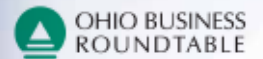


Solutions for Patient Safety

Every patient. Every day.

January 2011 Report

Founding Partners





The Partners & the Aspiration

Why We Came Together

Ohio's hospitals work hard every day to provide the highest quality care for their patients. But employers, who shoulder a large portion of the costs related to health care and their employees (who are often patients themselves), also have important roles to play in ensuring Ohioans receive the safest and highest quality of care.

Realizing this, business leaders and health care providers launched the *Solutions for Patient Safety* initiative in January 2009, with the shared aspiration of making Ohio the safest place in the nation for health care.

The Cardinal Health Foundation, the Ohio Business Roundtable, the Central Ohio Hospital Council, the Ohio Hospital Association and the Ohio Children's Hospital Association created this collaboration to improve quality and reduce costs of health care statewide. The partnership brought together 25 hospitals to reduce health care-associated infections (HAIs) and medication errors.

Quality improvement projects of this nature require significant investment but hold the promise of substantial return in terms of lives and dollars saved. *Solutions for Patient Safety* was funded by a \$1.5 million investment from the Cardinal Health Foundation; funding was used to foster collaborative opportunities among the participating

institutions, support improved data collection, provide for required technology and deliver training programs for clinicians and hospital leaders. The work took place in central Ohio general hospitals, corresponding with Cardinal Health's headquarters location in Columbus, and in eight children's hospitals from around the state.

The Goals

Over an 18-month period, Central Ohio hospitals and children's hospitals across Ohio have worked together to:

- Set and meet specific error-reduction goals—measuring lives and costs saved;
- Gather baseline data;
- Identify sustainable and replicable processes to improve quality;
- Share best practices and learning across institutions; and
- Engage hospital leaders in promoting a culture of safety in their institutions.

The Central Ohio hospitals and statewide children's hospitals identified the following goals through their *Solutions for Patient Safety* collaborative efforts:

Participating Central Ohio hospitals (17 hospitals) worked to:

- Reduce central line associated blood stream infections (CLABSI) hospital-wide by **50 percent**, by June 2010.

- **Significantly reduce** health care-associated methicillin-resistant staphylococcus aureus (MRSA) infections by June 2010.

Ohio children's hospitals (eight hospitals statewide) worked to:

- Reduce overall adverse drug events (ADE) by **33 percent** by June 2010.
- Reduce surgical site infections (SSI) in designated cardiac, neurosurgery and orthopedic procedures by **50 percent** by June 2010.

“This cultural transformation is evident in the health care providers’ commitment to improvement from the bedside to the board room. We are in the midst of a renaissance of data-driven, evidence-based collaborative change.”

~ **Jean Christopher, MSN, CNS, WCC**
Clinical Nurse Specialist, PICU
Akron Children's Hospital

Participating Hospitals

Akron Children's Hospital, Akron

Berger Health System, Circleville

Cincinnati Children's Hospital Medical Center, Cincinnati

The Children's Medical Center, Dayton

Cleveland Clinic Children's Hospital, Cleveland

Doctors Hospital West, Columbus

Dublin Methodist Hospital, Dublin

Fairfield Medical Center, Lancaster

Grady Memorial Hospital, Delaware

Grant Medical Center, Columbus

James Cancer Hospital and Solove

Research Institute, Columbus

Licking Memorial Hospital, Newark

Marion General Hospital, Marion

Memorial Hospital of Union County, Marysville

Mount Carmel East, Columbus

Mount Carmel St. Ann's, Westerville

Mount Carmel West, Columbus

Mount Carmel New Albany Hospital, New Albany

Nationwide Children's Hospital, Columbus

The Ohio State University Medical Center, Columbus

The Ohio State University Hospitals East, Columbus

Rainbow Babies & Children's Hospital, Cleveland

Riverside Methodist Hospital, Columbus

St. Vincent Mercy Children's Hospital, Toledo

Toledo Children's Hospital, Toledo

Central Ohio Hospitals

Lives and Dollars Saved

Central Ohio hospitals achieved an 11 percent reduction in hospital-onset MRSA isolates (incidences of MRSA that occur anywhere on the patient, not just in the bloodstream), a 42 percent reduction in MRSA bloodstream infections and a 37 percent reduction of catheter-associated blood borne infections.

