Summary of Activities and Contributions to Patient Safety in Maryland

As a foundation of its programming, the Maryland Patient Safety Center employs a collaborative model in order to bring together teams from a variety of organizations and providers for the purpose of sharing and learning best practices and change models to test and rapidly improve care and outcomes.

By joining a collaborative, organizations gain the benefit of learning from a larger group and sharing proven strategies to improve and sustain that improvement. Supporting provider and State priorities, these collaboratives are designed to reduce avoidable harm, improve safety and create a listening and learning culture among participants.
This collaborative formed in 2007, first with just a perinatal focus, and aims to reduce infant and maternal harm through implementation and integration of systems improvements and team behaviors into maternal-fetal care. In March of 2009 neonatal professionals joined the group to form the Perinatal/Neonatal Collaborative, establishing a substantial infrastructure of obstetrical and neonatal professionals. Currently members of this group represent all 32 of Maryland’s birthing hospitals, birthing hospitals in Washington, DC and one birthing hospital in northern Virginia, the Maryland Department of Health and Mental Hygiene, March of Dimes, ACOG, AWHONN, ACNM and other related professional organizations. The Collaborative has developed and fostered relationships among these organizations and professionals through webinars, face-to-face learning sessions, site visits, and partnerships and its active community of communication via a robust listserv. Additionally, the Collaborative has coordinated a number of quality improvement collaboratives over the years.

Reducing Non-Medically Indicated Early (<39 weeks) Elective Deliveries
January 2009 to December 2013

The initiative to reduce non-medically indicated early elective deliveries began in first quarter 2009 with 29 of Maryland’s 34 birthing hospitals and 2 District of Columbia Hospitals. This initiative sought to reduce elective cesarean sections and inductions less than 39 weeks without medical indication to zero in the participating hospitals. Numerous studies have demonstrated that elective deliveries are associated with increased risk of maternal and neonatal morbidity and increased lengths of stay for mothers and newborns when compared to deliveries that occur between 39 and 40 weeks gestation. Maternal complications from elective inductions include a higher rate of cesarean section and other complications. Infants born at less than 39 weeks gestation are more likely to have serious lung problems and other medical conditions that result in admission to the neonatal intensive care unit.
The methodology used included the following:

• The Modified Institute for Healthcare Improvement (IHI) Breakthrough Collaborative Series Model
• Expert Panel Meeting
• Improvement Lead Workshop
• Scheduled learning sessions
• Monthly interviews
• Site visit to each facility
• Web portal
• Listserv to facilitate communication
• Conference calls & webinars on selected topics
• Standard monthly data collection tool
• Two “face-to-face” all day conferences per year
• Strong and active community of ongoing communication

Final outcomes from January 2009 to December 2013 (26 MD birthing hospitals, 2 DC hospitals finished):

• Reduced rate of scheduled early elective inductions by 95% (4.0% of all inductions to 0.2%)  
• Reduced the rate of early elective scheduled cesarean sections by 94.2% (10.4% of all cesareans reduced to 0.6%)  
• Reduced the rate of all early elective deliveries by 95.5% from 2.2% to 0.1%—which translates to over 8100 early elective deliveries reduced over five years.

The Golden Hour Initiative
October 2009 - November 2011

The Golden Hour initiative was developed to decrease neonatal morbidity, mortality and length of stay through implementation of activities during the “golden hour”, the first hour of life in infants born weighing less than 1500 grams. Twenty-six hospitals participated in this project, including 22 from Maryland, 1 from Virginia and 3 from the District of Columbia. Golden Hour structure measures included pulse oximetry, 1-hour surfactant, axillary temperature, length of stay, and 1-hour antibiotics. Outcome measures were incidence of chronic lung disease and mortality rate in the infants meeting the weight criteria at the participating hospitals. This initiative resulted in the following outcomes:

Outcomes:

• 53% reduction from baseline of incidence of chronic lung disease
• No significant decrease in mortality rate
Reducing Primary C-Sections
June 2016 to August 2018

The Maryland Patient Safety Center is conducting a collaborative to reduce first time cesarean sections (C-Sections) in the state of Maryland. The rate of C-sections in the state of Maryland is approximately 34%—slightly higher than the national average. While a C-section is appropriate in some situations, it does have risks to the mother and the infant. Women who have a first C-section are 90% more likely to have the procedure section with subsequent pregnancies. Research has shown that decreasing the rate of the first C-section can have a significant impact on decreasing the overall rate.

