Journey to Perfect

Mayo Clinic and the Path to Quality

by Mary Beth Buckman and James Buckman

At a Glance . . .

- Long regarded as one of the best healthcare organizations in the world, the Mayo Clinic has not been exempt from the challenges facing the industry.
- While the Mayo Clinic had employed quality approaches to an extent throughout its history, at the start of the 21st century the organization's leaders drove a system-wide transformation using a unique quality model that combines aspects of continuous improvement, Toyota's total productive maintenance system, the Baldrige Criteria for Performance Excellence, Six Sigma, and lean.
- Recognizing that a successful transformation is rooted in the willingness, preparedness, and knowledge of its employees, Mayo trained its workforce in quality tools and approaches and implemented the "Fair and Just Culture," making all team members equal in the effort to identify improvement opportunities.
- Mayo's quality improvements have resulted in safer healthcare that is less expensive than the U.S. average. A byproduct of its efforts is a five-to-one return on investment (ROI).

Part I

The Mayo Clinic is one of the most respected names in medicine worldwide. Founded in the 1880s in Rochester, MN, the Mayo Clinic embraced innovation from the beginning. It is believed to be America's first integrated group practice as it employed the concept of coordinated, specialized care and sought out the best expertise.

At the core of the Mayo culture, from its inception to today, is a team approach and physician decision making rooted in shared responsibility and consensus building. Mayo holds a strong tradition of being a physician-led organization that champions exceptional patient care and medical research.

Today, the Mayo Clinic is determined to set a new standard in healthcare by eliminating waste and improving efficacy. It has already succeeded in providing safer care that costs significantly less than the U.S. average. As the organization has grown and society has changed, a custom blend of quality tools and approaches has helped achieve a systemwide transformation, positioning Mayo to reach its objective of delivering the best healthcare, bar none.

The Mayo Clinic established a Quality Academy where staff gain knowledge on quality tools and approaches. Graduates of the program are called Mayo Fellows and are recognized with a pin that corresponds to the levels of belts in Six Sigma education.

About the Mayo Clinic

The Mayo Clinic operates in three U.S. metropolitan areas, including Rochester, MN; Jacksonville, FL; and Scottsdale/Phoenix, AZ. The Mayo Clinic also operates the Mayo Clinic Health System—a network of more than 70 hospitals and clinics across Minnesota, Iowa, and Wisconsin—and several colleges of medicine, including the Mayo Medical School, the Mayo Graduate School, the Mayo School of Graduate Medical Education, and the Mayo School of Health Sciences. Across these sites, the clinic employs more than 56,000 people.

History of Mayo's Quality Journey

Mayo excelled through most of the 20th century in terms of both patient outcomes and growing the practice. Executives were chosen among its practicing physicians and held leadership roles for a

designated term. Successful managers were appointed to an additional term before they assumed new positions to build their skills and knowledge while assisting the growing organization. This continual development of well-qualified talent helped the organization thrive.

Henry Plummer, a Mayo pioneer physician, brought "systems thinking" to the clinic in the early 1900s. He advocated for "pooled resources" and developed a process of keeping and retrieving patient charts to apply many physicians' analyses to a single patient. This practice remains the standard of medical record keeping.[1]

The historic Mitchell Student Center of the Mayo Medical School in Rochester, MN. Formerly the city's public library, this facility houses its Learning Resource Center and serves as the center of campus life for Mayo medical students.

By 1948, Mayo established a Department of Systems and Procedures to advance systemwide consistency. Engineers and project managers defined the system itself and improved the flow of work. This allowed the organization to share information and functions between departments and units.

Mayo underwent a vast expansion in the 1980s. Since there was just a single location in Rochester, which required many patients to travel long distances, the Clinic established locations in Florida and Arizona. It also launched the Mayo Health System to serve communities across Wisconsin, Iowa, and Minnesota, a medical school, and a graduate school of medicine.

As healthcare changed in the 1990s, Mayo began to approach quality with increasing rigor, measuring more thoroughly the results of its efforts. With the help of the Juran Institute, Mayo launched a full-fledged quality improvement program. Various leaders pursued Six Sigma training and shared their expertise with the organization. These efforts brought some improvements and helped develop future key leaders. But a conflict between efficiency (containing cost) and effectiveness (doing the right things) felt by many organizations unfolded at Mayo—the perceived cost of quality improvement clashed with improved results, whether needed or not. The program was dropped.

