



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Green is Good: Best Practices for Managing Feeding Intolerance among Neonates

Houston, L., Smith, T., Thorngate, L., Cordner, C., Dunn Caldwell, A., Hou, S., Mayock, D., Zerzan, J., University of Washington Medical Center, Seattle, WA

Purpose: 1) Optimize nutrition support by minimizing interruptions in feeds 2) Reduce the time to reach full enteral feeds 3) Promote early recognition of Necrotizing Enterocolitis (NEC) a life threatening disease 4) Determine best practices for managing feeding intolerance.

Synthesis of Evidence: Our multidisciplinary team read >50 papers, critiqued the science and clinical relevance. The evidence was equivocal, some studies advocating practices in conflict of others. Clear practice guidelines and strongest evidence were chosen to model our unit guidelines. We reviewed published indications of feeding interruption and intolerance in detail.

Proposed Change in Practice: We wrote guidelines for feeding intolerance. Clinical signs including: abdominal distention (> 2cm increase); abdominal discoloration; blood in stool; tenderness; residual feeding in stomach; increase in apnea or bradycardia beyond baseline; signs of cardiopulmonary instability. Before the project, there was no consensus around the management of residuals. Discarding aspirate, formerly common, disrupts electrolyte balance and nutritional intake. Green colored aspirate, now acceptable except in rare situations, presented a major change in practice and nursing beliefs.

Implementing Strategies: Prior to the project, we ran an anonymous electronic survey to assess staff beliefs and concerns about current practice, risks of NEC, and rates of feeding intolerance. Responses varied widely, especially beliefs about best practices for managing residuals. After guideline development, an algorithm was designed; reference materials placed in handy packets, and posted copies of the guidelines followed. We devised a simple tool to capture variance and assess adherence.

Evaluation: To evaluate the practice change, we collected data indicating numbers of abdominal films, and days to full feedings prior to implementation. By the time of presentation, we will have compared pre and post data for each metric.

Contact: ejhay@uw.edu



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Reducing the Pain of Manuscript Development: The Story of Sucrose

Mokhnach, L., Anderson, M., Berkan, M., Diercks, K., Glorioso, R., Hou, S., Loeffler, K., Millar, A., Shinabarger, K., Thomas, K., Thorngate, L., Walker, W., Yates, M., University of Washington Medical Center, Seattle, WA

Purpose: This phase of the project will disseminate information from research and protocol development to other nurses and NICU practice sites.

Background/Significance: Convention holds that innovation takes 17 years to go from research to practice. We want to narrow the gap by creating an article to unite evidence and practice. Sucrose is an important non-pharmacologic option for prevention of procedural pain in infants. Our unit practice was not standardized. Nurses did not understand the mechanisms or optimal dosing of sucrose. Last year we reviewed the literature, took a critical look at current practice, developed a clinical protocol, implemented and re-evaluated. This year we took the next step to write a manuscript for submission to a neonatal journal.

Description: We hosted a series of group writing parties to draft and polish our manuscript. Group members include a clinical champion for sucrose use, critical thinking staff nurses, sharp eyed editors, a professor from the School of Nursing, and a couple of advanced practice nurses. Members suggested journals for consideration; the lead author reviewed "author guidelines" and contacted the editor to query for interest. Our lead author started us with a draft; we met in two casual settings with computers, references, and snacks. Members took on varied roles: scribe/typist, idea generator, word reducer, clarity seeker, and reference checker. In a few short hours, we had a draft developed and ready for review.

Evaluation and Outcomes: We have a nearly finished product ready for submission with authorship shared. The group connectedness that came from this project was unanticipated. For example, everyone was required to develop a resume, a daunting task for some nurses who had worked in our unit for many years, or had not been in school in a long time. The project brought out the best.

Conclusions: As hard as it was to start writing alone, the pain was much less and the process sweeter with support.

Contact: mokhnach@uw.edu



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Toward Being “Baby Friendly”: One Hospital’s Journey to Excellence

Lautman, B., Wall, G., O’Connell, K., University of Washington Medical Center, Seattle, WA

Purpose: The purpose of this project was to achieve Baby Friendly status at the University of Washington Medical Center in Seattle, Washington.

