

Clinical Excellence Series

The Clinical Transformation of Ascension Health: Eliminating All Preventable Injuries and Deaths

David B. Pryor, M.D.
Sanford F. Tolchin, M.D.
Ann Hendrich, M.S., R.N.
Clarence S. Thomas, M.D.
Anthony R. Tersigni, Ed.D.

This article is the first in a series that charts the journey of one health care system, Ascension Health, toward the clinical transformation of inpatient care—and no preventable injuries or deaths.

Although recognition of the quality problems in the delivery of health care in the United States is growing, widespread^{1,2} progress achieving the delivery of safe health care has been slow.³⁻⁵ Most hospitals have adopted quality improvement programs, but the programs often are limited to specific projects and focus on incremental improvements. “Crossing the quality chasm”² will require much more than incremental progress; it will require clinical transformation.

Transformational change implies a much greater pace of change than that reflected in traditional, incremental change processes. However, to create this necessary pace of change, an organization must change in more fundamental ways. In short, it must change the very environment in which care is provided, for example, so that individual improvement efforts can be rapidly disseminated. In 2002 one health care system, Ascension Health, made the commitment to achieve the clinical transformation of inpatient care—to provide excellent clinical care with no preventable injuries or deaths by July 2008.

This article outlines the vision, strategies to achieve this goal, and early results. Subsequent articles in the *Journal* will describe the specific safe health care strategies in our areas of focus (“priorities for action”) as well

Article-at-a-Glance

Background: In 2002 Ascension Health, a 67-hospital not-for-profit health care system, articulated a call to action to provide excellent clinical care with no preventable injuries or deaths by July 2008. It embarked on a journey of clinical transformation. Transformational change implies a much greater pace of change than that reflected in traditional, incremental change processes.

The Journey Begins: Progressing from vision to action plan required setting the clinical transformation agenda, identifying challenges to this agenda, and establishing measurements of progress. Environmental changes that must be addressed to successfully implement a transformational change process include culture, making the business case, infrastructure investments, standardization, and how we work together.

Taking Action: Improvement activities focused on eight priorities for action, including preventable mortality and areas such as adverse drug events, falls, and surgical complications. “Alpha” sites would develop the best clinical and implementation practices for eliminating the preventable adverse events related to these areas.

Early Results: The observed decrease in the mortality rate among non-end-of-life-care patients was 21% ($p < .001$), exceeding the 15% goal set for July 2008 and corresponding to 1,200 deaths prevented across the system. The alpha sites reported initial results in June 2004, with more than 50% reductions in adverse events for all the priorities for action areas.

as the environmental challenges we must address to accommodate the necessary pace of change.

Overview

Ascension Health is the largest Catholic health care system in the country, the largest not-for-profit system, and the third-largest provider of care overall (after the Veterans Health Administration system and Hospital Corporation of America). More than 105,000 associates and 18,000 physicians (most of whom are in private practice) provide care to more than 650,000 hospitalized patients a year in 67 hospitals throughout 20 states and the District of Columbia.

Ascension Health was formed in 1999, when four provinces of the Daughters of Charity (Northeast, Southeast, East Central, and West Central) and the Sisters of St. Joseph of Nazareth created the system as a sponsorship organization. In 2002 Carondelet Health System joined the ministry. As a faith-based provider, Ascension Health is driven by its mission: “To provide care for all persons, with special attention to the poor and vulnerable, while being dedicated to spiritually centered, holistic care, which sustains and improves the health of individuals and communities.”

The Call to Action

Transformation cannot be guided by what conventional wisdom holds as the maximum that can be incrementally achieved. Rather, it is led by a vision of what *should* be and a goal to achieve that vision. One hundred twenty Ascension Health leaders captured the vision at an October 2002 strategy retreat. The outcome of the meeting was a call to action, put forth in the promise to together provide “*Healthcare that works, healthcare that is safe, and healthcare that leaves no one behind.*” With the vision to transform health care as the starting place, the clinical leadership set out to define safe health care and the steps and measures involved to achieve it.

The Journey Begins

Progressing from vision to action plan required several steps: setting the clinical transformation agenda, identifying challenges to this agenda, and establishing measurements of progress. These steps had to

be driven and fully endorsed by the clinical leaders and practitioners, who would effect change locally and systemwide.

Ascension Health uses a distributive leadership model. That is, the system recognizes and draws on the skills and vision of leaders distributed throughout its health ministries—the hospitals or regional groupings of hospitals and health providers. Clinical leaders provide input and guidance through various councils and through the clinical leadership forum, a group of more than 200 clinical leaders (including health ministry chief medical officers, chief quality officers, chief nursing executives, chiefs of staff, and chief risk officers) that meets once or twice a year. It is represented by the clinical excellence team, which is empowered to act on behalf of the clinical leaders to provide overall clinical direction. In December 2002 the team defined *healthcare that is safe* as “excellent clinical care with no preventable injuries or deaths.” The team spent the next six months (January 2003–June 2003) crafting Destination Statement II, a document that builds on Destination Statement I, the initial vision of clinical excellence for Ascension Health.