Then, Mayo's strategic advantage of being the "best of the best" was tested. In 1999, the Institute of Medicine (IOM) issued a pivotal report, "To Err is Human: Building a Safer Heath System," which challenged healthcare providers to reduce preventable medical errors by 50 percent over the following five years. "Crossing the Quality Chasm: A New Health System for the 21st Century" and several other influential reports followed.

The IOM reports were a catalyst for Mayo to learn how it measured up in patient safety and care. Around this time, clinic personnel recognized some preventable errors occurred, which put a human face on the report data and helped Mayo leadership realize that all organizations—whether good or bad—need improvement.

Mayo also faced the challenge of being a "destination provider," as most patients traveled long distances and expected to complete their care in four to five days. Mayo examined its strategic advantages that brought patients hundreds and thousands of miles for care.

Under the leadership of then-CEO Dr. Denis Cortese, Mayo initiated a number of steps toward quality that included:

- Taking a serious look at the gaps between its high aspirations and its good, but far from perfect, results.
- Paying greater attention to "sentinel events," which are instances of clearly avoidable, major patient harm. Such events were now regarded as "system failures," not just accidents or bad luck.
- Learning from the achievements of other healthcare organizations, such as the Institute for Healthcare Improvement's (IHI) bundled practices research protocols and its 100,000 Lives campaign.
- Appointing a chief quality officer, Dr. Stephen J. Swensen, a physician, who would partner with James A. Dilling, an engineer by education, on administrative improvements.

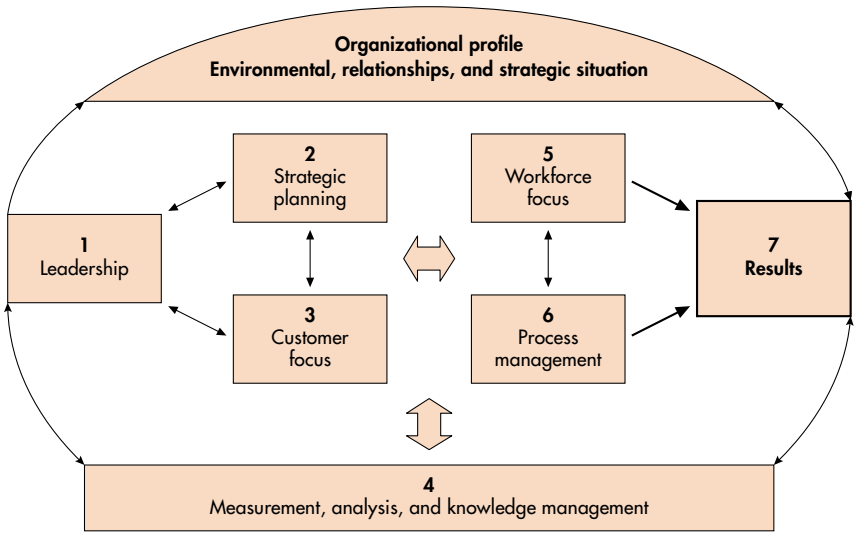
Mayo resumed its journey by exploring quality theories, including continuous improvement, Toyota's total productive maintenance system, the Baldrige Criteria for Performance Excellence, Six Sigma, and lean, as well as benchmarking companies that underwent successful transformations. The organization found the companies that used a blend of these methodologies as a basis for developing their own unique approach to quality had the most successful and lasting outcomes.

Understanding that one approach across its vast organization would garner the best results, Mayo developed its Value Creation System, which blends the best aspects of numerous quality theories into a unique model.

As a first step, Mayo pinpointed where the organization stood in terms of systems alignment and readiness against the Baldrige Criteria for Performance Excellence. Figure 1 shows the seven organizational dimensions for self-assessment addressed in the criteria.

In conducting the assessment, Mayo was defining its strategic challenges clearly. The assessment defined Mayo's strategic challenges. The organization faced pressure to lower costs and improve the quality of care. For instance, as the IOM reports pointed out, staph infections, once considered an inherent risk, could no longer be tolerated—Mayo needed to take a zero defects approach. Hospital-acquired infections lower the quality of healthcare and escalate costs.