Background/Significance: The literature is replete with data confirming that breast milk is the best nutrition for infants. Breastfeeding has been shown to significantly improve both the health and welfare of babies. In 1991, the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF) launched the “Baby Friendly Hospital Initiative” as a program to increase breastfeeding rates worldwide. Baby Friendly designated hospitals are noted to have elevated rates of breastfeeding initiation and exclusivity in the United States and around the world. Studies have shown that babies born in hospitals that have achieved Baby Friendly status report a decrease in certain infections/allergies.

Description: To achieve Baby Friendly designation, a hospital must demonstrate implementation of the Ten Steps to Successful Breastfeeding (see attached list). UWMC began the journey in 2003 with 18-hours of staff education. In January 2008 the hospital purchasing department began paying fair market value for all infant feeding products. The hospital applied for a Certificate of Intent to become Baby Friendly in April 2008, and invited the surveyors to assess the hospital’s practice in August 2009. In the months leading up to the survey, the authors conducted mock surveys, chart audits, and patient interviews.

Evaluation and Outcomes: During a 2-day site visit, the Baby Friendly assessors interviewed mothers receiving perinatal care at UWMC about their experience of each of the Ten Steps. Perinatal staff nurses and physicians were also interviewed. Staff training documentation, infant formula purchasing, hospital procedures immediately after birth, use of infant formula/bottles/nipples and pacifiers, rooming-in, and follow-up were examined.

Conclusions: Baby Friendly designation is an arduous process that requires commitment from hospital administration, nursing as well as medical leadership and staff. UWMC achieved Baby Friendly status in 2009.

Contact: blautman@uw.edu



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Development of Practice Guidelines for Hyperglycemia Management and Insulin Therapy in Premature Infants

Caldwell, A., Hou, S., Nguyen-Vermillion, A., Thorngate, L., Zerzan, J., University of Washington Medical Center, Seattle, WA

Purpose: The purpose of this project is to achieve greater consistency in managing hyperglycemia and insulin drips in preterm infants, in response to concerns regarding the wide variability in approaches that were in use.

Background: Hyperglycemia occurs in 40 – 68% of preterm infants, with the incidence 18 times more frequent in babies weighing less than 1000gms. There is a documented association between hyperglycemia and morbidity, without a clear cause and effect. Insulin is used to treat hyperglycemia to try to prevent morbidity.

Description: The conceptual framework of the project was based on the quality process principles of plan-do-check-act. An evidence-based presentation for the all stakeholders (Neonatologists, Fellows, NNPs, and NICU Nurses) was developed, outlining what is known about hyperglycemia and the use of insulin drips. Technology that allowed for voting on specific elements of a guideline was utilized during the presentations to help build consensus. Next, a draft guideline was developed and circulated for review. An educational plan for the nursing staff and the pediatric residents was formulated. The guideline was implemented in September 2008. Two revisions based on stakeholder feedback have been done. The revisions did not change content, rather clarified the guideline to improve uniformity of care.

Evaluation and Outcomes: Since July 2009, selected clinical parameters for every preterm infant treated with insulin are tracked using Excel, 2007. At the time of submission, there is good compliance with the guideline for when to start insulin and with the starting dose of insulin. Other tracking points show greater variability, emphasizing the need for continued work to modify practice.

Conclusions: There is evidence that this project has begun to improve consistency in care, however there are still areas of variation. Based on current data tracking methods, specifically targeted educational efforts will be implemented.

Contact: adc3@u.washington.edu



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Implementing a Pediatric Rapid Response Team

Murchie, W., Roberts, J., Zimmerman, J., Seattle Children's Hospital, Seattle, WA

Purpose: Creation of a Rapid Response Team (RRT) to provide critical care expertise to acute care units when a higher level of care is needed urgently.

Background/Significance: Respiratory failure and shock are common precipitating causes of pediatric cardiopulmonary arrests. Early identification and intervention of clinical warning signs can improve patient outcomes and reduce out of ICU arrests.