Destination Statement II Agenda

Destination Statement II lays out the clinical transformation agenda for the organization. The agenda includes the vision, as already described; 7 aims; 10 rules; 5 challenges; and 3 sets of metrics to measure progress. Six of the seven aims of care—that care be safe, effective, patient centered, timely, efficient, and equitable—were identified by the Institute of Medicine.² The seventh aim—that care be spiritual—reflects the importance of creating a healing relationship with each patient. Not all patients can be cured, but all patients can be healed by caring for the whole patient—mind, body, and spirit. “Spiritual” in this context is distinct from “religious,” and it captures the importance of providing care in an environment that addresses all the patient’s needs (as in treating the patient versus treating a disease).

The 10 rules of care, also created by the Institute of Medicine,² are as follows:

1. Care based on continuous healing relationships
2. Customization based on patient needs and values
3. The patient as the source of control

4. Shared knowledge and the free flow of information
5. Evidence-based decision making
6. Safety as a system property
7. The need for transparency
8. Anticipation of needs
9. Continuous decrease in waste
10. Cooperation among clinicians

Five challenges identified in Destination Statement II describe the environmental changes that must be addressed to successfully implement a transformational change process—culture, making the business case, infrastructure investments, standardization, and how we work together. This article discusses each of these challenges. (The first three challenges will be discussed further in later articles.)

Culture

The challenge of culture is the subject of many articles and books.⁶ Many organizations' failure to achieve success with good strategies for safe health care may be attributed to an unsupportive culture. "Culture eats strategy for lunch" (a phrase once told to one of the authors [D.B.P.]), represents a concept that resonates within Ascension Health. When competent people craft good strategies that they continually fail to execute, the problem lies not in the strategies but in understanding what it is in the culture that causes the failures.

We believe that two fundamental culture issues to address in health care are teamwork and focusing on safety as a priority. With respect to teamwork, analogies to other industries, such as aviation, are informative. The captain of an airplane is responsible for creating a safe environment for flight that values the contributions of all (for example, pilot, copilot, engineer, flight attendants). Pilots are not credentialed without teamwork skills, although they may be superb "stick and rudder" pilots. Traditional, compartmentalized views of the roles of individuals in the health care system fail to inculcate the system view. For example, the perspective of a physician must change from "it is the decisions I make that determine outcomes" to "I am responsible, at least in part, for creating a safe health care environment for my patients and for many team members."

We must also make safe health care an organizational priority, as clearly reflected in the organization's goals,

reward systems, and measurement. Providing care is a complex process that involves many providers and numerous handoffs—transitions in care that increase the opportunities for miscommunication and mistakes. Safe systems of care require a clear understanding of the system's commitment to safety and teamwork across all providers (for example, physicians, nurses, allied health professionals). The sixth rule of care—*safety as a system property*—recognizes the need to create safe systems for care so that the errors we inevitably make as individuals do not result in harm to patients.

Ascension Health has chosen to use the Safety Attitudes Questionnaire (SAQ)⁷ to measure cultural transformation and tie culture to incentives within the system. We intend to create an environment in which individual changes that promote safe health care can be more rapidly implemented across all providers. Many of the recommended strategies for creating safe health care environments (for example, standardized approaches or protocols for medication administration) are often slowed in implementation by the protracted time required to engage all providers. The provider's view of his or her role must have safety as a system priority.

The Business Case

Understanding the business case is a specific initiative led by Ascension Health's chief financial officer and the senior vice president of Clinical Excellence [D.B.P.]. Clinical transformation requires a significant investment that cannot be isolated from the organization's operational performance. In other industries, quality management activities have been cost-effective in part because they eliminate the costs associated with poor quality. Although anecdotal reports and conventional wisdom suggest that quality efforts are cost-effective, current information is insufficient to make a compelling case in health care.⁸ Moreover, payment systems may reward one component of the system for improvements funded by another component of the system. For example, evidence-based outpatient management strategies for patients with congestive heart failure can reduce the number of readmissions and associated costs. However, the savings from reduced costs of care primarily accrue to payers, whereas the costs of implementing the strategies are borne by providers (either hospital- or physician

office-based). Newer, more integrative payment methodologies that “pay for performance” may help to address this issue.

At Ascension Health, the investment required to achieve excellent clinical care with no preventable injuries or deaths by July 2008 is funded by its operational performance. Understanding the return on this investment becomes critical to identifying the net investment required and setting appropriate operational performance targets.

