

Maryland Patient Safety Center Minogue Awards 2024

Minoque Award for Patient Safety innovation

Adventist Health Shady Grove Medical Center

Impact of Breastmilk and Donor Breastmilk Exclusivity on Improved Quality Measures and Outcomes in the Neonatal Intensive Care Unit

Submitted by: Laura Speer, RN, Nurse Manager NICU

In 2019, hypoglycemia was identified as the second most frequent admission diagnosis to the NICU. This diagnosis has a high potential for preventability. The team at Shady Grove Adventists NICU recognized donor human milk and the standardized utilization of glucose gel as potential interventions to decrease NICU admissions but also improve other quality outcomes of those admitted to the NICU such as decreased use and duration of central lines, further reducing the risk for CLABSI and reportable central line days, and a reduction in the rate of necrotizing enterocolitis (NEC). Human milk has numerous benefits for babies including strengthening their immune system and aiding in fighting disease and infection. However, immediately after birth, birthing people may experience barriers to producing breastmilk (BM). Subsequently donor breastmilk (DBM) provides an excellent option to support breastfeeding exclusivity and address hypoglycemia.

The team utilized Lean Six Sigma DMAIC methodology and began their work by establishing a Donor Milk Bank and a NICU nutrition room that was developed to inventory, store, prepare, and distribute the donor breast milk. A policy to standardize the use of glucose gel for the treatment of hypoglycemia was created and the pharmacy team stocked glucose gel in the pyxis. Education was provided to nurses and neonatologists on the use of donor breast milk as well as on the use of glucose gel to address hypoglycemia.

After implementation and encouraging the use of donor breast milk among infants with hypoglycemia, the NICU admission rate for hypoglycemia decreased from 10.7 % in 2019, to 5.6% in 2020. After the implementation of the second phase of their intervention which included the glucose gel administration protocol, their NICU admission rate for hypoglycemia further decreased to 0.8% in 2022. In addition to their reduction in NICU admission, the team also saw improvements in breastfeeding exclusivity among preterm infants with 100% of preterm infants receiving only human milk during their stay. As a result of the increased utilization of human milk, these infants less often required a central line, promoting prompt removal and decreased risk of a CLABSI in the NICU population, the NICU has been CLABSI-free for almost 5 consecutive years. The team also credits their use of only human milk with their preterm infants as a major contributor to the fact that in 2022 they had no reportable cases of necrotizing enterocolitis.

Distinguished Achievement for Patient Safety Innovation

Medstar Health

Preventing Hospital-Acquired Venous Thrombosis Embolism in Acute Care Hospitals

Submitted by: Jennifer Evans Goodwin, Director Quality and Safety Improvement

Hospital-acquired venous thrombosis embolism (VTE) is a leading cause of preventable death and significantly impacts quality related to patient care and financial and reputational programs. Pulmonary Embolisms (PE), are often preventable; however, they affect 900,000 Americans each year and lead to about 100,000 premature deaths, 50% of which are directly related to a recent hospitalization or surgery. Medstar Health identified hospital-acquired VTE as a priority with high potential for improvement across their ten acute-care hospitals.

During early intervention, low VTE prophylaxis compliance rates were discovered, including high patient refusal rates of pharmacologic and mechanical VTE prophylaxis.

There was an immediate call to action to improve and a system task force was formed. Six Sigma principles were utilized and a system wide VTE leadership team was created to oversee the project. The leadership team identified four key areas for preventing VTEs in admitted patients: Prophylaxis monitoring and compliance; Active engagement from each hospital; Standardized clinical practice guidelines (CPG) and finally Updated decision support in electronic health record (EHR). The group developed tools to monitor compliance, a VTE Coordination Group was formed to ensure engagement and accountability from each hospital, Clinical Practice Guidelines were developed in partnership with stakeholders to ensure that all aspects of the guidelines were considered and finally the CPGs were built into the HER to provide strong decisions support. The actions resulted in improving the Comprehensive VTE Rate from 2.87 in FY 20 to 2.48 at the end of FY23 and improvement of 13.6%. The new admission process decreased the number of patients without a VTE prophylaxis admission order by 2.6%. Additionally, the number of chemoprophylaxis admission orders increased by 5% and mechanical prophylaxis orders by 7%.

