



## Seattle Nursing Research and EBP Conference 1-26-2010

1400-1500 PM POSTER SESSION – R & T 109/113

### **Pressure Ulcer Prevention: Use of Information Technology and the Electronic Medical Record to Prioritize Resources.**

Karvonen, C., Granich, M., McKenzie, S., Pierce, S., Rodrick, K., Sparks, B., Tyler, L.,  
University of Washington Medical Center, Seattle, WA.

**Purpose:** To prevent pressure ulcers in ICU patients utilizing the Braden risk assessment scale, informatics, and the electronic medical record (EMR) to identify patients with risk factors for pressure ulcer development, and prioritize medical center and ICU resources to high risk patients.

**Background/Significance:** Quarterly NDNQI indicated an upward trend in the pressure ulcer prevalence (PUP) rate in our Medical/Surgical ICU. A peak PUP rate of 43% in March of 2009 stimulated our QI plan. First we developed an ICU Skin Team. Skin Team members were trained by our Wound/Skin specialist nurses in pressure ulcer prevention strategies. The Skin Team utilizes the EMR to identify patients in the ICU with Braden scores < 15, and then rounds on those patients first, implementing pressure ulcer prevention interventions and providing education to staff, patients and family members. In addition we created an informatics program that generates a High Risk Pressure Ulcer List (HRPUL), by mining the EMR for patients with Braden Scale scores less than 15. During an 8 week pilot project we collaborated with the medical center Turn Team to design a reliable rounding process that provides turning assistance every two hours, for patients that alert on the HRPUL.

**Results:** We are utilizing quarterly NDNQI PUP data, and monthly unit acquired pressure ulcer incidence rate data to evaluate outcomes. Quarterly PUP rates in 2Q09 and preliminary 3Q09 rates of 6% and 17%, respectively, indicate an improving trend, since the implementation of Skin Team rounds in April 2009 and Turn Team utilization of the HRPUL in June 2009. Monthly incidence rate of unit acquired pressure ulcers per 1000 patient days, from April through September 2009 (5.4, 13.1, 14, 12.7, 8, 6.7) also indicate an improving trend.

**Conclusion:** Use of the EMR and informatics to identify patients at high risk of pressure development, focuses targeted interventions to patients at highest risk and optimizes use of resources.

**Contact:** tylerl@u.washington.edu



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### Minimum Discard Volume to Avoid Flush Contamination with Central Venous Catheter Blood Draws.

Wyant, S., Crickman, R., University of Washington Medical Center and Virginia Mason Medical Center, Seattle, WA

**Purpose:** To determine within 3mL increments the minimum discard volume to avoid flush contamination of blood drawn from CVC.

**Background:** A medical center had a lack of standardized discard volume and a high rate of redraws from central venous catheters (CVC). Review of research regarding CVC blood discard volume in adults is equivocal.

**Methods:** Repeated measures design with subjects as their own control. CVC were flushed prior to sampling with 10mL of 5% dextrose. Four serial samples were drawn in 3mL aliquots (3, 6, 9, 12mL). Blood glucose for each aliquot was measured four times and the mean blood glucose was determined. A convenience sample of 93 patients was studied. Cohorts evaluated: implanted ports (IP), tunneled lines (TL), and non-tunneled lines (NT).

**Data Analysis:** The differences between mean glucose levels of serial specimens were analyzed with paired t-tests and Bland-Altman plots (bias and 95% limits of agreement [LOA]). Clinical significance, >5% difference in mean blood glucose levels between 9 and 12mL, was assessed.

**Results:** For each cohort the mean difference in blood glucose (9 and 12mL) follows: IP (n=33): 7.87+ 9.57 mg/dL (p<0.01); TL (n=30): 2.13 + 2.48 mg/dL (p<0.01); NT (n=30): 0.73 + 1.75mg/dL (p<0.01). Bland-Altman plots displayed the difference in glucose levels between aliquots 9 and 12 mL. IP=95% LOA: -10.88 to 26.62 mg/dL, 3 subjects outside LOA; TL=95% LOA: -2.83 to 7.09 mg/dL, 3 subjects outside LOA; NT=95% LOA: -2.72 to 4.38mg/dL, 2 subjects outside LOA. Clinical significance analysis: IP= 6/33; TL= 2/30; NT= 1/30.

**Conclusions:** The minimum discard for implanted ports was not determined. A discard of 9mL is sufficient to avoid contamination for tunneled and non-tunneled lines. Only one subject would have required different treatment (e.g. insulin administration) in the 9mL aliquot group. Additional research is needed to determine if a push-pull blood sampling method avoids flush contamination and optimizes blood conservation.