***Figure 1**—The Baldrige Criteria for Performance Excellence*



The Baldrige Criteria for Performance Excellence provide a systems perspective for understanding performance management. They reflect validated, leading-edge management practices against which an organization can measure itself. With its acceptance nationally and internationally as the model for performance excellence, the criteria represent a common language for sharing best practices among organizations. The criteria are also the basis for the Malcolm Baldrige National Quality Award process. For more details, visit http://www.nist.gov/baldrige/publications/hc_criteria.cfm.

Mayo also needed to look beyond improving individual clinics and focus on improving the entire system. Its doctors were leading experts who worked as craftsmen to address unique patient problems, but how could the organization promote standardized best practices across more than 50 locations? Mayo was known for handling complex medical cases, but how could it give its highest quality of care to all patients while reducing costs? Its culture valued physician interdependence, but it needed a culture that upheld both physician and support staff interdependence.

As Mayo leaders reflected on the organization's values and mission, they realized that Mayo provided care and modeled healthcare on a national basis. The system needed strategic transformation while preserving what made it successful. It needed fundamental changes to its approach toward customers, workforce, operations, and information and knowledge management.

Leadership and Strategic Planning

Mayo made improvement and transformation an organizational priority. Initially, the transformation was seen as giving the best of Mayo to every patient. That approach evolved into an idea that patient-centered care is a win for financial outcomes. Quality was not simply continuous improvement; it was the vision and mission of the organization. To Mayo, quality provides hope for the patient and it helps staff provide excellence in all they do.

The next strategic challenge was to make a truly great organization better, though the culture already encouraged the belief that Mayo was the best. This required a game changer. Leadership asked departments and units to display their performance data. Virtually every department or unit could report an imperfect situation. Although most of these events had no patient impact, there was still significant room for improvement. For Mayo, the challenge became "Are we as good as we can be?"

Customers

Traditionally, Mayo viewed the patient as its customer. Certainly, the individual, immediate patient was Mayo's primary customer, but it also needed to develop best practices to help all stakeholders and society. This led to fundamental questions, such as:

- How should Mayo obtain information from stakeholders?
- How does Mayo keep stakeholders engaged?
- How does Mayo determine its healthcare offerings to support stakeholder needs?

Workforce

Mayo prized physician excellence, and few would disagree that its physicians are some of the best in the world. But what capabilities would the entire workforce need to overcome

the new challenges in healthcare? To address this, Mayo developed cross-functional teams. The process improvements needed were greater than the staff engineers could handle, and the task needed contributions from all employees.

Operations

Certain Mayo units developed excellent work systems, but these successes proved to be difficult to adopt systemwide. New approaches to design, improve, and control processes on an ongoing basis were needed. Mayo created a system to identify which processes to improve, the tools and methods needed to make improvements, and how to sustain the change in a cost-effective manner.

Information and Knowledge Management

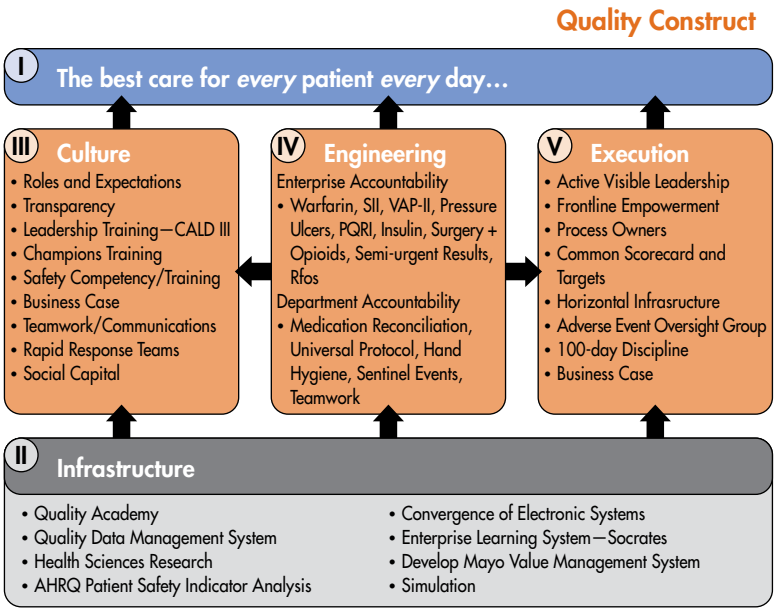
Information and knowledge management was a big challenge for Mayo. Like many other healthcare organizations, Mayo dealt with antiquated software not designed to measure patient outcomes. Not only did Mayo need to capture valid and reliable data, it needed to codify and share those data across the organization. Mayo also needed to roll operational level data up to the executive level, so that thinking and doing were connected in shorter learning cycles in real time.

