Table of Contents

Portfolio Executive Summary
Victoria Hays, RN, MN, CNS, APRN-BC
Doctor of Nursing Practice Candidate, OHSU School of Nursing
May 25, 2011

As a Clinical Nurse Specialist who had facilitated the pressure ulcer (PU) program for a large Oregon hospital for the last five years, a variety of tools and process improvements were used to reduce the hospital acquired PU rate from 19% to 0%. Many of these process improvements included collaborating with the Emergency Department and Surgical Services, two key nursing departments who had the opportunity to begin PU prevention prior to the patient becoming an inpatient. Additional improvements included providing nursing education, revising policy and being instrumental in trialing and choosing a variety of patient care products for PU prevention. Based upon this foundation of advance practice nursing and leadership, the Doctor of Nursing Practice (DNP) program served as a springboard to further develop and enhance my clinical and non-clinical skill set.

The DNP program allowed this DNP student the opportunity to conduct a PU program evaluation by assessing and evaluating micro and macro systems by hospital, region and for the Healthcare System that positively demonstrated the DNP competencies of advance nursing practice, influencing the outcomes of a population utilizing policy and systems management. This was accomplished by consulting with thirteen hospitals and long term care facilities in California, Washington and Oregon. More specifically, this included soliciting support from Administration from each facility, conducting initial telephone meetings with key staff from each facility, reviewed requested PU documents and conducted on-site visits to each facility. This resulted in providing specific PU recommendations to each facility and key recommendations that were applicable to the Healthcare System for PU prevention and other key quality indicators.

The components of this portfolio clearly demonstrated evidence of achieving each DNP competency, using leadership and collaboration, by this DNP student. Each of the five case studies, on the topic of PU prevention and treatment, in both inpatient and outpatient settings, showcased how the DNP student had practiced within an advance practice specialty and had positively influenced the health outcomes of a population through clinical inquiry, process improvement strategies and by conducting a comprehensive systematic review of the literature. One of the greatest strengths of this DNP student was the ability to think, plan, organize and evaluate a quality program beyond the walls of one facility to include facilities across several regions. A second strength of this DNP student was the ability to evaluate clinical issues and optimize the financial outcomes associated with nursing practice. As reimbursement continues to decline across the healthcare industry, the DNP student is prepared to provide cost effective solutions without comprising excellence in quality patient care.

The recent 2011 Institute of Medicine (IOM) report on nursing stated that nursing must work to the full scope of their practice; this also includes the educationally prepared DNP student. As professional advance practice nurses, who are doctorally prepared, we must embrace this IOM endorsement and serve as one of the key nursing leaders within the healthcare arena to include local, state, national and internationally settings.

Final Proposal

Program Evaluation:

Pressure Ulcer Prevention in Oregon Providence Hospitals

Victoria Hays

Oregon Health & Science University

Introduction: The Clinical Problem

Hospital acquired pressure ulcers (HAPU) impose a significant burden that affects the physical health and psychosocial functioning of patients. This may be evidenced by increased pain, prolonged treatments, an interruption to activities of daily living, depression and isolation (Langemo, 2005), a longer hospital stay, unnecessary readmission, and death (Redelings, Lee & Sorvillo, 2005). In addition to the personal toll on patients, hospitals are faced with longer lengths of stay and higher medical and legal costs. The cost to treat a HAPU may range from $2,000 to as high as $70,000 depending upon the severity and complexity of the ulcer (Fogerty, et al, 2008). The annual cost of treating HAPUs is estimated between $5 and $8.5 billion (Fogerty, et al, 2008).

Despite numerous hospital and staff initiatives, the prevalence of pressure ulcers (PU) in hospitals remained unchanged from 16% over the 6-year period from 1999 through 2004 (Whittington & Briones, 2004). The incidence of PUs in acute care hospitals varied between 7% and 9% during this same period (Whittington & Briones, 2004). In addition, during this same six year period, about 70% of individuals over 65 years with PUs also developed new PUs (Whittington & Briones, 2004). Allman et al. (1995) also identified that elderly hospital patients are at particularly high risk of developing a PU.

The new “present on admission” or “never events” regulations created by the Medicare and Medicaid Services (CMS) challenges acute care hospitals to link quality measures to financial performance. This challenge has posed opportunities for hospitals, using national clinical guidelines and pressure ulcer prevention measures, to reduce or eliminate HAPUs. Using an advanced practice nurse (APN), especially one who is doctorally prepared, to facilitate such a complex quality initiative was identified as a critical strategy to reduce HAPUs. One

example of an APN is a Clinical Nurse Specialist (CNS) who is an expert clinician in a specialized area of nursing, for example, wound care and PUs. By utilizing doctoral competencies, a CNS can eliminate HAPUs by influencing health care outcomes within a population (acute care setting) using evidence-based scholarly inquiry and positively impacting systems of health (NACNS, 2010).

Although HAPU rates in many U.S. hospitals may have remained unchanged from reporting rates in double digits, the Magnet Program has clearly demonstrated improved clinical outcomes, including HAPUs, in 6.4% of all registered hospitals in the U.S. (ANCC, 2010). According to the 2008 Magnet Manual, the HAPU quarterly rate must now achieve the 50th percentile (which is 0%) for 24 consecutive months and the facility must also use a national database for comparison that is recognized by the Magnet Program (ANCC, 2008). This RN Recognition program was developed by the American Nurses Credentialing Center (ANCC) and recognizes health care organizations that provide quality patient care, nursing excellence and innovations in professional nursing practice. The Magnet Program is comprised of five programmatic components focused on nurse-sensitive clinical outcomes; HAPUs is one selected outcome required for reporting. This measure includes all adult medical, surgical, critical care and rehabilitation patients in the acute care inpatient setting.

Providence Health & Services (PH&S) acute care hospitals in Oregon, include two Magnet facilities which will need to re-designate in 2013 and 2014. The six remaining PH&S hospitals will either apply for Magnet status or apply for Pathways to Excellence Program within the next 3 years. The Pathways to Excellence Program, developed by the ANCC, recognizes nursing excellence for registered nurses and certified nursing assistants in small to medium sized facilities. Both programs require all hospitals to achieve the standard of attaining the 50th

percentile for each quarterly PU study (Table 1). In addition, the PH&S strategic plan endorses no preventable deaths or injuries which includes causing a HAPU.

The purpose of this program evaluation is to improve and standardize regional PH&S best practice for pressure ulcer prevention in the acute care setting. The clinical inquiry question is: What pressure ulcer program interventions need to be understood, modified and spread to system-wide adoption to achieve and consistently maintain the 50th percentile in their quarterly prevalence studies? The proposed clinical inquiry project will address three questions in order to answer the overall clinical inquiry question. For each Providence facility, (1) what are the current best practice PU program components and components for completing and reporting their data to the national database?; (2) What is the state of the science related to the reduction of PUs in the acute care setting?; and (3) what are the best practices for PU prevention used in Magnet facilities which were designated or re-designated during 2010? Based upon these findings, recommendations will be provided to the Regional Chief Nurse Officer's Forum to improve and standardize best practice on the topic of PU prevention within Providence hospitals.

Synthesis of Evidence

A review of the literature from 1999 to March 2010 accessed two electronic databases, MEDLINE and CINAHL, using key words "pressure ulcer", "hospital" and "prevention" to specifically focus on the acute care setting. The industry standard for pressure ulcer prevention includes the National Pressure Ulcer Advisory Panel (NPUAP), which has provided a PU Staging System and evidence-based guidelines in the prevention of PUs (NPUAP, 2010). The NPUAP also offers pre-eminent expertise in PU research on the topics of etiology, prevention, treatment, education and dissemination of scientific results. As outlined by NPUAP, there are

steps that must be taken to ensure patients do not develop a HAPU to include: skin assessment, risk assessment, nutrition, support surfaces and education.

A skin assessment includes performing a head to toe physical assessment at least daily with special attention to bony prominences such as the sacrum, ischium, heels, elbows and the back of the head (NPUAP, 2007). In the acute care setting, patients are medically and surgically complex and this is compounded by multiple co-morbidities and medication use. As a result, assessment of the skin every 24 hours may not be sufficient. According to Chicano and Drolshagen (2009), skin assessments were completed within 8 hours of admission and follow-up assessments were conducted every shift for patients who were determined at-risk for developing PUs to help ensure skin issues were identified early. For PH&S, this is also the standard for assessing patients upon admission and for each shift thereafter. In addition, this was the case for an intensive care unit (ICU) working on reducing HAPUs in their unit that moved to conducting a skin assessment each shift; this and other prevention strategies resulted in their HAPU rate dropping from over 30% to less than 10% (Ballard, et al. 2007).

As important as it is to physically assess a patient's skin upon admission, it is equally important to document the findings in the patient's health record. Documentation is important to ensure critical data are communicated with the healthcare team as well as to ensure the accuracy of chart audits (Gunningberg and Ehrenberg, 2004). The low level of documentation found in the study conducted by Rich, Shardell, Margolis, & Baumgarten (2009) identified significant gaps in recording pressure ulcers upon admission (based upon examination) to the unit and this may be attributed to lack of knowledge of skin assessments by nursing or too little time spent on documentation. According to Korst et al. (2003), information systems may contribute to this issue by causing a significant amount of nursing time to be spent documenting care with either

the introduction of a new system, continual upgrades to the system that requires new learnings and/or having to document care in more than one field in the electronic record. In the study by Ozdemir and Karadag (2008), less than 40% of all observations made regarding the skin status were documented. This is truly cause for alarm and further research must be conducted to understand the rationale to address this issue.