**Contact:** swyant@u.washington.edu



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### **Medical House Call Program: Identifying and Serving an Elderly Homebound Population in a Large HMO.**

Hill, J., Martaus, T., Group Health Cooperative, Seattle, WA

**Purpose:** Because elderly homebound patients have limited access to medical care, a Medical House Call Program is being developed. Implementing a Quality Improvement process together with program initiation will provide data on the characteristics and needs of the population to be served. Such data will create a basis for the development of services specifically targeted to meet the health needs of this elderly population.

**Background and Significance:** The homebound elderly are a fast-growing segment of the population and because of advanced age they frequently have multiple chronic medical conditions. With their homebound status they are unable to be seen conveniently by their clinic-based Primary Care Provider (PCP), so the medical management is challenging. New programs, such as the Medical House Call Program, are being developed to better serve this population.

**Description:** The Medical House Call Nurse Practitioner serves this homebound population by visiting them in their home or at an assisted living facility or an adult family home. A Geriatric Assessment is conducted and consultations with specialists, if needed, are done by telephone or electronic messaging. All notes are shared electronically with the PCP and other members of the care team.

**Evaluation and Outcomes:** Data being collected consist of key population demographics, the nature and type of existing and newly-found medical problems, the patient's Advance Directive status, and the visit and referral types and frequency.

**Conclusions:** Health care systems are developing innovative ways to serve the needs of the homebound elderly population. As a first step in the Quality Improvement process, defining the population served and the services to be provided can serve as a means of improving the care of this population.

**Contact:** [hill.ja@ghc.org](mailto:hill.ja@ghc.org)



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### **Collaborating with Patients and Families: Creating an Intensive Care Unit (ICU) Guidebook**

Haverland, A., DeBoer, R., Mau, D., Nasenbeny, K., Sisco, R., Wimer, K., University of Washington Medical Center, Seattle, WA

**PURPOSE:** A Patient and Family Advisory Council (PFAC) was established to promote a change toward patient-centered care in our ICU. Council membership is comprised of former patients and family members, staff nurses, managers, social workers, and physicians. Patient and family participants reported that the amount of information to take in during an ICU stay was overwhelming and stressful. PFAC recommended development of a reference manual for information frequently presented to ICU patients and family.

**DESCRIPTION:** Based on feedback and in collaboration with families, a single source of information was designed. Open discussions with the PFAC advisors resulted in a list of information “they wished they had known” or “found useful” in their experience. Examples of requested information included: what an ICU is, visiting policies, equipment, structure of physician staff, rights as an advocate, phone numbers and locations of resources. Staff nurses added additional frequently asked questions. Volunteers from the Council formed a committee that met monthly. Sections were created based on similar content and divided among the group for writing. Sections were then collected and submitted to the University of Washington Medical Center Patient and Family Education Services for editing for cohesiveness and reading level. Drafts were reviewed by the committee and presented to the full Council and ICU charge nurse group for approval. The ICU Guidebook made final print May 2009, 10 months after the project was initiated. This resource is distributed to patients and families of patients determined to need several days of ICU care.

**EVALUATION / OUTCOMES:** Patient satisfaction scores were compared pre-and post-implementation of the ICU Guidebook, using the Press Ganey system for satisfaction scoring. Specifically, the category asking patients and families to rate understanding of treatment and condition showed improvement from the 14<sup>th</sup> to the 53<sup>rd</sup> percentile. Mean scores in overall satisfaction improved from 88.6 to 91.1, on a scale of 100 points. Feedback from ICU Volunteers has been overwhelmingly positive, noting that patient and family members have found the resource to be quite helpful. It has been suggested to expand distribution of the guidebook to the surgical waiting rooms.

**Contact:** [havrilla@u.washington.edu](mailto:havrilla@u.washington.edu)



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### **Practical Aspects of Cerebral Microdialysis in the ICU**

Cecil, S., Rowland, S., Callaway, S., Legacy Emanuel Medical Center, Portland, OR

Cerebral microdialysis is a bedside technology that measures markers of cerebral metabolism and cellular destruction following traumatic brain injury and other primary central nervous system insults, allowing for interventions that are more prompt and the potential for better patient outcomes. This poster will describe the physiologic rationale, clinical indications, and nursing considerations for this novel neuromonitoring technique. By utilizing a microdialysis catheter and microinjection pumps, samples of interstitial fluid are collected and analyzed for glucose, lactate, pyruvate, glycerol and glutamate. Hourly analysis is performed by the ICU nursing staff using a special microdialysis analyzer (ISCUS Flex) that is housed within the ICU. Frequent collection of interstitial fluid illustrates how seriously brain cells are affected by the ischemia that often follows traumatic brain injury, subarachnoid hemorrhage, or vasospasm. It also depicts the effectiveness of pharmacological and surgical interventions for patients with increased intracranial pressure and decreased cerebral perfusion. Normal and abnormal values for each of these parameters will be presented in a table format along with recommended interventions. Pictures of the microdialysis equipment used will be illustrated. Finally, nursing considerations in the bedside management of patients on microdialysis to include patient care considerations, use of equipment, and patient care assignments, will be listed. While this novel technology is used in a mere handful of tertiary brain injury centers in the US, our Level 1 trauma center has used it in over 120 patients. Its promise as a reliable measurement of the status of brain physiology has resulted in its adoption in an increasing number of neurological intensive care units. Any nurse who cares for patients with neurological injuries will benefit learning about the key elements of cerebral microdialysis depicted in this poster.