Mayo leaders realized that they would need to carefully develop a deployment plan so these different components would act in concert. In addition, it was imperative that the Mayo founders' original intent—to create excellence in healthcare—be maintained. The challenge was to preserve the core of what made Mayo Clinic excellent and be ready to change everything else.

The Challenge

As Mayo leadership contemplated the enormous task ahead, there were many issues to consider: the Mayo mission of care for patients, the culture of healthcare in the United States and at Mayo, change management in a complex organization, and how to begin this vast effort. The challenge was to translate these strategic issues into a workable deployment plan—one that would be not simply accepted, but embraced by employees.

***Figure 2**—Mayo's Quality Construct*



Adapted from Bisognano, Pisek. 10 More Powerful Ideas for Improving Patient Care. Chicago: Health Administration Press & Institute for Healthcare Improvement; 2006.

Part II

Quality Deployment at Mayo

At first, change, especially transformational change, is daunting for any organization. Mayo leaders faced all of the archetypal challenges inherent with change of this scale—cultural sensitivities, technological upgrades, and a vast organization to shift to "new thinking." Well prepared for this change through its exposure to Six Sigma training, lean and the Baldrige criteria, Mayo conducted a self-examination that brought the entire organization onboard. Leaders asked questions and identified what caused barriers between desired outcomes and what actually happened on a day-to-day basis.

What distinguished this effort was a bottom-up approach, the idea that real quality care must characterize the frontline relationship between provider and patient. Only then could Mayo understand what it would take to achieve consistent, stellar results.

Taking their lead from the Mayo mission, Mayo leaders believed that the value of healthcare is a function of three elements: design (the right treatment for the right patient at the right time), execution (reliably doing things right every time to achieve the best outcomes), and cost over time. To achieve high-value care, the organization needed standardization, transparency, data gathering, and reporting.[2]

Mayo developed the Quality Construct, shown in Figure 2, to illustrate how the three components of infrastructure—culture, engineering, and execution—align with its vision to provide

the best care to every patient, every day, through integrated clinical practice, education, and research.

Culture predominates in the construct, as it is key to standardization and transparency and to ensuring that the most accurate data are collected for measurement.

One of the first projects Mayo undertook was to establish the "Fair and Just Culture," where every member of the medical team is encouraged to report anything that does not seem quite right, without fear of reprisal. This culture emphasizes respect for the talents, knowledge, and experience of each team member. Transitioning to a workplace environment of greater equality can be tricky in a medical culture where physicians, by education and tradition, are considered the ultimate authority.

Mayo Medical School uses the patient-centered focus and strengths of Mayo Clinic to educate aspiring physicians to serve society by assuming leadership roles in medical practice, education, and research.

After Mayo implemented the Fair and Just Culture, an operating room (O.R.) nurse brought a potential problem to the attention of an experienced and respected surgeon. In a traditional medical setting, a surgeon is rarely questioned or challenged. The physician, rather than being peeved, thanked the nurse. These professionals now appear in an in-house training video demonstrating that a Fair and Just Culture delivers superior results and better patient outcomes.

Another key element of Mayo's construct is engineering. The organization had employed systems engineers since the 1940s, but the Quality Construct spread engineering principles across all functions and taught staff to identify process flow, eliminate waste, and use duplication and measurement controls. Each improvement team is assigned an engineer to help with these efforts. This approach diffused knowledge across all disciplines of the organization.

Standardizing Toward Excellence

Mayo leaders standardized one process after another, keeping two ideas in mind:

- Standardization would prevent harm, eliminate waste, or both.
- Widely adopted standardization would move Mayo toward perfect outcomes—results that reflected the current best practice or the theoretical limit.