The PU risk assessment tool most frequently used in U.S. hospitals is the Braden Scale, developed by Barbara Braden, PhD and Nancy Bergstrom, PhD (Armstrong et al., 2008). This scale assesses risk of pressure ulcers using a numerical scoring system of six risk factors: sensory perception, moisture, activity, mobility, nutrition and friction/shear. As valuable as this tool has been for the last twenty years, the Braden Scale may not capture all risk factors associated with the development of a pressure ulcer. For example, additional factors to consider include age, medications and co-morbidities (Pancorbo-Hidalgo, Garcia-Fernandez, Lopez-Medina, and Alvarez-Nieto, 2006; CDC, 2008).

According to Kirby and Gunter (2008), diabetes, spinal cord injury, age more than 60 years and a serum creatinine of more than 3.0 were risk factors that contributed to the development of a HAPU. In addition to diabetes, current vasopressor therapy, peripheral vascular disease and peripheral neuropathy are also risk factors for developing PUs (Walsch and Plonczynski, 2007). ICU patients pose additional risks for the development of PUs that can be dependent upon the ICU length of stay, had undergone surgery, lower or higher BMI, presence of sepsis, days in bed and days without any nutrition (Kirby and Gunter, 2008).

According to Rich, Shardell, Margolis and Baumgarten (2009), systematic reviews have identified a strong relationship between malnutrition and the development of a pressure ulcer. In addition, a low albumin poses the same challenges for patients with a PU because the patient's

ability to heal is impaired. Halstead (2005) states thirty to fifty percent of hospitalized patients have evidence of malnutrition that occurs in both underweight and overweight people. In assessing risk for the development of a PU or for a patient who has a documented PU in the acute care setting, a nutritional assessment is paramount to ensure a complete and accurate individualized plan of care is developed for the patient.

The use of support surfaces, specifically pressure-reducing mattresses and chair cushions, is the recommendation of the NPUAP (2007) for patients deemed at risk for developing PUs. According to Comfort (2008), all patients found to be at risk for developing a PU upon admission should be immediately placed on a support surface based on PU outcomes achieved by eight facilities identified using a literature search. As important as a support surface may be in acute care, repositioning or turning patients continues to be a basic nursing activity. The recommendation to reposition bed-bound patients at least once every two hours and chair-bound patients at least every hour is ubiquitous (Johnson and Meyenburg, 2009). For all other patients assessed at risk, an individualized plan of care must be tailored to the patient's needs (NPUAP, 2007). Vanderwee et al. (2007) who studied patients with stage 1 PUs who were randomized into two groups: patients who were turned every 2 hours and patients who were turned every 4 hours or when the Braden score was less than 17. The two groups had indistinguishable outcomes, with nearly identical rates of progression to stage 2 – 4 PUs. There are also questions whether using a turning schedule is effective for patients using an automated off-loading surface, such as a continuous lateral rotation therapy bed (Turpin and Pemberton, 2006). Unfortunately, besides recommendations from the NPUAP, there is very little research on the topic of turning/re-positioning patients and as a result, the rule of thumb used in acute care hospitals is to turn patients at least every two hours to prevent the development of a PU.

The evidence for PU prevention in the acute care setting is less than robust. Unfortunately, there are a significant number of articles written as an opinion or a process improvement report rather than data-based, generalizable research. The topic is timely and will only become more important to the government, health care organizations, consumers and the media as regulations continue to link reimbursement with performance in hospitals.

Methods

Design

In order to identify and evaluate PU interventions, a cross sectional descriptive design using qualitative strategies (observation & interviews) and quantitative methods (reviewing PU data from hospital sites) and a systematic review of the literature will be conducted. Using direct observation during the on-site visit to each Oregon Providence facility allows for assessment of contextual variation on processes and outcomes in a natural environment, thereby enhancing external validity (Dicenso, Guyatt, Ciliska, 2005). The semi-structured interviews in person will start with a set of pre-defined questions; however, open-ended questions will allow participants to discuss all relevant interventions. A summary of the systematic review of the literature on the topic of PU prevention in the acute care setting will be provided to the Providence facilities and a matrixed table available to nursing staff.

Setting

Data will be collected during the on-site visit to each of the seven Oregon Providence facilities on the day of their quarterly prevalence study. These quarterly dates were pre-determined at the beginning of the year (January 2010) by each team leader (Table 2). The details of this program evaluation have been shared with the team leaders at the bi-monthly

meeting in July 2010 and all team leaders have expressed a willingness to participate and are eagerly looking forward to the recommendations once this evaluation is completed in May 2011. In addition, support and resources have been granted from the Regional Nursing Office and from the Regional Medical Director's Office for this program evaluation.

The review of literature will occur in the medical libraries located within Providence Portland Medical Center (PPMC) and Oregon Health & Science University in Portland, Oregon. Telephone interviews to Magnet facilities around the U.S. will be conducted in a private office within PPMC and each interview will be tape recorded with the consent of the interviewee.

Sample

For Phase I of this project, to answer the question related to current best practice PU program components within the Providence facilities, the nurse researcher will be sampling 7 prevalence teams and sampling 7 team leaders. Each Providence hospital has one team leader assigned to facilitate the PU Program and the staff responsible for this initiative is employed in varying positions, across the region, ranging from a Wound, Ostomy, Continence Nurse, a Clinical Nurse Leader, a Clinical Nurse Specialist and a doctorally prepared nurse scientist (PhD). Phase II will consist of a systematic review of the literature on the topic of PU prevention in the acute care setting. Inclusion criteria will include English language only, search between January 1990 – August 2010, in the acute care setting, and pressure ulcer prevention. The nurse researcher is enrolled in a systematic review course this fall to learn all aspects, including bolstering inclusion criteria, on the topic of PU prevention.

For Phase III, the sample population of team leaders within U.S. Magnet facilities will be a total of 15 or 32% of all facilities who have designated or re-designated using the new 2008 Magnet Manual during 2010. The 2008 Manual is based on required outcomes, including

HAPUs that must be achieved at the 50th percentile for 24 months (ANCC, 2008). Although the Manual was made public early in 2009, facilities were not required to use the Manual until the end of 2009 (prior to this date, facilities were provided the option to write to the previous 2005 Manual or use the revised (2008) version). The 15 facilities will be randomly chosen from the list of 47 potential hospitals by a computerized program that is stratified by size of facility (< than 200 licensed beds, 200-399 beds and > than 400 beds), choosing 5 facilities from each category and by geographic location (all 4 U.S. time zones). The nurse researcher will notify the randomized facilities by telephone, requesting the name and telephone number of the PU team leader. Prior to conducting the taped telephone interview, the designated team leader will provide a copy of the introduction letter and a consent form that must be signed and returned to the nurse researcher via fax or email.

Measures & Data Collection

For Phase I, the nurse researcher will use observation during the quarterly prevalence study to determine the staff mix on the teams, staff who determines the unit HAPU rate and reports data to the unit staff (Appendix A). The researcher will be assigned to one of the prevalence teams during the study. After the quarterly study, the nurse researcher will conduct a one-on-one semi-structured taped interview with the hospital's team leader to help determine the program components used to prevent PUs upon admission to the facility (Appendix B). The interview is expected to take one hour. Documents related to the facility PU program will also be collected from the team leader at the end of the interview (Appendix C).

For Phase II, the nurse researcher will conduct a systematic review of the literature to access a variety of databases to locate and catalog literature related to PU prevention in the acute care setting. For Phase III, the nurse researcher will conduct a semi-structured taped telephone

interview with 15 team leaders from Magnet facilities around the U.S and each interview is expected to take one hour (Appendix D).

Analysis

For Phase I, the quantifiable data collected by observing the prevalence study teams and the qualitative data collected during the team leader interviews will be analyzed for similarities and differences in practice and presented in a matrix Word table. For Phase III, qualitative taped telephone interviews will be conducted with the team leader from various Magnet facilities around the U.S. and analyzed using a similar matrix Word table. Data will be further analyzed and categorized according to high, moderate and low impact based upon all 3 phases with written recommendations to be provided to the Regional Providence CNO forum in May 2011.

Protection of Human Subjects & Ethical Considerations

For the purpose of this study, there will not be any patient contact or patient health record reviewed by the nurse researcher. Informed written consent will be obtained prior to observing nursing staff performing the prevalence study and informed written consent will be obtained by each facility team leader within Providence and outside of Providence prior to conducting the semi-structured interviews. There is minimal risk to the nurses who are employed at various levels within or outside of Providence by either observing them or interviewing them. Further protection includes using the facility name only, not individual nursing staff names.

Key Stakeholders and Project Timeline

The primary stakeholders for this study are the Chief Nurse Officers (CNO) representing the eight Providence facilities who serve as the key decision-makers for the allocation of

resources for this and other quality indicators. In addition, secondary stakeholders are the team leaders for each Providence facility who have a vested interest in improving the facilities PU prevention program and are looking to the recommendations from this program evaluation to help guide their next steps. The program evaluation summary will be presented to the CNO forum in May 2011 and shared with the team leaders in July 2011 (Appendix E). A written summary will be provided to both groups, accompanied by an oral presentation.

