High Reliability, Clinical Care Redesign and Baldrige Award Framework Adoption in a Large Healthcare Organization

M. Michael Shabot, M.D., FACS, FCCM, FACMI, Executive Vice President and System Chief Clinical Officer
Charles D. Stokes, FACHE, President and Chief Executive Officer
Memorial Hermann Health System
Houston, Texas, USA

“High Reliability Organizations operate under very trying conditions all the time and yet manage to have fewer than their fair share of accidents.” Weick, K. and Sutcliff, K. Managing the Unexpected: Resilient Performance in an Age of Uncertainty, 2nd Edition, 2007.

Background
The Memorial Hermann Health System (MHHS) is the largest health system in Southeast Texas, USA and is currently comprised of 26,000 employees, 6,500 physicians, 19 hospitals and 322 locations of care, with approximately $5.2 billion (US) annual revenues. In 2007, we embarked on a journey to become a true high reliability organization (HRO) in order to provide optimum care for our patients. This journey has not been easy as we have been known for our reputation of quality and in 1999 the Institute of Medicine estimated there were 44,000 to 98,000 accidental hospital deaths in the US alone. Over the next 18 months, every MHHS employee (not only nurses and other care providers) received training in high reliability practice. We have joined by thousands of physicians over the next several years. Absolutely zero patient harm was the objective rather than simple quality improvements, with an overall goal of producing a safety culture across all operations. Over the past 10 years, from 2009 to 2019, this has been progressively achieved to a remarkable degree in both our inpatient and outpatient settings. The quest to become a HRO is ongoing; there will never be an “arrival.” The next logical step was to decrease the cost of care and improve affordability, while continuing to improve quality and safety. The entire organization, including physicians, undertook multiple initiatives to streamline operations, standardize care and eliminate unnecessary variation. To date, these Clinical Care Redesign (CCR) initiatives have saved hundreds of millions of dollars, with an ultimate goal of achieving $900 million (US) in savings over five years. Finally, Memorial Hermann hospitals have embraced the overall improvement and quality framework required for consideration of the US Malcolm Baldrige National Quality Award, which is the only award recognizing organizational excellence given by the President of the United States. This has also been a successful multiple Memorial Hermann hospitals, with Memorial Hermann Sugar Land Hospital receiving our first Baldrige award in 2016. Achieving best in class quality performance, with zero patient harm in a cost-effective manner is the ultimate goal of this journey. The HRO aim is to make this care accessible to all in this country, if not the world, and we continually share and teach our safety and quality methods to other health systems in the US and internationally.

Involvement of Management, Staff and Stakeholders
Our HRO initiative began with our Board of Directors, CEO and executive staff, and actively involves all employees, physicians and allied health personnel. Because the HRO initiative represents a change to a culture of reducing errors and increasing safety, there must be a complete cultural change. The same is true for Clinical Care Redesign, which extends to every aspect of care for both inpatients and outpatients. Our physicians, nurses, managers and executive staff are retraining their care protocols and pathways for many dozens of diagnoses and procedures. The Baldrige quality improvement framework applies to every aspect of the organization, clinical and non-clinical. Of note, in 2009, Memorial Hermann Hospital (MHSH) received the Healthcare Quality Award (HQA) for quality improvement method, as developed by the Joint Commission Center for Transforming Healthcare. RPI includes Lean techniques for efficiency, Six Sigma for reliability and, most importantly, changes in the organizational culture to ensure that changes persist indefinitely into the future. While RPI was first used by the System Quality Department as part of the HRO initiative, in recent years it has been extended to non-clinical areas of the system to improve performance in general. Memorial Hermann is a charter member of the Center for Transforming Healthcare from its founding in 2009.