In order to address this issue, MPSC has partnered with the Alliance for Innovation on Maternal Health (AIM) and will lead a collaborative built on the foundation of the AIM bundle on Safe Reduction of Primary Cesarean Births: Supporting Intended Vaginal Births. This bundle reflects emerging scientific, clinical and patient safety advances. The bundle should not be interpreted as dictating a course of treatment or procedure to be followed. However, portions of the bundle may be adapted to accommodate resources within the organization, standardization within the organization is strongly encouraged.

Thirty-one of Maryland’s 32 birthing hospitals are participating in this collaborative. While less than one year, early trends are promising.

Outcomes to date: The rate over the first nine months shows a decrease of 203 first time, singleton, vertex, term (>37 weeks) C-section deliveries. Per DHMH cost estimates, there is a $2,000 differential between a C-section and a vaginal delivery. With 203 fewer C-sections, that represents a cost savings of $406,000.
Neonatal Abstinence Syndrome  
June 2016 to August 2018

A collaborative to improve the care of infants with Neonatal Abstinence Syndrome (NAS). NAS has always been a significant healthcare issue and in recent years has been exacerbated by the upsurge in opioid use. As the care these infants receive varies from hospital to hospital, the Collaborative will aim to standardize that care by providing participating hospitals with evidence based practices and education. By standardizing these care processes and reducing variation, we anticipate improved patient care outcomes and quality of care.

Through a partnership with the Vermont Oxford Network (VON), collaborative participants will have access to resources and materials developed by this organization that offers data-driven, action-oriented learning for improving outcomes and increasing the quality, safety, and value of newborn care. Our partnership with VON in this regard will allow access to interactive reporting tools, established curricula and educational modules for quality improvement. Thirty-one of 32 Maryland birthing hospitals and one pediatric specialty hospital are participating.

The goals of the collaborative are:
1. Reduction in LOS
2. Reduction in 30-day readmissions
3. Decrease transfers to higher levels of care

Outcomes: Baseline data has been collected but it is too early in the collaborative for meaningful outcome results.
Reducing the number of falls with injuries and overall number of falls is important to improve patient safety and quality of care. In addition, reduction of falls is important for cost savings as it is estimated that falls cost the US Healthcare System over 28 billion dollars. By preventing falls we reduce harm and save lives, decrease lengths of stay, reduce readmissions and save millions of healthcare dollars.

The Safe from Falls initiative was launched in 2008, with data collection commencing in September of 2009. The initiative involved 31 acute care hospitals, 27 long-term care facilities, and 10 home healthcare providers. The Safe from Falls Initiative began as a program to provide tools to support and share best practices and an opportunity for collaboration through a statewide initiative in order to reduce the incidence and severity of patient falls in all healthcare settings in Maryland.

**Outcomes:**

- **Acute Care:** Initial rate of falls with injury of 27.72% (September 2009) ending with a rate of 12.92% (March 2014)—a 54% decrease or an avoidance of 1058 falls with injury representing a cost savings of **$9,056,480** (PPC 28, $8560).

- **Long Term Care:** Initial rate of falls with injury of 24.1% in 4th quarter 2009, and ending with a falls with injury rate in 4th quarter 2015 of 19.8%. This an avoidance of 823 falls with injury representing a cost savings of **$7,044,880** (PPC 28, $8560).

- **Home health figures** are reported by the clients themselves and therefore were not found to be reliable.
The Maryland Hospital Hand Hygiene Collaborative was initiated in November 2009 and was coordinated by the Maryland Patient Safety Center in collaboration with the Maryland Department of Health and Mental Hygiene, Maryland Health Care Commission, the Delmarva Foundation, the Maryland Hospital Association and the Johns Hopkins Center for Innovation in Quality Patient Care.

Hand hygiene is the simplest and most effective way to prevent HAIs. This program was the first, and to our knowledge the only statewide hand hygiene campaign in the country. The initiative used direct observation by unknown observers to help hospitals understand and improve hand hygiene practices. The collaborative began data collection in January of 2010 and the last data was submitted to the Center in November 2015. Forty-four of the 45 Maryland acute care hospitals and one specialty hospital participated in the collaborative.

**Outcomes:**

Over the five year duration, the hand hygiene compliance rate rose from 72% to 90% and was sustained for the entire final year of the collaborative.

While the decrease in healthcare associated infections cannot be directly attributed to this initiative, evidence dictates that improved hand hygiene practices contribute significantly to reducing Healthcare Associated Infections (HAI's).