Table 1

Oregon Region Providence Hospitals

Facility	Prevalence Rate 2nd Q 2010	Program Status
Providence Portland Medical Center	1.4%	Magnet Re-designate in 2014
Providence St. Vincent Medical Center	4.3%	Magnet Re-designate in 2013
Providence Hood River Memorial Hospital	2.7%	Application for Pathways
Providence Medford Medical Center	20%	Application for Magnet
Providence Milwaukie Hospital	0%	Application for Pathways
Providence Newburg Medical Center	4.7%	Application for Pathways
Providence Seaside Medical Center	0%	Application for Pathways

Table 2

Oregon Region Providence Hospitals

Facility	**Site Visit & 4th Quarter Prevalence Study Date**
Providence St. Vincent Medical Center 9205 SW Barnes Road Portland, OR 97225 Mary Waldo, PhD, RN	November 10, 2010 0700-1400
Providence Hood River Memorial Hospital 810 12th Street Hood River, OR 97031 Jan Thomson, BSN, RN, WOCN	October 20, 2010 0900-1200
Providence Medford Medical Center 1111 Crater Lake Avenue Medford, OR 97504 Jeanette Henault, RN, BSN	November 17, 2010 0700-1100
Providence Milwaukie Hospital 101 SE 32nd Avenue Milwaukie, OR 97222 Dee-J Putzier, RN, BSN	October 12, 2010 0700-0900
Providence Newburg Medical Center 1001 Providence Drive Newburg, OR 97132 Barbara Roark, BSN, RN, CWOCN	October 13, 2010 0730-1030
Providence Seaside Hospital 725 S. Wahanna Road Seaside, OR 97138 Susan Coddington, MS, RN, CNL	October 5, 2010 0900-1100
Providence Willamette Falls Medical Center 1500 Division Street Oregon City, OR 97045 Susan Reinhart, CNS Sally Pollanz, RN	October 12, 2010 1000-1200

Appendix A

Observation of Facility PU Prevalence Study ID# _____

Name of Facility: _____

Observation Date: _____

The nurse researcher will observe the following activities, if they occur:

Number of staff on each prevalence team: □ 1 □ 2 □ 3 □ 4 □ NO

Number of acute care inpatient units: □ 1-3 □ 4-6 □ 7-10 □ 11 or greater □ NO

Number of prevalence teams: □ 1 team per unit □ 1 team per 2 units □ Other □ NO

Team Staff Mix: □ WOCNs only □ WOCNs & RNs □ RNs & Ancillary Staff □ Other □ NO

Process for determining a HAPU related to present on admission:

□ Chart review only □ Chart Review & Patient interview □ Other □ NO

Decision maker for determining a HAPU: □ WOCN only □ Credentialed RN □ Other

Is a HAPU debriefed during the study? □ Yes □ No □ NO

If yes, does the debrief include the patient and direct care nurse? □ Yes □ No

When are unit results finalized? □ Day of study □ Days 2-6 □ > than 7 days □ NO

When are unit results shared with staff?

Preliminary results: □ Day of study □ Days 2-6 □ > than 7 days □ NO

Final results: □ Day of study □ Days 2-6 □ > than 7 days □ NO

NO = Not observed

Appendix B

Providence Team Leader Interview Questions ID # _____

1. General Facility Information

No. of licensed beds:	Avg daily patient census:	
No. of Wound, Ostomy, Continence Nurses:	FTE:	Major function/responsibilities:
No. of Clinical Nurse Specialists:	FTE:	Major function/responsibilities:
No. of Wound Care Nurse Practitioners:	FTE:	Major function/responsibilities:

2. Staff Credentialing Process
    a. What staff is credentialed to stage PUs in the hospital?

    b. What is the process for assessing, documenting and writing a plan of care for Stage 3 and 4 PUs and who is responsible for this function (if someone other than a staff RN)?

    c. What is the process for assessing, documenting and writing a plan of care for deep tissue injury and unstageable PUs and who is responsible for this function (if someone other than a staff RN)?

3. At-Risk Tool
    a. Are other variables, other than the Braden Scale, used to determine a patient's risk? For example, age, co-morbidities, ICU stay, previous PU, low albumin, etc.?

    b. If so, how was this done and how was this hard-wired with nursing staff?

4. Support Surfaces
    a. Does the facility utilize support surfaces, other than the current pressure reducing beds and mattresses? If so, what surfaces are used and when?

    b. How does the facility know if support surfaces are being used appropriately for patient care?

    c. Does the facility track rental bed costs? □ Yes □ No

        i. If so, what is the current budget? $_____

        ii. And how does the 2010 budget compare to the 2009 budget?
        □ Greater than □ Less than □ Same

5. Prevalence Studies
    a. How are results published and who receives this information?

    b. What is the process to follow-up on any HAPUs? And what is the timeframe?

6. What methods have been used to engage the Emergency Department in PU prevention? Have any methods been successful? How do you know?

7. What methods have been used to engage Surgical Services in PU prevention? Have any methods been successful? How do you know?

8. What other information would you like to share with me?

Appendix C

Requested Documents from Each Facility

- Standard of Practice for PU Prevention
- Credentialing form for Skin Care Nurses
- Prevalence study data collection form
- Support surface algorithm
- HAPU algorithm
- A communication example to staff/hospital announcing results of study
- Facility results of prevalence studies from June 2007 to June 2010 (total of 3 years)
    - Aggregate data (total HAPU rate) for each data collection period
    - Rate for Stage 1 PUs
    - Rate for Stage 2 and greater

Appendix D

Magnet Facility Team Leader Interview Questions ID No. _____

1. General Facility Information U.S. Region: _____

No. of licensed beds:	Avg daily patient census:	
No. of Wound, Ostomy, Continence Nurses:	FTE:	Major function/responsibilities:
No. of Clinical Nurse Specialists:	FTE:	Major function/responsibilities:
No. of Wound Care Nurse Practitioners:	FTE:	Major function/responsibilities:

2. Patient Assessment Upon Admission
    a. What staff is credentialed to stage PUs in the hospital?

    b. What is the process for assessing, documenting and writing a plan of care for Stage 3 and 4 PUs and who is responsible for this function (if someone other than a staff RN)?

    c. What is the process for assessing, documenting and writing a plan of care for deep tissue injury and unstageable PUs and who is responsible for this function (if someone other than a staff RN)?

3. At-Risk Tool
    a. Are other variables, other than the Braden Scale, used to determine a patient's risk? For example, age, co-morbidities, ICU stay, previous PU, low albumin, etc.?

    b. If so, how was this done and how was this hard-wired with nursing staff?

4. Support Surfaces
    a. Does the facility currently utilize pressure reducing mattresses on their beds on each inpatient clinical unit? □ Yes □ No

    b. Other than these current mattresses, are there other support surfaces used? If so, what surfaces are used and when?

    c. How does the facility know if support surfaces are being used appropriately for patient care?

    d. Does the facility track rental bed costs? □ Yes □ No
        i. If so, what is the current budget? $ _____

        ii. And how does the 2010 budget compare to the 2009 budget?
        □ Greater than □ Less than □ Same

5. How often does the facility conduct a prevalence study?

6. What is the facilities current HAPU rate?

7. Is the facility achieving the 50th percentile according to NDNQI? If so, how long (in months) did this process take to achieve?

8. Name the top 3 interventions that have made your PU program successful.

9. What other information would you like to share with me?

Appendix E

Project Timeline

IRB Submission: September 23, 2010

IRB Approval Process: September 24 – October 4, 2010

Phase I

October 5 – November 17, 2010: On-site visits to Providence facilities and team leader interviews. For a specific schedule (dates and times), please refer to Table 2.

Observations and interviews will be entered into a matrix Word table during these same two months (Oct. & Nov.); usually occurring within 2 days of the visit and a summary of all 7 Providence facilities findings will be written by November 30, 2010.

Phase II

A systematic review of the literature (search and summary of articles) will occur between October 1, – December 31, 2010 using the two medical libraries from Oregon Health & Science University and from Providence Portland Medical Center. Articles will be summarized using an evidence table and criteria includes: English language only, search between January 1990 – August 2010, in the acute care setting, and using the topic: pressure ulcer prevention or as directed by course faculty.

Phase III

Telephone interviews to the 15 Magnet facilities will occur beginning January 4, - February 26, 2011. Interview data will be entered into a matrix Word table within 5 days of the taped interviews.

Analysis of data using a high, medium and low impact rating will provide a summary and serve as recommendations based on all 3 phases of work. Timeframe: March 1 – 31, 2011.

Presentation to the CNO forum will occur in May 2011.

Throughout every phase, the Committee's role will be to provide feedback on the interpretation of data and writing of the recommendations.

References

Allman, R.M., Goode, P.S., Patrick, M.M., Burst, N. & Bartolucci, A.A. (1995). Pressure ulcer risk factors among hospitalized patients with activity limitation. *Journal of the American Medical Association, 273*(11):865-870.

American Nurses Credentialing Center. Retrieved from http://www.nursecredentialing.org/Magnet/ProgramOverview/ GrowthoftheProgram .aspx on July 10, 2010.

American Nurses Credentialing Center, A subsidiary of the American Nurses Association. Magnet Recognition Program. Recognizing nursing excellence application manual. Silver Spring, MD; 2008. p. 21, 40, 48.