Infrastructure Investments

Many of the improvements in creating safe systems of care can be accomplished by redesigning the processes of care. Ultimately, however, redesigned systems must be supported by substantial infrastructure investments, which can be grouped as follows:

- Information technology, which includes a commitment to establish electronic medical records in all hospitals
- System knowledge infrastructure, which entails creation of a systemwide information base and the use of electronic communication infrastructure for disseminating best practices rapidly across the system. The systemwide information base would include a comprehensive data warehouse from administrative and clinical systems, systemwide event reporting, and integration of risk management systems.
- Organizational infrastructure, which supports personnel and individual hospital structure

Standardization

The term *standardization* often carries a negative connotation in health care—limiting individual freedom of action for unclear benefit. Yet standardization is required when it demonstrates a clear benefit. Among many audiences, standardization is lumped with other terms such as “cookbook medicine.” However, driving a car is a better analogy than cooking: We choose our individual routes, but we all comply with stop lights, stop signs, and lane designations. In part to address the negative connotations of standardization, we have adopted the term *foundational* to describe those key elements for a shared safe system that represent health care’s stop lights, stop signs, and lanes.

The standardization issue can overlap with other challenges, such as culture. For example, a caregiver may have a specific, personal approach for administration of insulin, a narcotic, or an anticoagulant that may be equal or superior to a standardized approach. Safe *systems* of care, however, recognize that it is teams of caregivers who provide care and that there may be advantages in having all caregivers (for example, nurses) familiar with a standardized approach to reduce the possibility of errors. Incorrect dosages due to transcribing errors are more easily detected in a standardized system. In this context, physicians prescribing insulin, a narcotic, or an anticoagulant would deviate from a standardized approach only when there is a clear advantage for an individual patient. A higher level of professional competence is needed to recognize the anomalous occurrence that calls for a deviation from the standardized regimen. Ultimately, continued recognition and codification of which patients or circumstances require alternative approaches that enable the standardized approaches *themselves* to be improved.

How We Work Together

How do Ascension Health’s many and varied hospitals work together to achieve our goals? This challenge involves two issues. First, the volume of work may be too much for all hospitals to take on at once. We needed a strategy by which to divide up the work across the system. Second, leadership must be identified in specific areas. Traditionally, approaches for improvements in systems comprising many hospitals have focused on the worst performers and asked how their performances can be improved. By adopting lessons learned from other transforming industries, we have chosen instead to focus on the organizations most capable of change. In the process, we will raise the performance distribution overall across the system, as the lessons learned are adopted throughout the entire system. Although this rationale may seem straightforward, for some persons, investing resources in the “best” sites may appear counterintuitive.

Three Sets of Metrics to Measure Progress

The last section of Destination Statement II specifies three sets of metrics to gauge progress and success: long-term-outcome metrics, short-term-outcome metrics, and

process-related metrics. The principal long-term-outcome metric is mortality. We will consider preventable mortality eradicated in July 2008 if we achieve a 15% reduction in mortality among patients not admitted to the hospitals for end-of-life care. Achieving this goal will result in 800 fewer deaths across the system. This goal was set based on chart reviews of the potential number of preventable deaths and on extrapolation of published studies.^{9,10} We track mortality regularly, along with other short-term-outcome metrics, such as decreases in the number of cardiac arrests (a result of the work of rapid response teams) and decreases in the number of iatrogenic pressure ulcers.

We use process measures (for example, degree of participation in the safety climate survey) to evaluate our success in spreading successful practices systemwide. Together, these outcome and process metrics measure our progress and help sustain our momentum.

There is some imprecision in the metrics themselves, which reflects (1) the lack of a clear definition of what can be considered a preventable death and (2) difficulties in identifying which patients are admitted for end-of-life care and when in the hospitalization that determination is made. We believe that many more deaths are preventable than are due to errors. For example, when coronary bypass surgery was first introduced and commonly performed in the 1970s, mortality overall averaged around 4%. Today, prognosis over time has improved, and the mortality overall has declined to less than 2%.^{11,12} Thus, today one half of potential coronary bypass surgery deaths are prevented, although in the 1970s no one would have predicted this success. We expect the number of “preventable deaths” to change over time with new technologies and techniques and the spread of best practices. Thus, we have chosen instead to focus on overall mortality and the changes that must be implemented to reduce it. Rather than spend a great deal of time attempting to define what may ultimately not be definable, we have chosen to focus activities across all the hospitals on reduction strategies to minimize the burden associated with measurement collection and the subjectivity of definitions of end-of-life care and preventable death.

Taking Action

First articulated in January 2003, Destination Statement II was approved by Ascension Health’s board of trustees

in July 2003 and handed off to a rapid design team in September 2003. This 39-member interdisciplinary team (composed of chief executive, operating, financial, nursing, and medical officers; other caregivers; and representatives from Ascension Health’s strategic partner, the Institute for Healthcare Improvement [IHI]) was charged with developing a strategy for implementing Destination Statement II. The rapid design team’s work was completed in just two days, after significant preparatory work. To achieve the vision for *healthcare that is safe*, the team recommended that Ascension Health focus improvement activities on eight priorities for action.