Description: A rapid response team consisting of an ICU RN, ICU RT and Shift Administrator was formed. Activation of the RRT may occur for any clinical concern or elevation in a newly created Modified Pediatric Early Warning Score (MPEWS). Multidisciplinary education and pilot of the MPEWS and RRT were done prior to house wide implementation in May 2008. During an RRT call an Event Record is completed in SBAR format. The team is trained to provide recommendations and specific treatments. For each call the ICU physician is contacted and briefed by the RRT. An ICU medical consult will be completed if needed and if more intensive care is required, the patient will be transferred to the ICU. Online evaluations are completed by all healthcare members involved in the call. Data is collected from the RRT events to track the progress of the program. A Multidisciplinary RRT Committee meets monthly to review each call.

Evaluation and Outcomes: Over 220 RRT's have been called. Nurse concern accounted for 81% of the calls. Respiratory distress was the most common clinical reason for concern. Average RRT response time was three minutes. 42% of calls required admission to the ICU. The MPEWS required revision to better identify potentially deteriorating patients. Acute Care Unit nurses provided positive feedback and feel it has improved communication with the ICU and their ability to care for potentially deteriorating patients.

Conclusions: New online MPEWS tool and family activation of the team will occur in November 2009.

Contact: wendy.murchie@seattlechildrens.org



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Improving Care of the Involuntarily Detained Boarded Psychiatric Patient (IDBPP) in our Emergency Department

Davis D., Edwards S., Sweeny S., Benvenuto K., Murray S., Jobe K., Yamanaka, M., Pozorski D., the ED Psych workgroup, University of Washington Medical Center, Seattle, WA

Purpose: To standardize care of the Involuntarily Detained and Boarded Psychiatric patient in the ED. Background: US Department of Health and Human Services identifies boarding psychiatric patients in the ED as a national problem. It's reported that boarding has a negative impact on ED staff increasing work load, precipitating abuse, increasing staff turnover and decreasing their ability to care for medical emergencies. Many patients are at high risk of harm to self or others and are in restraints or seclusion. The lack of involuntary beds leads to boarding of the detained psychiatric patient ranging from hours to days.

Method: A multidisciplinary team meets monthly to identify obstacles and solutions in caring for this patient population.

Results: The obstacles can be categorized as lack of knowledge, role confusion, organizational, systems, and environmental. Accordingly solutions are: a power-point presentation outlining the Involuntary Treatment Act for staff to view, an algorithm for giving medications to a detained patient, a checklist of tasks and discipline responsibilities, organization of a flip chart, several psychotropic medications are now stocked in the ED, patients are no longer automatically discharged from the pyxis at midnight, there will be light dimming capabilities in the room and a visible clock and calendar.

Conclusion: The implementation of all our solutions will increase ED staff's ability to care for the IDBPP while also providing care for emergency patients in general.

Contact: davisdk@uw.edu



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Development of an Inpatient Psychiatric Individualized Behavior Rating Form (IBRF)

Caufield, S., Laney, T., Schloredt, K., Seattle Children's Hospital, Seattle, WA

Purpose: The purpose of our study was to develop an inpatient documentation format that was diagnostically relevant for individual patients depending on their DSM-IV diagnosis. The form provides DSM-assessment data in the form of individually ordered diagnostically related clinical scales for each patient to assist the team in diagnostic clarification. The form also objectively measures levels of impairment from symptoms as well as functionality in self management skills in order to show treatment effects. The form is structured in such a way as to support our functional analytic behavioral assessment and to reinforce skill-building intervention approaches.

Background / Significance: Children admitted to inpatient psychiatric units demonstrate problematic behavior and various skill deficits related to their psychiatric diagnosis. Systematization of assessment and coordination of care between floor staff providing the majority of care and clinical team is a challenge. An opportunity exists to develop a format that provides information needed by the team to complete the inpatient treatment goals, directs floor staff (coaches) in their observations and interventions, and provides objective outcome data for the inpatient stay.