**Contact:** [cecilsandy@hotmail.com](mailto:cecilsandy@hotmail.com)



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### **Pain Management: Acute Pain in PACU**

Craig, M., Wright, I., Sundeeep, M., Ersek, M., Swedish Medical Center, Seattle, WA

**Purpose:** To develop an acute pain protocol and sequenced opioid orders for pain management in PACU.

**Background:** There is a lack of research-based protocols for pain management in the PACU. At our 600 bed facility, anesthesia PACU orders included three opioids for pain management without sequencing or guidelines for alternating between them. Our PACU nurses chose which IV opioid was to be administered based upon pain scores and physiological response. Learning that nurse-determined choice of opioid was “prescriptive” and outside scope of practice, our objective was to develop medication-sequenced anesthesia orders with best-practice nursing protocol for administering short and longer-onset opioids. Additional objectives included implementing a standardized approach to pain management and gaining regulatory approval.

**Description:** review of pain management literature, discussions with national experts and consensus with our anesthesia and PACU staff ; in-services with PACU nurses and anesthesia to gain feedback and support for practice change; review by administrative “scope of practice” committee.

**Results:** Medication-sequenced anesthesia orders and an acute PACU pain protocol were implemented in March 2008. We standardized opioid administration and discontinued “prescriptive” practice. CMS auditors granted approval of our orders and protocol.

**Conclusions:** Perianesthesia nursing implications for pain protocols and sequenced orders include local and national discussion regarding best practice for PACU pain management and opioid administration.

**Contact:** [marsha.craig@swedish.org](mailto:marsha.craig@swedish.org)



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### Optimizing Patient Transfer from PACU

Estaphan, M., Fairbanks Memorial Hospital, Fairbanks, AK

**Purpose:** To reduce waiting time for post anesthesia care unit (PACU) patients transferring to in-patient care units and provide for more concise reports on transfer patient status.

**Background/Significance:** PACU nurses transfer post-operative patients, transport physician orders, and report pertinent medical details to receiving nurses who are responsible for in-patient care. If PACU nurses and receiving nurses are unable to communicate promptly over the telephone or in person, post-operative patients are forced to remain in PACU longer than would otherwise be necessary. Delays affect subsequent patients, stretch staff resources, and increase costs.

**Description:** To improve efficiency and accurate communication, PACU nurses began transmitting post-operative patient reports by dictation to receiving nurses. When patients are ready for transfer, receiving nurses now access standardized recorded reports from PACU. These reports are supplemented in person at time of transfer.

**Evaluation and Outcomes:** PACU and receiving nurses answered surveys that gauged their satisfaction with the new process and its effectiveness. Receiving nurses were divided, while PACU nurses were supportive. Receiving nurses who responded favorably (44 percent) said dictated reports help them to budget their time with existing patients, obtain complete patient information, and plan for transition care. Receiving nurses who responded negatively (56 percent) primarily complained of being rushed, particularly if they were "pulled away" from the bedside to receive a transfer patient whose report they had not had time to hear (e.g., nurses not notified report was waiting or older reports were not cleared from the queue). Response to the surveys was low (50 percent), indicating the importance of a more comprehensive follow-up evaluation.

**Conclusions:** PACU experiences fewer patient backlogs; there are fewer "missed connections" and call backs; reports are more precise; and receiving nurses support making additional improvements. Evaluation is ongoing to solicit and address feedback, ensure sustainable positive results, and improve workflow between units consistent with evidence based practice principles.

**Contact:** Mary.Estaphan@bannerhealth.com



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### Bowel Movement Frequency in Critical Care

Hudson, D., Day, K., Strunk, C., Richardson, J., Portland VA Medical Center, Portland, OR

**Purpose:** The purpose of our investigation was to monitor current bowel management (BM) practices for critical care patients in the Portland VA Medical Center and compare those practices to accepted nursing standards. Gaps in practice were identified, targeted education occurred, and system changes were implemented to promote improved patient care.

