EB1: Veno-Venous Extracorporeal Membrane Oxygenation and Profound Instability: Think Mobility From Cannulation
Jessica Dalton; Lehigh Valley Health Network, Allentown, PA

Purpose: Traditionally, patients receiving veno-venous extracorporeal membrane oxygenation (V-V ECMO) are considered too unstable for physical therapy or are normally mobilized if V-V ECMO is a bridge to transplant. However, evidence shows mobilization should be considered for most patients receiving V-V ECMO. This poster details a case study of a 25-year-old man who received V-V ECMO for 60 days and for whom an active mobilization plan was implemented, though he was extremely unstable and not a transplant candidate. Summary: The V-V–ECMO program was initiated in this academic, Magnet hospital in 2012 and outcomes have exceeded the Extracorporeal Life Support Organization benchmarks. Before this case study, patients receiving V-V ECMO were not mobilized. Driving forces to consider mobilizing this patient were that he would require long-term V-V–ECMO support, ineligibility for transplant or posthospital rehabilitation, and the growing evidence that mobility could be safely achieved while receiving ECMO. The clinical nurses in this medical-surgical critical care unit initiated collaboration among perfusion, respiratory therapy, and physical therapy services to devise a mobility regimen. Despite multisystem organ failure and septic shock secondary to streptococcal pneumonia, a bifurcated endotracheal tube for high-frequency percussive ventilation to one lung and conventional ventilation to the other, and a physician recommendation to withdraw treatment, the nurses persevered with rehabilitation. While receiving V-V ECMO, the patient progressed from sitting upright to use of a recumbent bike to ambulation from bed to chair. Upon decannulation, while still receiving ventilatory support, the patient ambulated the hallways and steps and played catch with nursing staff to improve coordination and balance. Evaluation/Outcome: After a 95-day hospitalization, the patient was discharged directly home after ambulating with minimal assistance and no devices to his car. Though staff had been aware of the evidence associated with mobility of patients receiving V-V ECMO, this case study reinforced it can be done even with the most critically ill patients, spawning a culture change among the entire interprofessional team to consider an active mobility plan for these patients. Attendees viewing this poster will gain knowledge of the related evidence for consideration of practice within their own setting.

EB2: Triage of Patients With a Ventricular Assist Device: The Need for Emergent Response to Patient Concerns
Stacy Haverstick, Catherine Johnson; University of Michigan Health System, Ann Arbor, MI

Purpose: A ventricular assist device (VAD) is a life-sustaining device that provides improved quality of life for patients with heart failure. A person with a VAD must be able to communicate quickly when they or their device has a complication. This project was initiated after a sentinel event in 2016 prompted change in our facility’s VAD program. The purpose was to reduce any delay in communication to create faster delivery of care to increase patient safety. Summary: According to our new protocol, patients will call the VAD Emergency Line, which is a dedicated telephone number staffed by Huron Valley Ambulance (HVA) for any emergencies and for all
after-hours calls. The profiles of our 162 patients, including their attending physician, home address, pertinent medical conditions, and local ambulance company, were loaded to the HVA database. VAD coordinators are paged with any call the VAD Emergency Line receives; however, now the patient speaks immediately with trained personnel, who can activate 911, if the situation is appropriate, which shortens the time from minutes to seconds for patients to receive care. HVA agreed to follow an algorithm to determine next steps of patient care. If the VAD Coordinator does not receive a page because of technical reasons, the protocol is to page the VAD Coordinator twice and then page the attending physician. Implementation of this new process included patient education, which involved notifying current and new patients with VAD of the process change. Patients with a newly implanted VAD will save the VAD Emergency Line telephone number as part of their supervised visit before discharge. As part of the supervised visit, the patient and patient’s family are required to make a test call. **Evaluation/Outcome:** We have successfully created a system that provides a faster system of delivering care to those patients who use this service. Most importantly, there has not been a patient safety event since the inception of this new process. The percentage of patients who use the on-call HVA Triage has steadily increased to 57% in July 2017; we are striving for 100% patient compliance. This project is relevant to any group using on-call paging systems that could be putting patients at risk because of a delay in communication with trained staff.

**EB3: Measuring True Nursing Competency: How to Improve Your Process**  
Amy Hiner; Aultman Hospital, Canton, OH

**Purpose:** The goal of this project was to create an innovative competency program that, when applied throughout critical care, provides reliable, consistent measurement of skills and improves staff and management confidence in the accuracy of the evaluations. Before the new process, the evaluations had little uniformity and no hands-on, real-time skill assessments; thus, many staff felt the process was not an effective evaluation of the expertise essential for caring for the critically ill patient.  

**Summary:** Competencies used to be completed by staff reviewing self-learning packets, reading posters, and completing nonproctored multiple-choice tests afterward. To advance the relevance of the skills assessment, representatives from each unit reviewed hospital-wide competencies as well as unit specific needs, and determined what skills should be evaluated. Eight to 10 skills were chosen for each unit; 6 were hospital based and the remainder were unit based. The validation forms were revised to reflect current practice. A schedule (2 to 3 skills or exemplars per month) was created and these skills were expected to be completed in a timely fashion during working hours throughout the year. This was designed to help reduce cost, maintain consistent validation, and provide adequate time to complete the competencies within the year. Staff were accountable for returning their personal exemplars or meeting with management or unit educators for one-on-one evaluation of skills. All staff were presented with the new evaluation process during shift huddles and shared governance meetings at the onset of the project so that the entire team would be fully aware of expectations and provided feedback and suggestions before implementation.  

**Evaluation/Outcome:** All competencies were tested in real time by hands-on evaluations or exemplars. Staff completed evaluations of the new process afterward. These included overall satisfaction, accuracy, relevance of skills, and suggested improvements. Greater than 79% of staff preferred the new process and reported improved satisfaction in the success and relevance of this evaluation method. Additionally, the critical care division reported a yearly cost savings of $29,592. By using real-time evaluation and exemplars, competency can be accurately evaluated and the process is meaningful and relevant to peers and to administration, thus improving the assessment of skills needed to care proficiently for the patient and improve staff satisfaction.

**EB4: Increasing Sepsis Awareness in Intensive Care Units**  
Gabriela Whitener, Michael Thornsberry, Patricia Newcomb; Harris Methodist Fort Worth, Arlington, TX

**Purpose:** Sepsis negatively affects mortality and patient length of stay in intensive care units (ICUs). A review of evidence related to care of patients with sepsis was conducted to identify strategies for improving outcomes of these patients. Highlighted strategies included staff education, structuring daily rounds as interprofessional events, and improving communication among health care team members. Practice change based on the literature review was piloted on a medical ICU.  

**Summary:** After literature
review, the clinical nurse leader (CNL) assigned to the unit developed new staff education supported by evidence-based practice sepsis guidelines. The new program was used to educate bedside clinical staff to escalate care on the basis of results of the quick Sequential Organ Failure Assessment (qSOFA) tool. Educational methods included distribution of printed information about sepsis and qSOFA, daily chart reviews with feedback regarding SOFA documentation, one-on-one education sessions with the CNL, and daily, interprofessional bedside rounds. The interprofessional team developed a checklist for bedside rounds that structured communications to include selected sepsis criteria and reflect the expectation that the attending physician, CNL, unit nurse manager, charge nurse, bedside nurse, pharmacist, other members of the health care team, and family members would participate in daily rounds. After piloting the educational program and rounding process, the CNL reviewed data associated with 361 patients admitted to the target unit from January 2017 to March 2017. Data were extracted from the electronic medical record by health system data managers and reported to the CNL in aggregate. Evaluation/Outcome: Results showed an average decrease in time spent in the ICU from 7.6 days to 5.4 days and a decrease in mortality rate from 15.8% to 10.8% after implementing the educational program and reorganized rounding process. In addition, qSOFA scores were significantly associated with ventilation status; patients with a SOFA score higher than 2 were twice as likely to be receiving ventilatory support. Our results indicate having a formal sepsis educational program with daily, structured, interprofessional rounds can improve implementation of a coherent sepsis protocol. Furthermore, qSOFA scores may predict variables other than sepsis, such as potential need for mechanical ventilation.

EB5: Peer-to-Peer Accountability as a Method to Increase Delirium Screening

Kimberly Sanchez, Kathrine Winnie, Felisabel Padua; Keck Medicine of USC, Los Angeles, CA

Purpose: Delirium affects up to 80% of patients in the intensive care unit (ICU) after admission and negatively affects 1-year mortality. To attenuate these statistics, a work group composed of staff nurses used an evidence-based practice (EBP) model to implement delirium screening and ensure the project’s success. The group aimed to increase compliance with delirium screening by reviewing an automated documentation audit and following up with their peers when documentation was incomplete. Summary: The Confusion Assessment Method-ICU was implemented in 8 ICUs. Auditing and peer-to-peer accountability were selected as the best methods to ensure compliance. Clinical audits are effective quality-improvement tools when used as part of a systematic process to promote change. An audit is a method to evaluate process outcomes, with the intent to identify opportunities for change or validate success. An automated audit was created to assess the expectation of completing delirium screening at least once every 12-hour shift, with reports generated weekly. Studies reveal peer-to-peer accountability occurs when information is shared among peers to uphold standards of care. Providing feedback in a respectful manner is an important component of promoting quality and safety. To provide peer-to-peer feedback, the delirium EBP work group used a multifaceted approach that included in-person discussions, real-time education, and emails. A staff nurse in the work group delivered feedback to other staff nurses at scheduled intervals over 3 months. Additional feedback was given as needed to discuss common questions and provide more detailed education. Evaluation/Outcome: Peer-to-peer accountability increased compliance with delirium-screening documentation from 48% to 85% over 11 weeks. Before following up with peers, the average delirium-screening documentation compliance rate was 57%. Improvements in compliance were noted after more than 100 interactions with staff, whether they occurred via in-person discussions, real-time education, or through email. The average compliance rate for delirium-screening documentation increased to 76%. With greater compliance with completing delirium-screening documentation, subsequent evaluation of the accuracy of the delirium screenings performed could be addressed by the work group.

EB6: Preventing Probable Ventilator-Associated Pneumonia

Jessica Schwartz, Matthew Taylor, Timothy Heckman; Christiana Care Health System, Newark, DE

Purpose: Probable ventilator-associated pneumonia (pVAP) is the most serious infection tier of the 3 tiers of ventilator-associated events (VAEs). The VAE Value Improvement Team (VIT) on the transitional medical unit (TMU) updated weekly rounding tools and staff
education to increase compliance of staff using the VAE prevention bundle in April 2016 to improve patient outcomes and control infection rates by achieving zero cases of pVAP within 1 year. **Summary:** VAEs are among the hospital-acquired infections with the greatest risk of increasing mortality, morbidity, length of stay, and cost of care, according to the American Association of Critical-Care Nurses. The first tier of VAE is ventilator-associated complication (VAC), which occurs when a patient experiences an increase in the fraction of inspired oxygen and/or an increase in positive end-expiratory pressure for 2 or more days. The second tier of VAEs is infection-related VAC (iVAC) and includes, in addition to the VAC criteria, development of fever or increase in white blood cell count, plus the patient receives a new antimicrobial agent that is continued for 4 or more days. The third VAE tier in pVAP includes VAC and iVAC criteria plus a positive respiratory culture. During VIT meetings, members investigate VAEs, discuss goals and strategies for areas of opportunity, and develop plans to improve outcomes. The VAE VIT uses rounding to review the following: mouth care every 2 hours, tooth brushing every 12 hours, chlorhexidine disinfection ordered twice daily, head of bed raised greater than 30°, tracheostomy-tube holder changed at least weekly, educational door sign in place, VAP Plan of Care documentation, and VAP Bundle documentation in iView. **Evaluation/Outcome:** From October 2015 to April 2016, TMU had 6 cases of VAC, 1 of iVAC, and 5 of pVAP. The VAE VIT used real-time education, updated weekly rounding, staff meetings, flyers, reminder emails, education trees, and the TMU Pulmonary Pulse to keep staff members up to date on evidence-based practices and increase compliance. In the 14 months since April 2016, the TMU had no cases of pVAP and 1 VAC case, and the infection-prevention data support the success of the changes. The VAE VIT will continue to use the initiatives to achieve optimal outcomes and reduce infection rates related to VAEs on the TMU.

**EB7: Central Catheter–Associated Bloodstream Infection Stand-Down Education: Back to Basics**
Kelly Papili; Children’s Hospital of Philadelphia, Philadelphia, PA

**Purpose:** Because of an increase in central catheter practice inconsistencies, a decrease in overall bundle compliance, and an increase in rate of central catheter–associated bloodstream infection (CLABSI), the pediatric intensive care unit (PICU) physician and nursing leads for the unit-based Improvement Team for CLABSI developed a multitiered comprehensive education initiative. The first tier focused on nursing and the second tier on providers. The PICU CLABSI Stand-Down Education was developed and initiated in March 2017. **Summary:** The 2-hour class included 1 hour of lecture and 1 hour of hands-on skill demonstration. The lecture included a back-to-basics review of all central catheter care. The team reviewed bundle education, how to locate harm-metric rates, how to collect laboratory samples or blood for culture, bedside review information, and overall nursing empowerment to advocate for patients’ central catheter care. The hands-on skill demonstration included 3 separate stations: a dressing-change station, a cap-change station, and a multifocus station. The multifocus station reviewed proper application of water-resistant barrier dressings, sequence of laboratory samples with blood cultures, and pictures in which the nurses were required to identify the discrepancy in the photo and appropriate interventions needed. Once the first-tier nursing education was completed, the second tier of the initiative commenced and mirrored the nursing lectures and hands-on demonstration. **Evaluation/Outcome:** The team raised awareness and accountability at the unit-level by rapidly developing mandatory education for both provider and nursing staff. Of 260 nurses, 255 completed the education (5 were on maternity leave). Of 80 providers, 70 completed the education. As a result, bundle compliance for the last 3 months of the fiscal year was greater than 97%. The PICU also achieved an overall 18.97% decrease in CLABSI rates when compared with fiscal year 2016. The success of the PICU’s central catheter education is now being adapted throughout the hospital. Members of the CLABSI Steering Committee are using the PICU’s lecture format and adjusting it for unit-specific needs to educate staff hospitalwide.

**EB8: Increasing PCCN Certification: Strategies for Success**
Alexander Nydza, Stephanie Nursey; Cleveland Clinic, Cleveland, OH

**Purpose:** Only 7% of registered nurses (RNs) on our cardiovascular surgery step-down units had PCCN certification. Over the past 2 years, 14% of our RNs attended
certification review courses but did not complete the certification process. To increase certification, we targeted RNs who attended a review course within the past 2 years. The goal was to have examination registration complete for 100% of the target population, to ensure these RNs sat for the examination, and to improve certification rates. Summary: With the support of nursing leadership, we took this problem through a 12-week problem-solving program. To identify the cause of the problem, we designed a survey in collaboration with bedside RNs and the unit’s clinical nurse specialist (CNS) and distributed it to all RNs on the cardiovascular surgery step-down units to determine their perspectives on certification. Results identified barriers and helped us target interventions that nurses found useful in assisting them with obtaining certification. Barriers included time, money, resources, and support. Interested participants attended two 4-hour study sessions within their work schedule away from the units. The curriculum was designed and implemented by a bedside RN, assistant nurse manager, and CNS. The curriculum focused on test-taking strategies and practice tests that built on the review course the targeted RNs had already attended. Resources were provided for study practice questions, examination information, and registration materials. Participants who completed the sessions were provided with a voucher for the PCCN certification examination cost and were registered for the test onsite. Evaluation/Outcome: Before the intervention, no RNs had registered to take the PCCN examination. After the intervention, 14 RNs registered to take the PCCN test, which was 78% of the target population. Of the group, 6 RNs have already obtained their PCCN certification and the remaining have test dates scheduled. All RNs in this project who have taken the examination have passed thus far. Test and resource expenses are major barriers to certification that can be overcome by providing examination vouchers and free resources. Time continues to be a barrier due to competing priorities; however, targeted support did make an difference and we plan to use this model to reduce barriers and increase certification rates.

EB9: Beat the Bugs: A Campaign Against Hospital Acquired Infection in Critical Care
Leticia Donnelly-Kauffman, Mimi Johnson, Rona Lee; St Joseph Medical Center, Tacoma, WA

Purpose: The high prevalence of hospital-acquired infections (HAIs) in our critical care patient population prompted the need to identify the causes of these infections. After discovering the possible modes of transmission for spread of microorganisms, an evidence-based solution and strategic prevention plan was outlined and implemented. The overall goal of the project was to create a sustainable process aimed at decreasing the incidence of nosocomial infections in this patient population. Summary: A literature review of hospital-acquired infections in the critical care environment was conducted. The research studies by Marchaim (2012) and Quinn (2014) helped us identify areas for improvement in our hygiene practices. The staff was surveyed to assess their perception and current knowledge of evidence-based best practices for patient hygiene. Our nurse-led performance improvement project, “Beat the Bugs,” was conceptualized. A task force of critical care staff was formed to champion the project. The evidence-based solution was to change the current patient bathing, oral care, and hand hygiene practices, and transition to a standardized approach. The project consisted of 3 phases: transition to basinless bathing, pulmonary hygiene for the nonintubated patient, and hand hygiene for the bed-bound patient. Staff education on the project and proposed transition plan was conducted. A 60-day transition trial was done on 1 of our facility’s 3 critical care floors to introduce the Beat the Bugs standard approach to patient hygiene. During the trial, the new process was assessed for effectiveness, barriers to the transition, and sustainability before extending the project to the rest of the division. Evaluation/Outcome: Daily audits of hygiene care documentation were done before and after our initial trial. The posttrial audits showed there was a dramatic increase in frequency in care administered. A posttrial survey was done to assess staff satisfaction with this new standard approach to patient hygiene. Survey results indicated positive staff approval and compliance. The rate of HAIs was tracked before and after the transitional trial. The critical care floor on which the transitional trial was conducted was free from any HAIs during the 60-day transitional trial period.

EB10: The Interdisciplinary Process of Implementing the ABCDEF Bundle in a Surgical Intensive Care Unit
Taline Marcarian, Katrine Murray; Ronald Reagan UCLA Medical Center, Los Angeles, CA
**Purpose:** (1) Describe the ABCDEF bundle implementation process, compliance, and outcomes using an interdisciplinary team approach in a surgical intensive care unit (ICU) at large academic medical center. (2) Compare the unit bundle compliance among all sites and peer regions involved in the quality-improvement initiative. **Summary:** The Society of Critical Care Medicine ICU Liberation Collaborative was designed to facilitate the implementation of pain, agitation, and delirium guidelines, using the evidence-based ABCDEF bundle. These bundle elements consist of A: assessment, prevention, and treatment of pain; B: both spontaneous breathing and awakening trials; C: choice of analgesia/sedation; D: delirium assessment, prevention, and treatment; E: early mobility and exercise; and F: family engagement/empowerment. Our surgical ICU was 1 of the 77 hospital units involved in this national collaborative initiative. A unit-based interdisciplinary team assessed, planned, implemented, and evaluated the outcomes with the ABCDEF bundle. The team consisted of an intensivist, a unit assistant director, the unit director, 4 staff nurses, a respiratory therapist, and a physical therapist. Team members received training in all aspects of the ABCDEF bundle before its implementation and data collection. The retrospective data assisted the team in identifying areas of improvement in each of the bundle elements. Data were collected on the overall bundle compliance as well as the individual bundle element compliance out of all ICU days. **Evaluation/Outcome:** A total of 286 cases were reviewed. Major practice changes related to bundle elements included introduction of (1) a validated pain assessment tool for nonverbal patients and patients receiving mechanical ventilatory support; (2) validated delirium and sedation assessment tools; (3) a safety screening tool for mobility; and (4) sedation/analgesia and delirium protocols. The unit showed higher compliance of all bundle elements and specifically the “E” element of the bundle compared with the other sites and peer-region hospital units. Incorporating the ABCDEF bundle has improved interdisciplinary communication and collaboration. The bundle elements are now incorporated in the ICU daily goal sheets and used for every patient every day.

**EB11: Pulmonary Care Unit Chronic Obstructive Pulmonary Disease Initiative**

Diana Rose, Kathleen Aidala, Nichelle Lewis; Ellis Hospital, Schenectady, NY

**Purpose:** The use and review of newly developed chronic obstructive pulmonary disease (COPD) educational folders with our COPD population will decrease readmission within 30 days of being discharged from the hospital. Increasing patients’ education on inhaler use and self-management at home and use of the COPD zone card will help patients stay out of the hospital. **Summary:** In the United States, 22% of patients with COPD are readmitted to the hospital within 30 days of discharge. The Centers for Medicare and Medicaid Services (CMS) in 2014 included hospitalizations for COPD exacerbations in the Hospital Readmissions Reduction Program (HRRP). The CMS HRRP uses financial forfeits to stimulate hospitals to develop, assess, and implement quality-improvement programs to decrease hospital readmissions. Gaps in evidenced-based approaches were in the education on use of respiratory inhalers and in discharge instructions on self-management. In this literature review, databases explored through the Ellis Hospital online libraries and Walden University included PubMed, MEDLINE, and CINAHL. Only peer-reviewed articles from academic journals were selected and included. Without appropriate engagement and education of patients with COPD, adherence to medication and device instruction is compromised; patients’ nonadherence rates with COPD medications may be as high as 57% without these interventions. Introducing professional education across all disciplines involved increases family and patient engagement in self-care. Evidence-based educational methods, such as the teach-back technique, have resulted in increased correct inhaler use by patients with COPD. **Evaluation/Outcome:** Our unit has developed a bright yellow educational folder for patients in which to place all education regarding COPD. A COPD zone card has been developed to aid patients in knowing when they can manage their symptoms at home, when to call their primary care provider, and when to go to emergency department (marked as green, yellow, red, respectively). Respiratory therapists have been educating staff nurses and patients in proper use of inhalers. Results are positive for a decrease in readmission after the COPD Initiative was begun. We started in July and August 2015 with a readmission rate for COPD at 5 of 36 discharges and 1 in 22 discharges, respectively. In January 2016, 4 of 53 discharges were related to COPD. From then until June of 2017, there have been no COPD-related readmissions of patients.
EB12: Breaking the Fall: Creating a Culture of Safety by Implementing a Fall Prevention Bundle in a Heart Failure Unit

Donna Owens, Monette Mabolo; Moses Cone Health System, Greensboro, NC

**Purpose:** The purpose of this evidence-based project is to determine how implementing fall prevention bundles helps reduce the number of patient falls in a heart failure unit and how the results can be sustained by promoting a culture of safety. **Summary:** Falls are a frequent and serious problem facing the elderly. Falls account for 70% of accidental deaths in patients aged 70 years and older, and are a persistent problem in all health care settings, with rates in acute care hospitals ranging from 1.3 to 8.9 per 1000 inpatient days, with approximately 30% resulting in injury. Using the Iowa model, our team reviewed literature for best-practice strategies in fall prevention. The most frequently reported adverse events in hospitals are falls and falls with injuries. This will continue to be an issue as the elderly population increases. Today’s challenge is to be creative with our strategies to significantly reduce harm and fall rates among the elderly. Staff compliance with the falls bundle was collected as baseline data. Staff were re-educated about the initiation of the fall prevention bundle and risk assessment of patients on admission. The fall prevention bundle consists of doors kept open, application of yellow arm bands and yellow socks to patients at risk of falling, and bed or chair alarms turned on. Our practice changed with the initiation of the fall prevention bundle, including consistent documentation of the bundle. **Evaluation/Outcome:** Our unit’s fall rate in 2016 was 4.16 per 1000 patient-days and 34 falls, 8 with injuries, at cost of $112,000. Pre-education data showed staff followed only some items in the bundle. When the bundle followed, it was followed inconsistently. The team re-educated staff about the fall bundle. Practice was enhanced by adding the prevention measures of gait belts, walkers, bedside commodes, and alarms. These became standard room equipment. Postintervention results indicated there was improvement in use of the fall prevention bundle, with the rate of yellow armband use at 95%; yellow socks, 96%; and alarms, 90%. The fall rate in 2017 was significantly reduced to 2.65 per 1000 patient days, surpassing our goal of a 5% reduction. Falls with injury decreased, saving $56,000.

EB13: Moving X-Ray Free for Feeding Tube Placement Using Electromagnetic Technology

Stacy Jepsen, Sharon Wahl; Abbott Northwestern Hospital, Minneapolis, MN

**Purpose:** For bedside feeding-tube placement, there is an underuse of technology that supports improved patient safety and outcomes, and reduces overall cost of care. Analysis of current practice is required to safely change the standard of care for tube-feeding confirmation from radiographic to electromagnetic technology (EMT). **Summary:** The intensive care unit clinical nurse specialists (CNSs) developed a didactic, simulation-based education class that included hands-on training to certify a core group in the use of EMT for feeding-tube placement. Limiting the size of the core team enabled users to gain expertise in placement and interpretation. Data were collected on 600 placements and showed a 99.7% correlation between user interpretation of tube location and radiographic reading. This indicated that having our core team use EMT to verify placement would make elimination of radiographs safe for most patients. After policy language was developed and approved, the standard of care was changed to radiograph-free confirmation by users who had demonstrated proficiency. This proficiency was standardized for each user and included 10 total placements with radiograph confirmation and CNS review of user interpretation match with radiograph reading. Radiographs are still required for patients who meet established criteria, such as medically necessary to have a postpyloric feeding tube, history of gastric bypass or known hiatal hernia, and user concern. Users are expected to document a procedure note, including interpretation of tube location, and communicate with the bedside staff if a radiograph is required. **Evaluation/Outcome:** In the 8 months since EMT has been used instead of radiography, almost 400 feeding tubes have been placed or advanced with no adverse events. Placement of greater than 60% of these tubes was confirmed using EMT instead of radiographs, reducing cost of care by $10,000. Instead of transporting a critically ill patient to radiology to use fluoroscopy for an advanced placement, EMT has been used in more than 70 patients, saving more than $20,000. The feeding tube can also be easily
rewired with EMT at the bedside to confirm placement after procedures, resulting in additional savings. The use of EMT with a core group of proficient caregivers to insert and verify feeding-tube placement improves patient safety and reduces cost of care.

**EB14: “I Need HELP!”: A Structured Response to Bedside Emergencies in the Intensive Care Unit**

Sharon Wahl, Stacy Jepsen, Marina Kern; Abbott Northwestern Hospital, Minneapolis, MN

**Purpose:** Critical care emergencies are often characterized by a chaotic response with too few or too many resources, resulting in a lack of accountability and breakdowns in communication. Less-experienced nurses may feel intimidated by their more-experienced peers and uncertain of their role in an emergency. The continual movement of staff in and out of the situation contributes to the chaos. Providers and staff identified a need for a standardized response incorporating clearly defined roles.

**Summary:** Little evidence exists to guide structured team responses to unit-based emergencies in critical care. An interdisciplinary team consisting of bedside nurses, intensivists, and unit leadership identified roles needed in emergency unit response with defined responsibilities for each role. This process, named “I Need HELP,” is activated by the bedside nurse in clinical situations, such as massive blood transfusion, unstable hemodynamics, and inadvertent patient extubation. The roles are assigned by the charge nurse at the beginning of each shift to create a shared team understanding of who is part of the HELP team. “I Need HELP” includes 6 roles: the bedside nurse, intensivist, and 4 assigned roles of helper, electronic medical record, “legs” (ie, runner), and pharmacy. The nurses assisting in development of the process defined the responsibilities for each of the 4 assigned roles, allowing nursing to easily function within each designated role. Response to an on-unit resuscitation was included within the role responsibilities. Closed-loop feedback is an expectation within the team. **Evaluation/Outcome:** This process was readily adopted by staff and has brought bedside nurses the reassurance that they will receive adequate help. Respondents can quickly identify what needs to be done within their assigned role, enabling nurses with varying levels of experience to function within a role. Roles are assigned at the beginning of the shift, allowing nursing staff to develop plans for patient coverage.

“I Need HELP” has been embraced by providers and nursing, and it has become the foundation on which new critical care processes are designed. Although initially developed in the intensive care unit, it has been adopted to the emergency department and there is interest in other high-risk patient care areas.

**EB15: Mentoring Nurses to Success in a Cardiothoracic Intensive Care Unit Using a Clinical Ladder Matrix**

Barbara Logue; Barnes Jewish Hospital, Saint Louis, MO

**Purpose:** Mentoring was used as a way to attract, engage, and motivate staff to increase involvement in a hospital clinical ladder format. A mentor’s guidance significantly contributed to the process. Promoting opportunity to experience personal growth and advancement in the unit empowered nurses in their practice environment by recognizing and rewarding clinical accomplishments. This became a means to attract and retain talent, improve employee satisfaction, and achieve high-quality nursing care. **Summary:** A clinical ladder for bedside nursing gave a framework to promote growth and reward performance to those delivering direct patient care. A unit expert using the ladder was identified and agreed to act as a mentor and resource. This person was active in unit leadership and was at ease with assisting staff. Barriers to participation were identified as awareness, reluctance to write, time commitment, and lack of benefit. Forms of communication—email, mention during meetings, flyers, and referral—were used to initiate interest. One-to-one contact and impromptu small group meetings during work were used to explain the submission process. These interactions started with examining the point system used and focusing on a letter of intent. Lack of confidence in writing proved to be a leading obstacle. By supplying a template and examples, discussing topics, and reviewing applicants’ work, the task became less formidable. Much of the work could be discussed, started, or completed at work, helping with the time commitment. Besides providing monetary compensation, positive effect on staff was noticed as personal growth, improved skills, greater confidence, teamwork, and employee satisfaction. **Evaluation/Outcome:** A program to foster professional growth of bedside nurses showed an increase from 10 members to 45 over 2 years. We saw increase in CCRN certification. Interest is enough
that we now offer an annual review for the examination. Committee membership increased. Interest in precepting brought about development of a unit-specific committee to improve the process. Four people became Basic Life Support and Advanced Cardiac Life Support instructors and hold a class for staff. The program identifies developing leaders, builds confidence, encourages exemplary practice, improves employee satisfaction, and promotes teamwork. Rewarding staff engaged in advanced programs boosts a healthy work environment, enabling nurses to develop and deliver safe, quality care.

