2016 National Teaching Institute Evidence-Based Solutions Abstracts

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EB40 Starting a Journal Club: Creating an Environment of Professional Growth and Enhancement of Practice

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Purpose: Evidence-based nursing evaluates evidence from research and uses it to guide patient care. Nurses must be comfortable in reading and evaluating research and determining if there is potential to translate research into practice (TRIP). An intensive care unit (ICU) journal club was started to familiarize nurses with different research methods and to provide a method for appraising the work. The ultimate goal was to incorporate research into a positive clinical practice change. **Description:** The objective of a journal club is to critically appraise a published article and to make conclusions on its validity and relevance for applying to clinical practice. It provides a forum for discussion of research and the opportunity to examine the rigor of that research. The Magnet Recognition Program, which rewards innovation and excellence in nursing, expects facilities to create a nursing environment of learning that is based on research and evidence-based practice. Journal clubs enable nurses to meet that expectation by helping them gain new knowledge and perspective on their work so that they can use that knowledge in their practice. The discussions held in a journal club engage nurses to remain current in research and to explore potential for TRIP. Six steps were used in creating the ICU journal club: (1) establish short- and long-term goals, (2) establish meeting guidelines and participation expectations, (3) recruit members, (4) meet and discuss, (5) evaluate—have short- and long-term goals been met? (6) evaluate the TRIP potential. **Evaluation/Outcomes:** The ICU journal club has met its intended goals. A questionnaire sent to members determined that 100% of them felt that the club helped them to better understand the different research methods and the process to critique that research. The journal club also satisfied the ultimate goal of analyzing research with the intent to translate into practice. We focused on research that looked at the effects of continuous lateral rotation therapy (CLRT) on ventilator days, ventilator-associated pneumonia, and ICU length of stay. The research supported CLRT, so we initiated a CLRT protocol in our ICU. Data are currently being collected both before and after initiation of CLRT.

EB41 Rookies of the Year: 15 Years of Successfully Hiring and Retaining New Graduate Nurses in Critical Care

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Purpose: This exemplar highlights an intensive care unit's (ICU) success in hiring, orienting, and retaining new graduate registered nurses (NGRNs) in critical care at a large academic medical center for 15 years. Many organizations do not hire NGRNs for the ICU because of the complexity of critical care, historically low retention rates, and high orientation costs. Our results demonstrate that NGRNs are an underused resource that can

aid in meeting the nursing shortage and increased health care demand. **Description:** NGRNs are the largest pool of human resources available to meet the nursing demand in the health care market. Retention rates of NGRNs in acute care settings are low, with reports of 35% to 61% of NGRNs leaving their position within the first year of employment. Coupled with estimated associated turnover costs of $145 000 per registered nurse lost, many organizations are hesitant to hire NGRNs for critical care. Since 2000, our ICU has been hiring, successfully orienting, and retaining NGRNs. The process includes screening of potential candidates before an interview, behavioral interviewing, and "hiring for fit." Structured critical care orientation including established curricula, simulation training, and clinical immersion with dedicated, trained preceptors is generally completed after approximately 330 clinical hours. Ongoing staff development and mentoring the first year nurse via both didactic and progressive clinical learning experiences, along with bimonthly attendance at a peer-facilitated "New Hearts" mentoring group enhances the clinical development and retention of NGRNs. These practices have resulted in positive outcomes. **Evaluation/Outcomes:** NGRNs are a highly successful part of our adult and pediatric cardiovascular surgery ICU (CVSICU). The orientation completion success rate is 98%. The mean staff tenure in the CVSICU has been 44.25 months, with 27.5% of those hired currently still in position. In addition, 52.5% of those who have transitioned from the CVSICU did so to attend graduate school or to begin practicing in advanced nursing practice roles. Hiring NGRNs into the critical care environment is important to meet the demands of the nursing shortage. Through selective hiring practices, strong orientation, and ongoing mentoring, they continue be our "rookies of the year."

EB42 Using the Shared Governance Model to Improve Quality Outcomes in a Community Adult Intensive Care Unit

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Purpose: Staff in the adult intensive care unit (AICU) in a community hospital noted an increase in ventilator-associated events (VAEs) in the fourth quarter of 2013 (17.9 VAEs/1000 patient days) and the first quarter of 2014 (11.6 VAEs/1000 patient days). Compliance with the evidence-based AACN ventilator-associated pneumonia (VAP) prevention bundle was less than 20%. The purpose of this project was to use the shared governance model to improve quality outcomes, specifically VAE, in a community AICU. **Description:** The Shared Governance Committee (SGC) created a standardized practice for increasing VAP bundle compliance. Standardization of oral care kits with chlorhexidine gluconate and oral care timing for oral swabbing and teeth brushing were established with written time guidelines posted next to the kits. The SGC collaborated with respiratory therapy on completing spontaneous awakening trial assessments daily on ventilator patients as well as standardization of subglottic suctioning and endotracheal tube repositioning. Standardized times for ventilated patients to be in the chair position (noon and midnight) were also implemented. To improve accountability, collaboration, and communication, the SGC developed and tried out 3 standardized report sheets. The report sheets were voted on and modified to prompt discussion of quality metrics and patient safety initiatives. Staff members were educated on VAP prevention through a peer-reviewed article on the ventilator-associated pneumonia bundle and the system-wide VAP nursing protocol also was distributed. **Evaluation/Outcomes:** To ensure that the new interventions are consistently implemented, VAP bundle audits are completed each night by the charge nurses. The information is disseminated weekly to the staff via real-time graphed results posted in the unit. From the first quarter of 2014 through the second quarter of 2015, VAP bundle compliance has increased from less than 20% to greater than 80%. As of the second quarter of 2015, the AICU has not had a VAE since implementation of the VAP reduction strategies. Compliance rates and countermeasures are evaluated monthly at the meeting of the multidisciplinary critical care quality team. Interventions will continue to be monitored on a weekly basis until 90% compliance is achieved.

EB43 End-of-Life Nursing Education in Intensive Care Units: An Evidence-Based Practice Approach

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Purpose: Registered nurses in intensive care unit (ICU) settings have identified insufficient education and training as being one of the largest barriers to providing optimal end-of-life (EOL) management. This knowledge deficit has led to inadequate symptom recognition and

management in EOL patients, poor interdisciplinary communication, and decreased registered nurse job retention. The purpose of the evidence-based project (EBP) was to increase nursing knowledge in the EOL management of ICU patients. **Description:** Classroom-based EOL educational interventions reduce nurses' anxiety levels and concerns about the dying process, increase nursing knowledge in EOL care, and improve recognition and treatment of pain and other symptoms in EOL patients. EOL educational initiatives have also been associated with improved awareness regarding the complexity of issues at the EOL and have increased inter-disciplinary collaboration and communication. The EBP project took place at a large, academic medical center in the Southeastern United States. Twenty-three 3.5-hour educational sessions were provided for registered nurses employed in the 6 adult ICUs. Educational session content focused on the EBP ICU nursing management of EOL patients. Before the educational sessions, voluntary nurse participants completed a demographic sheet and a 20-question multiple-choice pretest reflective of foundational nursing knowledge on ICU EOL nursing management. Immediately following the 3.5-hour educational session, the same test was administered as the posttest. The pretest and posttest were compared to assess outcomes. **Evaluation/Outcomes:** A total of 46 participants from 6 ICUs completed all aspects of the project. Women made up 93% (n = 43) of the participants. The age of participants was from 22 years to 61 years (mean, 31.9 years). The participants' years of nursing experience was from 0.5 years to 40 years (mean, 7.2 years). Pretest scores were from 60% to 100% (mean, 79.4%). Following the educational intervention, posttest scores were from 90% to 100% (mean, 96.7%). A 2-tailed paired t test demonstrated that the change in mean scores from the pretest to posttest was statistically significant ($P < .001$).

EB44 An Evidence-Based Approach to Creating a Restraint-Free Environment in the Pediatric Intensive Care Unit

Anne Pirrone; Ochsner Hospital for Children, New Orleans, LA

Purpose: Physical restraint has historically been common practice in pediatric intensive care units (PICU) despite a lack of empirical evidence to support its use. Children in pediatric intensive care are frequently restrained to prevent accidental dislodgement of medical devices needed to monitor and sustain life. However, any form of restraint should be used only as a safety measure of last resort. **Description:** An interdisciplinary task force was created in the PICU to decrease use of restraints by 50% within 2 years by using evidence-based strategies. The task force consulted PICUs around the country as well as scientific evidence to develop a daily checklist to assess for the need for restraints. Numerous plan-do-study-act cycles were used to (1) educate the staff on appropriate use of restraints, (2) identify alternatives to restraint use, (3) increase staffing to allow more time at the bedside to ensure safety, and (4) conduct weekly chart audits to assess staff compliance with restraint guidelines. **Evaluation/Outcomes:** Since inception of the new restraint guidelines, the rate of restraint use had decreased by approximately 68% at 1 year and 97% at 2 years. In addition, patients spent approximately 2 fewer days in restraints for each restraint episode. The PICU continues to provide a nearly restraint-free environment to the children and families.

EB45 Preventing Preventable Falls in Critical Care

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Purpose: From July 2013 through June 2014, the neuroscience/trauma intensive care units (ICUs) and the neuroscience progressive care unit (neuroPCU) at St Joseph Medical Center in Tacoma, Washington, had a high mean falls rate, ranking the department with the seventh highest reported rate average and more than a third above the baseline benchmark. In order to decrease falls-related adverse outcomes for patients and associated costs, leadership and nursing staff of the neuroPCU developed and implemented a multifaceted set of evidence-based fall prevention measures. **Description:** A nursing literature review was conducted for research results and evidence-based practice solutions regarding fall risk factors and prevention measures. A "no fall zone" approach was tried out in the neuroPCU. At shift change, a team huddle was performed. Applying a specifically designed tool, nurses documented each patient's Morse fall score, injury identification factors (old age, bone and coagulation status, surgery within the past 24 hours), behavioral concerns, nutritional status, and particular skin issues. Based on these components, patient-specific measures (bed/chair alarms, restraints, sitter) were applied as needed. Yellow, laminated, triangular

"No Falls" signs in letter format were placed visibly outside of high-risk patients' rooms. Passport size, yellow bed alarm signs placed inside of high-risk patients' rooms functioned as reminders to the entire health care team to check the alarm before leaving the room. Newly admitted patients and their family members were educated about their complementary contribution to falls and injury prevention by providing a contract-style worksheet and having them watch a hospital-supplied patient safety video. Further, an hourly rounding and repositioning schedule was established. **Evaluation/Outcomes:** After a month-long trial of the "no fall zone" in the neuroPCU without a fall, the evidence-based fall prevention measures were adopted in the entire department. That way, from July 2014 to December 2014, the mean fall rate had decreased from 4.52 to 2.55 falls per 1000 patient days, ranking the department with the 11th highest reported mean rate and below the facility's adjusted baseline benchmark of 2.94 falls per 1000 patient days. Although the department had counted 20 falls with injury out of 46 in fiscal year 2014, there were only 6 falls with injury out of 13 in the following 6 months, representing an improvement by 71.73%. This trend continued and led to cost savings of $98 937.

EB46 Improving Sepsis Compliance: Using a Collaborative Team Approach

Jan Shepard, Georgia McGlynn; UC Davis Medical Center, Sacramento, CA

Purpose: Our hospital is a level I trauma center that handles 80 000 emergency department (ED) visits per year. Although the hospital's severe sepsis and septic shock mortality rate has decreased to 10% as the result of institution-wide efforts to improve early recognition and treatment on the basis of the Surviving Sepsis Campaign guidelines, compliance with these recommendations in the coded patient cohort has remained a challenge. **Description:** In an effort to increase the quality of care, significant work has gone into refining the clinical pathway to provide real-time support for clinical decision making. This effort was supported by a multidisciplinary team that included stakeholders from the emergency and quality and safety departments, electronic medical records (EMRs), health information management, and our Sepsis Improvement Collaboration Committee with representation from our "C Suite." We built a standardized severe sepsis/septic shock EMR

toolbox to guide clinicians to treat these patients according to the Surviving Sepsis Campaign best practice guidelines. This toolbox includes (1) a targeted severe sepsis: treatment and monitoring order set, (2) a "dotphrase" template for documentation of severe sepsis and septic shock decision making and treatment, and (3) a set of best practice alerts (BPAs) in the EMR that are triggered by vital signs and lactic acid results to encourage early recognition and treatment of severe sepsis and septic shock by clinicians. The multidisciplinary team reviews patients' charts concurrently and retrospectively to provide feedback on the use of these tools and to provide real-time support for severe sepsis and septic shock treatment in the ED. **Evaluation/Outcomes:** These efforts have steadily increased compliance with treatment of severe sepsis and septic shock according to the Surviving Sepsis bundle by 76% in 6 months, from 38% in November 2014 to 67% in May 2015. Continual process improvements are underway to address and improve adherence to and compliance with the sepsis bundle.

EB47 Evaluation of Specialty Linens to Reduce Pressure Ulcers in High-Risk Intensive Care Unit Patients

Regina Freeman, Andrew Smith, Sharon Dickinson, Candace Friedman; University of Michigan, Ann Arbor, MI

Purpose: The cardiovascular intensive care unit (CVICU) and the surgical intensive care unit (SICU) have the highest rates of unit-acquired pressure ulcers in the institution. These high-risk patients have multiple risk factors that affect pressure ulcer development. Multiple interventions have previously been used to reduce occurrence of pressure ulcers with limited results. The purpose of this project was to evaluate the impact of using specialty linens on reducing the incidence of pressure ulcers in high-risk patients. **Description:** Evidence supports the use of linens and specialty beds to address the microclimate surrounding the patient's skin and reduce pressure ulcers. By addressing the microclimate, friction, shear, moisture, and heat can be minimized. Specialty synthetic silk-like fabric linen that is drier and smoother than conventional cotton textiles was selected for use in these high-risk patients. The linen was tried on 24 beds in the CVICU and 20 beds in the SICU. The linens including sheets, underpads, gowns, and pillow cases began in February 2015. Before implementation, a multidisciplinary group collaborated to determine details of the planned trial for a smooth rollout. The educational

and operational plan included the following: distribution, storage, collection, and laundering of specialty linens, the education of nursing, the multidisciplinary team, and patients and patients' families. **Evaluation/Outcomes:** Data will be compared for a 9-month period before and after implementation. Preliminary data based on 6 months of hospital skin prevalence data from the National Database of Nursing Quality Indicators (NDNQI) after implementation indicate a decrease in overall pressure rates. Prevalence rates for sacral/coccyx/buttock pressure ulcers in the CVICU indicated a rate of 45.5% before and 22.2% after implementation. The SICU's rate was 57.9% before and 30% after implementation. Data extracted from the electronic medical record based on documented pressure ulcers for 6 months also were compared. Documented sacral/coccyx/buttock pressure ulcers in the CVICU were 4.2% before and 1.5% after implementation. In the SICU, sacral/coccyx/buttock pressure ulcers were 3.8% before and 1.3% after implementation.

EB48 Using an Interdisciplinary Team to Improve Early Mobility in the Intensive Care Unit

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Purpose: Early mobility reduces lengths of stay, ventilator days, and delirium rates in the intensive care unit (ICU). The VA Eastern Colorado Healthcare System did not have a consistent process for early mobilization of medical patients admitted to the ICU. The lack of a formal process resulted in inconsistencies in care and delays in patients receiving assisted mobility. An interdisciplinary group was formed to create a formalized process to improve early mobilization of medical patients admitted to the ICU. **Description:** An interdisciplinary team met to work out this problem using a rapid process improvement workshop (RPIW) method. The team consisted of ICU nurses, physical therapists, occupational therapists, speech therapists, respiratory therapists, hospitalists, and rehabilitation physicians. The RPIW looked at an existing process step-by-step along with all the issues surrounding that process. The team then problem-solved all those issues, creating a new and improved process. The team created a progressive activity and movement (PAM) protocol and created a PAM activity order set in the electronic ordering system with automatic physical therapy and occupational therapy consultations attached to that order. Every morning, the

physical therapist (PT) and occupational therapist (OT) round with the charge nurse to determine which patients are appropriate for skilled therapy using exclusion criteria as determined by the interdisciplinary team. PT and OT pager numbers are posted at the nurses' station so that they may be contacted if a patient's condition changes and they are eligible for skilled therapy later in the day. The electronic ICU flow sheet was updated to include areas for documentation of levels of mobility to ease documentation for the nurses. **Evaluation/Outcomes:** Sixty-two percent of patients now receive a PT/OT consultation within a median of 15 hours whereas before the PAM only 44% received a PT consultation with a median time of 44 hours from admission. Median length of ICU stay went from 44 hours to 41 hours within 6 months of the PAM rollout. Ventilator days went from 221 to 195 after PAM initiation. Delirium rates went from 1.9 incidents per day to 1 incident per day. Hospital length of stay went from 5 days to 4 days. The initial program goal was just to improve the number of skilled therapy consultations. We will continue to look at the other data for 6-month intervals for the next 2 years.