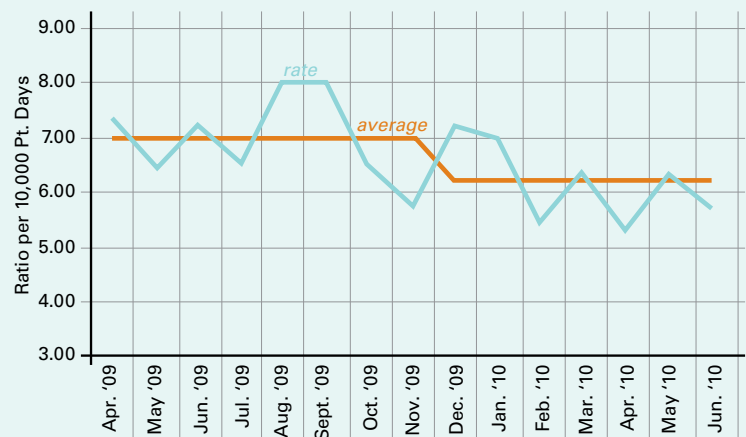
As a result of this work, Central Ohio hospitals:

- **Saved 14 lives**
- **Avoided 918 additional patient days in the hospital**
- **Saved approximately \$7.5 million per year—in unnecessary health care costs.**

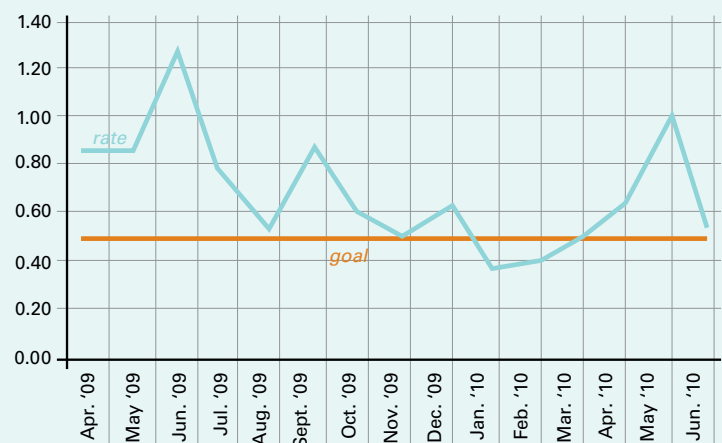
Baseline data collected in the collaborative suggests:

- Average hospital-onset MRSA was approximately **60 isolates per month**.
- The average additional cost for MRSA infections is approximately **\$25,000-\$36,000 per case**.