**HAI rate per HSCRC data:**

![Graph showing HAI rates from FY2010 to FY2015 Q1]
Improving Sepsis Mortality

July 2014 to June 2017

Sepsis is a common and often deadly complication of infection. It remains the primary cause of death from infection, despite advances in medicine like vaccines, antibiotics, and intensive care. Often misunderstood as “blood poisoning,” sepsis is one of the leading causes of death around the world. Sepsis occurs when the body’s response to an infection damages its own tissues and organs. It can lead to shock, multiple organ failure, and death, especially if it is not recognized early and treated promptly.

MPSC convened an innovative collaborative focused on reducing sepsis mortality rates in participating hospitals. The collaborative deliberately limited the number of Cohort participants to permit individual consultation on team functioning and human factors. Cohort I, with ten participating hospitals, began in July 2014 and ended in June 2016. Cohort II began in July 2016 and will end in June 2017.

Outcomes: Cohort I realized a 19.1% decrease in sepsis mortality, and although not completed, Cohort II is showing a reduction in over ten percent thus far. This translates to 537 lives saved from July 2014 to February 2017 had the initial rate remained constant.
Patient Safety Certification

Patient safety programs for individuals have been in formation for many years, but patient safety certification for organizations is new. This program engages individuals at all levels of the organization, clinical and non-clinical, in patient safety activities. Facilitating discovery through affirmative interviewing, use of proactive risk assessment, solutions building, change management, rapid process improvement, fostering accountability and creating sustainability are all components of the nine module curriculum.

The program is built on an asset-based model that combines components of positive deviance and appreciative inquiry in an action research context that promotes solutions-finding approaches to situations that have been successful and applying these solutions to areas of vulnerability.

The program was trialed in two acute care hospitals and one long term care facility.

Outcomes:

Hospital A
- Patient safety Level I (death or permanent harm) decreased 25.00%
- Level II (medical intervention to prevent death or serious injury) decreased 66.67%
- Level III (no harm) increased 6.13%
- Near-miss reporting increased 78.28%
- Unsafe-condition reporting increased 86.44%

Hospital B
- 75% increase in adverse event reporting
- Nearly 9 times as many near misses being reported
- Over 20% decrease in readmissions
- Forty percent improvement in MHACs
- Preliminary culture of safety survey shows improvements from 2014 in nine areas

LTC
- 20% increase in adverse event reporting
- Acquired pressure ulcer rate decrease over 80%
- Readmissions down by 6%
- Falls rate down by 36%
Healthcare providers often fail to recognize the adverse impact of the stress of work-related traumatic events on their performance. We know that unanticipated and harmful events can and do happen. What happens to the caregiver in the immediate hours following an event of this type can turn out to be psychologically catastrophic. Healthcare providers who are experiencing this psychological trauma may not be able to provide optimal, high quality, safe care to patients, especially those with complicated disease processes. Many providers quit their jobs, leave the profession, and in some cases, even commit suicide.

Commonly referred to as “second victims,” this program assists these healthcare workers through a peer support model. The goals include reducing employee turnover, improving employee satisfaction rates and improving the overall environment of care.

Outcomes: While this program is being trialed in two hospitals and both are too early in the process to provide meaningful outcome data, literature on the subject shows significant cost savings to organizations who reduce turnover with a peer support program.

Caring for the Caregiver

Patient Safety Officer Forums

MPSC conducts PSO Forums four times per year. This is a convening of Patient Safety Officers from across the state for the purpose of educating, networking and sharing of patient safety information, best practices, and common concerns. These two-hour meetings are held in February, June, August and December.
The Mid-Atlantic PSO (MAPSO) is a component of the Maryland Patient Safety Center that has met the criteria established in the Patient Safety Rule of the federal Department of Health and Human Services. The primary activities of MAPSO are to improve patient safety and healthcare quality. There are 37 organizations that are members of the MAPSO. Six of those organizations submit adverse event reports to a secure portal for the purpose of trending and analysis to improve patient safety. MAPSO has available licenses for six more organizations to voluntarily submit adverse events, and is planning on six additional (18 total) for FY 18. Since July 1, 2016 13,499 adverse events have been submitted.

In addition, MAPSO conducts two Safe Tables annually. A Safe Table is a forum conducted under the federal law establishing a confidential space to have an open dialogue about patient safety and quality issues. To date, seven Safe Tables have been held for MAPSO members. Subjects are as follows:

- **April 2014**
  - Clinical Alarms
- **October 2014**
  - Reducing Healthcare Acquired Infections
- **April 2015**
  - Opioids and Continuous Patient Monitoring
- **October 2015**
  - Managing the Aggressive Patient
- **April 2016**
  - Delays in Treatment
- **October 2016**
  - Medical Product Recalls
- **April 2017**
  - Telemetry Monitoring Events