EB49 Nurse-Led Rounds Improve Communication, Collaboration, and Decision Making

Catherine Schmieder, Tara Sacco, Jamie Fodness; University of Rochester Medical Center, Rochester, NY

Purpose: On the neuromedicine ICU (NMICU), it was observed that daily interdisciplinary rounds lacked effective communication and collaboration among team members, and medical orders were not being placed in a timely manner. In addition, patient presentations were not up to date, and the bedside nurses were typically not active participants. Thus, to improve communication, collaboration, and decision making, an interprofessional team convened to transform practice. **Description:** In January 2014, the concept of nurse-led rounding was introduced by the unit's medical director, who had seen the success of this rounding style at another institution. The interprofessional team completed a comprehensive literature search and discovered little evidence to support nurse-led rounds. With the goal to achieve a healthier work environment, the team used the standards published by the AACN to guide planning, with a specific focus on skilled communication, true collaboration, and effective decision making. In the first step, the NMICU's nurses and advanced practice providers

developed a head-to-toe template that allowed for a detailed, real-time report of the patient, including laboratory values, vital signs, medications, and assessment findings. The process of nurse-led rounds was implemented in March 2014. During rounds, the bedside nurse presented the patient to the team, stopping after each system for an interprofessional discussion of concerns. After the discussion of current problems, the unit pharmacist reviewed the active medication list, followed by a provider reviewing all new orders, and a summary of the daily plan. **Evaluation/Outcomes:** Almost 18 months later, satisfaction was assessed and nearly all nurses (97%) felt like a more valuable team member and 93% indicated that communication had improved. Most providers (74%) reported that patient data was presented in a more concise manner and 84% reported communication improvements. Patient satisfaction also improved: the mean Press Ganey score for overall ICU care before implementation was 91, after implementation was 97, and the score has been sustained above 95 through the first quarter of 2015. Overall, nurse-led rounds have improved patient care by strengthening communication, maximizing collaboration, and expediting decision making on this unit.

EB50 Synchronize Your Watches From a Random Sedation Vacation to a Structured Awakening Trial

George Brown; Baylor Regional Medical Center of Plano, Plano, TX

Purpose: Inconsistencies in standardized care models and a lack of collaboration among the interdisciplinary team members can contribute to patients receiving mechanical ventilation for longer and experiencing longer stays. The goal of the quality improvement initiative was to determine if using a structured awakening trial with an end point of 10 AM as compared with a random sedation vacation would decrease ventilator days, length of stay in the intensive care unit (ICU LOS), hospital LOS, and ventilator-free days. **Description:** Jones et al reported that a spontaneous awakening and breathing protocol decreases the duration of mechanical ventilation. Girard et al identified that combining routine spontaneous awakening and breathing trials increased ventilator-free days and decreased LOS. In January 2014, the ICU moved away from a random sedation vacation and implemented a coordinated 10 AM time frame for the transition from an awakening trial to a spontaneous

breathing trial for all patients undergoing mechanical ventilation. Team members were educated through staff meetings, charge nurse meetings, shift change huddles, workstation information sheets, and a poster presentation. Rapid cycle (plan, do, check, adjust) improvement changes included a charge nurse audit tool, a communication loop focusing on ABCDE compliance reports, a lean management system using a systematic huddle board process, and 1-on-1 coaching sessions using a superuser model. Compliance was audited on a daily basis by charge nurses focusing on documentation and not word of mouth. Collaborating with families during the awakening and breathing trial process demonstrated the potential of increasing satisfaction with communication and building trusting relationships. **Evaluation/Outcomes:** Retrospective chart reviews were conducted for a 2-year time frame comparing data before and after implementation. The preintervention group included patients from January 1, 2013 to December 31, 2013. The postintervention group included patients from January 1, 2014 to December 31, 2014. After the intervention was initiated, ICU LOS decreased from 11 days to 7 days ($P = .02$), the hospital LOS decreased from 16 days to 11 days ($P = .02$), and the ventilator days decreased from 5 days to 3 days ($P = .08$). Ventilator-associated mortality did not change significantly. From the 4-day reduction in ICU LOS, a \$706 225.92 cost avoidance was realized.

EB51 Clean It Like You Mean It: Central Catheter–Associated Bloodstream Infection Prevention

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Purpose: As recipients of a grant from the AACN Clinical Scene Investigator (CSI) Academy, nurses from the 3 intensive care units (ICU) at Morgan Stanley Children's Hospital of New York Presbyterian Hospital attended sessions on problem identification and leadership skills. The 14-month program enabled the nurses to develop an innovative project for preventing central catheter–associated bloodstream infections that improves patient and organizational outcomes as well as fiscal outcomes. **Description:** Approximately 80 000 CLABSIs occur each year in ICUs across the United States. CLABSIs are associated with increased mortality rates of 12% to 25% with a mean increase in length of stay of 7 days. In addition, CLABSIs contribute to more than \$1 billion of health care costs every year. With the tools from CSI,

bedside nurses were enabled to develop an innovative CLABSI prevention project that improves patient and organizational outcomes and provides positive fiscal outcomes for the institution. Kickoff consisted of a CLABSI carnival and bedside education. Two separate rolling carnivals were held for day and night nurses where the CSI team spent time in the pediatric IU (PICU), neonatal ICU (NICU), and pediatric cardiovascular ICU (PCICU) with trivia games on central catheters, insertion, and care. This educational carnival included a "scrub the hub" station and a central catheter dressing change station. Unit posters were created to build awareness, "scrub the hub" intravenous pole hang tags were implemented, and weekly surveillance of unit central catheters, dressing changes, needless caps, and insertion procedures were observed. This year, the team created education pamphlets about ventral venous catheters for families at the bedside. We believe families can also advocate for zero CLABSIs! **Evaluation/Outcomes:** The hospital's CLABSI standardized infection ratio (SIR) goal for 2014 was 0.46. The PICU SIR was 0.34, the NICU SIR was 0.73, and the PCICU SIR was 0.09. Fifteen CLABSIs were identified for 2014, a 12% decrease in the number of CLABSIs and a 45% decrease in CLABSI rate per 1000 central catheter days compared with 2013. With the implementation of surveillance, education, and emphasis on best practice, our goal is a 50% decrease in identified unit CLABSIs and to remain at or below the 2014 year SIR by the end of 2015. CLABSIs are preventable. Continued staff education and patient/family education improves adherence to proper central catheter nursing care, improving patients' outcomes.

EB52 Place Atrium to Water Seal (PAWS) Project

Tamara Castanias; Abbott Northwestern Hospital, Minneapolis, MN

Purpose: In this quality improvement study, we evaluated chest tube management in postoperative adult cardiac surgical patients. The primary question was determining if placing chest tubes to water seal after a short period to negative suction is safe and is a potentially beneficial practice as compared with the usual practice of maintaining negative suction until discontinued. Studies on chest tubes in the thoracic surgical population show placement to water seal is an acceptable and safe practice. **Description:** After attending the National Teaching Institute, as a nurse in the cardiovascular intensive

care unit, I became interested in the study of the necessity of chest tubes to negative suction versus water seal in postoperative cardiac surgical patients. I was supported by the hospital and staff surgeons to conduct research about this practice. An extensive review of the literature was conducted with a collaborative relationship with other interdisciplinary health care professionals associated with the hospital and affiliated college. No studies published to date addressed this specific clinical question. In this study, the patient population was a mixture of adult valve and coronary bypass surgical patients with any combination or number of mediastinal and/or pleural chest tubes. An algorithm was created for nursing staff to determine who would have their chest tubes placed to water seal on postoperative day 1 at 6 AM, which addressed air leaks and chest tube drainage. The intensive care unit and transferring unit were given information and background for the study. Data collection tools that looked at drainage amounts, when chest tubes were discontinued, and any complications were created for the study. The study was conducted for 2 months. **Evaluation/Outcomes:** The study compared the usual practice of negative suction until chest tube removal (n = 52) with chest tubes placed to water seal per the protocol (87.5% met criteria, n = 56). Total drainage output was almost equal, with a slightly higher amount in the study group. Chest tube removal times were the same. No difference was seen in complications (pericardial effusions or pleural effusions requiring intervention). A poststudy survey of nursing staff involved in the study showed a positive reaction to the study; they agreed or strongly agreed that there were no negative outcomes to patients, so the practice was deemed safe and is now an institutional standard of practice in the orders for after open heart surgery.

EB53 Encouraging Courageous Care Through an Online Journal Club

Amanda Carney, Kerrie Brewer; University of Kentucky Chandler Medical Center, Lexington, KY

Purpose: No journal club was available for perioperative services. Our purpose was to introduce a journal club and improve evidence-based practice. The following goals were set: (1) be able to identify reliable journal articles for evidence-based practice, (2) identify areas to implement evidence-based practice, (3) create a flexible environment to encourage participation in a journal

club, (4) achieve a 10% participation rate across the perioperative service line. **Description:** We identified several barriers to conducting a traditional journal club such as time management, venue for meeting, and varying schedules. To overcome these barriers and to encourage participation, we adopted an online journal club format. Little information is available regarding online journal clubs. A search of CINAHL reveals 15 articles using the words online journal club. Only 2 of those articles address development and outcome of conducting an online journal club. Authors outlined 4 steps to developing an online journal club: (1) creating a server site, (2) developing content and population, (3) testing the site, and (4) evaluation. We used this outline to develop our own online journal club. Participants have access to Blackboard, so we chose this site as the server site to post articles for discussion. The sponsor for our journal club is the clinical educator for the postanesthesia care unit (PACU) and 2 facilitators choose articles for discussion based on an informal survey of PACU nurses and unit needs assessment. There was no need to test the site, but we did ask for feedback regarding the use of Blackboard from participants in our evaluation component. **Evaluation/Outcomes:** Evaluations were conducted by using a 5-point Likert Scale and free text suggestions for improvement. The mean for ease of use was 1.45. A score of 1 was considered very easy and 5, very difficult. On item 2 for increased understanding of evidence-based practice (1 = strongly disagree to 5 = strongly agree) the mean score was 4.5. All respondents responded to item 3 as satisfied or very satisfied with the online journal club. The themes expressed about what they most liked were as follows: engagement in practice and with peers, easily accessible format, and hearing different perspectives on the articles. Moving forward, we will increase advertising and clarify expectations to achieve the 10% participation goal.

EB54 Ventilator-Associated Pneumonia: Prevention in the Midst of Change

Timothy Heckman, Sonya Stover, Samantha Kelley, Jennifer Papi; Christiana Care Health Systems, Newark, DE

Purpose: Ventilator-associated pneumonia (VAP) is the most common hospital-acquired infection in patients requiring mechanical ventilation. In critically ill patients on a medical/pulmonary step-down unit at Christiana Care Health System, VAP significantly

increases risk of mortality, ventilator time, length of stay, and cost of care. This unit's ventilator-associated events (VAE) value improvement team (VIT) was instituted to identify and implement strategies to prevent ventilator-associated infections. **Description:** The VAE VIT meets bimonthly to investigate any unit ventilator-associated infections, identify goals and strategies for improvement, develop and implement plans to achieve prevention goals, and measure outcomes. The VAE team is responsible for the multidisciplinary education on evidence-based prevention strategies. The team performs weekly rounding by monitoring compliance of this grouping of best practices that, when applied together, has achieved and maintained a low rate of ventilator-associated infections despite having "ICU-like" device days on the unit. The prevention practices being monitored are tooth brushing every 12 hours, mouth care every 2 hours, head of the bed positioned >30°, chlorhexidine mouth rinse ordered, tracheostomy holder collar changed every week. Opportunities for improvement are identified and "live time" educational feedback is provided as well as recognition for compliance. The team has provided education on ventilator-acquired infection prevention to the staff via posters, e-mails, and annual skills fairs. This team provides a necessary foundation that facilitates teamwork and communication to wean and remove patients from ventilators as quickly as possible, while providing evidence-based care. **Evaluation/Outcomes:** Significant measurement of recent ventilator-associated infections has been limited because of several modifications of criteria and definitions since 2013. Despite the lack of a consistent definition and a relatively high number of device days (2336 in 2014), the number of ventilator-associated infections have remained low. Since the most recent definition/criteria change in January 2015, the unit's VAP rate has maintained at zero with 941 device days. The VAE team is looking forward to the stabilization of a valid definition/criteria in order to effectively showcase their dedication to the focus on excellence and the safe, high-quality care.

EB55 The Courage to Reduce Inactionable Alarm

Jennifer Laymon, Melanie Roberts; University of Colorado Health, Loveland, CO

Purpose: Despite implementation of recommendations from the AACN's practice alert, alarms from bedside monitors remain problematic. Alarms are often set

for sensitivity at the expense of specificity, causing alarms that do not accurately reflect the patient's condition or require intervention. This leads to a decreased sense of urgency, auditory and mental fatigue, and can result in adverse patient events. This project empowered the nurses to set appropriate alarms and alarm limits to decrease inactionable alarms. **Description:** Current evidence at the time this project was implemented clearly demonstrated the issue of alarm fatigue and its negative impact on patient outcomes. However, very little information was available on interventions to reduce alarm fatigue and no studies were found that addressed arrhythmia monitoring. Baseline data was collected from bedside physiological monitors in the critical care units. Current alarm settings were analyzed and changes were proposed. Inactionable alarms such as yellow dysrhythmia alarms and temperature were defaulted to "off." Education was done with nursing staff about the current evidence, changes, and the ability of nursing to customize alarms on the basis of a patient's individual needs. Historically, nurses were reluctant to turn off alarms to individualize for the patient for fear of missing important events. In the nurse's mind, it is more logical to turn on alarms deemed appropriate for the patient rather than turn alarms off to decrease nuisance alarms and improve patient safety. **Evaluation/Outcomes:** Data were collected at 2 weeks, 6 weeks, and 6 months after implementation. Alarms per patient per day decreased 61% from 1377 to 561 ($P<.01$). Yellow dysrhythmia alarms decreased 79% from 206 to 44 alarms per patient per day ($P<.001$). The decrease in alarms was sustained at 6 months, showing that the change was accepted. There have been no adverse patient events as a result of the practice change. The results of this project demonstrated to the nurses that, although counterintuitive, fewer alarms are better. Having the courage to change practice on the basis of evidence, data analysis, and clinical expertise improves patient care.

EB56 Improving Outcomes With Low-Fidelity Simulation in Annual Competency Training

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Purpose: Nurse educators are continuously challenged with the amount of training required to maintain staff competency and comply with recommendations from accrediting bodies, safety, performance measures benchmarks, and evidence-based clinical practice. A new method of annual competency training was introduced in a semirealistic nonthreatening learning environment to enhance professional relationships, on-time feedback, and remediation and to improve learning and application to clinical practice. **Description:** A review of annual recommendations for root cause analysis, safety goals from The Joint Commission, new equipment, and new evidence-based recommendations served as the background for choosing topics to be addressed during annual nursing competency training. Plenty of evidence exists that simulation training enhances the quality of education and retention of subject matter. Instead of the usual method of a week-long training in a large auditorium with 20 to 25 stations, a new method of training in small groups using low-fidelity simulation was introduced. A PowerPoint presentation for each nursing category (registered nurse, licensed vocational nurse, nurse's aide/technician) with salient points and links to policies/procedures plus specific roles according to scope of practice for each topic was created. To coordinate training sessions, the presentations for review, schedules templates, announcements, and guidelines were sent to nurse managers and staff 3 months in advance. Training sessions were pilot tested with 8 nursing educators to determine process and content validity. A patient's room or an examining room in the outpatient area was used for training with supplies appropriate for selected scenarios readily available. **Evaluation/Outcomes:** A total of 603 trainees attended during a 3.5-month period with 103 4-hour sessions conducted and 22 topics covered. Tabulated data demonstrated an improvement in level of confidence of knowledge and skills: mean before = 4.07 and after = 4.72. Rater scores demonstrated improvement in performance: mean before = 3.75 and after = 4.8. Initial group performance ratings consistently demonstrated overrating compared with trainer ratings or group after debriefing ratings. The overall program evaluation indicated that the participants were satisfied or very satisfied in all categories with this method of training, with ratings greater than 4.53.

EB57 Alcohol-Impregnated Antimicrobial Port Caps Versus Alcohol Swabs to Reduce Central Catheter–Associated Bloodstream Infection Rates

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Purpose: The frequency of bloodstream infections associated with central catheters (CLABSIs) in the intensive care unit was 3.1 infections per 1000 central catheter days from December 2013 to March 2014. An anonymous survey on compliance with scrubbing the hub was distributed to staff. Data revealed inconsistency with hub scrubbing compliance among staff. Primary reasons for not scrubbing the hub included it taking too much time and patients' requiring emergency administration of medication. **Description:** It was decided to implement an intervention that would replace scrubbing the hub. A 4-month trial using alcohol-impregnated antimicrobial caps was performed in the unit. A representative from the cap manufacturer conducted in-service training sessions for all staff members. During this time, alcohol-impregnated antimicrobial caps were applied to all ports on central catheters versus the initial scrubbing of the hub with alcohol swabs. Random audits were conducted on staff compliance. **Evaluation/Outcomes:** With the implementation of alcohol-impregnated antimicrobial caps and the increased awareness of central catheter maintenance, the unit's CLABSI rates decreased from 3.1 infections to 1.1 infections per 1000 central catheter days. During the product trial, compliance with use of the protector caps on all central catheter ports was audited. Audits revealed 89% compliance. Results from the trial indicate that, with consistent compliance with alcohol-impregnated antimicrobial caps and increased awareness of central catheter maintenance, CLABSI rates are reduced.

EB58 Conquering Catheter-Associated Urinary Tract Infections

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Purpose: To radically reduce rates of catheter-associated urinary tract infections (CAUTIs) in the Evanston Hospital intensive care unit (ICU), we began an aggressive prevention campaign enlisting the input of ICU advanced practice nurses, nurses, coordinators, manager, intensivists, medical staff, and infection control specialists. A presentation on CAUTIs in ICUs at the 2013 National Teaching Institute confirmed that we trailed the national benchmark of 2.4/1000 catheter days set by the National Healthcare Safety Network. Best practice research, brainstorming, and action steps achieved significant improvement. **Description:** Per the

AACN practice alert from November 2011, UTIs are the most common nosocomial infection. Up to 80% of UTIs occur in patients with indwelling urinary catheters. The Centers for Medicare and Medicaid Services considers a CAUTI a preventable complication. Actions taken: First, a multidisciplinary team created a bladder management guideline incorporating bladder scanning for low urinary output, as well as a trial of straight catheterization before placing an indwelling catheter. If a catheter was placed, automatic prompts in the electronic medical record were implemented to challenge the continued need. Second, we identified and eliminated a possible source of contamination. The unit was in the practice of using 2 types of collection bags. One was a type of hose that touched the floor when the bed was in the lowest position. This device was immediately removed from inventory. Third, on multidisciplinary rounds, we implemented a routine assessment of catheter needs. Fourth, a guideline was developed and implemented to standardize the indications for obtaining urine cultures. Finally, we evaluated, tried out, and incorporated into stock, a male external collection device that functioned well for those whose anatomy precluded the use of the condom-type device that had previously been our only option. **Evaluation/Outcomes:** In 2012, Evanston Hospital, 1 of the 4 hospitals comprising NorthShore University HealthSystem (NSUHS), had a CAUTI rate of 6.3 per 1000 catheter days in its ICU. This project initiated in 2013 with full rollout by the end of that year. Our CAUTI rates decreased to 2.6 for fiscal year 2014 and then to 1.2 during the first 3 quarters of fiscal year 2015. During this period, we also lowered our urinary catheter days from 3146 to 1622. We measured our success by the tremendous reduction in the occurrence of CAUTIs in the Evanston ICU. As a result of this initiative, NSUHS hired a full-time infection control specialist to roll out this campaign across all inpatient units within our 4-hospital system.

