

# 2012 National Teaching Institute Evidence-Based Abstracts

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## EB42 Acting Boldly to Reduce Pressure Ulcers in the Cardiothoracic Intensive Care Unit

Cynthia Copeland, Joann Hager, Barbara Logue, Ann Petlin; Barnes-Jewish Hospital, Saint Louis, MO

**Purpose:** Pressure ulcers are a risk in the vulnerable population of patients in the cardiothoracic intensive care unit (CT-ICU). They are a nurse-sensitive indicator that is reported to the National Database of Nursing Quality Indicators. In early 2011, a pressure ulcer prevalence exceeding 20% was a persistent problem in our CT-ICU despite concerted efforts to reduce it. Our team's goal was to implement a multistrategy approach to reduce the prevalence of pressure ulcers to meet our target of 4% and to sustain the achievement. **Description:** Our CT-ICU pressure ulcer reduction team conferred with a performance improvement specialist, a certified wound/ostomy nurse, and consultants from the hospital's Pressure Ulcer Preventable Harm Team. We searched the literature, including the resources of the National Pressure Ulcer Advisory Panel, to develop our structured performance improvement process. Multiple factors thought to cause pressure ulcers made us try multiple interventions until we found the right combination. These interventions included nursing and medical leadership involvement; renewed emphasis on bedside shift report; evaluation of the unit's pressure-ulcer therapy supplies; aggressive use of prevention tools; better inter-rater assessment of suspected pressure ulcers; real-time pressure ulcer identification and data tracking; pressure ulcer site care tailored to the type of problem; and weekly posting of our unit-acquired and hospital-acquired pressure ulcer rates so that all could see the results of these efforts. Weekly evaluation of which interventions seemed to be working helped us focus changes in our strategies. By April 2011, we began to see success. **Evaluation/Outcomes:** Pressure ulcers are costly in terms of patients'

suffering and in use of health care resources. From January to March 2011, our unit-acquired pressure ulcer rate was above our target in almost all weeks. In April 2011, trends in our data showed the change we had hoped for. Our unit-acquired pressure ulcer rate decreased to 0 for 5 weeks in a row and has been at 0 for most weeks since then. Aside from occasional weeks in which 1 new pressure ulcer developed, we have sustained this success for nearly 6 months. We think that we have found a combination of strategies for our CT-ICU patients that make unit-acquired pressure ulcers much less common.

## EB43 Alert! Alert! A Patient With Sepsis Is in the Emergency Department!

Kassandra Robinson; Grant Medical Center, Columbus, OH

**Purpose:** The Septic Shock Alert was implemented to establish an interdisciplinary team response for patients with suspected sepsis. Sepsis alert established best practice guidelines, a hospital-wide alert system, and a multidisciplinary emergency response team for the rapid care of patients with sepsis. **Description:** Sepsis is one of the world's oldest and most virulent killers. It is estimated that worldwide, 1400 people die of sepsis each day, with up to 30% of patients dying within 1 month of diagnosis. Previously at Ohio Health, patients with sepsis would be sorted by triage and treated by the emergency department's physicians and nurses with a nonemergent approach to care, and other disciplines would be involved if needed. Laboratory specimens would be collected, peripheral intravenous access would be established, intravenous fluids would be started, laboratory specimens collected, and antibiotics would be started when available. This process took 4 to 6 hours. This process delayed critical care admission as well as central venous catheter placement, adequate fluid boluses,

and vasopressor support for blood pressure and vasodilatation related to sepsis. This delay in treatment adversely affected the outcomes of the patients we serve. The process was looked at systematically as an area that needed to be evaluated and changed. The sepsis alert starts with the emergency department nurse, who completes a systemic inflammatory response syndrome criteria score. If the patient's score is positive, the emergency department physician is notified. That physician then assesses the patient, orders fluid boluses, and tests of serum lactate levels. If the patient meets criteria for severe sepsis or septic shock, the emergency department physician initiates a medical or surgical sepsis alert. The sepsis alert team consists of a nurse from the rapid action team, a respiratory therapist from the emergency department, a family practice resident, trauma nurse practitioner, pharmacist, medical/surgical intensivist, and attending physician or designee respond to the sepsis alert in the emergency department. The sepsis alert prompts the critical care units to prepare for a sepsis admission. The nurse from the rapid action team (a critical care charge nurse) assists with placement of a central venous catheter and monitoring of central venous pressure and facilitates collection of blood samples and critical care transport. The family practice resident places the central venous catheter and completes sepsis orders and critical care orders. The surgical intensivist and the trauma nurse practitioner is a backup responder for surgical sepsis alerts. The medical intensivist is the backup for all medical sepsis alerts. The pharmacist responds to all sepsis alerts, advises on antibiotic selection, facilitates timely administration of antibiotics, ensures blood specimens are obtained before administration of antibiotics, and facilitates fluid resuscitation and hemodynamic stability as needed. The respiratory therapist will respond to the sepsis alert and assist with intubation and obtain point of care laboratory tests and arterial blood gases. **Evaluation/Outcomes:** Severe sepsis pathways are initiated. Low central venous pressure is treated with fluid boluses. Hypotension is treated with norepinephrine, dopamine, or phenylephrine and an arterial catheter is placed if time permits. Hydrocortisone and vasopressin are started if hypotension persists. Hemoglobin is treated with packed red blood cells if the hemoglobin level is less than 10 g/dL. Dobutamine is started if arterial oxygen saturation is less than 70%. The sepsis resuscitation bundle goal is to be completed in 6 hours. Serum level of lactate is measured

and lactate cleared within 6 hours, cultures of blood samples are obtained before administration of antibiotics, and antibiotics are administered within 3 hours of arrival in the emergency department. Hypotension, a lactate level that exceeds 4 mg/dL, and central venous pressures greater than 8 mm Hg are achieved within 6 hours of arrival in the emergency department, and central venous oxygen saturations exceed 70% within 6 hours of presentation. Other outcomes being monitored are time to critical care bed, critical care length of stay, overall length of stay, and hospital mortality. Sepsis alerts have allowed an interdisciplinary team to respond to a patient arriving in the emergency department with signs and symptoms of sepsis. It has also decreased the time elapsed between the patient's arrival in the emergency department and the time of treatment. Central catheters have been placed faster; central venous pressure monitoring is obtained quicker, which allows more fluid resuscitation as well as quicker administration of vasopressors. Laboratory specimens are obtained quickly and results are treated rapidly. The correct antibiotics are administered quicker and admission to the critical care unit is quicker. The implementation of sepsis alert has led to improved communication, a collaborative team approach to patient care, decreased times between arrival in the emergency department and admission to the critical care unit, and improved outcomes for patients.

#### EB44 Automated Sepsis Screening in a Progressive Care Unit

Trang Pham, Nicole Kupchik, Stacey Rivera, Carmen Robinson, Nancy Shea; Harborview Medical Center, Seattle, WA

**Purpose:** Sepsis is a common problem in the US population. According to the Surviving Sepsis Campaign, more than 750 000 new cases of severe sepsis are reported each year. The mortality is high; 30% to 50%, resulting in more than 200 000 deaths per year (survivingsepsis.com). Early identification of sepsis in hospitalized patients can be challenging. Our solution was to create an automated surveillance program using our electronic medical record (EMR) to identify patients who met 2 or more systemic inflammatory response syndrome (SIRS) criteria. **Description:** Using our EMR, we developed a program that continually reviews clinical vital signs and laboratory data, screening for SIRS criteria. In addition to SIRS criteria, the system is screening for changes in heart rate, mean

arterial pressure, and bicarbonate levels as well as lactate levels exceeding 2 mmol/L. Two 24-in (61-cm) monitors located in the team's workstation display each patient's name, room number, and the number of SIRS and rapid response criteria that patients currently meet. If a patient meets 2 or more criteria, the bedside nurse is notified by a visual color change from green to orange on the dashboard. This gives care providers a visual cue that a formal sepsis screening needs to be completed. When 2 or more SIRS criteria are met, a task for sepsis screening is added to the task list in the patient's EMR. The nurse is expected to complete formal sepsis screening within 1 hour. If the nurse answers yes to a suspected infection, the covering physician and rapid response team receive an automated text page notifying them of a positive sepsis screening. At this time, the physician communicates with the nurse and initiates the acute care sepsis protocol as appropriate. **Evaluation/Outcomes:** We successfully implemented automated sepsis screening in our progressive care unit. Our unit observed a 25% reduction in activations of the rapid response team over a 4-month period after implementation. During May and June of this year, we observed a 45% and 62% reduction, respectively, when we compared 2011 rates with 2010 rates. Nurses have reported improved communication with the physician team and feel that they have tangible information to discuss early signs of sepsis in our medical and cardiac patients.

#### **EB45 Building a Culture of Safety, One Near Miss at a Time**

Gary Gates; Sutter Health, Roseville, CA

**Purpose:** To shift to a learning culture through transparency and the use of just culture principles. Our goal was to empower staff to report errors and near misses by first changing our perceived culture. Based on an article in The Joint Commission's *Journal on Quality and Patient Safety*, our aim was to create a communication tool that helped us develop a nonpunitive reporting system.

**Description:** In an article titled "Every Error a Treasure: Improving Medication Use with a Nonpunitive Reporting System," authors noted, "fear of reprisal, combined with the additional time required for reporting, are significant disincentives to reporting medical events." Our staff reported that there was little learning taken from medication errors. This was believed to foster a punitive culture instead of a safe, learning culture. Through a

collaborative effort, the manager and partnership council devised a process improvement project to change this situation, which resulted in our "Oops Board." Once a month, we create a board that lists all medication errors and near misses. All patient identifiers and staff names are removed; just the facts are posted. At first, staff were hesitant, but over time they began to talk openly about medication errors. We were able to gather more data that led to identification of system issues. Data were used to acquire 2 new pharmacy positions. Staff awareness and ownership greatly increased as a result of this initiative. Staff comments have included, "I feel safe talking about this" and "so this is what a just culture means." **Evaluation/Outcomes:** The staff believe that we have created a safe culture as evidenced by our recent culture of safety survey. We had the highest score of all inpatient care units in our 5-hospital region at an overall composite of 90.83%. Additionally, our near-miss reporting increased by 250%. The Oops Board has been identified as a best practice by a regional safety team and has been taught to every nurse leader in our region. The project has also been adopted by our pharmacy and laboratory. More importantly, we have had no major medication errors since the inception of this project. Transparency and culture shift are just words until you see them truly happen.

#### **EB46 Cardiac Surgery Insulin Protocol: Transition to the Progressive Care Unit**

Patricia James; Robert Wood Johnson University Hospital, New Brunswick, NJ

**Purpose:** The Surgical Care Improvement Project (SCIP) is a national quality partnership of organizations interested in improving surgical care. SCIP-4 mandates that cardiac surgery patients maintain a glucose level of less than 200 mg/dL at 6 AM on postoperative days 1 and 2. Controlled glucose levels are associated with fewer postoperative complications. The cardiac surgery service was challenged to increase our compliance rate from 88% to meet or exceed the SCIP-4 goal of 94%. **Description:** As a large academic medical center committed to quality and excellence, we were determined to find an evidence-based solution to meeting SCIP-4. Historically, our insulin infusion protocol was initiated in the operating room and transitioned from intravenous to subcutaneous insulin in the ICU on postoperative day 1. The literature suggests continuing the insulin infusion through postoperative day 2. With a Lean Six Sigma approach and a

thorough review of the literature, a multidisciplinary team was assembled to devise a plan to extend the nurse-driven insulin protocol to the progressive care unit through postoperative day 2. Through collaboration with nurses from the intensive care and progressive care units, we successfully implemented the revised protocol providing abundant leadership support. We successfully advocated for a dedicated clinical care technician and a tighter nurse to patient ratio for the progressive care unit. With extensive education, multidisciplinary collaboration and 24-hour clinical support the progressive care nurses felt empowered and embraced their new responsibilities.

**Evaluation/Outcomes:** Two weeks after initiation of our revised protocol, our compliance increased to 94.4%. We have far exceeded both the SCIP-4 and organizational goals. Currently our compliance is 98.8%. Our evaluation process is real-time bedside auditing of every cardiac surgery patient on postoperative days 1 and 2 for protocol compliance. This allows immediate feedback to the care providers and enables the practitioner to participate in the process. Through our shared governance model, some of the most valuable changes to our protocol came from our nursing staff. Our multidisciplinary team has shown tremendous commitment to the organization's initiative to comply with SCIP-4.

#### **EB47 Cardiac Surgery Specialists: An Innovative Orientation Program for Nurses Caring for Cardiac Surgery Patients**

Natalie de Haas-Rowland, Jennifer Ballard-Hernandez, Vanessa Schultz; Hoag Memorial Hospital Presbyterian, Newport Beach, CA

**Purpose:** Critical care and progressive care nurse educators increased competency in registered nurses caring for cardiac surgery patients by incorporating evidence-based therapies into their nursing practice. **Description:** In the United States, more than 6 million inpatient cardiac surgical procedures are performed annually: an increase of 27% from 1997 to 2007. As procedures become more complex and length of stay decreases, educators are faced with the challenge of ensuring competency in nurses who care for cardiac surgery patients. The Cardiac Surgery Specialist Program (CSSP) was initiated in 2003, focusing on competency via checklist and several days of didactic training for progressive care and critical care nurses. In 2009, the program was modified to meet the needs of nurses caring for an increasingly complex

patient population. The course was expanded to include hands-on skills appraisal, clinical orientation, skills checklists, and formal written testing. Didactic training was expanded to 4 days for critical care nurses and 3 days for progressive care nurses. In the spirit of team building, classes were combined for the 2 units. Didactic training followed AACN's Cardiac Surgery Certification examination blueprint. The didactic portion, which is taught by cardiac surgeons, advanced practice nurses, nurse educators, and bedside nurses, focuses on evidence-based nursing protocol-driven therapies to include appropriate preoperative preparation, immediate postoperative management of vasoactive infusions, rapid extubation protocols, epicardial pacing management, appropriate antibiotic timing and selection, urinary catheter removal, and dressing management. **Evaluation/Outcomes:** Since 2009, 45 nurses have completed the revised CSSP. Forty-four of the 45 nurses who completed the full course passed the CSSP examination and provide care to our cardiac surgery patients. Upon completion of the course and written test, nurses are awarded a special pin in recognition of their achievement. To date, 7 nurses have obtained AACN's cardiac surgery certification. This course is an effective method of preparing nurses to care for our cardiac surgery patients by using evidence-based protocols and sitting for the AACN's cardiac surgery certification exam. In addition, outcomes achieved by CSSP nurses were instrumental in our organization's achievement of the Society of Thoracic Surgeons "3 Star Rating," awarded to only the top 10% of cardiac surgery programs with low mortality and morbidity rates.

#### **EB48 Cardiac Ventilator Autotriggering and Brain Edema: Implications for Brain Death, Organ Transplantation, and Education**

Richard Arbour; Albert Einstein Healthcare Network, Philadelphia, PA

**Purpose:** In practice, determination of brain death has been delayed by cardiogenic autotriggering, risking loss of potential donor organs, extended experience in the ICU for families, and increased ICU length of stay and resource utilization. The project's purpose is standardizing evaluation and intervention of patients with clinical findings of terminal brain herniation at risk of delayed brain death protocols due to overbreathing ventilator set rate including triggered breaths during pressure support ventilation. **Description:** Review of literature



revealed scant previous research on this phenomenon. The team reviewed hyperdynamic physiology of brain death related to cardiac autotriggering. Collaborative evaluation developed by the multidisciplinary team is illustrated by a 22-year-old with malignant brain edema consequent to catastrophic liver disease. The patient showed clinical findings of terminal brain herniation but was overbreathing ventilator set rate. Ventilator waveform analysis revealed cyclic oscillations in pressure and/or flow waveforms exactly matching the heart rate, exceeding ventilator trigger sensitivities and confirmed by matching QRS volume, pulse palpation, and precordial motion. No waveform deflections indicating intrinsic respiratory drive were evident. Collaboration among nurses, physicians, and respiratory therapists optimized ventilator trigger mode and sensitivity. Trigger mode was changed from flow to pressure trigger with trigger threshold at -2 cm H<sub>2</sub>O, greater than the amplitude of cardiogenic oscillations. This approach was integrated into follow-up evaluation of subsequent patients exhibiting terminal brain herniation and overbreathing the ventilator's set rate and was integrated into all subsequent education on brain death determination. **Evaluation/Outcomes:** Changing ventilator trigger mode/sensitivity beyond cardiogenic flow and pressure waveform amplitude eliminates autotriggering. Waveform analysis confirms absence of oscillations consistent with intrinsic respiratory drive. Brain death protocols including apnea testing are initiated in real time on clinical findings of brainstem herniation, decreasing intervals between terminal event and declaration. Early recognition facilitates determination of brain death, minimizes ICU experience for patients' families, and increases availability of donor organs. Staff clinicians became more proactive in recognizing potential cardiac autotriggering as a result of this initiative, eliminating delay in brain death protocols in subsequent patients.

#### **EB49 Changing Culture to Cultivate Patient- and Family-Centered Care**

Margo Wallace, Sean Sarles; Hospital of the University of Pennsylvania, Philadelphia, PA

**Purpose:** To foster patient- and family-centered care and align unit culture with this model, a neurointensive care unit engaged patients' families and team members to establish mutually acceptable guidelines for family presence at the bedside, participation in daily rounds,

and overnight stays and eliminated a restricted visiting policy. Discerning the needs of patients' families and care team requires an understanding of their subjective experiences; utilizing these experiences facilitates necessary culture change. **Description:** In November 2009, a 22-bed neurointensive care unit was opened. Architectural design of the new unit was used to promote family presence at the bedside, including designating space and amenities in each patient's room; however, a restricted visiting policy was carried forward. Designated clinical nurses conducted a voluntary, open-ended survey to elicit how all clinical nurses perceived family presence. Additionally, a clinical nurse and nurse manager interviewed families to discern their needs while in the neurointensive care unit. Subjective responses from both surveys were used to conceive new unit-based guidelines for family presence and a plan for team and family education. Numerous changes were incorporated, including changing language from "visitation" to "family participation and presence." Family accommodations included the addition of a pull-out sleeper chair and personalized lighting in the patient room. The unit's previous locked hours from 8 PM until 11 AM were lifted, and the unit remains unlocked 24 hours a day. Family support persons consistently participate in daily clinical rounds and direct patient care; families receive these guidelines on admission and are oriented to their options. **Evaluation/Outcomes:** Team issues identified before implementation were increased traffic in the unit (45%), patient's ability to rest (36%), and need for family education (36%). Family issues identified were access to the patient and a place to sleep overnight. Team education focusing on patient/family-centered care and the family interviews enhanced acceptance of this change. The postimplementation team survey reflected less concern for these issues 3 months after the new guidelines were implemented. With the new guidelines, family overnight stays have increased to 70 patient-days per month. Changing culture is not simply a matter of changing policy; engaging families and the care team in partnership promotes successful change.

#### **EB50 Chlorhexidine Gluconate Baths in the Intensive Care Unit to Reduce Hospital-Acquired Central Catheter-Associated Bloodstream Infections**

Stephanie Dove, Malinda Langley; Cape Fear Valley Health System, Fayetteville, NC

**Purpose:** The central catheter–associated bloodstream infection (CLABSI) rate spiked to 5.98 (per 1000 central catheter days) in the ICUs. CLABSIs are one of the most deadly and costly threats to patient safety. The national goal of the US Department of Health and Human Services is to reduce CLABSI rates by 50% by 2013. The goal of the project was to explore the impact of daily 2% chlorhexidine gluconate (CHG) baths as a nurse-driven intervention to reduce CLABSI rates in the ICU. **Description:** Patients in the ICUs were bathed with 2% CHG from the neck down (excluding face and genitalia) using disposable (nonimpregnated) wash cloths. Basins were prohibited and CHG-compatible lotions were used. Staff members were educated on the protocol through demonstration, flyers, and a newsletter. Because CLABSI is usually caused by a patient’s normal skin flora, decolonization of the skin is biologically plausible to reduce infection rates. CHG has a broad antimicrobial activity and prolonged residual effect. Research studies reported success in reducing CLABSI rates by bathing patients with CHG. Vernon et al (2006) noted that 2% CHG bathing resulted in fewer colonies of vancomycin-resistant enterococci on patients’ skin. Bleasdale et al (2007) showed patients in a medical ICU bathed with 2% CHG were less likely to acquire a primary BSI with a rate reduction of 10.4 to 4.1. Popovich et al (2009) demonstrated daily bathing of medical ICU patients with 2% CHG reduced CLABSI rates from 5.31 to 0.69. Most recent, Munoz et al (2009) illustrated that daily 2% CHG baths reduced CLABSI rates by 99% in a long term, acute-care facility. **Evaluation/Outcomes:** A nurse-driven intervention of daily 2% CHG baths significantly reduced CLABSIs rates in the ICU. The monthly rates after initiation of the project dropped immediately to an average of 0 to 2.45. Strains of intestinal bacteria and *Staphylococcus aureus* were the primary organisms of the CLABSIs that occurred. Other factors included femoral placement and emergent placement in the emergency department and in non-ICU areas. Thanks to the dramatic reduction in CLABSIs, CHG bathing became a standard of care in the ICUs and is being implemented hospital-wide for all patients with central catheters.

#### EB51 Collaborative Effort to Reduce Central Catheter–Associated Bloodstream Infections

Diane Razo; Beaufort Memorial Hospital, Beaufort, SC

**Purpose:** Our facility’s central catheter–associated bloodstream infection (CLABSI) rate at the beginning of

the project for year ending 2005 was 5.1% incidences per thousand central catheter days, significantly higher than the national benchmark rate at the time of 1.9%. We faced significant barriers and challenges to reducing the rate so our newly formed committee, the Stop BSI team established the goal: 100% adherence to central catheter insertion practices in nonemergent situations. **Description:** During 2006, Beaufort Memorial Hospital joined the Institute for Healthcare Improvement (IHI) 100K Lives Campaign and implemented the central catheter bundle. Later that same year, maximal barrier central catheter kits were introduced, tried, and adapted. The team revised and approved the facility’s central catheter policy and simplified documentation of the IHI bundle in the electronic record. The end of 2006 brought our CLABSI rate down to 2.8%. The next year (2007) saw another decrease to 1.8%. In 2008, the hospital again saw an increase to 2.4% and the CLABSI team realized that it would require more than components of a bundle to help prevent CLABSIs. The team revitalized itself and made a commitment to improve and sustain our CLABSI rate. First step in 2009, the facility joined the Stop BSI project through the South Carolina Hospital Association. This strategy provided a comprehensive approach and resources from a national source that catapulted the hospital to zero CLABSIs in 2009 and 2010. **Evaluation/Outcomes:** As a result of the successful collaboration, Beaufort Memorial Hospital has not had a CLABSI in the ICU in 30 months. In January 2011, the hospital received a certificate of excellence from the South Carolina Hospital Association for demonstrating the greatest relative improvement in CLABSIs in the ICU, acknowledging and validating our success.

#### EB52 Creating a Degree of Normalcy for Patients and Families Recovering From H1N1 Infection

Mary Gagnon; University of Michigan Medical Center, Ann Arbor, MI

**Purpose:** In keeping with the health system’s policy of patients and families first, our goal in the surgical intensive care unit (SICU) was to adopt the concept that the presence of and our care of the family/advocate is a critical aspect in optimizing patient care outcomes, especially in our long-term H1N1 patient population. In an effort to raise the standards around family-centered care, an innovative approach entitled the “stay connected” concept was initiated. This allows patients and families

to connect with the outside world through a number of initiatives. **Description:** Using evidence-based practice guidelines from the Society of Critical Care Medicine, AACN, and the Institute for Family-Centered Care, our initiatives included: Volunteers read the daily newspaper (or other material chosen by the family) to patients when family cannot be present. For our longer staying ICU patients, we make every effort to take the patient outside (even with mechanical ventilation). We find it beneficial for both the patient and the patient's family to feel the sun, hear the birds sing, and remember life outside of the SICU. We further ask for and encourage the use of iPods, and other media for music therapy. We help family to place pictures of loved ones around the room and on ceilings over the bed. Most recently, we helped a patient celebrate her wedding anniversary by providing the atmosphere, clothing, and dinner complete with nonalcoholic champagne. To evaluate the effectiveness of all of our goals and interventions, we explored family satisfaction with care rendered in the SICU. A family/patient satisfaction survey was distributed between April and June 10, 2010, to evaluate outcomes related to our goals. **Evaluation/Outcomes:** Thirty-six patients/families have responded to the survey. The survey results show positive outcomes in the following categories as ranked by good to very good: Overall communication: nurses 97%, physicians 80%, social workers 50% (39% no opinion), respiratory therapists 63% (17% no opinion). Pain: 100% for diagnosis and treatment and 94% for sensitivity and responsiveness. Family support: 97%, for family participation in decisions 82%, open visitation 94%, degree to which ICU team considers needs 97%, and feelings of safety and security 97%. Unsubstantiated data show that with our last intervention (the anniversary dinner), the patient showed improved self-esteem and truly felt connected with the outside world.