Standardizing Hand Hygiene

Based on Mayo's own observations and findings in an IOM report, leaders believed their clinicians, doctors, nurses, and therapists were lax in hand sanitation. When shown summary observations about hand hygiene, most staff members were shocked to discover that they were only 50 to 67 percent compliant with the standard practice of preceding every patient contact with hand washing or germicide.

Through employee awareness, patient education, installation of additional sanitizer dispensers, reminder signs, the presence of monitors, and other means, compliance climbed to more than 95 percent and stayed there. Monitoring was eventually reduced to sampling, and the change is now well ingrained in the culture.

Warfarin—Getting It Just Right

Warfarin is a blood thinner used to prevent heart disease, stroke, and thromboembolism; it is also a poison. At Mayo, more than 18,000 patients per year are anti-coagulated with Warfarin, and administering the correct amount is critical to avoid blood that is too thin or not thin enough.

Five years ago, 96 percent of patients were properly coagulated in the Mayo system, but 4 percent were not, a defect rate that was considered "normal." However, Mayo's Luther Midelfort Hospital in Eau Claire, WI, accomplished a defect rate of only 1 percent. In other words, its process for Warfarin delivered a defect rate 75 percent lower than the Mayo average.

Upon studying this best practice, the Mayo engineering group found no substantive differences in the patients at Luther Midelfort compared with similar patients across Mayo. The process was documented and standardized systemwide using the Midelfort protocol and held in place via a computerized blood analysis with an algorithm for dosage correction. The new, improved outcomes reduced complications and the patient's length of stay, lessened legal liability, and improved staff morale and Mayo's reputation. Dr. Stephen Swenson termed it "a trifecta" for patients, staff, and Mayo's bottom line.

Joint Replacement

Like other healthcare providers, Mayo is encountering more aging patients with arthritis-caused joint deterioration. Hips, knees, and shoulders are being replaced by mechanical, artificial joint implants at a rapidly growing rate across the United States.

A team at Mayo recognized an improvement opportunity in the rising numbers and gathered a dozen of the organization's best orthopedic surgeons and other staff to analyze joint replacement care. All 12 surgeons were achieving acceptable patient outcomes, but only one profited at the Medicare rate of reimbursement. Guided by engineers, the improvement team examined detailed processes of the 12 surgical teams and follow-up care providers with an eye on best practices and waste reduction.

A standardized process involving elements from various surgical teams was designed and proposed. After further refinement and approval, the new process was adopted as the standard of care for the Mayo system, resulting in improved patient outcomes for all teams. Moreover, all teams now profit at the Medicare rate of reimbursement.

The Challenge of Scaling Up

Mayo demonstrated that it is capable of important improvements that reduce harm and save money across a range of clinical targets and locations. But after 15 years of dramatic growth, both organic and by acquisition, Mayo needed to accelerate improvement beyond the rate of patient and revenue growth. Previous successes contributed to leadership's readiness to step up the scale of activities.

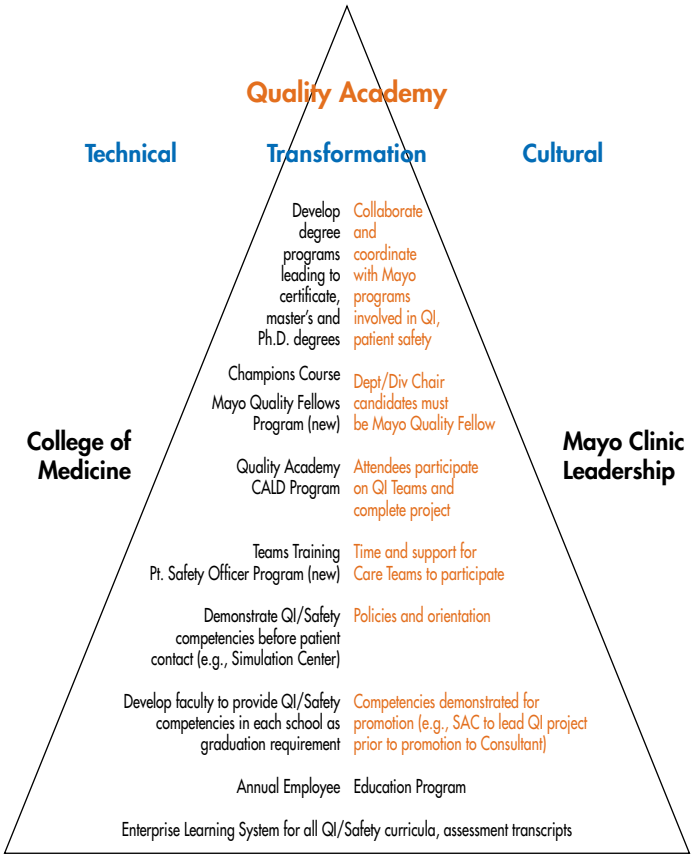
An important component of improvement would be to establish a community of individuals who were adept at implementing quality practices across the institution and sharing learning with other medical facilities across the nation. This led to the development of the Quality Academy and the Medical Information and Reporting System.