Circle of Honor

Greater Baltimore Medical Center

Innovating Patient Safety: Leveraging Technology to Decrease the Incidence of Pulmonary Embolisms & Deep Vein Thrombosis

Submitted by: Ryan Curran, Manager of Quality Outcomes

In late 2019, GBMC had 16 patients that experienced hospital-acquired PEs or Venous Thrombosis (VTE), 8 of which were post-operative and occurred while in the hospital. These incidents highlighted a pressing need for improvement. With an initial DVT pharmacological prophylaxis timeliness rate of 64.6% and overall DVT pharmacological prophylaxis compliance at 80%, it was evident that change was necessary. The improvement team established three goals: **Enhance Timeliness**: of DVT pharmacological prophylaxis administration. **Boost Compliance**: rates to DVT prophylaxis guidelines and **Eliminate Incidences** of PEs and VTEs. By utilizing technology to embed statistical process control charts directly into the Electronic Health Records (EHR) and creating a DVT prophylaxis metric dashboard every provider and user had the necessary insights at their fingertips. A Best Practice Advisory (BPA) to physicians when medication is not ordered and patient scoring moderate to high in risk profile was created. Additionally, a monthly alert to providers when cases fell outside acceptable thresholds was established. A dedicated email channel for providers to directly contribute their observations was also established and helped to fuel continuous refinement of the metrics. And finally, to maintain project continuity and drive ongoing improvements, a unique role was created—an IT/Epic Quality Engineer and Liaison worked within the Quality and Patient Safety Department. This innovative role ensured the seamless integration of technology and data-driven practices. Further, patient refusals were found to play a substantial role in timeliness compliance. To address this a formalized process to escalate refusals to providers promptly enabled them to engage patients with timely education or alternative prophylaxis options. Between CY 2019 and CY 2023 through Oct GBMC achieved the following outcomes:

- DVT pharmacological prophylaxis administration: 97.6% improvement
- Number of patients developing PEs and VTEs: decreased by 75%

Great use of technology to improve patient safety and outcomes!

Greater Baltimore Medical Center

Using the Lean Management System to Improve Recognition of and Response to Postpartum Hemorrhage

Submitted by: Jodie Bell, RN, Assistant Director, Maternal Newborn Health

Postpartum hemorrhage is a leading cause of severe maternal morbidity related to childbirth. At GBMC, they identified an opportunity to improve their approach to postpartum hemorrhage care, to include quantitative measurement of blood loss. The goal of their project was to use the Lean Management System to redesign and implement a hemorrhage recognition and response process to decrease severe maternal morbidity associated with postpartum hemorrhage from the baseline of 8.1% by June 1, 2023. The team redesigned a comprehensive system of hemorrhage care to include measurement of quantitative blood loss (QBL) for 24 hours after delivery and improved communication about hemorrhage risk and blood loss totals across the care continuum. This care redesign included the L&D and Mother/Baby (MB) units as well as the adult ICUs. After implementation, Severe maternal morbidity (SMM) related to hemorrhage decreased below the pre-process redesign baseline of 8.1% and has stayed below for 4 consecutive quarters. The current rate for the first quarter of FY24 is 2%. The team stratified their data by race and ethnicity and noted a disparity between Black patients and White patients, although SMM has decreased in both groups. White patients decreased from a baseline of 5.4% before the process redesign to the current rate of 1.8%, and Black patients decreased from a baseline of 11% before the process redesign to the current rate of 6.5%. In addition to decreasing rates of hemorrhage, As a result of the process redesign, the percentage of patients who experienced a drop in Hematocrit (Hct) greater than 25% post-delivery decreased from the pre-process redesign median of 9.4% to a new median of 7.8%. The team continues their efforts to improve and plans to implement the Jada device in the treatment of hemorrhage, updating the PPH risk score to the newest AWHONN version and standardize the debrief with the patient after hemorrhage.

Thank you GBMC for working to improve outcomes for birthing people in your community.

LifeBridge Health Carroll Hospital

Implementing a Collaborative Initiative to Improve the Quality of Care for Maternal Patients Presenting to The Emergency Department

Submitted by: Jennifer Ayd, RN, Emergency Department Educator

As much as 53% of maternal deaths occur in the postpartum at a time when patients are often seen in the Emergency Department established Emergency Department providers and nurses and a key component of the solution to improvement maternal outcomes. . Carroll Hospital Center leadership determined there was an immediate need for a collaborative work group to address the challenges the Emergency Department was experiencing in caring for OB patients who presented for care. Following guidelines from The American College of Obstetricians and Gynecologists (ACOG), The Emergency Nurse's Association (ENA) and the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN), the **team** worked to create an ED/Obstetrical (OB) pathway to streamline care and improve communication between the Emergency Department and Labor and Delivery at both the nursing and provider level. The work group dubbed the 'ED/Family Birthplace Collaborative' was created in April of 2023 with the initial intention of creating and implementing an evidence-based decision tool to direct and navigate the care of patients presenting to the hospital with obstetrical complaints.