**EB16: Brain Code Improving Recognition and Timely Intervention for Intracranial Hypertension and Herniation**

Stacy Jepsen, Maximilian Mulder, Matthew Ditmore, Marina Kern; Abbott Northwestern Hospital, Minneapolis, MN

**Purpose:** Early recognition and treatment of intracranial hypertension (HTN) and herniation is critical. Implementation of a brain-code process allows for a structured team response, bringing critical medications and interventions to the bedside for patients with cerebral herniation. Our institution is a quaternary acute care hospital with 62 intensive care unit (ICU) beds, comprehensive stroke certified, and a referral center for extracorporeal membrane oxygenation and cardiac arrest. It was imperative to have a structured response to cerebral herniation events. **Summary:** Brain code is a structured process that brings key caregivers, including an intensivist, a neurology critical care registered nurse, a pharmacist, and a respiratory therapist to the bedside to help further assess and intervene in care of a patient with clinical signs of herniation. A brain-code kit, including medication and equipment needed for administration, is brought to the bedside by the brain-code team. The brain-code process supports the Emergency Neurological Life Support tier 1 interventions for elevated intracranial pressure and impending herniation. An education program was developed that reviewed the clinical signs of herniation, triggers for activating a brain code, team roles and responsibilities, and medications to treat herniation. A brain-code algorithm was developed to be used at the bedside to guide staff through the process, helping ensure timely interventions. An electronic order panel for 20% mannitol, 23.4% sodium chloride, and phenylephrine hydrochloride (Neosynephrine; Foundation Consumer Healthcare) was developed that could be quickly entered into the electronic health record, supporting safe dosing and administration of these high-risk medications during a brain-code event. The orders will automatically discontinue 2 hours after ordering. Mock brain codes were conducted in the ICUs to work through the process and identify improvement opportunities. **Evaluation/Outcome:** Between February and August 2017, 23 brain-code events were called for 21 patients, 8 of whom survived to discharge from the hospital. The patients’ primary diagnoses have included subarachnoid hemorrhage, intracranial hemorrhage, ischemic stroke, and cardiac arrest with anoxic brain injury. Mock brain codes were done on all shifts and revealed improvement opportunities, which were implemented. The algorithm was simplified and is being created as a badge card for easier reference by staff. Success is measured by recognition of clinical herniation signs and activation of a brain code, compliance with process, and appropriate medication ordering and administration.

**EB17: Daily Line-Necessity Rounds Reduced Hospital-Acquired Infections in a Surgical Transplant Intensive Care Unit**

Jose Sala, Ashley Eugene, Michele Ramirez; Methodist Hospital, Houston, TX

**Purpose:** Among critically ill patients who have undergone surgery or liver transplant, health care–associated infections (HAIs) are a major contributor to increased mortality, cost, and prolonged hospitalization time. Transplant candidates and transplant patients are at a greater risk of developing infections due to immunosuppression and longer indwelling time of necessary invasive catheters. We implemented unit-based interdisciplinary catheter necessity rounds to reduce central catheter and urinary catheter days and HAI rates. **Summary:** In an effort to decrease unit-based HAIs, a multidisciplinary initiative primarily based on catheter necessity rounds was established in a surgical and liver transplant intensive care unit (ICU). Daily catheter necessity rounds with the intensivist team were implemented to reduce HAIs in all patients with invasive catheters, following guidelines from the US Centers for Disease Control and Prevention and the Agency for Healthcare and Research Quality. Members of the ICU leadership team rounded daily with the intensivists to discuss catheter necessity and plans for discontinuation or transition to peripheral
intravenous access. Extensive re-education on catheter necessity, care, and maintenance of central and urinary catheters was provided to staff. Furthermore, blood culture and urine culture collection practices were reexamined. Weekly audits on central catheter bundles were performed. **Evaluation/Outcome:** Average central catheter–day and urinary catheter–day monthly rates decreased by 10% and 23.6%, respectively, from 667 to 600 catheter-days per month and 516 to 394 catheter-days per month from 2016 to 2017, respectively. Central catheter–infection rates decreased 80% from 2.12 infections per 1000 catheter-days in 2016 to 0.42 in 2017, as of this writing. Catheter-associated urinary tract infections rates decreased from 2.2 infections per 1000 catheter-days in the first quarter of 2017 (preimplementation) to 0.583 for the second and third quarters of 2017, as compared with the 2016 rate of 1.3.

**EB18: Flash Rounds: Implementing the ABCDEF Bundle in a Surgical Transplant Intensive Care Unit**

Jose Sala, Michele Ramirez, Lisa DeGarmo; Methodist Hospital, Houston, TX

**Purpose:** The ABCDEF Bundle (A: assessment, prevention, and treatment of pain; B: both spontaneous breathing trials [SBTs] and awakening trials [SATs]; C: choice of analgesia/sedation; D: delirium assessment, prevention, and treatment; E: early mobility and exercise; and F: family engagement/empowerment) is an evidence-based intervention that aims to improve critical care outcomes through pain and sedation assessment, daily awakening and breathing trials, and early mobility among patients in the intensive care unit (ICU). Patients in this unit who are preparing to undergo or have undergone liver transplant have increased risk of complications due to prolonged critical illness, hemodynamic instability, and risk of infection. A multidisciplinary initiative called Flash Rounds was implemented to reduce complication rates in these patients. **Summary:** The Flash Rounds initiative involves discussing each component of the ABCDEF Bundle relative to pertinent patients. Extensive staff education regarding the bundle was provided by members of the intensivist team. Before implementation, components of the bundle were already in place, such as frequent pain and sedation assessment, mobility with physical therapy, and daily SATs and SBTs. However, there was no efficient process that unified and combined these components. This was the aim of Flash Rounds. At 8 AM every day, all bedside nurses presented the bundle to the ICU team, including the intensivists, residents, nurse practitioners, respiratory therapists and physical therapists. A quick overview of the plan of care for the day regarding mobility, sedation, and ventilator management were discussed for each patient. Weekly chart audits were performed by the leadership team to assess compliance. **Evaluation/Outcome:** Chart audits were performed to evaluate outcomes. Although compliance rates for daily use of Confusion Assessment Method-ICU remained stable at 88% to 89%, there was an increase in performing sedation (via Richmond Agitation-Sedation Score) and pain-level assessments, 83% to 92%. Early mobility rates for eligible patients increased from 81% to 86% and SAT/ SBT performance for eligible patients increased from 75% to 84%. Self-extubation rates decreased from 13 incidents in 2016 to 6 incidents in 2017, as of this writing.

**EB19: The Rapid Response Nurse: More Than Just a Responder**

Elizabeth Avis; Thomas Jefferson University Hospital, Philadelphia, PA

**Purpose:** Originally, rapid response team (RRT) activations removed the registered nurse (RN) from the intensive care unit (ICU) for an average of 45 minutes. This model was stressful and inefficient. Historically, responding RNS were reactive, not proactive, in their role on the RRT. This quality-improvement initiative eliminated the need to remove ICU RNs from the patient’s bedside. This redesigned role, the RRT-RN, strengthened the climate of safety and changed the culture of this health care system. **Summary:** A nursing redesign eliminated the need to remove nurses from their ICU assignments by creating a nonunit-based RRT-RN position to respond to RRT activations, eliminating the burden on the ICU. The RRT-RN’s responsibilities include responding to RRT activations, proactive rounding on each non-ICU patient care unit, tracking outcomes of each patient who had an event requiring RRT activation, providing at-the-elbow education to nursing and physician staff, and becoming embedded in the internal stroke alert algorithm. The RRT-RNs are a consistent presence in the RRT; they are internal experts on sepsis, stroke, the code cart, visitor emergencies, and obstetrical rapid response. These efforts contributed to improving patient outcomes, supporting
nursing staff, improving interdisciplinary communication, and streamlining the RRT process. There have been remarkable results in completed documentation, data collection, and overall improvement in patient safety. RN satisfaction has increased and there has been an obvious culture shift in the perception in RRTs throughout the institution. Evaluation/Outcome: The addition of the RRT-RN has exceeded the initial vision. As the culture of the health care system moved toward a comfort level with RRTs, these events were activated earlier in patient decline, allowing earlier interventions and better outcomes. RRT rates, as calculated by the number of events per 1000 patient-days, rose from 3.3 in 2012 to 4.7 in 2016. Non-ICU code blue rates fell from 1.6 in 2012 to 0.4 in 2016, and intubation rates at RRT activation decreased from 0.9 in 2012 to 0.7 in 2016. RRT activation for neurologic changes rose from 1.017 in 2012 to 1.206 in 2016. As RRT activations increased, fewer intubations at RRT calls and cardiac arrests occurred. More patients with neurologic changes received early intervention.

**EB20: It Takes a Village to Mobilize a Critically Ill Patient**

Mary Beth Leaton, Kristin Ospina; Morristown Medical Center, Morristown, NJ

**Purpose:** Patients are surviving critical illness at a higher percentage than ever before, yet they are living with debilitating weakness and cognitive deficiencies. According to evidence from the literature, early mobilization in the intensive care unit (ICU) is effective at mitigating the effect of these post-ICU complications. Based on this evidence, the surgical ICU (SICU) implemented a progressive-mobility quality-improvement project. **Summary:** This project was modeled after the research conducted by the Outcomes After Critical Illness and Surgery group and Dr Dale Needham. Surgical or trauma patients admitted to the SICU from January 2016 to December 2016 were screened for inclusion. All SICU staff attended an educational session on post-ICU syndrome and progressive mobility. Patients were reviewed daily for inclusion by a trauma attending and/or surgical resident and a physical therapist (PT). An order set was developed that facilitated mobilization of the patient based on their Richmond Agitation Sedation Score and the patient’s ability to follow commands. The dedicated SICU PT would assess and provide therapy to patients daily along with a nursing assistant in the ICU who was trained to assist in mobilizing patients. Integration of specialized therapy equipment was used on a case-by-case basis. PTs, nurses, and respiratory therapists collaborated to identify a plan to mobilize the complicated patients receiving mechanical ventilation who were enrolled into the program. Pre- and postimplementation data were collected on the following: ICU length of stay (LOS), percentage of delirium-free days, percentage of ICU days out of bed, and percentage of ICU days walking. **Evaluation/Outcome:** The respective pre- and postimplementation data are as follows: ICU LOS (days), 4.19 and 3.14; delirium-free ICU days, 72% and 92%; ICU days out of bed, 11%, and 29%; ICU days ambulating, 6% and 11%; and number of patients without a PT order in ICU, 228 and 109. Outcomes obtained were consistent with outcomes reported in the literature, including decreased ICU LOS and an increase in the percentage of delirium-free days. Additionally, there were no reported complications from participating in the program, such as accidental extubations or clinical decompensation.

**EB21: Pediatric Intensive Care Unit Medical Supply Waste Reduction**

Michelle Chiodini; The Children’s Hospital Colorado, Aurora, CO

**Purpose:** Unused medical supply waste on our unit was a substantial problem. Per epidemiology standards, all medical supplies that enter an isolated patient’s room must be discarded, even if unopened. An audit completed by our institution’s Department of Materials Management found that more than $3000 worth of unused supplies were discarded per week in the pediatric intensive care unit (PICU). A task force of PICU nurses was developed to look at our practice relative to medical supplies. **Summary:** The task force focused on the following: review of currently stocked items in the patient’s room bedside cart, staff feedback on proposed revisions, avoidance of unanticipated adverse events resulting from proposed stocking revisions to the bedside cart, and modification of current nursing practice relative to medical supplies. The aim was to design a supply cart that continued to provide needed critical supplies while also reducing overstocking of supplies. The project team solicited feedback from colleagues on critical needed supplies. Mock-up supply carts were created. Feedback surveys on proposed revisions were collected and modifications made to sample

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carts. Once consensus was established on a proposed new cart, the team launched extensive education focused on changing the “just in case” attitude around medical supplies to a “grab only what you need” mind set. At the supply cabinet, the nurse will remove only what is needed at that moment, not what might be needed later in the shift. Evaluation/Outcome: This nurse-driven initiative led to a complete redesign of medical supply stocking in patient rooms and the creation of a new bedside-cart setup. This initiative led to a reduction in wasted unused supplies in our unit as well as significant cost savings. Supply costs for the original bedside-cart setup totaled $144.34. The redesigned bedside cart setup costs $25.91. Based on patient volumes, the total cost savings resulting from these changes is approximately $260 000 per year. There were no adverse safety events because of supply reduction in patient rooms. Successful education changed the culture of the attitude about supplies.

**EB22: Care of Critically Ill Patients: An Educational Program Blending Classroom, Online, and Simulation**

Jane Paige; MSOE School of Nursing, Milwaukee, WI

**Purpose:** As the largest sector of health care providers, nurses need access to ongoing education. Despite this need, the Institute of Medicine reports continuing education programs are fragmented and underdeveloped. One method to address such concerns is partnering health care organizations with schools of nursing (SON) to share knowledge and resources. This educational program exemplifies a partnership between an SON and a long-term acute care hospital (LTACH) to raise level of expertise, clinical reasoning, and judgment of nurses.

**Summary:** This educational program incorporated best practices from adult learning, instructional design best practices in simulation, and applied academic-practice partnership principles. The program started with a needs assessment conducted collaboratively between the SON and LTACH to match program topics to the educational needs of the nurses. Program topics included care of patients with cardiac, respiratory, and multisystem organ dysfunction; and hematologic/immunologic, nutritional/metabolic, neurologic, and gastrointestinal dysfunctions. A blending of instructional methods created a 32-hour program that spanned 12 weeks with 16 classroom hours, 8 online hours, and 8 hours of simulated learning. Nurses interacted with 6 patients in online case modules, then cared for the same 6 patients in the simulation laboratory as the story evolved. Faculty provided individual and team feedback using the Debriefing for Meaningful Learning methods and the Lasater Clinical Judgment Rubric. **Evaluation/Outcome:** A total of 32 nurses participated in the program over 2 years. Pre- and postprogram assessment data on cognitive knowledge (Basic Knowledge Assessment Tool for Telemetry/Progressive Care Nursing) were used to evaluate learning outcomes. The paired t test result was significant for a positive change in knowledge ($P = .02$). By tailoring this program to the educational needs of nurses, with incorporation of policy and procedures specific to the LTACH, nurses saw the relevance to their practice. The nurses’ comments included the following: “We weren’t learning random things, it was all applied to the kind of patients we have” and “It helped us build on our clinical thinking skills and helped us go one step further.”

**EB23: Implementing the American Association of Critical-Care Nurses Early Mobility Protocol in 7 Specialty Intensive Care Units**

Marilyn Schallom, Kara Vyers, Heidi Tymkew, Paula Mantia; Barnes Jewish Hospital, St Louis, MO

**Purpose:** Early mobility in the intensive care unit (ICU) has many benefits. Our ICUs previously implemented assessment of pain, awakening and breathing trials, choice of analgesia and sedation, and delirium assessment and management of the ABCDE bundle. Implementation of a specific early mobility protocol was needed. The purpose of this evidence-based project was to examine the effect of adding an interdisciplinary mobility protocol in 7 specialty ICUs. **Summary:** An interdisciplinary approach was used to review the literature, examine current practice, and select an early mobility protocol. A gap analysis showed that variations in mobility existed between the ICUs; however, nurses surveyed in medical and surgical ICUs agreed that early mobility was important. The Progressive Early Mobility protocol from the American Association of Critical-Care Nurses (AACN) was selected. Each ICU’s nursing, physical therapy, and medical leadership modified the AACN screening criteria to meet the needs of their patient population. The 4-level AACN protocol that advances mobility from range of motion (level 1) to ambulation (level 4) was implemented in each ICU with clinical nurse specialists
and registered nurse champions. Multidisciplinary education on the project’s purpose and logistics occurred in each ICU before the start of the protocol. A staggered implementation was initiated in 2 to 3 different ICUs every 2 to 3 months. Process measures recommended from the AACN protocol, and sedation and delirium assessments were collected on all patients for 2 months before (n = 1133) and after (n = 1406) implementation. Outcome measures were collected on 20% of patients with length of stay (LOS) of 3 or more days 2 months before (n = 259) and 6 months after (n = 1562 implementation). **Evaluation/Outcome:** The mean mobility level achieved increased in all ICUs (before implementation, 1.45; after, 1.64; \( P < .001 \)), with the largest gains in the ICUs without a dedicated therapist before implementation (\( P = .008 \) to .04). The mean number of delirium-positive days decreased from 1.65 to 1.37 (\( P = .05 \)). ICU LOS (standard deviation) decreased from 7.9 (7.4) days to 6.9 (6.1 days; \( P = .02 \)), with a nonsignificant decrease in hospital LOS from 16.3 (12.2) days to 15.1 (11.2 days; \( P = .11 \)) and ventilator-days from 3.5 (6.2) days to 3.0 (5.7 days; \( P = .25 \)). The occurrence of pressure injuries decreased from 6.6% before protocol implementation to 3.3% afterward (\( P = .01 \)). The rate of mobility-related complications was low (0.2%). Addition of early mobility provides additional patient outcome improvements when ABCD components are already implemented.

**EB24: Outcomes of Instituting an Early Mobility Program in a Medical Intensive Care Unit**

Ana Mota, Claire Pelletier, Catherine Coates, Melissa Fetera; Yale New Haven Hospital, New Haven, CT

**Purpose:** It has been well documented that early mobility programs in intensive care units (ICUs) contribute to reduction in ICU length of stay, intubation time, and incidence of ICU delirium. In our ICU, we identified inconsistency in the number of patients receiving early mobilization. The purpose of this study was 2-fold: Institute an ongoing program to safely mobilize patients who are medically stable and increase the percentage of patients mobilized daily. **Summary:** A multidisciplinary team identified barriers to prior early mobility attempts. Multiple training sessions for nursing and ancillary staff were held to discuss the identified barriers and new workflow plan. The expectation was for all patients in the ICU to be screened daily for mobility. A new workflow design was generated that implemented a mobility screening tool to guide staff in identifying patients who are mobility candidates, according to specific criteria. Of note, no new staffing resources were provided. Night-shift nurses performed the mobility screening and listed patients appropriate to be mobilized. The unit-based physical therapist used this list daily to identify patients who were appropriate for mobility. If mobility orders were absent, a discussion regarding appropriate level of activity for those patients was escalated to the medical team. Physical therapy staff assessed and performed progressive mobility within each patient’s abilities. Patients mobilized included patients receiving ventilatory support who had not been mobilized previously. Collected data included percentage of patients mobilized out of bed and any adverse events. **Evaluation/Outcome:** The percentage of patients mobilized out of bed was analyzed weekly. The average percentage of patients mobilized increased from 30% before the intervention to 38% afterward (\( P = .007 \)). No adverse events or staff injuries were reported. Instituting a defined and consistent workflow and method of communication between physical therapy and nursing is an effective way to efficiently implement an early mobility program in the ICU. This plan could be easily instituted in other clinical settings to promote early mobility. Analysis of additional data should be performed to assess the influence of early mobility on reducing length of stay, hospital-related complications, and health care costs.

**EB25: Introduction of a Static Air Overlay to Decrease Specialty Bed–Rental Costs and Pressure Ulcers**

Monica Hupalo, Tamara Bockman; North Colorado Med Center, Greeley, CO

**Purpose:** All hospitals strive to lower costs and improve outcomes. Hospital-acquired pressure injuries (HAPIs) damage a patient’s quality of life and a hospital’s reimbursement and reputation. The purpose of this process improvement project was to decrease spending on specialty rental beds and decrease HAPI rates. We asked, In the inpatient population, does using a static air overlay compared with a standard hospital mattress decrease HAPI rate and reduce specialty bed–rental spending? **Summary:** Few studies have assessed an association of static air overlay with HAPI reduction. A pressure mapping study by Higer and James demonstrated that air immersion surface provided the lowest intersurface pressure and most effective pressure...
distribution on a pediatric skull model; this logically extrapolates to all bony prominences. Serraes and Beekman demonstrated that air overlays were more effective than a standard foam mattress for deep-tissue injury prevention in at-risk patients. A randomized controlled trial by Vermette et al demonstrated that an inflated air overlay is more cost-effective than a specialty bed for preventing pressure injuries. The American College of Physicians Clinical Guideline recommends static mattresses or static overlays for patients at increased risk of developing pressure ulcers. During a Critical Care Services pilot trial, we realized that various hospital beds were poorly understood, and no bed algorithm germane to our facility existed. Before proceeding, we developed a bed algorithm based on the Braden Scale. We defined when to use a static air overlay and when to request a specialty bed. Implementation included education on the bed algorithm and the static overlay.

**Evaluation/Outcome:** Within 9 months of implementation, the hospital used far fewer rental beds and more than 600 overlays. This resulted in a net savings of more than $63,000. From the more important patient perspective, data from the National Database of Nursing Quality Indicators wound prevalence study demonstrated a 47% decrease in stage 2 and greater HAPIs throughout the hospital. Similarly, deep-tissue injuries tracked internally have decreased by 50%. With the development and implementation of the specialty-bed algorithm, the cost-savings process improvement project evolved into the implementation of a comprehensive pressure injury prevention project.

**EB26: Helping the Patient Through Completion of Admission Documentation**

Kristen Boettcher; Poudre Valley Hospital, Ft Collins, CO

**Purpose:** Improve patient care and experience by connecting patients with appropriate referrals through completion of admission documentation. Completion of the admission process was inconsistent in our intensive care unit. Using strategies indicated in the literature as best practice for improving compliance, education and reminders were used to effect change. By improving the admission process, our patients benefit from more thorough and timely connections to multidisciplinary teams. **Summary:** The project involved gathering information on the benefits and requirements of admission documentation, and a literature search to discover the best method to increase compliance. Research shows compliance can be increased with education. A bulletin board was created with the theme “Help your fellow fish out downstream”; on the board, staff could lift images of rocks located in the stream to read information about the benefits of completing admission documentation. This bulletin board provided education through self-driven interaction. The second portion of the project included laminated checklists in the shape of a fish that provided admission requirements of height and weight, standing orders, universal decolonization, and admission documentation. These were attached to the bedside computers in each patient room. Nurses were encouraged to use this checklist with each new patient. When the checklist was complete, the fish were removed, cleaned, and placed at the nurse’s station to be placed in empty rooms for future admissions. **Evaluation/Outcome:** To evaluate this process improvement, chart audits were completed on all admissions 3 months before and after initiating the project. Before the project was initiated, 17% of all admissions in the intensive care unit were being completed. Specifically, 10% in October, 6% in November, and 33% in December were completed. After the project was discussed at our December staff meeting, compliance increased. The project was then initiated and audits showed an increase to 86% of admission documentation being completed. Specifically 86% in February, 81% in March, and 90% in April. Admissions now are being completed and we are providing better care to our patients.

**EB27: Implementing a Multidisciplinary Pediatric A-F Bundle and Early Mobility Program in Pediatric ICU**

Erin Dame-Lewis; UC Davis Medical Center, Sacramento, CA

**Purpose:** The efficacy of early mobility in reducing time spent receiving mechanical ventilation and reducing hospital length of stay in the adult population is well documented; the risk factors for delirium and treatment of delirium in the pediatric population requires further study. The pediatric intensive care unit (PICU) at UC Davis Children’s Hospital developed and implemented a nurse driven A-F Bundle and Early Mobility Program with the goal of improving quality of care and decreasing length of stay for patients receiving mechanical ventilation.
Summary: UC Davis Medical Center successfully implemented a delirium and early mobility program in 2012 within the adult population that, over 2 years, resulted in decreased time receiving mechanical ventilation and decreased ICU and hospital lengths of stay. By 2015, the ABCDE bundle became the standard in the adult population but had not been adopted in the pediatric population. Delirium was identified as a challenge in pediatrics. A review of the literature revealed scarce evidence in pediatrics and the hypotheses that pediatric delirium is underdiagnosed and ICU-acquired weakness is complicated by developmental considerations. Based on this evidence, a multidisciplinary team of stakeholders was convened and a Pediatric A-F Bundle and Early Mobility Program was developed. An evidence-based curriculum was developed, including use of validated pediatric delirium tools and benefits of early mobility. More than 200 registered nurses, 30 physical therapists and occupational therapists, and 30 physicians have attended didactic classes and classes on safe handling of patients. Collaboration and willingness to embrace culture change are essential to the success of the program. Before and after the classes, participants completed surveys on perceived barriers to implementation, which provided baseline perceptions and identified barriers to sustainable change.

Evaluation/Outcome: This evidence-based solution addressing pediatric delirium and early mobility resulted in a nurse-driven bundle that reduced the average length of stay for patients receiving ventilatory support in the PICU and pediatric cardiac ICU. The project presented opportunities to examine process outcomes and identify areas for improvement. The addition of unit-based physical therapists who are experts in mobilizing the pediatric population and grant-funded mobility equipment were significant contributors to the program’s success. This project exemplifies how a multidisciplinary approach to a nurse-driven bundle can be implemented safely and effectively, improving outcomes for pediatric patients.

EB28: Transform the Norm: Central Catheter–Associated Bloodstream Infection Quest to Zero

Erica Graff, Rion O’Connell; Bayhealth Medical Center, Dover, DE

Purpose: Health care continues to battle central catheter–associated bloodstream infections (CLABSIs). CLABSIs increase patients’ length of stay, mortality risk, and costs. It is imperative providers participate in efforts to eliminate CLABSI, a preventable harm. Within our organization, CLABSIs were few but our rates still did not meet our goal of zero. This abstract describes unconventional yet evidence-based interventions implemented by a community hospital to decrease CLABSI rates. Summary: A Failure Modes and Effects Analysis was completed by our organization’s CLABSI committee. This analysis determined suboptimal maintenance of central venous access devices (CVADs) was the main culprit associated with CLABSI infections in our hospital. A gap was noted in 2 evidence-based interventions. The first intervention was hardwiring a CVAD maintenance bundle, which included application of an antimicrobial patch, dry and occlusive dressing, dressing and tubing changes within the specified timeframe, and disinfection caps on all needleless ports. Daily monitoring was conducted to confirm adherence to this maintenance bundle. Our second intervention, which is not typical practice, was a hospital-wide elimination of blood sample collection from CVADs. Instead, laboratory specimens were obtained by peripheral venipuncture. This decreased manipulation of the catheter to maintain its integrity. To change a culture dependent on the convenience of a CVAD, the nursing staff educated patients about the potential risk for a bloodstream infection each time their CVAD is accessed. Evaluation/Outcome: Before implementing these 2 changes, our institution had 6 CLABSIs in fiscal year 2016. At the conclusion of fiscal year 2017, we were able to reduce CLABSIs to 2. Implementing these 2 interventions have contributed to the steady decline in our hospital’s CLABSIs and continue to lead us to our goal of zero. A major obstacle to these new initiatives continues to be changing the culture within the institution where CVADs are viewed as a convenience. CVADs should be viewed as closed system that should rarely be manipulated. The CLABSI committee still struggles with this culture change and relies on evolving evidence to reinforce this change in practice.

EB29: Increasing Consistency of High-Touch Equipment Cleaning Between Patients in the Pediatric Intensive Care Unit

Patricia Kast, Sarah Elhazin, Mirna Galindo, Cassielyn Dwyer; Loma Linda University Children’s Hospital, Loma Linda, CA

Purpose: Hospital equipment and high-touch surfaces are recognized as risks for cross-contamination...
between patients. We identified a lack of consistency among pediatric intensive care unit (PICU) nursing staff related to cleaning high-touch surfaces and equipment between patients. A project was initiated with the goal of improving knowledge of risks for cross-contamination and improved practices related to cleaning. Summary: Using an evidence-based practice (EBP) approach, a nurse-led interprofessional team of nurses and unit patient-care assistants reviewed the literature for best practices on environmental cleaning for hospitalized patients, using Johns Hopkins EBP methodology. Despite limited available research on this topic, the team reviewed more than 15 studies for level and quality, and found the related literature on cleanliness of high-touch surfaces to be of level 2 or 3 for evidence of good to high quality. From this review, the team identified tools and methods for a nurse-driven protocol. Using a checklist and a fluorescent marker to mark high-touch surfaces, the team evaluated the consistency of cleaning done by nurses between discharges. The results from an anonymous staff online survey were reviewed. Once a baseline of current cleaning was established, education was provided to all staff using inservice training, a slide presentation, hands-on practice, and a video. An environmental checklist, handed out by the PICU secretaries, reminds staff of items to be cleaned between patients. Reassessments of cleaning were completed by the EBP team using the established fluorescent marker monitoring. Evaluation/Outcome: Pre- and posteducation intervention data were tabulated. Before education, 589 items were checked. Of those items, 138 were cleaned (23%), 416 items were not cleaned (71%), and 35 marked items were not available at time of check (6%). After education, 527 items were checked. Of those, 428 (81%) were cleaned and only 99 items (19%) were not cleaned. A total of 171 room checklists have been distributed and completed by unit staff, showing high acceptance of the project to improve cleanliness practices for high-touch surfaces and equipment.

**EB30: Consistency Is Key: Standardizing Central Catheter Maintenance and Care**

Kelly Coker, Victoria Williams, Kimberly Mattison, Sarah Joy; Christiana Care Health System, Newark, DE

**Purpose:** According to the US Centers for Disease Control and Prevention, central catheter–associated bloodstream infections (CLABSIs) are critical infections that cause increased length of stay, cost, and mortality. A patient’s risk of acquiring a CLABSI increases when there are inconsistencies in central catheter management and care. From April 2016 to December 2016, the Transiitional Medical Unit (TMU) had documented a total of 3 CLABSIs. The inconsistencies with standardized central catheter management hospitalwide resulted in increased CLABSI rates on the TMU. Summary: First, TMU implemented a collaborative approach to central catheter care, which allowed a multidisciplinary health care team to standardize central catheter care and education hospitalwide. This team included members of the TMU CLABSI Value Improvement Team (VIT) vascular access registered nurse (RN), hemodialysis RN, infection prevention RN, and computed tomography scan technician. The team met monthly to discuss areas of improvement in each department, opportunities for staff education, and the latest evidence-based practice. Each patient on the unit who had a central catheter was assessed by a CLABSI VIT member on arrival to the TMU, using a standardized rounding checklist. This allowed for immediate catheter evaluation and created an opportunity for concerns to be addressed with staff and the respective discipline in a timelier manner. Using this standardized checklist, TMU CLABSI VIT members also performed weekly rounds on each patient with a central catheter, assessing the central catheter for occlusive dressing with date/time/initial, correct impregnated disk membrane placement, and necessity of the central catheter. Evaluation/Outcome: As a result of implementing the multidisciplinary team and a standardized rounding checklist, TMU had a rate of acquired CLABSI infections of zero from January 2017 to August 2017, despite having 1567 central catheter days. Clinically, this result signifies zero harm to patients. The work of the TMU CLABSI VIT and collaborative partnerships with respective disciplines indicates that implementing a multidisciplinary team, centered on standardized central venous catheter care, was successful. We will continue to work with ancillary departments to provide real-time feedback and ongoing staff education to support standardized central catheter care using the latest evidence-based practice.