Hospital Onset MRSA Isolates
17 Central Ohio Hospitals



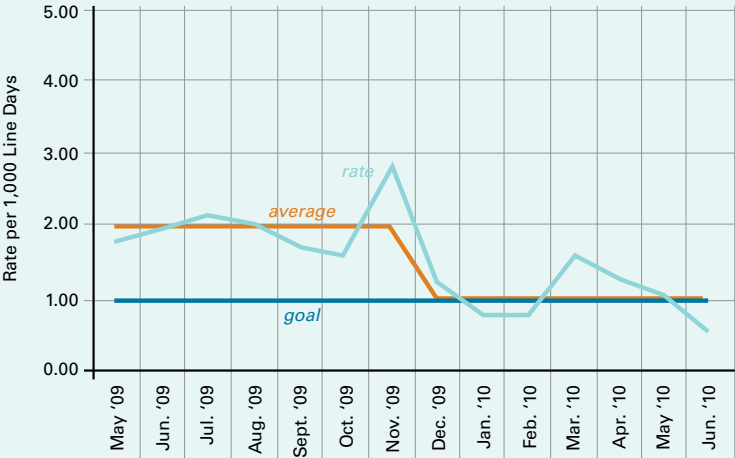
MRSA Blood Isolate Rate per 10,000 Days



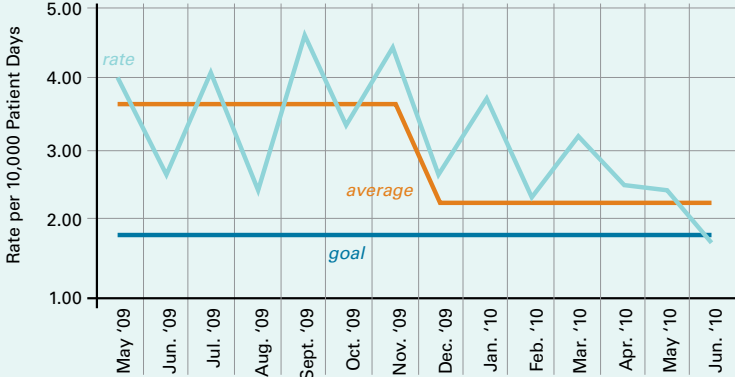
- Average CLABSI rate was approximately **25 cases per month**.
- The average additional cost for a CLABSI infection is approximately **\$3,700-\$29,000 per case**.

To date, most hospital projects to reduce CLABSI rates typically focus exclusively on Intensive Care Units (ICU). However, the collaborative made the decision to report CLABSI infection rates hospital-wide—ICU and Non-ICU infections—and in doing so, discovered a patient population outside the ICU that has warranted in-depth analysis and identification of additional interventions.

ICU CLABSI



Housewide CLABSI



“As a smaller operation with limited data on actual infections, having access to aggregate data when educating staff and physicians about best practices in preventing MRSA and CLABSI infections was very helpful.”

~ **Jeanne Emmons, BS, MT (AMT)**
 Infection Prevention Director
 Licking Memorial Hospital

Process Observation Leads to Two Key Takeaways:

The Central Ohio hospital collaborative hired five student nurse process observers (SNPOs) to conduct more than 12,000 observations to monitor compliance with proper hand hygiene practices, environmental decontamination processes and processes related to the insertion and maintenance of catheters.

Through the SNPOs observations, two processes emerged as critical to significantly reducing infection rates for MRSA and CLABSI:

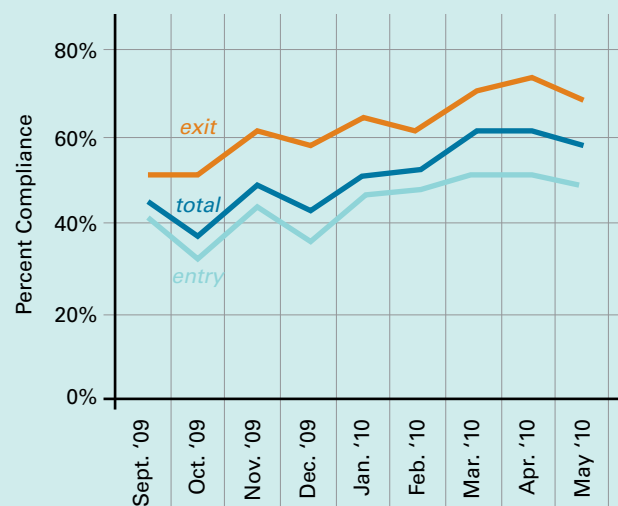
1. Hand hygiene emerged as the primary area of focus for the collaborative's efforts to reduce MRSA infections, observing an inverse relationship between hand hygiene and incidence of MRSA. Since the beginning of hand hygiene data collection by the SNPOs in September, the rate of compliance with washing hands upon entering and leaving a patient's room, even while wearing gloves has improved by more than 20 percent.

2. Scrub the Hub: SNPOs identified a critical point of infection transmission for CLABSI related to the length of time the "hub" (access point in a catheter where fluids and medications are administered) is cleaned.

While the hub was wiped before accessing the point of entry 98 percent of the time, the scrub was usually performed for a period of 15 seconds (the preferred threshold by medical standards) only 20 percent of the time. As a result of this additional process measure and the group's findings, it created a "Seconds Count" educational and reminder poster for wide distribution and use in the hospitals to encourage all clinicians to extend their scrub period to the full 15 seconds.


The "Seconds Count" materials developed through the Solutions for Patient Safety efforts have been made available to hospitals throughout the state and nation via the Ohio Hospital Association Quality Institute website.

Hand Hygiene Compliance




**Take The Time
Wash Your Hands**


0 Seconds




5 Seconds




10 Seconds



15 Seconds



Seconds Count - Save A Life

 OHIO HOSPITAL ASSOCIATION
Quality Institute

Photography by William Molineux

**When Seconds Count:
We Count on YOU**



Scrub the Hub for 15 Seconds

 OHIO HOSPITAL ASSOCIATION
Quality Institute

Illustration Courtesy U. Mich PICU

“I honestly can say that this experience has allowed me to become more aware of the importance of hand hygiene and the use of isolation and sterility practices. What we observed within the hospitals seems so simple, but it is so overlooked. I know the days can get busy going in and out of patient rooms; if the medical staff could just slow down to take 15 seconds to either wash their hands or put on the correct protective barriers, it could save lives.”

~ Ashley Mitchell, S.N.
Student Nurse Process Observer

Every Patient, Every Day

Together, members of the collaborative identified opportunities for improvement in data collection and processes to enable participants to achieve and sustain reductions in MRSA and CLABSI infections. *Solutions for Patient Safety* hosted two learning sessions for participating hospitals, which resulted in the creation of:

- Standardized definitions for data, outcomes and process measurements; and
- A unique data collection tool that eliminates data entry errors using an automated classification system.

As part of its work toward the two aims, the Ohio Hospital Association and Central Ohio hospitals identified processes, best practices and opportunities for increased collaboration among community and larger hospital systems, including:

- Facilitating monthly quality improvement conference calls that create a forum for sharing best practice ideas, identification of barriers and possible solutions and collaborating toward rapid cycle improvements.
- Conducting regular quality improvement coordinator site visits, focusing on clinical and technical assistance. The coordinator effectively evaluates the unique needs of each hospital within the collaborative, strengthening their contribution to the continuous efforts to reduce MRSA and CLABSI infections.

The Central Ohio hospitals will continue to work together to build upon these results through their work. Specifically:

- All participating hospitals have committed to continued hand hygiene (handwashing) monitoring by external observers, because

the observation and feedback had a significant impact on compliance.

- The Ohio Hospital Association has received several inquiries from other regions of the state expressing interest in doing a similar hand-hygiene collaborative project.
- Many of the hospitals are continuing internal audits to ensure ongoing improvement.
- Hospitals are continuing to monitor CLABSI through a statewide program that is part of a national initiative facilitated by the American Hospital Association, Michigan Hospital Association and Johns Hopkins.

“I have benefited greatly in my role as content expert for the CLASBI initiative in the Solutions for Patient Safety project. It was a tremendous opportunity to have such a high degree of collaboration going on within hospitals in the Central Ohio area. I don’t believe we could have achieved such great results if we were working alone.”

~ **Amy Imm, MD, MMM, FCCP**
VP Clinical Quality and Patient Safety
Riverside Methodist Hospital



OHIO Children's Hospitals

Lives and Dollars Saved

Ohio's children's hospitals have achieved a 60 percent reduction in surgical site infections (SSIs) and a 34.5 percent reduction in adverse drug events (ADEs) over a 12-month period of time.

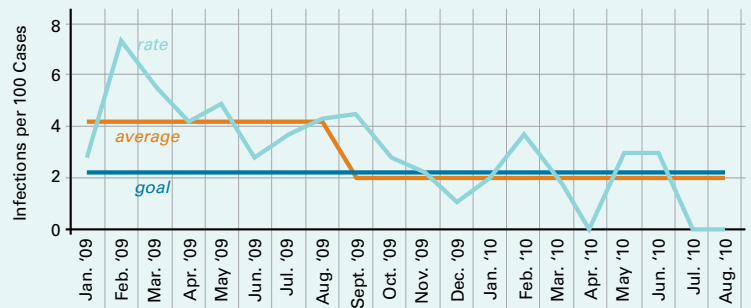
As a result, Ohio children's hospitals:

- **Saved 3,583 children from unnecessary harm**
- **Saved \$5.3 million in unnecessary health costs**

The collaborative identified processes to collect baseline data for ADEs and SSIs:

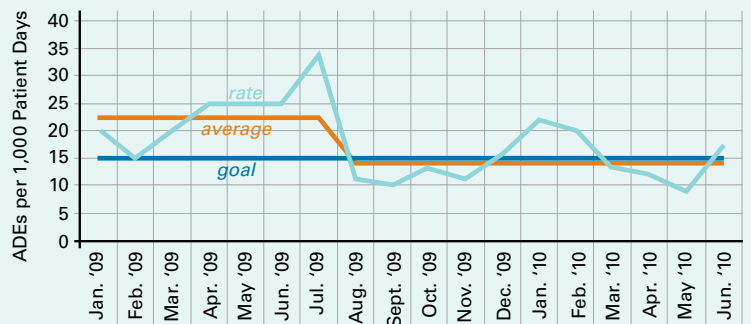
- Preliminary data suggested an average of approximately **850 ADEs per month** across the state.
- The total additional cost of the 850 ADEs is approximately **\$650,000–\$700,000 per month**.
- Preliminary data on SSIs indicated there were approximately four infections per month across the state, and approximately **82 percent** of the time, antibiotics were administered in the appropriate timeframe.
- The average additional cost per-case for hospital-based SSI is approximately **\$28,000**.

Surgical Site Infections by Procedure Date



Prior to this collaborative effort, the eight children's hospitals did not collect ADE data in a manner that would allow hospitals to share and compare across institutions. To allow baseline data to be collected, the collaborative developed and trained all eight hospitals to use an ADE "trigger tool." Through this tool, hospitals use a random sample of charts, manually review the charts for "triggers" and establish an overall error rate for each institution.

Adverse Drug Events





Through their work together to improve upon the baseline data collection, the collaborative identified standard processes that were used across the institutions:

- A process to increase the reliability in the use of order sets—or the manner in which medication is ordered for each patient—to reduce opiate over-sedations.
- The use of a unique bundle of care for all hospitals for each surgical procedure group, including no razors in the operating room, use of the most effective prep for surgery (i.e. chlorhexidine) and the appropriate timing for the administration of antibiotics.

“In addition to saving the lives of our patients, quality improvement initiatives have improved the quality of these lives and reduced the expense of caring for these children.

~ **Dr. Ed Shepherd**, Interim Section Chief of Neonatology at Nationwide Children’s Hospital

As part of its work toward reducing SSIs and ADEs, the children’s hospital collaborative created opportunities for participating institutions to build capacity for safety and quality improvement efforts by:

- Hosting five learning sessions for participating hospitals to learn about quality improvement process and share learning and best practices.
- Creating an integrated data management application designed specifically to support multi-center quality improvement initiatives. The application provides a single point of contact for informational, collaborative and data-related activities. The application’s tools allow for rapid feedback of performance data, preparation of progress reports over the Internet and communication among teams.
- Hosting monthly quality improvement webinars and conference calls on various quality improvement science topics.
- Conducting site visits from a quality improvement consultant to provide hands-on technical assistance to hospital improvement teams.

Taking it to the Next Level

A foundation for success – both in terms of clinical approach and infrastructure for implementation—has been established through the *Solutions for Patient Safety* initiative. Ohio’s children’s hospitals are building upon this foundation through a new entity: the *Ohio Children’s Hospitals Solutions for Patient Safety* (OCHSPS) collaborative. Through OCHSPS,

Ohio's children's hospitals are embarking on their next effort, which will be broader in scope and bolder in ambition—eliminating serious preventable harm.

Being a part of the SSI team for the collaborative has allowed us to assess our strengths and weaknesses as well as share ideas and benchmark with other children's hospitals. This process has enabled us to utilize a standard, reliable process to help minimize surgical site infections and improve patient care. It has also allowed the operating room nurses, anesthesia care providers and surgeons to collaborate as a team on preventing SSIs. This team approach has now carried over to help improve other aspects of patient care in the operating room.

~ **Debbie Hawk, RN, ONC, CNOR, RNFA**
Clinical Coordinator – Orthopaedic
Surgery, Akron Children's Hospital

“Because of our quality improvement efforts, we are preventing our sickest patients from developing additional infections while they are in the hospital. Every staff member has a heightened awareness of the guidelines he or she should follow to prevent these complications. These safety efforts have saved money, but more importantly, have saved lives.”

~ **Jodi Mullen, MS, RN, BC, CCRN, CCNS**
Clinical Nurse Specialist, PICU
The Children's Medical Center
of Dayton

Initial efforts will focus on eliminating serious safety events (SSEs) and developing a patient harm index. SSEs are deviations from standard care resulting in severe harm, such as wrong-site surgery or cardiac arrest from unrecognized deterioration. Preliminary estimates based on data from five of the eight children’s hospitals indicate that approximately 50-60 children and families are severely harmed by an SSE each year across the eight Ohio Children’s hospitals. Some of these children die as a result of SSEs, and some experience permanent brain or other organ damage. In addition to the impact on the patient, SSEs can cause severe emotional distress for families and hospital staff, and result in significant additional health care costs.

“This may be the only pediatric initiative in the nation not run within a health care system but by independent hospitals throughout the state willing to work together for a common goal: improving care for everyone.”

~ **Frederick Ryckman, M.D.**
Professor of Surgery/Transplantation and
Senior Vice President, Medical Operations
Cincinnati Children’s Hospital Medical Center

This work will further establish Ohio children’s hospitals at the forefront nationally, as this is the first time a statewide collaborative has focused on reduction of SSEs and creation of a statewide patient harm index for children.

A substantial reduction in SSEs in Ohio’s children’s hospitals will take unnecessary costs out of the health care system, reduce anxiety and emotional distress for patients, families and clinicians, and—most importantly—save countless lives. This is the next critical step in our journey to make Ohio the safest place in the country for children to receive health care.

“Together, the eight children’s hospitals share the goal to make Ohio the safest state in the U.S. for children and families. We believe that together, via shared data, best practices and some healthy competition, we will improve faster. We owe this to the families of Ohio and beyond.”

~ **Stephen E. Muething, M.D.**
Assistant Vice President for Patient Safety
Cincinnati Children’s Hospital Medical Center



Promoting a culture of safety

through leadership training and engagement

Solutions for Patient Safety was founded on the principle that a key component of improving patient safety is to promote a culture of safety at health care institutions across the state. The partnership is striving to increase this culture at participating institutions—and ultimately the culture of safety at all Ohio hospitals. To be successful, providers at every level of care—starting with the uppermost levels of management—must embrace patient safety and integrate accountability for lives, dollars and time affected by the partnership’s programs.

While it is obvious that clinicians and other providers play an enormous role in patient safety improvement efforts, the founding partners of *Solutions for Patient Safety* also recognized that employers have much to contribute. These business leaders not only fund health care for their employees but also have expertise in quality improvement efforts within their own companies. Hospital and health system boards are critical agents of change—and employers play a vital role in driving this change.

“While we work hard to ensure our hospital’s board is well versed in and up-to-speed with patient safety and quality issues, the Solutions for Patient Safety training provided us with valuable information about how to better work with our board to foster a culture of safety in our hospital. We plan to use the information we learned through this session to make a number of changes to the way our executive team and board work together, as well as how we train our board members during the on-boarding process. As our board chairman said at the retreat... This is the core of our mission and our number one priority.”

~ **William Considine**

Chair, Ohio Children’s Hospital Association
Board of Directors and President and CEO,
Akron Children’s Hospital



Solutions for Patient Safety Leadership Engagement Programs

On Board for Patient Safety I: In October 2009, 75 senior leaders and trustees from 25 hospitals participated in a training hosted by the Ohio Hospital Association's Governance Institute in partnership with the Ohio Business Roundtable (BRT) and the Cardinal Health Foundation. The "On Board for Patient Safety" training provided participants with the opportunity to learn about proven methods for effectively monitoring safety and quality improvement in their local hospitals. The training was designed to help hospital leaders better understand their role in patient safety initiatives and equip them with knowledge and tools to play a critical role in hospital-wide quality improvement efforts. The Institute for Healthcare Improvement (IHI) led the program, which included Jim Conway, Senior Vice President, IHI; Jamie Orlikoff, President, Orlikoff and Associates, Inc.; and Lee Carter, former board chair, Cincinnati Children's Hospital Medical Center.

On Board for Patient Safety II: Due to the success of the first training, an additional training was offered to hospitals around the state and an additional 30 trustees were trained in April 2010.

Ohio Business Roundtable Session: In December 2009, the BRT hosted a discussion by former U.S. Treasury Secretary and CEO of Alcoa Paul O'Neill. As part of his community service efforts in Pittsburgh, O'Neill worked with Karen Feinstein, President of the Jewish Healthcare Foundation,

to found the Pittsburgh Regional Health Initiative. Widely known for his safety record at Alcoa, O'Neill was instrumental in getting the PRHI to adapt the principles of the Toyota Production System into the patient care system. O'Neill became a leader locally and nationally in addressing issues of patient safety and quality in healthcare. This provocative session was attended by more than 30 BRT members, hospital trustees and senior executives. It raised awareness of the important role hospital board members play and encouraged participants to bring lessons on workplace safety to the hospital board room and to be catalysts for improvements in quality and safety in Ohio hospitals.

Participants in *Solutions for Patient Safety* have indicated specific changes to their board meeting agendas and administrative practices, including:

- Moving the quality report to the top of the full board meeting agenda and ensuring that approximately 25 percent of each board meeting is dedicated to quality.
- Creating a list of "Seven Things Every Board Member Should Ask About Patient Safety" that is directly adjacent to the agenda of every board meeting.
 1. Does everyone understand the importance of patient safety?
 2. Do we really have an open and fair culture?
 3. Are we actively encouraging reporting of incidents?
 4. Do we get the right information?
 5. Are we always open when things go wrong?
 6. Do we learn from patient safety incidents?
 7. Are we actively implementing national guidance and safety alerts?

- Adding consumers to the hospital's Quality Committee to give the patient/family perspective.
- Developing key organization-wide quality aims that focus, support, and communicate hospital quality efforts – and presenting these to the board for review and approval.
- Starting each Quality Committee meeting with a patient story from the hospital.

“This session made me rethink the way I engage in hospital board service. At AEP, our top priorities are creating a safe workplace for our employees and generating safe service for our consumers. This thought-provoking session encouraged me to take a hard look at the safety concepts we employ at AEP and translate them to the health care environment to contribute to the hospitals’ patient safety work.”

~ **Susan Tomasky**
President, AEP Transmission
Board Member, Mount Carmel



Solutions for Patient Safety

Every patient. Every day.

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