Armstrong, D.G., Ayello, E.A., Capitulo, K.L., Fowler, E., Krasner, D.L., Levine, J.M., Sibbald, R.G., and Smith, A.P. (2008). New Opportunities to Improve Pressure Ulcer Prevention and Treatment: Implications of the CMS Inpatient Hospital Care Present on Admission Indicators/ Hospital-Acquired Conditions Policy. *Advances in Skin & Wound Care 21*(10):469-478.

Ballard, N., McCombs, A., Deboor, S., Strachan, J., Johnson, M., Smith, M.J., Stephens, K. and Pelter, M.M. (2007). How Our ICU Decreased the Rate of Hospital-Acquired Pressure Ulcers. *Journal of Nursing Care Quality 23*(1):92-96.

Bergstrom, N., Braden, B., Laguzza, A. and Holman, A. (1987). The Braden Scale for Predicting Pressure Score Risk. *Nursing Research 36*(4):205-10

Centers for Disease Control and Prevention. Classifications of Diseases and Functioning & Disability. Retrieved from http//:www.cdc.gov/nchs/icd.htm on July 5, 2010.

Chicano, S.G. and Drolshagen, C. (2009). Reducing Hospital Acquired Pressure Ulcers. *Journal*

of Wound, Ostomy, Continence Nursing 36(1):45-50.

National Association of Clinical Nurse Specialist. Accessed August 7, 2010, http://www.nacns.org/AboutNACNS/FAQs/tabid/109/Default.aspx.

Comfort, E.H. (2007). Reducing Pressure Ulcer Incidence through Braden Scale Risk Assessment and Support Surface Use. *Advances in Skin & Wound Care 21*(7):330-334.

Department of Health and Human Services. Federal Policy for Protection of Human Subjects, part 46, June 18, 1991, revised June 23, 2005. Accessed July 31, 2010 www.hhs.gov/ohrp/humansubjects/guidance/45crf47.htm.

Dicenso, A., Guyatt, G., Ciliska, D. (2005).*Evidence-Based Nursing: A Guide to Clinical Practice.*

Fogerty, M.D., Abumrad, N.N., Nanney, L., Arbogast, P.G., Poulose, B., and Barbul A. (2008). Risk factors for pressure ulcers in acute care hospitals. *Wound Repair Regen*. Jan-Feb;16(1):11-18.

Gardner, A. & Gardner, G. (2005). A trial of nurse practitioner scope of practice. *Journal of Advanced Nursing, 49*(2) 135-145.

Gunningberg, L., & Ehrenberg, A. (2004). Accuracy and quality in the nursing documentation of pressure ulcers: A comparison of record content and patient examination. *Journal of Wound, Ostomy, Continence Nursing 31*(6):328-335.

Johnson, K., & Meyenburg, T. (2009). Physiological rationale and current evidence for therapeutic positioning of critically ill patients. *AACN Advanced Critical Care, 20*(3), 228-242.

Kirby, J.P. and Gunter, O.L. (2008). Prevention and treatment of pressure ulcers in the surgical intensive care unit. *Current Opinion in Critical Care 14*:428-431.

Korst, L., Eusebio-Angeja, A., Chamorro, T., Aydin, C., & Gregory, K. (2003). Nursing documentation time during implementation of an electronic medical record. *Journal of Nursing Administration*, *33*(1), 24-30.

Langemo, D.K. (2005). Quality of life and pressure ulcers: what is the impact? *Wounds*, *17*:3-7.

National Association of Clinical Nurse Specialist. Accessed August 7, 2010, http://www.nacns.org/AboutNACNS/FAQs/tabid/109/Default.aspx.

National Pressure Ulcer Advisory Panel (2007). Retrieved from http://www.npuap.org/pr2.htm on July 4, 2010.

O'Connor, T. (2006). Profile. Easing the pressure of wound care. *Kai Tiaki Nursing New Zealand*, *12*(2), 12-13.

Ozdemire, H. and Karadag, A. (2008). Prevention of Pressure Ulcers: A descriptive study in 3 intensive care units in Turkey. *Journal of Wound, Ostomy, Continence Nursing 35*(3):293-300.

Pancorbo-Hidalgo, P., Garcia-Fernandez, F., Lopez-Medina, I., & Alvarez-Nieto, C. (2006). Risk assessment scales for pressure ulcer prevention: a systematic review. *Journal of Advanced Nursing*, *54*(1), 94-110.

Redelings, M., Lee, N. and Sorvillo, F. (2005). Pressure Ulcers: more lethal than we thought? *Advanced Skin Wound Care 18*:367-72.

Rich, S.E., Shardell, M., Margolis, D., and Baumgarten, M. (2009). Pressure Ulcer Preventive Device Use Among Elderly Patients Early in the Hospital Stay. *Nursing Research, 58*(2):95-104.

Vanderwee, K., Grypdonck, M. and Defloor, T. (2007). Nonblanchable erythemas as an indicator for the need for pressure ulcer prevention: a randomized-controlled trial. *Journal of Clinical Nursing 16*:325-335.

Walsh, J.S. and Plonczynski, D.J. (2007). Evaluation of a Protocol for Prevention of Facility-Acquired Heel Pressure Ulcers. *Journal of Wound, Ostomy, Continence Nursing, 34*(2):178-83.

Whittington, K.T. & Briones, R. (2004). National prevalence and incidence study: 6-year sequential acute care data. *Advanced Skin Wound Care,17*(9):490-494.

Clinical Inquiry Project Executive Summary
Victoria Hays, RN, MN, CNS, APRN-BC
Doctor of Nursing Practice Candidate, OHSU School of Nursing
May 12, 2011

Providence Health & Services (PH&S) has eight acute care hospitals in Oregon, all of which have implemented a pressure ulcer (PU) prevention program with varying success. PH&S strategic plan endorses no preventable deaths or injuries which include a hospital acquired pressure ulcer (HAPU). In addition, each hospital is choosing to apply for Magnet or Pathways to Excellence, two programs developed by the American Nurses Credentialing Center that recognize quality nursing care and professional nursing practice; with HAPUs as one selected outcome that must be reported and achieved by attaining the 50th percentile. An advance practice nurse, in this case, a Clinical Nurse Specialist (CNS), who is the PU team leader for one of the Oregon hospitals, conducted a program evaluation of the seven remaining hospitals to improve and standardize regional PU prevention practice. The CNS had facilitated the PU prevention program for the last five years and using a variety of tools and process improvements, reduced the HAPU rate from 19% to 0%.

The CNS conducted an on-site visit to the seven Oregon hospitals to observe their PU prevention program, including observing their prevalence study and conducting a team leader interview. What was observed was a consistent methodology for data collection amongst all hospitals that is congruent with the prescribed methodology by the National Database for Nursing Quality Indicators. In addition, a HAPU is communicated to the direct care nurse and later shared with unit staff using a variety of tools: email, flier and/or staff meetings to ensure learnings are discussed at the unit level. Six out of eight facilities conducted a monthly prevalence study to provide timely data to staff so HAPUs may be debriefed and learnings shared with unit staff.

Recommendations to improve and better standardize practice, based on site visits to Providence hospitals, a systematic review of the literature on the topic of PUs and telephone interviews to other Magnet hospitals include:

1. Communication of HAPU data to each unit *and* house-wide to ensure clinical and non-clinical departments are kept informed on this quality initiative since many departments play a key role in PU prevention.
2. Provide clear expectations for data sharing and follow-up with two key departments: Emergency Department and Surgical Services, both who play a key role in patient care prior to the patient becoming an inpatient.
3. Revise nursing documentation to include other variables, besides the Braden Scale, to better identify patients at-risk for PU development: advancing age, specific co-morbidities, and a critical care stay during hospitalization.
4. The PU team leader needs to collaborate with Materials Management on the usage of support surfaces and bariatric equipment to help ensure stewardship of these resources, especially as reimbursement declines and expenses are on the rise.
5. The team leader assigned to this (and possibly other quality initiatives) needs to possess strong communication, leadership, facilitation and project management skills to ensure improved processes occur at all levels of the organization; often times, this is someone other than the subject matter expert.

The role of the Doctor of Nursing Practice (DNP) student successfully conducted this program evaluation by assessing and evaluating micro and macro systems by hospital, region and for the Healthcare System that positively demonstrated the DNP competencies of advance nursing practice, influencing the outcomes of a population utilizing policy and systems management.

Clinical Inquiry Report

Victoria Hays

Oregon Health & Science University

Results

Sample

For Phase I of this project, to evaluate current best practice PU program components within the Providence facilities, the DNP student sampled seven prevalence teams and seven team leaders. Phase II consisted of a systematic review of 721 nursing articles on the topic of PU risk factors in the acute care setting. Inclusion and exclusion criteria for the systematic review are provided (Appendix A). Phase III, the sample population of PU team leaders within U.S. Magnet facilities was a total of 12 or 27% of all facilities who had designated or re-designated during the first six months of 2010.

Informed written consent was obtained prior to observing nursing staff performing the prevalence study and by each facility team leader within Providence and each team leader from Magnet facilities prior to conducting the semi-structured interviews. This study was approved by two independent institutional review boards (IRB).

Findings

After review of data from the on-site visits to the Providence facilities and telephone interviews with Magnet facilities, it was evident that there was great variation in practice related to a PU program. Unfortunately, there is not a single PU program template available, according to the literature, that is prescriptive and ensures 'success' in eliminating HAPUs, however, in this program evaluation, there were several practice issues identified that if corrected, can lead to improved success for any facility. One finding included the lack of communication of data and lessons learned beyond the clinical unit. Six out of seven Providence team leaders and nine out of twelve Magnet team leaders did not communicate data house-wide; fourteen out of nineteen of these facilities had higher PU rates compared to facilities that shared data house-wide.