**EB31: Huddle Up for Sepsis: A Multidisciplinary Solution for Early Recognition and Treatment of Sepsis**

Pascale Audain, Julie Hurlbut, Daniel Kelly, Leah Abecassis; Boston Children’s Hospital, Boston, MA
**Purpose:** We aimed to improve time to antibiotic administration among patients meeting sepsis criteria, from a unit average time of 84 minutes to a goal of less than 60 minutes. Early goal-directed therapy of sepsis decreases morbidity and mortality. To achieve our aim, we developed a multidisciplinary approach to identify, risk stratify, and mobilize resources to ensure timely vascular access, fluid resuscitation, and antibiotic administration. **Summary:** The evidence-based solution included development and implementation of a structured screening and management tool that provides clinical guidance on recognition of severe sepsis and septic shock, with associated clinical management recommendations. The sepsis trigger tool was implemented as a new clinical practice of structured collaboration among the interdisci- plinary team. The use of the trigger tool by the bedside nurse is an essential component of this initiative because it necessitates a discussion in the form of a “sepsis huddle,” where the team performs a group bedside assessment, establishes goals, and assigns appropriate tasks. To enhance implementation of the sepsis antibiotic initiative, sepsis order sets were developed and implemented, antibiotic order processing and medication delivery by the pharmacy were prioritized, and there were monthly clinical performance reports. **Evaluation/Outcome:** The primary outcome was time from sepsis recognition to antibiotic administration, with secondary outcomes of intensive care unit (ICU) length of stay (LOS) and hospital LOS. Since project implementation, time to antibiotic administration has decreased from a mean of 119 minutes to a current mean of 78 minutes. ICU LOS among patients meeting sepsis criteria has decreased from an average of 12 days to 2 days. Hospital LOS has decreased from 24 days to 11 days.

**EB32: Advancing Orientation: A Peer-Driven, Unit-Based Preceptor Development Program**

Amy Sutor; Christiana Care Health System, Newark, DE

**Purpose:** The goal of this peer-designed preceptor development program was to improve preceptor engagement and accountability to set a foundation of success for the orientee. The program aimed to improve preceptor satisfaction and to decrease the length of orientation time per orientee. **Summary:** A well-designed preceptor program optimizes an organization’s ability to provide quality nursing care, enhances professional development, and promotes positive patient outcomes. In 2011, staff of the cardiac surgical and medical intensive care units (ICUs) merged, creating a diverse pool of novice to expert preceptors. Nurse retention began to decline. A 2014 survey confirmed dissatisfaction with training processes and expectations. A group of staff nurses, with guidance from the unit educator and manager, designed a unit-specific preceptor development program that focuses training and tools toward improving competency and consistency among preceptors of various experience levels. This program was offered to all unit preceptors and was centered on the lowest scoring themes from preceptor surveys: preceptor accountability and responsibility, timeline progression of new hires, adult learning theory, critical thinking and prioritization, teaching resources, selecting learning experiences, communication, constructive feedback, and managing conflict. A preceptor binder was created and organized to house innovative tools promoting enhanced experience tracking, communication, and orientee progress for preceptors, unit leadership, and charge nurses. **Evaluation/Outcome:** A postimplementation survey was performed 4 months after the initiative launched. Results indicated the most improvement in the following categories: understanding responsibilities, 21%; using effective teaching strategies, 15%; communication with unit educator, 14%; and preceptor recognition, 23%. Average hours of orientation for a floor to ICU transfer have dropped from approximately 562 to 474. The effects of improved preceptor satisfaction and performance include decreased preceptor burnout, improved staff retention, and decrease in overall orientation time for floor to ICU transfers and new hires. Orientation savings are estimated to range from $960 to $4768 per new hire.

**EB33: Pain First, Sedation Second: Caring for the Patient After Coronary Artery Bypass Surgery**

Allison Cahalan, Lauren Morata, Matthew Singleton, Jennifer Montero; Lakeland Regional Medical Center, Lakeland, FL

**Purpose:** A surgical intensive care unit at an 849-bed tertiary referral center observed prolonged ventilator times (>6 hours) among patients who had undergone isolated coronary artery bypass graft (CABG). By treating pain first and minimizing sedation based on the Pain, Agitation and Delirium Guidelines (PAD), mechanical ventilation duration is reduced. An interprofessional
team used Rosswurm and Larrabee’s model to implement the PAD guidelines and evaluate the effect on time to extubation in patients who had undergone isolated CABG. Summary: At our institution, 63.3% of patients who underwent isolated CABG required ventilation for longer than 6 hours. Nurses identified increased sedation and lack of pain management within the first hour as potential barriers to extubation within the first 6 postoperative hours. Prolonged ventilation after heart surgery increases morbidity and mortality risk, length of stay, and hospital costs. Appropriately assessing and treating pain before using sedatives has been found to decrease duration of mechanical ventilation according to PAD guidelines. After acquiring institutional review board approval, data from 130 patients who had undergone isolated CABG were reviewed. The data, from a database, were analyzed for the preintervention period, September 2015 to February 2016, and the postintervention period, September 2016 to February 2017. Most of the patients in both groups were elderly men; there were more patients in the preintervention group (n = 79). During the 6 months between the 2 studied periods, 2 interventions were implemented: (1) an open-heart surgery admission tracking sheet in February 2016 and (2) evidence-based education on analgesedation in August 2016. By treating pain first and sedation second, the team intended to reduce mechanical ventilation times among patients after undergoing isolated CABG. Evaluation/Outcome: Prolonged extubations decreased 6.4% and time to narcotic administration was reduced 26.8%, occurring 14.3% more often within the first hour. A significant increase in propofol use upon arrival was noted (20 μg/kg per min vs 10 μg/kg per min; P = .02), but reversals administered by anesthesia increased by 7.7%, which may explain the increase in propofol use. The project provides insight for similar facilities and implications for future research.

**EB34: Improving Potential Organ Donor Referrals by Using the Virtual Intensive Care Unit**

Joy Bentley; CHI Franciscan System Services, Tacoma, WA

**Purpose:** The purpose of this quality improvement project was to increase the number of timely organ donation referrals. This project involves a regional virtual intensive care unit (VICU) and the 7 hospitals it serves. Originally, bedside nurses placed the referral call within 3 hours of a patient meeting criteria. This project shows how, by initiating the referral process, VICU staff increase timely referrals, which allows the bedside nurse to spend more time doing direct patient care. Summary: According to reports in the literature, donor referral rates can be improved by increasing education on clinical triggers for referral, simplifying the referral process, and customizing interventions on the basis of the facility’s need. It can be difficult for the bedside nurse to promptly identify when a patient meets criteria for organ donation referral, because of the complex nature of caring for patients in the ICU. This health care system was not satisfied with only referring 72% of potential organ donor in a timely manner. The VICU staff and organ procurement organization (OPO) collaborated to create this new process. In addition to adding the VICU as another member of the team who places the referral call, new criteria also were added, such as if the patient is being treated per the hypothermia protocol after cardiac arrest. The time to place the referral call was also shortened from 3 hours to 60 minutes. An in-service program on referral criteria and when to call the referral to the OPO was done for VICU staff before the start date. By implementing a new policy that involved the VICU as part of the organ donor referral process, the OPO and the hospitals anticipated that the percentage of referrals would increase. Evaluation/Outcome: The data included the timely referral rates collected by the OPO. Four months after the start of this project, the timely referral rates for organ donation increased to from 72% to 86%. The largest of the hospitals increased its rate from 76% to 100%. The number of calls the VICU placed also was compared with the number of calls the hospital staff made. At the end of the 4 months, the VICU staff were making 47% of all referrals calls. In 4 months, the VICU made 189 referral calls. These initial calls take between 5 and 10 minutes, which means the VICU staff have saved the bedside nurse between 945 and 1890 minutes, which can be used instead to care for their patients.

**EB35: Alarm Management on a Step-Down Unit**

Improved Patient Safety

Joan Aquino; St Joseph Hospital, Orange, CA

**Purpose:** Alarm management is a National Patient Safety Goal to reduce the number of total alarms so true alarms are recognized and managed by nurses, provide
a safe environment, increase patient rest, and increase staff, patient, and family satisfaction. Nursing staff are exposed to excessive alarms that are activated around the hospital, resulting in staff becoming desensitized to alarms, delayed response, and missed true alarms; these compromise patient safety and can result in patients’ deaths. **Summary:** The Definitive Step-Down Unit (DSU) used the Iowa Model to guide strategies to implement practice change and improve alarm management. A team of nursing staff was formed. A presurvey established nurses’ baseline knowledge about various alarms and alarm fatigue. Direct observation was used to collect baseline data on alarm types, frequency, and response time of RNs. Reports in the literature about alarm fatigue were reviewed and a protocol was created. The team trained RNs to customize alarms on the basis of a patient’s needs (eg, heart rate, irregular heart rhythm, multiple premature ventricular contractions) to reduce the total number of alarms. RNs and nurse aides perform skin preparation and change electrocardiograph leads daily. Alarm management protocol was communicated to staff on entering our unit. Regular spot audits are done to ensure implementation. After a month of full implementation of the protocol, repeated direct observation validated its effectiveness. **Evaluation/Outcome:** Preimplementation data revealed 582 alarms triggered for 7 patients in 12 hours. Postimplementation data showed a dramatic decrease: 375 alarms on 17 patients in 12 hours, which is a reduction in alarms from 83% to 22% per patient per hour. Changing electrocardiograph leads daily decreases number of “cannot analyze” alarms (the highest alarm rate) from 7.4% to 1.3%. A corresponding decrease in RN response time was observed from 44.75 to 13.31 seconds. Changing electrocardiograph leads is a simple procedure to minimize alarms that contribute to alarm fatigue. Customizing alarm parameters within appropriate patient ranges improves patient safety, decreases extraneous alarms, and contributes to a quiet, healing environment.

**EB36: Reducing Acute Myocardial Infarction–Associated Readmission**

Jennifer Cueto, Gary Gates; Sutter Roseville Med Center, Roseville, CA

**Purpose:** Hospital readmissions are costly to our patients, hospital, and the health care system. From June 2015 to May 2016, our units’ acute myocardial infarction (AMI) readmission rate was 13%. Our research shows that the reasons are mostly noncompliance with medications resulting from poor education, cost, and inadequate discharge instructions. Our goal was to reduce readmissions by following best practice standards that will address these problems. **Summary:** The teach-back method is an effective communication strategy that is easy to use and improves learning outcomes. It engages the patient and patient’s family in realistic goal setting and improves health service use. We trained our nurses and began implementation. Literature on medications was reviewed that was specific to patients who had had AMI, with emphasis on the importance, rationale, possible adverse effects, and parameters for taking medications. An enhanced standard process for discharging these patients also was developed to include comprehensive discharge instructions and teachings. All education is done starting when the patient is admitted to the unit and continued to discharge. We call a patient’s pharmacy before discharge to know if medications are covered by their insurance and how much their copay will be, and to make sure our patients can afford their medications. Their physician is made aware if medication cost is a factor. The patient’s first follow-up appointment with their physician is arranged before discharge. A member of the staff calls patients several times after discharge to review their discharge instructions, medications, and follow-up appointments. **Evaluation/Outcome:** We measured our results over the next 12 months, covering June 2016 to May 2017. Our initial AMI readmission rate was 13%; we set our goal to reduce that rate to 7.6%. We surpassed this goal and dropped our AMI readmission rate to 2.3%. Our data show there have been no readmissions related to any of the aforementioned problems. We have increased our discharge telephone call rates from less than 25% to 100% and have been able to sustain this rate. We are now receiving calls from our sister hospitals asking how we did this. We are truly proud of the difference we are making for our patients.

**EB37: To Pee or Not to Pee: That Is the Question for Patients With Neurologic Disorders**

Rency Mathew, Kristina Houck; Lehigh Valley Health Network, Allentown, PA

**Purpose:** Catheter-associated urinary tract infections (CAUTIs) are a leading cause of hospital-acquired infections, totaling more than 560 000 per year. Neurologic
disorders increase the risk of bladder retention and urinary tract bacterial burden. This presentation details the pathophysiology of and precipitating factors for CAUTIs, reviews Centers for Disease Control and Prevention data on infection incidence, and outlines potential alterations to the care plan of patients with specific neurologic complications. **Summary:** CAUTIs increase hospital cost and length of stay, and contribute to the deaths of more than 13,000 patients per year. Patients with neurologic disorders are at an increased risk for CAUTIs because of neurogenic bladder, immune suppression, longer indwelling catheterization times, and prolonged hospital stays. Approximately 75% of CAUTIs are reported to be associated with an indwelling urinary catheter. This statistic prompted a neuroscience intensive care unit in a community, academic Magnet hospital to revise its catheter reinsertion process in an effort to decrease patient morbidity. Historically, catheters were reinserted when straight catheterization was required a fourth time. Awareness of neurogenic bladder and cerebral components of mic turition during the acute phase of an injury prompted interdisciplinary, collaborative discussion about the actual need for the catheter. Providers advocated to discontinue the device, as able. Conscious catheter care, eliminating automatic catheter reinsertions, continuing straight catheterizations for 72 hours after indwelling catheter removal, and eliminating urine cultures if the patient was not symptomatic or had a positive urinalysis all supported this evidenced-based practice change.

**Evaluation/Outcome:** By addressing the reduction of catheters and preventing automatic reinsertions, a significant effect was noted upon patient morbidity. In 1 year, the rate of CAUTIs decreased by 57%, and rates of catheter use decreased from 24% to 4%. As a result of this success, other inpatient units at this institution have adopted unique programs such as “Tinkle-Free Tuesdays,” “Foley-Free Fridays,” and a “no catheter” mantra to encourage staff and provider acceptance of early removal and late reinsertions of urinary catheters. Knowledge gained in this presentation is applicable to all clinicians caring for patients at increased risk for CAUTIs because of neurologic complications.

**EB38: Achieving Zero: Collaboration and Diligence Eliminate External Ventricular Drain Infections**

Nicole Sunderland; Penn State Hershey Medical Center, Hershey, PA

**Purpose:** The physicians and nursing staff of our neuroscience critical care unit became increasingly concerned about infection rates related to external ventricular drains (EVDs) in the critical care patient population. Over the summer of 2015, infection rates continued to increase, as reflected by data reports. The physician and nursing teams collaborated on an EVD insertion checklist to decrease infection rates and ultimately improve patient outcomes. **Summary:** First, providers collaborated with nursing to create an EVD insertion checklist and to ensure appropriate insertion processes were followed every time a catheter was being placed at the bedside. Next, all EVD catheters were changed to those having an antibiotic coating. Once the checklist and catheter changes were approved, education was provided to the nursing staff about the content of the EVD checklist and the defined roles in the new process. The nursing staff would be responsible for checklist completion and monitoring of checklist compliance. From a nursing team perspective, practice was reviewed and reeducation was provided on cerebrospinal fluid (CSF) collection, EVD setup and maintenance, and catheter dressing care. Nurses demonstrated sterile CSF sampling as a competency. Last, EVD flush kits were created for providers and included all sterile supplies for the procedure, including mask, cap, sterile gloves, Chloraprep (BD), and sterile, preservative-free, saline-filled syringes. Education was reinforced to both nursing and provider teams for the nurse to be present at the bedside when EVDs are being flushed to assist with sterile procedure. All EVD checklists were collected and data were gathered. **Evaluation/Outcome:** Before these changes, there were 7 EVD infections in July 2015; the average was 2 infections per month. Since implementing the aforementioned changes, the unit’s EVD infection rate has been 0% for the last 22 months. This was an interdisciplinary collaboration with a common goal of reducing EVD infection rate that positively affected patient outcomes, as reflected in resulting data. Careful consideration of bedside techniques and health care practices has proven effective in achieving our benchmark goals and resulted in better care provided to our patient population.

**EB39: Don’t Be Scared, Be Prepared!**

Kate Seracino; Duke Raleigh Hospital, Raleigh, NC

**Purpose:** This project was completed to demonstrate that mock code blues and rapid responses improve nurse’s
confidence and competence during actual events. Quick response times and appropriate actions taken by nursing staff are vital to patient outcomes during rapid responses and code blue events. It was discovered that new and seasoned nurses alike do not feel confident in running or being part of rapid responses and code blue calls. **Summary:** A group of nursing staff implemented a program aimed to educate nurses on the following points: roles during a code, use of emergency equipment, location of code-cart items, and hand-off communication. Scenarios were developed specific to a telemetry unit, because this unit has the most code blue events outside of the intensive care unit. An unplanned code simulation was done to assess the most needed learning points. As a group, we have since been conducting planned scenarios, beginning with a run through of code-cart items and defibrillator functions. The group then completes a scenario, and a debriefing is held to discuss what went well, areas of improvement, ask questions, and provide extra time with the equipment. Pre- and postsimulation surveys were completed to evaluate program effectiveness and assess confidence in the following categories: recognizing and calling a code, locating code-cart items, opening and giving boxed drugs, performing cardiopulmonary resuscitation, using a bag-valve mask, recognizing cardiac rhythms, team roles, and communication. Scenarios were conducted on all shifts at a variety of times. This program allowed staff to feel more confident and competent in their roles and responsibilities in the time of a real emergency. **Evaluation/Outcome:** Likert-like survey items were rated on a scale of 1 (not comfortable at all) to 5 (very comfortable); 3 was indicated neutral. Preintervention score results were as follows: 1, 14.81%; 2, 22.96%; 3, 22.96%; 4, 26.67%; and 5, 12.59%. Postintervention results showed a trend toward increased comfort: 1, 14.81%; 2, 22.96%; 3, 22.96%; 4, 26.67%; and 5, 31.85%. These improvements in staff confidence and comfort promote quality patient care and safety during emergent events. This intervention has been successfully implemented with positive results. Staff have expressed how these scenarios have eased fears and anxiety related to emergent situations. We plan to continue the simulations with staff on the progressive care unit and expand to other hospital units.

**EB40: REFRESH: Restore Energy for Recovery**  
Encourage Sleep for Healing. Promoting Sleep in the Intensive Care Unit

Colleen Ryan; Newton Wellesley Hospital, Newton, MA

**Purpose:** Our unit was part of the Clinical Scene Investigator (CSI) program in 2014 to decrease delirium. Our original project was implementing the ABCDE Bundle. We now have formed a unit-based practice council. We want to continue to prevent and decrease delirium. We have added “F” for “families” to our ABCDE bundle and we are promoting sleep in the intensive care unit (ICU) as well. **Summary:** In the ICU, patients experience sleep deprivation due to multiple interruptions throughout the day and night. Sleep deprivation and inability to sleep cause stress and anxiety, and contribute to the development of delirium. This poster describes contributing factors to sleep deprivation and what actions our unit has taken. We used tools we learned from the CSI Academy, including the logic model and drill-down plan. We implemented a “Quiet Time.” We involve families, as well. We now provide bedside journals for our patients who are intubated. Staff and families document in the journals what has happened that day. Feelings are shared, as well. Filling in the gap helps avoid post-traumatic stress for the patient and gives the families some sense of purpose. We have witnessed the diary become therapeutic for families. We provide for all our patients sleep kits that include an eye mask, earplugs, and instructions for meditation. We have purchased tablets on which meditation music can be played. All of this is driven by bedside nurses. What we learned from the CSI Academy gave us the ability to examine the challenges from diverse perspectives and implement evidence-based solutions. **Evaluation/Outcome:** In our unit, we have decreased decibel levels. We have quiet time between 2 PM and 4 PM every day. We are now monitoring compliance and will report on that at another time. The night shift has implemented quiet time and is bundling all their tasks, such as radiographs and blood work, when able, to after 5 AM. Nurses are not doing bedside baths at 1 AM anymore. We have collected surveys from patients and families and will report on their perception of sleep. The best part of this program is that bedside nurses say they feel empowered by making changes in the unit to decrease delirium and improve patient care.

**EB41: Weaning Protocol for Early Liberation From Mechanical Ventilation**

Mary Jane Bowles; Mary Washington Healthcare, Fredericksburg, VA
**Purpose:** The practice of the daily spontaneous awakening trial (SAT) and spontaneous breathing trial (SBT) are standards of care. The purpose of this study was to identify barriers to and evaluate the effectiveness and safety of our current SAT/SBT process and to establish a practice protocol for managing sedation cessation in patients receiving mechanical ventilation, to optimize safe patient outcomes and early liberation from mechanical ventilation. **Summary:** In patients receiving mechanical ventilation, sedation by continuous infusion can result in a variety of complications and affect patient outcomes. There is variation in sedation practices and reluctance of abrupt cessation of sedation for SAT/SBT trials due to a fear of patient self-extubation. A nursing practice protocol of SAT/SBT is a process that standardizes the care leading to successful liberation from the ventilator. To ascertain staff perceptions and practices, a survey was given to the intensive care unit (ICU) nursing staff before and after implementation of the protocol. A literature review was conducted via the CINAHL to design an evidence-based protocol. A retrospective and prospective analysis was conducted regarding propofol use in patients receiving mechanical ventilation. ICU staff was educated about consistent SAT/SBT documentation, propofol weaning recommendations, and if sedation is required after SAT increase infusion by 5 μg/kg per minute every 5 minutes until the Richmond Agitation and Sedation Scale is ordered. Daily quality tracking of SAT/SBT data is obtained through our APACHE analyst. All mechanical ventilation data were reviewed for consistency at an ICU quality meeting. **Evaluation/Outcome:** According to data from the ICU nursing survey, pre- and postintervention, SATs and SBTs were completed an average of 93% of the time. Responses on both the pre- and postintervention surveys indicated the number 1 fear during SAT/ SB T was the risk of self-extubation: preintervention, 97.3%; and postintervention, 97.1%. Actual compliance for SAT before the intervention was 37% and for SBT, 40%. Postintervention compliance increased to 51% for SAT and 52% for SBT. Overall actual patient-days of receiving ventilatory support have decreased to 3.68 days in 2017. Propofol use in April 2015, before the intervention, was 979 bottles of propofol/month for the ICU, at a cost of $10,573.12. After the intervention, propofol use decreased in April 2017 to 902 bottles/month, and the cost decreased to $9,741.60.

**EB42: Keep Calm and Stop the Clot**

Tess Aberg; Rady Children’s Hospital San Diego, San Diego, CA

**Purpose:** To decrease the incidence of venous thromboembolism (VTE) in patients age 10 years and older in the pediatric intensive care unit (PICU) by 10% and to increase VTE bundle compliance for these patients from an average of 78% to 90%. **Summary:** According to the Solutions for Patient’s Safety (SPS) Network Data, VTEs are the second highest hospital-acquired condition nationwide in the pediatric population. The gold standard for VTE prevention is sequential compression device (SCD) application. By surveying our PICU staff members, we were able to pinpoint that the VTE bundle algorithm for SCD placement was confusing and found that many registered nurses were not familiar with how to access it. Our group hypothesized that due to these barriers, the unit staff compliance for SCD application was substantially low. In response, our committee sought ways to clarify the VTE prevention algorithm. We discovered that the identified VTE risk factors were common in all patients in the PICU and that mobility is rarely near baseline. We then compared our findings with those of other children’s hospitals in the SPS Network and found that they were using age 10 years as the standard for initiating SCDs. With this information, we decided to simplify the rationale of applying SCDs and implemented a new policy that all patients in the PICU who were age 10 years or older would wear SCDs unless contraindicated or unless the patient was at their baseline mobility. **Evaluation/Outcome:** Due to the changes we made to the VTE algorithm and by making SCD supplies more accessible to staff, we have increased our compliance from an average of 78% to an average of 90%. Congruently, with the increase in compliance, we have seen a decrease in VTE occurrence in the PICU by 100%. We were able to measure these outcomes by doing weekly unit-based audits. Our project was initially focused on the PICU population but has now been adopted in a modified format to fit patient criteria hospitalwide. In the future, we will be able to compare our unit-based data with compliance audits throughout the facility.

**EB43: PI STARS in the Pediatric Intensive Care Unit**

Megan Boone, Erin Owen; Norton Healthcare, Louisville, KY
Purpose: In critically ill children, there is a hospital-acquired pressure injury (HAPI) incidence of 10.2% to 27%; more than half are related to pressure from medical devices. The estimated cost to treat a full-thickness pressure injury is as much as $70,000. Approximately $11 billion is spent annually treating pressure injuries in the United States. More recently, stage 3, stage 4, and unstageable pressure injuries are now considered “never events” by the Centers for Medicare and Medicaid Services. Summary: In 2013, our children’s hospital joined the Solutions for Patient Safety. A multidisciplinary team of skin champions began performing active surveillance for pressure injury in the pediatric intensive care unit (PICU). Education was provided to all staff regarding early recognition and treatment of pressure injury, including a HAPI prevention bundle, PI-STAR (Protect, Incontinence, Score, Turn, Assess, Rotate). The bundle empowers the bedside staff to evaluate and institute preventive measures before an injury develops. The HAPI team identified that device-related injuries made up 50% of all HAPIs in our PICU, with one-third of these related to new tracheostomy tubes. A multidisciplinary team composed of PICU nurses, a wound ostomy nurse, tracheostomy nurse educators, an otolaryngologist, general surgeons, and an intensivist created a bundle to eliminate tracheostomy tube–related pressure injuries (TRPI). The bundle includes padding of the stoma and neck in the operating room, daily multidisciplinary rounds to assess the skin, and dressing changes as needed. The HAPI team continues to work to reduce pressure injury caused by other devices, including peripheral intravenous catheters, respiratory devices, and electroencephalogram leads. Evaluation/Outcome: The PICU HAPI rate is tracked through active surveillance and daily rounds. In 2014, our rate of stage 3, stage 4, and unstageable HAPI was 1.04 per 1000 patient-days. In 2015, our rate increased to 1.60. This likely was due to improved HAPI recognition. The effort of the multidisciplinary team’s surveillance and education have drastically decreased our HAPI rate. We have not had a stage 3, 4, or unstageable HAPI in 2016 or 2017. Furthermore, in 2014, there were 12 TRPIs, only 1 in 2015, and none in 2016 or 2017. Our HAPI work continues to sustain no stage 3, stage 4, or unstageable pressure injuries, and we are now focusing our efforts to decrease stage 2 and deep-tissue injury in the PICU.

EB44: Implementation of a Mobility Program in a Gold Beacon Neuroscience Intensive Care Unit
Katie Broadway; Houston Methodist, Houston, TX
Purpose: Early mobility is key to recovery for patients with neurologic disorders; however, it takes a team to ensure that this is happening consistently. In the Neurology Intensive Care Unit (NICU) at Houston Methodist Hospital, a team approach with nursing, physical therapy, and ancillary staff is used. Even with this team approach, it can be difficult to accomplish the goal of early mobility each day. For this reason, the Mobility program was established. Summary: At the beginning of 2017, 2 patient-care associates were hired as mobility technicians in the NICU. These mobility technicians trained with physical therapists to learn safe patient positioning, turning, and mobilization. They also trained with occupational therapists to learn how to provide range of motion exercises for unconscious patients. After approximately 6 months, the team (nursing, management, mobility technicians, physical therapists, and occupational therapists) met to create a more formalized program. The team developed a 3-level program—red, yellow, and green—which would determine what degree of mobility was appropriate for each patient. The mobility technicians also created a daily schedule to standardize when patients got out of bed, were turned, or were further mobilized. Phase 1 of this project was implemented on the day shift only because of the staffing of the mobility technicians. Plans to implement on night shift are pending. A 5-question survey was sent to the day-shift staff, education was provided at daily huddles, and red, yellow, and green cards with mobility instructions were placed at each bedside. Evaluation/Outcome: A repeated survey was sent approximately 1 month after the implementation of the program. The presurvey had a 46% response rate and, because of Hurricane Harvey, the postsurvey had a 29% response rate. The results showed the project has had a positive effect on the frequency of patient mobility (a weighted score range, 4.41-4.43) and in recognizing the mobility technician as part of the team (weighted score range, 4.23-4.43). More education on the role of the mobility technician and compliance with the red, yellow, and green cards is needed.

EB45: Shhh . . . Silence Helps Heal Our Heroes
Rebecca Padilla, Kanchana Rajendran, Shirleen Smith, Juliet Alvarado; Dallas Medical Center, Dallas, TX
Purpose: In 2016, veterans hospitalized at Dallas VA Medical Center complained about the noise levels in the Medical Intensive Care Unit (MICU) and the 5A Telemetry Unit; the noise contributed to patient dissatisfaction. This performance improvement project focused on providing a restful environment by reducing the noise levels and enhancing the delivery of high-quality nursing care, leading to improved patient satisfaction by using quiet time, dimming lights, and visual cues such as SoundEar indicator lights and a “Shhh” poster. Summary: Hospital environments are characterized by auditory disturbances such as loud equipment or technology, noise from staff members, larger and louder patient and visitor populations, and physical spaces that are, by default, noisy. An initial plan was developed on the basis of information obtained from the health care research literature and improvement strategies reported in case studies that have demonstrated improved patient outcomes by reducing the effect of noise. Baseline assessments were obtained on the MICU and 5A Telemetry Unit by using patient satisfaction surveys that assessed satisfaction with current noise levels. Noise-reduction strategies were then introduced in 2 phases. Phase 1 included staff education, sound ear indicator lights that changed from green to yellow to red if noise went beyond programmed decibel, and reminder signs such as a “Shhh” poster inside and at entrances of patient rooms and along the hallways. Phase 2 included elements of phase 1 and the establishment of quiet hours, during which noise was limited and lights dimmed twice daily: 1 pm to 3 pm and 9 pm to 4 am. The patient satisfaction survey was repeated at the end of phases 1 and 2, and revealed significant progress in patient satisfaction compared with baseline. Evaluation/Outcome: At the end of phase 1, the data showed a significant increase in patient satisfaction with noise level from 72% to 90% in the MICU and 32% to 63% in 5A Telemetry Unit. At the end of phase 2, MICU sustained the gain and maintained patient satisfaction with noise level at 90%, whereas 5A Telemetry also achieved a 90% satisfaction by the end of phase 2. In conclusion, our interventions have resulted in a significant reduction in noise levels and improved patient satisfaction. Our team has observed enhanced awareness among facility staff regarding the effect of noise on patient rest, healing, and satisfaction when making rounds or engaging in other staff interactions with patients.