EB59 RNovatorKC Project: AACN Chapter Kick-starts Innovative Nursing Ideas From the Bedside

Akiko Kubo; The University of Kansas Hospital, Kansas City, KS

Purpose: The RNovatorKC Project provides a forum for nurses from various hospitals in the metropolitan area to share innovative nursing ideas that help improve patient care, safety, and satisfaction. Innovative ideas are selected by the local AACN chapter and presented at a

dinner event, where the audience members vote on their favorite RNovatorKC project, which wins seed money to implement the idea. The presentations spark new conversation and information sharing among nurses from various organizations. **Description:** Promoting creative solutions in a complex and demanding health care delivery system is essential to improving care outcomes and reducing cost. Bedside nurses are in a position to identify practical solutions to daily problems of patient care delivery. It is a myth that innovative ideas come from laboratories, policy makers, or senior leaders. Useful ideas are born right at the bedside among nurses who find ways to work around problems. Although literature proclaims nursing creativity and innovation as necessary, studies show that creativity is not highly rewarded in practice and is a subject of only a small amount of research in nursing. The chapter recognized an opportunity to help kickstart creative and innovative nursing ideas in the local community while promoting networking among nurses from various organizations. The RNovatorKC Project solicits innovative nursing solutions to patient care issues. Ideas selected by the local chapter are presented at a dinner event and the audience members are able to participate by voting on their favorite idea that should win seed money to get the project started. Simple and small-scale ideas are encouraged for ease of implementation and to nurture creativity. **Evaluation/Outcomes:** Since the inaugural RNovatorKC event a year ago, the chapter hosted several events and received more than a dozen applications for ideas from nurses across the metropolitan area. Examples of ideas included ICU diaries, purchase of an arm/vein dummy to practice ultrasound-guided intravenous catheter starts, meditation music to reduce postoperative pain, magnets for COPD patients to identify triggers, bereavement bears, a patient comfort cart, and so forth. There is an overwhelming response from the nursing community as evidenced by the waiting list for registration for each event. The goal is to have the recipients of the winning projects return to the chapter's annual symposium to present their project implementation.

EB60 Implementation of a Nurse-Driven Protocol to Reduce Catheter-Associated Urinary Tract Infections

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Purpose: Catheter-associated urinary tract infections (CAUTIs) are a common hospital-acquired infection.

Despite creation of hospital-wide guidelines for catheter insertion and maintenance, indwelling urinary catheters in the intermediate care unit (IMCU) were not being removed in a timely manner. The unit's CAUTI rate was higher than other adult step-down units in the National Database of Nursing Quality Indicators (NDNQI) Magnet comparison group. The purpose of our project was to reduce the number of CAUTIs in the IMCU. **Description:** A comprehensive review of the literature was completed to evaluate best practices related to nurse-driven catheter removal protocols. The hospital's multidisciplinary CAUTI team reviewed several examples from the literature and created a protocol that was approved by the CAUTI, infection prevention, performance improvement, and medical executive committees. All registered nurses in the IMCU were educated on the new nurse-driven protocol before implementation in July 2014. Catheter necessity was reviewed daily during multidisciplinary rounds. If no indication was present to maintain the indwelling urinary catheter, it was discontinued per the nurse-driven catheter removal protocol. **Evaluation/Outcomes:** The IMCU has had only 1 CAUTI in the 13 months since implementation of the nurse-driven protocol with a reduction in CAUTI rate from 4.8 to 0.5. The catheter utilization ratio has also decreased from 0.48 to 0.37. The unit has performed better than the NDNQI Magnet facilities peer group for 3 out of the past 4 quarters. Implementation of a nurse-driven catheter removal protocol is an evidence-based strategy that has successfully decreased both the number of CAUTIs and catheter utilization in the unit.

EB61 Implementation of Delirium Screening in Adult Intensive Care Units

Odette Comeau; University of Texas Medical Branch, Galveston, TX

Purpose: Implementation of delirium screening in the adult intensive care units. Objectives included education of nurses, implementation of a screening tool, and evaluation of the practice change. It was recognized that the addition of this assessment represented a change in work flow for clinicians. The focused question for this project was, How compliant are adult critical care nurses with documenting the newly implemented delirium screening? **Description:** Delirium is an acute change in cognition accompanied by inattention that affects up to 88% of adult critical care patients. Negative outcomes

associated with delirium include increased hospital complications, longer hospital stays, functional disability, cognitive impairment, and increased mortality. Delirium screening by using validated tools is advocated by the AACN and the American College of Critical Care Medicine. Once institutional support had been received, project implementation began. The Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) tool was built into the electronic medical record in the physical assessment flow-sheet rows. For 1 month, education of nurses using a multifaceted approach was completed and screening was implemented. One published recommended metric for evaluating delirium assessments is the percentage of time that delirium assessments are performed each shift. This measurement was selected for this project. Patients' records were audited for the presence and accuracy of delirium screening documentation. **Evaluation/Outcomes:** Results of 3 sequential documentation audits revealed a gradual adoption of the practice change by nurse clinicians. The percentage of charts with missing, incomplete, or inaccurate data decreased from 50% on the first week to 27.9% on the second week and 25.0% on the third week. Implications for practice for this project include validation of the need for delirium screening, with 17 patients screening positive in the first 3 weeks. Next, practice changes will be adopted with adequate education and preparation; however, ongoing follow-up is needed. Finally, this project is in alignment with AACN's vision in which critical care nurses improve practice on the basis of the needs of patients.

EB62 We Need Blood at the Bedside STAT: Nurses' Role in Massive Transfusion

Sharon Wahl, Wendy George, Cathy Vanous, Stacy Jepsen; Abbott Northwestern Hospital, Minneapolis, MN

Purpose: Six critical event reviews within a year and a half were related to delays in patients who were actively bleeding receiving blood—3 of these patients were cared for in an intensive care unit (ICU). Communication breakdowns between blood bank and unit staff were identified as a root cause in each event. An interdisciplinary team comprising blood bank personnel, physicians, ICU nurse leaders, and the ICU clinical nurse specialists participated in a rapid process improvement workshop focused on massive transfusion. **Description:** Very little has been published about nurses' role in massive transfusion, yet nurses have an integral role in identifying and resuscitating

bleeding patients. Nurses and blood bank staff do not always speak a common language, which can contribute to delays. There was misunderstanding on the intent of the massive transfusion orders—they prepare blood products only for anticipated blood loss, they do not bring blood to the bedside. An ICU-specific massive transfusion code protocol was developed that clearly outlines process steps and standardizes communication. Roles were also delineated to ensure a designated contact is appointed who is solely responsible for communicating with the blood bank. By regulatory requirements, the blood bank cannot release blood without a blood slip containing 2 patient identifiers—the slip was incorrectly completed in 25% of massive transfusions. The blood request slip was redesigned to clearly highlight the information that is required. In-service training sessions for nursing staff allowed them to walk through the process and included hands-on practice with a rapid infuser. Mock massive transfusion codes were run on the units to evaluate the process and obtain input from bedside staff on how to improve it. **Evaluation/Outcomes:** A finalized version of the ICU massive transfusion protocol, which has standardized the process and communication with the blood bank, has been placed on every bedside computer and near blood request slips so that it is readily available. Mock massive transfusion codes continue on the units to refine the process, with a goal of having blood at the bedside within 15 to 18 minutes. Nurses have been empowered to initiate a massive transfusion code as indicated, allowing earlier notification of the blood bank and facilitating arrival of blood at the bedside. Massive transfusion data are reviewed regularly—the ultimate goal is to eliminate delays in getting blood to patients who need it.

EB63 Relieving the Pressure: Reducing Unit-Acquired Pressure Ulcers on Medical/Pulmonary Step-down Units

Tiffani Lee, Sonya Stover, Kimberly Mattison, Shannon Guzman; Christiana Care Health System, Newark, DE

Purpose: Unit-acquired pressure ulcers (UAPUs) are preventable and lead to increased costs and longer stays. The UAPU rate in the medical/pulmonary step-down unit at Christiana Care Hospital had been higher than the National Database of Nursing Quality Indicators (NDNQI) benchmark. The unit's skin value improvement team (VIT) began to investigate UAPUs that occurred on the unit. The highest incidences of UAPUs were determined

to be related to pressure from newly placed tracheostomy faceplates. **Description:** During weekly skin rounds, the skin VIT discovered a higher incidence of UAPUs among patients with newly placed tracheostomies whose faceplate sutures were too tight or were left in too long. A multidisciplinary team was established that included representatives from the unit's skin VIT, wound ostomy and continence staff, the department of surgery, the unit's medical director, respiratory staff, and the quality and safety department. The team focused on decreasing UAPUs caused by tracheostomy faceplates and sutures. We conducted a literature search to determine the best practice for when to remove sutures. On the basis of that search, it was recommended that tracheostomy faceplate sutures be removed on postoperative day (POD) 7, instead of POD 10, which had been the common practice. An interdisciplinary UAPU escalation protocol was designed to ensure timely removal of tracheostomy faceplate sutures. In addition, skin VIT members began staff education which included in-service training sessions, e-mails, and a station at the annual critical skills fair. Education was designed to assess and focus on opportunities for improvement of skin assessment and documentation and to increase awareness of the new escalation protocol. During daily patient/family-centered rounds, the nursing staff began addressing suture removal dates. **Evaluation/ Outcomes:** Since implementing these strategies, the unit has seen a 66% reduction in UAPUs in fiscal year 2015, which is a rate of 0.9 compared with 2.65 in fiscal year 2014, and has gone 5 months UAPU free. During weekly skin rounds, documentation compliance has improved. With increased staff awareness of a focused skin assessment on patients with newly placed tracheostomies, the timeliness of tracheostomy faceplate suture removal has improved. These patients are not isolated to this unit, so we have dispersed findings with the departments of surgery and medicine. We have learned the importance of collaboration among departments in order to achieve results that exceed expectations.

EB64 Pediatric Intensive Care Unit's Success in Working a New Model for Competency Assessment

Michele Schwister; St Luke's Regional Medical Center, Boise, ID

Purpose: In 2013, our competency model consisted of modules, tests, and a skills laboratory. Competencies were added, but outdated ones did not expire. What began as a 3-hour evaluation grew to 12 hours. The skills laboratories were testing, not learning stations, producing anxiety for many. The process was cumbersome, time-consuming, expensive, and ineffective. The purpose of changing to the Donna Wright competency model was to create an evaluation system focusing on relevant, unit-specific problems, changes and interests. **Description:** Knowing that "competence" in the skills laboratory did not always translate to bedside proficiency, we worked to reinvent evaluation of competence in the pediatric intensive care unit (PICU). Unsure of what to keep, what to discard, and how to measure, the skills laboratory stayed unchanged. In 2013, we pursued Wright's model of competency evaluation, emphasizing limited numbers of competencies, variety in completion, and change. Topics are identified, ranked, and prioritized; rolling out 6 to 10 competency foci. We chose this model because of the extensive evidence cited in her books. We monitor for problem areas, categorizing them (new, important, and problematic) as the year progresses. Staff are not labeled "competent" or "incompetent," but rather "competent" or "not yet competent." The latter is primarily used when staff have not had reasonable time to complete assigned work (eg, leave of absence, new hire, new graduate). To be "competent," items are evaluated, checked for accuracy, and scored. Consequences for poor performance will be developed. For example, consistent shortfalls may receive a lower accountability score, impacting merit scores and potential pay raises. Using this model, we removed learning barriers, minimized "commit to memory" mindset, and increased interest, autonomy, learning, and teamwork. **Evaluation/Outcomes:** In December 2014, the competencies for 2015 were rolled out. Completion dates were noted as early as January 2015, with earliest packet completion by May. Early completion (before deadline) was recorded for 74% of staff. These data indicate that staff are completing sets throughout the year, working together, relying less on the skills laboratory and finishing earlier. The 2015 skills laboratories had a total of 12 participants, down from 28. Staff now have 9 months to complete competencies. They can choose "how," and also "when," increasing accountability and responsibility. Preliminary qualitative data indicate positive responses that competencies are now unit specific and relevant to practice and practice changes in the PICU.

EB65 Improving Health Care Provider and Staff Communication With Patients and Families

Jean Carraher; University of Minnesota Masonic Children's Hospital, Minneapolis, MN

Purpose: Patient satisfaction with health care is often driven by the communication received from physicians and nurses. The goal of this project was to improve communication between health care providers and patients and patients' families on a 24-bed pediatric medical-surgical unit in a midwestern academic hospital. The many physicians and nurses on this unit result in lack of consistency in communication with patients and families. An interprofessional project team guided the project's development and implementation. **Description:** Following the steps of the Institution for Healthcare Improvement's quality improvement process, the project team conducted a gap analysis of the communication issues on the unit. The issues identified were as follows: communication of the plan of care/discharge with the families was not clear and did not have a consistent process, no consistent structure for communication with patients and families or between physician services existed for physician consultations, the nursing staff preferred to use indirect communication tools (e-mail, incident reports, etc) rather than direct conversation with their coworkers, and many staff were experiencing stress-induced communication failures within the work environment. Using the plan-do-study-act process for rapid cycle improvement, 3 interventions were implemented to address the gaps: placing discharge goals and date on the whiteboard in the room, implementing a physician consultation algorithm, and provision of education to the nursing staff regarding crucial conversations and communication techniques. **Evaluation/Outcomes:** Overall patient satisfaction improved from 76% to 87%. Satisfaction with the consistency of communication between physicians, nurses, and the patient and family improved from 52% to 73%. Placement of discharge goals on the whiteboard was completed 80% of the time. The nurses reported improved ability to hold a crucial conversation with their nursing coworkers and with the physicians. Continued work will be required to sustain the changes over time until the unit culture regarding communication becomes embedded. This project was successful in improving patient satisfaction with communication through the use of an interprofessional quality improvement team and unit-specific interventions.

EB66 Evidence-Based Practice Research on Pole- vs Patient-Mounted Transducer Placement

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Purpose: Critical care and progressive care nurses constantly strive to adopt and support best practices for improved patient outcomes. One such example is evaluating the practice of mounting a central catheter transducer on the patient versus using an intravenous pole. Thus, the purpose of this poster presentation is to determine the recommended practice of transducer mounting by examining the 2 current methods of pole/equipment mounting versus on the patient. **Description:** The Iowa Evidence-Based Practice (EBP) Model was used for this EBP project. Publications from CINAHL, PubMed, Cochrane Database, Nursing Reference Center, and Mosby's Online Nursing Skills were reviewed. To augment the literature review, current institutional polices and specialty organizations were consulted. Results were evaluated and subsequently summarized for results and implications for clinical practice. Whether using an intravenous pole or a patient was most preferred for mounting and leveling transducers, there was no clear consensus for recommended practice. Upon review of the literature and expert consultation, the priority is maintaining proper placement at the phlebostatic axis. Both the AACN and the American Society of Perianesthesia Nurses refer to the manufacturer's guidelines and do not specifically endorse one method over another, focusing only on proper placement. National organizations and current literature yield to the individual institution to dictate the policy. This hospital does not have a specific policy indicating mounting preference, however, the institution routinely uses Mosby's Online Nursing Skills as a reference, which also does not clearly indicated a preferred method of mounting. **Evaluation/Outcomes:** For nurses who work with central catheters that require transducers and monitoring, it can become very confusing as to which is recommended practice for leveling: the use of a pole/equipment or the patient. Results from this EBP review project reveal that either method is acceptable for practice as long as the placement of the transducer is landmarked at the phlebostatic axis. By maintaining proper placement, clinical values will not be affected. All nurses working with transducers should carefully read and

follow institutional guidelines and use the proper equipment for recommended leveling.

EB67 Perceptions of Implementing a Mobility Program in Acute Care

Lauren Morata, Virginia Smith, Donna Faviere, Carrie Ogilvie; Lakeland Regional Health, Lakeland, FL

Purpose: The ultimate goal of the project was to identify nurses' perceived barriers to early mobility on acute care units, and then overcome said barriers. Upon identifying the barriers, a mobility task force was assembled to overcome these barriers to ensure consistent implementation of mobility on acute care nursing units. After implementation, nurses' perceptions were reevaluated. **Description:** A lack of appropriate equipment to facilitate early mobility (ie, walkers, gait belts) and lack of physical therapy assistance were identified as key barriers. In order to overcome the perceived barriers, a multidisciplinary mobility task force was assembled to develop an evidence-based quality improvement project. Survey and "look and listen" findings indicated that a nurse-driven mobility algorithm might facilitate empowering nurses to either mobilize their patient safely or collaborate with a physical therapist (PT). The algorithm was created on the basis of a literature review of mostly critical care evidence. Accompanying changes were made to the electronic health record with staff input on mobility work flow. The mobility task force and executive leadership obtained walkers and gait belts for all acute care units. PTs were assigned to and present on pilot units for collaboration and guidance with complex patients. Staff education on the pilot units in regards to the algorithm, equipment, and safe patient handling was vital in overcoming specific barriers. Implementation occurred February 19th, 2015, and staff members were surveyed again in the next 2 months to determine their perceptions in regards to early mobility. **Evaluation/Outcomes:** After implementation, staff perceptions were reevaluated through "look and listen" surveys with the following themes identified: PT collaboration for complex transfers increased comfort with mobility, standard equipment in each room better facilitates early mobility, mobility is now the responsibility of all staff, patients appeared to have better outcomes (ie, decreased agitation, improved strength and satisfaction), need for a standard operating procedure (SOP), and cumbersome documentation. The documentation was changed to

better streamline work flow on the basis of nurses' input through the nursing governance structure, an SOP is being developed, and the process is to move house-wide.