The goal of the work was to ensure pregnant or postpartum patients were treated in the appropriate care location as per the OB decision tree, that pregnancy status was addressed during the ED triage/intake process, and that fetal well-being was assessed via (ultrasound or fetal heart tones within one hour of arrival. The team's initial goal was to show consistent improvement for three consecutive months and then continue to review cases on a referral basis only. Education was provided to frontline staff on the decision tree, the use of fetal monitoring, and

on bereavement support. By July 2023 100% of OB patients were 100% screened for pregnancy status during triage and of those who presented for care at greater than 13 weeks gestation 78% had fetal heart tones assessed within 1 hour of their arrival.

Carroll ED continues their dedication to this work and is near earning the BIRTH Equity Maryland Designation for their team's completion of the BIRTH Equity MD educational program.

Lifebridge Health Northwest Hospital & Sinai Hospital

Hands-on Quality Improvement with No Room for Hiccups

Submitted by: Danielle Geier, RN, Director of Quality Improvement, Northwest Hospital

We have all experienced process changes that aren't sustained. LifeBridge Health Northwest and Sinai Hospital felt they had experienced this too many times- hiccups, glitches, and setbacks. To resolve this, HIQCUPSS or **High Impact Quality Crossing Upholding Practice Solutions and Sustainability** rounds were created. Specifically, the organizations sought to improve sustainability of interventions and processes to decrease hospital acquired pressure injuries (HAPIs) by developing a proactive approach to ensure RCA action items were completed in a timely manner and interventions were sustained over time. A 3-pronged approach was created: 1. Creation of an easy-to-use electronic monitoring tool to ensure RCA action items were completed in a timely manner including automatic notifications for action items overdue. 2. Development of a dashboard to provide transparency around compliance monitoring, identifying existing opportunities and prompting the need to readdress action items if improvement was not obtained. 3. Develop and implement a quality rounding process (HIQCUPSS- High Impact Quality Crossing Upholding Practice Solutions and Sustainability) with the goal of:

- Improving and sustaining outcomes through a standardized, direct approach from Quality
- Practice that resonates with staff and goals
- A tool that is aligned with long-term and immediate aspirations

The Quality Improvement team, in collaboration with the Wound Care experts, developed a Smartsheet audit tool and QR code to assess best practice interventions. In addition, action items and compliance monitoring were placed in the event tracking system. Each action item and compliance monitoring item were assigned to a responsible party to ensure completion and closure. Through the event tracking system, automated notifications were to the responsible party outlining actions and compliance metrics. This tool provides the ability to monitor action item completion. Additionally, the Institute for HealthCare Improvement's (IHI) model of "Rounding to Influence" was used as the foundation to ensure sustainment of the efforts across each hospital. The interventions were implemented in October 2022 and resulted in an overall HAPI reduction of around 43% between the two hospitals and an increase in closed events trend by 600%. Next steps include further evaluation of the HIQCUPSS rounds' effectiveness by adding additional metrics needing improvement like falls, aspiration prevention, and VTE prevention.

Great collaboration Northwest and Sinai!

LifeBridge Health Sinai Hospital

An evidence-based approach for Hospital-Acquired Pressure Injury (HAPI) Reduction in the Emergency Department

Submitted by: Jessica Wilson, RN, Clinical Outcomes Specialist

As a result of increased patient comorbidities, the COVID-19 pandemic, and patient throughput barriers, Sinai Emergency Department (ED) experienced boarding hours three times its goal; and in Fiscal Year 2023 (July 2022 to March 2023), the Sinai ED experienced a total of 19 avoidable HAPI's. Immediate priority was placed on HAPI prevention education and initiatives to reduce HAPIs in the ED. Through collaboration with our Wound/Ostomy Care (WOC) Nurses, ED leadership team, and ED Triad (consisting of the ED Clinical Outcomes Specialist, Educator,