Description: Our current inpatient behavior rating form (IBRF) was redesigned to include the following elements: A diagnostically-related clinical rating scale based on DSM-IV criteria and symptoms; a rating for individualized patient symptoms; a rating for skills achievement in areas including: self-care, work/play, social, emotion regulation and distress tolerance; a rating for the level of coaching intervention required in terms of restrictiveness of intervention; and a narrative section with detailed information on skills coached by unit staff, functional analysis of problem behaviors, and evaluation of the patient response to interventions. The form has been trialed for the last 4 months and we are now reviewing data and feedback given by floor staff.

Evaluation: We are currently collecting data as well as feedback on the rating form with the goal to establish validity and reliability and direct further staff training in use of the IBRF.

Conclusions: Collecting individualized diagnostically relevant assessment data on each patient on our inpatient unit has several advantages. A focused amount of relevant information can be obtained for each patient improving both the comprehensiveness and efficiency of charting. Standardizing the symptom assessment based on DSM-V diagnostic criteria ensures that the data is relevant to the clinical staff. The operational definitions provided for each rating score are objectively defined using quantifiable observable indices leading to the collection of data that is should be demonstrably valid and reliable. Finally the format and operational definitions provided for all items constantly reframe and refocus our coaches on our behavioral intervention philosophy, focus on teaching skills and using the least restrictive interventions.

Contact: sarah.caufield@seattlechildrens.org



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Nurses Making a Difference: Reduction of Catheter Associated Urinary Tract Infections Following a Nursing In-Service

Lynne Ludeman, PVAMC, Portland, OR

Purpose: Reduction of inappropriate indwelling urinary catheter days and concomitant reduction of catheter associated urinary tract infections.

Background/Significance: Up to 25% of persons admitted to the hospital will have an indwelling urinary catheter placed. Inappropriate use and duration of indwelling urinary catheters (IUCs), frequently associated with nosocomial infections, can lead to increased hospital costs, lengths of stay, and mortality rates. Urinary tract infections are the most common hospital-acquired infection, with indwelling urinary catheters implicated in 95% of these infections. The most significant risk factor for a catheter-associated urinary tract infection (CAUTI) is the length of time the catheter is in place; infection rates of 10%-40% are seen with IUC placement for seven days and as high as 100% when IUCs are in place over 14 days. Since nurses play a large role in the management of IUCs, an education in-service was designed to inform the nursing staff of evidence-based rationale for placement, maintenance, and continuation of IUCs.

Methods: An evidence-based in-service providing an overview of CAUTI causes and prevention was created for the nursing staff on a medical-surgical unit. Topics covered in the in-service included evidence-based practice indications for insertion and maintenance of IUCs, alternatives to placement, proper collection of urine for analysis, and guidelines for assessing whether new orders for IUC placement were warranted. In the event an IUC was already in place, an algorithm was provided to assess whether the IUC could be removed. Utilizing the algorithm, RNs were encouraged to contact the physician if the IUC placement was no longer warranted. To reinforce the original in-service, periodic emails were sent to staff, just-in-time teaching was provided, and a poster with the in-service information was placed on the unit. To assist with daily assessment of placement, RNs were asked complete a daily checklist for each patient with an IUC, on which were appropriate indications for IUC placement. This data, combined with IUC day data and patient chart reviews, was used to assess appropriateness of placement. In addition, a survey to assess the effectiveness of the in-service as it related to appropriateness of IUC placement was filled out by nursing staff post in-service. CAUTI rates were calculated per quarter.

Results: Preliminary data shows both a reduction in CAUTI rates and a high rate of nursing assessment for appropriateness of placement and continuation of IUCs. Furthermore, based on survey data, a large majority of RNs state that as a result of this in-service, they "usually" or "always" assess for appropriateness of IUC placement.

Conclusion: Nursing education regarding appropriate placement and continuation of indwelling urinary catheters can be beneficial in increasing awareness of evidence-based rationale for these devices. Preliminary data for this medical-surgical unit indicates that the in-service provided information needed to assess appropriateness of placement. Staff completion of daily indwelling urinary catheter checklists showed a high level of assessment for appropriate indwelling urinary catheter placement. Furthermore, following the in-service the unit experienced a reduction in catheter-associated urinary tract infections.