### **EB53 Cue Cards to Improve Compliance for Spontaneous Breathing Trials**

Sharon Wilson, Paula Blankenship, Shaw Henderson, Cheryl Rogers, Martha Shetley, Cora Small, Dawn Turner; Mission Hospital, Asheville, NC

**Purpose:** A major component of the Institute for Healthcare Improvement (IHI) ventilator bundle is to assess the patient's readiness to extubate daily through performance of a spontaneous breathing trial (SBT). An internal audit in the medical surgical ICU revealed a 31%

rate of compliance with the current process. Performance of the elements of SBT varied among respiratory therapists and was not well coordinated with the sedation holiday procedure performed by nursing. The team set a goal to improve compliance to 100% in 90 days.

**Description:** Evidence supports pairing the SBT with the daily break in sedation. This ensures the patient is awake and able to participate in weaning and assist with coughing and clearing secretions. This offers the patient the best chance of demonstrating readiness to be extubated. This method decreases the duration of mechanical ventilation, the incidence of ventilator-acquired pneumonia, and the patient's overall length of hospital stay ("IHI Ventilator Bundle: Daily 'Sedation Vacations' and Assessment of Readiness to Extubate." www.IHI.org/knowledge). The team reviewed and revised the current protocol for inclusion criteria and performance elements for how to conduct the SBT. A process for identifying the eligible patients and directions for how to conduct the trial with the correct ventilator settings were introduced to the respiratory therapy staff in education sessions. To identify the patient ready for an SBT, a cue card with a picture of a green lung was placed on the door of the patient's room during the respiratory therapist's morning rounds. This visual cue signaled the nurse to coordinate the daily break in sedation with the respiratory therapist. Another cue card that demonstrated the steps of conducting the SBT was placed on each ventilator.

**Evaluation/Outcomes:** Compliance was based on whether all eligible patients were identified and if the procedure was then carried out as specified in the protocol. After 90 days, 100% of eligible patients were identified correctly and 70% had the SBT completed correctly. This improved with further education regarding acceptable ventilator settings for the trial. The total number of ventilator days per patient was reduced from 2.79 to 1.75. Overall length of patient stay was reduced from 3.73 to 2.19 days. Rates of ventilator-acquired pneumonia continue to remain at zero with this intervention. These changes helped to improve compliance with completing SBTs and allowed for nursing staff to coordinate efforts with the respiratory therapist sooner in the day.

### **EB54 Decreasing Ventilator Days and Cases of Ventilator-Associated Pneumonia in the Medical Intensive Care Unit Via an Intermittent Sedation Protocol**

Stephanie Schuldt; Henry Ford Hospital, Detroit, MI

**Purpose:** Even though compliance with the ventilator bundle was greater than 95%, ventilator-associated pneumonia (VAP) continues to be diagnosed in the medical intensive care unit (MICU). The MICU decided to “attack VAP” from a different angle by reintroducing an intermittent sedation protocol used years ago in attempts to decrease ventilatory days and subsequently cases of VAP. **Description:** Even though numerous interventions were in place to prevent VAPs, the MICU staff decided to “attack VAP” from a different angle. Despite efforts to minimize sedation by using a motor activity assessment scale (a variation of the Richmond Agitation Sedation Scale) goal-directed continuous sedation protocol, there was a general sense that patients remained overly sedated for long periods. Henry Ford Hospital had an existing intermittent sedation protocol that was in place years ago but was unfamiliar to the bedside MICU nursing staff and medical team. The project’s aim was to reintroduce the intermittent sedation protocol in an attempt to decrease ventilator days and cases of VAP and to improve overall patient outcomes. In our 68-bed MICU, each nurse received 1 on 1 education on the intermittent sedation protocol as did the physicians, midlevel providers, and pharmacists. The rollout was smooth, and practice changed in an extremely short time. **Evaluation/Outcomes:** Use of intermittent sedation yielded a 14% decrease in ventilator days ( $P=.001$ ). When days of mechanical ventilation were compared between the preceding 21 months and the 5 months after intermittent sedation was implemented, a statistically significant decrease in ventilator days indicated that intermittent sedation was significant in lowering duration of ventilation ( $P=.002$ ). When average VAP rates/1000 patient days were compared between the 6 months before (0.84/1000 ventilator days) and after (0.26/1000 ventilator days) intermittent sedation, a 69% decrease in VAP rates was noted. This translates to a cost savings of \$120 000 in a 6-month period. Although MICU length of stay remained static, hospital length of stay of MICU patients decreased 1.5 days ( $P=.009$ ).

#### **EB55 Detecting Delirium in Patients in the Surgical Intensive Care Unit: Implementing the Confusion Assessment Method-Intensive Care Unit Tool**

Ann Petlin, Sheila Haynes, Marilyn Schallom, Carrie Sona, Elaine Thomas-Horton; Barnes-Jewish Hospital, Saint Louis, MO

**Purpose:** Delirium is a frequent complication in the

critically ill, often going unrecognized. Incidence is up to 80% in ventilator patients, and from 10% to 60% in less acutely ill patients in the ICU. Delirium prolongs ICU and hospital lengths of stay and leads to higher mortality rates. None of the ICUs in our medical center conducted routine assessments of delirium. Our purpose was to pilot test the Confusion Assessment Method (CAM-ICU) tool in the CTICU and then expand it to our other ICUs. **Description:** We taught nurses in the CTICU about delirium and its assessment by using the CAM-ICU in spring 2009. The project leader worked with staff to complete the CAM-ICU tool on a paper form. Compliance and accuracy of delirium assessment both increased for several months. The team worked with our Information Services Department to put the CAM-ICU tool in the electronic medical record. In fall 2010, we developed an online educational module for all ICU nurses. Expansion to the other ICUs began in November 2010 with the STICU. With availability of the CAM-ICU in the electronic medical record, we checked accuracy and delirium rates at regular intervals. In January 2011, accuracy of the assessments in the CTICU was near 100%. However, it was only 50% in the STICU. We implemented one-on-one education of the STICU staff. In March and May 2011, accuracy increased to nearly 100% for both ICUs, allowing correct measurement of delirium rates. We screened 152 patients. Twenty-three patients were too deeply sedated, and therefore delirium assessment was not indicated. Of the remaining 129 patients, 65 (50%) were positive for delirium on 2 or more consecutive days. Delirium rates in these 2 surgical ICUs are similar to previous reports in the literature. **Evaluation/Outcomes:** After proper education, nurses can accurately and easily assess delirium with the CAM-ICU tool. Incorporating the CAM-ICU score into the daily assessment is the first step toward addressing the problem of delirium. We discuss CAM-ICU delirium scores daily during multidisciplinary rounds. We are now working to change our sedation practices and to implement new evidence-based sleep-promotion strategies to reduce delirium. In addition, we recently expanded delirium assessment with the CAM-ICU tool in 2 of our other ICUs.

#### **EB56 Developing Safe and Competent Nurses in a High-Acuity Cardiothoracic Intensive Care Unit**

Margaret Murphy; Duke University Hospital, Durham, NC



**Purpose:** Nursing orientation programs have unique challenges in ICUs; training takes place in a technologically rich environment with acutely ill patients. Current nursing shortages are forcing hospitals to open ICU positions to nurses of all experience levels. Duke University's cardiothoracic ICU (CTICU) chose to address these challenges and created an orientation program to develop nurses with diverse backgrounds to competently deliver safe, quality care. **Description:** One of the greatest challenges in nursing education in the clinical setting is providing an orientation program that meets the needs of critical care nurses with various backgrounds and levels of experience within a relevant and stimulating format. At our institution, approximately 10 nurses are in orientation at any time. Their backgrounds vary from being a new graduate nurse to being an experienced CTICU nurse. It is necessary to create a program that is current, motivating, and cost-effective. The program also needs to meet the learning needs of nurses with different experience levels. The orientation in Duke's CTICU is a clinically based competency program. There are 3 sections: classroom instruction, simulation labs, and precepted bedside experiences. Classroom instruction is given by nurse experts and allows learning away from the bedside. The simulation lab gives orientees opportunities to perform interventions without causing harm to a patient. The bulk of orientation is precepted experience in direct patient care. The length of orientation is determined by the nurse's performance and previous experience level and varies from 10 to 16 weeks. **Evaluation/Outcomes:** This program has been successful at reducing the length of bedside orientation, increasing the consistency of education, and improving orientee satisfaction. Our program is evaluated on a continual basis to ensure optimum outcomes are achieved for both the orientee and the unit. The classroom instruction and simulation labs have allowed us to decrease the length of time in precepted experiences, thus reducing the preceptor burnout. The classroom lectures and simulation labs follow a syllabus, ensuring that each orientation group receives the same information. The end-of-orientation evaluations completed by orientees have shown increased program satisfaction since implementation.

#### **EB57 Development of an Oral Care–Based Program for Prevention of Ventilator-Associated Pneumonia**

Angela Bollinger, Michele Berry, Christa Brecht,

Kristen Conro, Susan Kuretsk, Barbara Patterson; Centegra Health System McHenry, McHenry, IL

**Purpose:** Ventilator-associated pneumonia (VAP) is a nosocomial infection defined as a pneumonia arising more than 48 hours after endotracheal intubation and the initiation of mechanical ventilation. VAP has a mortality rate as high as 50% and increases length of stay in the ICU by as much as 13 days per patient, with an estimated cost of up to \$40 000 per case. After an increase in our VAP rates, the ICU Practice Council initiated a new VAP prevention protocol in an effort to achieve best practice. **Description:** Best practice shows a strong correlation between oral care and VAP. Our new VAP prevention protocol increased oral care from every 4 to every 2 hours. We collaborated with Sage Products to design a kit with 24 hours of oral care equipment including 12 suction swabs, 4 deep-oral suction catheters, and a Yankauer suction. The kits were hung on the wall daily at midnight and the Yankauer suction was replaced. Each swab is labeled with the time to be used, so that it is visible to staff who enter the room that the scheduled oral care has been completed. During bedside report, nurses were able to see the number of oral care swabs remaining and hold each other accountable to maintain best practice. Tracking of remaining swabs was done to ensure compliance. Several months into the new program, we had 2 incidents of VAP. A pulmonologist, Dr Firas Dairi, noted that both of the affected patients had been receiving noninvasive positive pressure ventilation (NIPPV) before intubation, so we extended our every-2-hour oral care regimen to the NIPPV patients. Staff members were educated on the new policy with a bulletin board on VAP prevention, laminated cards attached to all ventilators, and the addition of every-2-hour oral care to our existing ventilator pathways. **Evaluation/Outcomes:** In the year before the initiation of our protocol (fiscal year 2009), we had 9 incidents of VAP with a rate of 3.48%. We started the new procedures in January 2010, the third quarter of the year. In that first year, we experienced a modest decrease in our VAP rates, to a total of 7 cases or 3.12%. It was during this time that the association between NIPPV and VAP was observed, leading to a second change in protocol. In the first full year since the instigation of the protocol, our unit had only 2 cases of VAP, or 1.14%. This represents a dramatic decrease in the incidence of VAP on our unit, demonstrating a successful change in our best practice. We continue to monitor to reach a goal of no VAPs.

**EB58 Diapering: A Protocol That Makes a Difference**

Kimberly Souder, Theresa Martinez, Joan Musso, Nina Ortegon; Hope Children's Hospital, Oak Lawn, IL

**Purpose:** The goal of this evidence-based solution project was to reduce the number of central catheter-associated bloodstream infections (CLABSIs) caused by gastrointestinal organisms. The pediatric critical care units at Hope Children's Hospital participate in a nationally recognized collaboration to eliminate CLABSIs in our population of patients. After reviewing each case of CLABSI in both units, a pattern was revealed that many infections were related to gastrointestinal organisms.

**Description:** An investigation was initiated to discover ways to reduce cross-contamination with gastrointestinal organisms and central catheters. Staff members and parents were witnessed placing soiled diapers, wipes, thermometers, and used diapering supplies on the patient's sheets during and after diaper changes. It was also recognized that no storage area for diapering supplies had been designated. After an evaluation of our current practice, it was determined that our patients were at risk for cross-contamination from stool or urine. It was also discovered that there was no diapering protocol in place and there was never any education given on the process of diapering and possible cross-contamination of gastrointestinal organisms. Various diapering techniques were proposed and evaluated on their ease of use and cost-effectiveness by the staff of both units. New protocols were developed on diapering techniques and cross-contamination prevention and mandatory education was provided to all staff who would potentially diaper a patient. The protocol was in line with our goals to reduce CLABSIs related to gastrointestinal organisms and was implemented in both pediatric ICUs.

**Evaluation/Outcomes:** Retrospective analysis confirmed that 50% of the CLABSIs were caused by *Enterococcus* or *Enterobacter* organisms in both units combined. After implementing the new diapering protocol and dedicated storage of diapering supplies we have reduced the CLABSIs related to gastrointestinal organisms by 37.5%. The supply cost to the patient increased by only approximately 0.50 cents per day by implementing the protocol. Parents have expressed satisfaction on surveys in relation to the implementation of the new protocol. Because of our success, this protocol has been adopted on the general pediatric units. Nurses have expressed that this protocol is easy to follow and is an easy way to improve outcomes.

**EB59 Does It Matter Who Does the Daily Skin Assessment?**

Lauren Wells; University of Michigan Hospital, Ann Arbor, MI

**Purpose:** The purpose of this evidence-based initiative was to identify pressure ulcers on admission, reduce pressure ulcers during admission, and to track trends in pressure ulcer prevalence in the trauma/burn intensive care unit (TBICU) at the University of Michigan Hospital.

**Description:** The TBICU struggled to reduce and sustain their pressure ulcer incident rates below the standard for like units at the University Hospital. The national mean is approximately 7%. However, national data suggest that certain populations of patients are at higher risk. These patients include those with perfusion and hemodynamic instability, critical illness, or poor nutritional status and patients who are immobile or inactive. Many of those risk factors are present in TBICU patients. Because pressure ulcers are an ongoing issue for trauma and burn patients, a 6-month program involving a 24-hour charge nurse skin assessment tool was implemented in the TBICU. A 6-month pilot project was implemented from July 2010 to January 2011, and a skin assessment was performed by the charge nurse and the patient's bedside nurse every 24 hours. The program involved the development and use of a 24-hour charge nurse skin assessment tool that would track trends in new or existing pressure ulcers. The tool also guided the head-to-toe skin inspection over bony prominences and under medical devices, thereby creating a systematic process for evaluating every patient.

**Evaluation/Outcomes:** During the project, there was lower than normal prevalence of unit-acquired pressure ulcers. Also, while the tool was in effect, the TBICU sustained a 3-month period with 0 pressure ulcers in October, November, and December 2010. Data demonstrated that unit-acquired pressure ulcers tended to be in unusual places such as lips, hands, and arms because of specific medical devices used for trauma/burn patients. The percentage of high-risk patients with a skin assessment documented in the electronic chart within a 24-hour period in the TBICU was sustained at 100% during the project. The implementation of a charge nurse skin assessment tool resulted in a significant reduction in unit-acquired pressure ulcers. Additionally, staging and management of pressure ulcers improved and staff became proactive rather than reactive in dealing with skin assessment. Also, identification and documentation

of pressure ulcers present on admission improved, hospital risk management reporting increased, and improved staging and documentation helped to track trends in ongoing pressure ulcer prevalence in the TBICU.

### **EB60 Down to Zero: Strategies for Prevention of Central Catheter–Associated Bloodstream Infections**

Ashley Staniewski; Vanderbilt University Medical Center, Nashville, TN

**Purpose:** Additional strategies the surgical intensive care unit (SICU) adopted beyond the Society for Healthcare Epidemiology of America (SHEA)/Infectious Diseases Society of America practice recommendations for central catheter–associated bloodstream infections (CLABSIs) in order to achieve a zero CLABSI rate. **Description:** The SICU currently has the most central catheter device days of the 6 adult ICUs at Vanderbilt. Since 2002, the unit had implemented a central catheter insertion protocol, but we were still seeing 1 or 2 CLABSIs per month. By creatively analyzing our unit’s own specific infections, we were able to determine a pattern of infection risk. After identifying a historical pattern, we were able to establish additional recommendations for central catheter management within the SICU. Infection prevention generally fell into 3 areas: insertion, maintenance, and indications for blood cultures. Specifically, our data indicated a need to choose a subclavian site when safe; improve “maintenance” specifically for internal jugular dressings, extended intravenous tubing, and catheter access; and address specific blood culture indications and acquisition. Site choice was an easier piece to address. We then created a “Blood Culture Guideline” to guide clinicians on when to order cultures. Third, the nursing staff was aggressively taught to “scrub the hub.” Each staff nurse demonstrated a correct hub scrub using “Germ-Glo” as a visual indicator of the need for “scrubbing.” The “scrub the hub” campaign was *without* the adjunct of chlorhexidine scrub pads. **Evaluation/Outcomes:** The standardized infection rate for CLABSIs in the SICU for each fiscal year is as follows: for 2008, 2.52 (9 infections in 1970 device days); for 2009, 2.13 (18 infections in 4222 device days); for 2010, 1.77 (22 infections in 5170 device days); for 2011, 0.23 (3 infections in 5591 device days). For the calendar year 2011, the SICU has 0 infections. It was the first adult ICU at Vanderbilt to achieve 250+ days without a CLABSI. Our nursing management of catheters (scrubbing, access infrequently) is certainly more of a

cultural practice in the unit than in 2010. The number of blood cultures ordered has decreased, along with the number of contaminated blood cultures. Our zero infection rate in 2011 also supports our findings.

### **EB61 End-of-Life Program in the Intensive Care Unit, Modeled From AACN’s 7 Domains of Care**

Brooke Baitch, Jennifer Bonifacio, Jennifer Labanca, Vivian Norman; St Joseph Hospital, Orange, CA

**Purpose:** The members of the end-of-life (EOL) team saw a need to improve the overall experience for patients during the last stages of life and support family members throughout the dying process by providing resources and education. With the primary goal to improve communication, the EOL team was formed in 2006. The team worked to establish a consistent approach to managing EOL care and develop methods to educate and support our patients, their families, and staff. **Description:** A gap analysis reflected a need to develop education on collaborative EOL decisions. The family perspective was sought from spouses who had a loved one die in our ICU. A multidisciplinary team was formed, including family representatives, to plan and implement changes in our EOL care. AACN’s 7 domains of EOL is our model. Subgroups worked on staff education, family supportive education, and do-not-attempt-resuscitation (DNAR)/comfort care. Classes and online staff education include patient- and family-centered decision making, advanced directives, clear and sensitive communication, DNAR, comfort care, hospice vs palliative care, and recognizing medical triggers to initiate difficult conversations. An EOL bulletin is e-mailed monthly with updates and reminders. Family supportive structures implemented include a bereavement cart, comfort care bag for children, and a bereavement packet. Comfort care patients are identified with a purple flower at the doorway. DNAR orders were clarified, and “Allow Natural Death” was added. A purple armband signifies DNAR status. The concept of “maximal burden, acceptable outcome” is introduced to families in a brochure, “Our Direction of Care,” a guide to EOL decisions, quality of life, dignity, and patient wishes. **Evaluation/Outcomes:** Nurses took an online class developed by the EOL team. The 80 nurses passed with an average 95% score. Class evaluations were 94% positive on usefulness and applicability. Family evaluation of program: surveys are mailed with a bereavement card to survivors who lost a family member in the ICU,

with DNAR status. The survey includes questions about level of care and understanding of everything that occurred regarding code status and the dying process. Ongoing survey results have a mean of 4.2 on scale of 1 to 5. The EOL team continues to implement interventions to improve emotional/spiritual support, symptom management, and multidisciplinary/family compassionate communication.

#### **EB62 Endotracheal Tube Pressures: Do No Harm**

Laurie Fitzgibbon, Erich Agnes; Aultman Hospital, Canton, OH

**Purpose:** Maintaining adequate endotracheal tube (ETT) cuff pressure is an important part of the overall care of intubated patients and patients receiving mechanical ventilation. The purpose of this project was to evaluate the effectiveness of monitoring ETT cuff pressures by using the Posey cufflator every 4 hours and as needed to maintain ETT cuff pressures within the optimal range of 20 to 30 cm H<sub>2</sub>O in order to prevent tracheal malacia or increased risk of ventilator-acquired pneumonia (VAP).

**Description:** The incidence of tracheal necrosis and/or tracheal malacia increase drastically with cuff pressures greater than 30 cm H<sub>2</sub>O. If cuff pressures are allowed to be less than 20 cm H<sub>2</sub>O, incidence of VAP increases because of the migration of secretions to the lower part of the respiratory tract. ETT cuff pressure decreases over time. The respiratory therapist and nurse may rely solely on the presence of an air leak and pilot balloon fullness to monitor cuff inflation. Feeling the pilot balloon is an unreliable method of determining actual cuff pressure. Additionally, only 0.1 to 0.2 mL of air should be required to adjust the cuff to avoid overinflation. Direct communication and a multidisciplinary approach are needed for adequate management of the ETT. A random audit of 36 ETT cuff pressures was done before implementation. Respiratory therapists were then educated on the Posey cufflator, and guidelines were established to monitor pressures every 4 hours and/or when the respiratory therapist or nurse detected an air leak. A random audit of 37 ETT cuff pressures was completed after implementation. **Evaluation/Outcomes:** In an audit before implementation, 89% (n=36) of ETT cuffs needed some intervention to achieve the recommended cuff pressure. Additionally, only 4 patients (11%) had recommended cuff pressures; 5 patients (14%) had a cuff pressure less than 20 cm H<sub>2</sub>O; and 27 patients (75%) had cuffs that were overinflated

with pressures ranging from 50 to 120 cm H<sub>2</sub>O. A postimplementation audit revealed that 100% (n=37) of ETT cuff pressures were between 22 and 30 cm H<sub>2</sub>O.

#### **EB63 Enhancing Critical Care Nurse Orientation: A Novel Course Introducing End-of-Life Care in the Intensive Care Unit**

Valarie Grumme; Specialty Nursing Consortium/HealthSciences/Broward College, Davie, FL

**Purpose:** The project's goal was to create an additional course module introducing end-of-life experiences and management of end-of-life caring situations in the critical care setting for the critical care nursing course administered by the Specialty Nursing Consortium/Health Sciences/Broward College. The problem was a lack of organized end-of-life education for new ICU nurses. No hospital system within the Consortium had a formal end-of-life program as part of their orientation to the ICU. **Description:** An "End-of-Life in the ICU" 2-hour course was created based on the ELNEC (End of Life Nursing Education Consortium) curriculum and current critical care nursing literature. The module was scheduled at the end of the critical care course, the day after the students had experienced a simulated code blue situation including a distraught family and a patient dying. The course enabled students to explore their feelings about death and dying, as well as an overview of advanced directives, speaking with patients and patients' families about end-of-life wishes, examples of actual nursing situations with death in the ICU, symptom management, holistic care of the dying patient and his or her family, organ donation considerations, medical examiner cases, institutional policies after a patient's death, and the importance of debriefing and caring for self. **Evaluation/Outcomes:** As of this date, more than 75 students in 3 critical care courses have experienced the end-of-life course module. Almost unanimously, the students responded that the course helped them understand the multiple dimensions of care involved with dying patients and their families in the ICU. An evaluation after the course included a Likert-style rating of course objectives, and open-ended questions that allowed the students to express their own unique perspectives of the course. Common themes extracted from these evaluations have identified further learning needs and enabled us to update the module as we go forward with teaching this important aspect of caring in the ICU.



### **EB64 Enhancing Delirium Awareness and Recognition in the Medical Surgical Intensive Care Unit: An Evidence-Based Quality Improvement Initiative**

Cecilia Santiago, Maria Teresa Diston, Orla Smith, Karen Wannamaker; St Michael's Hospital, Toronto, Ontario

**Purpose:** Patients in the ICU are at increased risk for delirium due to increasing age, severity of illness, and psychoactive medications. Modifying delirium risk is contingent upon prompt recognition by ICU nurses. Data on nurses' awareness of delirium and delirium assessment practices are limited. The purpose of this poster is to describe a quality improvement program to increase ICU nurses' awareness of delirium and implement a delirium screening tool in daily practice. **Description:** We surveyed 16 nurses in 4 ICUs to select a delirium screening tool. Most (81%) preferred the Intensive Care Delirium Screening Checklist (ICDSC) because of its ease and speed of use. An interprofessional team developed a comprehensive and multimodal delirium education strategy that included PowerPoint slides summarizing the literature, a video of an ICU survivor describing her experiences with delirium with a group discussion, a case study presentation with concurrent scoring of the ICDSC, and quiz questions. The education module highlighted existing delirium prevention and management strategies in the ICU, including early mobility, sedation vacations, spontaneous breathing trials, and use of a best practice checklist. One-hour education sessions were provided twice per day (days and nights) for 2 weeks. The ICDSC was incorporated into the ICU nursing flowsheet. For several weeks after the introduction of the ICDSC, one-on-one real-time tool scoring assistance at the bedside was provided. The tools and educational materials have been tailored to our local practice environment; however, our materials may be transferable to other organizations seeking to address the issue of delirium in their ICUs. **Evaluation/Outcomes:** This project was approved by the local Research Ethics Board. A 9-item education evaluation was completed by 81 nurses (69%). Roughly 90% to 100% agreed or strongly agreed that the education sessions encouraged participation, promoted better understanding of the importance of early recognition of delirium, and provided nurses with the knowledge to confidently complete the ICDSC. ICDSC completion audits and delirium rates were tracked between May and August 2011 and reported back to ICU staff through multiple channels.