Mayo leadership understood that a strategy should be aligned with an organization's mission, vision, and values so that it can be translated into meaningful objectives, understood, and implemented by the entire organization. They also realized that if this effort were to become credible, effective, and permanent, they had to evaluate both the perception and the value of knowledge they sought to spread. They refer to this as part of their Diffusion Construct.

Quality Academy

Mayo considered the following in its decision to launch the academy, which is outlined in Figure 3:

***Figure 3**—Mayo Quality Academy composition*



- **Role of a quality academy**—The academy would make core knowledge used for decades in quality improvement, including Six Sigma, lean, reengineering, and other related approaches, accessible to staff. It would ensure the widespread application of this knowledge across all locations and staff.
- **Purpose served by an academy**—The academy would prepare staff to reduce defects, reduce harm, reduce cost, and create value using proven methods.
- **Delivery of knowledge**—Though basic quality knowledge is widespread and is arguably generic, it was important to Mayo for staff to learn in a respected healthcare setting and apply their newly acquired skills in that culturally unique setting. Mayo houses the Quality Academy in its medical college, where generations of physicians and medical managers learn these tools as an integrated piece of their healthcare education.

Graduates of the Quality Academy are called "Mayo Fellows." The program has been coined the Mayo Fellows Program.

Every employee of Mayo is encouraged to participate. In fact, in the early years, CEO Dr. John Noseworthy kicked off most organizational meetings with the query, "Who here is a Mayo Fellow?"

The program has gradations of learning achievements. Each level corresponds with a pin approximating one of the "belts" in Six Sigma education: a bronze pin is a "Yellow Belt," a silver pin is a "Green Belt," a gold pin is a "Black Belt," and a diamond pin is a "Master Black Belt."

Internal prestige is associated with the Mayo Fellows Program and participants often make valuable contributions toward patient care. The chief executive and other leaders proudly display the pins they have earned. Because of these factors, participation in the program exploded. Since the program's inception in 2008, 22,000 employees have earned pins as Mayo Fellows, which represents a remarkable penetration of applied quality knowledge. For Mayo, the Fellows Program is a major step in aligning culture with strategy.

Measurement and Reporting

There are numerous dimensions to measuring and reporting results of quality initiatives at Mayo. Leaders believed transformation was not possible without transparent reporting to all stakeholders. One of the first steps was making data accessible and forming a transparency group. This communicated a high level of trust in personnel and allowed for better decision making.

Transparency means disseminating good and bad results in a clear, concise, and regular manner. Mayo ensured that stakeholders were continually informed by sharing quality projects and results via an intranet, through newsletters, through brown bag lunches, by posting results in conference rooms and medical departments, and during grand rounds. Formal and informal benchmarking of results also contributed data for the communication effort. Change management succeeds when there is an innate understanding that people want to do good work. Access to the right data enables personnel to achieve and make informed decisions.

Initially, core measures focused on patient satisfaction, infection prevention, control protocols, and mortality. Mayo also adjusted and continued collecting data for some existing financial and operational measures.

Sustained transformation requires an ongoing understanding that the collection of data for better patient outcomes is clearly mandated. If there are improved patient outcomes—such as fewer complications, fewer readmissions, and fewer deaths—from process improvement, the cost of data collection is no longer an expense. It becomes a business strategy.