Priorities for Action

The eight priorities for action—the focus for eliminating preventable injuries or deaths—are as follows:

1. Joint Commission on Accreditation of Healthcare Organization’s National Patient Safety Goals and core measures
2. Preventable mortality
3. Adverse drug events
4. Falls
5. Pressure ulcers
6. Surgical complications
7. Nosocomial infections
8. Perinatal safety

How did we identify these areas of focus when the hospitals offer so many different service lines and types of care? We did so through research and expert guidance. In addition, we validated these areas as the appropriate priorities for action in October and November 2003.

Two hospitals (and subsequently other hospitals) performed an extensive chart review on their most recent 50 deaths. These reviews asked two key questions. The first was “How many deaths appear to be preventable or potentially preventable among patients not receiving end-of-life care?” (At the time, we used an imprecise definition, with discretion left to the clinical reviewer for both what was preventable and which patients were receiving end-of-life care.) As one would expect, there was significant variation in this estimate, ranging from 10% to 30% of the deaths in patients not receiving end-of-life care. (Among all deaths, about 40% were judged to have occurred in non-end-of-life-care patients; consequently, the 10%–30% reduction in

deaths of such patients would correspond to 40% of the original estimates, that is, 4%–12% declines in overall mortality.) Assuming that observed declines in overall mortality are occurring in non–end-of-life-care patients, a target reduction of 15% of the deaths in such patients would correspond to an overall mortality rate reduction of 6% (that is, 15% of the 40%). These estimates of “preventable” deaths were far larger than what traditionally would have been considered “errors,” which would have occurred in only a fraction of the deaths.

The second question was “Among those deaths judged to be preventable, how many had at least one of the priorities-for-action events during the admission?” The answer: All of them.

Now, there is undoubtedly an element of circular reasoning in the findings. For example, the occurrence of a priority for action event in the admission may have led the reviewer to conclude that the death was potentially preventable. The conundrum is that we begin with no knowledge of the potential for mortality reduction when we provide optimal care in these areas of focus. From an improvement perspective, however, the message was clear: There is a substantial opportunity for improvement by focusing on the eight priorities for action. Ongoing surveillance systems will enable us to identify other priorities that may need to be added.

Getting Started

The chart review findings were presented at the clinical leadership forum meeting in December 2003. The recommendations for mortality reduction and the priorities for action were adopted across the system, with the recognition that the system infrastructure being created would enable us to identify additional priorities for action. The clinical forum also adopted a strategy for how to accomplish this work together. Every hospital would focus on three common priorities:

1. Joint Commission National Patient Safety Goals and core measures
2. Preventable deaths
3. Adverse drug events

The medication safety advisory council and the patient safety advisory council (which later merged) were chartered as subteams of the clinical excellence team to provide leadership for the common priorities.

In addition, Ascension Health identified one or two lead (“alpha”) sites that would develop the best clinical and implementation practices for eliminating the preventable adverse events related to the remaining five priorities for action: falls, pressure ulcers, surgical complications, nosocomial infections, and perinatal safety. In addition, an alpha site was chartered to work specifically on more robust innovative approaches to reducing mortality.

IHI’s *100K Lives Campaign*, which was launched in December 2004, provided further validation.¹³ It includes six specific activities that represent a subset of the priorities for action, which are shown here in parentheses:

1. Deploy rapid response teams (preventable deaths)
2. Deliver reliable, evidence-based care for acute myocardial infarction (Joint Commission core measures)
3. Prevent adverse drug events (adverse drug events)
4. Prevent central line infections (nosocomial infections)
5. Prevent surgical site infections (surgical complications)
6. Prevent ventilator-associated pneumonia (nosocomial infections)

The priorities for action and their corresponding alpha leadership sites are shown in Table 1 (page 305).

Each alpha site agreed to (1) create the “change package” (documentation of the best practices, implementation techniques, and tools for use in changing practices) and (2) provide system leadership.

At the alpha site leaders’ first meeting in February 2004, 59 participants attended, including the sites’ chief executive officers and project leaders, although only a single representative from each of the nine alpha sites had been invited. The group adopted roles, responsibilities, and initial strategies to work as a system. Each of the priorities for action—including the specific recommendations, change packages, and results—will be the subject of a subsequent article in this series.

Early Results

Mortality. Early results across the system have surpassed all expectations. The baseline assessment of the mortality rate among non–end-of-life-care patients was performed from April through June 2004. The assessment was repeated for April through June 2005. The observed decrease in the mortality rate among such patients was 21% ($p < .001$), exceeding the goal set for July 2008 and corresponding to 1,200 deaths prevented

Table 1. Ascension Health Priorities for Action and Alpha Leadership Sites

Priority for Action	Ascension Health Leadership Site
Preventable mortality	All Ascension Health hospitals; alpha site leader: Borgess Medical Center, Kalamazoo, Michigan
Adverse drug events	All Ascension Health Hospitals
Joint Commission National Patient Safety Goals and core measures	All Ascension Health Hospitals
Nosocomial infections	St. Vincent's Medical Center, Birmingham, Alabama; St. John Hospital and Medical Center, Detroit
Peri-operative complications	Columbia St. Mary's, Milwaukee, Wisconsin; Sacred Heart Hospital of Pensacola, Pensacola, Florida
Falls	Saint Thomas Hospital, Nashville, Tennessee
Pressure ulcers	St. Vincent's Medical Center, Jacksonville, Florida
Perinatal safety	Seton Healthcare Network, Austin, Texas; St. Mary's Medical Center, Evansville, Indiana

across the system. Independent validation of these results is shown in Figures 1–3. Figure 1 (page 306) shows the observed cumulative monthly mortality rate from April 2003 through September 2005 for Ascension Health. The expected cumulative mortality rate, based on risk-adjusted mortality,¹⁴ which is also shown, suggests that admitted patients have generally become sicker. Increasing severity of illness is also shown in Figure 1, which documents the increasing case mix index during the same period.