Contact: Lynne.Ludeman@va.gov



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

sTREM-1 in Bronchoalveolar Lavage Fluid and Exhaled Breath Condensate in Ventilator-Associated Pneumonia

Palazzo, S., Simpson, T., Gundel, S., Schnapp, L., School of Medicine, University of Washington School of Medicine, Seattle, WA.

Rationale: Ventilator Associated Pneumonia (VAP) is an important cause of attributable morbidity and mortality in ICU patients. Early diagnosis of VAP should lead to timely administration of appropriate antibiotics. Prior studies have suggested that soluble triggering receptor expressed on myeloid cells-1 (sTREM-1) levels may be useful as an early marker for VAP. The collection of exhaled breath condensate (EBC) is non-invasive, inexpensive, and can be performed by bedside nurses. We compared the diagnostic utility of sTREM-1 levels in EBC and bronchoalveolar lavage fluid (BALF) as a predictor of VAP in ventilated critically ill adult patients.

Methods: ICU patients clinically suspected to have VAP underwent bronchoscopy for quantitative cultures and simultaneous collection of EBC condensate. sTREM-1 levels were measured in BALF and EBC using Human TREM-1 Immunoassay (R&D Systems).

Results: To date, we have analyzed 11 subjects that met inclusion criteria. Seven of the eleven subjects were diagnosed with VAP by quantitative cultures. EBC sTREM-1 levels did not show a strong correlation with BALF sTREM-1 levels ($r = -0.09$). EBC sTREM-1 levels (cutoff value of 5pg/ml) had a low sensitivity (57%), specificity (20%), positive predictive value (57%), and negative predictive value (25%) for VAP. BAL sTREM-1 levels (cutoff value of 220 pg/ml) had moderate sensitivity (71%), high specificity (100%), low positive predictive value (56%), and high negative predictive value (100%) for VAP.

Conclusions: Based on this small pilot study, sTREM-1 levels, although detectable in EBC, did not correlate with BAL sTREM-1 levels. EBC sTREM-1 level alone did not offer specificity or sensitivity as a marker for VAP. Specificity and negative predictive values suggest the potential diagnostic utility of BALF sTREM-1 levels for ruling out VAP. Future work will examine additional subjects and will examine serial measurements of EBC sTREM-1 in ICU patients to determine whether increasing EBC sTREM-1 levels may be an early indicator of VAP, therefore, prompting additional work-up (i.e. bronchoscopy) for VAP.

Funding: NIH K24 HL068796, NIH F31 NR011390-01

Contact: jtrog70@aol.com



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Propofol Dose Response Study for Procedural Sedation in the Emergency Department: A Math Modeling Study

Schmedel W, Providence St. Vincent Medical Center, Portland, OR

Purpose: Efficacious procedural sedation is defined as having shorter procedural sedation time, absence of pulmonary or hemodynamic changes, and the achievement of a deeper level of sedation measured by the Ramsey score. The dose response of propofol varies with each patient according to the patient's age and ASA score.

Background: The goal of procedural sedation is to target a specific level of sedation without any hemodynamic or respiratory compromise. Rare occurrences of respiratory and/or hemodynamic compromise has occurred even when the standard dose of propofol of 1 mg/Kg was employed. If the factors that affect the level of sedation can be identified, then it may be possible through math modeling to specifically target the specific dose of propofol to obtain a desired level of sedation without hemodynamic or respiratory compromise.

Methods: 442 patients were retrospectively observed who all received propofol as a single agent employed for procedural sedation. Age and the Anesthesiology Society of America (ASA) score were used as independent variables. The sedation dose response was a calculated number and defined by the Ramsey Score divided by the propofol dose (mg/Kg of body weight).

Results: The age ranged from 1 to 99 years. The ASA score ranged from 1 to 5. Ramsey score ranged from 1 to 6. Multiple regression analysis revealed the intercept of 1.86 ($p < 3 \times 10^{-18}$), age of 0.03 ($p < 5 \times 10^{-14}$), and ASA score of 0.4 ($p < 0.004$). ANOVA revealed overall statistical significance with $F(2, 439) < 1.5 \times 10^{-22}$.