and Clinical Coach), Sinai Emergency Department developed education, mandatory training for all staff, HAPI prevention rounding, and EMR updates. Interventions to guide the ED nurse in appropriate and accurate patient skin assessment directed at risk identification and implementation of prevention orders were developed as well as implementation of an evidence-based quality improvement framework. The ED HAPI Reduction Collaborative was created to implement the interventions necessary for immediate improvement. The existing skin care committee was utilized for guidance and dissemination of best practices that included sharing the vision for and strategy for all HAPI reduction initiatives. Gaps and barriers to implementation were identified, and a project plan was developed outlining the key steps to implementing the evidence-based solutions for HAPI prevention. A DNP student focused her practicum on HAPI prevention and reduction strategies provided data analysis of the previous HAPIs including background, barriers, and opportunities for improvement. Since March 2023, the ED has celebrated 7 months without a HAPI and has already recognized a low estimated \$275,000 in cost avoidance by preventing HAPIs. Congratulations Sinai on working toward zero harm.

LifeBridge Health Sinai Hospital

Interdisciplinary Collaboration to Reduce Surgical Site Infections after Cesarean Delivery

Submitted by: Carole Louis, RN, Clinical Outcomes Specialist

Surgical site infections, which account for 20% of all hospital-acquired infections and are costly to the hospital or health system adding at least \$20,000 to admission costs often related to increased lengths of stay (National Healthcare Safety Network, 2023). Organizations perform surgical site infection surveillance according to the National Healthcare Safety Network's criteria for superficial incisional, deep incisional, and organ/space. However, surgical site infection after cesarean delivery is not a mandatory reportable quality metric, and as a result, the team was not regularly conduct surveillance of SSIs after cesarean delivery. The team had anecdotally noted an increase in the number of patients returning with infection. After a review of the data, the team found that during (insert baseline year) 9 of their patients experienced an SSI after c-section. The Obstetrics Department and Women's Services leadership teams established a quality goal to decrease the incidence of SSI after cesarean delivery from 9 to 0 for FY2023.

The team implemented an SSI prevention bundle starting in November 2021. The bundle included A Preoperative phase – where Staff received education on surgical skin prep and appropriate hair clipping and teams wore appropriate surgical attire and color-coded surgical masks during the preoperative phase. In the Intraoperative phase - Teams ensured glove changes occurred before fascia closure. In the Postoperative phase – Staff utilize standardized patient education resources to reinforce infection prevention strategies with patients. Finally, in Jan 2023, an Active Pure air purification technology was installed in the ventilation system within the labor and delivery operating rooms.

After successful implementation of the complete SSI prevention bundle and since September of 2022 there has only been 1 SSI after cesarean delivery down from 9 in the previous year.

Medstar Health

CLABSI Reduction in an Environment of Competing Priorities

Submitted by: Andrea Vasold, RN, Director of Clinical Quality

Through routine internal monitoring and reporting of HAI outcomes Medstar Health Quality Leaders identified an opportunity to reduce CLABSI events and CLABSI Standardized Infection Ratio (SIR) within Medstar Health. CLABSI SIR increased nationally and within Medstar Health (MSH) during the COVID-19 pandemic as COVID-19 cases began to rise. CLABSI performance did not recover until significant reduction efforts were implemented.

MSH created a CLABSI Core team to steer CLABSI work across the system and tools to effectively measure central line Device Utilization Ratio (DUR) and Standardized Utilization Ratio (SUR). Additionally, Information Technology (IT) solutions were leveraged to create electronic platforms to identify process measure gaps in real time and retrospectively through event review. The MSH performance improvement team was engaged and of the nine facilities, Medstar Georgetown University Hospital (MGUH) was selected to begin the work. The “SMART” performance improvement methodology developed at MSH was led by a certified Lean Six Sigma Black Belt. The structured approach has five phases: **S**cope – **M**easure – **A**nalyze – **R**ethink – **T**rack). Since time was of the essence, it was decided to employ a rapid process improvement approach, where scope, measure, analyze and rethink phases are completed in 90 days. Initially, a back-to-basics campaign was rolled out across the system including a review of system standards, and education on basic maintenance practices. When the initial reduction efforts did not significantly reduce SIRs, engagement from local hospital leadership to actively participate in CLABSI reduction strategies was implemented. Three of the 9 hospital Presidents added CLABSI reduction to their FY 23 annual goals.

The system was able to significantly reduce the mean CLABSI SIR from 0.7 to 0.599. With the spread of successful interventions, we are seeing a collective decrease in CLABSI SIR. Great work Medstar Health!