EB46: Beyond the Bundle: An Interdisciplinary Approach to Cather-Associated Urinary Tract Infection Prevention

Heather Pena, Janice Febre, Katherine Loftus; Duke University Hospital, Durham, NC

Purpose: Cather-associated urinary tract infections (CAUTIs) are associated with increased rates of morbidity and mortality, resulting in increased length of stay and excess hospital costs. Our performance improvement (PI) team noticed an increase in our CAUTI rate from 1.045 per 1000 catheter-days per year to 2.21 per 1000 catheter-days in 1 month. The purpose of this project was to use evidenced-based practice to identify the cause and decrease our CAUTI rate. Summary: An effective strategy to reduce CAUTIs is to use a bundle for insertion and maintenance. Research demonstrates that going beyond the bundle may help reduce CAUTI rates. These strategies include increasing surveillance, timely feedback to staff, sentinel-event investigation of a CAUTI, and positive reinforcement strategies. Compliance audits were increased to occur weekly and verified strict bundle adherence such as appropriate continuation criteria were documented. In addition, real-time feedback to our colleagues on best practices is provided. CAUTI education was added to annual skills validation and orientation for new hires. Membership on the PI team was expanded to use an interdisciplinary approach to CAUTI prevention to improve practice. Improvements implemented by our interprofessional team included better team communication and education on cather removal for anuric patients receiving dialysis and the importance of urine cultures for transfer admissions. We perform a root cause analysis on any CAUTI that occurs and seek feedback from all staff involved in the patient’s care. To show staff the success of Going Beyond the Bundle, the PI board is updated with the number of CAUTI-free days. Evaluation/Outcome: After the implementation of our CAUTI prevention program, our unit went 340 CAUTI-free days. In addition, our CAUTI rate decreased by 73.2% to 0.28 per 1000 catheter-days for the year. Our total audit compliance, for all aspects of the bundle, for the fiscal year was 86.85% compared with 73.4% the previous fiscal year. Finally, according to the National Health and Safety Network, our 32-bed unit has a high utilization rate and is in the top 25% of units with a low CAUTI rate. The interdisciplinary team and the Beyond the Bundle
program helped decrease and sustain a low CAUTI rate, even in a challenging environment of high catheter use and many new staff.

**EB47: Nurse-Driven Implementation of a Bedside Point-of-Care Device in the Cardiothoracic Intensive Care Unit**

Michelle Knight, Deborah Burns, Kim Sulich, Bridgette Bennett; New York Presbyterian Hospital, New York, NY

**Purpose:** The purpose of this project was to decrease the time taken between collecting an arterial blood-gas sample to time of analysis via the point-of-care (POC) device, to time of result, and treatment affecting the patient. The secondary purpose of this project was to reduce duration of mechanical ventilation times in the cardiothoracic intensive care unit (CTICU). The goal was to evaluate the effect of a bedside POC device on efficiency, workload, and staff satisfaction. **Summary:** The American College of Chest Physicians defines criteria for weaning from mechanical ventilation. According to the Society of Thoracic Surgeons, the median postoperative extubation time for patients after undergoing coronary artery bypass graft (CABG) is 6.1 hours. It is well known that prolonged mechanical ventilation times contribute to an increased ICU length of stay (LOS) and hospital LOS. In January 2016 in the CTICU, the average extubation time after CABG surgery was 11.5 hours. Accurate POC testing facilitates immediate clinical decisions that can affect clinical outcomes in a highly acute CTICU. The use of an inefficient bedside POC blood-gas analyzer resulted in an increase in ventilator time for patients in the CTICU who had undergone CABG. The CTICU nursing staff was dissatisfied with the current POC instrument and the lengthy process for core laboratory blood gas analysis turnaround. As suggested, critical care nurses are key to the integration of technology in the intensive care setting; therefore, the CTICU Unit Council collaborated with unit physician leadership and nursing executive leadership to pilot 4 Radiometer POC analyzers (Radiometer Medical) from April to October 2016. **Evaluation/Outcome:** Bedside POC improves efficiency and decreases intubation times, comorbid conditions, and ICU LOS. Affecting patient outcomes, the time from arterial blood-gas sampling to extubation decreased by 42%, and extubation times decreased to 5.5 hours. The National Database of Nursing Quality Indicators survey showed autonomy increased from 63% in 2015 to 75% in 2017, and decision-making increased from 59% to 74%. Satisfaction was measured before and after implementation of the POC device, with quality of care delivered and patient safety improving from 1% to 29% to 75% to 100%, respectively; and autonomy and professional practice improving from 21% to 41% and to 85% to 100%, respectively. Nurse-driven use of a bedside POC shows collaboration was crucial in implementation; nurses’ decision-making increased morale and satisfaction.

**EB48: In Situ Simulations Increase Staff Comfort and Decrease Pressure Injury Among Patients With Acute Respiratory Distress Syndrome Placed in Prone Position**

Heather Gorman, Deann Welke, Erika Setliff, Kerry Weierbach; Carolinas Healthcare System, Charlotte, NC

**Purpose:** Prone positioning is indicated in patients receiving mechanical ventilation who have severe acute respiratory distress syndrome (ARDS), yet it is a relatively low-frequency process with potential for adverse effects, including pressure injury (PI). In this 35-bed mixed medical-surgical intensive care unit (ICU), a clinical trend of PI in patients with ARDS prompted this work. Our aims were to (1) formalize processes for manual prone positioning, (2) increase the comfort of critical care staff caring for manually proned patients, and (3) improve patient outcomes. **Summary:** Prone positioning is an adjunct therapy for patients with ARDS to improve ventilation and decrease mortality rates. Patients in the prone position are at a significant risk for complications such as PI, airway obstruction, accidental extubations, loss of intravascular access, or aspiration. In-depth training, in-service programs, return demonstrations, and simulations serve as fundamentals to create clear steps for prone positioning that help improve staff competency and comfort level. High-fidelity simulation is a well-established mechanism for improving comfort and improving outcomes. Job aids were created using high-quality photographs of the team demonstrating processes through simulation. Frontline critical care nursing staff participated in in situ high-fidelity simulations, with job aids provided, to practice and demonstrate application of developed processes and key components of the proneing process. These components include pressure
prevention measures, head positioning, staffing requirements during manual proning, tube feeding and endotracheal tube securement, and monitoring and care of the patient throughout, as recommended in the literature. Evaluation/Outcome: Health care staff who participated in the in situ simulation sessions self-reported pre- and postsimulation comfort and confidence levels proning critically ill patients receiving ventilatory support. A 9-question Likert scale design was used, ranging from 1, indicating strongly disagree, to 5, indicating strongly agree. Overall mean score between pre- (n = 21) and postsimulation (n = 20) responses demonstrated 0.98 improvement. In the 3 months before intervention, 57.1% (7 of 12) of prone-positioned patients experienced 1 or more PIs (total PIs, 12) compared with 20% (1 of 5 patients) in the 3 months after the intervention (total PIs, 1), demonstrating a significant reduction of PIs in manually proned patients in this ICU.

EB49: Evidence-Based Standardized Titration Protocol in the Cardiac Intermediate Care Unit Setting
Rosalie Dimaggio, Julia Bayne; The Reading Hospital and Medical Center, West Reading, PA

Purpose: This evidence-based practice (EBP) project identified best practices for titrating infusions with the goal to create standardized titration protocols and to increase nursing knowledge about evidence-based best practice for safe and effective infusion titration. Summary: A clinical nurse in a new cardiac intermediate care unit identified a knowledge deficit for managing titratable infusions and enrolled in the organization’s EBP internship program to examine best practice. This EBP project used the Johns Hopkins Nursing Evidence-Based Practice Model to explore the PICOT (P: patient/problem; I: intervention; C: comparison; O: outcome; T: time/study type) question: What is the best practice for infusion titration to standardize and address knowledge deficits in cardiac intermediate unit registered nurses? Databases searched included CINAHL, Ovid, PubMed, Medline, Cochrane Database, and Nursing Reference Center; evidence search included American Association of Critical-Care Nurses and Joint Commission recommendations for best titration practices. Evidence indicated standardized medication titration protocols were needed for patient safety, would decrease medication error with high-risk drugs, and provide resources for nurses to perform within their scope of practice.

Evidence was translated into practice by a Titration Work Group. Improvements included evidence-based standardized order sets for titratable infusions, updated hospital titration resources on the hospital intranet, pocket references provided to each registered nurse, and initiation of an annual protocol review process. Evaluation/Outcome: A baseline perception survey of titration knowledge, confidence, and resources was conducted that demonstrated knowledge deficit, inconsistent practice, and need for standardized protocols and additional resources. Although nurses in the organization revealed knowledge of existing resources, there was confirmation of a need for standardization of medication titration and additional resources. Nurse perception revealed increased titration knowledge and consistency after implementation of the interventions. Data collection will continue with a follow-up nurse perception survey at 3, 6, and 9 months after implementation, auditing of protocol compliance, and tracking of medication errors related to infusion titration.

EB50: Dedicated Rapid Response Team Improves Hospital’s Mortality Rate
Jana Elliott, Jennifer James; Renown Regional Medical Center, Reno, NV

Purpose: The concept of a rapid response team (RRT) in health care was initiated 15 years ago; the first dedicated RRT was started at a hospital in Texas in 2007. The RRT brings critical care expertise to the bedside on general care units. As a result of a lean rapid quality improvement team project, a local hospital has implemented a dedicated RRT to decrease the number of code blue events called outside of intensive care units (ICUs) and to decrease the hospital’s overall mortality rate. Summary: One registered nurse (RN) from each of 3 ICUs is scheduled each shift to be a member of the dedicated RRT that responds to all code blue and rapid response events. The team huddles at the beginning of each shift and then proactively rounds on patients throughout the hospital based on each patient’s transfer status out of the ICU, condition, and modified early warning system score. For 4 consecutive shifts, the team rounds on all patients who have transferred from an ICU or have been involved in a rapid response. In addition, the team also rounds on any patient about whom a bedside or charge nurse is concerned. The RRT assesses and stabilizes patients while providing assistance with education.
and communication among nursing and medical staff. The team supports the bedside RNs with education for patients and families and assists with transport of patients to a higher level of care, if necessary. The dedicated RRT has allowed critical care RNs to efficiently identify declining patients to optimize their outcomes.

**Evaluation/Outcome:** Before the implementation of the dedicated RRT, the ratio of observed to expected (O:E) mortality for the health system (which includes an 808-bed level II trauma center and teaching facility), was 1.28 (fiscal year [FY] 2016). Recent O:E performance at the end of FY 2017 was 1.20, a 6% improvement. June 2017 O:E mortality was 0.98. In addition, the number of code blue events called outside of the ICUs decreased by an average of 69.3% over 10 months, with 2 months having an 86.6% decrease. The dedicated RRT has also improved morale among ICU RNs, has had a positive effect on the collaboration among the ICU team members and has helped improve the relationship between the ICU and floor teams.

**EB51: How to Implement 4 Concurrent Specialty Internships**

Barbara Hissong, Jennifer Lain; BayCare Health System, Clearwater, FL

**Purpose:** To fill critical care and emergency vacancies currently occupied by higher-cost pool and traveler nurses. The internship ensures that team members completing the program will have the same standard body of knowledge with additional knowledge and skills in their specialty.

**Summary:** BayCare is a 14-hospital health care system stretching from Tampa Bay to west central Florida. Initially, hospitals conducted their own critical care internships. Sometimes this would be for very few interns, tying up educators’ time for weeks. Two years ago, we decided to meet and develop a BayCare Internship Program. Every intern gets the same basic core curriculum. Nurses can float easily throughout the system. One internship frees up the educators to spend more time on their units. When we met, we decided on the curriculum. Those in specialty areas decided on topics specific to their areas. The internship consists of didactic, clinical, and online education. The didactic portion is 5 weeks long. We adopted American Association of Critical-Care Nurses (AACN) Essentials of Critical Care Orientation program early on because it is the gold standard for critical care online education. We adapted it for our progressive care internship before AACN came out with a separate PCCN program. The emergency nurses use the Emergency Nurse Association’s online program. The BayCare Internship Program is held 4 times a year. It consists of 4 disciplines that run concurrently: critical care, emergency, progressive care, and, recently, catheterization laboratory. We can also customize for nurses in dialysis and postanesthesia care units who need their knowledge and skills levels elevated.

**Evaluation/Outcome:** We evaluate the program regularly make changes to improve its quality. Surveys are sent after each internship to the interns and their managers. Managers are pleased with the interns’ ability to function in their critical care and emergency environments. Retention rate has increased in the last 5 years from a low of 31% for critical care and 28% for emergency to 76.9% and 71% for interns in those respectively departments. Vacancies are being filled by the internship program and the nurses filling those vacancies are staying.

**EB52: Turn Team in the Surgical Intensive Care Unit**

Catherine Dillman; New York Presbyterian Hospital, New York, NY

**Purpose:** The purpose of this project was to use a turning team to effectively and efficiently turn patients every 2 hours and, ultimately, decrease the number of unit-acquired pressure ulcers within the 16-bed surgical intensive care unit (SICU) at New York Presbyterian–Columbia University Medical Center.

**Summary:** For the 2016 calendar year and the first quarter of the 2017 calendar year, the SICU pressure ulcer prevalence was extremely high. Of 200 patients surveyed, pressure ulcers had developed in 26 while in the SICU. In March 2017, the Unit Practice Council started looking into actions that could be taken to reduce pressure ulcer rates. One of our nurses suggested the use of a “turning team,” which she had been introduced to at her previous institution. After researching the use of turning teams in other ICUs, the data were encouraging, indicating positive patients outcomes and a substantial decrease in unit-acquired pressure ulcers. An action plan requiring assigned nursing staff and ICU technicians to turn and reposition patients every 2 hours was executed.

**Evaluation/Outcome:** After implementing the turning team in March 2017 and making turning and repositioning patients every 2 hours a requirement rather than a recommendation, our pressure ulcer rates dropped substantially. For
the first 3 months after implementation of the turning team (April, May, and June 2017), no unit-acquired pressure ulcers occurred. According to the overall postimplementation data (April to August 2017), there have been only 2 unit-acquired pressure ulcers in 68 patients surveyed during the monthly prevalence audits. This was a dramatic drop from the 26 ulcers occurring in 200 patients surveyed during the monthly prevalence audits before the implementation of the turning team.

**EB53: 12-Lead Electrocardiogram Education: A Return-on-Investment Strategy**
Adriane Lewandowski; Cleveland Clinic, Beachwood, OH

**Purpose:** It is critical to look at the return on investment (ROI) when delivering higher education. Although ROI is commonly used in the financial world, it also can be applied to nursing education to determine the economic return for a program. This strategy was implemented for education on obtaining 12-lead electrocardiograms (ECGs) in a medical intensive care unit (MICU). It is vital for nurses working in an ICU to know the process for obtaining 12-lead ECGs to improve patient outcomes.

**Summary:** In a complex health care environment, it can be challenging for nurse educators to demonstrate effect to an organization. It can be difficult to assess outcomes for educational activities. In some instances, an effect can have a monetary value. Measuring ROI is one way to provide outcomes by showing financial effect to the organization. Determining the ROI for an education program includes calculating the net program benefits. The ROI of providing 12-lead ECG education was demonstrated. In a review of literature, several articles described using ROI or benefit-cost analysis to demonstrate financial effect of continuing nursing education. An article that included a literature review of 11 studies related to nursing education and outcome measurements was identified and examined. A gap in knowledge related to 12-lead ECGs was identified in an MICU at a large teaching hospital. Upon planning the education, it was discovered that many staff members were knowledgeable about lead placement but lacked knowledge of the process of obtaining 12-lead ECGs and transmitting the data once ECGs were obtained. Education was delivered in the form of low-fidelity simulation combined with discussion and an online education module.

**Evaluation/Outcome:** Education was evaluated based on ROI and ECG transmission data. Before the 12-lead ECG process education, 208 12-lead ECGs were not transmitted properly. Each 12-lead ECG has a total charge of $305 once transmitted, or $63,440 for 208 electrocardiograms. After the education intervention, 23 12-lead ECGs were not transmitted properly, which equates to $70,15. In total, 231 12-lead ECGs were discovered and transmitted, equating to $70,455. Total cost of the education was $769; thus, the net program benefit financially was $69,686. The net benefit was divided by the program cost and multiplied by 100 to calculate the ROI. The ROI calculated for this education was 9062%.

**EB54: Improving Glycemic Control With a Department Performance Improvement Team**
Karen Harrison, Julia Lindeman Read; Sequoia Hospital, Redwood City, CA

**Purpose:** Core to the mission of Kaiser Permanente (KP) is being a national quality leader through use of evidence-based practices to promote health and reduce harm. The 10-bed medical-surgical intensive care unit (ICU) at Kaiser Foundation Hospital–Fremont commenced a multidisciplinary performance improvement (PI) project to achieve optimal glycemic control for critically ill patients. The project goal was to implement highly reliable practice to ensure 75% of glucose values were between 80 and 180 mg/dL. **Summary:** KP has a robust evidence-based practices to promote health and reduce harm. The 10-bed medical-surgical intensive care unit (ICU) at Kaiser Foundation Hospital–Fremont commenced a multidisciplinary performance improvement (PI) project to achieve optimal glycemic control for critically ill patients. The project goal was to implement highly reliable practice to ensure 75% of glucose values were between 80 and 180 mg/dL. Summary: KP has a robust PI program that uses a hybrid approach, including the Institute for Healthcare Improvement Model for Improvement and Lean methodology. Managers are trained as improvement advisors. In February 2017, the ICU assistant manager convened a PI team with a project charter that included outcome, process, and balancing measures. The goal was to increase the percentage of glucose measurements within the target range of 80 to 180 mg/dL from 71% to 75%. Rapid improvement methodology was used to determine causes for variation in practice and test solutions. Members met daily at a visual board to track data, discuss outliers, and determine success of interventions. Identified opportunities included communication of glucose values to the hospital-based specialist (HBS) during the night shift, registered nurse (RN) and HBS knowledge regarding glucose management, and lack of a process for timely data review. The team developed education, collected data, and conducted tests of change to redesign work. RNs added to their patients’ electronic health record profile a glucose management
EB55: Healthy Environment, Healthy Nurse: Creating and Sustaining a Healthy Work Environment in the Cardiothoracic Intensive Care Unit

Catherine Shuford, Heather Pena; Duke University Hospital, Durham, NC

Purpose: Significant action was needed to improve work culture and nurse satisfaction in a cardiothoracic intensive care unit (CTICU) with poor work culture (a tier III unit) and a nurse retention rate of less than 50%. Using the American Association of Critical-Care Nurses (AACN) standards of a healthy work environment (HWE) as a guide, the goal of this project was to establish and sustain a healthy work environment in a fast-paced, 32-bed CTICU. Summary: Work environments directly affect nurse retention, patient safety, and burnout among health care professionals. The AACN champions HWEs and identified the following 6 essential standards: skilled communication, true collaboration, appropriate staffing, meaningful recognition, effective decision-making, and authentic leadership. Based on staff input and work-culture survey results, we developed a HWE committee to focus on improving meaningful recognition of staff members, promoting true collaboration between interdisciplinary teams in the CTICU and across the hospital, as well as encouraging skilled communication for all staff members through various modalities. Specifically, the HWE committee implemented the following strategies: a monthly newsletter highlighting staff accomplishments, monthly celebrations on site, staff outings off-site, a kudos board for staff recognition, and an annual softball tournament to promote interdisciplinary relationships across the health system in addition to raising money for the annual Heart Walk sponsored by the American Heart Association. Evaluation/Outcome: After establishing the HWE committee, our nurse turnover rate decreased from 52% in 2014, to 40% in 2015, to 28% in 2016—an overall 46% improvement in nurse retention. Moreover, our overall work-culture score increased 2%. Specifically, there was a 3% increase in the teamwork score, 6% increase in the nurse satisfaction score, and 3% increase in the staff recognition score. Using AACN’s essential standards as a framework, we created a sustainable HWE that increased nurse satisfaction, promoted better work-life balance, and reduced nurse turnover, which, in turn, should improve patient safety and overall nurse and patient outcomes.

EB56: Walking for Success: Early Ambulation in the Critically Ill Patient

Prescy Abrenica, Evangeline Galera, Maureen McDonald, Eric Kamaloni; Kaiser Foundation Hospital, Vallejo, CA

Purpose: A high degree of variability existed month to month in achieving a mobility goal of 45%. This goal was achieved infrequently. The goal was to increase the average monthly ambulation rate in the intensive care unit (ICU) from 31.5% to the new goal of 50%. Evidence shows increased ambulation in the ICU population decreases rates of delirium, hospital-acquired pneumonia, ventilator-associated pneumonia, deep vein thrombophlebitis, hospital-acquired pressure ulcers, and decreases length of stay. Summary: Studies demonstrate early ambulation in critically ill patients creates better outcomes. It was evident a reliable ambulation process, including patients receiving mechanical ventilation, had not been achieved. This process improvement project spanned 3 years using the PDSA (plan, do, study, act) cycle. The multidisciplinary ICU Quality NOW (QNOW) Committee evaluated current practice. Process mapping was used to illustrate current ambulation practice and uncover ICU clinical cultural beliefs. The QNOW team expanded membership to include the following essential stakeholders: a nursing assistant, respiratory therapist, and physical therapist. A fishbone diagram provided analysis of barriers. The top 6 barriers were chosen using a Pareto chart. Criteria to rule out patients for ambulation were identified. A visual bedside tool, the Yellow Foot,
was developed and implemented. This tool provided a postambulation tracking system. A large ambulation board, suggested by the ICU medical director, was centrally placed to display current assessment of the patient’s ability to ambulate and ambulation completed. The clinical nurse specialist and frontline team members provided education during ICU skills days in 2015 and 2016, plus continued ongoing reinforcement. Evaluation/Outcome: The average monthly ambulation rate was 31.5% in 2015 and 41.5% during Fall 2016—both short of our goal. The ambulation rate through August 2017 is 50.5%. The mobility goal of 50% was met for 6 consecutive months. All patients with a preadmission ability to stand or ambulate were included in the denominator. We decided to exclude patients who were unable to ambulate owing to severity of illness (eg, coma state, acute respiratory distress syndrome, intra-aortic balloon pump). The daily ambulation rate still varied widely even though the overall monthly rate improved. We believe success was realized by using the PDSA process, engagement of frontline staff, by having support of management and ICU physicians.

**EB57: Best Dressed: Reducing Central Catheter–Associated Blood Stream Infections in the Intensive Care Unit**

Connie Kiecker, Ryan Sagorski, Matt Skarupa; Abbott Northwestern Hospital, Minneapolis, MN

**Purpose:** In 2016, 19 patients in 2 intensive care units (ICUs) with 62 total beds developed central catheter–associated blood stream infections (CLABSIs)—a rate of 1.59 infections per 1000 catheter-days. An epidemiologic review showed that 95% occurred 5 or more days after the central catheter was inserted, suggesting a maintenance issue as the infection cause. ICU nurses are responsible for managing central catheters and maintaining sterile dressings. The goal was to improve the management of catheters, thus reducing CLABSI incidence.

**Summary:** One nurse from each ICU became a CLABSI Champion and was part of a multidisciplinary CLABSI committee. These nurses were instrumental in developing a step-by-step, 2-person checklist for central catheter dressing changes and approving an updated catheter dressing kit that was packaged to coordinate with the checklist. The committee collaborated with staff outside of the ICUs to ensure catheter dressings were appropriately placed before arriving at the ICU. Weekly catheter maintenance audits were conducted by the hospital’s infection preventionist (IP) and nursing leadership. Data were shared with the Champions, which allowed them to concentrate on specific problem areas within each ICU. A nurse clinical action team (CAT) was created to focus on proper education and enhanced communication of all nursing staff within the ICUs. While continuing to work alongside IP, the team rounds with staff and brings a focused awareness of CLABSI issues to the units. Monthly, this team shares CLABSI updates via emails and communication boards. Having a nurse present during audits allowed a 2-nurse dressing change and enhanced education on an individual level. CAT nurses were available to answer specific questions as new products were introduced. Evaluation/Outcome: Standardizing central catheter dressing changes, weekly rounding, and dedicated CLABSI Champions and CAT nurses have increased catheter maintenance practices. Individual education and regular updates have also helped attain nurse engagement and accountability with central catheter maintenance. These changes have helped reduce the number of CLABSIs to 7 through August 2017, with a reduced rate of 0.95 infections per 1000 catheter-days. Overall, catheter dressing compliance has increased from 69% at the beginning of this project to 84%. Going forward, every ICU nurse will be checked off by a CAT nurse on how to do a sterile central catheter dressing change. Continuing these efforts will help obtain our goal of 0.89 infections per 1000 catheter-days.

**EB58: Improving Neurologic Assessment in the Pediatric Intensive Care Unit**

Pamela Di Donato, Megan Snyder, Kristen Lourie, Kenya Agarwal; Children’s Hospital of Philadelphia, Philadelphia, PA

**Purpose:** To improve the quality and consistency of serial neurologic assessment of patients in the pediatric intensive care unit (PICU). Serial clinical assessment of neurologic status by bedside nurses is the cornerstone of neurologic monitoring; however, variability in the ordered frequency and neurologic assessments performed contributed to instances of delayed recognition and communication of neurologic deterioration. A working group developed practice changes and education for 225 bedside nurses. Summary: The working group analyzed the issue through case analysis, data collection, literature review, and peer-institution benchmarking. Case reviews and data collection revealed gaps in consistency
of neurologic assessment. Data from the literature and peer-institution review supported continued use of the Glasgow Coma Scale (GCS). These findings led to the development of the 4-part Neurologic Assessment Bundle (NAB): 1. Order sets the frequency of neurologic assessment based on stratified patient risk of brain injury. 2. Patient’s preillness GCS score documented by the critical care team (CCT) on admission to capture baseline level of function. 3. A 5-component standardized nursing neurologic assessment with a modified pediatric GCS for patients younger than 2 years and standard GCS for patients age 2 years or older. 4. Notification protocol for communicating decline in neurologic status to the CCT. Job aids and procedures were developed to guide and standardize practice. A station at the annual PICU skills fair educated bedside nurses on the NAB. A trifold board highlighted key points. A video illustrated the standardized 5-component neurologic assessment. Participants demonstrated competency of assessment skills and understanding of notification protocols based on patient scenarios. Evaluation/Outcome: The quality and consistency of serial neurologic assessment of patients in the PICU improved as a result of this project. This success was measured by comparing pre- and posttest scores after education. An increase in test scores by 37% (from 3.99 to 5.48 out of 6) indicates effectiveness of the teaching intervention. The outcome of consistency has been measured in tracking nursing compliance with completion of expected assessments. The PICU has met or exceeded the goal of 80% compliance in 4 of the 5 months since the education. Keys to sustainability include multidisciplinary teamwork, ongoing staff education, and availability of resources at the bedside.

EB59: A Collaborative Team-Driven Tube Feeding and Nutrition Consultation Protocol in a Medical Intensive Care Unit
Allison Bell, Derrek Hidalgo, Matthew Medina; Loma Linda University Medical Center, Loma Linda, CA

Purpose: Adequate nutrition is critical to the successful recovery of critically ill hospitalized patients. Complications associated with inadequate nutrition can include the development of pressure ulcers; increased length of stay and total costs; longer healing times and duration of mechanical ventilation; and overall increased rates of morbidity and mortality. The purpose of this evidence-based practice (EBP) project was to reduce the amount of time patients in the adult medical intensive care unit (ICU) were without adequate nutrition. Summary: Using an EBP approach, a nurse-led interprofessional team of nurses, a nutritional support team, and respiratory care providers reviewed the literature on nutrition in hospitalized patients for best practices, using Johns Hopkins EBP methodology. The interprofessional team reviewed more than 40 studies, finding the related literature to be evidence level 2 or 3, with good to high quality. From this review of the literature, the team created a protocol that enabled earlier screening of nutritional need. If a patient met the criteria, based on the literature review, the bedside nurse placed an initial order for tube feeding and a nutrition consultation order for the patient. The toleration of residuals was also increased per findings in the literature review. Modifications were made to the electronic health record to aid in increasing the visibility of the nutritional screening and the patient’s nutritional intake. The staff was provided ongoing education about the importance of nutrition in the ICU, nutritional screening process, reasons for qualification and disqualification, and refeeding syndrome. Evaluation/Outcome: Before implementation of the protocol, delays of 7 to 25 days in implementation of nutritional support were occurring. The time from order to nutritional consultation improved from 4 days to within 12 hours, with caloric goals met within 24 hours. There was 100% buy-in from our physician team. There were no reported complications or incidences of refeeding syndrome. Our facility changed to a higher residual tolerance and tube feeding advancement rate on the basis of results obtained from this project.

EB60: Decreasing Downtime: Creating a Hospital-Integrated Continual Renal Replacement Therapy Program
Kristen Rachinski, Makayla Cordoza; Legacy Mount Hood Med Center, Gresham, OR

Purpose: Our purpose was to decrease the time between continual renal replacement therapy (CRRT) orders being written and time of therapy initiation. We also aimed to decrease the downtime between CRRT filter changes and maximize patient time receiving CRRT therapy. Summary: CRRT is a therapy run by critical care registered nurses (RNs) at Legacy Health. However, initial setup, circuit changes, supplies, and equipment had been contracted out before implementation of our team’s plan. Therapy downtime and setup delays were

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concerning and unavoidable owing to outsourced contractors. This led to morale distress in our RNs. Legacy’s CRRT committee believed we could do better if the bedside ICU RN provided all CRRT care. We gained approval from organizational leadership for new CRRT machines, materials, and finances for training. We renegotiated the CRRT vendor contract, standardized CRRT education through a PDCA (plan, do, check, act) model and created a systemwide practice guideline and physician order sets. We created RN competencies and trainings to fill the knowledge and skill gaps regarding filter setup and changes, as well as a resource book for all ICUs. We implemented the change providing 24-hour support to our teams. **Evaluation/Outcome:** As a team, we reviewed CRRT patient data monthly, used the PDCA process to adjust training schedules, and modified supply levels for more than 230 critical care RNs across 5 hospitals. By fiscal year 2016, we had decreased preventable delays in CRRT initiation by greater than 400% and decreased preventable delays between filter changes by greater than 100%. We increased RN satisfaction during CRRT care and provided a net savings of $151,280 after equipment purchases. We have shown sustainability plans to meet the projected 5-year savings of more than $1.37 million.

**EB61: Nursing Support During Perinatal Loss**  
Suzanne Lundeen, Patricia Gonzales, Gloria Ramirez-Scully; Harris Health System, Houston, TX  
**Purpose:** The purpose of this project was to ensure that women are offered support for grief response during an end-of-life event. An end-of-life event in a labor and delivery unit is defined as a perinatal loss. Quality specifications as outlined by the Association of Women’s Health, Obstetric and Neonatal Nursing (AWHONN) were reviewed and opportunities to improve were identified. The focus of this project included enhancing nursing practice and improving documentation related to perinatal loss. **Summary:** In addition to the standards outlined by AWHONN, there is overwhelming consensus in the literature on perinatal loss that the nurse’s role is that of emotional support and creating memories during this vulnerable time. To meet the standard of care, a plan is developed before birth as guided by parental wishes. Parents see, hold, and name the infant, and the nurse ensures that all desired religious or cultural ceremonies, spiritual care, and support are available. After birth, memories are created by allowing the family to have time alone with infant, taking photographs, and creating hand and/or feet molds and prints. All mementos, including a hat, tape measure, and lock of hair (if desired by parents) are placed in a memory box. Support services are offered and arranged, such as social work and financial counseling. Referrals are provided to local and/or online bereavement support groups. Patients who suffer a loss receive sympathy cards in the mail and are contacted for follow-up by a nurse via telephone. Last, an interprofessional team that includes nursing, social work, child life, case management, spiritual care, and physicians meets bimonthly to review care surrounding patients who have experienced a perinatal loss. **Evaluation/Outcome:** Essential indicators of perinatal loss as outlined by AWHONN are tracked to ensure women who experience a perinatal loss are provided comprehensive bereavement support. Before the project, compliance with the required elements was 62%. Based on these findings, the robust project included staff education, developing a reference binder, establishing a perinatal loss cart that provides a central location on the unit to gather all needed items, and enhancing the electronic health record to include discrete data fields to document the essential elements. Current compliance rates are 91%, indicating a significant clinical improvement in practice.