### **EB65 Evaluation of Turn and Position Product to Reduce the Incidence of Pressure Ulcers in Postoperative Cardiovascular Intensive Care Unit**

Linda Flockhart; University Health Network, Toronto, Ontario

**Purpose:** Despite efforts to reduce pressure ulcers in critical care patients, the prevalence of nosocomial pressure ulcers ranges from 8.8% to 10.4%. Immobility and moisture are 2 risk factors associated with increased skin breakdown. The turn and assist product (TAP) is a new device designed to offload pressure from bony prominences and control the microclimate to reduce the risk of moisture and pressure-related skin injury. The objective of the project was to evaluate the effectiveness of implementing a turn and position system on the incidence rate of sacral ulcers in the cardiovascular intensive care unit (CVICU). **Description:** Nurses and patient care assistants were taught how to use mobility and moisture scores to determine whether patients are at high risk of pressure ulcers developing. The TAP system was then instituted on these high-risk patients and incorporated into the daily plan of care. Specially trained wound care resource nurses in the CVICU perform weekly skin and chart audits on all patients in the 22-bed unit using the pressure ulcer staging guidelines developed by the National Pressure Ulcer Advisory Panel (NPUAP) to identify all pressure ulcers attributable to their ICU stay. Incidence rates for sacral ulcers were compared for the 11 months before the implementation of the TAP with the incidence rates of sacral ulcers during the 3-month trial. **Evaluation/Outcomes:** Before the trial, the average number of ICU-related sacral ulcers among the 517 patients observed was 7.2 per month (mean 0.15) compared with 2.3 per month (mean 0.042) during the 3-month trial (n = 165). This represents a significant sacral incidence reduction of 68%. There was a reduction in the incidence of sacral ulcers attributable to ICU stays during the implementation trial of a turn and assist product. The results are encouraging and warrant further evaluation and research.

### **EB66 Evidence-Based Practice: Tailored to Fit the Unique Needs of Trauma and Burn Patients**

Sarah Taylor, Rachel Milkowski, Christy Zalewski; University of Michigan, Ann Arbor, MI

**Purpose:** To reduce bloodstream infections and cases of ventilator-associated pneumonia (VAP) in a busy

trauma burn intensive care unit (TBICU). **Description:** Almost a decade ago, we noted an unacceptable high rate of bloodstream infections (BSIs) and cases of VAP in our 10-bed TBICU. We initially implemented the Michigan Hospital Association Collaborative bundles for BSI and VAP prevention. Because of some unique characteristics of our patients, not all of these interventions were possible. It was not until we sought to attack the root cause of the problem that we saw sustained improvement. For patients with burned skin, catheters were covered with a chlorhexidine-impregnated disk, covered with gauze, and changed every 4 hours. An occlusive dressing was not an option. For intubated patients, standardized methods to secure endotracheal tube (ETT) tapes were not possible because of the absence of skin. Twill tapes were used to hold the ETT in place. Additionally, head-of-bed elevation could not be maintained in our patients because of their spinal injuries. Even the use of specialty beds (ie, Rotorest) also created a challenge as the head of the bed could not be maintained at 30°. **Evaluation/Outcomes:** In 2002 our BSI rates averaged 14.1 infections per 1000 catheter days. Currently in 2011 with the customization of the bundle, we have reduced our BSI rate to 0 infections per 1000 catheter days. We applied these same principles to reduce the number of cases of VAP in our ICU from a high of 31.3 per 1000 ventilator days in 2003 to 7.8 cases of VAP per 1000 ventilator days in 2011. We believe that several components are necessary to sustain best practice: (1) Adapting best practices to fit the needs of unique populations of patients. (2) Creating a first line of defense using a chlorhexidine-impregnated disk for central catheters. (3) Securing the ETT by using twill tape to minimize the movement of the tube thus preventing pneumonia. (4) In addition to customizing the bundles, active engagement from front-line staff, standardized work process, and leadership support help to reduce the number of hospital-acquired infections. (5) Modify practice bundles using evidence.

#### **EB67 Evidence-Based Glucose Target Range for Insulin Infusions in Critical Care**

Tamara Coker, Kimberly Roberts; Wellstar Cobb Hospital, Austell, GA

**Purpose:** The intensive insulin nomogram in use at WellStar Cobb Hospital had a blood glucose target range of 90 to 140 mg/dL, which no longer met the evidence-

based clinical practice guidelines from the American Association of Clinical Endocrinologists and the American Diabetes Association (AAACE/ADA). An ICU subgroup of the hospital's diabetes team created an evidence-based insulin infusion order set which would use the recommended target blood glucose range of 140 to 180 mg/dL. **Description:** Hyperglycemia can occur in ICU patients as a result of stress, critical illness, medications, and sepsis. The NICE-SUGAR researchers concluded that a blood glucose target of 81 to 108 mg/dL compared with a target of less than 180 mg/dL resulted in increased mortality of critically ill patients. As a result of recent studies, the AAACE/ADA recommended that for critically ill patients with persistent hyperglycemia, intravenous insulin infusions are the preferred therapy for maintaining glycemic control at the recommended glucose range of 140 to 180 mg/dL. In November 2009, a diabetes team was formed at Cobb Hospital with the goal of optimizing outcomes for patients with diabetes by standardizing care. A new insulin infusion order set was created and piloted in the critical care units from July 2010 to August 2010. The order set was modeled after the VHA Diabetes SIG glycemic control toolkit. Nurses were educated by using a computer-based learning module and one-on-one demonstrations by the clinical nurse specialist, critical care educator, and designated staff. Physician education was conducted by the critical care diabetes physician champion. During the pilot, chart audits were conducted by the clinical nurse specialist. **Evaluation/Outcomes:** As a result of the audits, opportunities for improvement of the order set and the proper use of the order set were identified. Adjustments were made to the order set as a result of staff interviews and feedback during the clinical nurse specialist's rounds. A total of 16 patients were on the new order set during this period. Of these patients in the pilot study, 72.5% of the patient blood glucose values were in the acceptable range of 70 to 180 mg/dL. The rate of hypoglycemia with blood glucose values less than 50 mg/dL was 0.31%. Six months after the end of the pilot, 80% of our critical care patients are in the acceptable range of 90 to 180 mg/dL, 20% are greater than 250 mg/dL, and none are less than 50 mg/dL.

#### **EB68 Follow My Lead to Best Practice in Electrocardiography Lead Placement and Selection**

Anita Sherer, Nellie Buck, Dennis Campbell, Pamela Hamilton, Lanisha Hunter, Nancy Marzolf, Mavis

Nyako, Donna Owens, Carolyn White; Cone Health, Greensboro, NC

**Purpose:** Sometimes experience really is the best teacher. The staff on our cardiac telemetry department clearly found that to be the case when learning the steps of evidence-based practice (EBP). After reviewing the AACN practice alert on dysrhythmia monitoring, the director noted that electrocardiography (ECG) lead selection was often inconsistent on the department. Discussions triggered staff to ask a burning question, "What is the best practice for ECG lead placement and lead selection?" **Description:** In keeping with our Iowa Model of EBP, the staff formed a team of bedside nurses, the director, and the clinical nurse specialist. The team reviewed the practice alert and related references. They determined that the evidence was sufficient to change practice. The team collected baseline data on skin preparation, lead placement, and lead selection. A mandatory competency was developed for nurses, nurse technicians, and secretaries. The evidence was shared in Lunch and Learn sessions followed by competency checkoffs. When follow-up audits revealed they had not fully achieved their selected outcomes, the team reinforced the material with a mandatory quiz and assessment during bedside report. **Evaluation/Outcomes:** Evaluation audits revealed 92% compliance and 1 year later scores remain at 90%. The team shared their process with other telemetry departments to enhance best practice throughout the system. Not only did staff achieve best practice in dysrhythmia monitoring but staff saw the benefits of the Iowa Model in action. Sometimes there is no better teacher than real-life experience.

### **EB69 Get the Foley Out: Reducing Device Days in Neurocritical Care**

Katelyn Shultz; Hospital of the University of Pennsylvania, Philadelphia, PA

**Purpose:** Catheter-associated urinary tract infections (CAUTIs) are the most common hospital-acquired infection and can lead to increased length of stays, mortality rates, and higher hospital costs. Numerous evidence-based practice guidelines have proven to decrease the occurrence of CAUTIs including minimizing the use of urinary catheters. Because the length of time that catheters remain in place is directly related to increases in UTIs, the focus was to reduce the total number of device days in the neurological ICU. **Description:** Nursing team members

collaborated to identify methods to reduce the use of indwelling urinary catheters (IUCs) and improve patient care processes related to the change in practice. After a review of relevant literature, it was imperative to establish strict criteria for IUC use and standardized decision-making guidelines for early removal. In addition to addressing the IUC necessity during team rounds, the charge nurse collected daily patient data on continued presence of catheters for the unit's census. Patients with IUCs who did not meet the criteria for device use were managed with a catheter removal algorithm dictating specific decision markers for quality management of urinary function without catheter use. Evidence demonstrates about one quarter of all hospitalized patients receive a catheter without meeting criteria for its initial insertion. Furthermore, almost half of these had the device left in place longer than necessary. As a result of this finding, a need for education related to IUC use as well as patient care management after catheter removal was also identified. A hospital-wide skill fair educated nurses on incontinence skin care initiatives and interval bladder scanning and catheterization standards. **Evaluation/Outcomes:** After implementation of the reduction plan, audits were performed to collect data recording daily IUC device days compared with the number of patient days. Within the first 2 years of the initial change in practice, the neurological ICU reduced the percentage of total device days per patient days from 82% to 56% annually and is presently the lowest ICU in the hospital for this category. In addition, the CAUTI incidence concurrently decreased by 56% annually. Incontinence and skin care management, toileting, and bladder retention management have been incorporated as an innovative standard, thus demonstrating that decreasing IUC device days is a feasible solution in the neurocritical care population.

### **EB70 Heart Failure: Reducing Readmission Through Education and the Promotion of Critical Thinking Skills**

Deborah Clayton; Peninsula Regional Medical Center, Salisbury, MD

**Purpose:** The growing burden of heart failure can be expected to increase during the next decade unless innovative interventions and prevention strategies are implemented. It is estimated that in 2011 the health care cost for heart failure will be greater than \$39.2 billion, readmission accounting for 70% of this expense. About 50%

of heart failure patients are rehospitalized within 6 months, suggesting that current measures of prevention and education are suboptimal. Patient education is crucial to improving adherence. **Description:** The focus of educating heart failure patients during their hospital stay and at discharge is to promote self-care, reduce readmission, and help patients identify problems early. Adult learners learn by doing and apply what they have learned to everyday activities. With these principles in mind, the following teaching strategies were implemented at Peninsula Regional Medical Center to empower heart failure patients to participate in the management of their disease and understand their self-care needs. (1) New teaching handouts developed: Heart Failure Zones—designed to help patients recognize and understand the symptoms of heart failure and how to respond; Daily Weight and Symptoms Log—patients record their weight and any symptoms daily. (2) Staff educated on various patient teaching strategies: When and how to use “teachable moments” to reinforce various self-care activities; the use of critical thinking activities to help the patient make adjustments and good judgment calls regarding their health care; the use of “teach-back method” by asking patients to repeat back what they have learned; the use of “Ask Me 3” essential questions to improve communication and understanding of key information about heart failure; Return Demonstration to allow patients to perform what they were taught. **Evaluation/Outcomes:** Heart failure is associated with high rehospitalization rates creating both an economic and emotional burden. Readmissions are often due to preventable complications and lack of knowledge and self-care abilities. Nurses need to learn how to educate heart failure patients by using various teaching methods. Engaging heart failure patients in self-care and critical thinking activities helps with the retention of essential information and improves outcomes after discharge. Future projects include joining the Hospital-to-Home National Quality initiative, developing an education module to enhance staff knowledge on heart failure management, and conducting a research study on the effect of self-care discharge instructions and heart failure readmission rate.

#### **EB72 How Portable Tablet Technology Enhances Patient Recruitment in Multidisciplinary Research**

DaiWai Olson, Albert Huh, Kristina Riemen, Bradley Kolls; Duke University Medical Center, Durham, NC

**Purpose:** Conducting research in the ICU requires a highly coordinated multidisciplinary effort. Clinical research projects in the ICU often require informed consent from the patient’s legally authorized representative (LAR). Finding, contacting and meeting with the LAR can be difficult. The purpose of this project is to develop an easy-to-use tool that could improve screening of research subject by increasing multidisciplinary communication and reducing workload. **Description:** Before this project, research coordinators used pencil and paper to track subject eligibility and then made multiple phone calls to coordinate patient enrollment. This evolved into a spreadsheet, but nevertheless remained a cumbersome task. An electronic Global Trolling Log (GTL) was developed as an online tool on Google Docs. The final version is a color-coded GTL in which fields are autopopulated when a research assistant (RA) enters key data elements related to study inclusion and exclusion criterion. The term “trolling” has been coined to indicate the process by which an RA evaluates each ICU patient as a prospective study candidate. Because patients arrive all the time, no one person can be available to establish a subject’s eligibility. The RAs now use portable tablet technology to “troll,” and the nurse and physician investigators access the GTL through an Internet-based interface. Without using protected health information, candidate data are entered into the GTL and the online data are available in real time to every ICU research team. The GTL allows RAs, nurses, physicians, and research coordinators to quickly and easily communicate in real time. The GTL is currently used to track subject eligibility in 6 ICUs at 2 hospitals (106 beds). **Evaluation/Outcomes:** In the past 5 years, we have enrolled 620 ICU patients into 16 different ICU studies. Identification and enrollment of subjects have increased from 24 subjects in 3 studies in 2006 to 212 subjects in 6 studies in 2010. Of these, 6 are nurse-initiated studies and 11 are physician-initiated studies. Using tablets has reduced screening time and improved communication for research coordinators. The Internet-enabled GTL has now been incorporated into the research paradigm and is now available for smart phones. Building a communication infrastructure was a vital step toward increasing both the number of studies in which we can participate and the number of patients we could enroll.



### EB73 ICU Visitation Guidelines: Embracing Best Practice

Amanda Thomson, Mary Beth Makic; University of Colorado Hospital, Aurora, CO

**Purpose:** The purpose of this project was to develop and implement ICU visitation guidelines that meet the needs of the patient, the patient's family, and health care professionals based on current best evidence. Before this initiative, each ICU had individualized visitation guidelines that created inconsistencies in communication with families and variation in ICU nursing practice. The guidelines were to support the adoption of open visitation that could be consistently implemented and embraced in 6 adult ICUs. **Description:** A team consisting of members from each ICU, patient/ family representative, psychiatry liaison nurse, nurse educator, nurse manager, and research nurse scientist met consistently for 5 months. A thorough review of current evidence regarding ICU visitation was conducted. Existing ICU visitation guidelines were also reviewed. Draft ICU guidelines were created and posted in each ICU for staff feedback. A final version was developed and distributed to medical directors, nursing leadership, and the hospital patient and family education committee for final approval. A communication tool was also developed to assist the nurse, with suggestions for behavioral interventions in interactions as needed, when family members interfere with patient care. A PowerPoint presentation that explained the change in visitation guidelines to include current evidence supporting the new practice was developed by the team. Unit based in-service training and journal club were completed by the unit team members. An implementation date was established for late August, across all ICUs, to maximize consistency in the new ICU visitation practice in all units. **Evaluation/Outcomes:** An 8-item survey to assess staff/physician satisfaction with current guidelines was launched in August 2011; 118 participants completed the baseline survey; 52% were satisfied, 31% were unsatisfied with current visitation practices. A total of 144 qualitative responses revealed frustration with the lack of consistency for visitation, unsupervised children, and calls during report. A follow-up survey will be completed in November 2011 after implementation of the guidelines. Optimally meeting patient and family needs remains a priority in critical care. This process used best evidence to develop open visitation guidelines that all the ICUs could embrace.

### EB74 Impact of a Multifocal Educational Initiative to Reduce Hospital-Acquired Pressure Ulcers

Michelle Dunn; St Luke's-Roosevelt Hospital Center, New York, NY

**Purpose:** The prevention and management of pressure ulcers poses a significant problem and great challenge for acute care facilities. Hospital-acquired pressure ulcers (HAPUs) put the focus on quality and outcome of patient care and require greater accountability by the health care team. As of October 2008, Centers for Medicare and Medicaid Services enacted regulations to help contain health care costs. As a result, Centers for Medicare and Medicaid Services no longer provides additional reimbursement to hospitals to care for patients who have a pressure ulcer (stages III and IV). **Description:** Our interdisciplinary Pressure Ulcer Prevention and Management Task Force implemented several approaches to increase accountability of the health care team: (1) Developed a pressure ulcer prevention and management protocol based on best evidence and practice strategies. (2) Developed a communication tool for the medical record. The sticker is initiated by the nurse for patients identified "at risk" (based on Braden score) or with an existing pressure ulcer. The sticker delineates the appropriate preventive measures for at-risk patients and treatment protocols for each stage of pressure ulcer. The provider indicates the appropriate measures/treatment needed and signs the sticker. (3) Developed an algorithm that illustrates the appropriate identification, prevention, and treatment techniques. The algorithm is posted in chart format on all patient care units for easy reference. A pocket-size chart is available for providers. The algorithm illustrates the appropriate pressure redistribution surface for each stage of pressure ulcer. The algorithm also identifies appropriate surface selection for bariatric patients and ICU settings. Pressure redistribution surfaces are ordered for patients identified as at high risk (Braden score <12). **Evaluation/Outcomes:** The percentage of patients with HAPUs (stage II and higher) was 4.41% in the first quarter of 2010; there was a significant decrease in the second quarter. Although the percentage of HAPUs (stage II and above) increased slightly in the third quarter, we were able to maintain more than a 30% decrease from the first quarter in the latter quarter of 2010.

**EB75 Implementation of a Condition Help Intervention Separately Addressing Patient and Family Education**

Beth McCawley; Duke Raleigh Hospital, Raleigh, NC

**Purpose:** The purpose of this project was to reduce patient harm due to failure to rescue and to improve patients outcomes when a medical emergency occurs by including patients and their families in rescue efforts. We undertook a patient- and family-centered evidence-based care project aimed at implementing a condition help (CH) education program to improve patient and family understanding of how and when to call CH and improve patients' outcomes. **Description:** Solution and Implementation Strategies: The CH intervention consists of well-designed bedside posters, nurse education and consultation, handouts of how and when to call a CH, and a mock script for patient and family education comparing calling 911 from home to calling 3111 in the hospital. Presentations were made to leadership committees throughout the hospital and health system to gain support for the program. All disciplines provided feedback and most was incorporated into the program. Staff nurse champions were recruited to the Code Blue/Rapid Response Team (RRT) Committee. The champions provided education and mock drills. Early Rapid Response/Condition Help Studies: Dean et al conducted a 2-year analysis of outcomes after CH and stated that the reasons for the CH calls made by patients and families was a breakdown in communication. Ray et al implemented a family-activated RRT at North Carolina's Children's Hospital. The RRT was activated twice by families. Survey responses averaged 27% of the parents were able to indicate when and how to call CH. A retrospective case review study (R. P. Brown, DNP, unpublished data, 2010) reported 50% of patients and families surveyed reported understanding of when and how to call a CH. **Evaluation/Outcomes:** CH patient and family education was recorded in the electronic medical record. Patients/families were surveyed separately on understanding of CH. Clinical outcomes were measured, as were number of CH/RRT calls, unplanned cardiopulmonary arrests, and admissions to a higher level of care. Patients' understanding of CH mean was 72.3% before and 71.1% after. Mean family understanding of CH was 80% (after). The number of CH calls increased from before to after. The number of RRT events increased significantly from before to after. Unplanned cardiopulmonary arrests and unplanned transfers to a higher level of care decreased.

**EB76 Implementation of a Quiet Time Period in a Busy Level I Trauma Center's Trauma ICU**

Karin Huster, Martina Rovenska, Amy Stafford; Harborview Medical Center, Seattle, WA

**Purpose:** Our aim was to lower noise levels in our ICU at set times in the day to provide patients and their families with uninterrupted periods of rest during their stay. Elevated noise levels are an issue for ICUs, which are busy and loud environments. Frequent alarms and multiple interventions and procedures lead to continuous stimulation and increased stress. These noise-related stressors negatively affect patients' sleep, recovery from injury, immune function, and can increase levels of delirium. **Description:** Based on the evidence that sleep deprivation adversely affects patients' outcomes, staff nurses proposed to implement a quiet time (QT) period in our ICU. Two blocks of time were chosen: once at day time (2-4 PM) and the other at night (midnight to 2 AM). Literature on the topic of hospital noise and its effects on patients was reviewed, presented, and discussed at journal club meetings. A committee of nurses and physician champions was created to develop the process of implementation. The following measures were initiated: patients, visitors, and ancillary staff were educated on the process and benefits of QT. Signage was developed and placed at the ICU's entrance; a unit-wide announcement would start QT. Nursing staff would position patients for comfort, premedicate for pain, and take steps to avoid unnecessary alarms during QT. Care packs for patients including ear plugs and eye masks were offered. Lighting was dimmed, and telephone and intercom volumes were decreased. **Evaluation/Outcomes:** When QT was started, barriers encountered were staff resistance to the concept, concern about limited care during QT, and communicating the process to other disciplines. A postimplementation survey on the perceived benefits and satisfaction level with QT was completed by 38 staff, which showed that 100% of respondents perceived a clear benefit to the patient and themselves (reduced stress). Families were asked about their perception of noise in the ICU before and after QT was implemented. Comparison of survey results shows a 20% increase in satisfaction with noise levels after QT implementation. In addition, decibel monitoring before and after the intervention shows a 10-dB decrease during QT.

### **EB77 Implementation of a Successful Rapid Response Team: A Multidisciplinary TEAM Approach Saves Lives**

Crystal Johnson; Durham Regional Hospital, Durham, NC

**Purpose:** Identification of critically ill patients and early assessment and intervention are likely to prevent the need for cardiopulmonary resuscitation and improve outcomes for patients. A committee was formed and determined that a rapid response team (RRT) would improve patients' outcomes as well as increase patient, family, and staff satisfaction. The RRT's goal is "to prevent deaths in patients who are progressively failing outside the critical care area."

**Description:** Durham Regional Hospital (DRH) is a 369-bed community hospital in Durham, North Carolina. In October 2005, the RRT task force was formed after a review of code blue data showed that early intervention would improve patients' outcomes. Educational events were held to instruct all hospital staff of the RRT's purpose and criteria for calling a rapid response. The critical care unit (CCU) charge nurses received additional training in assisting floor nurses in assessing and stabilizing patients and how to communicate with physicians using the Situation, Background, Assessment and Recommendation (SBAR) method. After piloting the RRT process, policies were updated and further education was provided. The RRT process was implemented throughout the hospital. Data collection began and we correlated RRT and code blue calls. Surveys were created to evaluate the RRT process and a computer program is used for data. Unit champions were educated on how to identify trends. We also hold debriefing sessions after every RRT call to obtain real-time data collection, which allows us to be proactive instead of reactive. A multidisciplinary task force evaluates each RRT call and its outcome. **Evaluation/Outcomes:** Rapid response calls have increased significantly and the number of code blue calls has trended downward. Trends identified include calls linked to specific nurses, respiratory therapists, physician groups, and particular classifications of medications. Action plans were created with focus on safety and education based on these findings. Surveys identified the need for supplies that lead to a standardized box brought to the bedside of every RRT call. Patient and staff satisfaction scores also improved as patients'

outcomes improved. As RRTs avert the code blue calls, we are now evaluating the need for an early intervention scoring tool in order to avert the RRT call.