Communication of data and lessons learned beyond the clinical unit may be one indicator that facilities need to improve upon to help achieve success in reducing their HAPU rate.

A second finding included the lack of team leaders knowing what the HAPU goal was for their facility, according to a national benchmark; which would be defined according to which database the facility subscribed to: the National Database for Nursing Quality Indicators or the Collaborative Alliance for Nursing Outcomes. And by not having this information, there was lack of communication to the individual clinical units in regards to staff not knowing if their prevalence rate met, exceeded or was unsatisfactory according to the national benchmark. Six out of seven Providence team leaders did not know their national benchmark rate for their size hospital and 100% of the Magnet team leaders needed to request this information from their quality management department; fourteen facilities out of nineteen had higher PU rates compared to the rest of the facilities.

A third finding included the team leaders who were assigned to this key quality initiative may have lacked the necessary skill set to lead a house-wide project; more specifically, lacking skills that included strong communication, leadership, facilitation and project management to improve processes across the organization and at all levels within the organization. Five out of eight Providence team leaders and nine out of twelve Magnet team leaders were BSN prepared nurses and were employed as a staff nurse; with many of these nurses assigned a full patient load during each of their scheduled shifts. Qualitative comments from both sets of team leaders included, “inadequate management support (administratively and mentoring) for this program”, “as a staff nurse, since I am not considered management but a peer to the staff, it is challenging to hold anyone accountable” and “my responsibility has been to provide the HAPU results to the units; they are expected to improve practice”. Although education, in this case a BSN, is helpful

in development of this skill set, it is not a guarantee that staff will be an effective leader when placed in a position to lead a house-wide quality initiative.

A fourth finding was based on a systematic review that yielded a total of 41 articles (from a total of 721) that met criteria on the topic of selected risk factors associated with PU development in hospitalized patients. The literature identified advancing age as a significant factor (Amlung, Miller & Bosley, 2001; Baumgarten et al., 2003; Bours, Laat, Halfens, & Lubbers, 2001; Chauhan, Goel, Kumar, Srivastava & Shukla, 2005; Eachempati, Hydo, & Barie, 2001; Fisher, Wells, & Harrison, 2004; Frankel, Sperry & Kaplan, 2007; Gardner et al., 2009; Haleem, Heinert, & Parker, 2008; Jesurum, Joseph, Davis, & Suki, 1996; Maklebust & Magnan, 1994; Mecocci et al., 2005; Papanikolaou, Clark & Lyne, 2002; Papantonio, Wallop, & Kolodner, 1994; Shahin, Dassen, & Halfens, 2008; Stausberg, Kroger, Maier, Schneider, & Niebel, 2004; Schoonhoven et al., 2005; Terekeci et al., 2009; Theaker, Manna, Ives, & Soni, 2000; Whittingon, Patrick, & Roberts, 2000) of 50 years and greater; however, the literature was inconsistent in determining a specific age group between 50 and 85+ years. Age was also an insignificant factor in several articles (Batson, Adam, Hail, & Quirke, 1993; Compton et al., 2008; Hengstermann, Fischer, Steinhagen-Thiessen, & Schultz, 2007; Jiricka, Ryan, Carvalho & Bukvich, 1995; Olson et al., 1996; Sayer et al., 2009; Walsh & Plonczynski, 2007).

A critical care stay during hospitalization was identified as a significant factor in PU development (Amlung, et al., 2001; Baumgarten et al., 2003; Baumgarten et al., 2008; Guanghong, Hiltabidel, Liu, Chen & Liao, 2009; Leblebici, Turhan, Adam, & Akman, 2007). The literature was inconsistent in determining body mass index (BMI) as a risk for PU development, however, underweight was a significant factor (Capobianco & McDonald, 1996; Compher, Kinosian, Ratcliffe & Baumgarten, 2007; Fife et al., 2001; Hanan & Scheele, 1991;

Hengstermann et al., 2007; Schoonhoven et al., 2005; VanGilder, MacFarlane, & Lachenbruch, 2008), normal weight was significant (VanGilder et al., 2008), and obesity was significant (Newell et al., 2007). There were also several articles that stated BMI was not a significant factor (Batson et al., 1993; Compton et al., 2008; Cunha, Frota, Arruda, Cunha & Teixeira, 2000; Frat et al., 2008; Olson et al., 1996; Terekeci et al., 2009).

There was evidence that co-morbidities were a factor in PU development, including diabetes mellitus (Ahmad, et al, 2007; Batson et al., 1993; Baumgarten et al., 2003; Chauhan et al., 2005; Frankel et al., 2007; Haleem et al., 2008; Maklebust & Magnan, 1994; Theaker et al., 2000; Walsh & Plonczynski, 2007), sepsis (Ahmad, et al., 2007; Compton et al., 2008; Eachempati et al., 2001; Nijs et al., 2009; Terekeci et al., 2009), renal failure (Baumgarten et al., 2003; Frankel et al., 2007; Hengstermann et al., 2007; Jesurum et al., 1996; Jiricka et al., 1995; Newell et al., 2007; Nijs et al., 2008), pneumonia (Newell et al., 2007) and peripheral vascular disease (PVD) (Maklebust & Magnan, 1994; Nijs et al., 2008; Theaker et al., 2000; Walsh & Plonczynski, 2007). PVD was insignificant in two articles (Batson et al., 1993; Baumgarten et al., 2003).

A fifth finding is discussed in the next section under financial considerations. Approval for this project by the IRB is available in Appendix A. A summary of the site visit observations at Providence facilities, team leader interviews for Providence, team leader interviews for the Magnet facilities and the systematic review can be reviewed in Appendices B-E.

Financial Considerations

Every Providence facility and Magnet facility used pressure reducing mattresses on all clinical units, however, at times, rental equipment was used (specialty support surfaces & bariatric equipment) to prevent and/or treat more complex PUs. One team leader, the DNP

student for this project, was the only staff person who collaborated with Materials Management on a consistent basis to determine usage and assist with developing a plan to purchase specialty support surfaces and bariatric equipment, as needed for patient care, that resulted in a reduction of rental costs in the amount of $101,845 over the last three years (Brian Davis, Director of Materials Management, electronic communication, April 11, 2011).

Fifty percent of the Magnet facility team leaders were unsure where to locate this information from their facility and 100% of the Providence team leaders interviewed had no idea about usage or the financial implications to the organization. In reviewing the specialty support surface and bariatric usage at the seven Providence facilities, including total patient days, and number of patients for each piece of equipment, the Oregon Region has the potential to save $157,577 over the next 12 months by purchasing certain pieces of equipment for PU prevention (Brian Davis, Director of Materials Management, electronic communication, April 11, 2011).

Situation Analysis

One of the reasons this project did not encounter many barriers was because PU prevention is a current quality indicator for hospitals as a result of the 'no pay' condition from The Centers for Medicare and Medicaid and many hospitals struggle with consistently achieving a 0% HAPU rate due to a variety of clinical and non-clinical variables. Secondly, the DNP student had developed a prior professional relationship with the other Providence team leaders and because all of them were interested in improving their PU program at their facility, this study was positively received by each team leader and their Nurse Executive.

A challenge with this project was notifying Magnet facilities and requesting the name and telephone number of the PU team leader; in many instances, this took several telephone calls and included talking with staff from Hospital Administration, Nursing Administration, Staffing and

Nursing Education. The next challenge was arranging the one hour telephone interview due to the fact that staff had busy schedules and even though the team leader was initially interested in participating in this study, seven out of nineteen team leaders chose not to participate. This resulted in the DNP student agreeing to provide a summary of the findings from all Magnet hospitals to the team leaders at the conclusion of this project which encouraged participation. Advanced leadership skills and collaboration by the DNP student, with each Providence and Magnet facility team leader, was key to successfully collecting accurate data and the ability to thoughtfully reflect on each phase of the project.

Outcomes

Proposed recommendations to the Oregon Region PU Prevention Program are based on site visits to Providence hospitals, a systematic review of the literature and telephone interviews to other Magnet hospitals. This resulted in five proposed recommendations that are equally important to improving the HAPU program and will be presented to the Chief Nurse Officer's Council in June 2011 for their approval. The recommended changes include:

	Recommendations
1.	Team leader needs to possess strong communication, leadership, facilitation and project management skills; and authority to hold staff accountable for practice.
2.	Communicate HAPU data and lessons learned to each unit *and* house-wide
3.	Team leader provides clear expectations for data sharing and follow-up from the data with key departments determined by the team leader
4.	Revise nursing documentation to include other variables, besides the Braden Scale, to better identify patients at risk for PU development
5.	Team leader needs to collaborate with Materials Management on the topic of specialty support surfaces and bariatric equipment regarding rental expenses and purchasing equipment

Discussion

Interpretation

The findings for this program evaluation provide recommendations that should be incorporated into the Oregon Region PU Prevention Program and are intended to positively impact patient care and decrease/eliminate HAPUs. Each of these recommendations has a common thread that points specifically to a clinical leader who can assess the current organizational culture for both clinical and non-clinical operations. Heifetz, Grashow and Linsky (2009) state that, "Over time, structures, cultures and defaults that make up an organizational system become deeply ingrained, self-reinforcing and very difficult to reshape," (p. 51). A leader needs to carefully examine the problem at hand, as an observer and the conditions surrounding the issue, to avoid traditional solutions that reinforce the status quo rather than innovative change. This is one of the reasons the DNP student, when she first began to facilitate this program, took the time to identify key stakeholders for the PU program initiative and build relationships with key staff/departments so when the time came to make changes, staff were willing to become innovators of change.