**EB62: Dazed and Confused: Delirium Rounding by Geriatric Resource Nurses Improves Patient Outcomes**  
Rachel Meglich, Monica Cummins, Julie Simon, Rachel Lipnicki; Cleveland Clinic, Cleveland, OH  
**Purpose:** The purpose of delirium rounding was to improve patient outcomes through increased delirium identification and use of evidence-based interventions. It was noted that acute delirium was substantially underrecognized by nursing staff in the acute postsurgical cardiovascular step-down setting. This resulted in a delay of interventions implemented to treat delirium. There was a need to improve knowledge of acute delirium and increase evidence-based interventions used. **Summary:** Biweekly delirium rounds were created through our geriatric resource nurse (GRN) program and were conducted on 3 cardiovascular step-down units. Patients were screened for delirium using the brief confusion assessment method (bCAM) tool. Once delirium was identified, appropriate nursing interventions were put in place. In cases where acute delirium was not identified by nursing staff, staff were educated on signs of delirium and use of the bCAM
tool. Interventions were then recommended that could improve the delirious patients’ outcomes. Interventions used included suggesting use of delirium order set, ensuring proper nutrition and hydration, ambulation, preserving circadian rhythm, encouraging family to stay at bedside, and establishing a routine. The goal of delirium rounds was to improve quality of care of by implementing appropriate interventions using best-practice guidelines from American Association of Critical-Care Nurses (2016) and Nurses Improving Care of Healthsystem Elders (2016), thereby improving patient outcomes.

**Evaluation/Outcome:** Outcomes were tracked for 5 months before and after the intervention. Average delirium order set use doubled from 10% to 20.5% for patients who screened positive for delirium. There was an increase across all 3 units in the percentage of acutely delirious patients identified. With implementation of GRN delirium rounding, it was noted that the average length of stay for delirious patients decreased by approximately 36% (9.9 days) with an approximate cost savings of $260,000 across 3 units.

**EB63: Reducing Medication Errors in the Pediatric Intensive Care Unit: A Nurse-Led Initiative**

Robin Thomas; Children’s Hospital Colorado, Aurora, CO

**Purpose:** Patients in the pediatric intensive care unit (PICU) are at increased risk for adverse events from medication errors. In 2014, the PICU had 97 medication errors that reached the patient, representing a medication error rate of 0.49 per 1000 medications administered. A task force was formed to address medication errors, with a goal to increase awareness and reporting of medication errors. In 2015 followed by a reduction goal of 10% in 2016 and 2017 from the previous year’s baseline. **Summary:** Medication errors were identified through the voluntary medication error reporting system (Quality and Safety Review System [QSRS]). The nurse-led interdisciplinary team reviewed all medication errors and categorized them into the following categories: prescribing, dispensing, administration and monitoring. Medication administration, including double checks, pump programming, and miscalculations, had the highest error rate, so interventions were focused on this area first. Targeted interventions included medication audits, one-on-one nursing education, weekly huddle topics, and sharing of monthly errors to raise awareness. Medication audits highlighted 2 other opportunities for improvement. First, many continuous infusions were infusing past time of expiration. Nurses reported difficulty identifying when a medication was to expire. A PDSA cycle to test change-day stickers was completed with a recommendation to label medications with a colored change-day sticker. This change eliminated errors from expired infusions. Second, continuous infusion orders had dose ranges without titration instructions. Medications appropriate for range orders were identified. Titration “smart phrases” were developed in the order profile in the electronic health record. **Evaluation/Outcome:** As anticipated, due to heightened awareness of this initiative, reported medication errors increased from a baseline rate of 0.49 per 1000 medications administered in 2014 to a rate of 0.69 per 1000 in 2015. The goal for 2016 and 2017 was a 10% decrease each year, while maintaining QSRS reporting. The 2016 error rate was 0.64 per 1000 administrations and the 2017 rate to date is 0.45 per 1000 administrations, representing a 7% and 30% reduction, respectively. Reporting rates have remained consistent over this period. The medication team has been instrumental in creating a non-punitive environment encouraging staff to self-report and in making the medication administration process safer in the PICU.

**EB64: Reducing Prolonged Ventilation After Cardiac Surgery Through Interprofessional Collaboration**

Gary Meredith; East Alabama Medical Center, Opelika, AL

**Purpose:** Prolonged mechanical ventilation times of more than 24 hours after coronary artery bypass graft (CABG) have been linked to poorer outcomes, increased risk of hospital-acquired pneumonia, longer time in the intensive care unit (ICU), and longer hospital length of stay. Recognizing this, the staff and physicians of our operating room (OR) and cardiovascular ICU collaborated to reduce the occurrence of prolonged mechanical ventilation times of patients after CABG surgery. **Summary:** Through participation in the Society of Thoracic Surgery National Database and continuous review of procedures and outcomes during a multidisciplinary, quarterly cardiovascular surgery process meeting, we identified the opportunity to improve prolonged ventilation times longer than 24 hours in patients after CABG surgery. Review of current processes and literature helped us identify 5 areas of focus to improve outcomes. We focused on...
preoperative evaluations to include bedside pulmonary function tests and appropriate history to identify patients in need of preoperative pulmonary optimization. Collaboration with respiratory therapists focused on standardizing ventilation-weaning protocols and improving communication between nursing staff and respiratory therapists. Coordination with anesthesiologists focused on optimizing preoperative sedation standards and timing of anesthesia reversal. Intraoperatively, evidence indicates that overall time in the OR and undergoing cardiopulmonary bypass contributes to prolonged ventilation times. Our surgeons and the OR team worked to streamline their processes to optimize those times. Postoperatively, we identified intra-aortic balloon pumps as a root cause of some prolonged intubations and worked to improve education on weaning for discontinuation when appropriate. Evaluation/Outcome: Evidence shows that intubation times of less than 24 hours in patients who have undergone CABG leads to faster recovery times, fewer complications, and decreased overall length of stay. Through this process, we saw a 39.6% drop in prolonged ventilation from 2014 to 2016. Concurrently, we saw a 64% decrease in reintubations, 8.1% reduction in mean postoperative length of stay, 18.6% reduction in mean ICU length of stay, and 18.5% decline in readmission rates.

EB65: Face-Down Ventilation: Ins and Outs of Prone Therapy
Elizabeth Duxbury; Rochester General Hospital, Rochester, NY

Purpose: To showcase the medical intensive care unit trials and tribulations with educating, implementing, and refining our prone practices to achieve optimal oxygenation in patients with acute lung injury or acute respiratory distress syndrome, we are sharing the information and clinical aspects we have learned over the last 2 years in our quest to achieve optimal oxygenation in patients with these conditions. Summary: Reports in the literature support the use of the prone therapy in an attempt to improve oxygenation in patients with acute lung injury or acute respiratory distress syndrome. Typically, prone therapy is used as an adjunct short-term supportive therapy in an attempt to recruit the alveoli to improve gas exchange in the critically ill patient. As a multidisciplinary team, we have been successful at implementing prone therapy quickly. We are currently trending ventilator-days, successful extubation, use of noninvasive ventilation, complications, number of days free from organ dysfunction, ventilator settings, arterial blood gas measurements, length of stay, cost per case, discharge status, and mortality at 28 and 90 days, as well to provide data to justify in-hospital storage of the prone bed. Our average time to identification of indication for prone therapy and having the patient situated in the prone position is less than 1 hour. National mortality rates for acute respiratory distress syndrome are estimated at 20% to 40%. We are finding similar results in the literature that show a decrease in mortality rates when patients are placed in the prone position early and for significant amounts of time. Evaluation/Outcome: The prone bed is kept in-house, which costs the hospital more than $1000/day when it is in use. Storage of the bed in-house reduces the time from when the bed is ordered to placing the patient on the bed from over 4 hours to 1 hour. We have shown a reduction in mortality rates in the intensive care unit of 25% and overall hospital mortality rates by 19% when the protocol is initiated early and maintained. We have significantly improved 10-day survival among high-risk patients, reducing ventilation time by 17%, intensive care unit length of stay by 26%, and hospital length of stay. We look forward to the opportunity to share this nursing practice and protocol.

EB66: A Unique Approach to Reducing Blood Culture Contamination in Medical Intensive Care Units
Jennifer Barna; Yale New Haven Hospital, New Haven, CT

Purpose: In a 1541-bed academic medical center, central catheter–associated blood stream infection (CLABSI) rates were higher on the combined medical intensive care and step-down unit (MICU/SDU) campus A (floor 1, 1.8%; floor 2, 2.3%) than on the MICU/SDU on campus B (floor 1, 0.5%; floor 2, 1.7%). Root cause analysis of the units at campus A showed that blood culture (BC) contamination may cause some laboratory tests to indicate false-positive CLABSI results. All staff at campus A collect samples for BCs, whereas this task is performed by a phlebotomy team on campus B. This project’s purpose was to examine the effect of a new protocol on BC contamination rates with a dedicated BC team at campus A. Summary: False-positive, or contaminated, BCs are due to the presence of skin or environmental organisms not found in the patient’s bloodstream.
Hospital BC contamination rates range from 0.6% to 26%. The American Society of Microbiology and the Clinical Laboratory Standards Institute states the BC contamination rate should be below 3%. Recent evidence indicates that the use of phlebotomy teams to acquire BCs is best practice for reducing contamination. Therefore, a new BC protocol including a BC team was implemented for campus A’s MICUs/SDU. The BC team comprised nonlicensed assistive personnel from each unit selected for their phlebotomy expertise. Charge nurses or medical staff provide backup if the BC team is unsuccessful in obtaining BCs or cannot acquire BCs within 30 minutes. An arterial puncture performed by medical staff is used on rare occasions when venous access is unsuccessful. Because medical staff members are transient in the units, they are supervised by the BC team or charge nurse to assure adherence to the BC collection procedure, including maintenance of sterility and skin preparation. Before implementation of the new protocol, involved staff completed BC competency training. **Evaluation/Outcome:** Before and after comparison showed that both floors at campus A had a dramatic decrease in BC contamination rates after the protocol was implemented. The rate decreased by 62% (from 1.8% to 0.6%) on floor 1 and by 54% (from 2.3% to 1.6%) on floor 2. Campus B rates remained stable. Thus, contamination rates at both sites were now equivalent. Membership on the BC team empowered nonlicensed staff to own their practice and to oversee medical staff’s BC techniques. Our results demonstrate the efficacy of the new protocol with a BC team designed to ensure adherence to evidence-based procedures. This cost-neutral solution is a viable method to reduce BC contamination in hospitals without phlebotomy teams.

**EB67: Hand Hygiene Campaign Drives Sustained Results to Reduce Infections**

Catrina Weatherby, Stacy Meyers, Erika Setliff, Deann Welke; Carolinas HealthCare System NE, Concord, NC

**Purpose:** In a 35-bed medical-surgical ICU (MSICU) in a community setting, hand hygiene (HH) validation studies revealed low compliance with HH rates across all disciplines. Our aims were to create a culture of accountability and equip and empower teammates to improve and sustain HH rates above the target levels (hospital target, >75%; ICU stretch target, >90%) to improve patient outcomes. A secondary end-point was to monitor the effect of the program on reported infection rates in the MSICU. **Summary:** An interdisciplinary HH Task Force evaluated evidence and tools from the World Health Organization (WHO) and Centers for Disease Control and Prevention guidelines for HH along with other successful models. A fun theme, based on a popular animated movie, was selected. Many activities, rewards, and slogans have come from this theme to keep the campaign at the forefront of the staff’s attention. We incorporated the following key elements in this ICU program: shared accountability, engaging and connecting staff with the initiative and its effect on patients, consistent emphasis, reminders, and celebration of positive outcomes. HH pledges and a painted handprint on a pledge board were signed during the initial phase. Mandatory “back to the basics” education was delivered to all staff, including the “Five moments for Hand Hygiene in Healthcare.” Staff were coached on how to professionally hold all disciplines accountable. Weekly efforts are ongoing and include leader rounding with snacks and prizes aligned with the theme, communication of audits, and incorporating trends on the themed “Meter.” Peer competitions occur regularly to keep the HH message and conversation current and ongoing. Results of unit audits and quarterly validation studies are shared, evaluated for trends, and celebrated on an ongoing basis. **Evaluation/Outcome:** HH Taskforce interventions began in September 2016 and continue to date. Results greater than the hospital goal of 75% compliance have been sustained, as reported through the past 5 quarterly HH validation studies; average compliance is 85.1%. We compared data for January through August from 2016 and 2017 to evaluate the effect of the improved HH on hospital-acquired infections. There were 2 more central catheter–associated blood stream infections (CLABSIs) in the postintervention timeframe (n = 3 total); a separate group was formed to determine evidence-based CLABSI interventions. All other infection-related data (preintervention data reported first, then postintervention data) showed a favorable trend, including *Clostridium difficile* infection (n = 8; n = 4), methicillin-resistant *Staphylococcus aureus* infection (n = 1; n = 0), catheter-associated urinary tract infection (n = 2; n = 1), infection-related ventilator-associated complication (n = 11; n = 4), and possible ventilator-associated pneumonia (n = 1; n = 0).
**EB68: Extracorporeal Membrane Oxygenation Education for Critical Care Nurses**

Mical Parker; Medical Univ of South Carolina, Charleston, SC

**Purpose:** Extracorporeal membrane oxygenation (ECMO) is the most invasive, demanding, and lifesaving therapy offered to patients in the intensive care unit (ICU). Despite significant risk and reward, ECMO’s low-volume, high-acuity nature coupled with a historic lack of guidelines for training nurses on ECMO-specific nursing care left registered nurses (RNs) undereducated on how to best care for critical patients receiving this treatment. ECMO for Critical Care courses were created to meet the specific educational needs for each ICU’s nurses based on the ECMO modalities and patient populations they care for. **Summary:** Data abound to support the relationship between nurse education and advancing nursing practice with improved patient outcomes. However, guidelines and evidence for how to best educate critical care bedside RNs to care for patients receiving ECMO have not been readily available. To build the ECMO for Critical Care course, Extracorporeal Life Support Organization tenets for ECMO training were adapted to target RNs with more than 1 year of ICU experience. Clinical expert feedback tailored course sessions to neonatal, pediatric, and adult ICUs. Key education included ECMO physiology, pump properties, candidacy and exclusion criteria, weaning and decannulation, and long-term outcomes. Emphasis is placed on the effect of ECMO on each body system and the related assessment, care considerations, and interventions that we conclude constitute best practice. Topics unique to patient populations (ie, ECMO in single ventricles) are presented. Interactive course conversation regarding experiences caring for patients receiving ECMO enriches and exemplifies teaching points. Hands-on time deepens understanding of the pump-patient interface and provides opportunity for nurses to practice emergency response in a low-stress setting. To further boost the value, the course is approved for 4 South Carolina Nurses Association continuing education credits. **Evaluation/Outcome:** All participants reported intent to use course information in practice settings. Comments elaborated on appreciation of the educational opportunity and ways RNs plan to change their practice. Pre- and postcourse Likert scale scores showed more than 1 point increase in measured categories: understanding ECMO physiology, mechanics, multisystem assessment, nursing care, and starting and stopping ECMO. Interestingly, despite RNs reporting before the course that they felt confident in their ability to care for patients receiving ECMO, precourse test scores to assess ECMO content knowledge averaged only 53%. After completing the course, confidence levels rose and test scores jumped over 40% to an average of 94% accuracy.

**EB69: Implementation of a Nurse-Driven Bedside Sepsis Checklist to Improve Early, Goal-Directed Therapy**

Nimeet Kapoor, Tracey Wilson; University of Maryland Medical Center, Baltimore, MD

**Purpose:** Sepsis is a national health care problem and results in increased hospital admissions, length of stay, mortality rates, and, consequently, increased health care costs. The primary goal of this practice initiative was to increase identification and early treatment of sepsis in the medical intensive care unit (MICU) through the development of an interdisciplinary sepsis committee and the implementation of staff education, a bedside checklist, and standardized documentation. **Summary:** In 2016, the Centers for Medicare and Medicaid Services (CMS) recognized identification and early treatment of sepsis as a core quality measure. To meet this core measure, a nurse-led interdisciplinary sepsis committee that included nurse practitioners, nurses, and physicians was created in the MICU. The committee developed a bedside sepsis checklist and planned an education template to successfully implement this evidence-based practice (called the Surviving Sepsis Campaign). The checklist is initiated by nurses to identify time zero and to facilitate communication with physicians to treat sepsis in a timely manner. Nursing education detailed how to screen for and treat sepsis, and identify time zero. Time zero is initiated when a patient meets 2 or more systemic inflammatory response syndrome criteria, has a suspected infection, and shows signs and symptoms of organ dysfunction. When time zero is identified, the 3- and 6-hour treatment bundles are started. All MICU staff were educated on the sepsis initiative and the core measures. The required education sessions allowed staff to discuss these topics and engaged nursing staff in case scenarios. **Evaluation/Outcome:** Using the sepsis checklist, nurses appropriately identified sepsis and initiated evidence-based treatment...
EB70: Staffing Innovation: An Algorithmic Solution to Staffing a Mixed-Acuity Intensive Care Unit

Monica Wininger; Rose Medical Center, Denver, CO

Purpose: Staffing a mixed acuity medical/surgical intensive care unit (ICU) using a traditional grid matrix presents challenges, including an unbalanced skill mix for the number of patients. The development of an algorithm-based staffing model has been successful in overcoming the challenge of appropriate staffing. Staffing according to the algorithm has shown additional success in improved staff engagement, physician satisfaction, and management of productive hours. Summary: In May 2015, the ICU and intermediate care unit (IMC) combined into 1 critical care department. The department was left with 2 levels of acuity, which posed a challenge for appropriate staffing with a traditional grid matrix. To support the autonomy of the clinical nurse leaders in making staffing decisions, a staffing algorithm was developed that implemented a decision process with a defined number of staffing resources. This allowed for an appropriate skill mix including charge nurses, bedside nurses, and certified nursing assistants. The algorithm outlines guidelines directing the decision maker to advance through the algorithm in a specific direction. A grid matrix is included as a visual resource that lists the maximum number of staff members allotted for a corresponding number of patients. The matrix includes all staff roles (ie, charge nurse, bedside nurse and certified nursing assistant) into a total number of available staff members. A draft algorithm was presented to the clinical nurse coordinators responsible for staffing each shift. They provided their input on revisions to the algorithm and finalized the flow chart. Evaluation/Outcome: To evaluate this new staffing process, our productivity standard is used as a measure of success. A productive-hour average of 6 pay periods before implementation was negative 1.17 full-time equivalents (FTEs) compared with postimplementation, which is positive 0.53 FTEs. A positive productive variance allows for additional departmental benefits, including additional hours for education, staffing of additional resources, and increased flexibility of shift-to-shift staffing decisions. In 2018, the employee survey statement “I have enough people in my workgroup to handle the load” will be evaluated as a further measure of success.

EB71: Unit Accountability: Achieving Better Outcomes Through Interprofessional Collaboration

Nicole Sunderland; Penn State Hershey Medical Center, Hershey, PA

Purpose: To help improve the quality and operational performance across the continuum of care, the neurosciences critical care unit (NCCU) accountability team (UAct) was developed. This team includes representatives from physician leadership; nursing; respiratory, physical, and occupational therapy services; and other ancillary services. The team has the responsibility for developing practice site-specific initiatives designed to improve quality, patient safety, and the patient experience. Summary: Beginning with fiscal year 2014, the NCCU had a total of 10 cases of attributed ventilator-associated pneumonia (VAP) and 51 attributed ventilator-associated events (VAEs). To decrease ventilator harm, the NCCU developed a 12-month commitment to participate with the Comprehensive Unit-Based Safety Program for Mechanically Ventilated Patients and Ventilator-Associated Pneumonia. Steps included assessing and addressing delirium using the Confusion Assessment Method for the ICU; Implementation of a Wake Up and Breathe Protocol including spontaneous awakening and spontaneous breathing trials (SBTs) daily at 5 AM; confirming head-of-bed (HOB) elevation; early mobility by staff, completing walking vest and RoWalker walking aid education and a shared out-of-bed responsibility between day and night shifts. Evaluation/Outcome: The NCCU sustained a monthly compliance rate of HOB at 100%; compliance rate of SBT performed with sedation off sustained at 100% from January 2016 to August 2016; Family Involvement Menu initiated by NCCU Integrated Shared Governance Council in August 2016; 38% decrease in VAEs and 57% decrease in VAP cases between September 2015 and September 2016; and a marked reduction in ventilator-associated events.
in unplanned extubations and reintubations. Working collaboratively allows the physician, nurse, respiratory therapist, and other quality team members to develop closer working relationships. The team helps create a sense of shared accountability for unit performance.

**EB72: Impacting Patient Outcomes by Bringing Evidence-Based Guidelines to the Bedside**

Mary Cronin; Beth Israel Medical Center, New York, NY

**Purpose:** To explicate the significant role nurses in the cardiac catheterization laboratory play in the prevention of radial artery occlusion (RAO) in patients after they have undergone cardiac catheterization. A physician reported to the Unit Council a significant increase in RAO from 5% to 10%. In accordance with the Society for Cardiovascular Angiography and Intervention (SCAI) guidelines, this physician’s patients undergo Doppler ultrasound evaluation of RAO at their initial follow-up.

**Summary:** The Unit Council created a working task force to review our practice. We initiated a review of the most recent guidelines (SCAI), pertinent research studies (PROPHET [Prophylactic Hyperperfusion Evaluation Trial]), and our current policies and procedures. We determined that our postprocedural assessment was inadequate to determine the patency of the radial artery, and the significance of this complication was not fully appreciated. Educating nurses about the physiology of collateral circulation in the hand and how previous techniques were inadequate to determine the patency of the radial artery were paramount to the success of change. The preferred method of assessment is termed patent hemostasis and uses the Barbeau test; it is the cornerstone of accurate assessment in this population. Through education via a series of in-service programs, the bedside nurses demonstrated competency in managing hemostasis and maintaining antegrade radial artery flow. They were empowered through education to intervene and act autonomously. We analyzed retrospective observational data from ultrasound results collected by the physician’s office over 32 months, and compared the incidence of RAO in this patient population from the onset of our change in practice with most current data.

**Evaluation/Outcome:** Data collected from January 2015 until December 2016 revealed a significant decrease in RAO achieved after the initiation of a collaborative approach. There was a total of 1052 cases in 2015, with a total if 39 RAOs (3.7%). The total number of cases in 2016 was 1070, with a total of 26 RAOs (2.47%). Inclusion of the nurses who are proficient at evaluating the radial artery access site after the procedure and can intervene to prevent RAO uses clinical expertise and results in positive outcomes, which include achieving and maintaining a decrease in the incidence of RAO below the national average.

**EB73: It’s Time to Stop Pressing Snooze: Combatting Alarm Fatigue in Critical Care**

Jennifer Healy; Bridgeport Hospital, Bridgeport, CT

**Purpose:** Bridgeport Hospital (BH) identified alarm fatigue as a patient safety priority. A multidisciplinary team identified that the bedside physiologic monitors in the critical care units contained different alarm-parameter defaults, and that individualization of alarm parameters to a patient’s clinical condition was not a consistent behavior. The purpose of this project was to reduce alarm fatigue by decreasing false and nonactionable alarms triggered by bedside physiological monitors. **Summary:** Interventions included education about individualization of alarms and standardization of the critical care bedside physiological monitors’ default alarm parameters. As part of 2016 critical care mandatory education, every critical care nurse attended a session that reviewed alarm fatigue and the new health system policy, and completed return demonstration of alarm individualization. Using evidence-based guidelines, the team developed standardized default alarm parameters for all 4 of the critical care units at BH. In September 2016, duplicate alarms were switched off (ie, irregular heart-rate alarm turned off) and alarm ranges were safely adjusted (ie, the heart rate high parameter was changed from 120 to 140 bpm). According to data on 4 alarm parameters pre- and postimplementation, there was an overall decrease in the 4 measured alarms by 42%, from 2653 alarm occurrences to 1544 alarm occurrences. Individually, the irregular heart rate alarm had the largest reduction of occurrences (51%), followed by the heart rate high alarm (45%) and the oxygen saturation low alarm (41%). The rate of premature ventricular contraction alarm events increased after the intervention from 26 occurrences to 198. **Evaluation/Outcome:** The default alarm-parameter standardization and education on alarm individualization led to a 42% overall reduction of the measured alarms. With no clinical outcomes notes, it can be inferred that the eliminated alarms were false.
or nonactionable alarms that would have contributed to alarm fatigue. Limitations to this project include a small sample size, no adjustment for population variables before and after the intervention, and being unable to determine if 1 of the interventions had a greater influence on alarm reduction compared with the other. These data, education content, and monitor default settings can be replicated easily to reduce alarm fatigue in other critical care units.

**EB74: Adults Aren’t Just Big Kids: Improving Adult Care in a Pediatric Cardiac Intensive Care Unit**

Jeanne Braby, Ashley Servi; Children’s Hospital of Wisconsin, Wauwatosa, WI

**Purpose:** Increasing numbers of patients with congenital heart disease are surviving into adulthood yet still receive care in pediatric hospitals. This population has unique needs and treatment guidelines. Many pediatric nurses are unfamiliar with aspects of adult care.

The purpose of this evidenced-based project was to standardize and improve the quality of interdisciplinary care for adult patients (age ≥18 years) in a pediatric cardiac intensive care unit (CICU). **Summary:** The Iowa Model of Evidenced-Based Practice was the framework for this project. An interdisciplinary team was formed with nurses, pharmacists, physical therapists, social workers, and providers. The group (which included staff with adult care experience) identified 3 areas of improvement opportunity: awareness of advanced directives and completion of consent for release of information (privacy form), venous thromboembolism (VTE) prophylaxis, and improvement in mobility. These areas of concern were supported by the literature. Retrospective chart review (n = 35) on the 3 focus areas revealed the privacy form completion rate was 74%; VTE prevention with sequential compression device (SCD) use was inconsistent at 63%; and first time out of bed was a mean of 33 hours. These 3 areas were the focus of the interdisciplinary adult care guideline (ACG) that was initiated. An adult order set was created in the electronic health record for provider use. A pretest was done to assess CICU nurses’ knowledge of adult care. The nurses then received education on the ACG during the annual staff education day. Post-tests were done to assess effectiveness of education and sustainability. Chart audits were done to assess patient outcomes. **Evaluation/Outcome:** Nurses’ comprehension of adult care improved between the pretest (64%; n = 102) and post-test (97%; n = 105). A repeated post-test at 1 year showed sustainment of knowledge (95%; n = 103). Chart audits were done at 2 (n = 11), 6 (n = 18), and 13 (n = 33) months after implementation of the guidelines. Completion of privacy forms was 92%, 95%, and 91%, respectively. SCD use was at 92%, 78%, and 76%, respectively. First time out of bed was at 28, 27, and 30 hours, respectively. A decreased trend in length of stay was also noted; however, data were not analyzed for severity of illness. Recommendations include ongoing staff education and further development and expansion of the ACG to include other areas in the hospital where adult patients are seen.

**EB75: Creating Best Practice in the Pediatric Intensive Care Unit Through Early Mobilization of Postoperative Patients**

Mary Schafer, Kristin Laurino; Cohen Children’s Medical Center, New Hyde Park, NY

**Purpose:** Our aim was to increase the rate of mobilization of postoperative patients within 24 hours by 20%. Early mobilization can reduce complications including atelectasis, ventilator-associated pneumonia, delirium, muscle weakness, and long term physical dysfunction. It has been found to improve cardiopulmonary and neuromuscular function and levels of wakefulness, increase independence, and decrease length of stay. **Summary:** We conducted a chart review of 100 surgical patients to review how many patients had orders to get out of bed (OOB), if a referral order for occupational therapy (OT) or physical therapy (PT) was present, and the actual number of patients who were OOB within 24 hours. In our literature review, we found only 2 articles on early mobilization of the pediatric patient, so we assembled an interdisciplinary team to discuss what needed to be implemented to improve early mobilization. During phase 1, we collaborated with pediatric intensive care unit attending physicians and surgeons to develop an early mobilization tool. After performing a small sample study of 3 patients to evaluate the tool, we then educated our team on the benefits of early mobilization and how to use the tool. In phase 2 of our project, we developed a list of alternative activities for patients who did not fit the criteria for getting OOB in the first 24 hours, by collaborating with OT/PT. We implemented the tool and collected data on the next 100 surgical patients admitted to our unit. We highlighted the benefits of early mobilization on alarm reduction compared with the other. These data, education content, and monitor default settings can be replicated easily to reduce alarm fatigue in other critical care units.
mobilization during preshift briefs throughout the study. We also integrated this into our hand-off tool used at change of shift and into our multidisciplinary rounds to create situational awareness. **Evaluation/Outcome:** Evaluation revealed 1 of our biggest opportunities to achieve our goal was to educate our families. Therefore, a brochure was created to educate them on the benefits of early mobilization. This is being reviewed by our Family Advisory Council. The results of our study showed a statistically significant change in the number of patients OOB in 24 hours. Before the intervention, 43% of our patients had OOB orders; whereas after the intervention, 65% had OOB orders. Before, 37% of our patients were OOB; afterward, 73% of our patients were OOB. This demonstrates a 50% increase in early mobilization of our postoperative patients.

**EB76: Intensive Care Unit Nurses Orchestrate a More Instrumental Ventilator-Weaning Procedure**
Maureen Allain; North Bay Medical Center, Fairfield, CA

**Purpose:** Mechanical ventilation causes anxiety to many patients in the intensive care unit (ICU). Weaning, or the gradual decrease in ventilator assistance, may lead to an increased use of sedative medications to decrease anxiety during the process and lead to prolonged mechanical ventilation. Music is a nonpharmacological intervention that may benefit patients during weaning from mechanical ventilatory support. **Summary:** Music can have a substantial positive healing influence on patients’ lives. Music is a meaningful stimulus for releasing thoughts and feelings and can have a powerful effect on patients who are critically ill. Brain function physically changes in response to music. According to Bunt (1994), music with steady, slow, and repetitive low-pitched rhythms is thought to exert a hypnotic effect that contributes to relaxation and anxiety reduction through cognitive quieting and inducing altered states of consciousness. Nonlyrical music via headphones was provided to the patients in the study during the weaning process. The music therapy project was introduced to nurses and champions at staff meetings before implementation. A step-by-step guide was developed and key personnel were recruited as change champions, including lead nurses, respiratory therapists, and ICU clinical nurses. Nurses and key staff were educated about the project during staff meetings and one-on-one conversation. **Evaluation/Outcome:**

To assess nurses’ understanding of the benefit of music therapy, a knowledge survey was conducted before and after implementing the new practice. Mean scores on the surveys conducted before and after implementing the project were 52.5% and 89%, respectively. A single, blinded, randomized study of 48 patients showed 58% of the patients who listened to music were extubated on the first trial, compared with 33% of the patients without music during the first extubation trial (P = .04). Music therapy is now available on the unit to be provided to all patients who are being weaned from mechanical ventilation.