### **EB78 Implementation of Postpyloric Enteral Feeding in Critical Care Through Shared Governance**

Nancy Park, Carmella Baval, Deborah Ritter; St John Hospital and Medical Center, Detroit, MI

**Purpose:** Initiation of enteral nutrition within 24 to 48 hours is advocated for critically ill patients and key to improved outcomes. Feeding into the stomach often results in suboptimal enteral intakes due to feedings being held for gastric residual volumes (GRV), or patient intolerance due to ileus. Inadequate enteral nutrition was addressed by a shared governance committee made up of nurses and allied health. Project goals included improvement in enteral access and delivery of enteral nutrition to critically ill patients. **Description:** After discussing the pros/cons, case studies, and reviewing the available literature, the shared governance committee decided upon the use of an Electromagnetic Placement System (EMPS) to achieve safe enteral access beyond the pylorus. Postpyloric feeding results in greater enteral nutrition delivery to patients due to less frequent interruptions of feeding. Collaborative efforts resulted in creation of a training program and hands-on opportunities for bedside placement of the tube by the nurse. Online support was made available on the hospital intranet. Implementation of the technology began after 6 nurses were trained. A "train-the-trainer" approach was then taken to instruct nurses on the technique for tube placement. Research by Powers, and Stockdale, et al, has demonstrated the safety and accuracy of EMPS. Additional benefits noted by Stockdale et al, include reduction in use of parenteral nutrition and costs. The nurses were deemed EMPS certified after 3 successful tube placements supervised by a qualified trainer, and completion of the training checklist. Review of written material was also required. **Evaluation/Outcomes:** More than 35 critical care nurses have been trained on the proper use of EMPS for enteral access. Measured outcomes include placement time, tip location, and x-ray use. Steady improvement has been noted since initial training. There has been a reduction in the amount of time to place tubes, an increase in the number of tubes placed beyond the pylorus on initial attempt and a decrease in x-ray use. Estimated cost savings to date with EMPS are \$33,584. Use of parenteral nutrition at our facility

has not decreased. The committee plans to develop protocols directed at access to enteral nutrition and feeding initiation, advancement, and tolerance. Education of staff on protocols is hoped to improve patients' outcomes.

### **EB79 Implementing a Standard of Care for Endotracheal Tube Taping to Prevent Unintentional Extubation**

Kristie Fasano; St Christopher's Hospital for Children, Philadelphia, PA

**Purpose:** Endotracheal intubation is a common practice in pediatric ICUs. This practice can come with its own set of complications even if performed successfully. One particular risk factor is unplanned extubations. Literature demonstrates that best practices have not been identified on how to secure an endotracheal tube (ETT) but the recommendation of Lucas da Silva and Brunow de Carvalho is that the best practice for tube fixation is standardization of the procedure when securing an ETT. Our institution currently follows a ventilator-associated pneumonia bundle but to date there was not a standard for the procedure of retaping an ETT. Until January 2011, the standard of care for retaping an ETT allowed only critical care attending physicians, fellows, and nurse practitioners to perform the procedure all with different styles and techniques. The year prior it was noted that approximately 6 to 8 unintentional extubations occurred and all were related to insufficient fixation of the ETT. A multidisciplinary work group consisting of staff nurses, a critical care attending physician, and respiratory therapist decided that it would be beneficial if nurses and respiratory therapists were taught to retape endotracheal tubes to see if this decreased the number of unintentional extubations. **Description:** A literature search was performed by the chair of our shared governance committee. It was noted that there was little to no research available regarding the standardization of ETT taping. A standard of care was developed by the multidisciplinary team that included nursing, an attending physician, and a respiratory therapist. A PowerPoint presentation was developed and presented to the staff as well as an education board with step-by-step instructions and pictures. An initial staff competency was developed that had each nurse demonstrate retaping the ETT on a mannequin with the direction of the nurse educator. A second ETT taping was required on an actual patient and would be observed by an attending physician or nurse

practitioner. All attending physicians and certified nurse practitioners in the critical care units were also presented with the learning materials and were in agreement with the training as well as supporting the staff during the training process. There were some barriers to the implementation of this process, such as opportunities to retape the tubes and unit educators being able to educate people on the off shifts. We overcame these barriers by having champions on nightshift to assist with the competences and also by involving the attending physicians and nurse practitioners to train staff on an actual patient when the opportunity arose. **Evaluation/Outcomes:** Currently in the pediatric ICU we have approximately 90% of our staff competent in ETT retaping. Acceptance of this new practice has been very positive. The nursing staff who has had the opportunity to retape ETTs state that the process has encouraged more ownership and responsibility of the patient's ETT. The nurses have demonstrated that the need for tape to be changed has been identified in a timelier manner and the process has been addressed more quickly. This new standard of care is being used daily by the pediatric ICU nurses. At the beginning of the implementation we assessed that there were 4 unintentional extubations in the 6 months prior. It has been noted that there has only been 1 unintentional extubation and this patient did not have the ETT retaped after the operating room. Continued assessment of competency will occur as part of the annual mandatory education that is provided for pediatric ICU staff. We are currently working with respiratory therapy and the cardiac care unit to train their staff on the new standard of care.

### **EB80 Implementing Evidence-Based Practice for Heel Pressure Ulcer Prevention in the Intensive Care Unit**

Shirley Drake; Community Regional Medical Center, Fresno, CA

**Purpose:** Critically ill patients are predisposed to heel pressure ulcers due to the severity of conditions that render extended times of immobility, altered sensorium, and ischemia. Preventing heel pressure ulcers in the ICU begins with assumptions of high risk and ischemia on admission. Evidence-based practice must be integrated into the admission process and ongoing patient management. This level I trauma center made a dedicated effort to bring the incidence of heel pressure ulcers in the ICU to zero. **Description:** Heel pressure ulcers account for approximately 30% of all hospital-acquired pressure ulcers.



The majority of heel pressure ulcers are avoidable. Serious complications of heel ulcers include infection, cellulitis, osteomyelitis, septicemia, limb amputation, and death. Although the calcaneus is well adapted for shock absorption, its poor vasculature provides insufficient compensation during times of hemodynamic instability. The ICU of a level I trauma center once experienced in a 4-month period as high as 50% of ICU-acquired pressure ulcers in the heels. Implementing evidence-based practice for heel pressure ulcer prevention in our ICU required comprehensive education that included at-risk diagnoses, pathophysiology of heel ulcers, and a simple algorithm for heel elevation. Literature review of work by Cuddigan, Ayello, and Black produced an effective evidence-based heel pressure ulcer prevention protocol based on projected time of immobility. It was adapted and implemented in our ICU. The educational method used was centered on adult-learning principles and collaboration with product experts. Surveys before and after education demonstrated large improvements in knowledge and clinical practice. **Evaluation/Outcomes:** One-on-one bedside teaching in concert with heel elevation device demonstration by product experts proved to be an effective method of initiating practice change. Comprehensive education on evidence-based prevention and ulcer treatment set the stage for unit-wide adoption of a heel ulcer prevention algorithm. The emphasis on early heel elevation on admission and ongoing range of motion interventions improved patients' outcomes. In 10 months of implementing the ICU Heel Pressure Ulcer Prevention Algorithm, the incidence of heel pressure ulcers in our ICU has decreased to less than 1%. Two heel ulcers that developed were determined to have been unavoidable because of pulselessness and surgical fixation.

### **EB81 Improving Timeliness of Antibiotic Delivery in Pediatric Emergency Visits Presenting With a Fever and Central Catheter**

Tim Valeriote, Meghan Jobson; University of North Carolina Hospitals, Chapel Hill, NC

**Purpose:** Current guidelines recommend antibiotic delivery in less than 1 hour for patients with a fever and central catheter. To assess our compliance, a retrospective analysis of visits to the emergency department by children with a fever and a central catheter was completed between January 2010 and March 2011. This analysis indicated lack of compliance with the guideline and

suggested several problems to address to improve patient care. Our department set a goal of administering antibiotics in less than 1 hour for all patients. **Description:** A review of the literature and a retrospective chart analysis suggested several changes that might improve time to antibiotic delivery. For example, antibiotics were stocked in all emergency room Pyxis stations, as this reduces time to antibiotic delivery. However, this alone was not sufficient to reduce wait time. A multidisciplinary improvement team developed various quality interventions including nursing staff education, monthly awareness newsletters, direct follow-up education and tracking of noncompliant staff, and the development of a treatment guideline decision tree. Interventions, many of which were suggested in the literature, were implemented over the course of 2 months. Subsequent performance was recorded and tracked in real time. After the emergency department reached 100% compliance, we began outreach to other areas of the hospital that work with these patients. These collaborations resulted in the development of an identification card with easy instructions for caregivers and an increased awareness of the patient population and emergency department protocol. **Evaluation/Outcomes:** Improvements to date include a 25% increase in patients receiving antibiotics in under 1 hour (from 63% before the intervention to 88% after the intervention), a decrease in average time to antibiotics by 33 minutes from 68 minutes to 35 minutes ( $P < .005$ ), and an overall decrease in range of time to antibiotics from a range of 0 to 358 minutes to a range of 0 to 128 minutes. We are currently developing partnerships with other departments and clinics in the hospital to promote best practice for these vulnerable patients, which will further reduce time to antibiotics. In turn, we hope to see a hospital-wide reduction of the incidence of sepsis and the cost of taking care of these patients.

### **EB82 Incorporating a Cardiac Postoperative Clinical Pathway Into an Electronic Medical Record**

Rosemary Grabowiecki, Vivian Gowan, Sharon Maxey; Kaiser Sunnyside Medical Center, Clackamas, OR

**Purpose:** Clinical pathways are an effective means of improving quality of care and reducing hospital costs within specific patient groups. As our cardiac surgery clinical pathway was paper based and 99% of our documentation occurs within our electronic medical record (EMR), we found the pathway to be unused and ineffective in

assisting us to achieve our goal of providing excellent care for our cardiac surgery patients. Our purpose was to incorporate an evidence-based cardiac postoperative clinical pathway into our EMR. **Description:** A team was formed that included the cardiovascular clinical nurse specialist, a cardiovascular nurse practitioner, nursing staff members of the cardiovascular intensive care unit (CVICU) and cardiovascular postoperative care unit, and a nurse informatics specialist. Recommendations regarding possible ways to incorporate the different aspects of the clinical pathway into the EMR were reviewed and the following decisions were implemented: The cardiovascular clinical pathway was updated and reformatted. A new “initiate cardiovascular surgical pathway” order for postoperative cardiovascular patients containing hyperlinks to each individual clinical pathway day’s goals and interventions was created. A user-friendly template to document patient’s individualized goals and progress toward the daily goals in the patient’s plan of care was created. A patient accountability form that the patient signs when he or she signs the surgical consent form was created. This form includes all of the interventions that the patient needs to participate in to meet the goal of being discharged by postoperative day 4 or 5. A class on the care plan documentation and clinical pathway was presented to a preidentified superuser group. They in turn trained each of their own team members. A step-by-step how to guide was created and distributed to the nursing staff during the in-service training sessions. **Evaluation/Outcomes:** First quarter results, based on random chart audits in our CVICU, show a 200% increase in plan of care documentation and identification of whether or not the clinical pathway goals for the day are ongoing, met, or unmet. When the goal is unmet, the nurse documents the reasons why. The implementation and incorporation of the cardiac surgery clinical pathway into our EMR produced a significant increase in plan of care documentation with a noted specific focus on the patient’s progress towards daily goals. As the patient’s progress was consistently documented, areas for focused intervention were easily identified.

### **EB83 Innovative Approach to Ongoing Skills Competency Validation in the Pediatric Intensive Care Unit**

Alicia Layman-Heilman, Lori Parrott; Cook Children’s Medical Center, Fort Worth, TX

**Purpose:** Effectively ensuring ongoing skills competency is a challenge in the pediatric intensive care unit (PICU). Formerly our institution held skills fairs with multiple stations that took 4 hours to complete. Staff evaluations indicated these events lacked relevancy to practice and were too time intensive. Based on these evaluations, our goal was to develop a new and innovative program that was evidence-based, effective, and relevant to PICU practice. **Description:** The Iowa Model of Evidence-Based Practice (EBP) guided this project, and a comprehensive literature review of electronic databases was conducted to identify evidence. The team synthesized literature and identified 3 key EBPs: use of adult learning principles, high-fidelity simulation, and realistic learning environment. Eleven competency objectives were identified by needs assessments with intensivists, PICU management, and educators. Trends in event reporting and new initiatives were also included. A grid was formulated to identify validation methods for each objective, based on adult learning principles. Validation methods included attending clinical simulation investigation (CSI) using high-fidelity simulators and self-directed activities. A CSI scenario was built to meet most skills objectives. A facilitator reference manual for CSI was created to provide consistency. An evaluation tool was developed that included a before and after self-assessment of skills. Events were offered monthly and set up in the PICU to allow a realistic environment. Options for self-directed activities included exemplars, presentation of best practices, or computer-based training. **Evaluation/ Outcomes:** Mean scores on the self-assessment after the intervention demonstrated improvement on most objectives. Five objectives had a mean score improvement of 0.54, on a scale of 1 to 4. One did not show improvement, however, there was a decrease in related event reports. The remaining objectives had high scores on the assessment before the intervention, and these were maintained or demonstrated slight improvement. When comparing the new program to the previous format, 100% of staff found this to be more effective and relevant to clinical practice. Quality improvement reports have shown a decrease in events related to 2 of the objectives. The new program cut time spent on skills by 75%. This produced a substantial cost benefit for the hospital.

### **EB84 Program for Accelerated Continuing Education of Acute Care Nurse Practitioners**

Marguerite Murphy; College of Nursing Georgia Health Sciences University, Augusta, GA

**Purpose:** Evidence supports care coordinated by advanced practice nurses (APNs) in acute/critical care settings has positive care outcomes and reduced cost. This model requires an increase of a competent workforce of acute care APNs with a doctorate in nursing practice (DNP). The purpose of this project is to increase the faculty workforce through the Program for Accelerated Certificate Education (PACE), a 2-semester online program of study for doctorally prepared acute/critical care nurses educated as nurse practitioners or clinical nurse specialists seeking certification as an acute care nurse practitioner (ACNP). **Description:** Through funding from the Health Resources and Services Administration (Division of Advanced Nursing Education), the College of Nursing (CON) at the Georgia Health Sciences University (GHSU) recently developed and implemented a Program for Accelerated Continuing Education (PACE) of ACNPs. The 2-semester online course was designed for individuals with advanced practice nurse backgrounds who are doctorally prepared or currently enrolled in a doctoral program. This innovative approach included sampling 138 health care providers at a level I trauma center to evaluate beliefs associated with the use of ACNPs as well as the effectiveness of a DNP-PhD partnership to optimize acute care outcomes. The initial PACE course was offered during the academic year 2010 to 2011. The 2-semester program requires 18 credits minimum with a minimum of 500 clinical hours. The 3 "P's" (pathophysiology, pharmacology, and physical assessment) are also offered if not already completed by students in previous study, which brings the program to a maximum of 27 credits. The online course work was enhanced with Web-based interactive activities including WIMBA and Tegrity case presentations. **Evaluation/Outcomes:** Three nursing faculty (2 DNP prepared, 1 PhD prepared) and 1 DNP student enrolled and completed the initial PACE program offered during the academic year 2010 and 2011. The course evaluations of the two 9-credit hour ACNP courses were positive, scoring 4 (scale of 0-5, 5 most positive). All 4 individuals are currently preparing to take the ACNP certification examination, pass rates

pending and expected by December 2011. The CON at GHSU has gained 3 doctorally prepared faculty who have the requirements to sit for the ACNP certification exam, with the expectation that they will assume teaching assignments in the ACNP program once certified as ACNPs. Additional PACE programs will be offered in the 2011 to 2012 academic year.

### **EB85 Let's Get Moving: An Interdisciplinary Approach to Early Mobility in the Medical Intensive Care Unit**

Laurie Fitzgibbon; Aultman Hospital, Canton, OH

**Purpose:** Bed rest is commonly recommended in critically ill adults to conserve energy and maintain the integrity of tubes and catheters. Severe weakness has been recognized as a complication that may have profound and lasting consequences for patients and their caregivers. The goal of this project was to implement a 3-step early mobility program in the medical intensive care unit (MICU) as well as increase nurses' understanding of the concept and benefits of early mobility.

**Description:** The Plan, Do, Check, Act performance improvement model was used. A literature summary was compiled and barriers to implementation were evaluated. Early mobility is facilitated by change in the ICU culture, staff perceptions, and interdisciplinary teamwork that focuses on patient-centered outcomes. A survey of nursing knowledge and attitudes toward early mobility was administered to nursing staff. In collaboration with the intensivists, nursing, and physical therapy, a 3-step early mobility protocol to meet the needs of the MICU patient population was adapted from the Perme and Chandrashekar model and education was delivered to staff. In this model, the hemodynamically stable patient undergoing mechanical ventilation would progress from passive range of motion, head-of-bed elevation 45°, and turning every 2 hours in step 1 to active range of motion and chair position in step 3. A competency checklist was developed and hands-on training for passive range of motion was provided to nursing. A core group of physical therapists were selected and oriented to the MICU beds, monitors, and invasive tubes and catheters. **Evaluation/Outcomes:** Inherent to the success of any program is the multidisciplinary team. Nursing knowledge and attitudes were measured before and after education. The preimplementation survey results showed only 30% of nurses performed passive range of motion exercises on

their patients and 40% understood of the concept of early mobility. The results of the survey after education revealed that all of the nurses performed passive range of motion exercises on their patients and 98% of nurses understood the components and benefits of early mobility.

### **EB86 Making a Positive Impact: Staff Driven Initiative to “Zap the VAP”**

Cathy Hiler, Emily Turner; Carilion Roanoke Memorial Hospital, Roanoke, VA

**Purpose:** The goal of this project was to decrease the occurrence of ventilator-associated pneumonia (VAP) by increasing compliance with oral care and the VAP bundle. Evidence suggests that use of a bundle and improved knowledge among patient care providers regarding VAP will result in a change in practice, thereby reducing VAP rates. **Description:** In 2005, the 100 000 Lives Campaign introduced evidence-based clinical interventions known as a “bundle” to prevent VAP. Our unit embarked on a journey to decrease VAP by increasing compliance with oral care and the VAP bundle. Goals included reducing VAP below the national average and increasing and maintaining the VAP bundle compliance at above 90%. To achieve this goal, staff were educated about the importance of oral care on ventilator patients to prevent infection, demonstration about correct technique for providing oral care and subglottic suctioning, and accurate documentation in the electronic medical record regarding the VAP bundle. Before beginning our education pertaining to VAP prevention, a clinical assessment was given to staff regarding their knowledge base of VAP prevention strategies used in our facility. Our educational plan included the creation of a bulletin board with information regarding VAP. A live educational session was developed and scheduled at different times throughout the shifts to allow all staff the opportunity to complete this education. Other strategies used to support our effort included placing posters in each patient’s room regarding the VAP bundle, a head-of-bed elevation indicator known as an angle indicator. **Evaluation/Outcomes:** We monitor and track head-of-bed elevation and oral kit usage on a monthly basis. Our compliance rate has been at 92% to 96% with head-of-bed elevation at 30° and oral kit usage. Our unit has achieved a VAP rate of zero since January 2010. We believe that these rates were achieved as a result of education provided to staff concerning components of the VAP

bundle. Our goal is to maintain zero VAPs, thus reducing the morbidity and mortality of our patients.

### **EB87 Making It Personal: Use of a Personal Hand Hygiene System to Increase Hourly Hand Washing in an Intensive Care Unit**

Bonnie Schleder; Advocate, Good Shepherd Hospital, Barrington, IL

**Purpose:** Intensive care nurses are challenged with optimizing hand hygiene to decrease infection in an environment where time is precious. The purpose of this evidence-based project was to identify how the frequency of hand washing can be increased not just in a day, but every hour the nurse is caring for an intensive care patient. This became possible by “making it personal.” **Description:** There are 1.7 million health care–associated infections (HAIs) annually. Cultures of health care workers’ hands reveal that 100% carry gram-negative bacilli. Since hand antisepsis is known to reduce the incidence of HAIs, the World Health Organization introduced the “Five Moments of Hand Hygiene.” These included washing hands before touching a patient, before clean/aseptic procedure, after body fluid exposure risk, after touching a patient, and after touching a patient’s surroundings. To achieve this depth of hand hygiene, our shared governance council partnered with industry to develop a personal hand hygiene system with an automatic counting system. The system promoted greater hourly hand washing. Following a review of the literature, a stretch goal of 8 hand hygiene events per hour was established. The introduction of the new device followed by a 6-step adoption system was created to help caregivers achieve this goal. The adoption system included reminder e-mails, inquiries, and peer coaching. The adoption system helped to achieve sustainability. **Evaluation/Outcomes:** Using traditional soap and water and waterless antimicrobial hand gel at the doorway, a total of 38 ICU nurses’ and technicians’ baseline hand hygiene practice was measured at 3.5 hand washes per hour. Infection rates per the National Database of Nursing Quality Indicators were minimal; however, the goal was zero. The hand hygiene rate almost doubled within the first month following the introduction of the personal hand hygiene system, which the nurses attached to their pocket. Daily compliance reports were displayed on a television monitor on the unit for staff, patients, and visitors to see. Sustainability was present 7 months later (this week’s hand hygiene average



was 7.2 hand washes per hour). Zero cases of ventilator-associated pneumonia and bloodstream infections associated with a central catheter had been attained.

### **EB88 Mobility Matters, Get Up Off of That Bed: Evidence-Based Practice and Technology to Improve Mobility and Outcomes of Surgical Intensive Care Patients**

Wendy Butcher; Wake Forest Baptist Health, Winston-Salem, NC

**Purpose:** Nothing is more rewarding to a critical care nurse than to see patients who are sick progress through the health care continuum without obtaining unfavorable, often devastating hospital-acquired infections such as pneumonia. Nurses want to help patients manage their pain, communicate effectively, and have patients do well. To see patients lying in the bed for days, weak and unable to move themselves, is too often discouraging. It sometimes leaves staff with a feeling of hopelessness. What if we made mobility as high a priority as administering medications—assisting patients with range-of-motion exercises, sitting up, getting physically out of the bed and encouraging self-care? Working as a team, we can challenge the current culture of immobility to help change the mindset to one of positive productive mobility, while encouraging as much self-care as possible. The data obtained from the National Surgical Quality Improvement Project (NSQIP) revealed that our organization had opportunities to improve patients' outcomes. The report determined a higher mortality and complication rates of pneumonia and surgical site infections compared to other medical centers. Literature reports that postoperative pneumonia occurs in 9% to 40% of patients with an associated mortality rate of 30% to 46%. Immobility is widely documented in the literature as a cause of increased mortality and complications. Our surgical team's goal was to determine if the evidence-based practice of early mobilization would prevent the development of pneumonia in the postoperative patients in the surgical intensive care unit (SICU), improve patient satisfaction and outcomes, and enhance staff morale and feelings of success. **Description:** An interdisciplinary improvement team hypothesized that early mobilization in SICU patients would decrease mortality, and hospital-acquired complications as well as SICU and hospital length of stay (LOS). The quality resource outcomes staff performed a retrospective chart review of 50 postoperative

SICU patients and identified 86.3% ( $P < .001$ ) of the patients were not mobilized. Using the retrospective data from chart reviews, it was determined that 42% of the patients had a physician's order to get out of bed, but only 13.8% of the patients were mobilized. A survey of the SICU leadership and staff to determine the perceived barriers to mobilizing patients revealed that the culture of the SICU did not support early mobility. There were no clear expectations for mobility, along with a lack of accountability. The beds in the ICU can change the patient's position from laying to sitting up with knees reclined. Once this was done, the nurses documented this as sitting up in the chair. Staff did not see mobility as a priority. Nurses were too busy and too conservative, and the patients were too sick to mobilize. There were no signs of progressing toward further attempting to mobilize the patients. A lack of staff knowledge existed between the physical movement of the patient actually getting out of the bed, with pneumonia and increased LOS. The team developed patient-specific inclusion/exclusion and instability criteria to help the staff determine which patients were safe to mobilize. Evaluation for mobility started 6 hours after the patient's arrival in the SICU. Inclusion criteria were all surgery service patients, including those receiving mechanical ventilation with or without a tracheostomy. Patients with an endotracheal tube had to be cooperative and able to follow commands. In addition, physiological and specific patient population exclusion criteria were developed. Physiological exclusion criteria included heart rate greater than 120/min, systolic blood pressure less than 90 mm Hg, new/unstable arrhythmia, oxygen saturations less than 90%, fraction of inspired oxygen greater than 0.6, and respiratory rate exceeding 30/min. Exclusion criteria specific to the population of patients included new electrocardiographic changes/elevated cardiac enzyme levels, partial thromboplastin time greater than 100 seconds, international normalized ratio greater than 5, platelet count less than 10 000/mm<sup>3</sup>, open abdominal fascia, altered level of consciousness with inability to maintain posture, continuous renal replacement therapy, intracranial pressure monitoring, ventriculostomy, traction, absent spine clearance, logroll only, femoral sheath in place, use of thrombolytic agents, and endovascular procedures. Physiological stop criteria were defined and consisted of new occurring heart rate exceeding 120/min, systolic blood pressure less than 90 mm Hg, oxygen saturation

less than 88%, respiratory rate exceeding 35/min, decreased mental status, and agitation. If the patient did not meet criteria for any of the parameters just listed, reevaluation occurred every hour so that nursing staff were looking for the earliest and safest opportunity to mobilize the patient. All bedside staff was educated one on one about the need to get patients physically out of the bed, the complete process, expectations, and documentation requirements. Collaboration with nursing clinical systems before the go-live date resulted in a revised computerized physician order entry screen. The orders defaulted at 6 hours postoperatively to mobilizing the patient to a chair twice a day. The team also developed documentation in the patient's electronic medical record to include the patient's activity. Day and night charge nurses were trained to collect data for the project including patient demographics, activity orders, exclusion criteria if present, and patient activity during the shift. The education was multidisciplinary and included staff nurses, nursing assistants, house officers, and surgeons. Proper equipment availability and leadership support were completed before the pilot study. The pilot study included 50 postoperative SICU mobilized patients who met the inclusion criteria. Feedback on the percentage of patients who met the criteria and were mobilized was provided. **Evaluation/Outcomes:** The improvement outcomes contributed to a decrease in hospital mean LOS of 4.9 days and ICU mean LOS of 2.2 days ( $P \leq .005$ ). Average ventilator days decreased 1.4 days ( $P = .005$ ) and a 71.4% reduction in mortality ( $P \leq .005$ ); there was also a 33.3% ( $P \leq .004$ ) increase in home discharges. Additionally, in the 2005 NSQIP database, the medical center was a high outlier for both mortality and pneumonia in the general/vascular surgery patients. Through the implementation of house-wide mobility, the 2010 NSQIP data reflected a 69% (% absolute difference) decrease in mortality and a 33.3% (% absolute difference) decrease in pneumonia just within our general/vascular surgery patients. Staff thrives from feedback; therefore, disseminating the results was a top priority. The results have been an amazing staff morale booster. Not a moment goes by now that our bedside critical care staff is not looking for a moment when they can safely get the patients up out of the bed. With the success of this pilot, it is not uncommon now to see staff routinely assisting with ambulating critical care patients. A critical care nurse walking a patient who has been in

the ICU for an extended period in the open bay area, with a portable monitor is amazing, and a true feeling of success. Mobility is a top priority for the patient and has been formally incorporated into the daily goal sheets that are completed on every patient daily during interdisciplinary rounds. The team was able to calculate at least a \$250 000 total savings in the 2-month pilot phase in 1 unit. Based on our team findings, a rollout of the mobility plan to 2 other SICUs, and IMC occurred. At the 1-year evaluation, a total of 1975 hospital days were saved. A mobility campaign has since been launched house-wide, with phenomenal results. A music video was directed and produced by nursing clinical systems with staff from all levels and hospital departments as actors to motivate and inspire staff to help get patients up and moving. The standard of care and culture has been changed hospital-wide so that the default and expectation is for patients to get out of bed at least twice a day at minimum, as soon as safely possible, from admission to discharge. In conclusion, mobility does matter. Evidence-based practice along with staff participation and enhanced technology, is a winning combination for members of the health care team, but most of all for our patients for whom we have been blessed to provide care.