Key metrics for Mayo have concentrated on patient and quality outcomes, patient safety, and the patient experience. These types of data are often lagging indicators of performance, as it is difficult to capture the information in real time. Additionally, many business experts believe that cost and the benefits of quality compete. However, Mayo has used financial tools to demonstrate a five-to-one ROI—making the cost of quality virtually a non-issue.

To promote standardization and best practices, Mayo Clinic created a simulation lab where students and professionals master procedures in a controlled environment that imitates a real-life patient care setting.

Information Systems

As one Mayo physician explained, each Mayo employee has two jobs: one in providing care or service, and the other in assisting in quality improvement. With this many staff engaged in quality, capturing and disseminating knowledge throughout the organization has been a monumental task.

A key pillar of this effort is the knowledge management system. Once a tool to collect financial and clinical data, it has grown to become an information bank that is indexed as a decision support system. Everything Mayo knows—from information to help patient situations, to decision support tools, to contact information for subject-matter experts—is stored in the system.

Most importantly, Mayo formed a transparency group to measure and publish results across a spectrum of key benchmarks: safety, infection prevention and control, patient satisfaction, and mortality. Results are published widely in print and through the Mayo intranet to all personnel.

Knowledge Infrastructure

Several critical components of information had to be accessible to deploy Mayo's strategy.

The ability to identify strategic gaps was paramount. Internal or external breakthroughs and approaches that routinely achieved better patient outcomes and reduced waste were made widely known. If Johns Hopkins, Cleveland Clinic, Sloan-Kettering, Massachusetts General, or another respected hospital had

gained an advantage over Mayo or closed a gap, it was necessary to gather and display that result to stimulate improvement.

As demonstrated with the examples of joint replacement surgeries, Warfarin, hand sanitation, and others, Mayo accelerated the standardization and adoption of best practices. One method to reach its goals was the development of a simulation laboratory, where practitioners and technicians practice a procedure to perfection prior to ever laying hands on a patient. This is a very costly enterprise, but the investment has reduced defects and duplication of efforts, and decreased potential patient harm.

With a knowledge infrastructure in place, Mayo captures gaps and process improvements (such as the Warfarin example) used by frontline employees. Then, Mayo disseminates and diffuses improvements across all sites. The transition to electronic patient record keeping will help Mayo even further in its quest.

Conclusion

"We started to ask 'Are we as good as we could be?' If you did nothing else except get people's minds around the fact that no matter how good you are there are ways to be better, this requires a culture transformation. Not an easy change for any entity."

—James A. Dilling, Associate Administrator–Systems Quality, Mayo Clinic

Mayo has experienced a paradigm shift—from pursuing quality to delivering the best possible patient care using process improvement, waste reduction, and innovation. During the last six years, Mayo has experienced a five-to-one ROI, as verified by financial statements and independent analysis. While this would be impressive in any organization, it is even more impressive as a *byproduct* of improvements in patient care and reliability.

Former secretary of the U.S. Treasury and healthcare economics expert, the Honorable Paul O'Neill, estimates that half the $3 trillion annual outlay for healthcare is ***waste***.[3] Mayo is determined to set the standard in eliminating waste while improving the efficacy of care. It strives to attain the theoretical limit of zero defects by delivering perfection every day, with every process, at every location.

Citing studies by Dartmouth Institute for Health Policy and Clinical Practice, Swenson says that Mayo delivers healthcare that consumes 32 percent fewer resources than the U.S. average.[4] By reducing unnecessary procedures, achieving excellent outcomes with minimal rework because of efficient and transparent processes, Mayo saves money and delivers top patient care. If healthcare—the largest industry in the United States—more fully embraced quality, the impact could be monumental.