**EB77: Reducing Caregiver Stress: Why We Focus on Family Members and Our Nurses to Improve Patient Care**
Jordan Lewis, Christopher Rizzo, Shireen Daugherty; The James at the Ohio State University Wexner Medical Center, Columbus, OH

**Purpose:** With the establishment of an oncology-specific intensive care department in our new hospital, the opportunity arose to improve our standards of care. The opportunity to support our patients, families, and fellow nurses emotionally in the process of intensive care and end-of-life care became evident. The purpose of our initiatives was to use our relationship-based care model to minimize caregiver burnout in an intensive care unit (ICU) that has higher than average patient acuity and mortality. **Summary:** Data in the current literature indicate caregiver stress is an important topic for family members and nursing staff. Many of our patients experience significant critical illness and prolonged ICU stays. Because of high acuity and mortality rates, we began experiencing compassion fatigue, burnout, and a high level of nurse turnover. Moreover, we recognized a significant need for resources to help family members navigate the critical illness and possible death of their loved ones. For staff, our new Stress, Trauma, and Resilience (STAR) program provides support for overall health and well-being. The program provides debriefing and support after critical incidents or difficult patient situations. Weekly “Tea Times” transform our conference room into a relaxing oasis for staff. It provides calming music, relaxing activities, and tea and snacks. For our families, we developed a comfort cart to use as a patient is transitioned to palliative care. The cart has blankets, prayer books, and other items used to provide comfort to patients and
families. Every Wednesday, we provide art therapy in our waiting room and every Friday we hold a family support group. These activities give family members a safe and welcoming environment in which to express their feelings. **Evaluation/Outcome:** Our STAR program has received 100% positive feedback from staff and has strengthened teamwork and improved communication. Since its implementation, we have had a significant decrease in burnout and staff turnover. Tea Time has had such a positive effect on staff, it has been approved as a weekly occurrence and there are plans for it to be rolled out on other units. The staff has also reported 100% positive feedback from families when presented with items from the comfort cart. After our lead, many other units in the hospital are hoping to incorporate the use of a comfort cart on their units. The art therapy and family support group are new implementations, but both groups have reported high attendance.

**EB78: Guided by Why: A Nurse- and Respiratory Therapist–Driven Protocol to Decrease Ventilator-Associated Pneumonia in a Medical Intensive Care Unit**

William Furdyna, Lisa Blystone; Inspira Medical Center Vineland, Vineland, NJ

**Purpose:** Patients requiring mechanical ventilation experienced delays in interventions while waiting for pulmonologists to make rounds in the medical intensive care unit (ICU). This delayed weaning of sedation, ventilator-setting changes, and increased length of time receiving ventilatory support ultimately increasing the risk of ventilator-associated pneumonia (VAP) developing. The goal of the project was to decrease the length of time between patient readiness to wean and extubation in the medical ICU to reduce risk of VAP. **Summary:** In collaboration with the clinical outcomes manager, registered nurses (RNs) and respiratory therapists (RTs) assessed current practices of the care of patients receiving mechanical ventilation. Inconsistencies in weaning and sedation practices were discovered and in improvement efforts, the unit participated in the Johns Hopkins Armstrong Institute for Quality Improvement project for mechanical ventilation. Weaning a patient from ventilatory support requires a competent combination of proven protocols and teamwork among RNs, RTs, and pulmonologists. With an interdisciplinary approach, best practices for mechanical ventilator care and guidelines for improvement were reviewed and an RN- and RT-driven protocol for a spontaneous awakening trial (SAT) and a spontaneous breathing trial (SBT) was created. This trial was implemented when a screening for readiness to wean was assessed each morning and, once met, the SAT and SBT would be initiated. The pulmonologist was notified of patient 1 hour after trial start and, when indicated, orders were received to either extubate or continue with mechanical ventilation. **Evaluation/Outcome:** The interdisciplinary team collaboration of an RN- and RT-driven protocol improved the timely identification and treatment of patients who were ready be weaned from mechanical ventilation and extubated, leading to a decreased risk of VAP. Total ventilator-days decreased, despite increases in patients receiving mechanical ventilation, as did overall hospital length of stay for those patients who had received mechanical ventilation during their stay. As a result of the project, this protocol was implemented in 4 ICUs across the organization. The occurrence of VAP decreased from 4 cases before the initiation of the protocol to none to date after the protocol was implemented.

**EB79: Dear Diary: I Know What You Did While You Were in the Intensive Care Unit**

Deborah Kohm, Rayna Sloane, Nancy Eastman; Banner Baywood Med Center, Mesa, AZ

**Purpose:** Patients and families experience a collection of health disorders known as postintensive care syndrome. They can have cognitive dysfunction and mental health problems, resulting in confusion, amnesia, anxiety, depression, and inability to differentiate between false and real memories. The purpose of our project was to implement an intensive care unit (ICU) diary intervention at a 650-bed academic, level 1 trauma center part of a multisite collaborative project with the Society of Critical Care Medicine (SCCM). **Summary:** As an accepted participant of the SCCM initiative, our facility was 1 of 10 teams simultaneously implementing ICU diaries. Multisite trainings and conference calls helped support the initiatives as teams learned from each other. Our team conducted a comprehensive review of the literature. Evidence synthesis from 58 articles demonstrated diaries provide documentation of key milestones, daily activities, are therapeutic for patient and family, help decrease anxiety and confusion for family members associated with lengthy hospitalizations, and help patients fill in memory gaps. In addition, nurses can use diaries to empower families with a way to help their loved one
during a difficult time. A multidisciplinary team developed our ICU diary to help the patients understand the time they spend in the ICU and provide the families a therapeutic method for coping. In addition, the team developed a toolkit that included staff lesson sheets, family education, exclusion criteria, and a tracking tool. Education for staff was provided through walking rounds, unit poster boards, the use of social media, staff meetings, and weekly rounding to help staff implement the journals and provide real-time support. **Evaluation/Outcome**: Initial success of the project was achieved with selection of the facility team by SCCM for inclusion in the collaborative project. Successful implementation of the diaries was achieved through unit adoption and with staff and family education and subsequent dissemination. The project was initially funded for 200 diaries. Of the 200 diaries, the team implemented 120 (60%). Retrospective analysis of limitations included lack of staff buy-in and English-only materials. The analysis outlined areas of opportunities and will be shared with the collaborative group.

**EB80: Optimization of a Sepsis Screening and Treatment Process**
Patricia McCabe; Washington Hospital Center, Washington, DC

**Purpose**: Early recognition and treatment improve sepsis outcomes. This project used the Systems Usability Scale (SUS) to assess the usability of the current electronic sepsis screening tool and treatment process by the Rapid Response Sepsis Team (RRST). This team uses health information technology (HIT) to screen and guide the treatment of patients with sepsis. Optimization of HIT is crucial to ensure HIT assists the provider to improve patient outcomes during their acute care experience. **Summary**: An electronic sepsis screening tool and process were developed based on HIT meaningful use goals and the Surviving Sepsis Campaign (SSC) International Guidelines for the Management of Patients with Severe Sepsis and Septic Shock. Usability is a key component of HIT meaningful use. Suboptimal usability of the tool and process will affect efficiency and patient outcomes. To optimize patient outcomes, usability was assessed to determine if the current tool and process affected hospital sepsis mortality and compliance rates relative to the SSC guideline metric. The RRST completed the SUS Survey Tool. The usability score for the tool and process was 61.54, a suboptimal usability score. On the basis of this score, the Sepsis Committee and RRST reviewed the SUS results, mortality rates, and compliance rates with the components of the SSC guidelines. Barriers to the treatment and process were discussed and additional improvement projects were developed. The improvement projects included addition of advanced practice nurses (APCs) to the RRST, a phlebotomist pager alert to collect patients’ blood samples to determine lactate levels, and a dedicated pharmacist to assist the team with antibiotic assessment, choice, and delivery. **Evaluation/Outcome**: Outcomes included a reduction in sepsis-related mortality rates. Improved metrics included increases in the percentage of blood samples for measurement of lactate levels, sepsis order set implemented, RRST alerts responded to by nurse and APCs, and overall core measures met after implementation of improvement projects. The preout- come data were gathered in 2016 (June, July, and August) and postimplementation data were collected in 2017 (June, July, and August). Sepsis mortality rates ranged from 15.6% to 12.9%. The percentage of lactate levels measured ranged from 40% to 75% and the range of implemented sepsis order sets was 1% to 7%. The percentage of alerts responded to by the RRST nurse ranged from 42% to 60.1% and by the APC from 0% to 38%. The percentage of overall core measures met ranged from 9% to 25%.

**EB81: Implementation of Strategies to Reduce Sitter Observation Hours in a Telemetry Unit**
Laurie Annett, Jessica Mackedanz-Johnson; St Cloud Hospital, St Cloud, MN

**Purpose**: The use of physical restraints is discouraged nationwide, creating a need to find alternatives to promote patient safety. Our hospital, including the telemetry unit, has noted an increase in sitter observation use. This alternative has proven to be costly for our organization. The purpose of this project was to implement strategies to reduce sitter observation hours in efforts to reduce overall costs to the organization. **Summary**: A sitter is a trained staff member who observes for real or potential threats to patient safety and protects the patient and staff. Indications for sitter observation include agitation, physical aggression, confusion, disorientation, delirium, suicidal ideation, and 72-hour holds. Sitter hours/full-time equivalent (FTE) are monitored at the unit level and reported to Resource Management, a
hospital leadership committee. The overall hospital goal for fiscal year 2017 was to reduce sitter use by 3 FTEs. Telemetry averaged 200 hours per 0.4 FTE per quarter in 2015. In quarter 2 of 2016, sitter use increased to 490 hours per 0.4 FTE and to 779 hours per 1.51 FTE in quarter 3. The cost of 1 FTE is approximately $32 760. Based on these data, unit leadership met to identify strategies to reduce sitter hours while maintaining patient safety. Strategies included frequent observation, re-evaluating the need for the sitter every 4 hours, and use of video observation and/or use of family members. Staff received coaching to begin with basic interventions and progress to the next level until the safest, least restrictive amount of observation was achieved. Staff were informed of these strategies through unit meetings, education, email, and newsletters. Evaluation/Outcome: Since implementation of these strategies, the telemetry unit has reduced the number of sitter hours from 779 per 1.52 FTE in quarter 3 of 2017 to 256 hours per 0.7 FTE in quarter 4 of 2017. Preliminary reports for quarter 1 fiscal year 2018 indicate 141 hours per 0.4 FTE. Data for September 2017 are pending. Sitter use continues to be monitored and reported at the unit and hospital levels in efforts to continue to promote a downward trend in use and, thus, an increase in cost savings.

EB82: Hire, Develop, and Retain: Strategies to Improve Nurse Retention in the Critical Care Environment

Heather Pena, Kelly Kester, Stacey O’Brien, Rebecca Clearman-Sky; Duke University Hospital, Durham, NC

Purpose: Many hospitals struggle with nurse retention and new graduate nurses are being employed in intensive care units (ICUs) more frequently. In 2015, the average turnover of critical care nurses was 17.7%, with the overall turnover of nurses in their first year of practice being 29.2%. In 2014, the turnover in our cardiothoracic intensive care unit was 52.6%. The leadership on this unit collaborated with departments and resources within the organization to focus on recruitment, hiring, orientation, and retention of nurses. Summary: Turnover results in decreased staff satisfaction and excess cost to the unit. A multifaceted and collaborative approach was used to decrease the turnover in our unit. Methods were developed to better screen potential candidates by the nurse recruitment office while unit leadership refined interview strategies to improve the selection of candidates. Improvements included incorporating a 2-hour shadowing experience into the interviewing process. The organization’s professional development department worked with unit leadership to implement a structured orientation guided by achievement of milestones, constructive feedback to orientees, and an ongoing educational development plan. The tools used for orientation assisted in early identification of learning opportunities and objective methods to provide individualized learning plans. A work group was constructed to implement components of American Association of Critical-Care Nurses’ Healthy Work Environment principles with a significant effort to implement meaningful recognition. The group also focused on relationship building, community involvement, and resiliency training. Evaluation/Outcome: In 2016, the nursing turnover in that unit decreased to 28.47% and has so far decreased to 22.43% in 2017. The collaboration among nurse recruitment, leadership, and education services was vital to the success of improving hiring strategies and implementing a successful orientation program that resulted in increasing retention and decreasing turnover of nurses.

EB83: Phenobarbital: An Alternative to Traditional Alcohol Withdrawal Management

Stacy Michalik, Renee Grow; Lehigh Valley Hospital, Allentown, PA

Purpose: Early treatment of alcohol withdrawal can prevent progression of life-threatening clinical syndromes in critical care patients. There is extensive practice variability in assessing alcohol-withdrawal target symptoms and treatment regimens used. Traditional treatment uses benzodiazepines in escalating proportions; more recent evidence-based practice uses a phenobarbital alternative. This poster shares a phenobarbital clinical practice guideline used in a Level I trauma, tertiary Magnet hospital. Summary: Alcohol plays a role in 40% to 50% of fatal motor vehicle accidents, 60% of fatal burn injuries and drowning, and 40% of fatal falls. Up to 20% of hospitalized patients may have an alcohol-related problem, increasing their risk for alcohol withdrawal syndrome (AWS) due to the reduction or cessation of significant or prolonged alcohol intake. These statistics and evidence related to AWS medical management drove development of an interprofessional protocol to assure consistency and standardization for assessment and treatment of...
AWS. Assessments include the use of the valid and reliable tools CAGE and Clinical Institute Withdrawal Assessment for Alcohol. Subsequent treatment with phenobarbital considers risk of alcohol withdrawal versus risk of sedation and respiratory compromise. The protocol provides clear loading-dose information, serum drug level targets, maintenance, and a tapering schedule for days 4 through 7. Advantages of phenobarbital over benzodiazepines include a longer half-life, lack of cross-tolerance, and a decreased tendency to cause altered mental status. The protocol identifies nursing considerations such as holding the drug if target serum levels are exceeded and signs of lethargy or oversedation. Evaluation/Outcome: There is increasing evidence that phenobarbital has advantages compared with benzodiazepines in AWS relative to initial loading doses and for patients with symptoms refractory to benzodiazepines. This poster shares an evidence-based alcohol withdrawal protocol, illustrating its use with a case study. Nurses viewing the poster will gain associated knowledge to consider adapting the protocol for use within their critical care or step-down practice setting.

**EB84: Keeping Our Patients Safer With Enhanced Carbapenemase-Producing Enterobacteriaceae Screening in a Medical Surgical Intensive Care Unit**

Shannon Swift; St Michaels Hospital, Toronto, Ontario, Canada

**Purpose:** To determine if additional screening strategies for early detection of carbapenemase-producing Enterobacteriaceae (CPE) are required in a medical surgical intensive care unit (MSICU). Canadian hospitals screen patients with history of hospitalization outside of Canada. Despite these control measures, incidence of CPE is rapidly rising, suggesting our current CPE screening is missing cases that are causing transmission within our health care institutions. **Summary:** Screening and early case detection of CPE is emphasized. However, rates of compliance for identification, isolation, and screening of high-risk patients are low. It is logistically challenging to elicit a complete history on admission to ICU. CPE screening consists of a rectal swab and/or urine culture if the patient has been catheterized for more than 24 hours. A point prevalence screen was conducted of all patients in the MSICU on January 15, 2017. Screening of all new admissions to the MSICU started on January 16, 2017, and will continue for a year. Registered nurses in the MSICU are authorized to enter the order for CPE screening under a medical directive. A physician can also enter the order. Infection Prevention and Control Department staff assessed the environment, including all sinks in the MSICU, for CPE on January 31, 2017. Staff huddles, emails, posters, and sticker reminders around the unit and on admission packages served as reminders for staff. **Evaluation/Outcome:** The initial point prevalence screen was negative for CPE. A dirty utility room sink was positive, indicating a positive case was admitted and undetected. The sink was disinfected twice and a later screening result was negative. Since January, approximately 709 of 789 patients have been screened (90%). CPE was detected in 1 patient (0.1%) to date. Universal screening is considered cost-effective if efforts detect 1 case per year. We will continue screening all new admissions to the MSICU through December 2017 and then reassess our process.

**EB85: Medical Intensive Care Unit: Our Catheter-Associated Urinary Tract Infection Journey**

Mary Cochran, Dawn Winchester, Kathleen Miller; Parkview Regional Medical Center, Ft Wayne, IN

**Purpose:** The purpose of this project was to decrease incidence of catheter-associated urinary tract infections (CAUTIs) in a 24-bed medical intensive care unit (MICU). In 2013, the MICU had 30 CAUTIs, which was above the national benchmark and higher than 2012 rates. To improve the CAUTI rate, the nurses initiated an evidence-based, nurse-driven indwelling-catheter (IC) protocol. **Summary:** In 2013, the MICU nursing team implemented a comprehensive protocol to prevent CAUTI based on Comprehensive Unit-based Safety Program and American Association of Critical-Care Nurses guidelines with the goal to reduce the incidence of CAUTI. Protocols were developed and implemented for placement and removal criteria. The main focus was on a nurse-driven process for removal of ICs based on approved criteria. Additional focus was on appropriate sterile insertion and routine perineal care. The nurses also completed a survey to evaluate barriers to the protocol and to ensure removal criteria were appropriate. A key aspect focused on relating CAUTI outcomes to an individual patient via a video and debriefing. An additional measure implemented was to change the practice of how urine cultures were obtained. The team collaborated with the medical director of the MICU and the
physician director of Infection Prevention to sponsor the nurse-driven protocol. Per the protocol, urine cultures can only be obtained from a catheter less than 24 hours; if greater than 24 hours and patient still meets criteria for a catheter, then the catheter would be replaced before the specimen is obtained. A unique process implemented was a “phone a friend” campaign, which entails 2 bedside nurse collaborating to ensure the IC protocol is met when inserting an IC and with the collection of urine. Evaluation/Outcome: The MICU had 30 CAUTIs in 2013, 18 in 2014, 6 in 2015, zero in 2016, and zero year to date in 2017. The team continues to enforce this nurse-driven protocol daily and with all new caregivers that join the team. The team is collaborating and disseminating this protocol to other areas of the hospital to assist in improving their CAUTI rates. This project remains ongoing.

EB86: Design and Implementation of an Enhanced Recovery After Cardiothoracic Surgery Program
Gina McConnell, Patricia Woltz, Judson Williams; WakeMed Raleigh, Raleigh, NC

Purpose: Enhanced recovery after surgery care pathways improve clinical and cost outcomes by minimizing surgical stress across the care continuum and optimizing recovery. However, no such pathway was found for use in the cardiothoracic (CT) population, in whom challenges include use of cardiopulmonary bypass and contraindications to nonsteroidal anti-inflammatory drugs and other analgesia. At 1 community hospital, evidence was adapted for use with patients who have undergone cardiothoracic surgery and an enhanced recovery after cardiothoracic surgery (ERACS) program was implemented. Summary: After reviewing all evidence and attending learning opportunities, the nurse champion provided comprehensive education and obtained support for the program. A transdisciplinary team was assembled consisting of cardiothoracic surgeons, anesthesiologists, intensivists, nurses, nurse practitioners, a pharmacist, and a dietitian. The ERACS pathway included preadmission medical optimization, patient education, minimization of invasive procedures, multimodal analgesia, and early extubation, mobilization, and nutrition. Protocols were developed to ensure timely preoperative carbohydrate loading to optimize metabolic and endocrine functions and provide a bowel program to promote early return of gut function. Multimodal analgesia included prophylactic acetaminophen and age-adjusted doses of gabapentin to minimize opioid intake and opioid-related adverse effects. All anesthesiologists and surgeons agreed to follow the standardized pathway to eliminate variances. Regular monitoring of interventions was used to address barriers. The pilot was implemented during spring 2017. Pre- and postimplementation outcomes examined were intensive care unit (ICU) and postoperative length of stay (LOS), readmission rates, gastrointestinal complication rate, and intubation time. Evaluation/Outcome: All patients in the CTICU patients were included. Data were compared for the 10 months before (n = 320) and 5 months after (n = 191) pathway implementation. The following measures improved from before implementation of the pathway to afterward, respectively: median ICU LOS (42 vs 26 hours), median postoperative LOS (7 vs 6 days), ICU readmission rate (5.0% vs 3.6%), and gastrointestinal complication rate (6.4% vs 3.7%). Intubation time (5.0 vs 5.8 hours) and hospital readmission rate (7.4% vs 7.9%) worsened from before to after implementation of the pathway, respectively. Early findings support the effectiveness of ERACS. This pathway was a nurse-led initiative to design and implement an evidence-based program that addressed challenges unique to the field. Ongoing quality improvement, audit, and further analyses are vital for continuing to improve outcomes and ensuring sustainability.

EB87: Evidence-Based Practice Change to Prevent Exposure Keratopathy in Patients in the Pediatric Intensive Care Unit
Charlene Cunningham, Spring Ou-Tim, Katie Brasuk; Children’s Healthcare of Atlanta, Atlanta, GA

Purpose: The purpose of this evidence-based practice (EBP) project was to understand the published incidence of exposure keratopathy (EK), identify high-risk patients and best prevention strategies, and decrease incidence in the pediatric intensive care unit (PICU). EK increases patient pain, distress, agitation, posthospitalization ophthalmology care, and health care costs. EK incidence may be reduced by identification and assessment of high-risk patients, and by early intervention with protocol-based eye-care prophylaxis. Summary: EK is a noninflammatory disease of the eye caused by ineffective self-lacrimation of the cornea. Within 4 months, in a 36-bed PICU, 8 EK cases were identified, all of which were confirmed by ophthalmologists. Patients at high risk for EK have an
absent blink reflex or corneal exposure, such as patients receiving a neuromuscular block, pentobarbital drip, or moderate to deep sedation. The PICU EBP team submitted a request to the institutional review board and received nonhuman subject determination approval for a quality improvement project. A literature review conducted on the basis of the following 2 PICO (problem/patient/population, intervention/indicator, comparison, outcome) questions: (1) In patients in the PICU who are receiving paralytics or who are comatose or sedated, what is the incidence and types of eye disorders acquired? (2) In patients in the PICU who are receiving paralytics or who are comatose or sedated, what interventions prevent eye disease development? Based on the answers to these questions, a guideline was developed for PICU staff and education was provided. Baseline measures of preventive care for high-risk patients were compared with 3 repeated interval measurements after the intervention. Evaluation/Outcome: At 4 audit time points from November 2015 to December 2016, baseline data revealed 4 EK events in 2 months (n = 53 patients). Protocol changes resulted in 2 EK events in 2016 that were confirmed by ophthalmologists. In terms of educating PICU staff about assessment and prevention of EK, there was an increase from 5% to 67% in EK prophylaxis from the initial data audit to after system policy development. EK incidence and severity were reduced by recognition and assessment of high-risk patients, early intervention with eye-care prophylaxis, and continued eye assessment for early ophthalmology consultations. Additional study is indicated for generalizability of results.

EB88: “Walk-the-Block”: A Strategy to Improve Team Performance for Cardiac Arrest
Julie Petitta Greer, Tracy McGaw; UT Southwestern Medical Center, Dallas, TX

Purpose: Cardiac arrest events that occur outside the critical care unit are low-incidence, high-risk events. Critical care nurses with advanced cardiac life support (ACLS) training are part of rapid response teams that arrive to scenes that often are chaotic. This project implements “Walk the Block” as an initiative to empower non-ACLS providers with discrete actions that should take place after cardiopulmonary resuscitation (CPR) efforts are initiated and before the arrival of ACLS providers. Summary: Critical care nurses are often tasked as members of the in-hospital code blue or cardiac arrest response team. Although critical care nurses are typically ACLS certified, most nurses who work on step-down and regular wards are basic life support (BLS) certified. Because cardiac arrest is a low-incidence, high-risk event, it is very stressful. The first nurse on the scene initiates CPR and activates 911 or a code blue alert; the second nurse starts 2-man CPR, but the next few staff often freeze up and have no set mnemonic for their activity. The “Walk the Block” mnemonic details how the nurse can go around the 4 sides of our crash cart to ensure that all the essentials to provide good BLS are initiated and the BLS measures are started before the code team arrives. The person on the first side of the cart puts on multifunction defibrillator pads, turns on the defibrillator, then pushes the automated external defibrillator (AED) mode button. The person on the second side adds supplemental oxygen (Ambu bag). The person on the third side puts the backboard under the patient. The fourth-side person ensures that suction is set up. While “walking the block,” the AED has typically analyzed the first rhythm and shock is either advised or CPR is resumed, and the ACLS team has arrived. Evaluation/Outcome: Using the Walk-the-Block mnemonic reduces stress and improves team performance. This education initiative was rolled out during Quick Hits (ie, shift change). Staff have responded positively in 2 key areas. The first patient treated after initiating Walk-the-Block received the first shock via AED before the critical care team arrived. This allowed the critical care team to begin ACLS seamlessly; the patient survived and was transported to the intensive care unit. Second, our BLS-certified nurses have verbalized less stress and more confidence in being prepared to work with the critical care team. Walk the Block is now being rolled out to other areas in our university.

EB89: Ventilator-Associated Events Prevention: A Collaborative Approach
Ben Valente, Jonathan Donesa, Alethea Pereira; Durham VA Medical Center, Durham, NC

Purpose: An increase in the rate of ventilator-associated events (VAEs) was evident, because of the new Centers for Disease Control and Prevention (CDC) guidelines. The goal of the project was to decrease the number of VAEs per 1000 ventilator-days, decrease length of medical intensive care unit (MICU) stay and mortality rate, increase staff awareness about the new definition of VAE, encourage a stronger partnership among nursing
and respiratory staff, and increase patient and family satisfaction. **Summary:** Most admission diagnoses in the MICU include respiratory failure, respiratory arrest, and sepsis, which require mechanical ventilation. Durham VA is a referral center. Patients who are receiving mechanical ventilation frequently are admitted here from other hospitals for ventilator management and weaning. Due to changes in CDC guidelines, we observed an increase in our VAE rate. Our policy was reviewed and compared with published evidence and other hospital protocols. This initiative incorporated the most recent research into our practice and emphasized the new CDC guidelines. An interdisciplinary team consisting of nurses, physicians, respiratory therapists, infection control personnel, a physical therapist, and an ICU nurse educator shared roles and responsibilities for implementing the program. Strategies include education about the new VAE definition, the ventilator-association pneumonia (VAP) bundle, and implementing the Society of Critical Care Medicine ABCDEF bundle. **Evaluation/Outcome:** From 2014 to 2016, the rate of ventilator-associated conditions decreased from 6.36 to 6.30 per 1000 patient-days. From 2014 to 2016, the rate of infection related ventilator-associated conditions decreased from 2.12 to 0 per 1000 patient-days. From 2014 to 2016, the rate of possible or probable VAP decreased from 2.12 to 0 per 1000 patient-days. From 2014 to 2017, the ventilator days of care decreased from 944 to 727 days. These data are monitored by infection control personnel and reported quarterly to the unit-based VAE committee.

**EB90: Care of the Patient From the Intensive Care Unit in the Postanesthesia Care Unit: Increasing Novice Nurse Knowledge and Confidence Levels**

Ayumi Fielden, Holly Rodriguez, Pamela Northrop, Laura Ortiz; Houston Methodist, Houston, TX

**Purpose:** Intensive care unit (ICU)–level care is not limited to just the ICU. The postanesthesia care unit (PACU) is a unit that encounters ICU holds daily. At a large teaching hospital, concerns arose from PACU stakeholders regarding ICU care provided by nurse residents (NRs) and their lack of critical care knowledge and confidence in caring for patients requiring intensive care. The goal was to create a program that increases knowledge and confidence levels for the NR caring for patients from the ICU who are in the PACU. **Summary:** A gap analysis indicated a need for further education for the PACU NR providing ICU care. The ICU in the PACU program was developed as an extension of the PACU Nurse Residency Program. Experts note that critically ill patients in the PACU must receive the same competent care as in the ICU. The program addresses fundamental critical care tenets of hemodynamics, ventilator care, and medication titration via didactic lessons and experiential high-fidelity simulation (HFS). HFS scenarios included hypotension, respiratory failure, arrhythmia recognition, chest pain management, and hypertensive crisis situations. Education was divided into 2 groups: a nonsimulation group (NSG) and a simulation group (SG). Improvements in knowledge and confidence levels were analyzed for all participants. Both groups received didactic lectures and case studies, and the SG group applied HFS to supplement learning. All the NRs had the opportunity to ask questions and seek clarification of all class content. Debriefing was also performed after each intervention, during which participants gathered, analyzed, and provided self-reflection of their experience. **Evaluation/Outcome:** A 19-item pre- and postintervention critical care knowledge test and a 22-item pre- and postintervention confidence survey were used to measure the effectiveness of the program for both groups. The NSG showed an increase in knowledge from 34% to 65% and an increase in nurse confidence from 44% to 70%. The SG exhibited a growth in knowledge from 43% to 83% and a rise in nurse confidence from 54% to 88%. The SG demonstrated greater improvement overall. The addition of critical care–centered didactic and HFS to the PACU Nurse Residency Program provides experience and facilitates the application of critical skills, resulting in improved patient outcomes.