The observed mortality rate for the last 18 months for which data are available (April 2004–September 2005) has decreased by 6.3% compared with the baseline year for which we have data (April 2003–March 2004).

Figure 2 (page 307) shows the monthly observed/expected mortality ratio, annotated for specific events; the overall decrease was significant ($p < .001$). Figure 3 (page 307) shows the same data in a run-control chart (control limits based on XmR [“average moving range”]), with the baseline year of April 2003–March 2004 and then monitoring on an annual basis. In the baseline year, 14,428 deaths occurred among 661,115 discharged patients. Consequently, in Figures 2 and 3, decreases in the observed/expected mortality ratio of 0.1 represent 1,443 deaths prevented. Estimates of the deaths prevented using the risk-adjustment methodology correspond reasonably well to estimates found on the basis of chart

reviews of the decrease observed among non-end-of-life-care patients, as discussed earlier.

Alpha Sites. The alpha sites reported initial results in June 2004, with greater than 50% reductions in adverse events for all the priorities-for-action areas—falls, pressure ulcers, nosocomial infections (ventilator-acquired pneumonia, bloodstream infections), surgical complications, and perinatal safety (complications of

operative and vaginal deliveries), as shown in Table 2 (page 308).

We believe that these results reflect the enthusiasm with which the improvement initiatives have been embraced across Ascension Health. We had expected an orderly progression in which the alpha sites created the change packages, which would then be tested and modified in beta sites before being disseminated across the system. However, our experience has been different. As of February 2005, 52 (77%) of the 67 hospitals were reporting implementation activities related to at least five of the eight priorities for action. All the hospitals are working on the Joint Commission core measures and National Patient Safety Goals, preventable mortality, and adverse drug events. In addition, 62 (93%) of the hospitals are working on reducing falls and fall injuries, and 48 (72%) are working to reduce surgical complications. Each priority for action has engaged at least 50% of the hospitals. Some hospitals, including some that are not alpha sites, are implementing approaches in all the priorities for action.

A Final Note

Although we are encouraged by our early results, we have a long way to go before we can declare success. There are many questions that we have not yet developed strategies to address. How should we respond to the hospitals that may be slower to adapt? When all the tactics required to

Observed and Expected Overall Cumulative Raw Mortality and Monthly Case Mix Index for Ascension Health, April 2003–September 2005

