The Untold Story of the Medical Mistakes That Kill and Injure Millions of Americans;* Lifeline Press, Washington, D.C., 2003, pp. 176-179.
4. Deyo, Richard A., M.D., M.P.H., and Donald L. Patrick, Ph.D., M.S.P.H., *Hope or Hype; The Obsession with Medical Advances and the High Cost of False Promises*, AMACOM, New York, NY, 2005, pp. 27-51.
5. Carol Lepper, RN, MBA, of Cancer Treatment Centers of America at Midwestern Regional Medical Center was a presenter at the 2004 AME annual conference.
6. McFadden, Kathleen L., Elizabeth R. Towell, and Gregory N. Stock, "Critical Success Factors for Controlling and Managing Hospital Errors," *Quality Management Journal,* Vol. 11, issue 1, pp. 61-74.
7. McFadden, K.L., and E.R. Towell, "Aviation human factors: a framework for the new millennium," *Journal of Air Transport Management*, 5, 1999, pp. 177-184.
8. McFadden, K.L., C.R. Gowen, and G.N. Stock, "Implementing an Error Management System for Improving Patient Safety," Proceeding of the 2004 Annual Meeting of Decision Sciences Institute, Boston, MA, November, 2004.
9. Cindy Jimmerson, Lean Healthcare West was a presenter at the 2004 AME annual conference.
10. An additional example of corporate initiatives to encourage higher performance in the healthcare field was the August 23, 2004 article, "Provider, heal thy self," by David Phelps, in the *Minneapolis Star Tribune,* citing General Motors' process improvement activities with insurer/provider HealthPartners.