#### **EB89 New Graduate Nurses in the Pediatric Intensive Care Unit: One Unit's Experience**

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

**Purpose:** In 2005, the pediatric intensive care unit (PICU) needed to hire more nurses. However, the only area of hiring with sufficient numbers was within the new graduate nurse pool. The orientation provided to new graduate nurses in the PICU at that time was long (6 months), inefficient, and would not support increasing the number of new graduates hired on a yearly basis in the PICU. **Description:** In 2006, the ICU implemented a unit-based orientation educator who would partner with a learning specialist and the nurse manager to provide more hands-on management and interaction with newly hired staff in the PICU. The new orientation process included central orientation, dedicated time with the unit educator to review critical care basics and system processes, critical care and new graduate classes, and precepted time on the unit. Ongoing management and follow-up during the orientation process was conducted regularly. Reduction in the number of preceptors for

each orientee was highly prioritized. The orientation plan was changed to a 16-week initial orientation covering intermediate level patients and stable ICU-level patients with a planned higher acuity orientation to be done 9 to 12 months after hire. **Evaluation/Outcomes:** Data collected demonstrate a 40% reduction in overall orientation time for the new graduate nurse and high 1-year retention rates (95%). With the success of this unit-based orientation model, restructuring of clinical orientation/education was done throughout the facility. The creation of a clinical development specialist program in 2008 embedded clinical nurse educators attached to nursing units within specific specialty areas. This program has allowed closer work with new nursing staff during orientation and on an ongoing basis, and remodeling of orientation with implementation of a learning management system and electronic documentation of orientation.

### **EB90 New Practice Guidelines Regarding Mobility of Patients With Left Atrial Catheters**

Jamie Gilliam, Tonja Hartjes; Malcom Randall Veterans Affairs Medical Center, Gainesville, FL

**Purpose:** The purpose of this evidence-based project was to improve outcomes in coronary artery bypass graft (CABG) and/or valve surgery patients in our ICU. Outcomes were collected on average length of stay (LOS), hours of mechanical ventilation, and early mobilization of patients. After comparing our outcomes to national benchmark data, an interdisciplinary team was formed to standardize care in order to improve outcomes. After consulting the professional literature, we found that fast-tracking or rapid recovery processes were used in many facilities. This process demonstrated improved outcomes in LOS and an overall reduction in health care costs. A CABG/valve interdisciplinary clinical pathway was developed to standardize the care in this cohort of patients with goal of improved clinical outcomes. Two initial goals included (1) extubation within 4 hours, and (2) advancing the postoperative cardiac surgery patient's activity level from out of bed to a chair approximately 2 hours after extubation if hemodynamically stable. **Description:** The initiation of this new clinical pathway included a substantial change in practice related to the mobility of patients with invasive catheters. It has been our practice not to mobilize patients with left atrial catheters (LACs) in place. The clinical pathway recommends that invasive catheters should be discontinued early in the recovery

period. This typically occurred on postoperative day 1, if the patient was hemodynamically stable. Patients were also expected to be mobilized after extubation within hours, even if invasive catheters remained indwelling. One of the invasive catheters used by our cardiothoracic surgeons included an LAC. Historically, care of the patient with an LAC has been very cautious. Before implementation of the pathway, postcardiac surgery patients were not assisted out of bed until the LAC was discontinued by the surgeon on postoperative day 1 or 2. Patients would remain on bed rest for greater than 24 hours postoperatively. We began with a review of the current hospital policies, procedures, and standards of care related to the nursing care and maintenance of LACs. Our facility uses the 2011 *AACN Procedure Manual for Critical Care*, which does not provide any evidence-based information or guidelines regarding mobility for the patient with an LAC. Lippincott 2010 is used for all other nursing procedures within the hospital. This site was also reviewed, and no information regarding the care of patients with LACs was found. Next we reviewed critical care textbooks to evaluate care practices related to patients with invasive hemodynamic catheters. Again, no information or guidelines regarding mobility of patients with LACs was found. We also attempted to locate any national guidelines regarding the care and mobilization of patients with LACs: none were located. Furthermore, we decided to query several large tertiary care hospitals in the southeast regarding their practice of mobilizing patients with hemodynamic catheters in place. None of the facilities queried mobilized these patients, but their practice was not evidence based. After completing those reviews, we proceeded to complete an exhaustive search of scientific literature. Only a small number of publications address LACs. These articles included a few retrospective, descriptive medical studies and educational nursing articles. In an effort to ensure a comprehensive review of the literature, the reference lists of the AACN procedure manual, textbooks, and journal articles were also reviewed for additional sources. We found scarce empirical research related to LACs. No research or information was found regarding guidelines or recommendations on the mobility of the patient with an LAC. Santini et al describe that complications with the use of LACs can be reduced by consistent care and management of LACs. The 2011 *AACN Procedure Manual for Critical Care* was used to standardize the care of patients with LACs. Nursing staff

were educated about the standards of care related to the care of patients with LACs and about the potential complications with their use. The cardiothoracic surgeons also participated in education and support of the nursing staff as we mobilized patients with LACs. In addition, patients who had hemodynamic instability, excessive bleeding postoperatively, or coagulopathies were not considered for mobilizing out of bed with the LAC. The change in culture and practice by the nursing staff was a lengthy investigational and educational process. The nurses were understandably resistant to the change based on the current practices. The cardiothoracic surgeons were very helpful in implementing this change in practice. The surgeons were available to answer staff members' many questions and concerns before the practice change was implemented in our facility. **Evaluation/Outcomes:** This change in practice, mobilizing patients out of bed with LACs, was implemented on June 1, 2010. From June 2010 until July 2011, a total of 233 CABG and/or valve surgery patients have been initiated on the clinical pathway upon arrival to the ICU. Initially outcomes were monitored on a daily basis. Unit data are now collected on a quarterly basis due to improved outcomes and absence of complications related to mobilizing patients with LACs. Recently postimplementation outcomes have been compared with national standards of care for postoperative cardiac surgery patients and the results show that our patient population is approximately the third lowest in the nation in extubation times for CABG/valve patients and the lowest in the nation in postoperative mortality. Nursing staff and other team members, as well as the cardiothoracic surgery team, continually verbalize satisfaction with the clinical pathway based on improved communication processes and improved quality of patient care and outcomes. Outcomes data are shared with staff monthly and the staff and entire interdisciplinary team are praised for performance improvement. The clinical pathway has been in use for more than a year now. The long-term integration and sustainability can be witnessed through new computerized order sets, updated patient education handouts available on the intranet and in the patient care units, as well as the interdisciplinary staff's knowledge and appreciation of the process changes.

### **EB91 Optimizing Outcomes: The Healthy Work Environment Initiative in a Pediatric Medical Surgical Intensive Care Unit**

Dennis Doherty, Jean Connor, Aimee Lyons; Children's Hospital Boston, Boston, MA

**Purpose:** The AACN identified systemic behaviors essential for establishing and maintaining a healthy work environment. These behaviors are organized into 6 evidence-based standards. The purpose of this initiative was to explore and understand staff perceptions regarding the health of the work environment in a pediatric medical surgical intensive care unit (MSICU).

**Description:** In 2010, the pediatric MSICU distributed the AACN healthy work environment electronic survey to 163 interdisciplinary staff. The survey provides a quantitative assessment of the 6 domains of the AACN's healthy work environment framework. Scoring guidelines range from 1 to 2.99 (needs improvement), 3.00 to 3.99 (good), to 4.00 to 5.00 (excellent). Focus groups were then conducted to explore the responses further. All sessions were audio taped and transcribed verbatim. Content analysis was used to analyze qualitative data and emergent themes. Staff initiatives to enhance the work environment were then identified. **Evaluation/Outcomes:** The response rate was 55% (n=89). The MSICU score for the 6 domains combined was 3.78, staff perceived the health of the work environment to be "good." In the domains of skilled communication (3.85), true collaboration (3.81), meaningful recognition (3.62), effective decision making (3.98), appropriate staffing (3.61), and authentic leadership (3.82). Focus groups revealed themes on recognition in terms of vacation, time away from unit, efficient and effective communication from leadership, and appropriate number and skill of staff at bedside. Unit initiatives included a revision of vacation requests, increase in direct care staffing levels, and restructuring of communication from leadership.

### **EB92 Oral Care: Not Just for Intubated Patients Anymore! Implementation of an Evidence-Based Oral Care Protocol**

Maryellen Paton, Amelia Ross; Cone Health, Greensboro, NC

**Purpose:** Poor oral health can have a negative effect on overall health. Effective oral care for patients includes an oral assessment, brushing, use of mouthwashes as recommended, and mouth moisturizers as necessary. While oral care at our hospital was well defined for ventilator patients, practice was inconsistent for nonintubated, acute or critically ill patients. A multidisciplinary



team was convened to evaluate current practice and develop evidence-based guidelines for oral care. **Description:** Our team included nursing representation from oncology, palliative care, and critical care; and a respiratory therapist, pharmacist, dentist, and speech therapist. A gap analysis revealed that oral care for nonintubated dependent patients was performed sporadically and viewed as a comfort measure only; current products were no longer recommended as best practice, and there was no tool readily available for routine oral assessment. An electronic survey of all nurses and nurse technicians revealed that although many thought that oral care was a priority, an oral assessment and care were documented less than 50% of the time. The AACN practice alert on oral care in the critically ill, and a CINAHL evidence-based care sheet on oral care of hospitalized patients were used as the foundation for our comprehensive oral care protocol. The protocol includes an oral assessment tool, to be used on admission, at transfer, and at any change in the patient's condition. The assessment findings guide the frequency of oral care and the selection of antiseptic and/or antimicrobial oral rinses. A computer-based learning module was developed for both nurses and nurse technicians; education also occurred during shared governance meetings, grand rounds, and unit huddles. **Evaluation/Outcomes:** Best-practice oral care products were brought into our hospitals; and products such as lemon-glycerine swabs and hydrogen peroxide-based oral rinses were removed. The assessment tool was approved as a nurse-driven protocol and provides documentation of the oral assessment in addition to generating an order for the antimicrobial oral rinse if needed. Implementation occurred across 4 hospitals in our network. Early anecdotal observations reveal increased use of oral care products and documentation of oral assessments. A postimplementation survey on attitudes toward oral care and evaluating practice will be conducted in 6 months.

#### **EB93 Patient and Family Satisfaction With Condition O: Obstetric Crisis Management**

Karen Stein, Patricia Dalby, Gabriella Gosman; Magee Womens Hospital of UPMC, Pittsburgh, PA

**Purpose:** To assess patient and family satisfaction during a Condition O. Condition O was implemented in 2005 at Magee-Womens Hospital of UPMC and the goal was to emulate success of similar medical emergency

teams. Response times and efficiency of care have improved, but there remains a concern about the reaction of the patients and their families to large numbers of responders suddenly appearing at a delicate and personal time in their maternal-fetal care. **Description:** Since the process of delivering emergency obstetric care by the use of a rapid response team is remarkably similar to the care delivered in ICUs, we chose to modify Wall's validated tool known as the Family Satisfaction in the Intensive Care Unit questionnaire (FS-ICU) in order to measure patient and family satisfaction after an emergent obstetric crisis. Initial questionnaire administration is within 48 hours, with an optional repeat administration for reliability within 24 hours or after the initial emotional reaction is over, to further validate the questionnaire tool. There is a separate patient and family satisfaction survey graded on a 5-point Likert scaling system (1 = excellent to 5 = very poor, or the equivalent). Survey topics include caregiver concern for the patient, coordination of care, pain assessment and management, competency of physicians and nurses, atmosphere of facilities, communication, and a separate question relating to patient anxiety and control of care. **Evaluation/ Outcomes:** To date 25 patients and families have been surveyed. All median responses by patients and families have been in the 2 range, thus positive in nature. Most common responses have been "I felt really frightened but reassured that care was coming" and indicated that they felt that the health care system did take control of their care. The most common improvement suggestion was for better communication of the crisis team with the patient and family during the event. In response to this suggestion, we have integrated a patient/family component in our team training simulation course and we will follow up with the questionnaire to note if improvements occurred.

#### **EB94 Patient Safety: Restraint Reduction, Restraint Elimination, and Best Practice**

Richard Arbour, Anna Kirk; Albert Einstein Healthcare Network, Philadelphia, PA

**Purpose:** Devices such as soft wrist restraints, mitts, and vests are used for falls reduction and preventing device removal. Evidence shows risk of injury and device removal despite restraint use. Baseline quality data for restraint prevalence for the surgical step-down unit (SSU) was 5.08% and for the surgical intensive care unit (SICU) was 25.93%, significantly above the National Database of

Nursing Quality Indicators (NDNQI) mean. Project purpose was to sustain decreased restraint use to below the NDNQI mean and maintain patient safety with the least restrictive means. **Description:** This multiphase project was initiated in the SSU. Phase 1 consisted of restraint rounds in which the advanced practice nurse (APN) facilitated detailed, multidisciplinary assessment of each restrained patient. A critical thinking conversation would then be conducted between the APN and bedside clinician based on the assessment data. Patients were continuously reevaluated for treatable causes of agitation and continued need for restraints. Phase 2 followed enculturation of reevaluating restraint use in the SSU, consisting of trying less restrictive measures such as mitts, padded belts, and elbow splint devices. A collaborative and critical thinking approach was again used among the APN, bedside clinician, and physician team members. This was welcomed by the SSU staff as less restrictive devices were introduced. After a successful 4-month trial period, phase 3 was started, expanding the restraint initiative, including less-restrictive devices house-wide, including surgical/trauma critical care areas. Introducing this initiative to staff required education and reinforcement, integration of restraint orders, and documentation into computerized charting and restraint rounds by the APN, charge nurse, physician team members, and staff restraint champions. **Evaluation/Outcomes:** Phase 1 resulted in decreased restraint prevalence in SSU from 5.08% to 3.57%. Phase 2 resulted in further decline in restraint prevalence from 3.57% to 1.67%, below the NDNQI mean. Network-wide expansion in phase 3 within the SICU resulted in a dramatic decline in wrist restraint prevalence from 18.19% to 7.12%. Data were also collected on the new devices and there was a 7.35% mitt usage and a 3.44% arm immobilizer usage (also below the NDNQI mean). The restraint initiative is a success as measured by a consistent, significant decline in restraint use to below NDNQI benchmarks without concomitant increase in patient falls or medical device removal.

#### **EB95 Pediatric Early Warning System and AWARE Team Reduce Emergent Events in General Pediatric Units**

Mary Carmichael; Helen DeVos Children's Hospital, Grand Rapids, MI

**Purpose:** Despite implementing a rapid response team, an unacceptable rate of sudden deterioration on

general pediatric units remained. Several innovative, technological strategies were developed to address barriers to early recognition and response to sudden deterioration. A key strategy was to introduce an electronic, conditional-logic-driven pediatric early warning system (PEWS), where nurses derive a PEWS score initiating a distinct pathway for interventions. An advanced warning and response event (AWARE) team was also implemented. Standardization in assessment, communication, and early response has resulted in a reduction of intimidation behavior when escalating care concerns, and a 53.6% reduction of code events outside the ICU. **Description:** A multidisciplinary team implemented an electronically driven PEWS to address barriers to early recognition of deterioration in acute care patients. Clinical variables most predictive of physiological decline were defined and built into the electronic medical record. An age-based scoring tool is used by nursing to document the appropriate score for each patient. Based on the PEWS score, a series of electronic algorithms standardize the response for the multidisciplinary team. These algorithms prescribe the action that the nurse should take to access further resources without the fear of intimidation. A patient with a high risk of deterioration activates an AWARE team for further evaluation. An electronic PEWS whiteboard, created by using modern Web technologies together with Cerner technologies, allows clinicians to maintain continuous awareness of which children on the unit are most at risk for sudden deterioration. The PEWS uses technology innovatively and to its advantage. Conditional logic features have profoundly affected system functionality. Features included are age-based scoring tools, scheduling of patient reassessment on the basis of prior PEWS score, intervention prescriptions based on assigned score, and visualization of current patient scores via electronic whiteboard. **Evaluation/Outcomes:** The PEWS and AWARE team has helped staff recognize earlier signs of patient deterioration and seek an appropriate level of response without fear of intimidation. Training for this program began in June 2010 and was completed in July. The PEWS and AWARE programs were implemented in September. Compared with the year before PEWS implementation, there has been a 53.6% reduction in non-ICU code events. Every AWARE team response is evaluated by the Pediatric Rescue Committee. Behavior and communication of the AWARE team is reviewed. Reports of intimidation associated with

these team responses have decreased significantly. Much impact has been noted regarding the use of technology to its full capabilities. Clinically, AWARE team activations are reviewed to determine system functionality. With the primary goals achieved, it was noted that the process still required modifications to meet some specific needs. To combat some of the challenges noted by the providers, the following modifications have been made: Evaluated the algorithms to ensure that resources are not overburdened; evaluated the clinical criteria standards to ensure that normal variation is not overcaptured; reinforced communication between members of the AWARE team and primary service providers; expanded PEWS to determine that appropriate patient placement is underway. PEWS will be used before transfer from higher acuity care areas such as the pediatric ICU, emergency department, and postanesthesia care unit to determine readiness for transfer or to communicate about children at increased risk who are being admitted to general pediatric units.

#### **EB96 Preventing Iatrogenic Anemia by Minimizing Phlebotomy Blood Loss Through the Use of 3-Way Stopcock**

Kathleen Genito-Tamaray, Harriet McGinnis; Mission Hospitals, Asheville, NC

**Purpose:** Obtaining blood for laboratory purposes from patients with central catheters requires the aspiration of 5 to 10 mL of blood for waste purposes each time the catheter is accessed. This specimen, termed as “discard blood,” is necessary to clear the intravenous catheter of any infusates for accurate results. This repeated procedure, frequently practiced in the ICU can result in phlebotomy blood loss (PBL). This can lead to iatrogenic anemia, necessitating blood transfusion (BT). **Description:** Acutely ill patients lose 40 to 70 mL/day of discard blood. This additional loss is estimated to decrease the hemoglobin level by 0.5 g/dL per day. ICU patients experience a standard “discard blood” of 69 to 73.9 mL/day. About 85% of US patients with a mean ICU length of stay (LOS) of greater than 1 week received at least 1 BT. The current cost of a unit of packed red blood cells (PRBCs) is \$200, but the actual total cost of infusion can be \$1600 to \$2400 because of testing, transfusion cost, additional LOS, and other administrative charges. Research has proven that the proper use of 3-way stopcock is efficient, safe, and cost-effective in preventing PBL. Use of this phlebotomy technique on patients with a central catheter

allows the staff to return the “discard blood” aseptically instead of wasting it. Rogers’ Diffusion of Innovation Theory was used to guide the implementation of this evidence-based practice project. Involving key leaders and staff reinforced buy-in. Staff’s education was enhanced by using the “train the trainer” strategy. A graphic brochure containing research data about PBL and BT was used as an educational tool. Training was done during working hours, offsetting cost of education time held in a nonworking day of the staff. **Evaluation/Outcomes:** The ICU staff used the 3-way stopcock as part of their phlebotomy practices starting in January 2009. Data on volume of blood transfused to ICU patients per year were used as an outcome measure. A steady volume decrease was noted with implementation of the stopcock procedure. Total transfusion volumes for 2007 and 2008 averaged approximately 180 000 mL. Blood loss for the 11-month stopcock implementation period in 2009 was 120 216 mL with a total volume savings of 58 901 mL of red blood cells. This savings equates to 196 units of PRBCs, with an estimated savings of approximately \$400 000.

#### **EB97 Production of Multimedia Burn Care Education for Nurses by Nurses**

Rachel Milkowski, Sarah Taylor; University of Michigan, Ann Arbor, MI

**Purpose:** As a part of disaster preparedness efforts for the State of Michigan, the Trauma Burn Center at the University of Michigan was named the State Burn Coordinating Center. In the event of a burn mass casualty incident, nurses and health care professionals need easy access to standardized education and resources. Detailed training modules were created by burn care nurses in order to facilitate the needs of the complex nature of burn care education. **Description:** The University of Michigan Trauma Burn Center assembled a committee of experienced wound care nurses to review current education opportunities as well as create new educational forums. The nursing wound care team created multimedia educational burn wound modules. The modules educate health care personnel from outside the burn center to provide initial care for burn patients in the event of a mass disaster or local incident. Successful burn care requires unique interventions that may not be readily available at all institutions. In order to achieve optimal outcomes, burn patients should be evaluated by

a burn care specialist. Burn centers can use the educational modules to train new and inexperienced health care providers to care for the burn population. PowerPoint presentations were created for wound care of each anatomical region of the human body. In addition to dressing procedures, modules were created to depict other important aspects of burn care, including wound debridement, pain and sedation, fluid resuscitation, and nutrition. Each presentation was further assembled to include video footage and photographs of actual wound debridement and dressing changes accompanied by voice-over narration to create a multimedia educational experience. **Evaluation/Outcomes:** Wound nurses at the University of Michigan Trauma Burn Center use the educational modules as part of the new nurse orientation process to supplement hands-on training at the bedside. Statewide mass casualty training courses using the modules occur approximately 4 times per year. Outcome of the modules is currently under evaluation via a posttest and survey. The posttest includes questions to test the knowledge acquired through the educational modules. The survey is a questionnaire designed to provide a forum for feedback regarding clarity, conciseness, and effectiveness of the modules.