Recognition Received
In 2009 Memorial Hermann received the National Quality Forum for its high reliability initiative. Also in 2009 Memorial Hermann received the National Patient Safety Leadership Award from the Voluntary Hospitals Association Foundation and the National Business Group on Health. In 2011, Memorial Hermann received the Texas Healthcare Foundation Quality Improvement Award for six acute care hospitals. In 2012 the system received the Texas Hospital Association’s Bill Aston Quality Award for the high reliability program. In 2013, Memorial Hermann received the John M. Eisenberg Award for Patient Safety and Quality at the National Level, presented by the Joint Commission and National Quality Forum (two publications attached). Thomson Reuters rated Memorial Hermann one of the Top Five Large US Healthcare Systems in 2012 and 2013. In 2016, Memorial Hermann Sugar Land Hospital received the Malcolm Baldrige National Quality Award, and in 2017 and 2018 respectively, Memorial Hermann Katy Hospital and Memorial Hermann Memorial City Medical Center received Texas Achievement Performance Awards. In April 2018, all Memorial Hermann hospitals again received straight—A Leapfrog Safety Grades, reflecting a system wide commitment to safety, quality and transparency. These awards and recognitions constitute essentially all the major national and quality awards available nationally and locally in the United States. Of note, many health systems and the South Carolina Hospital Association have followed Memorial Hermann’s example and now honor hospitals with Certified Zero Awards. With regard to patient safety, in performance, in each of the years 2013, 2014 and 2015, Memorial Hermann’s Accountable Care Organization gained four years repeated Savings Award which has ever recorded, totaling nearly $200 million (US). Over $263 million has been saved for the US government so far in this program, and many millions of additional dollars have been saved with private insurance contracts. As savings programs progress, it is expected these savings will continue to accelerate and as our hospitals and physicians transition further into value based care. It is crucial to understand that high reliability and Clinical Care Redesign go hand in hand. By avoiding infections, injuries and other preventable adverse events, many millions of dollars are saved, and clinical care redesign provides the most optimal pathways for treatment and recovery. Most importantly, patients receive the highest quality and most efficient care, ensuring excellent outcomes.

High Reliability, Clinical Care Redesign and the Baldrige Framework Was Achieved
High reliability was achieved with a fundamental change in the way quality improvement was performed. Previously, incremental improvements were made to lower infection rates, medication errors, patient falls, pressure ulcers and other harms. As part of the HRO initiative, two new goals were created: 100% achievement of quality metrics and 0% incidence of harm events. After implementation of Just Culture, we found that most errors and harms were caused by system faults rather than failures of individual performance. With careful review of past and present harm events, including use of Root Cause Analysis, Apparent Cause Analysis and Failure Mode and Effects Analysis, we identified countless system faults that led to harm events. By changing and improving many hundreds of processes to eliminate systemic faults, we rendered our personnel more reliable and made our patients safer. In the past, some of our patients had experienced severe harm due to blood transfusion mismatch errors. Following implementation of new processes, since January 1, 2007 to the present we have administered over 1.5 million transfusions without a single hemolytic transfusion reaction. With changes to operating room and hospital processes, since 2011 our hospitals have provided 57 years of care without a retained foreign body (RFB). Many hospitals go for a year or more without a Catheter-Related Blood Stream Infection (CLABSI), Catheter-Related Urinary Tract Infection (CAUTI), patient fall injury or deep pressure ulcer. For Clinical Care Redesign, workgroups were created in 30 major clinical areas, pharmacy, laboratory and supply services eliminated, and unnecessary tests and procedures eliminated and unnecessary tests and procedures and improve progression of patients through the hospital. To date, from January 2017 to present, nearly $495 million (US) in savings has been achieved. Five Memorial Hermann Hospitals are on the Malcolm Baldrige quality framework journey. Our Sugar Land Hospital was one of only 21 healthcare organization to receive this award since it was created in 1987. In 2017, Memorial Hermann Katy Hospital received a Texas Achievement Performance Award, which is based on the Baldrige criteria, and Memorial City Medical Center received the TAPE award in 2018. Those hospitals and two others are preparing their Baldrige Award applications.

Significant Sustainable Improvements in Quality and Efficiency
Most importantly there has been a dramatic decrease in the incidence of all types of patient harm, but especially high level Serious Safety Events including death and severe permanent harm, in spite of the fact that MHHS admits hundreds of thousands of inpatients and performs 1.5 million care encounters each year. In 2011, when our hospitals began operating for long periods of time without different kinds of harm events, we created the Certified Zero Award to recognize hospitals that did not have harm events for a year or longer (see attached award). These harm events are certified accurate by hospitals and reported to the US government monthly. Since 2011, our hospitals have received Certified Zero Awards, including 94 for avoiding different kinds of hospital acquired infections, 29 for intravenous pneumothorax, 40 for pressure ulcers, 57 for retained foreign bodies,30 for high level Serious Safety Events and others in different categories (chart attached). These improvements have been sustained for long periods and the rate of hospitals achieving Certified Zero Awards is accelerating (two hospital acquired infection rate graphs attached). With regard to Clinical Care Redesign and streamlining operations, the results have been equally dramatic. A total of $495 million (US) has been saved so far, including $68 million in hospital operations, $64 million in Clinical Care Redesign, $18 million in Laboratory and Pharmacy, $44 million in support, and more in other categories. These represent permanent changes in standard work rather than time-limited projects.

Safety and Quality Awards

Contact information: M. Michael Shabot, MD (myronmichaelshabot@gmail.com)