**EB91: Don’t Fall for Me**

Holly Bechard, Catherine Corbett, Sonya Stover; Christiana Care Health System, Newark, DE

**Purpose:** In fiscal year (FY) 2014, the Fall Prevention Value Improvement Team (VIT) of the transitional medical unit (TMU) devised and implemented new patient safety protocols. The result was a decline in the fall rate by 22% to a rate of 1.68 (below the National Database of Nursing Quality Indicators [NDNQI] benchmark of 2.5). Unfortunately, the fall rate increased to a rate of 1.76 by the end of FY 2016. According to the Centers for Disease Control and Prevention, in 2014 there were an estimated 29 million falls among older
adults, resulting in 7 million injuries. **Summary:** The Fall Prevention VIT is a multidisciplinary team of registered nurses, patient care technicians, unit clerks, and student-nurse externs. The team identifies opportunities to reduce patient falls, institute new practices, educate staff, and create a culture of safety. Since FY 2014, our safety standards include use of chair and bed exit alarms, lap belts on all patients at all times, and no patient is permitted to sit on the side of the bed. Our protocol also includes never leaving patients alone while toileting, using gait belts while ambulating patients, and bedside handoff. Ultimately, no patient is permitted to refuse safety. Weekly rounds have been performed by the VIT to ensure compliance by all staff and provide live-time feedback. Rounds in FY 2015 and FY 2016 revealed increased drift from safety standards. Because of the large number of new TMU staff, education was increased. For FY 2017, we increased rounds to 2 to 3 times per week and meetings from bimonthly to monthly. Patients at high risk for falls were discussed during staff huddles. TMU patient safety guidelines were distributed to all per diem and pulled staff. Fall prevention tips appeared in our unit newsletter. We analyzed data from falls and discussed lessons learned. **Evaluation/Outcome:** The unit fall rate fell in FY 2017 by 42%. We surpassed the NDNQI fall benchmark of 2.49 by having a decreased fall rate of 1.04. The Fall Prevention VIT continues to dissect each fall to identify opportunities for learning and improvement. We perform safety rounds with the goal of maintaining and enhancing our unit’s culture of safety. We continue to provide live-time feedback to ensure accountability for patient safety at all levels. With patient safety in mind, the VIT has learned that reducing falls and emphasizing patient safety have given us the opportunity to focus on excellence and provide quality patient care.

**EB92: Nurses Advancing Recovery After Surgery**

Tiffany Snow; Christiana Care Health System, Newark, DE

**Purpose:** The overall purpose of this program was to promote cardiovascular stability while reducing postoperative complications in a traditionally high-risk surgical population through the use of a noninvasive hemodynamic monitoring technology in progressive care nursing. **Summary:** An interdisciplinary team of health care professionals explored the opportunity to standardize postoperative care for a specific subset of patients. An enhanced recovery after surgery program was designed using a postoperative order set and noninvasive intravascular monitoring technology. Current evidence-based practice highlights cardiac stroke volume and index as initial indicators of hypovolemia, a significant postoperative complication. Customarily, invasive methods such as pulmonary artery catheters are used. Evolution of technology has created noninvasive techniques for this monitoring. The program consisted of a clinical pathway order set, algorithm, and noninvasive technology. Education was provided to the participating physicians and nursing staff. Nurses caring for patients recovering from ventral hernia repair could autonomously correct fluid imbalances. This proactive approach to helping these patients recover in the postoperative phase was pivotal in providing early interventions, avoiding the frequent cases of hypovolemia, and subsequent clinical decline. **Evaluation/Outcome:** Success of the program was measured through routine audits and patient-specific data. The success of the program was based on compliance with using the order set. An auditing tool was used to monitor pathway adherence; compliance increased to 100%. After 6 months, the average length of stay decreased from 9.6 to 6.4 days, and postoperative complications decreased. There was no change in 30-day readmission rates.

**EB93: Designing a Hybrid Chemotherapy/Biotherapy Course for a Nononcology Progressive Care Environment**

Mary Myers, Myra Woolery, Paul Wong; National Institute of Health Clinical Center, Bethesda, MD

**Purpose:** To describe the process and outcomes of designing and implementing a chemo/biotherapy course for clinical research nurses (CRNs) caring for patients in nononcology settings. The goal of this evidence-based journey was to address gaps in knowledge, provide relevant education unique to the clinical research environment, build confidence, and provide consistent safe patient and staff education and patient care in a low-volume, high-risk environment while incorporating professional standards and guidelines. **Summary:** An interactive, hybrid Chemo/Biotherapy Course for Nononcology Settings (CBNONCS) was created that focused on gaps in knowledge of CRNs working in environments such as progressive care and telemetry, neuroscience, and endocrinology units who administer chemo/
biotherapy agents in nononcology settings. After critiquing evidence-based literature, professional standards, and available resources, and using expert knowledge, an educational lesson plan was created targeting nurses who administer chemo/biotherapy in nononcology settings. A survey was administered to CRNs to identify current agents being administered for specific patient conditions and settings. From the results of the evidence, a pilot course and educational assessment were developed, implemented, and evaluated. Using the continuous process improvement model, collated data revealed the need for revision, including precourse, online, independent study; participant case presentations relevant to a specific patient population; and an ongoing feedback and evaluative process. The CBNONCS inspires a safe environment for clinical inquiry, clinical skill practice, discussion of treatment alternatives, development of future resources, and building of collegial relations. Evaluation/Outcome: From September 2016 to October 2017, 69 CRNs completed CBNONCS: 36 working in progressive care, 19 in the inpatient setting, and 14 in outpatient multispecialties. Knowledge was validated by post-test assessment, and competency was evaluated using standard behavioral indicators including administration, patient education, documentation, and verbal assessment. The mean post-test score of 94% demonstrated knowledge retention. Likert scale and qualitative data from open-ended questions revealed comfort with practice, comprehension of regimens, and intent to change practice. During case presentations, staff envisioned the patient experience between ambulatory and inpatient environments, including caring for the same patient at various stages of therapy.

**EB94: Unique Telemedicine Intensive Care Unit Model Improves Rural Critical Care**
Jeni Colarusso, Raminder Nirula, Marta McCrum, Edward Kimball; University of Utah Healthcare, Salt Lake City, UT

**Purpose:** The University of Utah’s (UofU) telemedicine intensive care unit (teleICU) model was created in response to the unique needs of rural and frontier hospitals in the Intermountain West. In contrast to the traditional electronic ICU “bunker model,” the UofU’s model was designed to increase the capacity of rural and frontier hospitals to care for critically ill patients. In addition, this approach allowed for cost reduction related to the setup and continuous monitoring of infrequently used ICU beds, and minimization of transfer of low-acuity patients. **Summary:** There is little evidence on the optimal teleICU program structure. The UofU’s consultation-driven model focuses on acute patient care and building the clinical capacity of partner sites. This was accomplished in 4 ways. (1) Clinical support was provided via a consultative service by board-certified intensivists for acute consultation. This method provides thorough critical care support along with frequent educational opportunities, in contrast to expensive minute-by-minute monitoring of often-empty ICU beds. (2) A continuously staffed nursing support line offers nurses a peer educational resource when applying new skills. (3) Didactic education focused on increasing knowledge and skills is offered through weekly online lectures covering a broad ICU curriculum and on-site hands-on training for nurses and affiliated staff at the UofU. (4) An analysis of current resources and capabilities at each facility using the UofU’s Critical Care Capacity Index (3CI) helps identify the clinical capacity for managing critically ill patients and identifies unique growth opportunities for each facility. **Evaluation/Outcome:** Growth was measured by the enrollment of partner sites, their increased ability to care for critically ill patients, and a reduction in transfers of low-acuity patients. Since inception in 2015, we have added 10 hospital sites and fielded 152 patient consultations. Capacity building is monitored by tracking hospital capability according to the 3CI and by partner-site reports of consultation patients they have retained with teleICU support. Our first partner site reported that in 1 year, they retained 25 patients who otherwise would have been transferred. The incidence of low-acuity transfer patients to our facility who were discharged within 48 hours was decreased 77% and 70% from the 2 teleICU sites for which data were available.

**EB95: Postorientation Support Targeting Education and Resilience Program (POSTER) for New Nurses**
Mary Mclellan; Boston Children’s Hospital, Boston, MA

**Purpose:** Our acute care cardiac unit–based nurse educators created the Post-Orientation Support Targeting Education & Resilience (POSTER) Program to support new registered nurses (RNs) and improve new-hire retention rates in the first 2 years of hire. Reports in the literature describe in new RNs high levels of psychological
distress, low resiliency, and role transition challenges that result in decreased confidence, marginalization, potential errors, and suboptimal retention rates. **Summary:** Evidence indicates that satisfaction among new RNs improves if they have access to supportive resources and are aware of professional development opportunities. New RNs report higher levels of confidence when they are no longer on orientation when they received proactive support, including regular check-ins, time set aside for them for one-on-one discussion, and monitoring of their progress. All new RNs (n = 63) hired after October 2014 have been enrolled in the POSTER program upon orientation completion. The new RN’s preceptor completes an aggregate POSTER scale (from 0 to 36) composed of clinical practice, education needs, psychosocial support, and experience level to identify the level of needed support. The POSTER program provides twice daily structured check-ins with the new RN for 6 to 12 months, depending on need. Each new RN is matched with a nurse educator as their personal POSTER coach. Coaching sessions initially are provided monthly and the frequency is decreased if indicated. The new RN “graduates” from the POSTER program into the unit’s peer-based mentoring program after mutual agreement with the POSTER coach. An equal number of RNs hired before the POSTER program (n = 63) were used as a comparison group to evaluate outcomes on retention. **Evaluation/Outcome:** The pre-POSTER RN 2-year retention rate was 68% (n = 43). Excluding the 19 RNs currently enrolled in the POSTER program, 93% (n = 41) of the POSTER RNs (n = 44) were retained in the first 2 years of hire, which was significantly higher than the percentage of pre-POSTER RNs who were retained (P = .003). Comparing pre- and post-POSTER program data, the odds ratio of a POSTER RN leaving our hospital was 0.49, demonstrating a protective effect. The POSTER Program has been effective in improving 2-year retention rates of new-hire RNs.

EB96: Multidisciplinary Team Collaboration for Extubation of Patients Who Have Undergone Fast-Track Open-Heart Surgery

Amy Reiner; Geisinger Health Systems, Danville, PA

**Purpose:** A multidisciplinary protocol was designed to allow earlier extubation of patients who have undergone open-heart surgery. The protocol starts in the operating room and extends to the cardiac intensive care unit. It is designed to meet the goal of early extubation within 6 to 8 hours after surgery without compromising other care parameters such as hemodynamics. **Summary:** At Geisinger Medical Center, in 2013, only 28% of patients who had undergone fast-track open-heart surgery were extubated within 6 hours of surgery. After some small changes in 2014, 38% of such patients with extubated within 6 hours. The Society of Thoracic Surgeons recognized a need to reduce the time to extubation. In 2015, only 9% patients nationally who had undergone fast-track open-heart surgery were extubated within 8 hours after surgery. Because of this information, a group consisting of the clinical nurse educator, nursing management, nurses working with patients after open-heart surgery, cardiothoracic physician assistants, respiratory therapists, and anesthesiologists worked together to create a protocol to standardize the care of patients who have undergone postoperative open-heart surgery. All members of the team distributed the protocol to the rest of their respective teams and provided education and support during the first few weeks. When the goal of extubation within 6 hours was not met, the respiratory therapist lead, anesthesiologist, and the clinical nurse educator reviewed the chart to assess areas of opportunity. Reeducation was then done to improve the time to extubation. **Evaluation/Outcome:** By limiting the amount of benzodiazepines and narcotics late in the surgery, performing ventilator recruitment maneuvers before leaving the operating room, and by the multidisciplinary providers working as a team, 86.8% of patients who underwent fast-track open-heart surgery in 2016 in our facility were extubated within 6 hours. To date in 2017, 88% of these patients have been successfully extubated within 6 hours. This is a significant increase from the 28% of 2014 and the national average of 9% in 2015.

EB97: Scripted Bedside Handoff in Critical Care

Kala Spellmeyer; Unity Point Health Methodist, Peoria, IL

**Purpose:** The goal of the bedside handoff script was to create a tool that standardized bedside handoff among all nursing staff, allowing the transfer of pertinent patient information (aka, report) and the use of dual nursing assessments. This was done to address variations in bedside handoff between nurses. Bedside handoff had been the standard of care in the cardiovascular intensive care unit at UnityPoint Health Peoria since 2010,
although nurses received no formal education on completing this task. **Summary:** The idea of scripting was mimicked from the aviation industry, in which flight personnel provide consistent on-flight announcements. If the airline industry can use scripting to protect their clients, nurses can do the same, especially because critical care patients are more likely to experience an emergency. In 2016, there were only 19 recorded multiengine airplane crashes, but patients admitted to the critical care setting have a 30% mortality rating and communication breakdowns have been labeled 1 of the leading factors contributing to these deaths. To reduce the amount of inessential information, nurses report body systems as within defined limits or report the exceptions, modeled after the charting system. To provide increased safety, central-catheter days, urinary-catheter days, fall-risk score, and Braden score were added to the script. Furthermore, the report included the 2-nurse check of neurology status, vascular checks, wounds, and intravenous lines and infusions for applicable patients. The script was created and approved by the cardiovascular intensive care unit process improvement council. Next, each nurses was given face-to-face education about the new script, followed by script implementation. **Evaluation/Outcome:** Preimplementation data were collected from a nurse survey using a never-sometimes-always scale. Of the nurses surveyed, 62% felt report creates accountability, 48% believed report conveyed adequate and consistent information, 19% were capable of speaking with providers immediately afterward, 33% felt they were knowledgeable of patient medications after report, and 33% were capable of prioritizing care. Postimplementation data were collected 2 months from a repeated survey after initiation of the project. The survey results showed an increase in all areas in question: nurse accountability (85%), consistent information (70%), ability to communicate with providers (45%), medication knowledge (50%), and ability to prioritize care (40%).

**EB98: Provisioning Bedside Patient Safety Through Standardization of Preshift Safety Checklists**

Nicholas Comeau, Lauren Beck; Brenner Children’s Hospital, Winston Salem, NC

**Purpose:** The goal of this project was to standardize preshift safety handoff between the oncoming and offgoing nurses to provision the highest level of patient safety in a multispecialty pediatric intensive care unit (PICU) at a large, academic children’s hospital. **Summary:** The evidence-based solution was to design and implement a preshift safety checklist. The implementation of a standardized communication tool reduces misinformation or omission of information. It provides comprehensive evaluation of needs of a safe ICU environment for the patient. The checklist was developed and implemented by identifying actual and potential pitfalls in bedside safety at change of shift. A implementation team was formed comprising bedside staff nurses, clinical leadership, and the PICU medical director to enable a multidisciplinary approach. It was important for the checklist to be simple but achieve the goal of providing safety in areas identified by apparent cause analyses and incident reports. After situational awareness education regarding the new preshift safety checklist, the checklist was released for use. The overall goal of the implementation and use of this checklist was to mitigate errors related to impaired provisioning of bedside safety and lack of standardized communication behaviors. **Evaluation/Outcome:** Through different data analyses, it was determined that more use of the checklists resulted in more safety incidents being discovered. The total number of safety incidents fluctuated month to month, but the overall effect on the number of incidents reported decreased. There was a 10% reduction of total safety events reported between the 6-month preimplementation date range and 6-month postimplementation date range. This demonstrates that on the broader level of this checklist’s function, the total number of safety events is declining with continued use of the checklist.

**EB99: Building and Sustaining Clinical Inquiry at the Bedside**

Jean Connor, Patricia Hickey, Sandra Mott; Boston Children’s Hospital, Boston, MA

**Purpose:** The purpose of the Nursing Science Fellowship is to provide the opportunity for pediatric nurses to collaborate with nurse scientists in a structured manner to design and conduct their own clinical inquiry generated from their practice. **Summary:** Nursing practice based on evidence and clinical inquiry is vital to safeguarding our patients and ensuring optimal outcomes. Clinical inquiry includes improvement science, evidence-based practice, and original research, and is essential for advancing the science and scholarship of nursing.
However, current literature highlights barriers to clinical inquiry without offering many feasible strategies to reduce them. Building on over a decade of committed resources to clinical inquiry, there was additional opportunity to formalize advancing science and practice through mentorship and the development of a formal fellowship program. Each fellow is paired with a nurse-scientist mentor to receive support for timely project completion. The dedicated mentors guide the immersion of fellows in nursing science by providing them with didactic content detailing the process of clinical inquiry and monthly one-on-one mentorship sessions. Quarterly, fellows share their progress in informal and formal venues with peers, mentors, and senior leadership. Throughout their journey, fellows learn the appropriate method by which to address their question and complete a scholarly project that contributes to the science of nursing. Evaluation/Outcome: To date, 58 fellows, including 52 nurses from internal fellows, 3 national, and 3 international nurses, have enrolled in this 2-year program. Thirty-two nurses graduated from the Fellowship and 25 fellows are currently active. The fellows have received 30 grants totaling more than $425,000 to support their projects. Eleven received promotions within the institution and 18 furthered their education in MSN, DNP, or PhD programs. There have been 45 external disseminations of clinical inquiry work, including poster presentations, podium presentations, and peer-reviewed manuscripts. These efforts ensure a commitment to evidence-based practice, innovation, and advancement of nursing knowledge.

EB100: Nurses Driving Excellence: Improving Sepsis Recognition in the Emergency Department
Jeane Bollinger, Mashanda Brown, Rosemary Arviso; Mission Hospitals, Ashville, NC

Purpose: Sepsis affects more than 1.5 million hospitalized patients, results in 260,000 deaths per year, and costs health care systems more than $24 billion annually. Early recognition of sepsis is crucial to minimize morbidity and mortality rates. The goal of this project was to improve time to first antibiotic and time to first fluid bolus for patients who come to the emergency department (ED) with severe sepsis or septic shock. Summary: Quality metrics for our ED indicated that time to first antibiotics was longer than 120 minutes and time to first fluid bolus was approaching 60 minutes. With a focus on continuous improvement, the multidisciplinary sepsis performance improvement team developed a nurse-driven sepsis screening process. This tiered approach escalates a sepsis alert based on a suspicion of infection and clinical data obtained from admission vital signs and assessment of level of consciousness. The first step in this tiered approach begins with a critical assessment by the triage nurse for possible infection. Once a patient is designated as having possible infection, using automated electronic surveillance information-technology rules, the electronic medical record is surveyed simultaneously for systemic inflammatory response syndrome criteria and/or quick Sequential Organ Failure Assessment criteria. When a patient meets criteria, laboratory tests are ordered automatically to assist the provider in evaluating organ dysfunction and infection parameters. Once triggered, electronic alerts are displayed on the nurse’s bedside computer. Specific sepsis-alert icons are visible on the ED tracking board. A “Code Sepsis” can be designated at any time by the ED provider to expedite best-practice sepsis patient care. Evaluation/Outcome: One year after implementation of the ED nurse-driven sepsis screening process, time from triage to first antibiotic dose decreased from 126 minutes to 90 minutes, and antibiotic bundle compliance improved from 62% to 75%. Time to first fluid bolus decreased from 57 to 47 minutes. The patient mortality rate decreased in 1 year by greater than 3%, from 21% to 17.6%. Our outcomes demonstrate that the an active nurse-driven screening process in the ED that includes critical thinking paired with an automated alert process can result in improvements in time to first antibiotic and time to first fluid bolus, resulting in a decrease in mortality for patients with severe sepsis and septic shock.

EB101: Improving Nursing Arrest-Team Response Through Simulation
Hannah Entwistle; University of Maryland Medical Center, Baltimore, MD

Purpose: Nurses in the intensive care unit (ICU) play a crucial role on the interdisciplinary arrest team that responds to patients in cardiac or respiratory arrest in a large, urban, academic medical center. Training new nurses to be on the arrest team is not a consistent or required practice; therefore, nurses with minimal experience can be assigned this role and are expected to be a clinical expert. Recognizing the need to prepare
new ICU nurses for the arrest team, the medical ICU (MICU) implemented standardized simulation education. **Summary:** To prepare nurses to be confident arrest-team members, training using high-fidelity simulation was piloted in December 2015. Because of its success, the effort was expanded to other ICUs. Evidence shows that simulation training is an effective, safe, cost-efficient way to train and evaluate nurses to improve skills and knowledge. With 5 nurses per session, each with 1 to 3 years of ICU experience, participants rotated roles of patient care RN and documentation RN. Sessions were held monthly and designed to validate role competency. In an environment simulating acute care settings, nurses used critical thinking and teamwork to navigate code scenarios by managing deteriorating patients, identifying cardiac rhythms, delegating to providers, and recognizing mistakes in the advanced cardiac life support protocol made by the physician leader. Electronic documentation was completed with real-time one-on-one coaching. The course leaders evaluated learning via a competency checklist and offered remediation as needed to ensure success. To maximize learning, all participants engaged in thorough individualized debriefing sessions facilitated by the leader after each scenario. **Evaluation/Outcome:** Providing nurses with resources to be successful can aid nurse retention and improve nurse satisfaction through empowerment. For ICU nurses, providing simulation training improves confidence, skills, and knowledge that can potentially affect patient and nurse outcomes. Pre- and posttraining surveys demonstrated that after training, nurses felt more prepared for emergencies, documentation comfort improved 47%, emergency equipment familiarity improved 39%, and confidence in knowledge and skill improved 32%. In addition, in 2016, the MICU outperformed the benchmarks on the nurse satisfaction survey for nurse to nurse interaction, professional development opportunity and access, and interprofessional relationships.

**EB102: From Evidence to Application: Noninvasive Hemodynamic Monitoring in a Cardiothoracic Intensive Care Unit**

Jennifer Moretz, Patricia Woltz; WakeMed Raleigh, Raleigh, NC

**Purpose:** Cardiothoracic nurses routinely use pulmonary artery catheters (PACs) to determine real-time, best-practice interventions that optimize patient outcomes. The challenge arises when more hemodynamic data are needed for decompensating patients without a PAC. Despite the evidence supporting noninvasive bioreactance technology (BRT) and the availability of a bioreactance device, noninvasive hemodynamic monitoring is still often ignored or dismissed as a viable data source. **Summary:** Over the past decade, noninvasive hemodynamic monitoring technology has made respectable gains. Pursuant to a local American Association of Critical-Care Nurses chapter meeting, further review of the supporting studies prompted an inquiry into the potential for such monitoring at the bedside. Because the cardiothoracic intensive care unit had a BRT monitor, leadership and stakeholders agreed to support the development of a nurse-driven process for evaluating the use of noninvasive hemodynamic technology to improve monitoring and intervention differentiation for patients without a PAC. The main obstacle was low confidence in such devices due to lack of familiarity. Therefore, a core group of cardiothoracic nurses were educated about findings of current studies and trained in the use of the BRT unit (eg, pad placement, unit calibration, troubleshooting). Once trained, this team chose 20 patients who were relatively stable and immediately postcardiac surgery with a newly placed PAC, and documented simultaneous cardiac output and cardiac index values from the PAC and BRT unit every 2 hours, for 24 hours or until the PAC was removed. A total of 104 sets of paired values were collected and analyzed with the Student t test, correlation, and Bland-Altman tests. **Evaluation/Outcome:** Comparable to previous studies, paired t tests showed no difference in PAC and BRT values. Correlation values were significantly related, and Bland-Altman plots showed acceptable agreement in 90% of pairs. Most notably, cardiothoracic nurses demonstrated competence with BRT monitoring for troubleshooting patients with a PAC displaying questionable values and patients without a PAC who were not responsive to normal interventions. Furthermore, they expressed confidence in the technology and their ability to discern its proper use. An unexpected but important result was the spontaneous teaching of other cardiothoracic nurses by the core team regarding the efficiency and scope of the BRT unit.

**EB103: R & R: Reward and Recognition**

Camille Yarbro, Inge Smit; University of Virginia Health System, Charlottesville, VA
**Purpose:** Structured recognition programs are an important component of job satisfaction, according to findings from a literature review. Evidence-based practice (EBP) uses surveys to measure job satisfaction. Health care staff face numerous challenges daily and are rarely recognized for their hard work and ability to overcome these challenges. **Summary:** University of Virginia (UVA) Hospital adopted the DAISY Award, which was established by the internationally accredited DAISY Foundation (DAISY is the Foundation’s acronym for Diseases Attacking the Immune System). UVA also continued the annual Professional Nursing Staff Organization (PNSO) Awards to recognize staff performance. After UVA adopted the DAISY Award, leadership of the medical intensive care unit (MICU) used several different methods to educate staff on the nomination process and criteria. These methods included verbal instruction, email, educational flyers, and daily huddles. MICU leadership used these methods to encourage staff to nominate peers for the annual PNSO Awards for nurses, patient care assistants (PCAs), and health unit coordinators (HUCs). Anyone who experiences or witnesses excellent care is encouraged to nominate those who demonstrate it. In 2016, MICU nurses received 10 nominations for the DAISY Award, and 1 nurse won the award. At the 2016 PNSO Awards, 7 MICU nurses were nominated for their exceptional care. In 2017, 10 nurses were nominated at the PNSO Awards and 3 won awards. PCAs and HUCs were also recognized at separate PNSO Awards ceremonies. In 2016, 2 MICU PCAs were nominated; in 2017, 6 were nominated. In addition, 2 HUCs were nominated for PNSO Awards in 2016 and 1 received the award. **Evaluation/Outcome:** Not only were MICU nurses being recognized by the DAISY and PNSO Awards but also the unit’s engagement scores were higher than in previous years in regard to participation and the number of positive responses. Per findings from a literature review of EBPs, celebrating each other’s strengths with meaningful recognition helps increase job satisfaction and create a better work environment for all staff to flourish. It also enhances teamwork and, ultimately, contributes to improving the quality of care given to patients. At other hospitals, the Tulip System, similar to the DAISY Award, is used to recognize excellent care from non-nursing staff. In the future, this may be an additional award that UVA could adopt.

**EB104: Cardiac Emergencies: Cultivating a First-Responder Team**

Nancy Murphy, Edward Chen; Hospital of the University of Pennsylvania, Philadelphia, PA

**Purpose:** In cardiac progressive care, early recognition of clinical decline and effective team response are crucial for optimal patient outcomes. Variations in clinical practice due to a lack of role clarity and confidence among team members can contribute to delayed responses. In this study, we assessed the effectiveness of a 10-hour multidisciplinary team–based simulation course on nurse knowledge, confidence, and emergency response time (ie, time to defibrillation). **Summary:** To define clinical practice for multidisciplinary team members, we reviewed published guidelines (ie, American Heart Association guidelines, European Association for Cardio-Thoracic Surgery guidelines for resuscitation in cardiac arrests after cardiac surgery) and peer-reviewed publications outlining evidence of resuscitation of patients undergoing or who have undergone cardiac surgery. Reports in the literature emphasized the importance of recognizing shockable rhythms and defibrillating within 3 minutes. We reviewed literature focused on high-fidelity simulation, which demonstrated that simulation education contributes to improved knowledge and confidence among learners. Based on an analysis of code and intensive care unit return data, we designed a 10-hour, high-fidelity simulation course. The course included didactic and case scenarios to simulate common clinical emergencies. Participants included progressive care nurses of all levels of experience, physicians, pharmacists, and nurse practitioners. The course ran over 12 months to reach 51 of 88 eligible staff nurses. A 10-question test gauging knowledge before and after the course was given. To measure confidence, we administered an 18-question assessment asking nurses to rate their confidence, on a scale from 0 to 100, in different roles during a clinical emergency. **Evaluation/Outcome:** Post-test scores increased among 90% of nurses. Confidence scores increased by 9% on average (pretest, 75%; post-test, 84%). Time to defibrillation has been less than 2 minutes during all clinical emergencies on the unit (n = 7) after implementation of the course. Evidence suggests an integral relationship between team-based simulation and clinical performance in emergencies; this experience facilitated experiential learning and critical communication, resulting in nurses’ increased confidence responding to real-life emergent events.
Catherine Shuford, Heather Pena, Janice Febre; Duke University Hospital, Durham, NC

**Purpose:** Coolers with blood products for patients in the cardiothoracic intensive care unit (CTICU) were often returned late to the bank, resulting in the waste of blood products at a cost of $2800 per cooler. Each cooler contains at least 4 units of red blood cells ($350/unit) and 4 units of fresh frozen plasma ($400/unit). The purpose of this project was to determine the effectiveness of a behavioral change intervention to reduce the waste of blood products and develop strategies to sustain this reduction. **Summary:** To effectively change behavior, evidence shows a comprehensive approach involving different aspects of behavioral change must be used. Patterson et al (2008) suggest positive change is possible by addressing 6 sources of influence in the design of a behavioral change strategy: personal motivation, personal ability, social motivation, social ability, structural motivation, and structural ability. Based on this idea, we developed a multifaceted behavioral change intervention to reduce blood-product waste. The first facet of the intervention involved collaborating with the unit secretary, nursing, and operating room anesthesia team to identify sources of delay that resulted in expired blood products (ie, social ability). The second facet was placing timers on each blood cooler upon arrival to the CTICU to alert the care RN 2 hours before blood product expiration (ie, structural ability, structural motivation). The third facet of the intervention involved staff education through pamphlets, daily huddles, and staff meetings about appropriate management of blood products to reduce the financial and resource loss related to expired blood products (ie, personal ability, personal motivation).

**Evaluation/Outcome:** Unit cost savings and reduction of blood-product waste were achieved by using a multifaceted behavioral change intervention as evidenced by a substantial decrease in the amount of expired blood coolers. After implementation of the intervention, there were 112 waster coolers out of 1980 (5%), representing an estimated savings of $1,237,176. After practice changes in June 2016, the average number of coolers per month decreased from 73 coolers to 32, representing a 56% reduction in total coolers. A tendency to drift in practice during the implementation period showed the need for ongoing education and feedback for staff to sustain practice and continue to reduce blood-product waste.

EB106: Emergency Department to Step-Down Unit: Patient Flow and Boarding Times Optimized
Amanda Latina, Jessie Pyle; Christiana Care Health System, Newark, DE

**Purpose:** Patient flow from the emergency department (ED) to step-down (SD) units had barriers to efficient transition to admission as an inpatient, including lengthy ED stay (boarding) and inadequate communication between departments, resulting in unfavorable outcomes. Patient flow and care can only improve when focusing on best practices in handoff. Bedside handoffs allow an in-person interaction between departments and between staff and patients that is evidence-based best practice in health care. Therein lay the opportunity for improvement. **Summary:** The process change centered on 3 main factors: patient flow (ie, bed ready to left-ED time), patient safety (ie, face-to-face handoff), and increased communication across departments (ie, ED, SD, bed board, and patient escort). The task force gathered was multidisciplinary, including nursing leadership, bedside nurses, nurse educators, patient escort, organizational excellence, and nursing coordinators. A voice-of-the-customer survey was administered to the nursing staff of the ED and SD units to gain their perspective on current practice. The survey results were analyzed, including internally collected data, and results guided the development of a new ED-SD workflow optimization. The process began with the patient being posted to an SD bed, followed by a telephone call from the ED nurse to the SD nurse. The telephone call was critical to executing the plan efficiently. A time limit of 20 minutes was placed on the SD nurse to arrive in the ED; if this time could not be met, the ED RN was to bring the patient to the SD unit. If the SD nurse was retrieving the patient from the ED, patient escort services would be called before leaving the unit and were then immediately dispatched to the ED. **Evaluation/Outcome:** The average bed-ready to left-ED time was reduced from 70.5 minutes to 45.9 minutes when the process was followed ($P < .001$). The target time for the SD nurse to be off the unit was 20 minutes, and the average time off the unit was 19.4 minutes. The workflow optimization coordinated care between the ED and SD units, enhanced
patient safety, and improved staff satisfaction and communication. The last phase has been the shadow program for the nursing staff of the respective areas. Each unit was able to shadow in the ED and vice versa. The shadow program has boosted teamwork and mutual respect of workflow in different departments.