#### **EB98 Promoting Safety When Working With Forensic Patients**

Ann Goheen, Natalie Correll-Yoder, Barbara White-stone; Queen of the Valley Medical Center, Napa, CA

**Purpose:** Personal safety must be a high priority when caring for patients from prison or psychiatric facilities. There have been documented reports of prison/forensic patients attacking, seriously harming, and even killing the clinical staff caring for them. Our goal was to promote safety when dealing with these patients, as the potential for violence is present, and to establish guidelines for care of the forensic patient, both inside our locked unit and out on the floor. **Description:** The nursing staff in the forensic unit had received training but they identified a lack of awareness by nonforensic nursing staff caring for these patients. One mistake could jeopardize the safety of all staff in the unit. Staff gathered all available policies and guidelines from the California Department of Corrections and Rehabilitation and the State Hospital. Officers and staff from the 2 facilities were interviewed, and custody information was gathered to differentiate the levels of security. There was

a review of the literature to identify other evidence-based practices used to promote safety of clinical staff. An evidence-based handbook was created to provide pertinent information regarding basic safety and guidelines for the management of forensic patients. It also described the importance of consistent care practices in order to establish limits and avoid manipulative behaviors on the part of the forensic patients. All staff received a copy and addition education during an annual skills fair. This booklet is now a standard part of hospital orientation of all new employees. **Evaluation/Outcomes:** Violent situations had previously occurred both in the forensic unit and on the regular medical surgical floors before the implementation of the handbook. The forensic staff participated in the handbook education process and provided real case examples of how to manage forensic patients. The education was rated as very effective by hospital staff. No violent situations have occurred since the handbook rolled out. Forensic staff have seen more consistent practices in the care of the forensic patient. Standardization has improved staff safety. The Joint Commission has recently identified the handbook as a best practice to be displayed on their Web site.

#### **EB99 Putting Noise to Sleep**

Rebekah Daniels, Lorna Baker, Elsa Barilec, Lynn Kelly, Jacqueline O'Brien, Renee Simpson; Moffitt Cancer Center, Tampa, FL

**Purpose:** Our evidence-based practice committee recognized that delirium was an ongoing problem for our ICU patients. The literature review revealed that 50% of the articles addressed noise as a contributing factor. We decided to focus on this common aspect of delirium causation and to identify, implement, and evaluate interventions to reduce noise levels. **Description:** According to the literature reviewed, noise levels in ICUs were consistently measured over the recommended guidelines from the Environmental Protection Agency and the World Health Organization. Their recommended noise levels were not to exceed 30 to 45 dB. We initiated a noise reduction program that included educating persons with a stake in the process. In February 2011, "Quiet Time" was instituted from 3 to 4 PM and 2 to 4 AM. This entailed addressing both environmental and human factors, for example, dimming lights, decreasing phone volumes, limiting visitation, use of ear plugs, and awareness of alarm volumes (bedside and central). Our



overall goal was recognizing and providing a quieter environment to promote rest. The “Visitors Guide” was revised to communicate the value of a quiet environment and the importance of patient rest. Delirium education boards and Quiet Time signage were posted in the ICU for staff and family. To evaluate effectiveness of program, noise levels were measured every 4 hours for 1 week in December 2010 and repeated every 4 hours for another week in July 2011. A staff survey was conducted after the program had been in effect for 6 months. **Evaluation/Outcomes:** Our noise reduction program was successful with episodes of noise levels greater than 70 dB reduced by 50%. Mean levels decreased by 10 dB on all shifts. Delirium decreased by 7.8% during the 6-month period. Staff survey revealed 80% felt Quiet Time was beneficial to patients and 70% thought ample education was received regarding importance of noise reduction in delirium prevention. Staff and family readily participated, with staff reporting increased satisfaction in meeting the patient’s needs. Most families respected Quiet Time and recognized importance of rest periods. Future nursing interventions for noise reduction and delirium prevention are now being planned.

### **EB100 Rapid Response Teams to Systemness and Beyond**

Michelle Woodham; OhioHealth, Columbus, OH

**Purpose:** On a journey to “systemness,” 6 local hospitals in our system have set a goal to standardize nursing practice. Each campus with long-standing rapid response teams (RRTs) had a slightly different process and no standard way to identify patients’ deterioration. Primary goals of this project were in alignment with the Institute for Healthcare Improvement’s 5 Million Lives Campaign: to intervene early, reduce codes outside of critical care, and reduce mortality. Secondary goals were to standardize the team and when the team is activated. **Description:** The cross-campus RRT team included representatives from each hospital. The team completed a literature search of best practice and reviewed data from each campus’s RRT outcomes. Although each hospital had a long-standing RRT in place, they were all slightly different and none had a standardized way to identify patients’ decompensation. RRT teams were standardized to include a critical care nurse, a respiratory therapist, and a hospitalist. A policy and preprinted physician orders were created to standardize the process. Literature

review revealed that best practice includes use of a validated scoring system to identify patients’ deterioration and implementation of an action algorithm based on their score. The Modified Early Warning System (MEWS) was selected as a validated tool for use among our 6 hospitals. MEWS, which takes less than 1 minute to complete, is calculated by nurses at least twice per day and followed by an action algorithm outlining next steps. These steps may include more frequent checking of vital signs, notifying the attending physician, the RRT nurse, and/or the entire RRT. Nurses are instructed to activate the RRT any time they have a concern, regardless of the MEWS score. **Evaluation/Outcomes:** A 3-month pilot study, including a nursing unit from several hospitals, had promising results. There was a 3-fold increase in RRT calls with implementation of the MEWS tool. About 76% of RRT calls required intervention, which prevented further decompensation of the patient, and codes for these units decreased 70%. Nursing feedback was very positive regarding ease of calculating MEWS scores and having an action algorithm to rely on when identifying deterioration of a patient’s condition and contacting the RRT. Our pilot project has raised the bar in patient safety. As a result, we have educated all staff and standardized this process throughout all of our campuses.

### **EB101 Reading the Wave of Fluid Responsiveness With Pulse Pressure Variation**

Glenn Allan; Harborview Medical Center, Seattle, WA

**Purpose:** Establishing the evidence-based use of pulse pressure variation (PPV), a dynamic variable, as a determinant of fluid responsiveness, in the treatment of hypoperfused patients with sepsis receiving mechanical ventilation in the critical care setting. Guidelines were developed to assist in the fluid management of patients with sepsis presenting with shock, and training was conducted with the bedside nurses and resident physicians in implementation. **Description:** Sepsis is one of the leading causes of death in ICUs and is considered one of the most difficult conditions to manage. Early goal-directed therapy for the treatment of severe sepsis and septic shock has become an accepted evidence-based practice. However, it continues to rely on the static variable of central venous pressure as a predictor of fluid responsiveness, a parameter that has proven to be unreliable. New evidence supporting the use of dynamic variables, such as PPV, in patients receiving mechanical

ventilation can be incorporated into current sepsis bundles to assist in determining fluid responsiveness of patients in severe sepsis and septic shock. Educational initiatives began in 2009 in the medical/cardiac ICU at the bedside using the LiDCO system with the nursing staff, attempting to determine the ease of use and implementation into care of patients with sepsis. As bedside nursing staff became more proficient in monitoring PPV, nurse and physician champions expanded training into nurse and resident orientations and continual education for established caregivers (eg, case reviews, clinical skills days). **Evaluation/Outcomes:** Use of PPV in the treatment of hypoperfused patients with sepsis receiving mechanical ventilation is fully integrated into the care provided at Harborview Medical Center. It is integrated into patient care as part of our sepsis-bundle order set, as part of the nursing report during daily bedside rounds. It is integrated into our hospital training for new and established ICU nurses, and in the monthly orientation of ICU residents. Monthly sepsis case reviews are also held for all staff to assist in quality improvement. Staff satisfaction and experience in using and presenting data from PPV measurements are improved. Additionally, Harborview was awarded the 2011 Qualis Patient Safety Award for our sepsis program.

#### **EB102 Red Zone Medication Safety Initiative in the Cardiac Intensive Care Unit**

Jeanne Ahern, Ruth Brediger, Moira Carroll, Jean Connor; Jodi Coombs, Jennifer Engel, Elizabeth Papadopyianis; Children's Hospital Boston, Boston, MA

**Purpose:** The reduction of medication errors is a national patient safety goal. Children's Hospital Boston's objective is to decrease the number of medication errors that occur yearly. As a means to accomplish this objective, the Red Zone Medication Safety Initiative was created. The goals of the Red Zone Medication Safety Initiative include the reduction of medication errors. **Description:** Using Six Sigma and Change Acceleration Process frameworks, a baseline assessment of number and type of medication events was done. Qualitative methods were used to engage staff in the process and collect their perceptions of medication events and the possible solutions for averting medication errors. Content analysis was used to organize collected data into domains of current structure, process, and logistics of the unit. Strategies were developed and implemented

within the cardiac intensive care unit (CICU) in the first year: (1) Team identified a common language and script for nurses to be confident in asking for interruption-free time to give report, double-check medications, initiate a new medication, or prepare for a procedure. (2) Red zone group educated staff nurses, physicians, respiratory therapists, pharmacists, and administrative assistants about the need for distraction-free time through letters, posters, and in services. (3) Red zone group created a red zone logo for floor decals, identification cards, and posters. (4) Began standardizing all 4 medication Pyxis. (5) Created a plan to measure implemented initiatives. **Evaluation/Outcomes:** Medication errors in 2010 (n=79) have decreased by 37% when compared with medication errors recorded in 2009 (n=124). Postimplementation data on medication errors at this time show a decrease in medication errors. This initiative exemplifies how direct caregivers were actively engaged in improving patient care.

#### **EB103 Reducing Nosocomial Infections by Creating an Infection Control Committee in the Surgical Intensive Care Unit**

Melissa Browning, Ann Lough, Benson Wright; Rush University Medical Center, Chicago, IL

**Purpose:** Nosocomial infections are one of the leading causes of death and contribute to increased costs and lengths of stay in the hospital. Fortunately, such infections are mostly preventable. Because of the magnitude, it is every single health care provider's responsibility to work on efforts to reduce the occurrence of nosocomial infections. In the surgical intensive care unit (SICU), an infection control committee was formed to focus of reduction of ventilator-associated pneumonia (VAPs), catheter-associated urinary tract infections (CAUTIs), and central catheter-associated bloodstream infections (CLABSIs). **Description:** A multidisciplinary approach is required to reduce nosocomial infections so a unit-based infection control committee was formed in the SICU. Membership includes nurses, managers, clinical nurse specialists, respiratory, medical director, intensive care practitioner, and researcher. The committee has implemented many new initiatives. We provide an infection control "tip of the month." Journal clubs have been done on preventing nosocomial infections. A respiratory flow sheet was created by the group for our electronic medical record so that all disciplines could

easily find this information and document in 1 place. For prevention of CAUTIs, the focus has been on reducing urinary catheter dwell time. This has been included as a discussion point for daily rounds. An audit was created for central catheter insertions to ensure all bundle components are met. During a CLABSI review, it was found that blood cultures were not done consistently. The committee revised the policy and educated the entire staff. Compliance with the VAP bundle is also monitored on the basis of audits of real-time head of bed/2 suction sources and documentation of oral care. **Evaluation/Outcomes:** Success is not based solely on decreased infections but also on the adoption of best practices. Head-of-bed placement and use of 2 suction sources to prevent VAP has been in 100% compliance for the last 4 months and greater than 90% for the last 7 months. Demonstrating a significant reduction in catheter dwell time, the SICU urinary catheter utilization ratio has been below the NHSN 10th percentile since February 2011 and below the 25th percentile since April 2010. From February to May 2011, there were no VAPs. From November 2010 to July 2011, there have only been 2 CLABSIs. Central catheter dressing audits have shown more than 90% compliance from January to June 2011 (dry, clean, intact, dated, and biopatch on).

#### **EB104 Reducing Pediatric Intensive Care Unit Central Venous Catheter Infections Through Simulation**

Kristina Burger, Kentlee Battick, Kristen Celona, Christina Mize; All Children's Hospital, St Petersburg, FL

**Purpose:** The goal of this evidence-based project was to reduce central venous catheter (CVC) infections in the pediatric intensive care unit (ICU). The unit had experienced a spike in CVC infections during a 3-month period, despite having a standardized policy for CVC maintenance and dressing care. Both patient safety and lack of reimbursement contributed to the prioritization of this project. The goal was to use current education techniques to reinforce and support current policy and practice with nursing staff. **Description:** The evidence-based solution consisted of a blended learning approach to competency using David DeLong's (2004) framework for knowledge retention. The competency included review and quiz completion of the vascular access policy before completing the simulation component. Simulation has contributed to knowledge retention and recall.

Additionally, the computer-based learning system was used to have staff complete learning modules on dressing changes and prevention of CVC infections. Objectives were established incorporating Bloom's Taxonomy (2011) domains of learning. Outcomes were measurable and focused on skill competence, critical thinking, general knowledge, and clinical relevance. A team approach was used consisting of the unit clinical leaders, staff nurse/CVC task force member, and advanced education specialist. The goals and objectives were developed and opportunities for competency demonstration were scheduled for all staff nurses. A CVL simulator was used to allow staff to complete skills including dressing change, cap change, and use of personal protective equipment. All staff attended the competency within 3 weeks and completed components for each staff member are kept on file. **Evaluation/Outcomes:** The outcomes measured included successful completion of competency components (100% of staff), with 3 staff members requiring minor remediation of documentation. Ongoing observation audits have shown overall improvement in all aspects of CVC care; especially in dating the dressings and dressing changes being completed as per policy. All staff were able to critically think and verbalize through a scenario regarding dressing reinforcement. CVC infection rates have decreased in the first month immediately following the simulation from 19.01/1000 catheter days to zero infections. Although we remain above our hospital's goal of fewer than 2.5 infections per catheter day (mean 3.0), audits continue for tracking and trending.

#### **EB105 Reducing Surgical Site Infections in Cardiac Surgery Patients**

Marsha Miles; Baptist Medical Center, Jacksonville, FL

**Purpose:** Mediastinitis is a devastating postoperative infection for cardiac surgery patients. Patients diagnosed with mediastinitis require an average of 30 additional hospital days, at least 1 additional surgical procedure and are at risk for health care-associated infections such as ventilator-associated pneumonia (VAP) and central catheter bacteremia. In early 2009, our cardiovascular surgery team identified an increase in surgical site infections (SSIs) that exceeded the Centers for Disease Control and Prevention's benchmark for cardiac surgery. **Description:** The cardiovascular surgery team began an investigation and evaluation of our current practices

using the 2008 guidelines for prevention of mediastinitis from the Association for Professionals in Infection Control and Epidemiology, the 2009 standards of perioperative care from the Association of Perioperative Registered Nurses, and guidelines from the Society of Thoracic Surgery. The team implemented new strategies in our current SSI bundle beginning in the second quarter of calendar year 2009. Changes in the cardiovascular operating room included traffic pattern changes, lengthening of the sterile corridor, and securing environmental cleaning products. Antibiotic prophylaxis modifications included weight-based dosing. Use of continuous insulin infusion for hyperglycemic control had been in place, but the target range was lowered to meet The Center for Medicare and Medicaid Services Surgical Care Improvement Project's standards for glucose control. Use of 2% chlorhexidine wipes replaced traditional preoperative showering with antimicrobial skin cleanser. Bath basins were eliminated and daily bathing with chlorhexidine wipes replaced soap and water bathing. Perioperative oral care included chlorhexidine oral rinse. Surgical dressing changes were delayed until 48 hours postoperatively and chlorhexidine replaced povidone-iodine for skin antisepsis. Standing orders were revised to include all changes. Staff education, skills validation, and daily clinical rounds ensured compliance with the changes. **Evaluation/Outcomes:** Surgical site infections in cardiac surgery are defined as infections that occur within 1 year of the operation because sternal wires and clips are considered implants. The outcome measured is the standardized infection ratio (SIR), which is the number of observed SSIs divided by the expected SSIs. A SIR of significantly less than 1.0 indicates that fewer HAIs were observed than predicted. Our revised bundled approach strategy used for addressing SSIs in cardiac surgery resulted in a 76% decrease in surgical site infections (13 in 2009 to 3 in 2010), which is below the Center for Disease Control and Prevention's benchmark of a SIR of 1.0. This outcome has been sustained since implementation.

#### **EB106 Reduction of Deep Sternal Wound Infections**

Kathleen Urban; Saint Francis Hospital and Medical Center, Hartford, CT

**Purpose:** Postoperative deep sternal wound infections (DSWIs) are one of the most underrated conditions in critically ill patients after open heart. DSWIs are associated with poor outcomes including an increased length

of stay in the hospital, an increase in mortality rate, and an increased need for additional surgical procedures. At a time where hospitals are facing a potential loss in revenue for infections, our health care system needs to be proactive in the prevention of DSWI. **Description:** A multidisciplinary team that comprised cardiovascular surgeons, administrators, an advanced practice provider, infectious disease specialists, anesthesiologists, nurse educators, and staff nurses identified risk factors that predispose patients to DSWIs. A literature review was done to identify standards of care and best practices for DSWIs. The team identified the appropriate timing for antibiotic administration, glycemic control, sterilization of electrocardiographic leads, and the use of disposable leads. The team also developed a comprehensive protocol for skin preparation before open heart surgery. This protocol involves outpatient and inpatient populations. The skin preparation involves the use of disposable 2% chlorhexidine cloths. All nurses and nursing assistants involved in the care of the open heart patients were validated in the protocol. Data are collected on all the open heart patients, and the team does case reviews on all DSWIs on a monthly basis. **Evaluation/Outcomes:** With the implementation of proper antibiotic administration, tight glycemic control, sterilization of leads, and uniform preoperative skin preparation, we have decreased our DSWIs by 82%. In 2008, we had 11 patients with DSWIs with an overall rate of 2%. In 2009, the number of patients with DSWIs was 4, with an overall rate of 0.83%. In 2010, we had 2 patients with DSWIs, with an overall rate of 0.45%. In conclusion, a multidisciplinary approach is effective in reducing the incidence of DSWIs.

#### **EB107 Sedation Holiday Visual Cue for Medical Surgical Intensive Care Unit**

Sharon Wilson, Paula Blankenship, Shaw Henderson, Martha Shetley, Cora Small, Cornelia Wright; Mission Hospital, Asheville, NC

**Purpose:** Daily interruption of continuous sedation (sedation holiday) decreases total ventilator time and length of stay (LOS) for patients receiving mechanical ventilation, resulting in a decreased incidence of hospital-acquired infections (HAIs) and improved outcomes. In October 2010, an internal audit of the medical surgical intensive care unit (MSICU) revealed a 33% compliance rate for performing this part of the ventilator bundle. The purpose of the project was to improve nursing compliance



with reliably performing the sedation holiday procedure. **Description:** A daily lightening of sedation is recommended by the Institute for Healthcare Improvement (IHI) to be included as “an integral part of the ventilator bundle.” The MSICU team reviewed and updated the sedation holiday protocol, including exclusion criteria for certain critically ill patients. Once completed, the process for initiating and conducting the sedation holiday was depicted in a supportive flow diagram and printed onto cards to serve as a visual cue for nurses. The night-shift charge nurse identified the eligible patients for the following shift, and then gave the visual cue to the oncoming nurse responsible for conducting the procedure. Education regarding sedation holiday was conducted in groups and then individually with all nurses. Team champions actively solicited and implemented improvements to the visual cue to continually clarify the process. Staff discussed the daily compliance measurements and shared success stories during each shift’s huddle time. Allowing staff to actively participate in making changes to the process clearly made an impact on the success of the project. **Evaluation/Outcomes:** The 90-day evaluation revealed 100% compliance with identification of eligible patients and correct completion of sedation holiday. Compliance for 6 months has averaged 92% and prompted additional education for floating staff. The mean number of ventilator days per patient has decreased from 4.1 to 2.84 in 6 months. The total number of bottles of propofol, a medication in short supply nationally, decreased from 360 per month at the start of the project to 163 in May 2011. Average LOS has shown a steady decline from 3.56 to 2.19 days per patient in 6 months. The decrease in ventilator time is considered to be a contributing factor to a significant reduction in health care–acquired infections on the unit.

#### **EB108 Staff-Led Innovative Efforts to Facilitate Team STEPPS Training Program in a Surgical Trauma Intensive Care Unit**

Angela Benefield; Sharp Memorial Hospital, San Diego, CA

**Purpose:** An assessment survey of our work environment identified teamwork and communication skills as major areas needing improvement. Mounting evidence supports that team skills are essential to patient safety, quality of care, and healthy work environments. A staff-led Team STEPPS training program was undertaken to

develop the skills of our surgical intensive care unit (SICU) team through innovative staff efforts, with the aim of enhancing interdisciplinary team competence and application of team skills to practice. **Description:** The program consisted of 4 hours paid training sessions designed to improve interdisciplinary team skills through the integration of the evidence-based Team STEPPS concepts. The program was championed by a group of staff who became trainers and content expert by receiving formal Team STEPPS education. To facilitate learning, the following innovative efforts were used: (1) the traditional didactic methods were replaced by simulated interactive sessions that took place in a retreat-like atmosphere; (2) a champion physician was invited to participate and promote knowledge transfer to other physicians; (3) the program begun by a display of motivational video vignettes featuring attendees and honoring their commitment; real patients’ stories were used to emphasize importance of team skills; (4) team activities (briefs, huddles, and debriefs scenarios) were simulated using the participants’ reenactment of real work situations; (5) a reflective learning method was accomplished through role play and case studies from past errors and sentinel events; (6) lunch was orchestrated to engage attendees as teams during meal preparation; (7) prizes were awarded to teams demonstrating problem solving to various work-related concerns. **Evaluation/Outcomes:** About 85% of unit staff completed team training. The program evaluations yielded at least a 97% score of 4 or 5 on a 5-point Likert scale for achieving objectives. Structured staff interviews after training demonstrated reports of increased situational awareness and improved collaboration between interdisciplinary team members. Our posttraining survey showed increased nursing satisfaction scores with teamwork from 70% (presurvey) to 95% at 3 and 6 months. Physicians’ survey also showed improved nursing communication scores from 80% to 99% at 6 months. The outcome measures of zero bloodstream infections and a marked decline in other nosocomial infections for 9 months seem to suggest training success.

#### **EB109 Standardized Approach to Safe, Effective Prone Positioning in the Surgical Intensive Care Unit**

Constance Rickelmann; University of Michigan Health System, Ann Arbor, MI

**Purpose:** Prone positioning has consistently proven to improve systemic oxygenation in 70% to 80% of patients with

adult respiratory distress syndrome (ARDS). The purpose of this study was to evaluate the effectiveness of complication prevention associated with prone positioning using a standardized protocol. Specifically, this study focused on identifying (1) patients who self-extubated while being positioned prone, (2) patients who had a catheter, tube, or tracheostomy tube pulled out while being positioned prone, and (3) injuries of health care workers while the patient was being positioned prone.

**Description:** Review of the literature has shown that prone positioning is an example of a supportive strategy that can be safely implemented in ARDS patients to improve oxygenation and provide additional lung protection. We developed a 5-step standardized procedure that uses 4 staff members; 2 nurses, 1 ICU technician, and 1 respiratory therapist to position the patient prone. All staff are trained in this procedure. The steps involve (1) moving the patient to the edge of the bed with a full sheet. (2) Wrapping the bottom sheet around the arm located toward the middle of the bed. (3) Tucking a second flat sheet under the patient. (4) The patient is carefully turned prone by pulling the first sheet from the side of the bed back toward the middle of the bed. (5) Pull the second sheet, to remove the wrapped arm from under the patient. Once the patient is prone, this technique allows the intensive care staff full access to the patient. Using data from the Acute Physiology and Chronic Health Evaluation III, a retrospective analysis of all patients who received prone therapy were collected for the period from May 1, 2010 to April 30, 2011. A comparison group of all patients admitted to the surgical ICU during the study period who were not positioned prone were also analyzed.

**Evaluation/Outcomes:** Prone positioning occurred for 118 days during study period. One patient self-extubated during the study period, but no catheters or tracheostomy tubes were pulled. Our overall incidence of notable complications is 1/118 (0.85%). No employee injuries associated with positioning a patient prone were noted. Nonprone positioning occurred for 6997 days. In this comparison group, we experienced 13 self-extubations, 75 catheter removals and 3 tracheostomy tube removals for an overall incidence of 91/6997 (1.3%). In conclusion, placing the ARDS patient in the prone position manually is simple and efficient. Positioning patients with ARDS prone by using a standardized protocol prevents complications and injuries.

### EB110 Taking Failure Out of Heart Failure

Deborah Clayton; Peninsula Regional Medical Center, Salisbury, MD

**Purpose:** In the third quarter of 2009, the appropriate care score (ACS) for heart failure was 81%, well below the national benchmark of 90.8%. A strategic goal set by Peninsula Regional Medical Center was to improve the ACS for heart failure by 15%. During a 6-month trial, a dedicated “heart failure nurse” was able to demonstrate a 20% improvement for all the indicators of heart failure. Based on the outcomes from this trial, a house-wide heart failure process modeled after the successful program of the heart failure nurse was developed without adding additional resources.