Conclusion: Algebraic summarization of the findings revealed a math model equation that can significantly target the desired dose (via the Ramsey score) of propofol given the age and ASA score of the patient as:

$$\text{mg of propofol} = \frac{(\text{Ramsey Score}) \times (\text{patient weight in Kg})}{1.86 + 0.03(\text{Age}) + 0.4(\text{ASA score})}$$

Contact: Wayne.Schmedel@providence.org



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Can you PASS the Blood Pressure Test? Blood Pressure Performance Improvement Project, Medical-Surgical Local Practice Council

Wiederhold, N., Tostenrud, L., Pinner, J., Bridges, E., University of Washington Medical Center, Seattle, WA

Purpose: Obtaining an accurate blood pressure (BP) measurement is vital to the highest quality patient care in all areas of clinical practice. Members of the Medical-Surgical Local Practice Council (LPC) were concerned that there were variations in the performance of BP measurement. A performance improvement initiative was undertaken to improve consistency in the performance of BP measurement by RNs and Healthcare Assistants (HAs) on medical-surgical units at an academic medical center.

Method: To determine educational needs members of the medical-surgical LPC conducted 100 baseline audits of RNs and HAs performance of BP measurements. Elements that were recorded included job title (RN vs HA), manual or automatic reading, and observations of the following: Did the healthcare provider **P**alpate the brachial artery and place the artery arrow on the cuff correctly? Was the **A**rm supported at heart level? Was the cuff placed on **S**kin? Was the correct **S**ize cuff used? After the baseline assessment an educational program was initiated that included distributing evidence-based talking points on BP measurement, a "What's New in Nursing Poster" titled "Can you PASS the BP test?" posted hospital wide and an educational cart was created to rove to the medical surgical units. Members of the LPC took the cart out at scheduled times to include different shifts on the second and fourth weeks of August 2009. The cart contained questions from the talking points, the poster, "I PASSed the BP test" stickers, candy/coffee cards, and several BP cuffs for discussion on sizing. Pre/post observations were conducted to identify areas for improvement and evaluate the effectiveness of the performance improvement intervention.

Findings: The pre-intervention audits identified areas for improvement for both RNs and hospital assistants (HAs) and indicated that the essential elements (PASS) were not consistently performed. At baseline the HAs performed more of the PASS items correctly compared to the RN group. 220 RNs and HAs received education from the rounding cart. Pre/Post Audit Results for RNs: Palpation (14% vs 94%), Arm Supported (36% vs 94%), Skin - Cuff on Skin (93% vs 88%), Size correct (85% vs 88%). Pre/Post for HAs: Palpation (43% vs 70%), Arm Supported (50% vs 100%), Skin - Cuff on Skin (96% vs 77%), Size correct (75% vs 100%). RN and HAs who received this educational intervention commented that they enjoyed the project and have made improvements in the way they perform BP measurements.

Discussion: Post-rounds audits indicate improvement in the correct performance of BP measurement for both RNs and HAs. Follow-up is ongoing to improve adherence to PASS and to ensure that all staff have been exposed to the PASS education.

Contact: nwieder@uw.edu



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Comparative Evaluation of Minimally Invasive vs. Non-Invasive Hemodynamic Monitoring vs. Pulmonary Artery Pressures

Pickett, J., Almero, S., Wolak, E., Swedish Medical Center, Seattle, WA

Purpose: Evaluate clinical usefulness of two hemodynamic monitoring devices: minimally invasive FloTrac/Vigileo (Edwards Lifesciences, Irvine, CA) device based on radial artery waveform analysis; and non-invasive NICOM (Cheetah Medical Inc., Indianapolis, IN) based on chest bioimpedance.

Background/Significance: Pulmonary artery catheter (PAC), used as the reference, is an invasive device for measuring cardiac output. Indices available in less invasive devices (e.g. stroke volume variation, pulse pressure variation) are reliable predictors of fluid responsiveness.

Methods: Prospective one-sample paired experimental design in open-heart surgery patients as compared to FloTrac (n=2) or NICOM (n=1) devices. Cardiac output (CO) and cardiac index (CI) data sets (n=57), were collected. All devices were calibrated at regular intervals and with changes in patient status before initiation of readings.