**Background/Significance:** Critical Care Unit (CCU) nurses identified inconsistent implementation and documentation of bowel care practices. Current literature on BM hygiene was reviewed and studies suggest that regular bowel patterns contribute to positive patient benefits (increased comfort, improved nutrition, decreased length of hospital stay) but the time interval for optimal BM frequency varies in the literature. A commonly suggested interval of 72 hours was incorporated into data collection via chart reviews. An arbitrary goal of 90% was set. Data was collected on interventions for lack of BM with a goal set of 75%. All CCU patients in the unit were reviewed twice weekly for inclusion criteria. Patients were excluded for hospitalization < 72 hours or bowel surgery during this admission. Data was collected for 2 months and then results were disseminated to the nursing staff to raise awareness. Implementation options for improvement were solicited from staff and the decision was made to change documentation processes to better reflect nursing care practices.

**Results:** 1186 patient charts were included as of August, 2009. A mean of 86.3% of CCU patients had a BM within 72 hours. Of those 157 patients who had failed to produce bowel movements, action had been taken by nursing staff 66.7% of the time but the last four measurement periods all exceeded the 75% goal.

**Conclusion:** Nursing practices on documentation and interventions for BM improved following education and changes in the documentation process; the documentation requirement itself can be a trigger for nursing action. A bowel protocol is in development.

**Contact:** [deborah.hudson@va.gov](mailto:deborah.hudson@va.gov)



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### Evaluating the Effectiveness of a Post-Operative Facial Fracture Education Tool

Salas, S., Bonney, K., Taji, L., Harborview Medical Center, Seattle, WA

**Purpose:** To develop and evaluate the effectiveness of an educational handout for patients with facial fractures.

**Background/Significance:** Craniofacial trauma quickly changes patients' lives, requiring surgical care usually within a week of injury. These injuries can affect almost every aspect of life - including learning and information retention. Therefore, pre and post-operative teaching can be challenging. To ensure consistent delivery of education to all craniofacial patients, information was compiled on post-operative teaching. Nurses reported they often wrote information down for patients (a time consuming process) due to learning challenges. A literature review revealed no resources available for the educational needs of this specific patient population. Therefore, the authors developed an educational handout with input from our craniofacial attending physicians.

**Method:** Nursing developed a detailed education handout that provides information on what to expect postoperatively. The handout was distributed in clinic and also accessible on the hospital intranet. To evaluate the effectiveness of the handout, patients completed a survey consisting of six Likert scale questions, and one open-ended question for comments.

**Results:** 96 patients completed the survey, 78% male, 22% female, and 60% of respondents between the ages of 18-35 years old. The majority of patients (73%) reported using the handout after surgery; 85% agreed the handout should be utilized. Post-operative pain management results showed 14% of patients believed the handout did not help manage the pain.

**Conclusion:** Results support the value of the handout and its content. Craniofacial patients will continue to receive this educational tool with modifications to the pain management section.

**Contact:** [kbonney@uw.edu](mailto:kbonney@uw.edu)



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### Perspectives on Provider Behaviors: A Survey of Sexual and Gender Minorities Regarding Quality of Care

Rounds, K., University of Washington School of Nursing, Seattle, WA

**Purpose:** To explore LGBTQ individuals' perspectives of how health care provider behaviors impact quality of care.

**Background/Significance:** When Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) people seek healthcare they face the fear of homophobia, discrimination, heterosexism, as well as the reality of those biases being enacted. One consequence of real and perceived homophobia and cultural insensitivity is that LGBTQ people avoid visiting health care providers, or if they do, often hold back personal information that is pertinent to receiving quality health care (Clark, Landers, Linde, & Sperber, 2001). Through lack of culturally sensitive treatment, nursing and the other health professions are failing to properly care for this population.

**Methods:** Following IRB approval, the investigator invited participants via the internet and flyers in public spaces to participate in focus groups. Inclusion criteria were: identifying as LGBTQ, visiting a primary health care provider within the last five years, being over the age 18, and having directly told their health care provider about being LGBTQ. The audio recordings were transcribed, and the transcriptions used to identify themes. The investigator did a content review, reading and categorizing all responses.

**Results:** Twenty-five people responded, and 11 people participated in three focus groups. The behaviors that were supportive or presented barriers to good care primarily fell into two themes: 1) Knowledge and 2) Communication/Interpersonal Skills. Participants also gave suggestions for health care providers working with LGBTQ patients.

**Conclusions:** Even in a city with a large LGBTQ population, health care providers have varying skill levels in working with LGBTQ patients. Further research is necessary to examine what behaviors lead LGBTQ patients to feel most comfortable in working with a health care provider, as well as what methods of cultural competency best encompass the experiences of LGBTQ patients.

**Contact:** [kelseyevan@gmail.com](mailto:kelseyevan@gmail.com)