EB68 Not on My Watch: Implementation of a Falls-Prevention Program in the Acute Care Setting That Works!

Toni Mingola; Memorial Regional Hospital, Hollywood, FL

Purpose: In a climate where many hospitals have implemented the use of a risk stratification instrument that places the burden of fall prevention largely on registered nurses, Memorial Regional Hospital (MRH) employed an alternative process where accountability is shared among the members of the interdisciplinary health care team. Because the MRH fall prevention program represents an innovative approach, the goal of the study was to evaluate the efficacy of the program in reducing patient falls in the acute care setting. **Description:** The initial phase of the fall prevention program involved convening an interdisciplinary team comprising nursing, pharmacy, physical therapy, respiratory therapy, risk management, transportation, case management, and administration. Evaluation of the historical trends in patient falls yielded the need to develop a novel approach to fall prevention. The team conducted a literature review of prevention strategies and found mixed results with the implementation of any particular set of measures, with reservations about selecting a risk stratification/assessment tool because of issues with interpretation. Similarly, Healy cited that even the most sensitive instruments often underpredicted or overpredicted falls in hospitalized patients and had little impact on fall prevention. Therefore the team adopted a philosophy that *all* patients are at risk for falling during hospitalization, which involves an ongoing assessment by any member of the health care team, and changes during the course of hospitalization. Fall prevention became the sixth vital sign, requiring ongoing reassessment by every member of the team who interacts with the patient and accountability for implementing a prescribed group of prevention measures. **Evaluation/Outcomes:** Falls analysis was conducted before and after the program. After implementation of the falls prevention program in 2010, there was a 9% to 17% year over year (2010-2013) reduction in patient fall rates. The success of this fall prevention program is attributed to the shift of accountability from the

registered nurse to the interdisciplinary health care team, representing an innovative approach that has not been currently documented in the literature.

EB69 Integration of Best Practices for Prevention of Central Catheter–Associated Bloodstream Infections Into Clinicians' Standard Work

Carrie Ogilvie, Allison Johnson, Lauren Morata; Lakeland Regional Health, Lakeland, FL

Purpose: Achieve the national Health and Safety networks' (NHSN's) 10th percentile for central catheter utilization and associated bloodstream infections (CLABSIs). In 2012, utilization and rates at our hospital were in NHSN's 90th percentile. Despite improvement efforts, overall results were unacceptable. Furthermore, the type of central catheter used was disproportionally peripherally inserted ones (PICCs) and 95% of CLABSIs were PICC related. These results prompted a critical look at our practice, specifically adherence to evidence-based clinical practice guidelines and PICC utilization. **Description:** Clinical practice guidelines (CPGs) for CLABSI prevention served as the primary evidence-based solution. Intense investigation found inconsistent adherence to guidelines, poor catheter-related skills and limited knowledge of CLABSI prevention. Multifaceted strategies were developed to address the problem and encompassed increasing awareness, structured education, audits of insertion and maintenance bundles adherence, root cause analysis for all CLABSIs as well as reporting of device utilization and CLABSI rates to stakeholders and executives. Interventions supporting the practice changes were implemented, evaluated on a small scale and either adopted, adapted or abandoned depending on feedback from stakeholders. Interventions included a midline catheter trial (abandoned); ultrasound-guided peripheral catheter starts (adopted); and an approval process before PICC placement (adopted). Once refined, the interventions were integrated as standard practice for ongoing monitoring. **Evaluation/Outcomes:** Outcome measures were central catheter utilization, number of CLABSIs and CLABSI standardized infection ratio (SIR). In the past 3 years, central catheter utilization decreased by 58%; number of CLABSIs decreased by 84%; and SIR decreased by 47%. As of submission date, we have achieved NHSN's 10th percentile for both, and we plan to monitor our practice to sustain that improvement.

EB70 Integrating Multidisciplinary Palliative Care Into the Intensive Care Unit: IMPACT-ICU Project

Jeannette Meyer, Mary Lawanson-Nichols, Edith O Neil-Page, Wendy Anderson; Santa Monica UCLA Medical Center, Santa Monica, CA

Purpose: Effective communication with patients and families has long been recognized as a way to decrease length of stay and improve quality of care for critically ill patients. University of California Los Angeles (UCLA) identified opportunities to improve end-of-life care in ICUs: need for integration of palliative care into intensive care units (ICUs) and facilitating the attendance of ICU bedside nurses in family meetings. **Description:** The IMPACT-ICU project is based on prior work developed at University of California San Francisco and focuses on integrating palliative care into the ICU by training and supporting bedside nurses. This project uses evidence-based communication strategies as one of its key components. These strategies are implemented into a workshop for ICU nurses. Nurses learned to facilitate communication about prognosis, goals of care, and palliative care. Surveys administered before and after the workshop were used to assess participants' confidence and skill in 15 palliative care communication tasks. The value of a palliative care team in the ICU setting also has evidence-based support. Structured biweekly rounds were conducted during which clinical nurse specialists coached bedside nurses in identifying and addressing palliative care needs. Outcome measurement from this effort included tracking the number of ICU consultations at UCLA hospitals throughout this project. Nurses' confidence in goal-setting communication with patients, patients' families, and physicians also were assessed before and after the workshop. An additional element of the IMPACT ICU class was stressing the importance of self-care; this parameter also was measured. **Evaluation/Outcomes:** Both UCLA campuses demonstrated a sustained increase in their palliative care consultations following the IMPACT-ICU class interventions. In addition, both UCLA campuses demonstrated a minimum 30% increase in nursing confidence with multiple parameters from before to after the class. Examples include assessing a family's understanding of a patient's prognosis and goals of care: 47.6% before, 93% after; arranging a meeting between a patient's family and clinicians to discuss goals of care: 45.5% before, 88.4% after; arranging a consultation with palliative care: 51.2% before;

90.7% after; and contributing to discussions of prognosis and goals of care during family meetings: 36.6% before, 79.1% after.

EB71 Courageous Care: Shifting the Focus From Intensive Care to Comfort Care in the Intensive Care Unit

Marcia Perkins, Shireen Bagheri, Christopher Rizzo; The Ohio State University Wexner Medical Center–The James Cancer Hospital, Columbus, OH

Purpose: With the establishment of cancer-specific intensive care units (ICUs) in our new hospital, the opportunity to improve the standards of care arose. In addition, the opportunity to support our patients, patients' families, and fellow nurses emotionally in the process of end-of-life care became evident. The purpose of our initiatives was to use our relationship-based care model (RBC) to minimize the challenges faced when intensive care nursing suddenly shifts from life-prolonging to palliative care measures. **Description:** Our unit is a specialized oncology medical and surgical ICU developed around an RBC model that places the patient and the patient's family at the center of all we do. RBC also emphasizes crucial caring relationships with ourselves and our colleagues. After moving to a new hospital in December 2014, withdrawing life support following a long ICU course was becoming more frequent. As a result, the nursing staff was very stressed and was experiencing compassion fatigue. Through new initiatives, we are better supporting our patients, patients' families, and coworkers. We developed a comfort cart to use once a patient is switched to palliative care. The cart is full of blankets, prayer books, and other items used to provide comfort to patients and their families when prolonging life is no longer the goal. Our new stress, trauma, and resilience (STAR) program provides resources to support the overall health and well-being of our staff. The program provides debriefing and support following critical incidents or difficult patient situations. Another initiative is a daily huddle with the palliative care team and the ICU teams. The purpose is to present patients who would benefit from a palliative care consultation and to coordinate family conferences. **Evaluation/Outcomes:** The staff 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 as well. The STAR program has strengthened teamwork, improved communication, and supports caregivers to decrease burnout and increase resilience. The staff verbalize that the daily huddle has improved communication among families of patients with poor prognoses. By initiating discussions early, providers can help families prepare for poor outcomes. Most important, with improved communication comes improved quality of care and, for some, improved quality of their death.

EB72 Innovative Technical Solutions Improve Recognition and Response to Clinical Deterioration

Kathleen Burns; Medina Hospital, Medina, OH

Purpose: Reviews of code and rapid response events identified delays in recognition and intervention for early signs of clinical deterioration. Contributing factors included delayed vital sign entry in the electronic health record (EHR) and lack of critical value notification by unlicensed staff as well as data segregation in the EHR and low unit/hospital-level situational awareness. An innovative pilot study addressed these multifactorial problems by combining an early warning system with EHR enhancements. **Description:** Early warning systems (EWS) facilitate recognition of abnormal physiological parameters, alerting nurses to signs of deterioration and potential need for stabilizing interventions. To address identified problems, an interdisciplinary team developed an EWS and novel enhancements to support its use in the EHR. Improvements to situational awareness were addressed by developing a prelogin screen to display EWS scores. This screen allows prioritization and alerts all staff to concerning scores. Operational tools, including notification of new vital sign (VS) entry and a marked-as-reviewed function, were created to support timely VS review and increase accountability. Smartform technology was used to organize pertinent data in one location to support critical thinking and templates were designed to quickly document nursing assessments and interventions related to elevated EWS scores and to discretely capture data for quality review. Preimplementation education was focused on timely and accurate VS documentation for unlicensed staff and hands-on, scenario-based training on the new EHR functionality for nurses. **Evaluation/Outcomes:** Pilot data analysis revealed that the number of hours that patients spent at elevated EWS scores was reduced by 27%. A before-to-after comparison of time from VS measurement to entry in the EMR demonstrated a 51% decrease and time for reassessment

of VS following an elevated score decreased by 52%. A post-pilot survey revealed that 94% of clinical staff felt that patients received earlier intervention and more frequent VS reassessment following elevated scores. Additionally, 69% identified improved management of patient acuity and 72% indicated positive impact on interdisciplinary collaboration. Technology can be leveraged to enhance EMR functionality and improve collaboration, leading to improved outcomes for patients.

EB73 Life Beyond the Bundle: Strategies for Reducing Central Catheter–Associated Bloodstream Infections

Heather Pena, Danielle Giglio, Feven Measho, Janice Febre; Duke University Hospital, Durham, NC

Purpose: Central catheter–associated bloodstream infections (CLABSIs) are associated with increased mortality and morbidity and account for approximately 100 000 deaths in the United States. CLABSIs increase the patient's length of stay in the hospital and result in excess hospital cost. CLABSI rates increased in our cardiothoracic intensive care unit (CTICU) from 4 CLABSIs between July 2013 and June 2014 to 5 CLABSIs between July and October 2014. The purpose of this project was to use evidence-based practice to decrease our CLABSI rates. **Description:** An effective strategy to reduce CLABSIs is to use a bundle for insertion and maintenance. Research demonstrates that going beyond the bundle may help to reduce CLASBI rates. These strategies include increasing surveillance, timely feedback to staff, sentinel-event investigation of a CLABSI, and positive reinforcement strategies. Our performance improvement (PI) committee began by increasing surveillance. We began to do audits twice a month rather than once a month and then transitioned to weekly audits. These audits verified that the correct, occlusive dressing was used, tubing was dated and timed, documentation was appropriate, and so on. During these audits, we provide real-time feedback to our colleagues on best practices and the rationale behind them. Furthermore, CLASBI prevention is taught in our yearly skills validation. We review all of the best practices in the insertion and maintenance bundles and allow the staff to ask any questions. We perform a root-cause analysis on any CLABSI 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 CLABSI-free days. **Evaluation/Outcomes:** Following the implementation of our beyond the bundle program, our unit went 280 days, from October 2, 2014, to July 9, 2015, without a CLABSI. Our compliance rate for intact dressings and the correct type of dressing has steadily improved and has been maintained greater than 80% consistently over several months. In addition, our unit continues to exceed expectations for CLABSI rates on our hospital balanced scorecard. Finally, according to the National Health and Safety Network (NHSN), our 32-bed unit has a high utilization rate and is in the top 25% of units with a low CLABSI rate.

EB74 Overwhelmed by the Noise: Managing Alarms and Decreasing Alarm Fatigue

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Purpose: Between 80% and 99% of heart monitor alarms are false or clinically insignificant. This situation can cause alarm fatigue and result in a delayed response and a decrease in patient safety. The Joint Commission made alarm management a National Patient Safety Goal (NPSG). The purpose of this project was to decrease the number of nuisance and nonactionable, clinically insignificant alarms in high-acuity critical care areas, thereby decreasing alarm fatigue with the staff and increasing patient safety. **Description:** National guidelines from AACN's alarm management practice alert and alarm management performance improvement plan were used to conduct this project and provided the evidence for change. Alarm data were initially collected in pilot units on 2 levels of care (14 days on intermediate care and 7 days in the intensive care unit [ICU]), and the nursing staff were surveyed for their clinical expertise and alarm fatigue level. Unit default alarm parameters were changed. Clinically insignificant alarms such as multiform premature ventricular contractions (PVCs), pair PVCs, missed beats, irregular heartbeat, and pulmonary artery pressure mean were identified and approved by multiple interdisciplinary teams to have the audible alarm deactivated. The alarms could still be trended, and other active alarms such as PVCs per minute, runs of PVCs, atrial fibrillation, and pause were able to provide clinically significant alarms for these issues. Other alarms such as high heart rate had parameters widened, from 100 beats per minute to 120 beats per minute. Individual patient needs were considered by developing guidelines for the customization of alarms. Staff were educated on

appropriate electrode use and how to customize and troubleshoot alarms. **Evaluation/Outcomes:** After the changes, alarm collection and staff surveys were repeated. Alarms per bed decreased by 41% in the intermediate unit and 37% in all ICUs combined. Alarm fatigue significantly decreased from 7.29 to 4.64. ($P < .001$) in the ICUs. The most effective results in decreasing alarms were seen in changing unit default settings. Alarm customization for individual patients will continue to be reinforced. Using national guidelines provided by AACN, the elements of performance in the Joint Commission's NPSG were met.

EB75 "How Sweet It Is": Taking the Fear Away From Managing Insulin Infusions

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Purpose: Managing hyperglycemia in the adult oncology critical care population is challenging. "Pen and paper" protocols are unpredictable and obsolete. A nurse-driven insulin infusion computer program was implemented that is safe and effective and achieves the targeted glucose range without increasing the risk of hypoglycemia. This evidence-based protocol is beneficial for nurses by fostering autonomy, allowing development of competency, and increasing confidence in administering insulin infusions. **Description:** The clinical goal was to reach euglycemia in an expeditious and safe manner without increasing the risk of hypoglycemia. Our nursing goal was to enable the nurse to feel secure in the dosing of high-alert insulin while removing the guesswork from decision making. The literature search identified the Yale insulin infusion protocol (IIP) approved by the Food and Drug Administration as an effective strategy. By adopting this IIP, the ICU would meet the American Diabetes Association's clinical practice recommendations for insulin infusions for the critically ill patient. Concurrently, we identified an innovative start-up software company that was in direct communication with the Yale diabetes medical team. They created the software that implements the Yale IIP. Many interprofessional decision-making teams were employed, along with the creators of the software program, to address the specific needs of this ICU population and nursing staff. In the spirit of shared governance, our clinical nurses were instrumental in the redesign of this now essential tool. In addition, a satisfaction survey was

conducted to document the clinical nurse experience. **Evaluation/Outcomes:** Our patients have safely reached glucose targets with 0.0% severe hypoglycemia and less than 0.2% mild hypoglycemia. The time to target glucose levels was substantially decreased. Survey feedback demonstrated a consensus of proficiency when navigating the program while appreciating the benefits of euglycemia in our patients. It also provided feedback about improving the nursing work flow while managing insulin infusions. One theme remains a constant: managing an insulin infusion is time-consuming. That being said, other critical care units have expressed an eagerness to implement this IIP in the near future.

EB76 RED-BE-GONE: Reducing Incontinence-Associated Dermatitis in the Intensive Care Unit by Using the Evidence!

Beth Adams, Judith Brohm, Jalyn Goolsby, Stacy Clark; Clark Memorial Hospital, Jeffersonville, IN

Purpose: Moisture caused by urine and stool is a significant risk factor for pressure ulcer development. The purpose of this project was to determine if incontinence-associated dermatitis (IAD) was a risk factor within our unit and, if so, how we might best be able to prevent and/or treat the problem. An additional goal included evaluating ways to create consistency in using evidence-based practices as well as identifying any factors that may affect compliance with any new processes that were to be implemented. **Description:** A visual skin inspection and incontinence survey was performed on all patients in our unit on 3 different days in a 2-week period. A total of 39 patients were examined; 64% were incontinent and IAD was present in 56%. Almost three-quarters (73.6%) of the IAD cases were acquired during hospitalization in our unit. We definitely had a problem. We discovered that during the previous 9 months, only 148 individual tubs of protective wipes had been used. Investigation revealed that the large size was perceived as waste, and the scope of the problem was not understood. Using these baseline data, we created a committee of nurses and certified nursing assistants from both shifts to create a solution. We reviewed the evidence-based literature and secured the help of our skin care product representative. We removed all powder, lotions, nonwicking disposable underpads, and zinc oxide preparations from our supply area. We initiated a skin protocol trial using dimethicone-infused wipes in smaller containers and

located them at the point of care for ease of use and reduction of waste. We removed fitted sheets and limited linen to 4 total layers that included a moisture-wicking incontinence pad in an effort to reduce process variation among staff. Routine use of pads for continent patients was discontinued. **Evaluation/Outcomes:** At the end of our study, the IADs had *disappeared*. We had reduced our rate from 56% to 0%! Our unit's rate of facility-acquired pressure ulcers was reduced by 46%. The compliance on barrier use increased from 32% to 94%. In the year following the initial study and the in-service training sessions that followed, our use increased by 1700%, protecting all of our patients for less than $2.50 each. Engaging our staff using our numbers for our patients and asking for their input regarding changing our process and choosing our products resulted in greater staff satisfaction, made it easier for staff to provide the evidence-based care our patients deserve, and reduced the opportunity for harm to occur.