University of Maryland Baltimore Washington Medical Center

Implementation of an Interprofessional Diuresis Clinic for Preventing Heart Failure Hospitalizations

Submitted by: Jorge Perez-Allard, MD, Medical Director Transitional Care Unit

In 2020 to 2021, as a response to rising readmission rates and challenges for safe care transitions for patients with congestive heart failure, a task force at UM BWMC began to develop explore implementation of the innovative use of parenteral diuretics for heart failure patients in an ambulatory care setting. Parenteral diuretics help relieve symptoms of congestion more effectively than oral diuretics during exacerbation. Increasing ambulatory access to these medications can help relieve symptoms of edema and vascular congestion without the need for extended hospitalizations. Between 2016 and 2021 the readmission rate for CHF patients at BWMC was 16.7%. A multi-disciplinary team from outpatient internal medicine, cardiology, quality, pharmacy, population health and transitional nursing was formed to explore implementation of a cardiac bridge clinic with intravenous (IV) diuresis capabilities. The goals were to safely transition patients by providing increased access to parenteral diuresis, close laboratory monitoring, and improved heart failure medication adherence with the provision of a heart failure clinical pharmacist.

It was determined that a CHF outpatient diuresis service would be developed, and coordination between inpatient and outpatient care providers would be required. Decisions for a location for three chairs, procedures and dosing were created, as well as nursing workflows. A referral process from both the hospital and out-patient primary care and specialty providers was developed. The Transitional Care Clinic (TCC) at UM BWMC, opened the ambulatory diuresis clinic on October 15, 2021. During the first year, the readmission rate dropped from 17.6% to 3.5%, an estimated cost-savings of up to \$363,506!

University of Maryland Baltimore Washington Medical Center

Implementation of an Expediting Team and Departure Lounge to Improve Patient Throughput

Submitted by: Sneha Tella, MD, Hospitalist and Physician Advisor

Emergency department (ED) crowding is an unfortunate, common occurrence that has troubled hospitals across the nation for decades. University of Maryland, Baltimore Washington Medical Center (UM BWMC) has been

historically vulnerable to the effects of ED crowding due to the disproportionately higher volume of hospitalizations (>70%) that come through the ED compared with a lower direct admission and elective surgery volume. Hospitalizations from the ED typically carry a longer, more variable length of stay. During the pandemic the length of stay at BWMC exceeded 5 days and has remained higher than historical averages since that time. Like most hospitals in the country, UM BWMC typically runs at >85% occupancy. In addition, UM BWMC has historically had discharge movement around 3pm, a time much later than when the ED and OR require additional inpatient capacity. UM BWMC determined that it needed to improve internal processes to reduce waste and improve hospital throughput. In May 2023 UM BWMC created the Expediting Team and Departure Lounge with the primary goal of creating bed capacity through improved patient flow. It was hypothesized that a dedicated team to address patient flow barriers while simultaneously operating a Departure Lounge would create hospital bed capacity. The Expediting Team consists of an Expediting Nurse (RN), Expediting Physician, Discharge Nurse, and a Nursing Companion. The team focuses on collaborating with the frontline staff to identify any barriers to throughput and works to remove these obstacles with the expectation of achieving an earlier discharge time.

In 2021, the Patient Flow Council was created with the aim of improving hospital throughput. The team included executive team members, medical, nursing, and ancillary leadership, and performance improvement leads. Key patient flow metric drivers were identified, and goals were set. As 80% of BWMC patients are discharged home, this population was the focus of flow improvements. Implementation of an expediting team to facilitate order and treatment delays was employed as well as the creation of a departure lounge near the hospital main lobby where alert and oriented patients with the ability to ambulate with minimal assistance could wait to be picked up. The Lounge could also accommodate established home oxygen patients, arrange transport, and coordinate bedside medication delivery. The Expediting RN identified and screened appropriate patients in partnership with inpatient nurses.

Baseline data (January 1, 2023-May 14, 2023) was compared to post-implementation data (May 15, 2023-October 31, 2023) for patients with a discharge location of home from inpatient units. BWMC realized:

- 5.1% improvement in length of stay (4.71 days vs 4.95 days)
- 24% improvement in discharges before noon (15.5% vs. 12.5%)
- 11.8% improvement in discharges before 2pm (37.8% versus 33.8%)
- 10.2% improvement in time from discharge order to discharge completion (2 hours 39 minutes vs. 2 hours 57 minutes)
- 8.8% improvement in discharge time of day (2:56 PM versus 3:13 PM)

By improving bottlenecks in inpatient bed availability, organizations are better able to decrease ED boarding. Great job BWMC!