Leading a quality initiative also requires one to observe the process at a micro level as well as a macro level and be able to move seamlessly between the two systems. Heifetz, Grashow and Linsky (2009) refer to this skill as being able to be a participant on the dance floor and be able to move to the balcony section and observe the entire dance floor, the buffet table and the exit doors. A leader for the PU program, or any other quality initiative, needs to participate at the clinical level to gain firsthand knowledge of local systems as well as be able to assess the entire quality program, including all clinical and non-clinical departments that may impact the initiative.

Many healthcare organizations have become sophisticated in using an electronic medical record (EMR) to document patient care in a variety of settings. One recommendation from this program evaluation is to revise the nursing documentation to better identify patients at risk for PU development upon admission to the facility. This may be accomplished by working closely with the information systems department to modify a screen(s) to add three additional cues for nursing to consider when assessing a patient: advancing age, specific co-morbidities and a critical care stay during hospitalization. According to Christensen, Grossman and Hwang, (2009), the EMR must be an efficient method to collect data, easily retrievable by staff, satisfy requirements of insurers and other regulatory agencies, provide legal protection of actions/decisions made and cannot impede the normal interaction of patient care. This project is timely because Providence Health & Services is in the beginning phases of standardizing patient care amongst all five regions where Providence facilities exist by moving to a new electronic documentation system, with wound care as one subset for the new system.

Each of these recommendations have been incorporated consistently at one of the large Providence hospitals that has been able to successfully achieve 0% HAPU rate for the last several months (Appendix F). It is important for any facility to review their current resources, especially staff who have successfully led or can lead an initiative, with little coaching, to step up and provide this key leadership.

Context

The setting for Phase I was the on-site visit to each Oregon Providence hospital and with the exception of two facilities, the DNP student was visiting most facilities for the first time. Because this was a planned event (to observe the study and interview the team leader), the DNP student planned ahead of time and coordinated the day's events with the team leader to ensure

both activities would occur on the same day. The team leaders, especially those from the smaller facilities, welcomed this resource to their hospital and time permitting; they also spent time with the DNP student on other PU activities too.

The systematic review was feasible because the DNP student was taking a systematic review course at the time and was able to write the protocol based on feedback from the course instructor. In addition, the nurse researcher was able to utilize two medical librarians, from two independent organizations, to conduct the database search that resulted in a more complete list of potential articles that may match the review question. Lastly, a nursing professor at Oregon Health & Science University served as the second reviewer to ensure reliability and validity of the systematic review.

Limitations

A limitation to this project was the unforeseen attrition of Magnet team leaders who initially agreed to participate in the study and then declined to finish the study. The DNP student researcher was to interview 15 Magnet facilities (33%) who designated or re-designated during the first six months of 2010 and the DNP student was able to interview a total of 12 facilities. There were a variety of reasons why the team leaders who initially agreed to participate in the study and then declined: one team leader had an unexpected leave of absence, one staff person no longer working at the facility, and four who did not return the DNP student's telephone calls or emails. The DNP student was unable to find the team leader for one PU program.

Additional limitations included the narrow scope of the systematic review question which was limited to selected PU risk factors that were identified as prevalent amongst Providence patients within the five regions; however, was this sufficient representation of the patient population in total? Certainly there were additional PU risk factors that would have been helpful

to have included in the review, in addition to those already chosen, however, there was sufficient representation of the patient population based on discharge data from hundreds of thousands of patients from Providence facilities. The sample size of hospitals was small (20 in total) which represented less than 0.003% of the 6,000+ U.S. hospitals. Although the DNP student did her very best to keep clinical and student bias at a minimum, it was a challenge because of the established professional relationships with the Providence team leaders and the already known factors that had made her PU program successful in eliminating HAPUs. And lastly, the short time frame allocated to complete this project was a limitation.

Conclusion

The recommendations provided by this program evaluation are designed to influence nursing practice and collaboration amongst clinical and non-clinical departments to eliminate HAPUs in the acute care setting. Key recommendations include improved communication and sharing of data, expectations and accountability of departments and staff, revised nursing documentation, and a team leader who possesses a strong skill set to manage projects. Each of these key recommendations is also the recipe for any successful quality initiative and can certainly be used as a blueprint for HAPUs and other projects. Utilizing research to confirm and enhance a practice improvement project is often times the optimal way to achieve 'best practice' for patient care.

Acknowledgements

A special thank you to Janyce Lundstedt, MS, RN, CNS, Oregon Region Director of Nursing Practice and Quality, for providing the funding for this project. And to Teresa Goodell, PhD, RN, CNS, CCRN, APRN, BC, Assistant Professor at OHSU for collaborating on the systematic review.

References

Ahmad, R., Cherry, R.A., Lendel, I., Mauger, T., Service, S.L., Texter, L.J. & Gabbay, R.A. (2007). Increased hospital morbidity among trauma patients with diabetes mellitus compared with age and injury severity score-matched control subjects. *Archives of Surgery, 142*(7): 613-8.

Amlung, S.R., Miller, W.L. & Bosley, L.M. (2001). The 1999 National Pressure Ulcer Prevalence Survey: a benchmarking approach. *Advances in Skin & Wound Care, 14*(6): 297-301.

Batson, S., Adam, S., Hall, G. & Quirke, S. (1993). The development of a pressure area scoring system for critically ill patients: A pilot study. *Intensive & Critical Care Nursing, 9*(3): 146-51.

Baumgarten, M., Margolis, D., Berlin, J.A., Strom, B.L., Garino, J., Kagan, S.H., Kavesh, W. & Carson, J.L. (2003). Risk factors for pressure ulcers among elderly hip fracture patients. *Wound Repair & Regeneration, 11*(2): 96-103.

Baumgarten, M., Margolis, D.J., Locallo, A.R., Kagan, S.H., Lowe, R.A., Kinosian, B., Abbuhl, S.B., Kavesh, W., Holmes, J.H., Ruffin, A. & Mehari, T. (2008). Extrinsic risk factors for pressure ulcers early in the hospital stay: A nested case-control study. *Journals of Gerontology Series A-Biological Sciences & Medical Sciences,63*(4): 408-13.

Bours, G.J., Laat, E., Halfens, R.J. & Lubbers, M. (2001). Prevalence, risk factors and prevention of pressure ulcers in Dutch intensive care units: Results of a cross-sectional survey. *Intensive Care Medicine 27,*(10): 1599-605.

Capobianco, M.L. & McDonald, D.D. (1996). Factors affecting the predictive validity of the Braden Scale. *Advances in Wound Care, 9*(6): 32-6.

Chauhan, V.S., Goel, S., Kumar, P., Srivastava, S. & Shukia, V.K. (2005). The prevalence of pressure ulcers in hospitalised patients in a university hospital in India. *Journal of Wound Care, 14*(1): 36-7.

Christensen, C.M., Grossman, J.H., & Hwang, J. (2009). *The Innovator's Prescription: A Disruptive Solution for Health Care.* New York, NY: McGraw-Hill.

Compher, C., Kinosian, B.P., Ratcliffe, S.J. & Baumgarten, M. (2007). Obesity reduces the risk of pressure ulcers in elderly hospitalized patients. *Journals of Gerontology Series A-Biological Sciences & Medical Sciences, 62*(11): 1310-2.

Compton, F., Hoffmann, F., Hortig, T., Straub, M., Frey, J., Zidek, W. & Schafer, J.H. (2008). Pressure ulcer predictors in ICU patients: Nursing skin assessment versus objective parameters. *Journal of Wound Care, 17*(10): 417-20.

Cunha, D.F., Frota, R.B., Arruda, M., Cunha, S.F. & Teixeira, V.P. (2000). Pressure sores Among malnourished necropsied adults-Preliminary data. Revista do Hospital das Clinicas; Faculdade de Medicina Da Universidade de Sao Paulo, 55(3): 79-82.

Eachempati, S.R., Hydo, L.J. & Barie, P.S. (2001). Factors influencing the development of decubitus ulcers in critically ill surgical patients. *Critical Care Medicine, 29*(9): 1678-82.

Fife, C., Otto, G., Capsuto, E.G., Brandt, K., Lyssy, K., Murphy, K. & Short, C. (2001). Incidence of pressure ulcers in a neurologic intensive care unit. *Critical Care Medicine, 29*(2): 283-90.

Fisher, A.R., Wells, G. & Harrison, M.B. (2004). Factors associated with pressure ulcers in adults in acute care hospitals. *Advances in Skin & Wound Care, 17*(2): 80-90.

Frankel, H., Sperry, J. & Kaplan, L. (2007). Risk factors for pressure ulcer development in a best

practice surgical intensive care unit. *American Surgeon, 73*(12): 1215-7.

Frat, J.P., Gissot, V., Ragot, S., Desachy, A., Runge, I., Lebert, C. & Robert, R. (2008). Impact of obesity in mechanically ventilated patients: A prospective study. *Intensive Care Medicine, 34*(11): 1991-8.