**Description:** From trial findings and retrospective review of patients’ records not meeting core measures for heart failure, the following process changes were implemented. (1) Developed a “Culture of Quality” for heart failure by using a multidisciplinary approach with the following resources: executive staff from the Core Measure Improvement Team, nursing staff, respiratory therapists, and staff from patient care management, cardiac rehabilitation, and information services (2) Defined a concurrent daily review process of inpatients with heart failure to ensure all ACS are met before discharge: screening process to identify or flag patients with heart failure by using various admission lists, daily report of flagged patients sent to charge and primary nurse for review if ACS met, discharge time-out checklist used by discharge nurse to review that all core measures for heart failure have been met. (3) Set up monitoring methods to ensure success in meeting ACS: care alert for patients with an ejection fraction less than 40% sent to clinical managers daily, weekly compliance report of all inpatients with heart failure sent to clinical managers to ensure all required patient education has been documented, outliers to the core measure indicators are reviewed by the physician principal investigator advisor and the heart failure team monthly.

**Evaluation/Outcomes:** Peninsula Regional Medical Center was able to improve its ACS for heart failure after implementing a house-wide heart failure process modeled after the heart failure nurse trial. As a result, the hospital’s ACS for heart failure went from 81% in the third quarter of 2009 to 90% in the first quarter of 2010. The team has been able to maintain its ACS at 87% for 1 year and continues to make improvements to the current process. Two factors that have contributed to the success of raising the

ACS for heart failure are achieving a “culture of quality” surrounding heart failure and using a multidisciplinary approach without using any additional resources. Staff has taken ownership of the process, as demonstrated by increased communication and collaboration among team members.

### **EB111 The Cardiac Surgery Bible: Creation and Implementation to Improve Outcomes of Patient Care**

Barbara Ravida; Beth Israel Medical Center, New York, NY

**Purpose:** Evidence-based practice, improved outcomes for patients, and cost containment are vital to the delivery of nursing excellence in critical care. Traditionally, the physician-based model of care in cardiac surgery is the standard in most urban areas. The intent of this project was to define and implement a nursing-based model of care and measure the efficacy of such a model.

**Description:** A patient care model focusing on advanced education and knowledge application at the bedside along with the addition of nurse practitioners was created and implemented in the cardiac surgery department in a major metropolitan teaching institution. Comparison was made for effectiveness of this model vs a physician-based model of care. Implementation and change began simply with attending cardiac surgeon lectures to the nursing staff about pathophysiology, treatment, and care related to the cardiac surgery patient. A protocol book was developed soon after, by a nurse practitioner, that was nicknamed the cardiac surgery “Bible,” which was a book to teach the how and why of cardiac surgery care. Education began in the ICU and progressed to the step-down unit. Each nurse received a “Bible” and then clinical application training for 2 months. Nurses taught nurses through preceptorship and mentorship that continues to this day. Based on Benner’s nursing theory of novice to expert, learning occurred and a movement away from traditional physician-dependent practice led to a more autonomous, effective nursing practice that improved patients’ outcome and satisfaction. Retrospective analysis of nursing knowledge and patients’ outcome are the means to support the evidence. **Evaluation/Outcomes:** Success was measured by mortality/complication rate, patient/staff satisfaction, length of stay, and increased knowledge among nurses. With data gathered from New York state, and data on patient satisfaction and length of stay derived from our database, we were

able to demonstrate effectiveness of our model. Initial nursing knowledge and subsequent improved knowledge through the use of the “Bible” was measured by pretest and posttest. Outcomes of implementing a nursing model include lower mortality/complication rate, increased patient/staff satisfaction, and a substantial increase in nursing knowledge. We remain dedicated to improving the quality of care, driven by the needs of patients and guided by critical care practice values.

### **EB113 The Pressure Is On: Nurse-Managed Initiative to Identify and Reduce Pressure Ulcers in the Intensive Care Unit**

Gina Knorr, Betsy Fisher, Patricia Kell, Sharon Schromsky, Mandalyn Schwarz, Samantha Young; Johns Hopkins Hospital, Baltimore, MD

**Purpose:** To accurately identify the incidence of pressure ulcers occurring in the ICU and to improve staff education regarding pressure ulcers and pertinent documentation, weekly wound care rounds were started in the ICU. Before the start of the project, the hospital collected quarterly prevalence data. The concern was the information did not accurately reflect the actual number of pressure ulcers occurring in the ICU. **Description:** The unit-based clinical nurse specialist, the wound care resource nurse, and a team of nurses were identified as champions of the project. The team and the bedside nurse would round weekly on each patient on the unit, assessing the total body for pressure ulcers, focusing on bony prominences. In addition to identification of actual pressure ulcers, high-risk patients were identified and the team made recommendations for routine preventative measures. Additionally, nontraditional preventative measures were put in place, including ace wraps instead of the use of antiembolic stockings. Rounds also recognized the increased need for specialty beds. The documentation found pertaining to pressure ulcers was identified as incorrect, incomplete, or nonexistent. The wound care rounds allowed modification of the charting to accurately identify the patient’s pressure ulcer and treatment technique. Because of the findings, staff education regarding pressure ulcers was a priority. Education was included at the bedside during rounds. Also, an educational bulletin board was constructed illustrating each stage of the pressure ulcer. **Evaluation/Outcomes:** At the start of the initiative, 14% of the patient population had pressure ulcers. As the project continued, the number of

pressure ulcers identified decreased. Six months into the performance improvement initiative, only 6% of patients had pressure ulcers, the number of deep tissue injuries decreased and stage III and stage IV pressure ulcers have decreased to almost absent. Pressure ulcers were treated promptly and high-risk patients were more readily recognized. In addition, an incidental finding of pressure ulcers related to a device, including sequential compression devices and antiembolism stockings, were found. Discussions were started, focusing on the need for appropriately fitting devices and the necessity of antiembolism stockings for preventing deep venous thrombosis.

#### **EB114 The Zap VAP Initiative: Empowering Staff to Eliminate Ventilator-Associated Pneumonia**

Andrea Yates; The Christ Hospital, Cincinnati, OH

**Purpose:** In April 2010, a staff-driven performance improvement task force was formed in our 555-bed tertiary care hospital to comply with national guidelines, which have declared ventilator-associated pneumonia (VAP) as a “never event.” Previous effort reduced our VAP rates, but after 2 cases in early 2010, we looked to the ICU staff to examine practice and empowered them to make changes in the care of all patients requiring mechanical ventilation (MV). **Description:** The staff-led Zap VAP task force (ZVTF), with nurses from the 3 ICUs and a tele-ICU, respiratory therapists, and performance improvement staff conducted a root cause analysis on the 2 VAP cases and then considered “Did we do everything we could?” The ZVTF received routine support from staff in performance improvement, epidemiology, research, and clinical informatics. Environmental services, facilities management, and nutrition were consulted as needed. ZVTF was given authority and accountability to redesign all processes. A literature review determined best evidence and guidelines for VAP prevention. Diverse interventions were identified and implemented in a consistent manner for all ICUs. Hand hygiene, room and equipment cleaning, MV bundle compliance, documentation in the electronic medical record, MV order sets, and communication were examined and improvement strategies were put in place. ZVTF identified factors associated with higher risk for VAP and adopted ways to flag these patients. Strategies for overcoming obstacles that prevent use of standard MV bundle tactics across all ICUs were implemented. Recommendations were presented to the ICU leadership and accepted. Extensive

retraining of nursing and respiratory therapy staff was designed to kick off the new patient care strategies.

**Evaluation/Outcomes:** The education was designed and 165 nurses and 65 respiratory therapists attended. The journey has inspired the staff to develop the mindset of “Not on my watch!” The multidisciplinary approach to the problem has enabled all to reexamine practice and look for shared problem solving. Some of our work focused on reinforcement and retraining (hand hygiene and ventilator bundle compliance), but several new strategies were initiated (identifying high-risk MV patients and EMR changes). Monthly audits of compliance with documentation have improved from 70% to 95.4% across all units. All nurses and respiratory therapists are now held accountable for documenting MV care. We have not had a VAP since the task force was formed.

#### **EB115 Tick-Tock-Tick-Tock: Texting, Eliminate Challenges When Filling Staff Needs**

Eric McClenny, Kathryn McBroom; Duke University Hospital, Durham, NC

**Purpose:** Staffing levels correlate directly with decreasing numbers of adverse outcomes for patients, including urinary tract infections, pneumonia, shock, and upper gastrointestinal bleeding. Staff turnover, planned vacations, and callouts affect businesses across the United States; health care is no exception. Texting was identified as a means to decrease the time of manually placing telephone calls to staff as most hospitals do, using a communication tree or call list when filling staffing needs. **Description:** A solution was needed to quickly contact staff using today’s technology. Short Message Service (SMS) texting to all available cellular phone carriers was an untapped means of communication. SMS texting uses the accessibility to send messages from a computer’s e-mail software to cellular phones by typing in phone numbers followed by the correct carrier information (eg, 1115559696@txt.att.net ). An e-mail was generated and volunteers were asked to participate in this project. Based on responses from staff, the information technology department created e-mail groups based on shift preferences, maximizing availability and security behind our firewall. Use of this technology was believed to dramatically reduce the time required to contact staff, as well as decrease staff dissatisfaction from receiving frequent calls. Using the hospital servers allowed all staff members access to the texting capabilities.



Now, when a staffing need arises, the charge nurse or nurse manager can send a group text to available staff instead of making multiple phone calls.

**Evaluation/Outcomes:** Texting staff has significantly decreased the time spent contacting staff to fill staffing needs. By sending 1 e-mail requesting help rather than making 30 or more phone calls, the manager and/or charge nurse is more available to handle other pressing matters on the unit. Staff surveyed felt that the new process is a great success. They expressed the most satisfaction by not having to answer the phone several times a week to say no or yes when asked to help staff the unit. They also feel as though they are able to work more shifts because of the prompt notification that the unit has a need, especially when they are not at home.

### **EB116 Use of Advanced Practice Nurse Bedside Rounds to Improve Disease-Specific Joint Commission Readiness for Stroke Patients**

Michelle Whaley; Swedish Medical Center, Englewood, CO

**Purpose:** Nurses play a large role in the care of patients hospitalized with acute stroke. The complexity of this disease heightens the need for a solid understanding of the patient's stroke type, source of stroke, and secondary stroke prevention measures. Bedside rounds was used as a tool to ensure that each bedside nurse had a keen understanding of each patient's history, disease process, and treatment strategies with the goal of increasing the nurses' confidence when speaking to the Joint Commission reviewer. **Description:** Borrowing from colleagues in other specialty areas, our advanced practice nurse (APN) team of stroke coordinators implemented nurse-APN daily rounds on our neurology unit as a means of preparation for Joint Commission inspection. The goal was to improve nurses' knowledge of disease processes of acute stroke and appropriate interventions. Nurses followed a set format for presentation that included a brief description of the patient's signs and symptoms on presentation, stroke type, stroke location, stroke source (cardioembolic, large vessel atherosclerosis, etc), secondary prevention (permissive hypertension, antiplatelet agents, statins, etc), prevention of deep venous thrombosis, results of dysphagia screening, and discharge planning. Rounds were done at the bedside and participation of the patient and family was encouraged. To keep the process efficient, the charge nurse assisted with patient

care so that the bedside nurse could present with minimal interruptions. The charge nurse also coordinated efforts behind the scenes so that time was not wasted waiting for a nurse to be available to present his or her patients. Opportunities for learning presented often during rounds, giving the APN the chance to clarify a question, review magnetic resonance images, or give the rationale for use of certain medications. **Evaluation/ Outcomes:** Bedside nurse rounds improved readiness for the Joint Commission assessment, as evidenced by our hospital's successful recertification. Feedback from nursing staff was so positive that daily rounds have become a permanent part of the routine. Champions of this process emerged during the trial period and have assisted with keeping rounds relevant. Nurses reported a greater understanding of the pathophysiology of acute stroke and why prevention strategies are so important. Daily interaction with the APN team also allowed identification of learning opportunities for less seasoned staff, and nursing students have been encouraged to participate whenever possible.

### **EB117 Using the Evidence to Decrease Delirium**

Elsa Barilec, Lorna Baker, Rebekah Daniels, Lynn Kelly, Jacqueline O'Brien, Renee Simpson; Moffitt Cancer Center, Tampa, FL

**Purpose:** Delirium is a growing problem in critical care and adversely affects patients, patients' families, and the hospital's costs and flow. National guidelines call for assessment of delirium in critically ill patients. Our evidence-based practice (EBP) committee's goal was to initiate a delirium assessment and EBP measures to decrease delirium in our population of patients. We placed our focus on preventive and treatment strategies. The solution involved implementing the 6 steps of our EBP model. **Description:** A systematic review of the literature, internal and external data, and local and national expert opinions revealed that delirium can lead to long-term cognitive impairment and is associated with prolonged ventilation, increased mortality, increased length of stay, and increased health care costs. Delirium poses safety risks for patients related to falls, pulling out catheters and tubes, and the use of restraints. There is also the potential for staff injury during patients' hyperactive delirium episodes. Use of the Intensive Care Delirium

Screening Checklist (ICDSC), developed by Bergeron and colleagues, began in May 2010. This tool is validated for delirium assessment. Our practice change included education for nursing and medical staff, ancillary staff, pharmacists, and volunteers. Methods included an online slide show with testing, e-mails, poster displays, daily huddles, and presentations at staff meetings. Delirium management strategies focus on reducing risk factors as well as pharmacological treatment, and are now a vital part of our interdisciplinary rounds. In February 2011, a noise reduction plan was instituted with the goal of decreasing noise levels, an often-cited contributing factor to delirium. **Evaluation /Outcomes:** Delirium assessment is now a standard for all intensive care patients in our facility. A total ICDSC score of 4 or higher has a 99% sensitivity correlation with a positive diagnosis of delirium (Bergeron). From May 2010 to October 2010, our positive ICDSC scores averaged 31.4%. From November 2010 to April 2011, the average positive scores were 23.6%, representing a 7.8% reduction in 6 months. Sound level measurements were obtained before and after initiation of a noise reduction plan. Mean sound levels decreased from 55 dB to 45 dB at night and from 65 dB to 55 dB during the day. Delirium management strategies and treatment were instrumental in decreasing its incidence.

#### **EB118 Using Best Evidence to Validate and Refine a Checklist for the Safe Intrafacility Transport of Adult Intensive Care Patients**

Odette Comeau, Mary Armendariz, Donna Graves, Scott Woodby; University of Texas Medical Branch, Galveston, TX

**Purpose:** With emphasis on ensuring evidence-based practices, a review of an intrafacility transport checklist was conducted in late 2010. The tool was developed several years ago in response to anecdotal reports of “near-misses” and poor outcomes related to lack of preparation and planning of transports. The content of this checklist was based largely on expert opinions and consultations. This evidence-based review was important to ensure the safe intrafacility transport of adult ICU patients. **Description:** Our focused question was, “In adult ICU patients requiring intrafacility transport, what factors place patients at greater risk for instability or complications during transport?” Using the EBP model (Disciplined Clinical Inquiry-DCI) from an academic medical center

in southeast Texas, sources of evidence were accessed, and an evidence review was conducted. The literature retrieved and reviewed included clinical trials, practice guidelines, position statements, and review articles. The validation of our checklist was established by reviewing the most common complications during transport and factors that predispose patients to instability. Many of these factors were already incorporated into our checklist, including patients requiring high levels of positive end-expiratory pressure on mechanical ventilation, patients with unstable cardiac rhythms, patients requiring active titration of vasopressors, patients with active fluid resuscitation, and patients receiving mechanical circulatory support. The refinement of our checklist was accommodated by incorporating modifications to include evaluation of patients with chest tubes and unstable cervical spine fractures. **Evaluation/Outcomes:** Our evidence review validated the use of checklists when transporting critical care patients. Our checklist was modified to ensure its congruence with evidence-based standards. After review and approval by a multidisciplinary work group, the revised form was pilot tested over several months on more than 170 transports. The checklist was then modified again to capture outcomes on critical care transports by a nurse-report of patient complications during or immediately after the transport. Upon review of data (N=120), 97.5% of adult ICU intrafacility transports involved no reported complications.

#### **EB119 Ventilator-Associated Pneumonia Management Board: A Strong Visual Tool to Achieve and Sustain Compliance With Preventive Measures**

Zenaida Co, Marysol Cacciata; St Jude Medical Center, Fullerton, CA

**Purpose:** Ventilator-associated pneumonia (VAP) is one of the most common hospital-acquired infection. Evidence-based preventive measures using the VAP bundle from the Institute for Healthcare Improvement has been implemented in the critical care unit; however, staff compliance with performing all of the preventive measures was inconsistent because of the inability to remember all of these measures. As a result, VAP rates were high. **Description:** The VAP management board is a visual tool where all components of the preventive bundle measures are listed. The tool is a 35 × 28-cm white board with multicolored magnetic markers indicating if the VAP measures had been performed, were

not performed, or require a physician's order. The magnetic markers are placed under the corresponding scheduled time to perform each of the indicated measures. As the staff performs each measure, a green round magnetic marker is placed. Red round markers indicate that the tasks need to be done. If one of the measures requires a physician's order, a white arrow is placed next to it. This tool is prominently displayed outside of the ventilator patient's door for all of the staff to see as a visual reminder. It also promotes teamwork and collaboration among nurses and respiratory therapists as they help each other ensure that all of the measures are implemented and done on time. It is also a very helpful tool for clinical coordinators and managers to check for compliance and offer help if staff is lagging behind. **Evaluation/Outcomes:** Staff compliance for all VAP measures increased from 30% to 40% to 90% to 100% within the first 2 months of implementation. The unit has had 0 cases of preventable VAP for the past 30 months. The VAP board provides an excellent visual tool to this day. The VAP board has been very successful and well sustained as a visual tool for compliance with the VAP bundle.

### **EB120 Who's Delirious: Leading the Way in Identifying Delirium in Critically Ill Patients Across a 13-Hospital Network**

Lorna Prang; Littleton Adventist Hospital—Centura Health, Littleton, CO

**Purpose:** The purpose of this project is to facilitate an evidence-based delirium initiative in critical care across Centura Healthcare System. This requires adapting and implementing an evidence-based tool to measure and document the presence of delirium in ICU patients in a pilot study at Littleton Adventist Hospital (LAH). Improved outcomes in critically ill patients at LAH will persuade Centura leaders to implement delirium assessment and management in critical care across the entire health care system. **Description:** Distinguishing features of delirium are its acute or fluctuating onset, inattention, disorganized thinking, and altered level of consciousness. Delirium is present in up to three-fourths of patients receiving mechanical ventilation. Although it is an independent predictor of mortality, length of stay, cost of care, and cognitive outcomes at discharge, delirium is underdiagnosed by 78% of health care professionals, and only 16% report use of a delirium screening tool. A multidisciplinary ICU delirium evidence-based practice

(EBP) project team was formed within the Centura-wide Critical Care Clinical Effectiveness Group (CCCEG). The Confusion Assessment Method-ICU (CAM-ICU) tool was adapted to the Meditech clinical information system, and a pilot study was begun in the 24-bed ICU at LAH. The Project encompassed (1) developing, testing, and revising the Meditech delirium assessment tool; (2) educating and coaching ICU nurses; (3) developing, revising, and incorporating a delirium protocol and order set into Meditech; (4) collecting, interpreting, automating, and reporting data; and (5) reporting results to LAH leaders and to the Centura CCCEG. Implementation of delirium assessment and management is in currently in process Centura wide. **Evaluation/Outcomes:** The study began in the first quarter of 2009 and continued through the third quarter of 2010, during which 662 ICU patients (both receiving mechanical ventilation and not) were evaluated for delirium by using the delirium assessment tool. Retrospectively, patients were dichotomized to 2 groups: those treated with the delirium protocol and those not treated with the protocol. For the 445 patients treated and the 217 not treated, odds of delirium for treated patients was 0.413 (CI 0.290-0.584,  $P < .001$ ). The delirium project demonstrates that delirium assessment has profound implications for identifying an essentially invisible clinical syndrome and refocusing medical and nursing interventions to meet the needs of a significant population of patients.

### **EB121 Your Heart's Connection**

Mary Collier, Diane Dieckman, Justin Foreman, Cyndie Miculan, Greg Reynolds, Monica Worrell; UC Health, Cincinnati, OH

**Purpose:** The "Your Heart's Connection Team" of health care providers have implemented a disease management program to provide a comprehensive education and resource liaison to support and empower patients with congestive heart failure (CHF). The primary focus of the program design is on empowering CHF patients, through the use of the most current evidence-based practice: We provided patients with education and resources to manage and treat their congestive heart failure properly. Collaborative efforts among the team centered on structuring interventions, education, support, and resources to best meet the needs of the patient population while establishing relationships that promote welfare and health. The health care team hypothesized that

meeting the needs of CHF patients would not solely benefit the patients but would also financially benefit the institution by decreasing readmission rates for patients with CHF. Extensive review of collected data on patients suggested that our targeted population of patients lacked the financial resources, education, and comprehension to care properly for or monitor their CHF. Participation in the Robert Wood Johnson Foundation and scholarly inquiries among the team unveiled current evidence-based practice interventions that enabled the team to apply optimal contributions to transform the organization's standards of care provided to patients with CHF.

**Description:** More than 550 000 patients have heart failure diagnosed for the first time each year, and heart failure is the primary reason for 6.5 million hospital days. Health care providers and health care systems are challenged to find financially effective avenues to address the costs associated with heart failure. Heart failure not only places financial constraints on health care institutions, but can also have a profound affect on individuals and families. "Episodes of hospitalization for heart failure patients are frequent, expensive, and possibly preventable in about 40% of cases." Jacobs reinforces the financial impact on patients, stating "the impact of heart failure can be minimized by intervening at an earlier time to prevent increased cost and poor outcomes to patients and families." A prospective randomized trial demonstrated a 56% decrease in 90-day readmission rates among patients (median age, 79 years) with CHF when a multidisciplinary approach to treatment was implemented. The Cardiovascular Center of Excellence at UC Health has developed a team of multidisciplinary professionals to best meet the needs of CHF patients. The team consists of a board-certified cardiologist, cardiology director, cardiology managers and educators, registered nurses, social workers, quality management, exercise physiologist, and outpatient cardiology services nurse practitioners. The primary goal of the team began, and continues to, primarily focus on empowering patients through education and resources to best optimize the treatment and management of their CHF. The team implemented focus areas of the Robert Wood Johnson Foundation for guidance into the design and implementation of interventions to meet goals. These areas of focus include quality, public health, and vulnerable populations. The quality care initiative within the institution is currently "Get With The Guidelines—Heart Failure," supported by

the American Heart Association's collaborative quality improvement program. The team leaders support public health through community outreach programs, health fairs, and providing education on health-related articles within the community. The team reached out to surrounding skilled nursing facilities in an effort to reach those in need with limited resources. Advocating for optimal care, especially in such a large and fragile population, is key to improving quality care and reducing cyclic readmissions to the hospital. The team designed a program entitled "Your Heart's Connection." It is the goal of the team to include patients admitted with a primary or secondary diagnosis of acute or chronic CHF. This targeted population was then automatically enrolled in the "Your Heart's Connection Team" program. The team began heart failure teaching to the patient and/or the patient's family members through many methods. The patient is given a packet of written information and verbally educated by staff. Patient comprehension is assessed by using a before and after knowledge checklist along with using a "teach-back" method to promote reinforcement of the provided education. The teach-back method, also referred to as "closing the loop" or "show me," allows patients to articulate, in their own words, their understanding of what they were taught by providers. Available patient resources include, but are not limited to, video education, bathroom scales, medication organizer, a complimentary 14-day medication supply upon hospital discharge, in-hospital classroom education, and a magnet that lists the telephone hotline number. Within 3 days of the patient's discharge, follow-up phone calls are made to evaluate the patients' knowledge of CHF and address any of their questions or concerns. Providing a discharge telephone call system has been found to alleviate the stress of transition between hospital care and patients' next placement. **Evaluation/Outcomes:** The Your Hearts Connection Team at UC Health has diligently strived to provide a comprehensive education and resource program to support and empower patients with CHF. The importance of measuring program success cannot be overlooked as the results create incentives to invest in interventions to improve upon the care provided. UC Health uses computerized programs (Midas and Data Vision) to log and collect data: The data are then formulated into readable documents that are used to compare results on a monthly basis. During the 2011 calendar year, the data demonstrate a slight decline (<2%) in 30-



day hospital readmission rates for patients with CHF. However, in July 2011, an 8% decrease was revealed. Although the program has proven to provide some readmission cost savings, true success is measured by the patients' participation and evaluation of the Your Hearts Connection Program. Knowledge assessments before and after implementation of the program demonstrate an increase in patient understanding of their health condition. Participation in the class for patients and evaluations confirm the usefulness and benefit of the provided education session. Discharge phone call interviews have exposed a positive response of patients to the program through the validation of responses to the program questionnaire. The follow-up phone calls have limitations, as a high percentage (>45%) of the patients' telephone contacts have been disconnected or are no longer in service. The socioeconomic status of the population served ensures the team of the need to continue to provide education beginning upon admission, empower patients with resources and provide community outreach services within the community.