EB77 Catch Them Early: Driving Sepsis Performance Improvement in the Emergency Department

Jean Bollinger, Vallire Hooper, Rosemary Arviso, Margaret Galloway; Mission Hospital, Asheville, NC

Purpose: Severe sepsis is the leading cause of hospital death, with an economic burden totaling $20 million. Organizational compliance with the Surviving Sepsis Campaign bundles has demonstrated up to a 25% relative risk reduction in mortality. Our organizational data indicated that overall bundle compliance in the emergency department in 2013 was less than 5%. The goal of this project was to improve sepsis care by data-driven insight to increase sepsis bundle compliance in the emergency department and improve patient outcomes. **Description:** Approximately 80% of patients with sepsis at our hospital have severe sepsis and septic shock on arrival in the emergency department. Bimonthly meetings of an interdisciplinary sepsis performance improvement team exposed opportunities for early recognition and increased compliance with the sepsis bundles in the emergency department. Quality metrics of the evidence-based sepsis bundle components were discussed, and an action plan for improvement was developed. To facilitate the measurement of quality metrics and effect change, a sepsis dashboard was developed. This technology enabled the team to examine sepsis analytic data in order to hardwire accountability with the Surviving

Sepsis Campaign's best-practice initiatives. To facilitate early recognition, a sepsis triage alert process was developed to empower bedside nurses to initiate rapid sepsis screening, removing delays in provider evaluation and treatment. To engage nursing staff, immediate feedback on successes and opportunities for improvement is communicated via an on-unit video display monitor, newsletters, flyers, and 1-to-1 bedside interaction. Nurses are recognized monthly for the speed and application of the 3-hour bundle components. **Evaluation/Outcomes:** Sepsis quality metrics for severe sepsis/septic shock cohort present on admission to the emergency department, August 1, 2014 to August 30, 2015, validated improvement in compliance with the 3-hour sepsis bundle as follows: antibiotic: 36%-68%; lactate: 56%-80%; blood culture: 58%-80%; intravenous fluids: 26%-43%; composite bundle compliance: 15%-30%; hospital mortality: 18.61% (fiscal year 2013) decreased to 15.8% (fiscal year 2015); hospital length of stay decreased 10%; sepsis triage alert process: median arrival time to antibiotic administration for this population decreased 43%. Our outcomes demonstrate that data that are "action-oriented" can be applied to improve processes with the goal of enhancing the quality of patient care.

EB78 Simulation-Based Mock Codes in a Tele–Intensive Care Unit Practice

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Purpose: Mayo Clinic's tele–intensive care unit (ICU) program involves remote monitoring of ICU patients by a centralized team of clinicians. This collaboration has resulted in an improvement of severity-adjusted mortality metrics, with ICU mortality decreasing by 30.5% and hospital mortality decreasing by 11.6%. Despite program success, providing care via video during a cardiopulmonary arrest remains difficult; simulation-based mock codes were designed to help increase collaboration and communication during these events. **Description:** Mayo Clinic educators traveled to the remotely monitored site to perform mock codes, while nursing education staff were in the monitoring center located in Rochester, Minnesota. Scenarios were developed ahead of time so that educators on both sides of the camera could be prepared. Bedside staff were told to respond as they normally would to the event; they were not prepared about the possibility of involving tele-ICU staff in the event. This was intentional to measure the rate at which tele-ICU

staff were included by the bedside staff. Monitoring center nurses and the intensivist were not informed that mock codes were taking place so that the scenarios could elicit an unprepared reaction. Other data collected included: role of tele-ICU providers, communication challenges, effectiveness of a remote team leader, opportunities for future collaboration, and other unanticipated challenges encountered. **Evaluation/Outcomes:** Results indicated that traditional team member positions and roles need modification for interaction with the tele-ICU. Closed-loop communication has greater emphasis so that remote team members can be effective. Identification of a team leader remains an essential part of resuscitation; however, the location of the team leader, whether remote or at the bedside, does not affect their overall ability to lead. Data were collected during debriefing sessions following each event. Simulation-based mock codes were instrumental in defining tele-ICU team members' roles in resuscitation events. The mock codes also provided the opportunity for bedside staff to identify the value of remote team members during a critical event.

EB79 Strategic Solutions to Bundle Pressure Ulcer Prevention in the Critically Ill Population

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Purpose: Critically ill patients are among the most at risk for hospital-acquired pressure ulcers because of their comorbid conditions, vasoactive medications, malnutrition, incidence of vasculitis, and resulting hemodynamic instability when repositioned. Despite quality care and best practice, pressure ulcers continue to develop in these patients. This project presents an evidence-based, interdisciplinary solution to strategically bundle and standardize prevention initiatives across a multihospital system. **Description:** Driven by the intensive care unit's (ICU's) Nurse Practice Council (NPC), and supported by interdisciplinary professionals and leaders, we undertook a 3-year journey to prevent hospital-acquired pressure ulcers (HAPUs). Historical practice: The ICU was structured to prevent pressure ulcers. Hospital policies and standard operating procedures were in place and supported by research, clinical standards, regulations, and education. The system had been a member of the National Database of Nursing Quality Indicators since 2008. Despite best practice, and dedicated nurses, HAPUs continued to occur. The ICU

staff sought new evidence, processes, and creative and preventive actions. Evidence-Based Solutions: ICU evidence and action evolved into a hospital-acquired pressure ulcer prevention bundle. The program is sustainable, technology supported, and includes comprehensive skin assessment, 3-step and 5-step skin management for Braden Scale scores of 6 to 23 with and without wounds, and sacral dressings for patients meeting criteria. Use of wound, ostomy, and continence nurses (WOCNs) and respiratory therapists is increased. Bed specialties are available, and patient care was enhanced with underpads, support devices, and dietary supplements. Staff education is available on unit, class and online. **Evaluation/Outcomes:** The HAPU prevention bundle has changed the culture in the ICU. Proactivity of nursing staff, early involvement of WOCNs and respiratory therapists has proven effective. The ICU has experienced a downward trend in HAPU rates. In 2012, the annual rate reported for stage II HAPUs was 5.25. The rate decreased to 4.70 in 2013 and to 1.53 in 2014. Based on NDNQI point prevalence benchmarks, the number of patients surveyed has remained stable, while ICU rates are reported as 0.0 for 2015. Scores are within the top quality percentiles when compared with all NDNQI hospitals. Documentation, WOCN validation, and data collection are improved. The ICU work is relevant, sustained, and replicated across the multihospital system.

EB80 Crushing CLABSI: Collaborative Approach to Eliminate Central Catheter–Associated Bloodstream Infections

Kimberly Mattison, Sarah Smith, Sonya Stover, Megan Smakulski; Christiana Care Health System, Newark, DE

Purpose: According to the Centers for Disease Control, central catheter–associated bloodstream infections (CLABSIs) are critical infections causing an extended length of stay, increased cost, and higher risk of mortality. The incidence of CLABSIs in the medical pulmonary step-down unit at Christiana Care Health System had been greater than the National Healthcare Safety Network's standard for step-down units. Our CLABSI value improvement team (VIT) partnered with a multidisciplinary team in an effort to decrease the number of CLABSIs. **Description:** The CLABSI VIT met monthly to discuss and investigate CLABSIs in order to identify obstacles faced daily with central catheters and to devise a plan moving onward. The VIT implemented several

strategies to reduce CLABSIs. These included central catheter dressing changes every Wednesday at 5 am and weekly rounding every Thursday by a CLABSI VIT member using a standardized checklist. Weekly rounds involved assessment of an occlusive dressing, correct position of chlorhexidine dressings, correct date/time/initials on central catheter dressing, and the necessity for a central catheter. While rounding in live time, the team was able to bring awareness to checklist items overlooked in the daily care of central catheters. The multidisciplinary team included an infection prevention nurse, vascular access nurse, and hemodialysis department and patient care facilitators to implement a team approach to reducing CLABSIs. The duration and need for all central catheters were discussed daily in rounds. The team educated staff with e-mails, posters, 1-on-1 education, and training during annual critical skills programs. In addition, individual staff members received positive recognition for having central catheters removed. **Evaluation/Outcomes:** Despite having 1220 central catheters present for the past 6 months, with implementation of the aforementioned strategies, the CLABSI VIT was successful as evidenced by zero CLABSIs during this period. In the future, collaboration with our multidisciplinary team will continue in an effort to ensure that our unit remains CLABSI free. With patient safety at the forefront, we will continue to use the latest evidence-based practice to ensure that our patients receive top-quality care.

EB81 Reducing the Rate of Catheter-Associated Urinary Tract Infections in Intensive Care Unit Patients

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Purpose: Catheter-associated urinary tract infections (CAUTIs) are the most common type of nosocomial infections. Adverse effects associated with CAUTIs have led to increases in health care cost, length of stay, morbidity, and mortality. From January to July 2014, 18 intensive care unit (ICU) patients had a CAUTI develop. The aim of this study was to decrease the CAUTI rate by implementing a standardized procedure and improving nursing practice on the insertion and maintenance of indwelling urinary catheters (IUCs). **Description:** Care bundles for IUCs, including early removal of IUCs, have resulted in a reduced CAUTI rate in other institutions. Approximately 120 nurses in a 28-bed medical ICU and

7-bed surgical ICU were assessed on their knowledge and practice of IUC insertion and maintenance through observation, chart audits, and online survey. In July 2014, the nurses were educated on appropriate IUC insertion and maintenance. They were also required to show competence with return demonstration. In addition, urinary catheter kits were standardized, and a minimum of 2 nurses were required to assist with each IUC insertion to ensure compliance with aseptic technique. Furthermore, a nurse-driven standardized procedure for removal of IUCs, which included a straight catheterization algorithm and voiding alternatives, was created and implemented. Nurses were taught to perform catheter care every 12 hours, and lapses in documentation of this intervention were addressed. During leader rounds, nurses discussed the appropriate use of IUCs and addressed catheter removal when no longer indicated. Case studies were conducted on all CAUTI events. **Evaluation/Outcomes:** Knowledge gaps and inconsistencies in IUC insertion and maintenance resulted in nurses' failure to maintain aseptic technique and provide appropriate catheter care. After the intervention, nurses demonstrated increased knowledge about the IUC care bundle and adherence to the standardized procedure for IUC removal. The implementation of the care bundle and standardized procedure resulted in decreased CAUTI incidence and catheter days. From August 2014 to July 2015, the CAUTI rate decreased by 89%; 2 events were attributed to IUC insertions performed in the emergency room and operating room. In addition, catheter days were decreased by 67% (from 539 in June 2014 to 178 in July 2015).

EB82 Blood Conservation in Cardiac Surgery by Using Thromboelastography and Platelet Mapping

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Purpose: In 2010, blood product use for cardiothoracic surgical patients at Rogue Regional Medical Center was higher than national benchmark targets. Perioperative blood transfusion is associated with postoperative complications including nosocomial infections, immunosuppression, transfusion-related acute lung injury, decreased health-related quality of life, and reduced early and long-term survival. A multidisciplinary team initiated thromboelastography (TEG) testing to reduce blood product use with the intent of improving outcomes.

Description: TEG was introduced to the medical center by a member of the cardiothoracic surgery team. TEG implementation required a multidisciplinary team approach that spanned preoperative to postoperative care. TEG testing is performed on all cardiothoracic surgery patients before surgery (to provide a baseline measure), twice during surgery at defined intervals, and in the critical care unit as needed if bleeding continues. TEG testing uses whole blood to evaluate the efficiency and viscoelastic properties of clot formation. The goal of TEG implementation was to decrease overall blood transfusions in the cardiothoracic population. Critical care nurses worked collaboratively with the multidisciplinary team to develop a treatment algorithm, were educated to evaluate real-time clot formation via TEG readings, report data, and make treatment recommendations per the algorithm. Challenges faced while implementing this change include the constant influx of new staff and the low-volume, high-risk nature of the patients needing TEG testing. TEG panels must be interpreted in real time, which requires a nurse who is trained to report the findings to the doctor. Training is available at the medical center's yearly teaching institute and through the critical care nurse educator. **Evaluation/Outcomes:** Within 12 months of implementation, use of blood products for cardiac surgery patients had decreased from 58.6% to 33.26%. By December 2013, the yearly average was down to 24.1%, and the 2014 average was 20.7%. Total blood products transfused in the 2010-2011 year in the cardiac surgery program was 4420 units. In the 2012-2013 year, a total of 1557 units were transfused, a difference of 2863 units. The expectation of meeting the goal of decreased blood transfusions in this population is that patient outcomes and safety will be greatly improved. Continuing education with the nursing staff will be key in ensuring that success is ongoing and to provide the best perioperative care to cardiac surgery patients.

EB84 Good Night, Sleep Tight: Active Sleep Promotion in the Cardiothoracic Intensive Care Unit

Myra Ellis, Heather Pena, Debra Farrell; Duke University Hospital, Durham, NC

Purpose: Implement an integrated strategy to actively promote sleep in patients in the cardiothoracic intensive care unit (CTICU). Specific aims: Create a patient-centered environment that maximizes opportunities to promote sleep and rest in the ICU, as measured by patient-tailored implementation of sleep guidelines; implement the practice of "active sleep promotion," as measured by documentation of sleep hygiene strategies in the electronic health record; and evaluate patient satisfaction with sleep quality, as measured by patient self-report of sleep quality. **Description:** Hospitalized patients commonly experience poor sleep and report poor sleep quality. Sleep is an essential biologic function that is crucial to supporting immune function and promoting recovery and restoration of health. In the presence of illness, sleep deprivation may complicate illness and impair recovery. Our unit research team identified poor sleep and its consequences as a source of patient dissatisfaction and a modifiable patient outcome. The team collected baseline data on unit noise, patients' sleep satisfaction, and disruptions of patients' sleep. The data were combined with a literature review and collaboration with the ICU team to develop an evidence-based sleep promotion guideline. The team used a multi-faceted approach to promote quiet and sleep for CTICU patients that included staff education, strategies to improve environmental light and noise, attention to assessing and providing sleep hygiene for patients, and rescheduling of nonessential tasks (eg, bathing, dressing changes). After implementation of the guideline, data were collected at 2-week intervals for 6 months (n = 10 patients/interval) to evaluate the impact on (1) patient-reported sleep quality, (2) noise in the environment, and (3) barriers to sleep. **Evaluation/Outcomes:** Patients' sleep satisfaction improved to 50% in the last 3 intervals, although aggregate data over the 6-month period shows no change (39.7% [58/146] vs 39.7% [48/121]). Quietness improved from 73.3% (107/146) to 77.7% (94/121). Sleep discussions with patients were reported by 49.6% (60/121). The number of baths given between 11 PM and 5 AM was reduced from 38.6 % (44/114) to 19.2% (118/613). Improvements in practice were achieved in areas of quietness, decreased number of night time baths, and discussing sleep with patients. A tendency to drift back to baseline at intervals shows the need for ongoing feedback for staff and persistence of the intervention to achieve the stated goal.

EB85 "Timer" for Change: Reducing Blood Product Wastage in the Cardiothoracic Intensive Care Unit

Catherine Shuford, Janice Febre, John Haddock, Heather Pena; Duke University Hospital, Durham, NC

Purpose: Coolers with blood products for patients in the cardiothoracic intensive care unit (CTICU) were often returned expired to the blood 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 identify sources of delay in return of the blood coolers to the blood bank and determine the effectiveness of a behavioral change intervention to reduce the waste of blood products. **Description:** To effectively change behavior, evidence shows you must use a comprehensive approach involving different aspects of behavioral change. In *Influencer* (2008), Patterson et al suggest that 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. Using this evidence, we developed a multifactorial behavioral change intervention to reduce the waste of blood products. The first facet of the intervention involved collaborating with the unit secretary and the hospital's blood bank to identify sources of delay that resulted in expired blood products (social ability). The second facet was placing timers on each blood cooler upon arrival in the CTICU in order to alert the care nurse 1 hour before the blood product expired (structural ability, structural motivation). The third facet of the intervention involved staff education through pamphlets, daily huddles, and monthly staff meetings regarding appropriate management of blood products to reduce the financial and resource loss related to expired blood products (personal ability, personal motivation). **Evaluation/Outcomes:** We analyzed data on blood coolers from the bedside in the CTICU to the blood bank to determine the number and causes of expired coolers. We found that nurses were often returning the coolers to the secretary at or near expiration time, which did not allow sufficient time to transport them before expiration. In the 3 months before our intervention, 122 out of 306 (39.9%) coolers had expired on return to the blood bank, wasting $341 600 of products. Collaboration with the unit secretary, staff education, and placing timers on blood coolers started in February 2014. Following implementation (February 2014-July 2015), there were 79 out of 1254 (6.3%) wasted coolers, representing an estimated savings of $1 178 800.

EB86 Extubate Patients When Ready

Jacqueline Grau, Daniel Zirolli, Nancy Galbreath, Kellie Kessler; Christiana Care Health System, Newark, DE

Purpose: Christiana Care Health System has more than 1100 beds, with 30 of these beds in the medical intensive care unit (MICU) and the Wilmington ICU (WICU). Before this investigation, patients were not routinely extubated after 8 PM irrespective of their readiness. The goal of this project was to reduce the number of ventilator days and length of stay within the 2 ICUs and to change the extubation culture. A plan was developed to create a new approach to extubate patients when medically appropriate regardless of the time of day. **Description:** A multidisciplinary task force was developed, predominantly from the off-shift hours, including the front-line intensivists, physician assistants, respiratory therapists, critical care nurses from the 2 ICUs (MICU/WICU) and e-care nurses from the virtual ICU. Through regular meetings, this team collaboratively reviewed data and initiated ABCDEF guidelines for best practice and patient safety. The team created standardized procedures that were then adapted for all disciplines. Furthermore, a checklist was developed to help identify patients who could be extubated off-shift and ensure patient safety. Education was developed and made available to all disciplines simultaneously via web-based education. Mini face-to-face education sessions were provided on all shifts to engage staff and reinforce the web-based education. There was a "Raisin' Awareness" campaign that included boxes of raisins handed out to all disciplines and unit-based bulletin boards to help emphasize the training. Baseline average data were collected from January 2014 to May 2014, at a first intervention period from June 2014 to October 2014, and postcollaborative November 2014 to June 2015. **Evaluation/Outcomes:** A postcollaborative survey was completed, showing a progressive culture change in bedside practice of at least 50%. Off-shift extubations have increased from 10.6% to 13.6%, a 3% improvement from baseline in both ICUs. Ventilator days decreased from 3.04 to 2.81 currently. There was an encouraging 5.8-hour reduction in mean length of stay. This is a financial savings of $802.00/day or $ 292 760/year. This positive outcome was influenced by empowering the staff and initiating the web-based education and support to include all disciplines in both hospitals at the same time. The culture has changed to continuously assess patients for readiness to extubate regardless of the time of day.

EB87 Reinventing Alarm Management: Using Smartphone Technology to Care for Telemetry Patients

Kathleen Short, You Chung, Kevin Browne, Melody Rosamilia; Memorial Sloan Kettering Cancer Center, New York, NY

Purpose: Our oncology institution redefined alarm management on 5 telemetry monitoring units by replacing the outdated secondary alarm beeper device with a high-tech smartphone solution. To address The Joint Commission's safety goal regarding clinical alarms safety, respond to staff concerns about alarm fatigue, and incorporate best practices from the literature, our project team partnered with 3 vendors to filter actionable telemetry alarms and their associated livestream waveforms to a smartphone. **Description:** The team was composed of clinical and technical experts as well as vendor representatives. Current work flows and alarm data were reviewed, direct care nurses' feedback was solicited, and expectations were defined. Phone ringtones were set to match the central monitoring station tones and lengthened to ensure that they were heard. Guided by our institutional alarm data and best practices in the literature, filters were created to customize the types of alarms sent to the phone and frequency of alerts. High-volume alarms commonly seen in the oncology population, like tachycardia, were filtered or bundled to provide more meaningful alarms. Integration testing allowed for the applications to be customized, which included adding a button that allows the nurse to view the waveform and acknowledge the alarm condition simultaneously. Troubleshooting identified areas for improving work flow and developing internal support systems. Interactive 2-hour training sessions were provided to 275 nursing employees. Pilot testing on a single unit was done for 6 weeks before expansion to 4 additional units. **Evaluation/Outcomes:** As the second institution in the country to successfully customize and implement use of a smartphone with livestream waveforms for secondary alarm management, our nurses are now at the forefront of using technology to better manage the cardiac care needs of our complex oncology population. Alarm data from the pilot unit in the past 30 days shows 15 195 tachycardia alarms with the nurses receiving 4090 bundled or filtered alarms via the smartphone. The 4 other units show similar results for alarm bundling and filtering. Other institutions seeking to reduce alarm fatigue may find leveraging this type of technology an effective intervention without risk to patients' outcomes.

EB88 Advanced Care in Pediatric Hematopoietic Transplant: Use of High-Fidelity Simulation

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Purpose: An increase in transfers of bone marrow transplant (BMT) patients to the pediatric intensive care unit (ICU) triggered a need for additional education for ICU staff nurses. Six focus groups were conducted; the following knowledge gaps were identified: sepsis, engraftment syndrome, graft versus host disease, BMT medications, and cardiac, neurologic, and respiratory complications. The goal was to develop a course for ICU/BMT nurses to meet the identified learning needs by using evidence-based practice. **Description:** An 8-hour course was developed with content based on identified knowledge gaps and teaching methods that included a strong focus on high-fidelity simulation. The simulation included 2 unfolding scenarios, respiratory distress and new onset seizure, based on International Nursing Association for Clinical Simulation and Learning (INACSL) standards of best practice for simulation. The use of simulation assists learners to use their critical thinking skills and practice patient care in a safe environment. Content experts including clinical nurse specialists, intensivists, respiratory therapists, the ICU educator, and the BMT manager were employed to present the topics and assist with facilitation of simulation. Participants had to demonstrate ability to establish priorities, make decisions, and take appropriate actions. Briefing before and debriefing immediately after the scenarios was conducted. The course concluded with a panel discussion on ethical issues and quality of life. Representatives from palliative care, pastoral care, risk management, and an intensive care physician participated in the panel discussion. Twenty-three ICU and BMT nurses attended. **Evaluation/Outcomes:** Evaluation consisted of a Likert rating scale given to participants at the end of the course. Learners reported a high satisfaction for achievement of learning needs, knowledge and teaching strategies of the speakers, and effective use of learning methods. Evaluation results after education showed 86% rated the class excellent, 8% good, and 4% fair in decreasing the knowledge gaps identified by the assessment. Comments included, "Should be required

for all BMT staff" and "great reminder of patient situations." The evaluation concluded by asking participants for suggestions for future courses. All participants agreed that this should be an ongoing class annually or biannually.

EB89 Improved Nursing-Laboratory Collaboration Results in Improved Staff Satisfaction and Efficiency

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Purpose: Nurses in our adult intensive care units (ICUs) were dissatisfied with the process for collection of samples for laboratory tests. The Nursing Practice Council (NPC) and laboratory collaborated to reduce unnecessary telephone calls and improve laboratory collection time and satisfaction. We used a quality improvement (QI) process to define current work flows and develop new work flows that optimized efficiency for both disciplines. Additional goals included expanding barcode scanning, streamlining the laboratory process across 3 ICUs, and decreasing miscommunication. **Description:** The NPC and the laboratory developed evidence-based improvements by meeting monthly for 8 months. We delineated steps in the current work flow, including a unique process that had developed over time by which the laboratory provided labels and tubes to bedside nurses for scheduled collections of blood specimens. This process was time intensive for the laboratory, created confusion, and provided an opportunity for misidentification of specimens. We identified areas for improvement for both the laboratory and nursing, with the goal to ensure timely results for optimal and safe patient care. The new consensus work flow used barcode scanning, printing of labels at the bedside, and a standardized process for delivery of laboratory specimens. Baseline data on nurse satisfaction, laboratory collect turnaround time, and the number of calls between the laboratory and nurses was collected. Implementation involved development of an electronic learning module for nurses, posters in the ICUs, and 1-to-1 training on the barcode scanner. Education for laboratory staff included discussions in staff meetings and posting the new work flows. Data were collected again 6 weeks after implementation, including nurse satisfaction via an electronic survey, specimen result reports, and numbers of calls between nurses and the laboratory. **Evaluation/Outcomes:** We were able to collaboratively change our process to increase efficiency

for the laboratory and nursing. Nurses' satisfaction improved from 19% satisfied/very satisfied to 61% after implementation; only 8% were dissatisfied with the new process. Turnaround times for collection of laboratory specimens decreased by 50%, resulting in improved result timeliness. Unnecessary calls between nurses and the laboratory were decreased by 44%. We anticipate that improvements will continue as the process is reinforced. Data collection will continue to ensure embedding of the process. This was a successful collaborative project leading to a closer working relationship with the laboratory. The NPC will replicate this QI model with other disciplines for future projects.

EB90 Bath Basin Elimination: Use of Bathing Cloths to Reduce Catheter-Associated Urinary Tract Infections

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Purpose: To compare the effects of 2 methods of bathing patients and incontinence care on overall cost and frequency of catheter-associated urinary tract infections (CAUTIs) in critically ill patients. **Description:** Health care–associated infections (HAIs) are common, costly, and associated with significant morbidity and mortality. Prevention strategies are often underused, particularly for CAUTIs. CAUTI rates by hospital are now publically available and the Centers for Medicare and Medicaid Services (CMS) will no longer reimburse hospitals for the additional costs of caring for patients who have a CAUTI develop. A growing body of evidence supports that the removal of reusable bath basins can reduce occurrence of CAUTIs. CAUTI rates were measured for a 12-month period on all hospital units (2014) to provide a baseline measure. The 2014 standard of care in the general care units was once-daily bathing with soap, water, perineal cleanser spray, and reusable bath basins; incontinence care was performed as needed using the same supplies. Chlorhexidine was used in the ICUs for bathing and basins were used for incontinence care. In January 2015, a new bathing and incontinence care protocol was implemented, where all basins were eliminated and replaced by a 1-time-use packaged bathing product. Compliance with the new protocol, product cost, and frequency of CAUTIs were measured for a 7-month period (January–May 2015). **Evaluation/Outcomes:** A total of 22 CAUTIs occurred in the 2014 time

period versus 7 CAUTIs in the 2015 time period, a 53% reduction in CAUTIs. Return-on-investment (ROI) was calculated by using the differences in supply costs associated with each bathing process as well as the cost avoidance attributed to CAUTI reduction. ROI for the 7-month intervention period was $34 222, with a projected annual ROI of $58 666.

EB91 Focus on Safety: Creating a Culture of Safety

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Purpose: Falls on the progressive care unit at Christiana Care Health System were above the National Database of Nursing Quality Indicators (NDNQI) benchmark for fiscal year 2013; in an effort to be below the benchmark and improve patients' outcomes, a revision of patient safety protocols was devised and implemented. According to the Centers for Disease Control and Prevention, 1 in 3 adults aged 65 and older fall each year. The mean cost of each inpatient fall is $35 000, yielding a national cost of $34 billion in 2013 alone. **Description:** The safe practice value improvement team (VIT) is a multidisciplinary group of staff members that meets bimonthly and includes nurses, patient care technicians, unit clerks, and a safe patient handling instructor. The team looks for themes to identify opportunities related to improving patient safety and use them for learning and instituting new practices, educating staff, and creating a culture of safety. After analyzing the fall data from 2013, the committee decided to implement new safety standards. These included the use of bed/chair exit alarms and lap buddies on all patients at all times, bedside handoff, not permitting patients to sit on the side of the bed unsupervised, never leaving patients alone while toileting, and using gait belts while ambulating. Additionally, the team noted a trend of patients falling from low beds because the alarm did not sound in time, so it was decided to remove all low beds (used systemwide) from the unit. Ultimately no patient is permitted to refuse to follow the patient safety standards (15 out of the 19 falls were alert and oriented patients). Weekly rounds performed by members of the VIT team ensured compliance by all staff and provided continued education through real-time feedback and recommendations. **Evaluation/Outcomes:** The unit fall rate declined by 22% in fiscal year 2014, and we overachieved the NDNQI benchmark of 2.5 by earning a 1.68. The committee continues to dissect each fall to identify opportunities for learning and improvement, perform safety rounds, and provide real-time feedback to staff with a goal of enhancing our unit's culture of safety and ensuring accountability for patient safety at all levels and disciplines.

EB92 Courageous Collaborative Care: Value Improvement Teams Make a Difference on a Step-down Unit

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Purpose: When all members of the health care team are on a value improvement team (VIT), everyone contributes to making an impact on their unit's outcomes. The pulmonary step-down unit at Christiana Care Health System has developed strategies/implemented changes that have decreased hospital-acquired infections related to central catheter–associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), ventilator-associated events (VAEs), unit-acquired pressure ulcers, and falls. **Description:** The CLABSI VIT rounds on all central and hemodialysis catheters weekly. The team ensures that all dressing changes are completed weekly and collaborates with the vascular access nurses to remove unnecessary central catheters and with hemodialysis nurses to ensure that sterile, occlusive dressings are in place. The CAUTI VIT has created a culture change. The CAUTI VIT members round daily on all patients with urinary catheters while working with physicians to ensure that urinary catheters are ordered only for institution-approved indications. The VAE VIT rounds weekly to ensure that chlorhexidine is ordered on all ventilator patients, toothbrushing and mouth care is completed and documented per protocol, the head of bed is elevated at least 30° and that tracheostomy holders are changed weekly. The skin VIT rounds monthly and completes an in-depth head-to-toe skin assessment, while also rounding twice weekly on all tracheostomy patients to ensure that sutures are removed in a timely manner. The safe practice VIT rounds weekly to ensure that all patients have their bed/chair exit alarms activated to prevent falls. Not only do the VITs round on the unit, they educate staff on initiatives and encourage patients and their families to be active participants in their care. **Evaluation/Outcomes:** VITs have been successful in decreasing the occurrence of hospital-acquired

infections. The work of the CLABSI VIT decreased CLAB-SIs to 0 for greater than 6 months. The CAUTI VIT instituted a culture change that enabled the unit to be CAUTI free for more than a year. The VAE VIT implemented a unit-specific VAE bundle to maintain a low rate of ventilator-acquired infections. The skin VIT decreased unit-acquired pressure ulcers by 56% and the safe practice VIT has shown a 22% improvement with falls. By providing courageous care, VIT members have made positive changes through collaboration with the interdisciplinary team and by relying on each other's dedication in preventing harm from coming to the patient.

EB93 Courageously Caring for Each Other! Providing Pet Therapy to Staff in a Surgical Intensive Care Unit

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Purpose: Many studies have identified harmful effects that the stressful environment of an intensive care unit (ICU) has on its staff. Hospitals and managers struggle to provide practical interventions to deal with this serious issue. Often programs require more energy than an already depleted staff member has to participate. The project's purpose was to decrease perceived stress of staff in a surgical ICU. The focus was to provide real-time assistance at the bedside that is both meaningful and easily accessible. **Description:** Two staff nurses in the surgical ICU (SICU) are volunteers in our hospital's pet pal therapy (PPT) program. During our visits with SICU patients, we noticed that not only the patients but staff responded with tremendous enthusiasm. We reviewed the evidence on the effects of pet therapy on patients and staff. Studies show that pet or animal therapy decreases pain, improves vital signs, induces a relaxation response, and provides comfort to patients. The anecdotal evidence shows that pet therapy also has a positive effect on staff. Also, studies show that high stress levels and dissatisfaction can contribute to medical errors and also result in staff being less equipped to care for patients and their families, thus jeopardizing patients' outcomes. Using the evidence and our clinical observations, we obtained approval from the program director for providing PPT specifically for the staff. In 8 weeks, we provided 6 in-unit PPT visits on every shift to all staff who were interested. The length of the visits varied with the availability of the staff. Nurses, physicians, and many other ancillary staff participated. **Evaluation/Outcomes:** Staff's perceived stress/anxiety level was tracked before and after the intervention and measured by using a modified version of the State-Trait Anxiety Inventory. The postvisit questionnaire contained 3 open-ended questions to describe personal views of the PPT experience. Results were overwhelmingly positive, with large increases in the postvisit ratings of positive feeling indicators and decreases in negative feeling values. The postvisit questions reported many positives from feelings of happiness to calmness in the unit to building teamwork. The project's results have led to administrative support to design a formal research study to measure salivary stress hormone levels in staff receiving PPT.

EB94: Courageous Reduction in Catheter-Associated Urinary Tract Infections: Evidence-Based Practice and Education

Eric Wickersham, Elizabeth Sargent, Kevin Sorce, Bridget Remel; Christiana Care Health Services, Newark, DE

Purpose: In 2014, the medical intensive care unit (MICU) had 10 catheter-associated urinary tract infections (CAUTIs) with a device utilization ratio range of 0.39 to 0.49. In March 2015, a system-wide initiative was introduced to reduce occurrence of CAUTIs. The MICU chose to involve the entire MICU CAUTI value improvement team (VIT) to educate the unit, and adult learning theory was chosen as the educational framework. **Description:** The MICU VIT considered challenges such as individual learning styles and staff engagement and a large unit with more than 80 staff members across 3 generations. The MICU education committee along with the CAUTI VIT developed a new process to educate staff on best practice and outcomes. MICU staff completed education on new products, the relevance of the program, and incorporated institutional practice changes to align with evidence-based practice. Ten MICU CAUTI VIT members trained as CAUTI prevention specialists (CPS) in the Virtual Education, Simulation and Training (VEST) Center in a multimodal training session. Each CPS demonstrated competency in male and female models. This training enabled MICU CPSs to provide individual education to each staff member by teaching best practice for catheter maintenance, catheter insertion, and new products. Checklists were completed by each staff member. There were instances when an opportunity for

completion of a competency assessment on a live patient was not feasible and the MICU VIT collaborated with the VEST Center to obtain simulator models on the unit. To ensure best practice, the MICU VIT implemented weekly monitoring of catheter maintenance. **Evaluation/Outcomes:** As of August 31, 2015, nearly 98% of staff has been signed off on best practices for catheter maintenance and catheter insertion. To date (January 1, 2015-August 31, 2015), MICU incurred 1 CAUTI; this was a 67% improvement over the same period in 2014. The MICU yielded significant decreases in device utilization (0.3-0.45), and the MICU has been CAUTI free for nearly 8 months. Weekly monitoring continues and data are shared in the MICU newsletter. Use of adult learning theory and involvement of direct care staff members was important for both staff engagement and passion to improve urinary catheter care in the MICU and prevent harm by courageously reducing CAUTI and catheter use.

EB95: Using a Feedback Device to Improve Quality of Cardiopulmonary Resuscitation

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Purpose: To improve the quality of cardiopulmonary resuscitation (CPR) during resuscitation events. Data were downloaded from defibrillators and CPR feedback devices used during resuscitation events and analyzed. CPR metrics evaluated included chest compression rate, depth, pauses, identification of shockable rhythms, and pre/post shock pause times. Once these data were analyzed, feedback was given to the cardiac arrest teams on their performance metrics. **Description:** Survival from in-hospital cardiac arrest remains dismal; 18% for all rhythms. Many emergency medical systems across the United States have made significant strides in improving outcomes by focusing on high-quality CPR. It is well known that the quality of CPR provided in hospitals is lacking. Chest compressions are often performed too fast, too shallow, and allow significant interruptions in compressions, further aggravated by pauses before and after defibrillation. The challenge is that we often "feel" that CPR quality is poor, but do not have objective data to validate our feeling. This project started in January 2015. Software was used to analyze impedance signals obtained from defibrillator pads used during resuscitations. The initial reports identified issues with rapid chest compression rates (often > 130/min) and multiple

pauses in compressions. Initial measures of chest compression fraction (CCF) were less than 80%. The code blue leaders focused on minimizing interruptions by "keeping hands on the chest." Metronome devices were introduced with significant improvement in chest compression rates. By March 2015, a CPR feedback device was introduced to staff. Real-time feedback on rate with an audible metronome and depth were given via visual display. **Evaluation/Outcomes:** Since January 2015, we have seen a significant improvement in CPR quality, including chest compression rate, the CCF, and pauses before and after defibrillation. The rates are often 100/min to 120/min, especially when the CPR feedback device and metronome are used. The CCF has been consistently greater than 80%. A notable improvement has also been achieved in the chest compression depth and minimizing pauses before and after defibrillation. Visual examples will be provided using before and after reports. The feedback is very important because you can't improve what you don't measure!

EB96 Decreasing Use of Restraints in the Medical Intensive Care Unit

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Purpose: Clinical nurses in the medical intensive care unit (MICU) used evidence and innovation to change caregivers' perceptions about restraint of patients and reduce use of restraints in the ICU. Nurses employed an evidence-based survey to identify staff perceptions and beliefs. Dislodgement data dispelled myths and misperceptions that tube placement necessitated restraint, and peer to peer education and coaching resulted in clinical nurses successfully decreasing restraint use in the MICU from 1308 hours in August 2014 to 808 hours in May 2015. **Description:** The MICU restraint work group reviewed evidence regarding staff perception of restraints. A survey tool was developed on the basis of the Perceptions of Restraint Use Questionnaire (PRUQ) and a survey tool developed by Hurlock-Chorostecki and Kielb. Response rate was 62%; findings indicated nurses perceived restraints as necessary to prevent tube dislodgement. Chang et al reported in 2008 that restraints do not prevent unplanned extubations. MICU staff reviewed survey results and discussed current beliefs and practices. Work group members gathered data and validated that restraints did not reduce dislodgement. The team

developed an e-learning program and conducted education briefs in huddles. Patient care assistants were educated to improve teamwork. Restraint auditing with peer-to-peer discussions at the bedside was implemented to improve accountability by using a process described by Maag et al in 2012 and recommended by Rutledge and March in 2013. **Evaluation/Outcomes:** By the end of February 2015, the restraint work group had developed and implemented a restraint auditing process and completed a nurse perception survey, communicated survey results, analyzed dislodgement data, initiated dislodgement auditing, and provided restraint education to clinical nurses and patient care aides. The restraint work group and MICU clinical nurses' involvement in evaluating patient safety data at the unit level resulted in the goal of decreasing restraint hours being met. Use of restraints in the MICU decreased from 1308 minutes in August 2014 to 1076 in March 2015, 909 in April 2015, and 838 in May 2015.

EB97 Have You Hugged Your Patient Today? FASTHUG BASICS

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Purpose: Care of critically ill patients requires attention to a myriad of many evidence-based details. The FASTHUG mnemonic is an initiative that aides in remembering 7 common items to be evaluated. However, this mnemonic does not encompass all current initiatives in our medical intensive care unit (ICU). We developed a revised mnemonic, FASTHUG BASICS, which has aided in improving care and reducing adverse events. **Description:** This mnemonic provides an easy-to-use mental checklist to address the key elements in caring for critically ill patients. The original FASTHUG mnemonic addressed feeding, analgesia, sedation, thromboembolic prophylaxis, head of bed elevation, ulcer prophylaxis, and glucose control. We added BASICS to include bowel care, activity, skin care, indwelling urinary catheter removal, central catheter removal, and sepsis screening. The addition of BASICS allows easy inclusion of new initiatives implemented to reduce hospital-acquired infections, adverse events, and barriers for timely discharge. This mnemonic was introduced in a 16-bed adult medical ICU and is assessed twice daily by the nursing staff and discussed during multidisciplinary rounds. **Evaluation/Outcomes:** The impact and efficacy is measured

by compliance with the mnemonic elements, a reduction in central catheter and urinary catheter days and a decrease in adverse events such as pressure ulcers. Currently, compliance with the mnemonic elements has improved significantly, central catheter days have decreased by 7% and urinary catheter days decreased by 10%. Additional data are being collected to determine the impact on early mobilization, skin care, and compliance with sepsis screening. The bundle has improved communication and collaboration between nurses and physicians and allows for a shared focus in patient care.

EB98 Nurse-Driven Handoff From Anesthesia Care to Pediatric Cardiothoracic Intensive Care Unit: A Courageous Act?

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Purpose: For more than 15 years, The Joint Commission has continued to evaluate communication-related medication errors. With more than 4800 reported sentinel events, The Joint Commission identified communication during handoff as the top contributing factor to preventable medication errors. Transition of care between medical providers remains high risk for medication errors. An all-inclusive communication technique during handoff presents an opportunity to decrease the error rate. **Description:** Increased incidence of medication errors related to inadequate handoff between anesthesiologists and cardiothoracic intensive care unit (CTICU) nurses provided the motivation to examine our handoff practice in a tertiary pediatric CTICU. The errors related to handoff included (1) missed or delayed dose of postoperative antibiotics, (2) the wrong dose of vasoactive infusions, (3) error in infusion pump programming, (4) inconsistencies in blood volume administration, and (5) the haste for the anesthesiologists to return to the operating room. A staff-driven handoff was developed in collaboration with a cardiac anesthesiologist and a unit-based clinical nurse specialist. The admission process was restructured to allow admitting nurses to break away from the immediate process with the help of a secondary admitting nurse. The use of the handoff tool and "protected time" for admitting nurses during the hand-off activity with the anesthesiologist led to a 50% decrease in handoff-related errors. **Evaluation/Outcomes:** Compliance with the use of the handoff tool and nurses' adherence to "protected time" during handoff contributed

to the decreased incidence of medication errors related to delayed and missed dose of antibiotics. Compliance with the use of the operating room to CTICU handoff tool and the nurses' continued adherence to "protected time" improved overtime from 40% to 77%.

EB99 Pediatric Intensive Care Unit's Structured Interdisciplinary Rounds Affect Communication and Nurse/Family Satisfaction

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Purpose: Communication is a key to safe and effective care and to increased satisfaction of patients' family members and nurses. Lack of collaboration by health care providers can lead to inefficient patient care and dissatisfaction. A multidisciplinary team in the pediatric intensive care unit (PICU) worked to collaboratively address communication issues. The team focus was on improving communication through the rounds process with the primary aim of improving patient care and outcomes. Secondary aims were improvements in nursing and family satisfaction. **Description:** The PICU multidisciplinary team used the Six Sigma method to identify core communication issues, each discipline's expectations of ideal rounds, and the perspective of patients' families of PICU communication. Family-centered rounds were identified as a quality improvement and safety practice endorsed by the American Association of Pediatrics. Solutions were focused on applying multidisciplinary team communication strategies and a patient/family-centered approach. Prerounds huddles were implemented in June 2014 to identify daily rounding plans based on patient acuity, readiness for transfer, planned procedures, and admissions. Prerounds huddle goals are to address immediate issues on the unit more effectively and to improve flow of patients. Structured interdisciplinary rounds (SIRs) were implemented in October 2014 as phase 2. Through SIRs, the goal is to improve communication with all team members including patients' families. SIR uses a structured script for team members to present information, minimizing variation as a quality method; the patient's family is involved, and plans and goals are set as a team. Impact of the project is measured through feedback from nurses in a focus group before and after implementation, nursing/family participation in rounds, and nursing and family satisfaction surveys.

Evaluation/Outcomes: Implementation of a family-centered, structured, interdisciplinary rounding process improves communication. This improvement is evidenced by increased interdisciplinary participation in rounds and increased satisfaction of patients' families and nurses. Nursing participation increased from 88% to 100% ($P < .001$). Nursing evaluation of rounds quality improved from 0% top-box responses to 68%. Family participation in rounds increased from 41% to 79% ($P < .001$). The proportion of excellent or top responses for family satisfaction increased significantly after SIR was implemented ($P = .02$). Family concerns brought to hospital patient relations related to PICU communication decreased to zero following SIR implementation.

EB100 Strategies for Improving the Delivery of Continuous Renal Replacement Therapy in Pediatric Patients

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Purpose: Continuous renal replacement therapy (CRRT) is a complex method of delivering dialysis to critically ill patients. Often health care institutions rely on standard didactic education for CRRT, which lacks hands-on training or population-specific care. Lack of proper training can lead to premature clotting of a dialysis filter and time off therapy. The goal of this project was to implement a pediatric-specific CRRT education program and establish an independent CRRT team for ongoing bedside support. **Description:** Key stakeholders at a large academic medical facility in the southeastern United States identified the need to provide additional training and support for CRRT within the pediatric population. Previous education focused on the care and management of CRRT within the adult population. Evidence clearly indicates the vulnerability of children undergoing CRRT and the need for clear guidelines, interactive training using simulation, and ongoing support for bedside caregivers. In order to provide a standard of care for all children on CRRT, protocols, clinical algorithms, and bedside safety cards were developed by nursing leaders, clinical educators, and physicians. Direct care nurses then completed an 8-hour blended learning session that included a didactic overview of CRRT pathophysiology, protocols specific to pediatrics, and hands-on practice with the CRRT equipment using high-fidelity simulation. Additionally, a core pediatric

CRRT resource team (PRT) made up of nurses with advanced training in CRRT was formed to provide additional bedside support for therapy initiation, sophisticated pump management, and any additional staff needs. **Evaluation/Outcomes:** A prospective chart review of use of dialysis pumps was used to measure effectiveness of pediatric-specific training for CRRT. Before the implementation, the mean filter life for a CRRT machine was approximately 8.1 hours. Following the interactive training program and subsequent implementation of a pediatric CRRT resource team, the mean filter life increased to 40.3 hours. In addition, knowledge comprehension measured by using a pretest and posttest demonstrated a knowledge increase from 73% to 93% overall. Posttraining surveys also revealed an increase in staff comfort with CRRT guidelines and pump management and an appreciation of ongoing bedside support and resources available.

EB101 Using Lean Methods to Improve Sepsis Bundle Management

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Purpose: Severe sepsis/septic shock are high-impact conditions because mortality rates often exceed 20%. Evidence-based practice guidelines have demonstrated that bundled sepsis management reduces mortality, morbidity, and costs associated with care. Sepsis will become a measure affecting reimbursement by the Centers for Medicare and Medicaid Services. Adherence to the bundle is inconsistent, so lean process improvement methods would help identify barriers, implement tools, and ensure compliance with sepsis bundled care to improve outcomes. **Description:** Using lean methods, the multidisciplinary team identified the current/initial state of sepsis care (including waste) through chart review, group feedback, data, and direct group observation. The team created targeted metrics with specific time frames focusing on times for completion of bundle elements. Gaps between the initial and target states were identified: knowledge, experience, standard of work, data, electronic systems, and the ability to drive an urgent response. The 5 lean levers were used to help generate solutions to close the gaps. Visual management allowed staff to see real-time performance and cues for identification of sepsis. Operations were standardized to prevent delays in communication, to define processes, and to reduce errors. A pull system was developed so

that the patient was pulled to appropriate resources, not pushed. Process and role redesign allowed more efficient use of resources and error proofing of the process to avoid rework. Rapid experiments were used to validate the solutions and a plan, including ownership of action items and completion dates, was developed. Ongoing evaluation of processes and data led to modifications/improvements of suggested solutions. **Evaluation/Outcomes:** Weekly evaluation of sepsis bundle management compliance provided to patients with severe sepsis/septic provided timely feedback. Individual feedback provided the opportunity for re-education and discussion surrounding barriers and what worked well. Compliance was discussed in daily huddles, graphs were displayed at quality meetings and shared with staff, and celebration of successes was done. The 3-hour bundle compliance baseline was 47% in November 2012. Compliance was 51% for fiscal year 2013 and increased to 82% in fiscal year 2015. August 2015 compliance was 88%. The 6-hour bundle compliance baseline was 46.5% in January 2013. Fiscal year 2015 saw a compliance rate of 85%, and in August 2015, compliance was maintained at 85.2%.

EB102 Medical Intensive Care Unit's Initiative to Reduce Catheter-Associated Urinary Tract Infection

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Purpose: Catheter-associated urinary tract infections (CAUTI) account for up to 80% of health care–associated infections. The risk of developing a CAUTI increases about 7% per catheter day, making infection the most likely complication of urinary catheters. CAUTI increases length of stay, antimicrobial use, health care costs, and mortality. CAUTIs may be preventable and are not reimbursed by Medicare. This project was initiated in response to the high rate of CAUTIs in the medical intensive care unit (MICU). **Description:** A multidisciplinary team was assembled in July 2014. Stakeholder support was obtained, which included nursing and physician leaders, infection prevention staff, and staff of the MICU. A literature review was completed. The team brainstormed to identify deviations from best practice, barriers, and potential interventions. Interventions were implemented in a stepwise process. Interventions included changes in specimen collection for urinary analysis and culture; specimen containers; urinary catheter audits; decreasing catheter size; emptying collection bags before transport

or activity; maintenance of a closed system; and timely removal of catheters using a nursing protocol. Each CAUTI was debriefed for potential contributing factors. The CAUTI rate was calculated by using the National Healthcare Safety Network (NHSN) definition. Monthly CAUTI rates and standardized infection ratios (SIRs) were reported and discussed at monthly unit meetings and posted in the unit for staff viewing and input. **Evaluation/Outcomes:** The CAUTI initiative was a success. The MICU had a 68% decline in CAUTI rates from 5.1 to 2.3. The unit went for 8 consecutive months without a CAUTI (October 2014 through May 2015) using the 2015 NHSN CAUTI definition. The SIR rate decreased from 2.2 to 0.49 exceeding the target of 0.8. To evaluate the impact of NHSN definition change, the new definition was applied to the older data, which still showed an improvement of 62%. The 68% reduction in cases of CAUTI reflects a cost savings of $17 000 based on $1000 cost per CAUTI. Practices have been rolled out to the other ICUs at the hospital.

EB103 Implementation of a Nurse-Driven Rounding Checklist to Improve Communication and Quality Outcomes

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Purpose: Effective interdisciplinary team communication is crucial to excellent critical care. Our pediatric intensive care unit (PICU) team focused on use of a nursing-driven rounding checklist to decrease our rate of central catheter–associated bloodstream infections (CLABSIs) from our 2013 rate of 2.3 infections/1000 central catheter days. **Description:** Review of rounding practice in our 40-bed PICU revealed that multidisciplinary rounds were not consistently multidisciplinary and review of central catheter maintenance was erratic. We developed a checklist to prompt review of central catheter maintenance elements, and to promote nursing presence on rounds by depending on the bedside nurse to lead discussion of crucial clinical information. The checklist reviewed nursing data from the preceding 24-hour period and included elements not typically discussed in physician-led rounds: catheter location, type, duration (days), catheter entries, and use of tissue plasminogen activator. Decision making targeted catheter removal, transition to enteral medications, decrease in collection of laboratory specimens, decrease in ventilator support, and removal of urinary catheters. The checklist was piloted on 2 rounding teams and then implemented PICU-wide. Utilization data was collected for 12 months after initiation. **Evaluation/Outcomes:** From September 2013 to August 2014, mean catheter entries/patient catheter day decreased by 13.71 to 11.67, laboratory sampling was decreased by 0.40, intravenous medications by 1.44, and heparin flushing increased by 0.14. Most importantly, the CLABSI rate decreased to 0.95 catheter infections/1000 central catheter days. Nurse presentation of the rounding checklist is feasible and important to the success of quality improvement measures. This checklist empowered the nurses to communicate crucial details of patient care and implement clinical measures to decrease the CLABSI rate. Nurse-initiated communication enhanced patient care, documented reduction in risk and reduced costs with medications, laboratory use and catheter use.

EB104 Promoting Advanced Care Planning via a Goals-of-Care Tab in an Electronic Medical Record

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Purpose: Quality goals-of-care (GoC) conversations are a central tenet of quality health care. Having these conversations early and routinely provides many advantages. Clinicians may not engage in GoC conversations until patients are critically ill. The electronic medical record (EMR) offers the opportunity to innovate a method to encourage, frame, store, and access these conversations. The purpose of this project was to assess the utilization of a new tab, note type, and smart phrase for GoC discussions in an EMR. **Description:** A retrospective chart review of deaths in the intensive care unit (ICU) from January through November 2013 showed shortfalls in initiating, executing, and documenting GOC conversations. An interdisciplinary task force was created to address the issues. A literature review revealed a dearth of information regarding use of EMR technology to promote quality GoC conversations, despite ample research showing the many benefits to patients, patients' families, health care providers, and health systems. Task force collaboration included the clinical expertise of a diverse group from multiple specialties, which led to a versatile perspective and greater buy-in. Involvement of members of the EMR team ensured that the most

efficient capabilities of the EMR were used. The refinement of these tools was a process that ultimately led to the GoC initiative; a way to track the frequency of GoC conversations (a GoC note), a specific place to find them (a GoC tab), and a fast and easy structure that promoted consistency and quality of conversations (a GoC smart-phrase). **Evaluation/Outcomes:** Baseline data revealed several issues with documenting and accessing GoC conversations: (1) the EMR lacked a consistent place for documentation of GoC conversations and (2) documented conversations lacked consistency and key elements necessary for quality GoC conversations. Results at 6 months after implementation include the following: (1) the GoC tab is being used 56% of the time, (2) 38% of GoC note utilization included use of the smart phrase, which encourages inclusion of key components of quality GoC conversations. These data do not represent the GoC discussions documented outside of the GoC tab (eg, progress notes, history and physical), thus we presume more conversations are happening than what we are capturing.

EB105 Reducing Pressure Ulcers in Patients With Delayed Sternal Closure

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Purpose: Pressure ulcer (PU) reduction is a patient safety goal in value-based health care. Cardiovascular surgery (CVS) patients are at high risk for PU owing to many factors. CVS patients with open chest delayed sternal closure (DSC) present a special challenge because of the contraindication for turning and the additive risk of serial procedures. At an 850-bed tertiary care hospital with a robust CVS program, an adverse event prompted an examination of the literature and an innovation for practice improvement. **Description:** Methods to prevent PUs in CVS critical care patients include frequent turning, use of specialty beds, optimizing nutrition, protective sacral dressings, operating room support surfaces, warming, nurse skin champions, and leadership support. DSC affects 1.2% to 4.2% of high-risk intraoperative CVS patients with postoperative impaired cardiac function, intractable bleeding, persistent arrhythmias, or placement of extracorporeal support devices. Outcomes and prognostic markers after DSC have been reported. Postoperative pressure reduction for DSC has not been well described. Anecdotal tradition-based nursing

interventions have included microshifts, manual lifts for linen change, massage to pressure points, and use of a flashlight and palpation to assess skin. In addition to basic PU prevention interventions, an open-chest bundle was created that included (1) head-of-bed signage, (2) sacral protective dressing, (3) low air loss bed with pressure adjustment, (4) every-2-hour "hip tilt–hand sweep," and (5) electronic documentation parameters. To evaluate effectiveness, all pressure ulcers were analyzed in the DSC population for 2 calendar years before (n = 14) and 2.5 years after (n = 30) the intervention. **Evaluation/Outcomes:** The frequency of sacral-coccygeal PUs in DSC patients was reduced after implementation of the intervention (preintervention group = 7/14, postintervention group = 7/30), a difference that was not statistically significant ($P = .09$, Fisher exact test). Despite the increasing incidence of DSC as a surgical technique, nursing care interventions to prevent PUs have not been described. The open-chest bundle may be effective for standardizing care and reducing sacral-coccygeal PUs in the DSC population. Application of the intervention to other high-risk cardiovascular patients with extracorporeal membrane oxygenation, ventricular assist devices, and intra-aortic balloon pumps may be warranted.

EB106 Survey Says! Increasing Patient Satisfaction Scores Through Purposeful Rounding

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Purpose: With the enactment of the Affordable Care Act, hospital reimbursement is highly reliant on patient satisfaction scores and quality indicators, with penalties scheduled to decrease reimbursement in 2017. Patient-perceived responsiveness at our academic medical center was lower than desired. Purposeful rounding is an intervention that has demonstrated improvement in patient satisfaction scores, yet we were not consistently using purposeful rounding on our cardiothoracic progressive care units. **Description:** The leadership team made a commitment to increase patient-perceived responsiveness scores to 70%. The national average for staff responsiveness is 66%, and top-performing hospitals get a score of 83% or greater. After review of patient satisfaction scores and quality indicator data, a literature review was conducted. During the literature review, it was evident that purposeful rounding (PR) was a best practice used in similar hospitals to increase quality indicators and

patient satisfaction scores. A presurvey was completed and given to staff to gather their perceptions on purposeful rounding. Information from the survey was used to create educational material for the staff. One of the unit nurse managers conducted 1-on-1 and small-group education with each staff member across all 3 step-down units. Once the education was completed, a go-live date for the initiative was chosen. Reinforcement and hardwiring is being implemented through use of peer-to-peer audits and leadership rounding. **Evaluation/Outcomes:** Approximately 1 month after implementation of purposeful rounding, unit A saw a decrease in call lights by 710 calls. Units A, B, and C saw an increase in staff responsiveness scores. To sustain the effects of purposeful rounding, peer-to-peer audits and leadership rounding is on-going and continues to show that staff are performing each tenet of purposeful rounding. Charge nurses and advanced clinical nurses complete 5 peer-to-peer audits per month. Fifteen patient audits are conducted weekly and presented in leadership rounds. Audit cycles will continue on a bimonthly basis for 1 year to validate routinization of processes and verify sustained positive outcomes.

EB107 Using an Interdisciplinary Team Approach to Improve Sepsis Care

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Purpose: At Renown Regional Medical Center, sepsis mortality was higher than mortality rates for sepsis at similar facilities (teaching facilities with ≥ 400 beds). This mortality rate was a call to action and prompted our facility to look at compliance with sepsis care bundles. The bundles had low levels of compliance. The intent of the project was to improve compliance with the sepsis care bundle and improve patients' outcomes. These findings were presented to the senior leadership team and received full support for all process improvements. **Description:** Under the direction of senior leaders, an interdisciplinary work group was developed to improve sepsis care and bundle compliance. A physician champion was elected as chair of this work group. An audit tool was developed for retrospective review. Very quickly it became apparent that real-time concurrent audits would provide the most effective means to identify challenges, barriers, and opportunities for improvement. Seventy-eight percent of our patients with sepsis arrive at the facility via the emergency department (ED)

with sepsis present on admission, therefore the ED became our first focus for process improvement. These audits are reviewed daily by the ED leadership team, pharmacy, and hospitalists group. Weekly interdisciplinary meetings are held to review every sepsis case from the prior week. As opportunities and barriers have been identified through audits and weekly meetings, improvements to process have been implemented, including revisions to sepsis protocols and order sets, ED triage, rapid response team, and laboratory work flows. Multiple methods were used for education and implementation of process change, including continuing education units and continuing medical education classes, rounding, daily huddles, and ongoing reports to senior leaders and physician teams. **Evaluation/Outcomes:** Compliance improved in the following areas: antibiotics administered within 3 hours increased from 58% to 84%, initial fluid resuscitation from 43% to 75%, second fluid resuscitation for persistent hypotension from 40% to 100%, maintaining mean arterial pressure > 65 mm Hg from 41% to 95%; use of vasopressor to maintain perfusion decreased from 71% to 15%. Renown's sepsis mortality rate has a downward trend. Our reduction in mortality for overall sepsis rate, simple sepsis, severe sepsis, and septic shock was not as significant as expected. Further review revealed 54% of mortalities are transfers from outlying acute facilities. This information is prompting action related to community education and outreach assistance to our referring facilities.

EB108 Caring Around the Clock: Proactive Rounding by the RRT Nurse Using PeraTrend

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Purpose: Rapid response teams (RRTs) are often used to respond to inpatients whose condition is deteriorating. Subtle signs and symptoms of clinical demise go unnoticed, causing delay in calling for help, administrating acute therapies, or transferring to a higher level of care. The objective is to determine the effect of responding to RRT calls and initiating proactive rounding using PeraTrend to decrease the incidence of code blues and ensure that timely care is provided to patients experiencing compromising symptoms. **Description:** The RRT nurse is an independent role at our institution. Each day the RRT dedicates a single critical care nurse (CCN) to respond to the RRT calls and proactively round on patients outside the intensive care unit (ICU) using

PeraTrend. PeraTrend is a tool that uses the Rothman Index (RI), which is calculated on the basis of physiological measurements, clinical assessments, and laboratory values all gathered from the patient's electronic medical record (EMR). This CCN identifies the patients at risk for decompensating according to the RI. The scale is set from 1 to 100, reflecting real-time scores. The patients with scores below 40 or who show a downward trend of the RI are evaluated for possible intervention or increased monitoring. Once determined, the RRT nurse will travel to the patient's bedside to assess, then coordinates with the primary nurse, charge nurse, primary physician team, respiratory therapist, as well as patient care technicians to evaluate condition and triggers for low or declining RI. If interventions are necessary, the RRT nurse will perform the interventions or assist the primary nurse in doing so and/or transfer the patient to a higher level of care. A summary of events is recorded in the EMR under a note specifically created for RRT. All concerns, issues, and needs are communicated to the current physicians. **Evaluation/Outcomes:** In our facility, the role of the RRT nurse has decreased code blues by 30%. Proactive rounding allows early intervention and ensures that patients are receiving the appropriate level of care for their condition. PeraTrend allows the RRT nurse and all who use this tool to foresee and accommodate our patients' evolving needs. To date, the average RI of the RRT interventions or transfers to a higher level of care have been around 40 or below. More research is needed to track the use of PeraTrend and its benefits to the patient in deteriorating condition.

EB109: Safety Starts With Bedside Shift Report: Empowering Nurses to Improve Patient Safety

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Purpose: To recognize the importance of a standard bedside safety-check process in decreasing system and process errors that commonly occur. A standard bedside safety-check process was implemented in order to measure if safety errors decreased with use of the tool and if nurses felt empowered to practice peer coaching at the bedside when safety issues are seen. **Description:** Through the use of a standard safety start checklist, errors can be quickly identified and interventions can occur at the bedside to correct the errors before they reach the patient. One 14-bed step-down pediatric cardiac unit in a large academic medical facility used a standard safety checklist for bedside shift report. The checklist focuses on drawing the nurses' attention to standard safety checks such as emergency equipment setup, proper functioning of chest tubes (if applicable to the patient), double-checking intravenous infusion rates, as well as invasive catheters. Before implementation, room safety audits were reviewed to determine key elements, followed by global education of staff on the standardized safety checklist. When the checklist was introduced, the nurses were simply instructed to give report as they traditionally had, which was at the nurses' station, and then were instructed to go in the patients' rooms to review the checklist together. After using the checklist for 1 week, the nurses then used the checklist in conjunction with bedside shift report if patients and patients' families wanted to participate. Most families declined, but the checklist was still used at the bedside. **Evaluation/Outcomes:** Findings from postimplementation room audits and postimplementation surveys demonstrated a 41.9% increase in safety checks at the bedside during change of shift. There was a 41.2% increase in safety checks of chest tubes. The tool was so successful that it was applied in the same method to the ICU sister unit of the pilot unit. In the intensive care unit, 53% of staff identified safety concerns using the checklist with more than 50% of staff reporting a change in their safety practices.

EB110: Save Our Skin: Reducing Advanced-Stage Pressure Ulcers in the Pediatric Intensive Care Unit

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Purpose: Advanced-stage pressure ulcers are largely preventable hospital-acquired conditions associated with adverse outcomes for patients and financial burden. In 2012, our pediatric intensive care unit (PICU) experienced a marked increase in advanced-stage pressure ulcers. Reducing preventable harm has been a significant focus of work in our unit. Our aim for this project was to reduce advanced-stage pressure ulcers by 10% per year for both 2013 and 2014. **Description:** Data on pressure ulcers in critically ill infants and children are limited. Consequently, existing guidelines and interventions for pediatric skin care are primarily based on evidence from the adult population. Our organization became actively involved with Children's Hospital's

Solutions for Patient Safety in July 2012. We implemented a Save Our Skin (SOS) Team in the PICU, a core group of nurses at the bedside, to become experts in the education, prevention, and care associated with pressure ulcers in order to achieve our improvement goal, optimize patients' outcomes, and reduce financial burden. Standardized risk-based pressure ulcer prevention bundles were implemented in December 2012. In 2013, our SOS team partnered with the quality and process improvement department for a focused 3-month effort to complete training on interrater reliability, audits to assess bundle compliance, and apparent cause analyses. SOS members also worked closely with extracorporeal membrane oxygenation, respiratory, and electroencephalography teams to reduce pressure ulcers associated with their devices. The SOS team became a valuable resource to staff, providing on-the-fly education, 1-on-1 coaching, surveillance of high-risk patients, and quarterly e-mail updates to all staff. **Evaluation/Outcomes:** The implementation of bundles and the SOS team has led to sustained reductions in advanced-stage pressure ulcers. These injuries were reduced by 76% from 29 advanced stage ulcers in 2012 to just 7 events in 2014. This represents an 84% decrease in our rate from 4.35/1000 patient days in 2012 to a rate of 0.7/1000 patient days in 2014. And although the reduction of pressure ulcers cannot be directly attributed to a decrease in patient morbidity, our unit did see an overall decrease in ICU length of stay during this same time frame. Last, the literature estimates an advanced-stage pressure ulcer to cost up to $70 000. We estimate a cost avoidance of almost $1 000 000 from 2012 to 2014.

EB111 Breaking the Fall: Going Above and Beyond the Fall Bundle

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Purpose: To decrease the number of falls in the medical intensive care unit (ICU). Our unit saw a dramatic increase in the number of patient falls for the year 2014, thus prompting the research and initiation of their project. In order to increase patient safety, decreasing our number of falls became one of our unit's shared governance projects and goals for the year. To address this problem, we researched evidence-based solutions in other facilities that resulted in the best outcomes for patients. **Description:** We developed an evidence-based solution that

combined a unit-based fall bundle protocol with the basic hospital-wide fall bundle for those ICU patients at extremely high risk for falling. This protocol was derived from an article titled "Bedside Nurses Leading the Way for Falls Prevention: An Evidence-Based Approach", authored by Cangany, Back, Hamilton-Kelly, Altman, and Lacey in 2015. They reported that by focusing on 2 or more additional interventions in addition to a fall bundle, a tipping point is reached that subsequently results in a reduction in falls. Using plan-do-study-act (PDSA) cycles, we developed an appropriate protocol for our population of patients. Patients were assessed and categorized into a regular fall risk or a high fall risk category, after which an algorithm was used to determined which level of the fall bundle to implement. The 2 interventions implemented that seemed to have the largest impact were the 1-to-1 nurse education and the yellow fall sticker on the central telemetry monitoring. The yellow fall sticker was indicated when a patient scored >75 on the Morse scale or per nursing judgment. If ectopy was noted on the monitor with the sticker, staff would immediately visualize and assess the patient. **Evaluation/Outcomes:** For the year 2015, the medical ICU has remained at zero patient falls, which was the unit's goal. Compliance with the fall bundle safety checklists also was measured. Evidenced by our PDSA cycles, the interventions that had the largest impact on compliance with the bundle were 1-to-1 staff education and the yellow fall sticker placed on the central telemetry monitor. Overall, our project is a successful proponent of going above and beyond a fall bundle to meet specific needs of ICU patients.

EB112 Use of Modified Early Warning Scores and Standardized Documentation to Improve Outcomes

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Purpose: Many quality initiatives have been implemented to improve patients' outcomes and reduce potential harm in health care delivery. Several strategies that have been identified include the use of rapid response teams and, more recently, the use of modified early warning scores (MEWS) for patients at risk for clinical deterioration. The purpose of this project was to use MEWS as a catalyst to communicate a change in a patient's status to the provider by using a standardized format for clinical decision making. **Description:** Initiation of

early interventions may improve the outcomes of medical surgical patients. Rapid response teams (RRT) and MEWS have been established to avert clinical deterioration. In this academically affiliated community hospital, a pilot study was developed by using quality processes, sepsis case reviews, and staff input to improve communication and documentation of patients experiencing an elevated MEWS. Patients with MEWS score greater than 4 on 2 pilot units were required to have a standardized assessment using a formatted phrase entered into the electronic medical record. The phrase includes laboratory results, vital signs, and checklists for standardized infection ratio criteria and symptoms of sepsis. After the initial screen is completed, yes or no sepsis documentation is added. The "yes sepsis" documentation has best-practice recommendations for sepsis management. At the conclusion of the screen, the provider is notified. The assessment does not replace the RRT and should be activated as needed. Education was provided before the pilot study. The clinical nurse specialist (CNS) and the quality manager supported the project by reviewing MEWS daily. Staff would be contacted for re-education if an elevated MEWS was not addressed. **Evaluation/Outcomes:** The overall number of RRT calls was identical in December 2013 and December 2014, but decreased on both inpatient pilot units. Both length of stay and mortality were below the expected rate for December 2014. A decrease in the observed rate of mortality and length of stay from the previous year was noted. There may not be a direct causation in these improved outcomes, but awareness of the elevated MEWS with escalation of communication may have contributed to these improvements. The trial has been expanded to include all medical surgical units using the standardized sepsis screen on patients with a MEWS greater than 4. The impact of this process on length of stay and mortality will be assessed.

EB113 Development of a Standardized Interdepartment Handover Protocol for Smooth Care Transition

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Purpose: To develop and evaluate a standardized interdepartment nursing handover protocol from the intensive care unit (ICU) to a general care area in a regional children's hospital. During nursing handovers between departments, we often have critical safety issues including communication failure caused by omission of important information or provision of inadequate data. **Description:** The Joint Commission International emphasized effective communication among health care professionals. A standardized protocol for nursing handover could lead to accurate and effective communication, decreased nursing adverse events, and improved quality of nursing care. However, evidence of the usefulness of an interdepartmental handover protocol is not sufficient. SBAR (situation, background, assessment, and recommendation) has been recommended as a tool to potentially improve the quality of any communication. We developed a protocol for nursing handover between departments that was based on SBAR to ensure smooth and safe transfer from the ICU to general care areas. This study was approved by the institutional review board. The protocol was evaluated by expert validity review (content validity index = 0.91). In 4 pediatric general care areas and 4 ICUs, all nurses were trained to use the new protocol and it was implemented for 9 months. Data were extracted from surveillance of adverse events, audio recording during handover, and nurses' questionnaire (experience and perception related to nursing handover and experience level of handover errors). Evaluation for the efficacy of the handover protocol was analyzed with a paired t test and χ^2 test using SPSS 21.0. **Evaluation/Outcomes:** A total of 102 paired questionnaires and 59 audio recordings were collected. Perception level of "Experience and perception related to nursing handover" was significantly increased ($t = -2.94$, $P = .004$). Also, the perception level of "Experience level of handover errors" was significantly decreased ($t = 4.33$, $P < .001$). Analysis the audio files indicated that the accuracy of handover contents was significantly increased ($t = -7.10$, $P = .002$). The prevalence of adverse events per handover decreased from 1.4 to 0.73 ($\chi^2 = 6.5$, $P = .01$). This study shows that an interdepartmental protocol based on SBAR helps nurses to better organize and comprehend information about patients and leads to interactive communication.