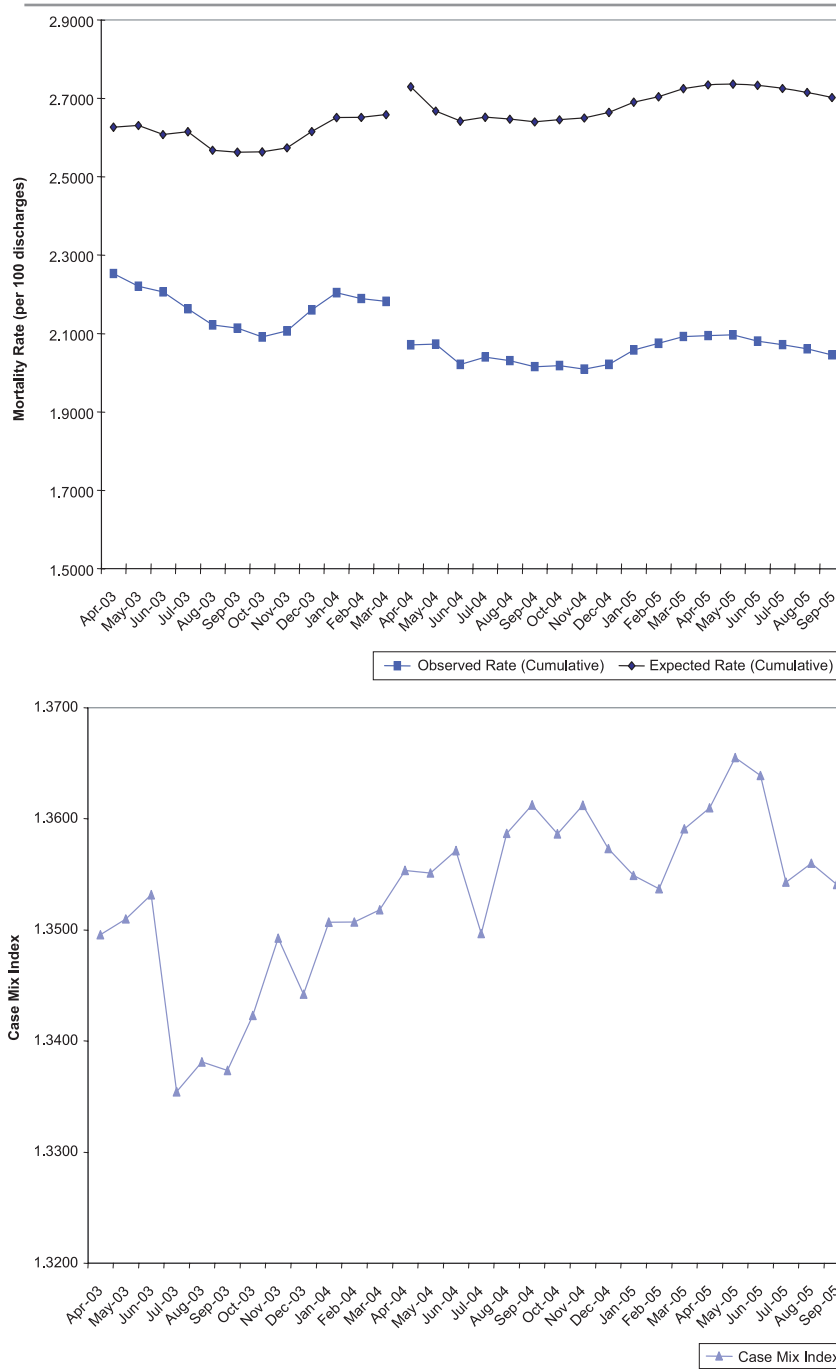


Figure 1. The top graph shows that the overall observed cumulative mortality rates were 2.18% (based on 661,115 discharges) for the baseline period (April 2003–March 2004) and 2.05% (989,536 discharges) for the postintervention 18 months (April 2004–September 2005)—a decrease of 6.3%. The bottom graph represents the monthly case mix index increase, April 2003 through September 2005.

reach our goals are developed, what will be the capital implications, and is that investment feasible? Will we really be able to engage the front-line caregivers—physicians and nurses and other health professionals—in rapid adoption? Will we be able to sustain the early gains? These early results—and the enthusiasm with which the strategies have been adopted across the system—suggest that substantial improvement is possible. **1**

This article was written on behalf of the Clinical Excellence Team of Ascension Health (St. Louis): Beth Applegate, R.N., M.S.N., Program Coordinator, Seton Cove Spirituality Center, Indianapolis; Gaurdia Banister, R.N., Ph.D., Vice President of Nursing, Providence Hospital, Washington, D.C.; Charles Barnett, President and CEO, Seton Healthcare Network, Austin, Texas; Joyce Batcheller, R.N., Senior Vice President/Chief Nursing Officer, Seton Medical Center, Austin; Jim Beckmann, Senior Vice President, Chief Risk Officer, Ascension Health; Debbie Bostic, R.N., M.S.N., Vice President Operations/Chief Nursing Officer, Sacred Heart Hospital, Pensacola, Florida; Elaine Comeau, R.N., M.S., Vice President of Clinical Operations, St. Joseph Hospital, Augusta, Georgia; Wanda Gibbons, R.N., Vice President, Patient Care Services, St. Vincent's Health System, Jacksonville, Florida; Ann Hendrich, Vice President of Clinical Excellence, Ascension Health; Laura Kaiser, Vice President, Health Ministry Positioning & Operations, Ascension Health, St. Louis; William Leitner, M.D., Vice President of Medical Staff Affairs, St. Vincent's Hospital, Birmingham, Alabama; Jim Lindsey, Sr., M.D., Vice President of Medical Affairs, Seton Healthcare Network, Austin, Texas; Jennifer Moorehouse, Director, Project Planning and Coordination, Clinical Excellence, Ascension Health; Kevin Neese, M.D., Chief Medical Officer, St. Mary's Medical Center, Evansville, Indiana; David Pryor, Senior Vice President, Clinical Excellence, Ascension Health; Jon Rahman, M.D., System Vice President and Chief Medical Officer, St. Vincent Health, Indianapolis; Jeff Rose, M.D., Vice President, Clinical Excellence Informatics, Ascension Health; Deb Strickland, R.N., Senior Vice President, Patient Care Services, Middle Tennessee Medical Center, Murfreesboro, Tennessee; Larry Thomas, M.D., Chief Quality Officer/Chief of Cardiac Sciences, Saint Thomas Hospital, Nashville; Sanford F. Tolchin, M.D., Chief Medical Officer, Borgess Health Alliance, Kalamazoo, Michigan; and James Tucci, M.D., Senior Vice President, Quality, and Chief Medical Officer, St. John Health, Warren, Michigan.