Results: Statistical significance was noted between both the minimally invasive and the non-invasive devices, and the PAC, using a paired t-test ($p < 0.01$). Mean CO PA catheter (4.04 L/min) vs. FloTrac (4.53 L/min); mean CI PA catheter (2.11 L/min/m²) vs. FloTrac (2.44 L/min/m²) for patient in sinus rhythm and sinus tachycardia (n = 11). Mean CO PA catheter (5.22 L/min) vs. FloTrac (5.11 L/min); mean CI PA (6.44 L/min/m²) vs. FloTrac (3.31 L/min/m²) for patient in atrial flutter (n = 18). Mean CO PA catheter (4.77 L/min) vs. NICOM (5.13 L/min); mean CI PA catheter (2.10 L/min/m²) vs. NICOM (2.25 L/min/m²) for patient in sinus rhythm and sinus tachycardia (n = 28).

Conclusions: Statistical difference was noted between the PAC as compared to either device. As all measurements were within the normal reference ranges, clinical significance needs to be determined. Limitations include a small sample size. Further research is needed with a larger sample size, device randomization, and expanded populations to measure if significance exists between the devices as compared to the PAC.

Contact: joya.pickett@swedish.org



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

Implementing Self-Scheduling on a Medical Unit

Kennemore, C., Johnson, S., Staab, R., Pham, M., Madigan Army Medical Center, Tacoma, WA

Purpose: Implement self-scheduling to increase staff morale and offer flexible scheduling options.

Background/Significance: Staff expressed dissatisfaction with inconsistent scheduling and lack of flexibility. A staff nurse assigned the extra duty of scheduler was responsible for scheduling all staff to cover 24/7 nursing care operations on a 32-bed medical unit in a military medical center. The scheduler typically had limited scheduling experience. The assignment is a professional development role for junior Army Nurse Corps officers. Due to high staff turnover, the assignment rotated to a new officer every 6 months. The literature supports correlation of job satisfaction with the nurse's work schedule.

Description: Staff was surveyed to determine current satisfaction and scheduling preferences. Based on the questionnaire and literature review, rules of engagement were set. Workbook portfolios were created and distributed to each staff member with one-on-one education. Using a posted scheduling template staff enter a preferred schedule over a designated time period. At the end of the period a scheduling committee reconciles the schedule to meet unit needs. Post-implementation staff was re-surveyed. Other outcome measures include missed work rate and use of the on-call person.

Evaluation and Outcomes: At 3 months mean ratings for 8 questionnaire items were improved; two items related to "schedule meeting personal/family needs" and "feeling the scheduling system is fair" were significantly improved ($p < 0.05$). There was a small improvement in missed work rate and no change in using the on-call person.

Conclusion: Self-scheduling has increased staff satisfaction, sense of autonomy and unit cohesion. The self-scheduling committee continues to adapt guidelines in order to better accommodate needs of the unit and staff preferences.

Contact: caryn.kennemore@us.army.mil



Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 117/121

From Apathy to Accountability: Improving Daily Weights.

Kimball, S., Wood, A., Providence Portland Medical Center, Portland, OR

Purpose: To improve compliance with obtaining and documenting ordered daily weights.

Background/Significance: Ordered daily weights had been obtained and documented sporadically on the respiratory unit at Providence Portland Medical Center for years. Motivated by complaints from MDs the desire to improve practice and to model daily weights for patients with heart failure, the unit's practice council decided to take this on as a quality improvement project. A baseline measurement was obtained and, using the PDSA model (Plan, Do, Study, Act) the practice council used multiple methods to improve including: barrier identification, identifying the unit standard, bed scale competencies, education for the CNAs on why weights are important, a report that prints daily at 0400 listing the ordered daily weights, delineated responsibilities, consistent feedback, and management intervention when identified practice was consistently not followed.

Conclusion: It takes months of consistent effort, feedback and process evaluation to change practice. However, the unit was able to improve their missed daily weight percentage from 22% to 0% eleven months later.

Contact: Sharon.Kimball@providence.org