**EB107: Care for the Caregiver: Code Compassion**  
Kim Rossillo; St Joseph Hospital, Orange, CA  
**Purpose:** Code Compassion was designed as an acknowledgment of the need to provide for caregivers when a stressful situation has occurred. A rapid response team responds when an individual has reached their emotional limit. Codes within hospitals signal urgent events, and Code Compassion is no different. Code compassion recognizes that self-care is not something to be dealt with later and that addressing emotional needs and immediate reduction of caregiver stress are vital aspects of a healthy work environment. **Summary:** Code Compassion is meant to be a circuit breaker on stressful days. A Code Compassion may be called to support caregivers in the event of any of the following triggers: a death of patient or caregiver, a major trauma or code, a significant clinical error, difficult encounters with a patient or family, or overwhelming staff emotional distress. The Compassion Team will respond to the unit, assess the situation, and provide appropriate interventions. When a patient has died, a white feather is posted at the station to provide awareness and serve as a reminder to soften our voices and to extend sensitivity and consideration to those who are grieving. As a follow-up to Code Compassion events, there is a bimonthly meeting called Connecting Conversations during which there is a debriefing of challenging cases. Connecting Conversations meetings are a forum that creates a safe environment for caregivers to share the emotional impact of their work, reduce isolation, and assist in the process of closure. **Evaluation/Outcome:** The Code Compassion rapid response model provides real-time care for caregivers to support them in their work. The follow-up Connecting Conversations meetings improve the caregiver experience by providing ongoing support, encouraging authentic connections, increasing communication, reducing burnout, and improving resilience. Results of Connecting Conversations evaluation tools demonstrated an increased staff perception of support and connectedness with their peers. Establishing an effective support system for health care providers is an important aspect of sustaining teams and alleviating daily stressors to optimize healthy work environments.

**EB108: Quiet Time on a Telemetry Unit**  
Kim Rossillo; St Joseph Hospital, Orange, CA  
**Purpose:** Patient satisfaction scores for quietness were less than the 50th percentile. The goal was to implement quiet time on a telemetry unit to create a healing environment that will result in improved patient satisfaction. **Summary:** Study results have shown a direct correlation between adequate sleep and overall individual health. Sleep deprivation has been linked to delirium and also may have a negative effect on patient safety. Noise activates the sympathetic nervous system, which, in turn, leads to increased blood pressure, heart rate, and intracranial pressure. Frontline staff reviewed our Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores and saw that our scores did not reflect the healing environment we strived to provide. They devised an action plan, including education and roll-out timelines for implementation of quiet time. Afternoon and evening quiet times were chosen on the basis of the unit flow and patient care activities. Immediately before quiet time, staff offered patients holistic interventions such as aromatherapy and healing touch. They also offered eye masks and warm blankets. During quiet time, lights were dimmed in the patients’ rooms and the hallways. Specific quiet time interventions for each staff member were outlined and distributed on reminder cards throughout the unit. Badge pulls that stated “I am Committed to Quietness” are worn by staff. Incentives given to staff included “Skip Floating for a Day” cards and “Freeze My Schedule as Requested” passes. **Evaluation/Outcome:** After implementing quiet time, HCAHPS scores improved above the 50th percentile and progressed to the 75th percentile. The improved patient experience on a busy telemetry unit reflected the value of using a highly engaged team of nurses to collaborate on an evidence-based practice project.

**EB109: Community Stroke Education: Addressing Stroke Symptoms Through Public Education**  
Kim Rossillo; St Joseph Hospital, Orange, CA  
**Purpose:** Stroke awareness is important: Stroke is the fourth leading cause of death and the leading cause of disabilities among adults in the United States.
Typically, education is aimed at the adult population in the community. The importance of knowing the warning signs and symptoms of a stroke, and the value of a healthy diet and exercise are important at all ages. Community stroke education can start in elementary schools and have an effect on children’s households and the communities we live in. **Summary:** Nurses can make a difference by leading age-appropriate and engaging educational activities in local schools and community events. Our hospital recognized that, frequently, patients were not coming in within the treatment window for stroke. Particularly, our Hispanic patients prolonged time to come in for treatment. Local schools were targeted to educate children so that they could identify early warning signs of stroke. Appropriate lesson plans were made for children in first through eighth grade and taught at 6 different sessions over 2 days. Each presentation included a short video that reviewed stroke signs and symptoms and how to respond. The sessions were geared toward grade level; for example, the first graders sang the FAST acronym—face, arms, speech and time—to the tune of the song “Head, Shoulders, Knees, and Toes.” The students were empowered and taught to act FAST and call 9-1-1 at the first signs of stroke. Staff nurses also made lesson plans and went to skilled nursing facilities, senior centers, and local community events. **Evaluation/Outcome:** The outcomes of these activities increased community awareness of early stroke recognition. During the span of the education process, the hospital saw an increase in tissue plasminogen activator use, and a decrease in mortality and of readmissions.

EB110: Duke Raleigh Intensive Care Unit Rounding Nurse: Collaboration and Early Intervention to Promote Patient Outcomes

Peter Berry, Kristin Merritt, Mary Matthys; Duke Raleigh Hospital, Raleigh, NC

**Purpose:** Duke Raleigh Hospital experienced rapid growth in our inpatient census in 2016. This resulted in an increased volume of rapid responses and code blue events on the inpatient floors outside of the intensive care unit (ICU). As we culminated the idea of initiating a 24/7 Rounding Nurse Program for Duke Raleigh, our primary goal was to decrease the number of code blue events on the inpatient floors and the rate of transfers to higher levels of care within the inpatient setting. **Summary:** The Rounding Nurse Program was developed from different models that included monitoring early warning scores for sepsis and prediction tools for recognition of early deterioration of patients on inpatient units. These evidenced-based programs were used to help build metrics that the ICU rounding nurse uses to monitor patients in the background. The team members are experienced, senior-level ICU charge nurses chosen for their leadership and clinical expertise. The rounding nurse reviews inpatient charts, looking for patients who have high early-warning scores or other clinical signs of deterioration. Nurses on the inpatient units can call the rounding nurse for any situation related to the care of their patient. The goal of the rounding nurse is to recognize and provide interventions before the need for a rapid response call. While collaborating with the care team, they provide a comprehensive assessment, real-time recommendations, share educational insights, and identify high-risk conditions that may necessitate a transfer to a higher level of care. **Evaluation/Outcome:** Within 5 months of the implementation of the Rounding Nurse Program, we were able to decrease the rate of patient transfer to the ICU after rapid responses from 25% in quarter 1 to 12% in quarter 4. The survival-to-discharge rate after a code blue event was increased from 17% in quarter 1 to 23% in quarter 4. The rounding nurses visit an average of 500 patients per month and were able to provide input related to the care of the patient to prevent the need to transfer the patient to a higher level of care. The number of code blue calls have consistently decreased to below the 24-month median after the implementation of the program.

EB111: An Innovative Approach to Stop the Clock, Close the Loop, and Beat Sepsis

Jennifer Elliott, Aranzazu Conklin; WakeMed Raleigh, Raleigh, NC

**Purpose:** In 2015, a 919-bed, acute care system had a severe sepsis mortality rate of 28%. Compliance with Centers for Medicaid and Medicare Services (CMS) sepsis core measures was below the national and state benchmarks. The electronic intensive care unit (eICU) team was used to identify and close gaps in evidence-based care bundles across the care continuum by partnering with bedside clinicians. Real-time interventions, data collection, and performance review were implemented to improve outcomes. **Summary:** The CDC reports sepsis occurs in more than 1 million patients every year,
with reported inhospital mortality rates ranging from 25% to 70%. The result of compliance with the evidence-based care bundles from the Surviving Sepsis Campaign guidelines for treating patients with sepsis is directly linked to mortality and quality outcomes. A system-wide sepsis initiative, led by a clinical nurse specialist for critical care, was developed to improve CMS SEP-1 core-measure compliance above state and national benchmarks and decrease mortality by 5% annually. This included (1) use of an interprofessional team; (2) education of health care providers; (3) development of screening tools, order sets, and protocols customized to each care area; (4) metrics tracking; (5) monthly case reviews with feedback; and (6) eICU services. The eICU team consists of nurses and intensivists who monitor 88 critical care patients 24 hours a day. They monitor each patient’s clinical condition, such as vital signs and laboratory and imaging results, to help facilitate and expedite sepsis treatment. Bridging identified gaps in sepsis care with this patient population has exponentially increased evidence-based bundle compliance and reduced mortality rates. **Evaluation/Outcome:**

Our CMS SEP-1 core-measure compliance before eICU intervention was 24% in the second quarter of calendar year (CY) 2016 and increased to 59% in the second quarter of CY 2017 after the intervention for hospital 1. Compliance at hospital 2 was 33% and increased to 64% after the intervention. System compliance with the CMS SEP-1 core measure is at the national and state benchmarks. Mortality rates for patients with severe sepsis were reduced from 28% in CY 2016 to 25% in quarter 2 of CY 2017 at hospital 1. The hospital 2 mortality rate was 25% in CY 2016 and decreased to 17% by the second quarter of CY 2017. eICU nurse–driven sepsis rounds and collaboration with bedside clinicians resulted in improved compliance and mortality rates for this population. Continued efforts are necessary to exceed goals and improve patient outcomes.

**EB112: C Difference in Our Care: Sustained Success in Preventable Patient Harm**

Theresa Mead, Korinne Muntz; Christiana Care Health System, Newark, DE

**Purpose:** The overall purpose of this program was to reduce the prevalence of *Clostridium difficile* rates by 10% by using evidence-based methods and protocols and multidisciplinary efforts. In addition, the health care team would gain an increased level of awareness about *C difficile* testing, illness, and care of the patient with *C difficile* infection. The team identified a need for improvement in the *C difficile* infection rate of 12.9 in July 2015. The Quality and Safety Council began swift efforts to correct the deficit. **Summary:** The team consisted of the transitional surgical unit (TSU) Quality and Safety Council as well as the TSU leadership team, incorporating the nurse manager and the clinical nurse specialist. The goal was to reduce the prevalence of *C difficile* in the TSU by 10% for fiscal year 2016. Every room in the TSU was cleaned with high-powered ultraviolet light that enables a higher level of cleanliness than in rooms in which is has not been used. A master list was created to monitor each room that was cleaned with the Tru-D system (Tru-D SmartUVC). In addition, any patient thereafter who was positive for *C difficile* infection would undergo ultraviolet light treatment after transfer or discharge. All staff, including nursing coordinators and environmental services, was educated on the initiative; the bedside staff were required to sign off on the education, which included smart *C difficile* testing guidelines to prevent unwarranted testing. An educational flyer describing proper hand hygiene compliance and information about *C difficile* prevention was created and included in all admission packets for patients, families, and visitors. Signage posted on all alcohol hand-gel dispensers in and nears the rooms of a patient diagnosed with *C difficile* infection reminded staff and visitors to use soap and water after exiting those rooms. **Evaluation/Outcome:** The unit exceeded the goal of decreasing the *C difficile* infection rate by 10%, resulting in a rate of 3.7/1000 patient days. No *C difficile* cases were reported for the remainder of the fiscal year. The success of the unit can be attributed to multidisciplinary collaborative efforts, including compliance by all teams involved in the project. Our next steps include biannual reeducation of current staff and the incorporation of this education in TSU new employee orientation. Sharing successes and assisting with implementation of interventions with or on other units decrease patient harm within the organization. Future initiatives include the addition of smart *C difficile* testing guidelines embedded in the order of this diagnostic test.

**EB113: Making a C Difference**

Lauren Howard; Emory University Hospital, Atlanta, GA
**Purpose:** *Clostridium difficile* infection is a significant hospital-acquired infection, accounting for up to 25% of antibiotic-related diarrhea. Diagnosis is made based on the occurrence of 3 unformed or watery stools and a positive culture. Testing often does not distinguish active infection versus colonization, which can perplex the clinician determining proper pretest probability of symptomatic infection. In the neuroscience intensive care unit (ICU), determining pretest probability is complicated by many alternate causes of both loose stool and concern for infection. **Summary:** In Emory University Hospital’s neuroscience ICU, these factors are implicated by the high incidence of *C difficile* testing, resulting in an accuracy of 12.5%. The measure of accuracy was calculated by dividing the total number of positive tests by the total number of tests sent. We used 2 countermeasures to increase the pretest probability of *C difficile* and to reduce the burden of overtesting. First, bedside nurses were empowered to discontinue any *C difficile* test that went unfulfilled for longer than 48 hours because of a lack of loose stool. Second, ordering clinicians were educated about alternate causes of loose stool, using an algorithmic approach to facilitate testing for *C difficile*. This algorithm was shared among ordering providers and staff nurses to ensure an approach of interdisciplinary collaboration. This system helps regulate the thought process of ordering clinicians when determining whether testing is appropriate in identifying an active infection. **Evaluation/Outcome:** The algorithmic approach was quickly accepted and implemented. Over 6 months, these strategies decreased the overall number of tests ordered. The accuracy of testing increased to 25%. Subsequently, overall *C difficile* rates decreased from an average of 2.5 per month to 0.6 per month in a 39-bed ICU setting. For sustainability purposes, a standardized root cause analysis form was created to identify any strays from the algorithmic reasoning in a hospital-acquired case and to determine why this occurred. A standardized approach to help determine pretest probability results in more appropriate testing and, consequently, decreased *C difficile* rates in the Neuroscience ICU.

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**EB114:** Using Continuity-of-Care Teams to Support the Family-Clinician Relationship in the Pediatric Cardiac Intensive Care Unit  
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**Purpose:** The challenges of prolonged hospitalizations combined with other stressors may increase parental stress and disrupt family-clinician dynamics. Proactively establishing a continuity-of-care (COC) team to help meet parental needs may enhance communication and relationship between families and the multidisciplinary team. **Summary:** Consistent information, care coordination, and support are described by families as essential priorities during their child’s intensive care stay. The cardiac intensive care unit (CICU) family stress guideline was implemented in 2012 to enhance the clinician-family relationship during a CICU hospitalization. As part of the guideline, families with specific risk factors are identified for the establishment of a COC team, consisting of a nurse and physician. Historically, the COC team has been activated in crisis. However, proactively implementing a COC team before a breakdown in communication is essential to foster the family-clinician relationship. Once identified, the COC team follows a family throughout their ICU stay and, if necessary, upon readmission. The COC teams are providers who have an existing relationship with the family. Their purpose is to facilitate care coordination through frequent communication and organized multidisciplinary team meetings. In addition, the team acts as a channel to these families, promoting consistent information sharing, providing support, and addressing their concerns in real time. These clinicians do not need to be their current care providers or the providers making clinical decisions. **Evaluation/Outcome:** The establishment of weekly multidisciplinary rounds and a COC committee has streamlined family identification and the referral process. Since January 2017, 57 CICU families have been identified for a COC team. Members of the COC committee recruit based on clinical experience caring for the family. Feedback from clinicians and referral families has been positive. Families state that “having a point person was helpful, it kept communication ongoing.” Clinicians describe communication as more streamlined with a COC team established. A survey is being developed to obtain family feedback and additional recommendations on the COC role. A formalized family information sheet is also being developed.

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**EB115:** Importance of Spontaneous Awakening Trials in the Intensive Care Unit  
Shawna Allietta; Riverside Methodist Hospital, Columbus, OH
Purpose: The quality team of a 30-bed medical intensive care unit (ICU) addressed the decreased compliance rate with spontaneous awakening safety screens and trials. The compliance rate was 20% with the screen and 0% with the trial in February 2017. To promote positive patient outcomes, the need for evaluation and improvement with the process was recognized. The goal was to increase compliance with completion and nursing documentation of spontaneous awakening safety screens and trials to 80% by June 30, 2017. Summary: The nursing team identified that there was no formal process in place for successful safety screens and trials of patients receiving ventilatory support, and they recognized this as an area for growth and development to decrease ventilator-days, time on sedation, and post-ICU syndrome. Research results demonstrate the positive outcomes of patients who are treated with the minimum amount of sedation needed. The team of bedside nurses created a process map to outline the pathway to successfully complete the screens and trials. In conjunction with the process map, the team provided education about sedation, spontaneous awakening trials (SATs), and spontaneous breathing trials to their peers. After multiple tests of change were performed, it was determined that 6 AM was the optimal time to perform the spontaneous awakening screens and 8 AM for SATs to allow for effective spontaneous breathing trials. The unit quality-care team continued to provide education, which now focused on proper SAT procedure and documentation to make the project successful. Evaluation/Outcome: To evaluate the effectiveness of the project, chart audits were completed on patients receiving mechanical ventilation. Audits were performed to assess the compliance of spontaneous awakening screens at 6 AM, which allowed the next shift to determine if the trial was indicated or contraindicated. Charts were also audited to determine the outcome (pass or fail) of the spontaneous awakening trial at 8 AM. After the new process, compliance with the safety screen improved to 90%, compliance with the trial improved to approximately 60%, and the overall pass rate for SATs improved to approximately 30%.

EB116: Synchronized Turning of Patients (STOP): Reduction of Hospital-Acquired Pressure Injury in the Intensive Care Unit

Elizabeth Borgueta, Kaitlyn Red Elk, Maureen Fay, Anita Musafar; Stanford University, Stanford, CA

Purpose: In a 33-bed mixed intensive care unit (ICU), there were 13 sacral hospital-acquired pressure injuries (HAPIs) from July 2016 to December 2016. In November 2016, 250 patient turns were observed, and only 10% achieved adequate sacral offloading. Patients were not consistently turned, were repositioned but typically supine, and/or turned without sacral pressure relief. This quality-improvement project aimed to reduce HAPI through a 30° synchronized turning schedule for critically-ill patients. Summary: Findings from a literature review suggested that turning patients at periodic intervals and sacral offloading by 30° can prevent sacral pressure ulcers. In a 33-bed ICU, the Synchronized Turning of Patients (STOP HAPI) project was developed by the unit wound experts to improve collaborative efforts and enhance the nurses’ accountability in repositioning patients by providing a standardized guideline that provided an instant visual cue of compliance. A patient who was not positioned per the turning schedule cued other nurses to assist with the needed turn. Critically ill patients with a Braden Scale score of less than 16 were repositioned on a synchronized right and left turn schedule; the supine position was eliminated. The 30° sacral offloading was achieved and sustained using a body wedge positioner. The STOP HAPI project was reviewed with the 185 ICU nurses during mandatory staff meetings, and education materials were posted throughout the unit. To elevate accountability, the resource and break-relief nurses documented patient turns, including barriers, on a turning-schedule tracking tool. The trial excluded patients who were alert, oriented, could turn independently, and those with do-not-turn or comfort care orders. Evaluation/Outcome: The STOP HAPI project was launched December 5, 2016. After the 30-day trial period, 250 patient turns were observed. The unit achieved 84% compliance with the synchronized turning schedule and 90% compliance with the 30° turning procedure. Six months after the initiation of STOP HAPI, there was a 92.3% decrease in sacral HAPIs compared with the 6 months before the intervention. For sustainability, the synchronized turning initiative was monitored via a tracking sheet and randomized peer review by the unit wound experts. The STOP HAPI project has elevated accountability, enhanced collaboration, and sustained the highest standard of care in preventing HAPI in the ICU.
EB117: Going the “MILE” in the Medical Intensive Care Unit Interactive Learning Experience
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**Purpose:** The intensive care unit (ICU) environment is dynamic, with rapidly changing technology, patient therapies, and medications. Nurses desire to stay current, yet time constraints and educational opportunities can be challenging. A dedicated room was established in the medical ICU (MICU) to provide self-guided learning. A new topic is developed each month by the Advanced Clinician (AC) group and designed for brief interval learning by staff during their shift. **Summary:** The MICU AC group is a team of 13 registered nurses (RNs) acting as preceptors, mentors, educators, and leaders in a high-acuity ICU. They work closely with the unit’s clinical nurse specialist to facilitate the orientation of new staff and help maintain ongoing competence of approximately 90 RNs. Each AC works with a “district” of 6 to 8 RNs whom they update on new clinical practices and assist in continuing professional development. A needs assessment is done annually and indicates desired topics for education and training. Providing continuing education opportunities for staff can be problematic because of time constraints, limited resources, and staff reluctance to come in to work on a day off. To address these challenges, a room was designated on the unit as the education room to be set up with a different topic each month. This enables staff to partake of the education in an efficient and self-paced fashion. Topics are selected during the monthly AC meeting, and an AC works with the nurses in their district to design the room using a minimum of 2 methods: audiovisual and hands on. This allows the participation of staff nurses in the design of the learning experience, tapping into underused resources. **Evaluation/Outcome:** An electronic survey was emailed to staff to assess their level of agreement with the following, using a Likert scale of 1 to 5: “My educational needs are being met” (baseline score, 3.66); “I feel involved in unit-based education” (baseline score, 3.62); “I have the resources to advance my professional development” (baseline score, 3.79); and “I feel that educational opportunities are easily accessible” (baseline score, 3.86). This survey will be repeated after a year to determine staff involvement and the creation of a culture of learning. It is anticipated that 75% of the MICU nursing staff will participate in each month’s MICU interactive learning experience (MILE) topic; a pre- and posttest will assess learning each month.

EB118: Line, Drain, and Airway Dislodgement Prevention Taskforce. What Is It, and Can We Do It?
Olena Svetlov; Cedars Sinai Medical Center, Los Angeles, CA

**Purpose:** From April 2015 through March 2016, there were 93 dislodgments of invasive catheters, drains, and/or airways (LDAs) in the surgical transplant intensive care unit (SICU) in an academic medical center in the greater Los Angeles area. These data became the impetus for the formation of the LDA Dislodgement Prevention Taskforce, with a goal to reduce the amount of LDA dislodgements by 10%. **Summary:** Clinical nurses in the unit worked to improve the quality of patient care by identifying and implementing solutions to any accidental LDA dislodgements. A thorough literature review was conducted. A postdislodgment audit tool was developed along with the LDA Dislodgement Prevention Taskforce. The champions developed new guidelines as a test of change; these included the following: the charge registered nurse (RN) was assigned to all travel RNs and new-hire RNs at the beginning of each shift; implementation of a verbal time out before any patient position change; the assessment for arterial line positioning or anchoring, and a request to physicians to suture the lines or drains; and the Situation, Background, Assessment, and Recommendation bedside report reinforced for day and night RNs. The possibility of an early discontinuation was included in daily provider and RN rounds; the reminder huddle email to all leadership (clinical nurse IV, assistant nurse manager, clinical nurse specialist, and a unit manager) was done daily. These guidelines were introduced to the unit practice council and leadership, then introduced to the staff as a new practice model. The in-service programs with a teach-back method were completed in one-to-one mini educational sessions before the implementation phase. **Evaluation/Outcome:** The chart review was conducted to evaluate the number of LDA dislodgements after implementation of the guidelines. The LDA dislodgements per patient-days were as follows: September 2016: 3 per 603 (0.5%); October 2016, 2 per 614 (0.33%); November 2016, 5 per 571 (0.88%); December 2016, 3 per 587 (0.51%); January 2017, 2 per 597 (0.34%); February 2017, 2 per 534 (0.37%); March 2017, 6 per 614 (0.98%); April 2017, 2 per 515 (0.39%); and May 2017, 2 per 570 (0.35%). The percentage of LDA dislodgements per patient-days was decreased from 15 LDA dislodgements per 607 patient days (2.47%), to a postimplementation average of 0.52% (September 2016).
2016 to May 2017). The LDA Prevention Dislodgment Taskforce correlated to greater than 50% reduction in dislodgments.

**EB119: Reviving the Code Blue Nurse Role**
Renee Larusso; Sharp Memorial Hospital, San Diego, CA

**Purpose:** Traditionally, nurses in the medical intensive care unit (MICU) became competent in code blue response by attending 3 code blue events with an experienced nurse to guide them. However, the incidence of code blue events outside the ICU has decreased. Thus, alternative methods to mentor new staff to the role of the code blue nurse were needed. A process of education and simulation was developed to maximize proficiency and develop individual leadership skills. **Summary:** A process for code blue response training was defined and piloted with a small group of nurses in the MICU. This group was chosen because of their strong leadership and communication skills. Once the education was refined, training was opened to staff with criteria to be met: at least 1 year of MICU experience, demonstrated competence in annual mock code blue drills, proficiency in the first level of advanced skills and devices, the ability to speak up and delegate, and possession of situational awareness. Staff members meeting these criteria and interested in being part of the team attended a 2-hour class. In the class, they received information on the importance of a specially trained code blue team, the unique roles of each code blue team member, expectations when they respond to a code, how to use closed-loop communication and collaboration, develop situational awareness, and how to be a leader. They then go through a code blue simulation with nurses representing other team members. The staff member is evaluated with a standardized evaluation tool on the specific characteristic or skills found to be imperative. They then go through communication scenarios, review use of the defibrillator, practice completing a code blue record, and practice debriefing after the event. **Evaluation/Outcome:** Evaluation of code blue events is tracked with quality-critique forms. In the first quarter of 2016, 24 critiques were completed. Four of these indicated issues with leadership, communication, and teamwork. In 2017, of the 9 critiques received, none identified similar issues. Patient survival and critical resuscitation elements are also measured and deviations tracked. There has been a steady decrease in the number of opportunities identified. The trends observed provide evidence that revitalizing the preparation of code blue nurses in the MICU has positively affected patients in the hospital.

**EB120: Taking the Stress Out of Emergencies**
Cynthia Thompson, Anna Vigil; Grant Medical Center, Columbus, OH

**Purpose:** The presence of a novice workforce in critical care and a decreasing number of experienced nurses to assume leadership roles as charge nurses has created a knowledge gap when emergencies arise on the unit. New charge nurses feel they are ill prepared and lack the knowledge to handle these situations. A program to streamline roles during emergencies and ensure needed equipment was easily available was implemented to address this gap. **Summary:** New charge nurses presented a concern to the unit’s practice council about the staff’s lack of knowledge on what roles to assume during emergencies and the location of specialty equipment needed during emergencies. The practice council created a committee to address these concerns. The committee consisted of new charge nurses, bedside nurses with less than 2 years of experience, a respiratory therapist, and a pharmacist. The committee brainstormed issues affecting their ability to function efficiently during emergencies and things that delayed treatment. A literature search was done, articles were reviewed, and an action plan was developed. The plan addressed roles and responsibilities during an emergency, specialty-cart creation for certain emergencies, and staff education on the new process and carts. Nurses and PSAs participated in 2.5 hours of training consisting of lecture, high-fidelity simulation of medical and trauma emergencies, and documentation of emergencies. Participants were asked to complete a pretraining survey at the onset of class and postraining survey 30 days after the course. Instructors for the workshop were nurses on the committee, as well as attending physicians and other disciplines present during the simulation. **Evaluation/Outcome:** The pre- and postraining surveys showed a 50% increase in knowledge of where emergency equipment is located and a 25% increase confidence in charting emergencies in the electronic medical record. Greater than 75% of the participants completing the surveys had less than 5 years of critical care experience. The following are a few comments from evaluations: “This was a great benefit to our unit; “Clearly knowing your role will decrease the chaos.” “I’m no longer afraid of the code charting.” “Carts are awesome.”
workshop will become part of orienting all new staff to the critical care units, based on the positive feedback received from the participants.

**EB121: Back to the Basics: Handwashing in the Neurological Intensive Care Unit**

Jennifer White, Vicki Lookingbill; Texas Health Harris Methodist, Ft Worth, TX

**Purpose:** The neurological intensive care unit (ICU) in a 500-bed hospital was experiencing an increase in its central catheter–associated bloodstream infection (CLABSI) rates and catheter associated urinary tract infection (CAUTI) rates above the national average on Press Gainey National Database of Nursing Quality Indicators scores. The 22-bed ICU held a month-long, unit-based marketing campaign to influence hand hygiene to improve CAUTI and CLABSI scores.

**Summary:** Hospital-acquired infections (HAIs) cost hospitals billions of dollars annually and result in thousands of preventable deaths every year. Lack of adequate hand hygiene among health care workers contributes to HAIs. Adherence rates to protocols for hand hygiene by nurses are only 48%. The Neurological ICU decided to implement a new marketing campaign to improve staff handwashing. Through the shared governance structure, a committee was formed to create a month-long campaign. The campaign began with a kickoff party of the entire unit. An informative poster, video, interactive games, and t-shirts were used to educate the staff about the necessity of proper handwashing technique. Secret observers monitored staff handwashing every shift and handed out prizes, such as pens and stickers, to the most compliant washers. Informative handouts were placed throughout the unit, in staff mailboxes, and distributed through email and at staff meetings.

**Evaluation/Outcome:** To evaluate the decrease in pressure injuries, we used the CMS reportable pressure injury data. At the end of 2016, we had 14 stage 1 and stage 2 HAPIs. After implementing the Mepilex dressings and airbeds, the prevalence has been reduced to 4 stage 1 and stage 2 HAPIs as of October 2017. The Braden Scale score is reassessed every shift and we place a dressing on patients on the basis of their score. The dressings are labeled with the date and a “P” for prevention.

**EB122: Reduce the Pressure, Reduce the Injury**

Kathryn Macartney; St Vincent Healthcare, Billings, MT

**Purpose:** Pressure injuries cause increased length of stay and total cost of the hospital stay, and pain to the patient. A pressure injury is defined by stages of development. These stages are defined by the National Pressure Ulcer Advisory Panel as stages 1 through 4, unstageable, and deep-tissue injuries. Our goal was to decrease the number of stage 1 or 2 hospital-acquired pressure injuries (HAPIs) and to maintain no stage 3 or 4 HAPIs in the patient population at St Vincent Healthcare intensive care unit (ICU).

**Summary:** The solution for decreasing pressure injuries prevalence was to decrease patients’ risk of pressure injuries. After research and a couple of product trials, we implemented a standard of prevention. According to our Centers for Medicare and Medicaid Services (CMS) reportable data, our greatest occurrence of pressure injuries are at the coccyx and the heel. We then implemented a standard to place a prophylactic Mepilex dressing (Mölnlycke Health Care) on the coccyx and the heels of any patient with a Braden Scale score of 18 or lower. An airbed has been purchased for every patient admitted to the ICU.

**Evaluation/Outcome:** To evaluate the decrease in pressure injuries, we used the CMS reportable pressure injury data. At the end of 2016, we had 14 stage 1 and stage 2 HAPIs. After implementing the Mepilex dressings and airbeds, the prevalence has been reduced to 4 stage 1 and stage 2 HAPIs as of October 2017. The Braden Scale score is reassessed every shift and we place a dressing on patients on the basis of their score. The dressings are labeled with the date and a “P” for prevention.