Monthly Observed/Expected Mortality Ratio for Ascension Health, April 2003–September 2005

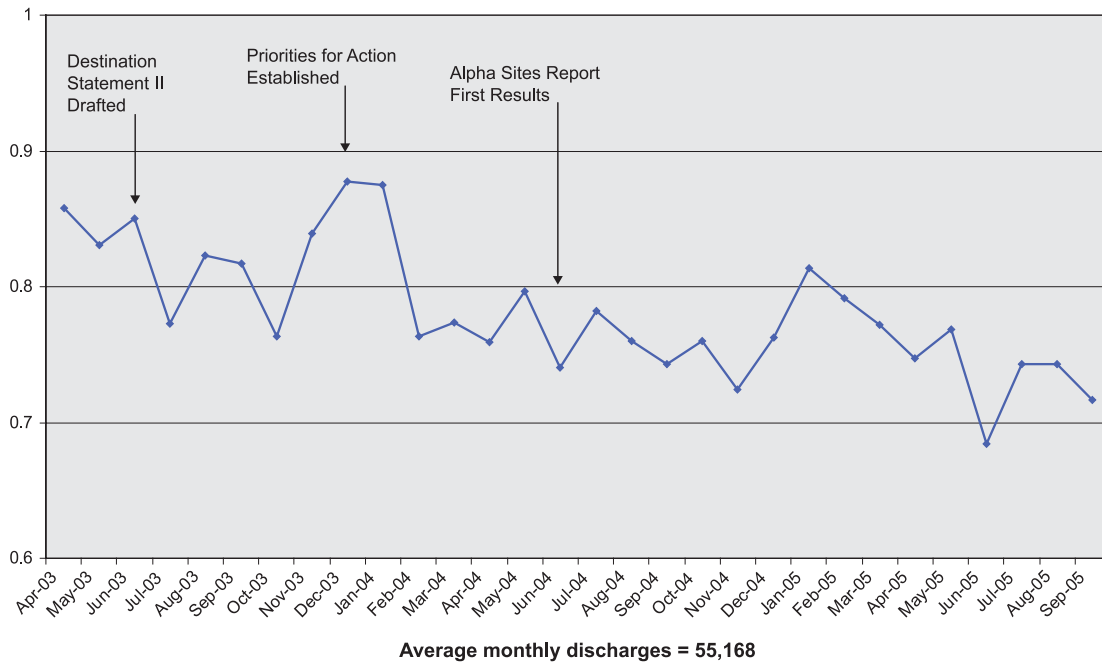


Figure 2. The decrease in the monthly observed/expected mortality ratio, annotated for specific events, was significant (average monthly discharges, 55,168; slope, $-.0037$; $p < .001$).

Run-Control Chart for Observed/Expected Mortality Ratio for Ascension Health, April 2003–September 2005

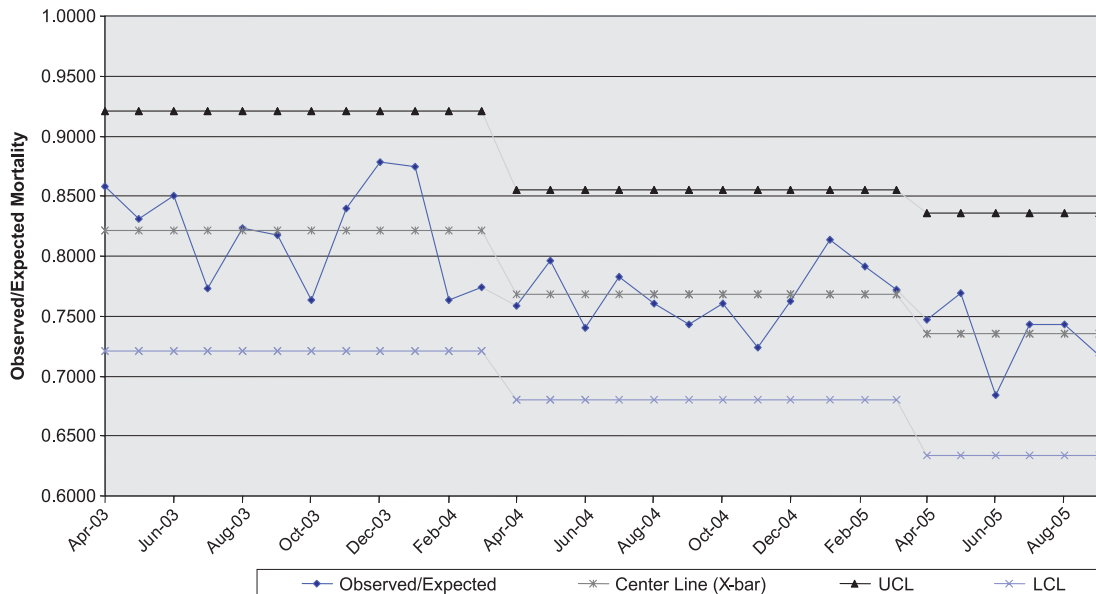


Figure 3. The data for observed/expected mortality are shown; control limits are based on XmR methodology. A value of < 1 indicates a favorable observed mortality compared with expected mortality. UCL, upper control limit; LCL, lower control limit.