Gardner, A., Millar, L., Legg, S., Gomez, Y., McGillion, T. & Mulcahy, A. (2009). Pressure injury prevalence in a private health service: Risks and recommendations. *Wound Practice & Research, 17*(3): 134-6.

Guanghong, Z., Hiltabidel, E., Liu, Y., Chen, L. & Liao, Y. (2009). A cross-sectional descriptive study of pressure ulcer prevalence in a teaching hospital in China. *Ostomy Wound Management, 56*(2): 38-40, 42

Haleem, S., Heinert, G. & Parker, S. (2008). Pressure sores and hip fractures. *Injury, 39*(2): 219-23.

Hanan, K. & Scheele, L. (1991). Albumin vs. weight as a predictor of nutritional status and pressure ulcer development. *Ostomy Wound Management, 33*: 22-7.

Heifetz, R., Grashow, A., & Linsky, M. (2009). *The practice of adaptive leadership*. Boston, MA: Harvard Business Press.

Hengstermann, S., Fischer, A., Steinhagan-Thiessen, B. & Schultz, S. (2007). Nutrition status and pressure ulcer: What we need for nutrition screening. *Journal of Parenteral & Enteral Nutrition, 31*(4): 288-94.

Jesurum, J., Joseph, K., Davis, J.M. & Suki, R. (1996). Balloons, beds, and breakdown. Effects of low-air loss therapy on the development of pressure ulcers in cardiovascular surgical patients with intra-aortic balloon pump support. *Critical Care Nursing Clinics of North America, 8*(4): 423-40.

Jiricka, M.K., Ryan, P., Carvalho, M.A. & Bukvich, J. (1995). Pressure ulcer risk factors in an ICU population. *American Journal of Critical Care, 4*(5): 361-7.

Leblebici, B., Turhan, N., Adam, M. & Akman, N. (2007). Clinical and epidemiologic evaluation of pressure ulcers in patients at a university hospital in Turkey. *Journal of Wound, Ostomy, & Continence Nursing, 34*(4): 407-11.

Maklebust, J. & Magnan, M.A. (1994). Risk factors associated with having a pressure ulcer: A secondary data analysis. *Advances in Wound Care, 7*(6): 25-34.

Newell, M.A., Bard, M.R., Goettler, C.E., Toschlog, E.A., Schenarts, P.J., Sagraves, S.G., Holbert, D., Pories, W.J. & Rotondo, M.F. (2007). Body mass index and outcomes in critically injured blunt trauma patients: Weighing the impact. *Journal of the American College of Surgeons, 204*(5): 1056-64.

Nijs, N., Toppets, A., Defloor, T., Bernaerts, K., Milisen, K. & Berghe, G. (2009). Incidence and risk factors for pressure ulcers in the intensive care unit. *Journal of Clinical Nursing, 18*(9): 1258-66.

Olson, B., Langemo, D., Burd, C., Hanson, D., Hunter, S. & Cathcart-Silberberg, T. (1996). Pressure ulcer incidence in an acute care setting. *Journal of Wound, Ostomy, & Continence Nursing, 23*(1): 15-22.

Papanikolaou, P., Clark, M. & Lyne, P.A. (2002). Improving the accuracy of pressure ulcer risk calculators: Some preliminary evidence. *International Journal of Nursing Studies, 39*(2): 187-94.

Papantonio, C.T., Wallop, J.M. & Kolodner, K.B. (1994). Sacral ulcers following cardiac surgery: Incidence and risks. *Advances in Wound Care, 7*(2): 24-32.

Sayar, S., Turgut, S., Dogan, H. Ekici, A., Yurtsever, S., Demirkan, F., Doruk, N. & Tasdelen, B.

(2009). Incidence of pressure ulcers in intensive care unit patients at risk according to the Waterlow scale and factors influencing the development of pressure ulcers. *Journal of Clinical Nursing, 18*(5): 765-74.

Schoonhoven, L., Grobbee, D.E., Donders, A.R.T., Algra, A., Grypdonck, M.H., Bousema, M.T., Schrijvers, A.J.P. & Buskens, E. (2005). Prediction of pressure ulcer development in hospitalized patients: A tool for risk assessment. *Quality & Safety in Health Care, 15* (1): 65-70.

Shahin, E.S.M., Dassen, T. & Halfens, R.J.G. (2008). Pressure ulcer prevalence and incidence in intensive care patients: a literature review. *Nursing in Critical Care, 13*(2): 71-9.

Stausberg, J., Kröger, K., Maier, I., Schneider, H. & Niebel, W. (2004). Pressure ulcers in secondary care: Incidence, prevalence, and relevance. *Advances in Skin & Wound Care, 18*(3): 140-5.

Terekeci, H., Kucukardali, Y., Top, C., Onem, Y., Celik, S. & Oktenli, C. (2009). Risk assessment study of the pressure ulcers in intensive care unit patients. *European Journal of Internal Medicine, 20*(4): 394-7.

Theaker, C., Mannan, M. Ives, S. & Soni, F. (2000). Risk factors for pressure sores in the critically ill. *Anesthesia, 55*(3): 221-4.

VanGilder, C., MacFarlane, G.D. & Lachenbruch, C. (2008). The demographics of suspected deep tissue injury in the United States: An analysis of the International Pressure Ulcer Prevalence Survey 2006-2009. *Advances in Skin & Wound Care, 23*(6): 254-61.

Walsh, J.S. & Plonczynski, D.J. (2007). Evaluation of a protocol for prevention of facility-acquired heel pressure ulcers. *Journal of Wound, Ostomy, & Continence Nursing, 34*(2):

178-83.

Whittington, K., Patrick, M. & Roberts, J. (2000). A national study of pressure ulcer prevalence and incidence in acute care hospitals. *Journal of Wound, Ostomy, & Continence Nursing, 27*(4): 209-15.

OREGON HEALTH & SCIENCE UNIVERSITY

OHSU

Program Evaluation:
Pressure Ulcer Prevention in Oregon Providence Hospitals

Victoria Hays, RN, MN, CNS, APRN-BC
Doctor of Nursing Practice Candidate

Setting the Stage

- DNP Student Goals
  - Further advance and enhance my advance practice role
  - Positively Influence health outcomes and policy across Providence Health & Services (PH&S)
  - Life Long Learner
- Population Focus
  - Adult acute care patients
    - Medical/Surgical
    - Critical Care
    - Rehabilitation
  - Hospital size (small, medium & large facilities)
  - Varied Resources

OREGON HEALTH & SCIENCE UNIVERSITY

Introduction: The Clinical Problem

- The Patient Perspective
- “Present on Admission” and “Never Events” by The Centers for Medicare & Medicaid
- PH&S Oregon Hospitals
  - Magnet Designation
  - Pathways to Excellence

Purpose Statement:

The Purpose of this Program Evaluation was to improve and standardize regional PH&S best practice for pressure ulcer prevention (PU) in the acute care setting

1. Current best practice PU components within each Providence facility
2. State of the science related to PU prevention in the acute care setting
3. Best practices for PU prevention in other U.S. Magnet facilities

OREGON HEALTH & SCIENCE UNIVERSITY

Literature Review & Methods

National Pressure Ulcer Advisory Panel: Industry standard for PU prevention & treatment

- ✓ Skin assessment
- ✓ Risk Assessment Tools
- ✓ Support Surfaces
- ✓ Nutrition
- ✓ Education

Methods

Design

A cross sectional descriptive design used qualitative strategies (observation & interviews), quantitative methods (reviewing PU data from hospital sites) and a systematic review of the literature.

Setting, Sample, Measures & Data Collection

Phase I:

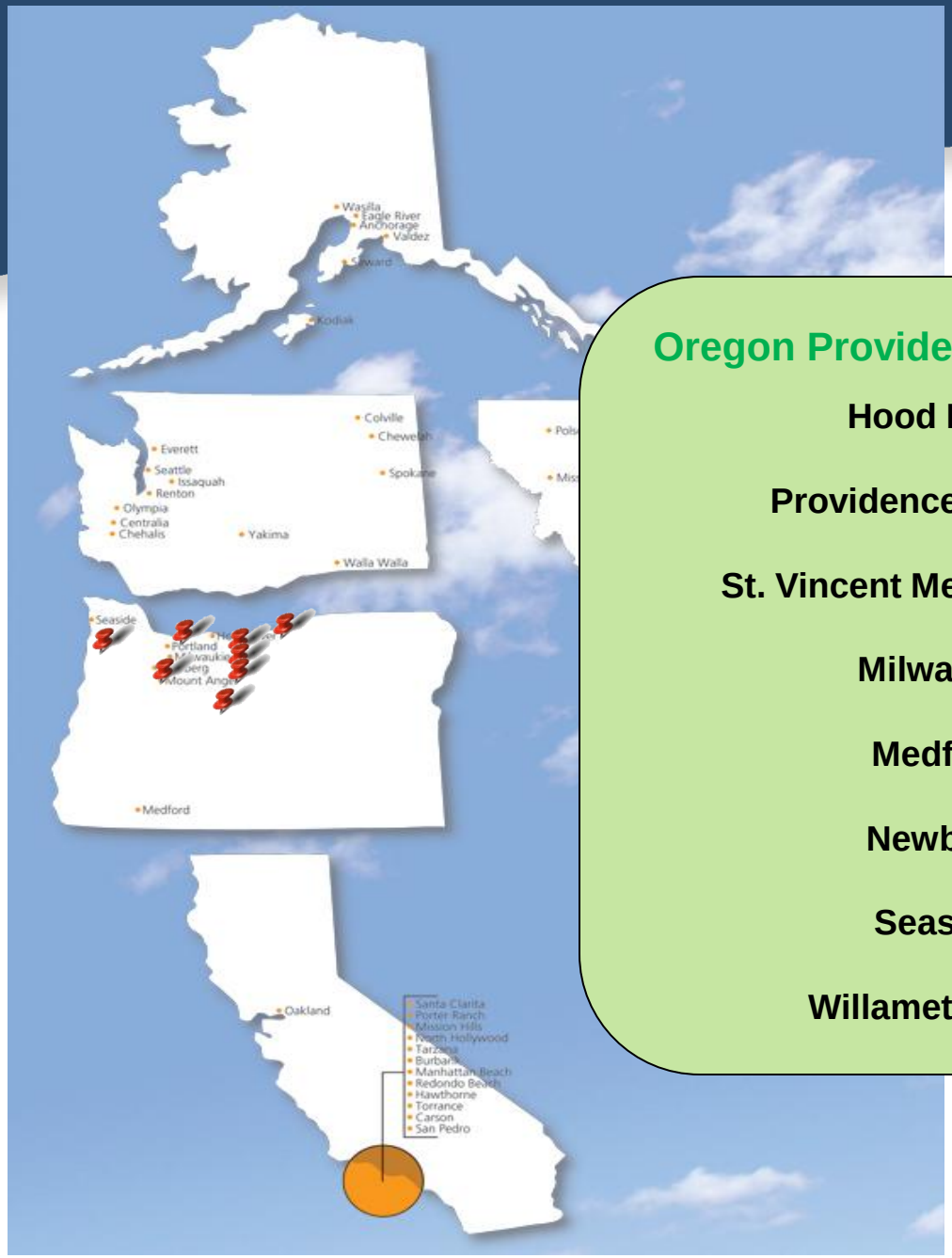
DNP student sampled seven prevalence teams, one from each hospital, using observation and seven team leaders, one from each hospital, using a semi-structured taped interview.

OREGON HEALTH & SCIENCE UNIVERSITY

Requested Pressure Ulcer Documents

- Standard of Practice for PU Prevention
- Credentialing form for Skin Care Nurses
- Prevalence study data collection form
- Support surface algorithm
- HAPU algorithm
- A communication example to staff/hospital announcing results of study
- Facility results of prevalence studies from June 2007 to June 2010 (total of 3 years)
    - Aggregate data (total HAPU rate) for each data collection period
    - Rate for Stage 1 PUs
    - Rate for Stage 2 and greater

OREGON HEALTH & SCIENCE UNIVERSITY



Oregon Providence Hospitals:

Hood River

Providence Portland

St. Vincent Medical Center

Milwaukie

Medford

Newberg

Seaside

Willamette Falls

OREGON HEALTH & SCIENCE UNIVERSITY

Con't Methods

Con't Setting, Sample, Measures & Data Collection

Phase II:

A systematic review of the literature, accessed CINAHL and Medline databases, were conducted at OHSU & Providence Medical libraries. Protocol question:

Are co-morbidities, age, intensive care unit stay, and /or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Co-morbidities: Heart Failure, Renal Failure, Diabetes Mellitus, Pneumonia and Septicemia
Age: 18 years and older
Intensive Care Unit Stay: All ICU settings
Weight: BMI <18.5 (underweight) and BMI 30 and > (obesity)

All Stages of Pressure Ulcers (Stage 1, 2, 3, 4, unstageable and deep tissue injury)

Search Timeframe: 20 years (January 1990 to September 2010)

OREGON HEALTH & SCIENCE UNIVERSITY

Con't Methods

Phase III:

Conducted a semi-structured taped telephone interview with 15 random team leaders of U.S. Magnet facilities who had designated or re-designated in 2010, stratified by size of facility.

* Re-designation occurred during first 6 months of 2010 = 45 hospitals
* Received list of facilities from ANCC – Magnet Office
* Randomization Scheme conducted by a contracted Nurse Researcher

Analysis

For Phase I and Phase III, quantifiable and qualitative data was collected and analyzed using a matrix Word table. Data was further analyzed and categorized according to a priority system based on all 3 phases of research.

OREGON HEALTH & SCIENCE UNIVERSITY

Examples of Interview Questions

Staff Credentialing Process

a. What staff is credentialed to stage PUs in the hospital
b. What is the process for assessing, documenting and writing a plan of care for Stage 3 and 4 PUs and who is responsible for this function (if someone other than a staff RN)?

Prevalence Studies

a. How are results published and who receives this information?
b. What is the process to follow-up on any HAPUs? And what is the timeframe?

What methods have been used to engage the Emergency Department in PU prevention? Have any methods been successful? How do you know?

Total Questions: 9

OREGON HEALTH & SCIENCE UNIVERSITY

Human Subjects, Ethics & Results

Protection of Subjects & Ethical Considerations

- There was not any patient contact or access to the patient health record
- Informed written consent was obtained prior to observation and interviews
- Minimal risk to staff and the facility was identified by a study identification number only

Results

Sample

Phase I: Seven Providence prevalence teams and seven team leaders

Phase II: Systematic review of 721 nursing articles

Phase III: Interviewed 12 Magnet facilities (4 each from the following bed sizes >400, 399-162 & <161)

OREGON HEALTH & SCIENCE UNIVERSITY

Con't Results

Great Variation in Practice

Findings

- Team Leaders may have lacked strong communication, leadership, facilitation & project management skills
  - 70% of team leaders were BSN prepared
  - BSN staff were classified as staff nurses and were assigned a patient load each shift
  - Qualitative comments
- Lack of communication of data and lessons learned beyond the individual clinical unit by the team leader
  - 75% of all team leaders did not share data beyond the unit; 14 out of 19 of these facilities had higher PU rates compared to facilities that shared data house-wide
- A lack of knowing the HAPU goal (national benchmark) by the Team Leader
  - 14 out of 19 facilities had higher PU rates compared to facilities who knew their goal
  - Unit staff unaware if HAPU goal was met, exceeded or unsatisfactory
  - Lack of clear expectations for data sharing and follow up with key stakeholders

OREGON HEALTH & SCIENCE UNIVERSITY

Con't Results

Findings

- Systematic review
  - 41 articles met the criteria of selected risk factors
  - Advancing age was a significant factor
    - Literature was inconsistent determining a specific age group between 50 years to 85+ years
    - Age was also insignificant in several articles
  - Critical Care Stay was a significant factor in five articles
  - BMI was a significant factor
    - For underweight, normal weight and obesity
    - Several articles stated BMI was insignificant
  - Co-Morbidities were all significant in some articles
    - Diabetes was significant in several articles
    - Heart disease was insignificant in one article

OREGON HEALTH & SCIENCE UNIVERSITY

Con't Results

- Lack of team leader collaborating with Materials Management on specialty surface surfaces and bariatric equipment
  - 50% of Magnet team leaders were unsure where to locate rental equipment information and 100% of Providence team leaders had no idea about usage or financial implications

Financial Considerations

- Providence Portland cost savings over last three years: $102K
- Oregon Region potential cost savings over next 12 months: $158K

OREGON HEALTH & SCIENCE UNIVERSITY

Recommendations

Outcomes

	Recommendations
1.	Team leader needs to possess strong communication, leadership, facilitation and project management skills; authority to hold staff accountable for practice
2.	Communicate HAPU data and lessons learned to each unit *and* house-wide
3.	Team leader provides clear expectations for data sharing and follow-up from the data with key departments determined by the team leader
4.	Revise nursing documentation to include other variables, besides the Braden Scale, to better identify patients at risk for PU development
5.	Team leader needs to collaborate with Materials Management on the topic of specialty support surfaces and bariatric equipment regarding rental expenses and purchasing equipment

OREGON HEALTH & SCIENCE UNIVERSITY

Discussion

Situation Analysis

- Pressure Ulcers is a current and future quality indicator for hospitals
- Established professional relationship with Providence team leaders

Interpretation

- Each recommendation has a common thread that points to a clinical leader who is able to assess clinical and non-clinical operations at a micro and macro level
  - Examine the issue at hand, as an observer by being a participant on the dance floor and move to the balcony section seamlessly
  - Identify key stakeholders & build relationships with key staff/departments
  - Communication is key at the unit level and house-wide
- Enhance the electronic health record to cue nurses on incorporating best practice in patient care

OREGON HEALTH & SCIENCE UNIVERSITY

Limitations

Limitations

- Attrition of Magnet team leaders who initially agreed to participate in the telephone interview and then cancelled or declined
  - Unexpected leave of absence, no longer worked at facility, did not return initial telephone calls by DNP student, and unable to determine name of team leader
- Systematic Review
  - Scope of question & timeframe
- Sample Size
  - Less than 20 hospitals (compared > 6,000 hospitals in U.S.)
- Short Time Frame

OREGON HEALTH & SCIENCE UNIVERSITY

Final DNP Report to PH&S

Final DNP Report

- May 23 & 24: 2011 Providence Excellence Conference in Seattle, WA
  - Present to an audience of Chief Nurse Officers (CNOs), Chief Medical Officers and Senior Management from all 5 Regions (California, Oregon, Washington, Montana & