
Creating a Foundation of Excellence: *Five Years of Innovation in Patient Safety*

Maryland Patient Safety Center 2008 Annual Report

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Executive Summary

The **Maryland Patient Safety Center (MPSC)** has at its foundation a vision to make Maryland's healthcare the safest in the nation. Reinforced by the Patient Safety Act of 2001, this mandate has led to the development of a robust, multi-faceted approach that has engaged providers in improving care for patients across the healthcare spectrum. MPSC is poised to continue its success as it launches its fifth year of innovative programming.

The synergistic collaboration between the Maryland Hospital Association (MHA) and the Delmarva Foundation for Medical Care (Delmarva Foundation) to operate the Center, begun in 2003, has resulted in a robust set of activities and initiatives that have made Maryland a **national leader** in patient safety. Key strategies of offering a **comprehensive programming**, including education and training, collaborative programs, adverse event reporting, research, and special projects, combined with medical review committee status for information confidentiality, have provided Maryland healthcare providers with a **safe haven** for improvement and learning.

MPSC is proud of the leadership role that healthcare providers have taken in the Center's first five years. Facilities have engaged their staff and institutions in a myriad of complex efforts to improve patient care. Across the region facilities have efforts underway to enhance the capacity of their staff, improve the culture of safety, implement safer care practices, and engage with patients and families to meet their healthcare needs.

Some highlighted Maryland Patient Safety Center achievements include:

- ◆ **2005 John M. Eisenberg Patient Safety and Quality Award** for national/regional innovation in patient safety.
- ◆ **Participation** from over 8,400 providers in educational programs, 85% of hospitals in collaborative programs, and 55% of hospitals in the Adverse Event Reporting System.
- ◆ **Improved outcomes and processes**, including reductions in ventilator associated pneumonia and catheter-related blood stream infections during the Intensive Care Unit Collaborative, resulting in an estimated 140 lives saved and \$40,775,070 in avoided costs; improved Emergency Department (ED) flow and timing processes reported during the ED Collaborative; and other improvements related to methicillin-resistant *Staphylococcus aureus* (MRSA), perinatal care, and handoffs and transitions.
- ◆ Creation of an **Adverse Event Reporting System** that explores patterns and trends related to patient safety events and near misses that occur in healthcare facilities.
- ◆ Development of a **safety center model** that other states seek to learn from and emulate.
- ◆ Increased **funding support** from a diverse set of sources, including hospitals, MHA, Delmarva Foundation, the Maryland Department of Health and Mental Hygiene, the Health Services Cost Review Commission, CareFirst BlueCross BlueShield, and others.
- ◆ Various **publications** and communications, highlighting program participants and the Center's successes.

The Center will complete its fifth year in operation in 2009. This milestone coincides with a significant expansion of MPSC's efforts to make Maryland's healthcare the safest in the nation.

In 2008, the Center completed a strategic reorganization, becoming an incorporated organization with MHA and the Delmarva Foundation continuing to act as primary members of the Center. A newly-designated voluntary Board of Directors has participated in setting a strategic long-term agenda for MPSC. In addition, the Internal Revenue Service has granted the Maryland Patient Safety Center status as a tax-exempt 501(c)(3) organization. These are critical achievements in the Center's ability to support Maryland's relentless quest to provide effective, safe and efficient care for our citizens.

The following report, **Creating a Foundation of Excellence: Five Years of Innovation in Patient Safety**, provides an overview of the Center's background and achievements, describes specific programs and approaches, and summarizes the strategic next steps that are creating a sustainable infrastructure for patient safety improvement in Maryland.



William Minogue, MD, FACP
Executive Director
Maryland Patient Safety Center

Acknowledgements

The Maryland Patient Safety Center would like to acknowledge the tremendous efforts and successes on the part of the participating healthcare organizations, practitioners, and other professionals who have dedicated time and resources to improving care for patients. The enthusiasm of these leaders and their willingness to contribute to the important quality and safety issues in the region are cornerstones of the Center's impact.

MPSC also recognizes the innovation and teamwork of its partners – Maryland Hospital Association, Delmarva Foundation for Medical Care, Center for Performance Sciences, and Maryland Healthcare Education Institute – as well as the members of the MPSC Board of Directors and other advisory groups. Each has made significant and lasting contributions to healthcare in Maryland.

Overview, 2001 – 2008

The Maryland Patient Safety Center has at its foundation a vision to make Maryland’s healthcare the safest in the nation. Reinforced by state legislation, this mandate has led to the development of a robust, multi-faceted approach that engages providers in improving care for patients across the healthcare spectrum. MPSC is poised to continue its success as it launches its fifth year of innovative programming.

Making Maryland’s Healthcare the Safest in the Nation

- Innovative programs with high uptake among healthcare providers
- Convener of local and national leaders to improve the quality of care
- Data-driven study of adverse events to set priorities and enable safety
- Education programs provide a foundation of skills and knowledge
- Clinical improvement in priority health areas

Background

The “Patient Safety Act of 2001,” passed by the Maryland General Assembly, set a foundation for the creation of the Maryland Patient Safety Center (MPSC). The Maryland Health Care Commission (MHCC), with input from the Department of Health and Mental Hygiene (DHMH), were charged to study the feasibility of reducing the number of preventable adverse medical events in Maryland. From this study emerged the recommendation to establish the MPSC as a key component of a state plan to improve patient safety.

Several subsequent actions set creation of the Center in motion. First, the General Assembly endorsed this concept in 2003 by including a provision in legislation to allow the MPSC to have medical review committee status, thereby making the proceedings, records, and files of the MPSC confidential and not discoverable or admissible as evidence in any civil action. Second, the Maryland Hospital Association and the Delmarva Foundation were jointly selected as operators of the Center for a three-year period starting in January 2004, which has been extended for two additional one-year periods through December 2008.

The two operators generated an Advisory Board and program structure that set MPSC on a strategic path. The purpose of the MPSC is to make Maryland the safest state in the country by focusing on the improvement of systems of care, reduction of the occurrence of adverse events, and improvement in the culture of patient safety at Maryland health care facilities. The Center focuses on a comprehensive set of program approaches:

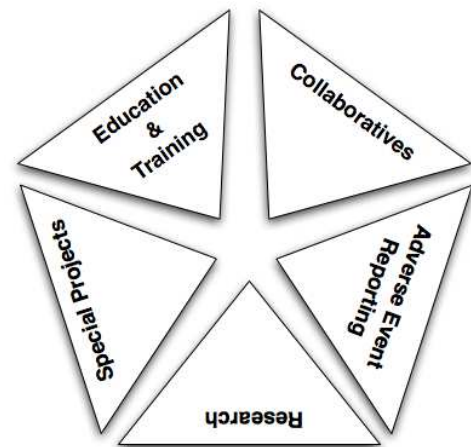
- ◆ Develop a grassroots model for building consensus to improve patient safety in Maryland;
- ◆ Promote a “culture of safety” that encourages system improvements rather than faulting individuals;
- ◆ Collect, analyze, and share appropriate information about adverse events and near misses;
- ◆ Develop and provide education for health care professionals, hospitals, and nursing home staff, including sharing “better practices” from Maryland and worldwide;
- ◆ Sponsor patient safety collaboratives that bring together providers and national experts to focus on specific process improvements; and
- ◆ Lead applied research to find and implement safer processes and practices in Maryland.

Key Strategies

The Maryland Patient Safety Center's synergistic approach and confidential nature are critical attributes of its function and value in the state of Maryland.

Comprehensive Approach

MPSC's overall strategy is a comprehensive, multi-pronged approach intended to engage practitioners and consumers in improving healthcare quality and safety in Maryland. These program areas, depicted in the graphic at right, include education and training, collaborative programs, adverse event reporting, research, and special projects. It is clear that this synergistic approach has been critical to engaging facilities and providing them with a full menu of support and opportunities.



In the early years of the Center, these prongs were managed as independent concurrent activities. As the Center has grown and developed, efforts in each of these areas have built on and been informed by each other. Skills shared in educational programs reinforce the approaches used in collaborative programming and in the study of adverse events. Similarly, research on safety practices in the state and other special projects help guide the Center in identifying and designing future programs.

For example, the Stop Falls initiative beginning in fiscal year 2009 was designed based on data from the Adverse Event Reporting system. These data revealed that falls are among the predominant patient safety issues for facilities and patients. Of the 26 facilities submitting data on adverse events, falls account for 22% of the total events reported and result in the greatest injury to patients. As a result of this data, MHA and Delmarva Foundation are convening a Falls Workgroup that is building a set of resources and tools for facilities from multiple settings. Additional detail on this and other programs are provided in the Focus Areas section below.

Safe Haven for Improvement

Participants in the Center's Adverse Event Reporting System, collaborative programs, and other activities, such as the annual Call for Solutions presented at the MPSC Annual Conference, see the Center as a safe haven for sharing and learning from each other about potentially harmful situations. Their continued participation and engagement in available programs rely in part on MPSC's continued protection as provided by its designation as the patient safety center in the state of Maryland.

The 2003 legislation that enabled the creation of the Center included essential protections for the data and information gathered by the Center. As mentioned previously, this medical review committee status ensures the confidentiality of the proceedings, records, and files of MPSC.

Achievements

The Center, now in its fifth year, has distinguished itself with a number of key achievements in the areas of awards, participation, outcomes, funding, publications, and creating a replicable model.

John M. Eisenberg Award

The Maryland Patient Safety Center was honored with the 2005 John M. Eisenberg Patient Safety and Quality Award for national/regional innovation in patient safety. The Center was recognized for implementing a unique and comprehensive statewide approach to patient safety improvement by bringing together a public-private partnership of health care providers and policymakers to study and learn from errors. This prestigious award was established in 2002 by the National Quality Forum (NQF) and The Joint Commission in memory of John M. Eisenberg, MD, Director of the Agency for Healthcare Research and Quality, a member of the founding Board of Directors of the NQF, and an impassioned advocate for healthcare quality improvement. The award recognizes the achievement of individuals and organizations that have made an important contribution to patient safety and health care quality in the areas of research or system innovation.

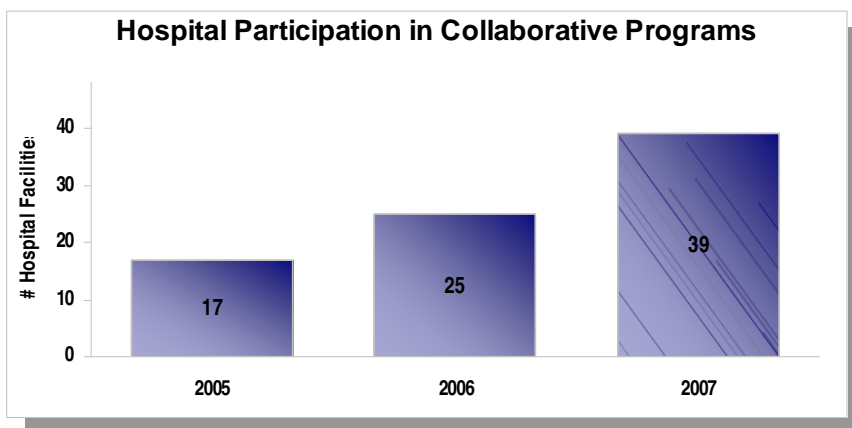
"What makes the Maryland Patient Safety Center unique from just about every other patient safety program in the country is that the state gave it a mandate to innovate and go beyond data collection to actually putting practical, measurable safety improvements in place."

- Delegate Brian McHale

Participation

Participation levels among providers in the region have grown over the five years of the Center's operation and remain high. This high level of engagement demonstrates that providers find value in the programs offered by the Center. Educational programs have been attended by over 8,400 providers, creating a foundation of skills and knowledge that reinforces the Center's other program efforts. Attendance at the Annual Conference has grown to over 1,200 in 2008, including participants from hospitals, long term care facilities, physician groups, and specialty facilities.

Hospital participation in the voluntary collaborative programs offered in the region has also expanded, growing from 17 participating in 2005 to almost 40 participating in any of three programs offered in calendar years 2007/2008. The expansion of these programs to include long term and home care providers promises to continue this trend.



Twenty-six facilities contribute to the Adverse Event Reporting System, with seven using it as their primary tool and the remainder providing MPSC with their data for analysis and learning. All Maryland hospitals participate in the MEDSAFE program, sharing and focusing their efforts to improve medication management and coming together annually for the MEDSAFE Conference.

Of note, MPSC has enhanced programming for long term and home care providers. This focus has been incorporated into educational and collaborative programming, among others. Representatives from across the continuum of care have been engaged as members of the Board of Directors, program advisory groups, and other meetings and opportunities offered by MPSC.

Outcomes

Participating facilities have witnessed improved outcomes and processes as a result of their efforts with the Maryland Patient Safety Center. These results are described in detail in the Focus Areas section of this report, and include:

- ◆ Reductions in ventilator associated pneumonia and catheter-related blood stream infections during the Intensive Care Unit Collaborative, resulting in an estimated 1,113 infections prevented, 140 lives saved, and \$40,775,070 avoided hospital costs.
- ◆ Improved Emergency Department (ED) flow and timing processes reported during the ED Collaborative, including reduced time on red and yellow alert as well as improved antibiotic timing for pneumonia patients,
- ◆ Implementation of processes to improve perinatal care through the Perinatal Collaborative, including enhanced communication processes, implementation of standard terminology for critical processes, and simulation team training. Baseline adverse outcomes data for 18 of the hospitals indicated that 4.4% of deliveries were associated with an adverse outcome in calendar year 2006. Sixty-four percent of hospitals surveyed reported an improved perception of patient safety culture one year into the program.
- ◆ Application of a tested, innovative, internationally proven behavior change approach through the MRSA Prevention Network has been implemented with over 30 facilities. Data from pilot sites have established targets for reduction of the incidence of nosocomial MRSA infections at 30% per year. In partnership with the CDC, the Network has established the nation's first automated regional data infrastructure for tracking MRSA trends.
- ◆ Implementation of improved patient handoff processes through the Handoffs and Transitions Learning Network, including findings that 80% of surveyed participating facilities have initiated a formal handoff process and 60% have improved patient handoffs for procedures using an innovative "Trip Ticket" format. Of these 100% report that communication of patient information improved as a result.
- ◆ Steady improvement in the overall MEDSAFE medication safety survey scores.

The Center is currently formalizing a process, with input from providers across the state, to annually track and share key patient safety and quality metrics on an ongoing basis. This will allow MPSC to track the sustainability of its efforts and identify needs in the healthcare community.

Diversified Support and Funding

MPSC has sought and received support from diversified funding sources, and is engaged in a business development process that will contribute to the Center's sustainability. Funding for the Center began in 2003 with contributions from Delmarva Foundation, MHA, and hospitals, with matching dollars from the Health Services Cost Review Commission (HSCRC). Funding has grown to include a diverse set of grants and contributions, including the following for fiscal year 2009:

- ◆ CareFirst has committed \$446,334 to fund a Neonatal Collaborative and to expand efforts in support of Rapid Response Systems.
- ◆ The DHMH Center for Maternal and Child Health will contribute \$469,650 in FY 2009 to continue efforts on the Perinatal Collaborative.
- ◆ Hospital facilities in Maryland are asked to make an annual contribution to the Center. Annually an average of 85% of hospitals contribute to the fund, totaling \$200,000 in FY09.
- ◆ Three non- Maryland hospitals will provide a total of \$85,000 for their participation in MPSC activities.

National Model

Peers from other states and regions look to Maryland for leadership and innovation in patient safety. The Center has drawn considerable attention from other states for patient safety efforts and is beginning to serve as a model for these states to emulate. Among the factors contributing to its success and recognition across the country are:

- ◆ *Public and private sector cooperation.* The MPSC integrates the resources and expertise of two state-based organizations committed to safer care.
- ◆ *Stakeholder guidance.* The MPSC's recent reorganization as a not for profit 501C3 caused us to reconstitute the Board as a fiduciary entity populated by individuals who have demonstrated expertise and commitment to safety. Two long term care executives are on the board to champion our work in this important level of care.
- ◆ *Voluntary effort.* Voluntary participation by Maryland healthcare providers and leaders from across the state has been excellent.
- ◆ *Adequate funding.* Because of funding from hospitals, Delmarva Foundation, MHA, DHMH, HSCRC, CareFirst BlueCross BlueShield, and foundations and private sources, all MPSC activities are offered at no cost to individual Maryland healthcare providers.
- ◆ *Improvement focus.* Instead of concentrating mainly on error reporting, the MPSC's educational, training, and improvement programs provide orientation toward learning.
- ◆ *Comprehensive approach.* The MPSC utilizes a multifaceted approach to improving safety in the state.

"We in Maryland are very lucky to have this. There may not be anything like it in the country; if we aren't the first, we were one of the first to create this type of center. The Center deserves every award they get for striving toward safe patient care."

- Mary Jozwik, Vice
 President for Quality and
 Patient Safety, Baltimore
 Washington Medical Center

Recently MPSC reviewed its set of programs compared to others around the country. Of the organizations and groups identified in 24 states, **Maryland offered the most comprehensive set of programming opportunities.** Only six others had a legislative mandate, and only two other

state programs are winners of the Eisenberg award. MPSC will continue to provide information and inspiration to other states, and plans a second informational session for interested states and regions on April 1, 2009, one day prior to the 2009 MPSC Annual Conference.

A number of groups in other states have reached out to MPSC for insight and guidance as they work to create centers in their states, including Missouri, Wyoming, Indiana and New Mexico. In addition, the Center's Executive Director was invited to Beijing, China in May 2008 to share a discourse on patient safety at a meeting of Chinese hospital CEOs.

Publications

Regional and national publications have highlighted the efforts, strategies and successes of the Center and its programs. These publications bring attention to the unique progress underway in Maryland, recognize the facilities that have dedicated staff and resources to improving, and share strategies and approaches with the broader healthcare community. Some key publications include:

- ◆ "Force Functioning Safety." Gail O. Guterl. *ADVANCE for Nurses*, August 11, 2008: Vol. 10, No.17, Page 18.
- ◆ "The Soil, Not the Seed: The Real Problem with Root Cause Analysis," William Minogue and Patrice Spath. *Agency for Healthcare Research and Quality Web M&M*, July 2008.
- ◆ "Why Incident Investigations Fail to Improve Patient Safety." William Minogue and Patrice Spath. *Hospitals & Health Networks*, July 7, 2008.
- ◆ "Maryland Patient Safety Center Leads Work in MRSA Prevention." *The Daily Record*, June 27, 2007.
- ◆ "A Comprehensive Grassroots Model for Statewide Safety Improvement." Maulik Joshi et al. *The Joint Commission Journal on Quality and Patient Safety*, Vol. 31, No 12, December 2005.
- ◆ "Error Reporting: Patient Safety's Weakest Link." William Minogue. *American Journal of Medical Quality*, Vol. 20, No. 6, Nov/Dec 2005.
- ◆ "Statewide Collaboration Helps MD Hospitals Study, Learn from Errors." William Minogue. *American Hospital Association News*, October 17, 2005.
- ◆ "Patient Safety and the Art and Science of Medicine." William Minogue and Margaret Toth. *Maryland Medicine*, Autumn 2005.
- ◆ "Rx for Bad Medicine: Maryland Hospitals Team to Improve Patient Safety." Shelly Schwartz. *Maryland Healthcare Quarterly*, October 2004.

"When I interviewed the principals involved and nurses who have taken advantage of the Patient Safety Center programs, I realized ...it is an organization that all states should emulate and is well worth getting more publicity."

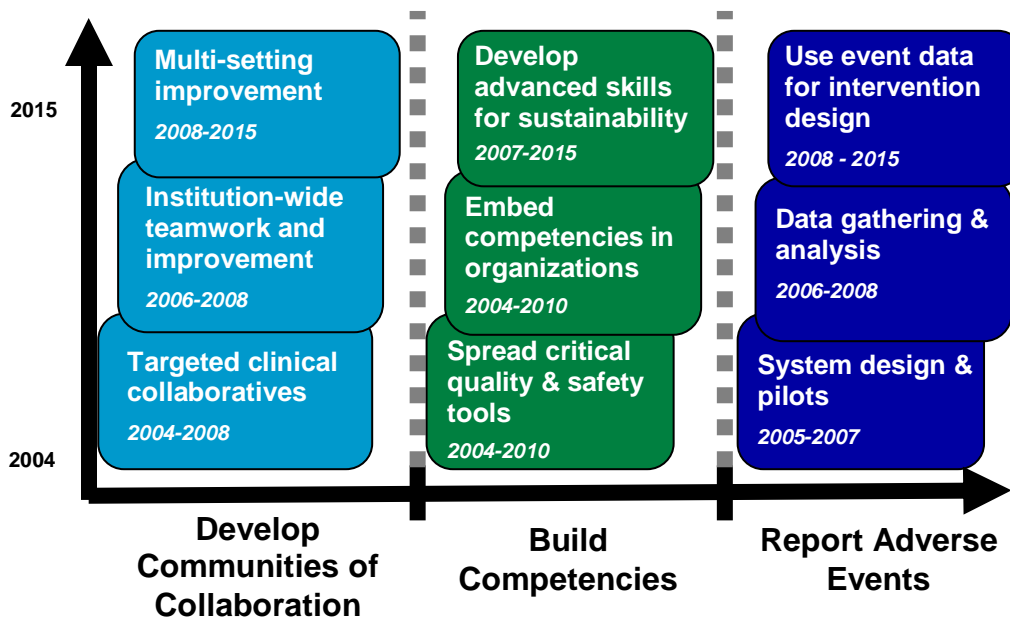
- Gail O. Guterl, Editor,
ADVANCE for Nurses

Focus Areas

The Maryland Patient Safety Center’s focus areas include education and training, collaborative programs, adverse event reporting, research, and special projects. By promoting efforts in these five areas, the Center is able to provide a comprehensive set of programs that engage providers at multiple levels and types of organizations.

The three largest program areas - collaborative programs, education and training, and adverse event reporting - are depicted below. The graphic represents the process of developing each program track from MPSC’s first years and into the future. As they have developed the program areas have increasingly reinforced each other. For example, root cause analysis training reinforces the process used in the adverse event reporting system. Similarly, data from the adverse event reporting system is used to guide program planning for collaborative learning programs.

Strategic growth of MPSC activities to engage regional organizations in patient safety



Collaborative Programs

MPSC’s greatest strength is as a convener, bringing together participants from across facilities and across the continuum of care to focus on improving patient safety and quality of care. The collaborative and learning network programs offered by the Center are at the core of this strategy.

Since its beginnings the MPSC’s Safety Collaborative Series, implemented with the Delmarva Foundation, has translated the energy, knowledge, and will of the healthcare community into measurable, sustainable, and transferable action. A collaborative is an adoption and improvement

model focused on spreading and adapting best practices across multiple settings and creating changes within organizations that promote the delivery of effective clinical practices. Learning networks are a less structured approach that share learning about a common topic or issue.

ICU Safety and Culture Collaborative (2005)

Teams from 83% (38 out of 46) of Maryland hospitals representing nearly 90% (799 out of 893) of the state's intensive care unit beds participated in this collaborative aimed at eliminating preventable death and illness associated with healthcare-associated blood stream infections and pneumonia in patients on ventilators.

- ◆ Estimated 1,113 ventilator associated pneumonia or catheter-related blood stream infections prevented, 140 lives saved, and \$40,775,070 avoided hospital costs.
- ◆ Estimated 358 BSI infections prevented, 64 lives saved, and \$5,853,300 hospital costs avoided (range is cost estimates from \$1,324,600 to \$10,382,000).
- ◆ Estimated 755 VAP infections prevented, 75 lives saved, and \$34,921,770 hospital costs avoided (range is cost estimates from \$26,053,540 to \$43,790,000).

Emergency Department Collaborative (2006 – 2007)

Teams from 61% (28 out of 46) of Emergency Departments in Maryland representing nearly 65% (1,076 out of 1,682) of the state's emergency department treatment spaces participated in this collaborative aimed at improving emergency room flow and getting time-sensitive treatments to patients quickly.

Flow and efficiency measures reported by participants include

- ◆ Median LOS reduced 30 minutes, among the sample of 748,237 patients seen in one year, 374,118 hours saved.
- ◆ Median increase of 90 visits per treatment space
- ◆ 24% of hospitals decreased yellow alert time. Median yellow alert decline 108 hours.
- ◆ 48% of hospitals decreased red alert time. Median red alert time declined 114 hours.

Metrics that assessed timely care include:

- ◆ 189 (out of 3,779) additional pneumonia patients given antibiotic on-time.
- ◆ \$130,032 hospital costs avoided. Additional LOS associated with not getting antibiotic on-time = 0.4 days; Using 2006 hospital pricing guide the state average cost per day for PNE admission is \$1,721. So each additional patient given the antibiotic on-time saves 0.4 day, which would save \$688 per patient.

MPSC Collaboratives & Learning Networks

- ICU Collaborative
- ED Collaborative
- Perinatal Collaborative
- MRSA Positive Deviance
- Handoffs and Transitions
- Neonatal Collaborative (FY09)
- Falls Prevention (FY09)
- Condition H (FY09)
- TeamSTEPPS™ Learning Network (FY09)

Perinatal Collaborative and Learning Network (2006-present)

Improved maternal and child health outcomes is a top priority for the Maryland Patient Safety Center (MPSC) and the Department of Health and Mental Hygiene (DHMH). Research indicates that mothers and babies remain at risk of unintended injury during labor and birth in the American healthcare system. The major underlying causes for this risk are human and system errors. According to the Joint Commission, team communication was the leading cause in sentinel events involving infant death, with team culture as an underlying cause.

Funded in large part by the DHMH Center for Maternal and Child Health, the Maryland Patient Safety Center set out to address this problem with a focus on safety in Labor & Delivery (L&D) units. The Perinatal Collaborative (2006-2008) built an infrastructure of patient safety champions working to reduce maternal and infant harm. To sustain and spread the improvements, Delmarva Foundation will host a Perinatal Learning Network in FY2009, also funded by the DHMH.

Perinatal Collaborative (2006-2008)

The aim of the Perinatal Collaborative is to reduce infant harm through the implementation and integration of systems improvements and team behaviors into maternal-fetal care. The overall mission is to create perinatal units that deliver care safely and reliably with zero preventable adverse events. Twenty-six of the 33 hospitals (79%) in Maryland offering obstetrical services are involved in the Collaborative, representing 77% of births in Maryland and Washington DC.

During the many activities of the Collaborative, the hospital teams learned about best practices for standardizing terminology for electronic fetal monitoring, team training including techniques for improving team communication, OB emergency simulation, lowering the risk associated with vacuum-assisted deliveries, the safe use of the high alert medication (Pitocin), in elective induction and augmentation, the restriction of elective deliveries to 39 weeks gestational age and above, and others specific to individual hospitals. All of these practices were viewed through the lens of improving teamwork and communication.

Measurement is focused on assessing the culture of safety and adverse events. Assessing the culture of safety within the multidisciplinary L&D team was accomplished through the administration of the Agency for Healthcare Research & Quality (AHRQ) Hospital Patient Safety Survey. Teamwork and communication dimensions of the survey were the focus for action. As an example, only 36% of the staff and physicians responded positively to good coordination with other hospital units. Now, as a result of team training, over 60% of the L&D units have planned or implemented Board Rounds, a team review of all patient activity on the unit during a shift, to improve communication within and across units. A resurvey after one year of the Collaborative revealed that 64% of facilities realized an improved overall perception of safety culture.

The Adverse Outcome Index (AOI) was selected to measure indicators of maternal and infant harm and to limit the need for laborious chart review. Maryland is the first state to use the AOI for improving patient safety. These data are a part of the standard data set that hospitals routinely

report to the Health Services Cost Review Commission (HSCRC) plus some supplemental data not available in that data set. The baseline AOI data set for 18 of the hospitals indicated that 4.4% of deliveries were associated with an adverse outcome in calendar year 2006. With one in every twenty five deliveries experiencing an adverse event, 2,034 mothers and/or their babies were affected. AOI data continue to be analyzed and data collection will continue into the next phase of the project.

The hospitals have been very engaged in the Collaborative process and have tested and implemented a variety of interventions depending on their individual organizational needs. The hospital teams desired an opportunity to stay connected and continue to share their work. The DHMH Center for Maternal and Child Health has been very pleased with the progress of the Perinatal Collaborative, and the infrastructure that has been established, and was anxious to see it continue. To that end they have agreed to fund an 18-month continuation of the project through the Perinatal Learning Network.

Perinatal Learning Network (Beginning 2008)

The proposed Perinatal Learning Network will be designed to sustain and advance the work of the Perinatal Collaborative. It will provide a forum for the current teams to stay connected as they continue their work to reduce maternal and infant harm. To support their efforts, conference calls will be conducted on a quarterly basis with expert speakers. Two half-day events will be conducted to bring the group together face-to-face. Project staff will stay in touch with teams to track their progress throughout the year. Site visits will be conducted on an as-needed basis.

The Adverse Outcome Index and the AHRQ Hospital Culture Survey will continue to be used to track the progress in the Perinatal Learning Network. AHRQ Hospital Culture Surveys will be administered annually for the duration of the process.

MRSA Prevention Initiative (2006 – present)

The MPSC is on track to making healthcare in Maryland the Safest in the Nation by tackling the methicillin-resistant *Staphylococcus aureus* (MRSA) epidemic – our most challenging healthcare problem as a community. Maryland's is the first organized patient safety center in the nation to address MRSA infection regionally and across healthcare settings. During the past year, the MPSC MRSA Prevention Initiative has expanded its reach, developed robust partnerships and embedded enduring new skills as the foundation for an emerging national model.

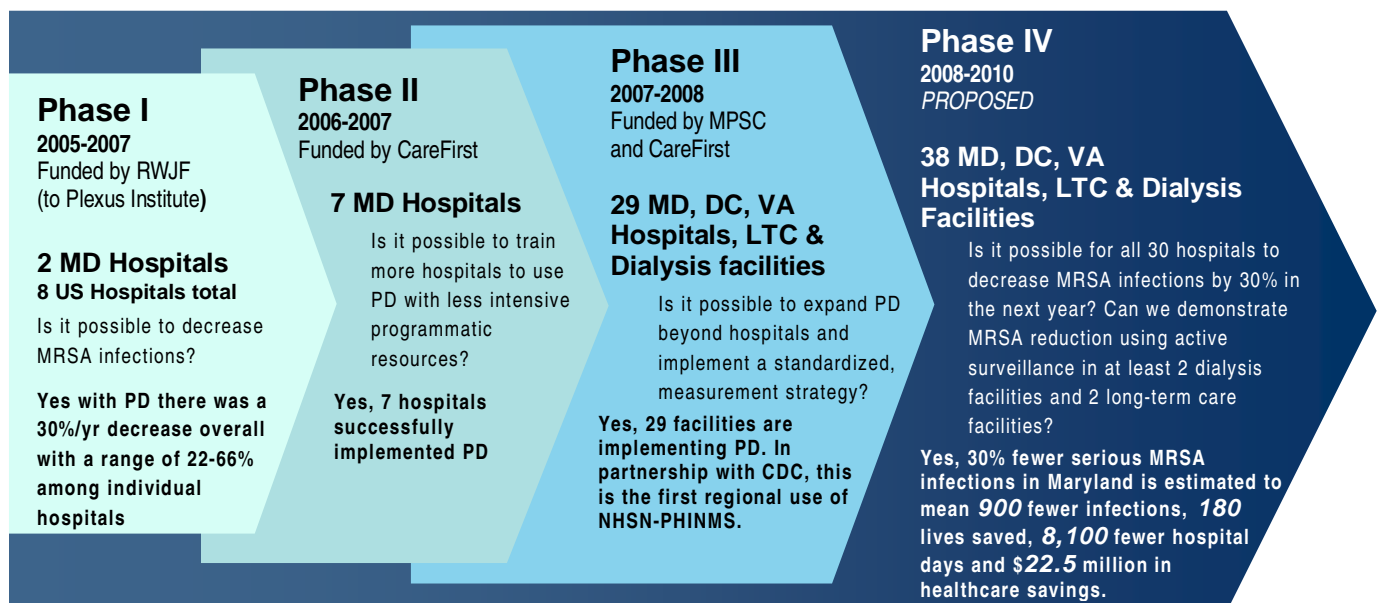
In 2008-9 we will amplify our current use of Positive Deviance (PD) and CDC-defined standardized outcomes measurement to 1) decrease by 30% the number of people infected with MRSA as a result of their interactions with participating healthcare facilities 2) expand boundaries of infection prevention responsibility to include every profession and vocation within our targeted healthcare settings and 3) embed within participating organizations a recyclable “process” for rapidly mobilizing large segments of the workforce to address future epidemics.

Eighty-five percent (85%) of serious MRSA infections are healthcare-associated. In Maryland, this translates to an estimated 3000 people with serious infection, 600 deaths, 27,000 excess days of hospitalization and 75 million dollars in excess healthcare costs. Baltimore City, Maryland has the highest measured rate of serious MRSA infection in the nation with 116 cases for every 100,000 people. The rate for our dialysis patients, 92 serious MRSA infections per 1,000 patients, is 100 times higher than for the general population.

Impact:

- ◆ Multi-setting community intervention engaging 38 hospitals, long-term care facilities, and dialysis units.
- ◆ Application of a tested, innovative, internationally proven behavior change approach has been implemented with over 30 facilities. Data from pilot sites have established targets for reduction of the incidence of nosocomial MRSA infections at 30% per year.
- ◆ In partnership with the Centers for Disease Control and Prevention, the Network has established the nation’s first automated regional data infrastructure for tracking MRSA trends.

The graphic below depicts the phased approach to the rollout of the MRSA Prevention Initiative.



Handoffs and Transitions Learning Network (2007 -2008)

Through its collaborative interventions, MPSC has created a robust infrastructure for tackling the toughest problems in healthcare. The successful ICU, ED and other collaborative programs have resulted not only in improved outcomes but a true spirit of innovation and progress among providers in the region. When the collaboratives measured patient safety culture among participating facilities, the results highlighted the positive impact of our work and identified the need to focus on teamwork, communication, and handoffs.

Patient transition points are among the most error-prone processes in healthcare facilities. A handoff, or patient transition in care from one provider to another, involves the transfer of information, primary responsibility, and authority between providers. By improving the handoff process, participating organizations can experience reductions in communication failures during patient handoffs and improve patient safety.

Thirty-two hospitals participated in the Handoffs & Transitions (H&T) Learning Network to collaborate with facilities across the mid-Atlantic region to test and implement strategies aimed at improving transitions across the continuum of care. Key features included learning sessions, facilitated sharing calls among participants, and documentation of handoff innovations. The Network was hosted by MPSC and Delmarva Foundation with funding from CareFirst BlueCross BlueShield.

The H&T Learning Network functioned as a laboratory for understanding the key features of successful handoffs, and is among only two programs in the nation of its kind. Given the lack of evidence-based practices to improve handoffs from which to draw at the start of the program, the H&T Learning Network has been able to contribute greatly to the dialogue on handoffs. In particular,

- ◆ 80% of surveyed participating facilities have initiated a formal handoff process
- ◆ 60% improved patient handoffs for procedures using an innovative “Trip Ticket” format that smoothes communication at times of radiological and other tests. Of these 100% report an improvement in communication.
- ◆ 53% implemented a discharge checklist for streamlining the patient discharge process. Of these 100% report an improvement in communication at discharge.

New Collaborative Programs for Fiscal Year 2009

MPSC has embarked on an ambitious set of programs for Fiscal Year 2009, beginning July 2008. In addition to the continuation of the Perinatal Collaborative via the Perinatal Learning Network, the following programs are launching in the current fiscal year.

Neonatal Collaborative

The Perinatal Collaborative has unleashed a heightened recognition and new urgency from the neonatal community for a similar initiative aimed at addressing preventable harm among infants receiving care in Level 2 and Level 3 nurseries. Risk-adjusted variations in mortality rates among newborns in Level 3 nurseries are substantial as reported by DHMH, ranging from a low of 83.6 to a high of 231.5 deaths per 1000 births in 2003-04. Morbidities, some lasting a lifetime, and many preventable deaths are experienced every year by neonates as a result of healthcare-associated infections, intravenous infiltrations, and medication errors. The Neonatal Collaborative will address these and other adverse events. The project is in the planning phase and is funded for two years by CareFirst BlueCross BlueShield.

Condition Help

A Rapid Response Team (RRT) is a team of clinicians that brings immediate attention and critical care expertise to a patient whose condition appears to be deteriorating with the goal of decreasing mortality of hospitalized patients. Building on Delmarva Foundation's successful work in implementing RRT in a cohort of Maryland hospitals, the next step is the establishment of a "Condition Help" program in a subset of these facilities. A Condition Help program empowers patients and/or family members who become concerned with the patient's status to initiate a call for immediate help from the facility's Rapid Response team.

This project, funded by CareFirst BlueCross BlueShield, will pilot patient- and family-initiated Condition Help calls among a group of eight "early adopter" hospitals that have already demonstrated excellence with RRS implementation. Faculty will be drawn from patient advocacy organizations and from regional hospitals that have successfully implemented a Condition Help system. The Delmarva Foundation will support teams through a series of meetings, facilitated coaching visits and an interactive virtual community as they learn, implement and refine the Condition Help system.

Stop Falls Initiative

The Maryland Patient Safety Center has determined that reducing the prevalence and severity of patient falls is a significant strategic focus that will yield improved quality of care for patients in hospital, long term care, and home health settings. The data submitted to the MPSC Adverse Event Reporting system reveal that falls are among the predominant patient safety issues for facilities and patients.

The MPSC's Stop Falls Initiative supports MPSC's aim to reduce the prevalence of, and the severity of injury resulting from, falls across the continuum of care, while contributing significantly to the regional and national knowledge base on this critical topic. The Falls Workgroup includes representatives from Maryland area acute care centers, long term care facilities, and home care organizations. The Falls Workgroup works diligently to identify best practices and other current resources that they then use to develop Roadmaps for each setting.

The SAFE from FALLS Roadmaps aim to provide organizations with evidence-based guidelines that can be adapted into policies and protocols that will promote staff toward a more proactive approach to preventing patients/residents from falling while under the care of organization. The original acute care Roadmap was developed by the Minnesota Hospital Association, and 106 Minnesota hospitals are participating in the program. MPSC has been given permission to adapt it to meet the needs of Maryland's health care entities. It includes a detailed list of setting-specific recommended actions that relate to infrastructure and patient care efforts.

Participation in MPSC's SAFE from FALLS Roadmap Pilot will be limited to ten (10) hospitals, ten (10) long term care facilities and five (5) Medicare-certified home health agencies. Once the pilot is completed (anticipated in June 2009), mentors will be recruited and plans for statewide roll-out of the SAFE from FALLS Roadmap will be finalized.

TeamSTEPPS™ Learning Network

In the 1990s, several branches of the military developed team training programs with the goal of replicating the teamwork practices from highly reliable military operations for application within healthcare facilities. These programs also drew from crew resource management systems that helped make commercial aviation six-sigma safe. Recently these programs were consolidated into a single “best of breed” approach known as Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS™). MPSC strategically initiated a training series on TeamSTEPPS™ in 2008 to meet local interest in these innovative tools. In January 2008, a TeamSTEPPS™ Executive Overview provided over 80 participants from 32 organizations with background information and practical examples on implementing TeamSTEPPS™. The first Train-the-Trainer Program was conducted in March 2008 with 35 participants from 17 acute and long term care facilities.

Participants of the first training expressed the need for an ongoing communication mechanism to share their ideas and lessons learned as they implement TeamSTEPPS™ tools in their facilities. Opportunities to meet face-to-face to share ideas, gain additional knowledge, and network with their colleagues are important components of supporting the training sessions. Delmarva Foundation, MHEI, and MPSC will work together to support the training series. As TeamSTEPPS™ is a relatively new tool, this approach will position MPSC as a leader in efforts to improve teamwork and communication among healthcare providers.

The TeamSTEPPS™ Learning Network will consist of three key components: 1) a two-day Train-the-Trainer program; 2) twice-yearly reunions of program participants; and 3) a series of support resources to foster the ongoing exchange of information among participants.

Educational Programs

Education is one of the primary strategies the MPSC uses to improve the adoption of safer practices in Maryland hospitals and nursing homes. The Maryland Healthcare Education Institute (MHEI), an affiliate of the MHA, carries out a comprehensive series of educational offerings on behalf of the Center. The MPSC’s educational activities have been designed to achieve the following goals:

- ◆ Create awareness of the need for improved patient safety and of the cultural changes required for significant improvements.
- ◆ Ensure that healthcare leaders and professionals have the competencies essential for safety improvement.
- ◆ Disseminate patient safety solutions and best practices.
- ◆ Create a safety-oriented culture in organizations by focusing leadership on key issues and concepts
- ◆ Serve as a catalyst and convener for best practices and organizational solutions in patient safety.

MPSC Key Educational Offerings

- MPSC Annual Conference
- MEDSAFE Conference
- Creating Safety Partnerships with Patients
- Lean Healthcare Series
- Six Sigma Green & Black Belt
- Root Cause Analysis
- TeamSTEPPS™ Train-the-Trainer
- Patient Safety Tools Training
- Failure Mode & Effects Analysis

Strategy and Participation

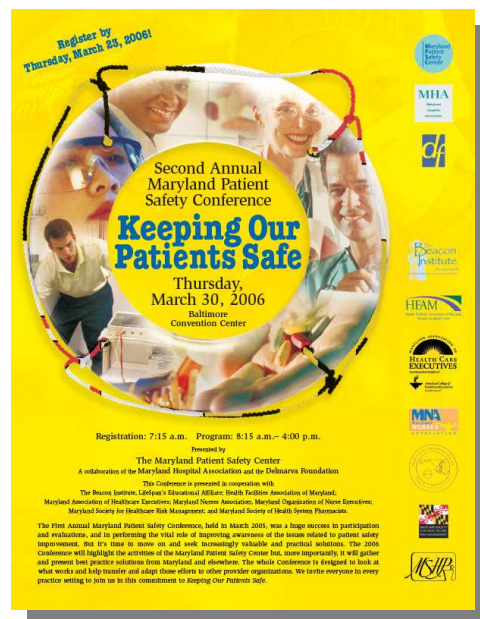
The Education & Training Services offered by MPSC and MHEI have been very robust and active since shortly after the Center was formed. Education is a core activity of the Center. From the very beginning, it was felt that the education activities should be offered at no charge to participants since creating significant change in patient safety requires reaching a high number of leaders and professionals.

The very first MPSC education program was “Working with You to Improve Patient Care” in September, 2004. In early 2005, MPSC introduced the “Leadership Issues”, the MPSC Annual Conference, and the “Role of Department Leaders” programs, with many more activities following in 2006 and 2007. In the years since that first program, the MPSC has offered over 165 education & training program days with over 8,400 participants.

Participation in the programs has included acute care hospitals (65%), healthcare systems (10%), specialty hospitals (8%), long-term-care facilities (7%), and other providers (9%).

Educational Programs for Fiscal Year 2009

- ◆ Convene leaders and professionals for the 5th Annual Maryland Patient Safety Conference. The 3rd and 4th Annual Conferences were a huge success with over 1,200 participants each year.
- ◆ Enhance teamwork skills by offering the TeamSTEPPS Train-the-Trainer Program four times.
- ◆ Continue the focus on process and system improvement competencies by offering the 3-day LEAN Healthcare Series and the 5-day Six Sigma Green Belt Certification programs three times each, and offering the master-level LEAN Six Sigma Black Belt Certification program once.
- ◆ Continue to offer basic and advanced training in root cause analysis and failure mode and effects analysis.
- ◆ Continue to develop management competencies in patient safety with our two-day “Role of Department Leader” programs and several others on topics such as just culture, training frontline staff, and involving patients and families.
- ◆ Work with the Center for Performance Sciences staff to develop and offer the annual MEDSAFE Conference, as well as a new annual Hospital Information Technology Conference.
- ◆ Develop a statewide conference as part of a major new initiative to prevent patient falls.
- ◆ Develop or adapt a patient safety curriculum for members of healthcare boards of trustees.



Adverse Event Reporting System

The Maryland Patient Safety Center's Adverse Event Reporting System was designed to gather data on all patient safety incidents, particularly those near miss events that seem to occur repeatedly. The data is used to explore patterns and trends related to patient safety events and near misses that occur in healthcare facilities. The software is owned by the Center for Performance Sciences, an affiliate of MHA, which provides the flexibility to tailor and refine the program to meet the needs of the users and to react to trends in the healthcare community.

The system was designed to assist health care entities to determine their own organizational strategic priorities, focus organizational efforts toward improving processes, and promote safer patient care practices. Events reported into the system are tracked and trended based on:

- ◆ High cost
- ◆ High volume
- ◆ High risk
- ◆ Problem-prone

The software is provided to Maryland hospitals free of charge. In addition, facilities that have pre-existing systems have the option to report their adverse events and near misses from their software into the MPSC database. Twenty-six facilities contribute to the Adverse Event Reporting System, with seven using it as their primary tool and the remainder providing MPSC with their data for analysis and learning. More than 16,700 near misses and actual events (whether patient harm resulted or not) have been voluntarily reported to the MPSC.

For the past year, the Maryland Patient Safety Center has been collecting data after careful planning of what should be collected, the ways in which to collect it; and, what difference it can make to the quality and safety of care. The data is being used to guide program planning in other areas.

For example, the Stop Falls initiative beginning in fiscal year 2009 was designed based on data from the Adverse Event Reporting system. This data revealed that falls are among the predominant patient safety issues for facilities and patients. Of the 26 facilities submitting data on adverse events, falls account for 22% of total events reported and result in the greatest injury to patients. As a result of this data, MHA and Delmarva Foundation collaborated to create a Falls Workgroup that is building a set of resources and tools for facilities from multiple settings.

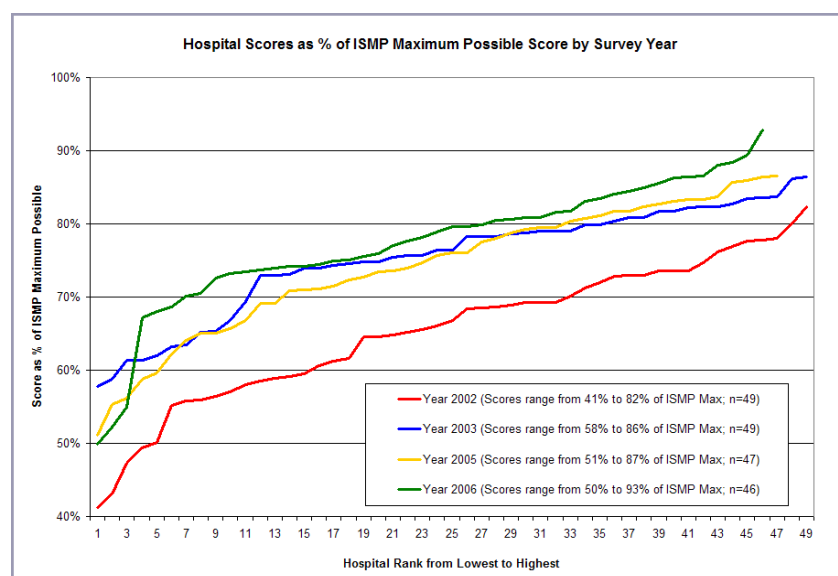
Research

The research arm of the MPSC adds a synthesizing function by evaluating new knowledge from the field and complementing it with findings from MPSC's various activities. In particular, research activities have focused on the MEDSAFE program, the first statewide hospital health information technology (HIT) survey, and analysis of data from the Adverse Event Reporting System, described previously.

MEDSAFE

The MEDSAFE initiative to study medication safety started in 1999 with the voluntary participation of all Maryland acute care hospitals. The program was transferred to MPSC, and continues to promote and study the implementation of safe medication practices in facilities. It both assesses better practices of medication use and is an educational initiative for sharing these practices among hospitals. MEDSAFE continues to be a very valuable service of the Center. After almost a decade of assistance to Maryland hospitals, the survey has identified significant improvement in medication safety, as shown in the graphic to below, as well as gaps between actual and optimal performance.

The program implementation team and the Maryland Healthcare Education Institute use the data to design an annual conference aimed at sharing best practices and emerging innovations in this area. A scientific paper about MEDSAFE was submitted to a peer reviewed journal and is currently under review.



HIT Survey

In 2006, the Health Services Cost Review Commission (HSCRC) provided funding to MPSC to design and conduct the first comprehensive survey on Health Information Technology (HIT) across Maryland hospitals. The rationale for the survey was derived from the increasing evidence that specific technologies, when used appropriately, would minimize errors during the delivery of care, increase the effectiveness of disease treatment and patient management, and optimize the efficiency in the production of services.

The HIT survey has collected information extremely valuable for the future strategies of MPSC and HSCRC. Specifically, it has supported the argument that adverse events happen because of incomplete, ineffective or even contradicting communication among the providers of care, and can be minimized by the adoption of the appropriate HIT. Further, medication-related errors, the first-ranked most common errors in Maryland hospitals, can be minimized or eliminated if the appropriate HIT systems are used in the pharmacy, on the floor, or across the hospital system.

The HSCRC funding was for a two-step approach. The first consisted of designing a survey tool that would incorporate field-tested questions about the organizational needs for HIT by type, the hospitals' readiness to use these HIT, and specific details about how HIT is currently being used in each hospital. To tailor the questionnaire for Maryland hospitals and their environments, additional questions were added about the use of quality indicators and the safety of care activities.

The questionnaire was designed by MPSC with the assistance of a doctoral student from the Johns Hopkins Bloomberg School of Public Health. After comments by HSCRC staff and modifications to the questionnaire, an Internet-based application was developed for hospitals to respond to the questions and submit the data to MPSC. All data were designed to be de-identified during the analysis.

MPSC sent a letter to every hospital CEO in Maryland. A follow up letter resulted in the agreement with 34 hospitals to voluntarily complete the questionnaire and submit it to MPSC. Step two of the survey consisted of the in-depth analysis of data and ongoing communication about the findings with HSCRC staff. The analysis covered two scopes: descriptive analysis of all the data submitted by the 34 hospitals; and, regression analysis to identify the most significant explanatory variables to the adoption, appropriate use, and usefulness of various HIT among Maryland hospitals.

The HIT Survey will continue to be administered by MPSC on an annual basis.

Special Projects

Special Projects initiated by the Center provide an opportunity for topic- and audience-specific initiatives. These Special Projects strengthen other programs in MPSC's portfolio and identify opportunities for innovation.

Patient Safety Officers Forum

The Maryland Patient Safety Center invites all facility patient safety officers in the state to convene on a bi-monthly basis. These meetings are well attended by patient safety officers and other facility representatives, creating an opportunity for shared learning, networking, and for the Center to provide information and solicit guidance on upcoming programs.

Leadership Events

At the core of the Center's strategy is the belief that improving patient safety requires a change in the culture of healthcare organizations. Engaging leaders, including executives and board members, is an essential component of MPSC's efforts to shift the culture of safety. Three key annual events provide an opportunity to dialogue with leaders, help influence their patient safety efforts, and solicit input on the Center's programs and strategies:

- ◆ **Leadership Session and Track at the MPSC Annual Conference** – Leaders of healthcare organizations are extended an opportunity to dialogue with the Conference keynote speaker and with each other at an invitation-only session. A full-day track dedicated to leadership issues follows the meeting. This spring conference is attended by hospital CEOs, Medical Directors, and Board Members.
- ◆ **Leadership Breakfast at the MHEI Annual Medical Staff and Governance and Leadership Conference** – This event, hosted every fall by MHEI in cooperation with MPSC, MHA, Delmarva Foundation, and others, includes a Leadership Breakfast organized by MPSC. It is attended by hospital executives, Medical Directors, and Trustees.
- ◆ **Leadership Conference Series** – This annual one-day meeting held in January addresses a specific issue in healthcare and highlights the role leaders can play in effecting a solution. Topics have included Health Information Technology (2005), MRSA (2006), and Lean/Six Sigma (2007).

Pressure Ulcer Advisory Panel

MPSC will convene a multi-setting advisory panel in Fiscal Year 2009 to develop strategies with both acute and sub-acute care settings to achieve statewide reduction of pressure ulcers. Pressure ulcer rates in Maryland continue to exceed the national average. Historically, improvement efforts targeting pressure ulcers have not addressed multiple care settings. However, providers across all settings are concerned with this issue. Practice guidelines are available that recommend changes in care delivery that are relevant in both hospital and long-term care settings.

Maryland has significant opportunity for improving pressure ulcer rates

- ◆ Maryland's pressure ulcer rate is 13.1% compared to the national average of 12%.
- ◆ Over the past four years, the national pressure ulcer rate has declined by 13% compared to a 3% decline in Maryland.
- ◆ Pressure ulcers can increase nursing time by up to 50%, and are very costly in time and resources.
- ◆ Liability claims per occupied bed have increased at an annual rate of 14 percent, while the average court settlement has risen to 250,000 dollars.

Pressure ulcer improvement efforts would benefit from fostering effective system changes in the nursing home, hospital, and home health settings. Significant improvement in care requires focused goals, consistent measures, efficient utilization of resources, and reduction of duplicative efforts. The advisory panel will include representatives from multiple stakeholders and settings to guide a course for efforts to reduce pressure ulcers in Maryland. It will position MPSC to launch innovative programs that will aim to reduce pressure ulcer rates in Maryland.

Public Website and Communication

In addition to the numerous events and meetings planned through the various Center programs, a website and other communication programs serve as outreach tools to healthcare professionals and the public.

The Maryland Patient Safety Center Website, pictured at left, provides practitioners and the public with access to information and tools on patient safety and quality programs. It serves as a link to collaborative Web portals, a repository of news items, and as an informational tool for upcoming programs and events. The Website also supports MPSC's efforts to offer paperless meetings and events.



MPSC has also engaged in a strategic communication plan, making strides to bring public awareness to the efforts of participating facilities and of the Center overall. MPSC press releases and other news are available at: <http://www.marylandpatientsafety.org/html/news.html>

Cardinal Health Foundation Patient Safety Solutions Grants

MPSC, with support from the Cardinal Health Foundation, awarded grants of \$50,000 each to two healthcare organizations that proposed exciting patient safety projects with significant improvement potential. The recipients of the Cardinal Health Patient Safety Solutions Grants, offered in 2006, were selected from among 34 applicants.

Atlantic General Hospital developed and evaluated the effectiveness of an electronically based medication and allergy reconciliation system linking primary care physicians' practices with the Atlantic General Hospital's inpatient data system. The Johns Hopkins Children's Center developed, evaluated, and disseminated a tool for computerized prescribing with decision support for improving patient safety of controlled substance prescriptions for children. As a result, all prescriptions for controlled substances at the Children's Center and the Pediatric and Adult Emergency Departments must be run through this program. The awardees have shared their results and tools with peers from around the region.

This model for patient safety solution grants has been replicated by Cardinal Health Foundation, with MPSC's help, as a national annual campaign launched in May 2008.

Strategic Approach, 2008 – 2015

In 2007 MPSC embarked on an ambitious and visionary strategic reorganization, intended to put the organization on a path for long term sustainability, making permanent what stated as a pilot program. The Center operators, selected through an RFP process, are the Maryland Hospital Association and the Delmarva Foundation. While the Center's current contractual relationship with the State will expire on December 31, 2008, the Center has refashioned its structure to ensure sustainability into the future. In September 2007, the Maryland Patient Safety Center became an incorporated organization, with MHA and the Delmarva Foundation continuing to act as primary members of the Center.

"I do think we are ahead of the game. The Center is committed to being multidisciplinary and not all initiatives of this type have that focus."

- Kathleen M. White
Chair, MPSC Board,
Associate Professor &
Director, Johns Hopkins
School of Nursing

Reorganization

Some key components of this reorganization include:

- ◆ Receiving 501(c)(3) designation as a not for profit Maryland corporation in order to be able to receive grants and to be tax exempt. This establishes the organization as a public charity able to receive tax deductible bequests, gifts, and grant funding.
- ◆ Creating a nimble organizational structure with an Executive Director/President and staff to lead the Center. A new position was added of Director of Operations and Development.
- ◆ Evolving from an Advisory Board to a fiduciary Board of Directors (Attachment A) made up of established champions of patient safety from across the healthcare continuum in Maryland.

Strategic Planning

The MPSC Board of Directors initiated a strategic planning process in early 2008, with plans now being developed through 2015. The strategic plan is intended to guide the organization in its programmatic and funding initiatives. The MPSC Board has retained the original vision of the Center, to "make Maryland's healthcare the safest in the nation." The preliminary plan, drafted for 2008-2010, is depicted at right.



Attachments

Attachment A: MPSC Board of Directors

Kathleen M. White, PhD, RN, CNAA, BC
Chair, MPSC Board
Associate Professor and Director, Masters' Program
The Johns Hopkins University School of Nursing

David C. Almquist
Executive Vice President/President Southern Area
Genesis HealthCare Corporation

John C. Astle
Maryland State Senator

C. Patrick Chaulk, MD, MPH
Senior Associate
Annie E. Casey Foundation

Raymond Cox, MD
Chair, Department of Obstetrics and Gynecology
St. Agnes Hospital

John DiBona, PharmD
Corporate Director of Pharmacy
LifeBridge Health
Sinai Hospital of Maryland

Susan Glover
Senior Vice President, Chief Quality & Integrity Officer
Adventist Health Care

William Holman, CPA
Vice President, Finance/Chief Financial Officer
Charles County Nursing & Rehabilitation Center

Christian E. Jensen, MD, MPH, CPE
President & Chief Executive Officer
Delmarva Foundation

Vahé Kazandjian, PhD, MPH
President, Center for Performance Sciences, Inc
Senior Vice President, Maryland Hospital Association

Sorrel King
Consumer

Wendy A. Kronmiller
Director
Office of Health Care Quality

Paul Martin
President
Maryland Healthcare Education Institute, Inc.

Brian McHale
Member, Maryland House of Delegates

William Minogue, MD, FACP
Executive Director
Maryland Patient Safety Center

Stephen M. Ports
Principal Deputy Director
Health Services Cost Review Commission

Joseph P. Ross
President & Chief Executive Officer
Shore Health System

Samuel L. Ross, MD, MS
Chief Executive Officer
Bon Secours Baltimore Health

Stephen Schenkel, MD, MPP
Chair, Department of Emergency Medicine
Mercy Medical Center

Jon Shematek, MD
Senior Vice President & Chief Medical Officer
CareFirst BlueCross BlueShield

William L. Thomas, MD, FACP
Executive Vice President, Medical Affairs
MedStar Health

Craig Weller
Senior Vice President & Chief Strategy Officer
Delmarva Foundation