Table 2. Results for Alpha Sites

Borgess Medical Center

Priority for action: Preventable mortality

Result: The actual mortality rate decreased from 2.59% (calendar year [CY] 2003) to 2.14% (CY 2004), representing a decrease of 17% (96 lives).

St. John Hospital and Medical Center

Priority for action: Nosocomial infections

Result: The monthly central line–related blood stream infection (CLBSI) rate decreased from 9/1,000 central line days (December 2003) to 3/1,000 central line days (March 2005). An extrapolated best-fit line yielded a decline of approximately 60% for the rate per 1,000 central line days.

Columbia St. Mary's

Priority for action: Peri-operative complications

Result: The rate of peri-operative adverse events decreased from 10% (November 2003) to 5% (February 2005). An extrapolated best-fit line yielded a decline of approximately 50% for the rate of patients with a peri-operative adverse event.

St. Thomas Hospital

Priority for action: Falls

Result: The number of falls per 1,000 patient days decreased from approximately 5.0 falls for the baseline period (January 2002–June 2004) to approximately 3.5 falls for the follow-up period (July 2004–October 2004), representing an approximate decline of 30%.

St. Vincent's Medical Center

Priority for action: Pressure ulcers

Result: The rate of hospital-acquired pressure ulcers decreased by 71%—from 1.99/1,000 patient days (December 2004), which was already far below the national prevalence rates (10.3 for 2004, 8.6 for 2005) to 0.57/1,000 patient days (June 2005).

Seton Healthcare Network

Priority for action: Perinatal safety

Result: The decrease in the birth injury rate from 3.1/1,000 births ($N = 36,442$) for the baseline period (July 2000–December 2003) to 0.5/1,000 births ($N = 4,228$) for the follow-up period (January 2005–June 2005) represented a decline of approximately 85%.

David B. Pryor, M.D., is Senior Vice President, Clinical Excellence, Ascension Health, St. Louis; and Sanford F. Tolchin, M.D., is Co-Chair, Clinical Excellence Team; Ann Hendrich, M.S., R.N., is Vice President, Clinical Excellence Operations; Clarence S. Thomas, M.D., is Co-Chair, Patient Safety Advisory Council; and Anthony R. Tersigni, Ed.D., is President and Chief Executive Officer. Please address reprint requests to David B. Pryor, dpryor@ascensionhealth.org.

References

1. Institute of Medicine: *To Err is Human: Building a Safer Health System*. Washington, D.C.: National Academy Press, 2000.
2. Institute of Medicine: *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, D.C.: National Academy Press, 2001.
3. McGlynn E.A., et al.: The quality of health care delivered to adults in the United States. *N Engl J Med* 348:2635–2645, Jun. 26, 2003.
4. Altman D.E., Clancy C., Blendon R.J.: Improving patient safety: Five years after the IOM report. *N Engl J Med* 351:2041–2043, Nov. 11, 2004.
5. Leape L.L., Berwick D.M.: Five years after To Err Is Human: What have we learned? *JAMA* 293: 2384–2390, May 18, 2005.

6. Schneider W.E.: *The Reengineering Alternative: A Plan for Making Your Current Culture Work*. Burr Ridge, IL: Irwin Professional Publishing, 1994.
7. Sexton J.B., Thomas E.J., Helmreich R.L.: Error, stress, and teamwork in medicine and aviation: Cross sectional surveys. *BMJ* 320:745–749, Mar. 18, 2000.
8. Wachter R.M.: The end of the beginning: Patient safety five years after “To Err Is Human.” *Health Aff (Millwood)* Suppl. Web Exclusives: W4-534–W4-545, Jul.–Dec. 2004.
9. Brennan T.A., et al.: Incidence of adverse events and negligence in hospitalized patients: Results of the Harvard Medical Practice Study I. *N Engl J Med* 324:370–376, Feb. 7, 1991.
10. Thomas E.J., et al.: Incidence and types of adverse events and negligent care in Utah and Colorado. *Med Care* 38:261–271, Mar. 2000.
11. Califf R.M., et al.: The evolution of medical and surgical therapy for coronary artery disease: A 15-year perspective. *JAMA* 261:2077–2086, Apr. 14, 1989.
12. Muhlbaier L.H., et al.: Observational comparison of event-free survival with medical and surgical therapy in patients with coronary artery disease: 20 years of follow-up. *Circulation* 86(5 suppl):II198–II204, Nov. 1992.
13. Institute for Healthcare Improvement: *100K Lives Campaign*. <http://www.ihl.org/IHI/Programs/Campaign/> (last accessed Apr. 4, 2006).
14. Pauly M.V., et al.: Measuring hospital outcomes from a buyer's perspective. *Am J Med Qual* 11:112–122, Fall 1996. Erratum in: *Am J Med Qual* 12:102, Summer 1997.