#### **EB122 Nursing Best Practice Reduces Hospital-Acquired Pressure Ulcers in the Medical Intensive Care Unit**

Dolores Reardon; Milton S. Hershey Medical Center, Hershey, PA

**Purpose:** Twenty-two patients had a pressure ulcer develop while in the medical intensive care unit (MICU) during a 6-month period (April 2010-September 2010). Using a shared governance model, the MICU practice council initiated a campaign to reduce our hospital-acquired pressure ulcers (HAPUs) to zero. Staff education, promotion of best practices, and increased awareness of the individual MICU patient who acquired a pressure ulcer each month influenced the focused skin care our nurses delivered at the bedside. In effect, these actions had a direct impact on HAPU reduction in the MICU.

**Description:** Initially, the MICU practice council began with 1:1 staff education focusing on increased HAPU awareness, skin assessment and documentation, equipment, mobilization, and teamwork. Follow-up education continued with monthly tracking of HAPUs in the MICU presented as individualized case studies. Included were contributing factors for development of pressure ulcers plus recommendations for prophylaxis such as pressure reduction specialty beds, chair cushions, and incontinence

skin care products. "It Takes 2" was our motto for initial skin assessment performed by 2 nurses on all patients admitted to the MICU. Not only was skin breakdown less likely to be missed, but this change in practice was an educational opportunity for less experienced staff to identify skin conditions and stage pressure ulcers correctly. Appropriate skin assessment documentation was emphasized in order to accurately track pressure ulcers. "Never Turn Down a Turn" was our promotional slogan used to encourage the frequency and quality of turning patients. Charge nurses and clinical practice group leaders made turn rounds, using wedges for optimal positioning. Mobilizing ventilator and nonventilator patients to dangle their legs with progression to sitting in a chair and eventual ambulation was promoted as a team effort. **Evaluation/Outcomes:** The monthly occurrence of HAPUs in the MICU was reduced to 0 for 2 months from October 2010 to March 2011. Overall, only 9 HAPUs occurred in this same period, which is nearly a 60% reduction compared with the prior period (April to September 2010). Since April 2011, our monthly HAPU rate has been 0 to 3. The results demonstrate that the MICU HAPU rate improved through a change in nursing practice that was focused on detailed skin assessment and documentation, increased frequency and quality of patient repositioning, attentive skin care, and optimal mobilization. In conclusion, even in this era of advanced technologies, it is possible to change patients' outcomes by using fundamental bedside nursing practices.

#### **CH123 AACN-Greater Long Beach and Orange County Chapter: Together, Stronger, and Bolder to Honor and Celebrate Nursing**

Sara McMannus; GE Healthcare, Laguna Niguel, CA

**Purpose:** The Greater Long Beach and Orange County chapter of AACN always searches for ways to engage nurses and encourage expert knowledge, excellence, and professional practice. Chapter members heard about Flowers 4 the Float and wanted to help build the Nurses' Float for the 2013 Rose Parade. Sally Bixby, RN, future president of Tournament of Roses, will be providing a stage to honor nurses and promote the nursing profession. Frequently nurses feel frustrated and powerless, which leads to dissatisfaction. In community, together, stronger and bolder, we can engage and empower all nurses. **Description:** At the beginning of each monthly chapter meeting, the latest information about the Nurses'

Float is shared. Members have an opportunity to donate to the project, and to date the chapter has contributed more than \$1500 to help design, build, and decorate the float. All funds raised will go to the development of the Nurses' Float, maintenance of the Web site, and marketing the project. All excess funds raised will be used for nursing scholarships and grants. Members are getting involved and engaged in the project. At a recent conference, one member met Sally Bixby and received about 150 rose pins. She brought the pins to the meeting, and each person who made a donation received a pin. Information about the Nurses' Float is found on the chapter's Facebook page, Web page, and in the newsletter. Many of the chapter members plan to decorate the float with other nurses from across the country in December 2012. On the day of the parade, all nurses will share in the pride and joy of recognition of the nursing profession. **Evaluation/Outcomes:** Chapter members introduced the Nurses' Float in August 2010. More than \$1500 has been collected at the monthly meetings since then. Members have gotten involved, sharing and encouraging others to be part of this exciting project. Recently a chapter member, Belinda Franklin, died in a car accident. The group designated money collected to be donated in her memory. Members have expressed satisfaction with their involvement in this project and are proud to be part of this local, regional, and national presentation to showcase the nursing profession during the Rose Parade. The Nurses' Float is an opportunity to have a rewarding team-building event right from the beginning and throughout each step of the project.

### CH124 Active Learning: Bringing Simulation to a Chapter Educational Meeting

Lisa Hart; The University of Akron, Akron, OH

**Purpose:** To create an educational program in which the chapter members and program attendees are engaged in active learning through simulation versus the typical chapter education program in which the chapter members and attendees sit in the audience listening to a speaker and viewing a PowerPoint presentation. The problem addressed was how to introduce "high-risk, low-frequency" critical care topics to our chapter members via an active learning method. **Description:** Our chapter offers 5 yearly educational programs to our members and the critical care community. For years, these educational programs have traditionally involved a

physician or nurse speaker who is an expert in his or her field. These are excellent programs involving relevant critical care topics, but they require only passive learning by the audience. Our chapter wanted to bring active learning, through simulation, to the members. We partnered with our local university, the University of Akron, to provide a program in May 2011. The faculty and staff at the University of Akron run a high-fidelity simulation lab for their students on a daily basis. By partnering with them, we were able to hold a meeting in their simulation lab and present a high-risk, low-frequency critical care scenario to our experienced nursing membership. The simulated scenario was a woman, 32 weeks pregnant, who was involved in a motor vehicle accident. An obstetric trauma is considered a high-risk, low-frequency situation. This simulation allowed active participation by the audience and included a debriefing session in which discussion among all persons led to greater understanding of the assessment, interventions, and outcomes that occurred with the scenario. **Evaluation/Outcomes:** Twenty-one participants attended. All filled out an evaluation of the program, and all agreed that simulation is an effective method for learning. When asked if simulation should be used to evaluate competency of experienced nurses, 86% of respondents said yes. Written feedback indicated that the debriefing was the most useful part of the program, although several respondents listed the "complete process" as the most useful part. The most exciting part of the evaluation was the response to the question, "What types of scenarios would you put into a simulation?" Participants listed more than 25 critical care topics they would like for future simulations.

### CH125 Chapter Celebrates Certification

Louise Jacobs; Mercy Hospital, Coon Rapids, MN

**Purpose:** Celebration of chapter members was an important component of our chapter's work, and to achieve that goal, nurses in our chapter knew that we needed to do something special for our certified nurses. Our chapter has more than 25 certified nurses, and historically no recognition had been given to this very important group of nurses. Becoming certified and maintaining certification is a challenge, and we wanted to let our certified nurses know that their chapter wanted to recognize them in a very special way. **Description:** The chapter board brainstormed on ways to recognize certification and decided that a certification dinner

would be a great way to honor the nurses. The president asked for volunteers from the chapter members to form a subgroup to assist in planning the event and indicated a budget. The subgroup decided to hold the dinner on the nationally recognized Certification Day, which is March 19th. The subgroup planned the event, which included finding a location at a local restaurant, planning the menu, sending out invitations, selecting decorations, and planning the fun. **Evaluation/Outcomes:** The certification dinner was a huge success for our chapter: 75% of our certified members attended the dinner, and fun was had by all. At the end of the dinner, the president asked the nurses if we should do this again next year and all said yes. The subgroup stayed within its budget, and the board decided that this celebration will be done again next year on the nationally recognized Certification Day in 2012.

### **CH126 Chapter Succession Planning: How to Find Someone to Step Up Before You Step Down**

Collyn West, Khanhvy Doan, Cassandra Krumpelmann; Mountain to Sound Chapter, Seattle, WA

**Purpose:** The mission of the Mountain to Sound Chapter of AACN is to represent, promote, and provide guidance for the practice and growth of critical care nurses. In the past, our mission became challenging to fulfill because of declining active membership and difficulty filling board positions. Therefore, we created a plan to increase active membership and create a mentoring program to ease new board members into their positions. Strong leadership and a succession plan have helped us move toward our goal. **Description:** In order to reach our goals, chapter meetings were enlivened with journal club presentations and dinner/networking time to attract more participants. We discovered that the simplest way for members to become involved was through the Education Committee. The Education Committee holds monthly meetings and plans various educational and social events, such as PCCN/CCRN review courses, educational dinner events, and our annual Critical Care Symposium. Through these events, we were able to promote the chapter and increase participation in the Education Committee. Our chapter's best practices are the educational dinner events and our scholarship to the National Teaching Institute (NTI). The Industry Relations Chair secures vendor sponsorship to support these events. The Scholarship Committee also developed a scholarship

essay application that reflects the mission of the chapter. Once more members became involved, we began succession planning through mentorship programs for chapter board chair positions. Although board-elect positions were previously used, we strengthened the process this year. The chapter increased the mentorship component with board-elect positions and developed job descriptions to ease the transition period for new board chairs. **Evaluation/Outcomes:** The Mountain to Sound Chapter has improved leadership development by reinventing the board-elect mentorship program to help our members transition into new board positions. High attendance at every educational offering shows that our programs are valued and important to local nurses. The NTI scholarship program encourages more member activity in the chapter; hence we are offering 3 scholarships this year. Through these efforts, we have increased member participation, both locally and nationally, and filled every chair position. Our success is the result of reformatting our leadership program and committing to "Find Someone to Step Up Before You Step Down."

### **CH127 Got A Chapter? Develop a Creative Web Site That Helps Members Stay Engaged!**

Karen Schulz; Mercy Hospital, Coon Rapids, MN

**Purpose:** As a relatively new chapter, we recognized the need to create a healthy chapter work environment that would engage members, create enthusiasm, and grow membership. We identified our members struggling with work/life balance issues and information overload. The goal of this project was to create a one-stop full-service Web site where members, at the click of a button, could stay current and connected with chapter services and activities. **Description:** The board decided to use a Web site-hosting service that provided domain name ownership, Web mail, creative design templates, and site add-on tools. The add-on-tools such as building tables and forms, downloading files, creating links, adding pictures and driving directions, and HTML codes have been helpful to our members. Most beneficial is the function that links the chapter's Web site with the chapter's PayPal account. Chapter members, and nonmembers, use the PayPal account to register and pay for chapter-sponsored activities and educational events. Headings on the Web site user-friendly navigational bar include a yearly schedule of

events, chapter meetings, communications, membership, certification, scholarships, community projects, and chapter documents. Within each page, members will find detailed information that may also include embedded links to documents and other pages within or outside the site, such as the chapter's Facebook page. The graphics are updated yearly to coordinate with the AACN president's message and poster theme. This past year, a page was dedicated to "Stan Tall's Travels" for posting chapter pictures that exemplified how we stood taller. **Evaluation/Outcomes:** Our members report that they like the look, function, and convenience of the chapter's Web site. The percentage of members, and nonmembers, registering for educational activities has increased dramatically. Less than 10% now register by using mail-in brochures. We are a chapter of 70 members, and our hit counter reveals that the Web site is visited approximately 60 times per month.

### **CH128 In With the New, Out With the Old: Distinguish Your Unit, Bronze, Silver, or Gold!**

Tisha Norman, Christofer Bibal, Petra Grami, Cheryl Haseeb, Sheila Marshall; Houston Gulf Coast Chapter, Houston, TX

**Purpose:** The Houston Gulf Coast Chapter of AACN promotes communication, collaboration, and professional practice among the vast network of nurses in the Houston area. As a community of nurses committed to excellence, we know our members will distinguish themselves through AACN as recipients of the Beacon Award for Excellence. Information sharing and collaboration have enabled us to further support and encourage our chapter colleagues through their Beacon journey.

**Description:** Last year, our chapter president held a special meeting to discuss the changes, challenges, and improvements in the Beacon application process. This Beacon-focused meeting was designed to review the entire Beacon application process systematically and provide a forum for questions and answers to those pursuing Beacon recognition. Chapter leaders had attended the National Teaching Institute, were well informed about the new process, and included contributions from nurses actively working on Beacon at the unit level. Many of the questions posed by the audience were best answered by these nurses, as they were well into the application process. Beacon resources and tools were discussed and disseminated to all participants. Having

received the Beacon Award in the past, we were familiar with the components; however, there was some unease as to how we would transition with our application already in progress. Reflecting on chapter meeting recommendations, and with the support from chapter nurses within our organization, our unit developed a Beacon task force. This formal structure allowed us to meet regularly and work cooperatively on enhancing our application. Additionally, we continue to draw on chapter resources when seeking clarity or feedback on our Beacon journey progress.

**Evaluation/Outcomes:** The chapter's Beacon promotion has had an effect on many units, as we see new task forces develop and grow. To date, 3 units within our organization are aspiring to distinguish themselves through the new and improved Beacon process. A race of sorts is over, as 1 unit submitted their application this week. We know from networking with other chapter members that many other units outside of our organization are fast completing their submissions as well. Our chapter members represent various institutions within the Texas Medical Center and area community hospitals. Members function in various roles of the nursing profession and eagerly serve as mentors to help others move along on their own Beacon journey.

### **CH129 Increasing Membership Through Collaboration With UCLA School of Nursing**

Janet Cheng, Anna Dermenchyan; Cedars Sinai Medical Center, Los Angeles, CA

**Purpose:** In its inaugural year, the AACN chapter at the University of California, Los Angeles (UCLA) sought to increase awareness of its presence in the Los Angeles nursing community. The mission states, "The AACN Chapter at UCLA was created to serve and connect groups of critical and progressive care nurses and nursing students in the greater Los Angeles area." As an academic hospital-based chapter, one innovative idea was to reach out and collaborate with the faculty, administration, and students within the UCLA School of Nursing. **Description:** By collaborating with administrators, faculty, and students at the UCLA School of Nursing, the AACN chapter at UCLA enrolled more than 128 members, 14 of them students, within its first year. The chapter used several innovative strategies to garner student involvement. First, flyers were



posted throughout the school for the monthly chapter meetings. As students began to attend meetings, the board encouraged further involvement through the creation of student representative positions (1 per cohort) to promote the chapter further during the academic year. Furthermore, as the local arm of AACN, the chapter sought to help students network through a variety of activities, including scheduled chats between students and registered nurses, announcements before lectures, presentation by chapter board members on the profession of critical care nursing, resume reviews during the annual job fair, and networking/coffee sessions specifically for students. With the financial support of the nursing school, 4 students attended the 2011 National Teaching Institute (NTI) in Chicago; one student even attended the Chapter Leadership Development Workshop before the session. **Evaluation/Outcomes:** Through this creative relationship with the UCLA School of Nursing, the chapter was able to add 14 new members (a membership increase of 11%), host an education session on healthy work environments that 50 students attended, review more than 40 students' resumes, host networking/coffee sessions for more than 30 students, and send 4 students to NTI. In this collaborative effort, we have striven to achieve the mission of the chapter by supporting innovation in health care as well as inspiring ourselves, our patients, and our colleagues.

### **CH130 Leadership Pipeline: Continuous Transition Planning**

Carla Hannon; South Central Connecticut Chapter, New Haven, CT

**Purpose:** To describe how the South Central Connecticut Chapter (SCCC) of AACN uses continuous transition planning to promote chapter leaders. **Description:** The SCCC of AACN has a long history of developing leaders, not only for our local chapter, but chapter leaders who have gone on to hold a volunteer position for national AACN. Although a transition meeting is held each year, the chapter knows and demonstrates that actively identifying and mentoring future leaders for the chapter needs to be a constant priority. The board, together with our members, is responsible for making a healthy environment for the success of our chapter. As stated in an AACN webinar for chapter leaders, succession planning is not something that can be discussed once or twice a year; rather, it needs to be an ongoing activity to ensure there

is a stronger, bolder group of leaders ready for the chapter's future. At all of our programs, the president announces which positions will be open in the spring elections and encourages new members to join our board and experience the opportunity to support the vision and mission of national AACN. The president also e-mails the chapter members and encourages all chapter members to attend board meetings to get a glimpse of how decisions are made and the work involved in running a chapter. Each board member is asked to think about members that they know personally. **Evaluation/Outcomes:** We measure our success with leadership transition in several ways: by welcoming 1 or more new board members into the leadership pipeline each year and by noting that we have chapter representatives in each hospital in our membership area. Our chapter remains healthy and active, and new members continue to take the professional and personal challenge to get involved in AACN leadership at the chapter level.

### **CH131 Standing Taller: Our Journey to Achieving the President's Award for Chapters**

Pamela Madrid, Jeanne Boespflug, Louise Jacobs, Sheila Micka; Mercy Hospital, Coon Rapids, MN

**Purpose:** Since chartering in 2004, the board felt that the chapter had slowly lost momentum. In order to "Stand Tall," we needed to "lean down" and listen to our members. To reinvigorate both the chapter officers and membership, the incoming president organized a retreat where we completed a SWOT (strengths, weaknesses, opportunities, threats) analysis and set 4 goals for the year: (1) offer education fitting the needs of our members, (2) complete 5 community service projects, (3) integrate AACN initiatives into the chapter, and (4) increase chapter recognition. **Description:** We were inspired by the president's theme, Stand Tall, to make goals that stretch beyond what was done in the past. Each of the goals incorporated measureable markers, which allowed us to map progress toward the goals. To visualize our progress, a poster-sized Stan Tall figure was made out of wood with the intent for him to grow in height as each goal was achieved. He attended all chapter meetings and activities, dressed in attire befitting the occasion. He became the mascot of the chapter! To achieve our goals, we combined education offerings for the year into one 4-hour event with great reviews by the participants. To enhance community service activities,

the board selected 5 activities to support. We sponsored Christmas families, packaged food at Feed My Starving Children, collected money for the food shelf, assisted at the community stroke screening, and volunteered at bike safety camps. Having this variety of opportunities allowed members to participate in greater numbers. To support AACN key initiatives, we sponsored a CCRN/PCCN review, held a certification celebration dinner, and focused on creation of a healthy chapter environment. To promote chapter recognition, we added a Facebook page and enhanced the Web site and newsletter. **Evaluation/Outcomes:** As we changed our format for education in response to feedback from members, Stan grew 25% taller. Thanks to our participating in the Beacon webinar, identifying how we are creating a healthy chapter environment, sponsoring a CCRN/PCCN review, and holding our first certification celebration dinner, Stan was able to grow 50% taller. Toward the end of the year, Stan grew to 75% as our variety of community service opportunities allowed members to participate in greater numbers than last year. Stan became full height as we promoted the chapter through Facebook, a new Web site, and a newsletter, and when we were notified that we had been given the President's Award for chapters, the ultimate recognition.

### **CH132 Together We Make Our Chapter Bolder and Stronger**

Mary Reid, Nicki Roderman, Karen Sullivan; Dallas County Chapter, Dallas, TX

**Purpose:** Maintaining a healthy, long-standing chapter with a strong membership is a challenge. As one of the strongest chapters in the country and one that is nearly 40 years old, our chapter has had goals in place to promote the mission and vision of AACN. For the past 5 years, chapter members have worked together to make our chapter stronger by focusing on increasing membership, providing education relative to the chapter members' needs, promoting certification, and extending a hand in volunteerism. To achieve our goals, a plan was put in place for succession planning for our chapter leaders. **Description:** To keep the chapter moving toward its goals, while remaining fiscally strong, the chapter has continuously worked on recruitment efforts, not only for chapter members, but for board members as well. Identifying potential leaders for the chapter is an ongoing process. It is the goal of the board to engage new board

members, not recycle the same members on the board. Opportunities for participation are advertised at our monthly meetings and through the chapter's newsletter and website. Members are encouraged to attend the board meetings. Chapter leaders find opportunities that will fit any person's schedule. A formal process is conducted every spring for nominations for new leaders that includes descriptions for positions and requirements to serve. This allows all chapter members opportunities to start getting involved. Board mentoring programs are in place for the positions of treasurer and president to allow the member a year-long internship into learning the position. Presidents are encouraged to choose a past president to mentor them during their term. Elections are handled electronically and in person at the same time annually to maintain consistency. **Evaluation/Outcomes:** Since 1972, the chapter has had 37 different presidents. Only 3 individuals have served more than 1 term as president. During that time, the chapter has grown, and it now has more than 120 members, many of whom are long-term, dedicated members of the chapter. Recruitment and sustaining membership has been possible through the guidance of a stable board and ability to offer excellent educational programs each month, additional educational programs, and certification review courses. Additionally, the chapter has a strong connection with the community through volunteer efforts supported by the membership.

### **CH133 Together, Stronger, Bolder: Partners in Improving the Local Chapter Experience**

Cher Hagaman; Greater Long Beach and Orange County Chapter, Huntington Beach, CA

**Purpose:** To assist other chapters in using partnerships to strengthen their own chapters. Our first partners were our members. We started with a needs assessment to discover what members want and need from their chapter. Simple: "educational and networking opportunities, professional growth and development, new information, clinical ladder points, and free events." Providing monthly meetings that were entertaining, educational, cutting edge, well-attended, interactive, and free would be a challenge. **Description:** To improve our educational offerings, without increasing costs to our members, we enlisted the help of pharmaceutical and device companies that offer expert speakers on a wide variety of current critical care topics for our monthly meetings. This

ensures high-quality, new information in a great venue without exhausting our budget. To encourage the evaluation of evidence-based practice, we have designated the clinical nurse specialists and nurse practitioners on our board to find journal articles related to the topics being presented and disseminate them weeks before the meeting. After the speaker presents, there are questions and a facilitated discussion, in a journal club format. We are then better able to assist our members with obtaining valuable clinical ladder points at their institutions through “active” participation in their professional organization. We also use the free service of Facebook to invite our guests and manage responses. Finally, we use our Chapter Advisory Team and the other amazing resources at AACN for information and guidance in keeping our goals in alignment. **Evaluation/Outcomes:** Our membership has more than doubled since the implementation of the sponsored journal club events. This year’s needs assessment showed an increase in member satisfaction with their local and national membership. Because our members perceive value in their professional organization membership, our chapter continues to grow on a monthly basis. Journal club allows us to meet our members’ needs, support the professional growth of our members, control costs, and offer fantastic events that are filled to capacity every month.

### **CH134 Watch One, Do One, Teach One: Chapter Leadership Succession Planning**

Helen Hughes, Dorothy Belkoski, Kelly McNeil-Jones; Greater Washington Area Chapter, Washington, DC

**Purpose:** Greater Washington Area Chapter (GWAC) consistently succeeds in attracting leaders who inspire excellence. Our members work in varied disciplines, representing many institutions within the area; however, we are all united in the vision and goals of GWAC. That competitive yet friendly spirit, as well as our diversity, has allowed our chapter to produce great leaders. The purpose of our succession planning is to maintain a legacy that promotes professional development, collegiality, and community. **Description:** Throughout the year, our leaders are looking for our next officer among our peers and attendees we meet at chapter functions. Our strategy to attract and connect with membership as well as foster a mentoring environment for perspective leaders includes distributing a call for nominations in our quarterly newsletter, using social media, announcing

nominee bios and election results on our website, providing dinner meetings, and encouraging participation in an annual regional leadership conference. The planning committee for our annual 2-day conference, Spotlight on Critical Care, has a 26-year history of producing outstanding leaders. The committee allows the opportunity to hone the needed skills as a project manager. Officers gain confidence for their future role through mentorship to prepare them for the position. Our succession resource, the “If I Die Book,” details the execution of chapter responsibilities required to run the chapter in the absence of the current officer, as well as the resources for sustaining the chapter’s vision and goals. Our transition meeting is a celebration that allows newly elected officers to meet with outgoing officers and discuss pending programs, exchange ideas, and answer questions.

**Evaluation/Outcomes:** The evaluation of our leaders is measured by the success of our chapter—GWAC was awarded the President’s Award in 2006 and 2010 as well as 3 Circle of Excellence Awards in 2011. Our leaders represent the qualities of commitment and model effective leadership skills. We seek to attract as well as retain, engage, and inspire our members to be the future leaders of our chapter. We operate a fiscally responsible chapter, yet offer opportunities to network at our educational programs, meet and greets, and dinner meetings. Our chapter’s leaders continue to seek fresh voices to take on the challenge of shepherding the chapter to even greater success.