References

1. "History of the Mayo Clinic," *Everything About Health and Rehabilitation,* www.iapsrs.org/history-of-the-mayo-clinic.html.
2. Marx, David, *Patient Safety and the "Just Culture": A Primer for Health Care Executives* (New York: Trustees of Columbia University in the City of New York, Columbia University, 2001).
3. O'Neill, Paul, personal interview with the authors, December 2011.
4. Swenson, Stephen, personal interview with the authors, December 2011. Find information about the Dartmouth Atlas of Health Care and locate studies on healthcare quality and spending at http://www.dartmouthatlas.org/. See especially Wennberg, John E.; Fisher, Elliott S.; Goodman, David C.; Skinner, Jonathan S. The Dartmouth Institute for Health Policy & Clinical Practice. "Tracking the Care of Patients with Severe Chronic Illness: The Dartmouth Atlas of Health Care 2008." http://www.dartmouthatlas.org/downloads/atlases/2008_Chronic_Care_Atlas.pdf.

Interviews With Mayo Personnel

Conducted by Buckman Associates

- Stephen Swensen, M.D., MBA, Director of Quality
- James A. Dilling, Associate Administrator, Systems Quality
- Martha McClees, Administrator, Mayo Clinic Quality Academy
- Charles Harper, Jr., M.D., Executive Dean for Practice
- Barbara Frederick, Associate Administrator, Hospital Operations
- Michelle Hoover, Section Head Systems and Procedure, Supervisor of Value and Practice
- Jeffrey Leland, Administrator–System Quality Management Services
- Jackie Attlesey-Pries, Administrator–Department of Nursing
- Luanne Lentz, Director of Quality
- Michael Rock, M.D., Chair, Hospital Practice Subcommittee, Vice Chair, Clinical Practice Committee
- Paula Santrach, M.D., Chair, Clinical Practice Quality Oversight Committee
- Paul J. West, M.D., Chair, Clinical Practice Quality Oversight Committee
- Richard Zimmerman, Chair, Quality Council

Buckman Associates also interviewed

- Paul O'Neill, Former Secretary of the U.S. Treasury

For more information:

- Visit the website of the Baldrige Performance Excellence Program, www.baldrige.nist.gov.
- View the Discovery Channel film "Chasing 0," available at http://dsc.discovery.com/videos/chasing-zero-part-1.html.

Find information on quality concepts and tools on the ASQ website:

- New to quality: asq.org/new-to-quality/index.html
- Basic quality concepts: asq.org/learn-about-quality/basic-concepts.html
- Cost of quality: asq.org/cost-of-quality/index.html
- Organization-wide approaches: asq.org/learn-about-quality/organization-approaches.html
- Quality in healthcare: asq.org/healthcare-use/why-quality/overview.html

Read more ASQ case studies:

- 3M Entitlement Quality: Flawless Execution at the Speed of the Customer asq.org/2009/04/customer-satisfaction-and-value/3m-entitlement-quality.pdf
- ASQ Certification: My Competitive Advantage in a Tough Economy asq.org/2011/09/certification-asq/my-competitive-advantage.html
- The Secret to Sustainment: Engine manufacturer reveals formula to maintain change over the long haul asq.org/quality-progress/2011/08/change-management/the-secret-to-sustainment.html

Listen to a webcast about the culture transformation of Ford's Asia Pacific and Africa Operations:

- Creating a Quality Culture Webcast asq.org/2011/10/creating-a-quality-culture-webcast.html

About the Authors

James Buckman
Jim has been consulting, writing, and working on leadership issues related to quality since the mid 1970s. He was named the founding president of the Minnesota Council for Quality, where he served from 1989-93. He then accepted a position at the University of Minnesota, where he established the Joseph Juran Center for Leadership in Quality and learned from some of the greatest quality thinkers in U.S. history, including Joseph M. Juran; A. Blanton Godfrey; Bob Galvin, Motorola; Paul O'Neill, Alcoa; Don Petersen, Bill Ford, and Alan Mulally, Ford Motor Co.; Jamie Houghton, Corning Inc.; and Roger Milliken, Milliken Co. Since retiring in 2009, he has worked to advance the ideas that underpin quality leadership into U.S. institutions for higher education, healthcare, and infrastructure systems, especially electricity.

Mary Beth Buckman, MBA
After ending a 28-year corporate career in marketing, new business development, and strategic management with three Fortune 500 companies, Mary Beth taught business management courses at the college level. Currently, she works with her husband, Jim, in documenting corporate quality transformations from the last decade.

Next Generation Quality Leadership is an initiative led by Buckman Associates to explore how the body of knowledge on quality is changing as the next generation of quality leaders emerge.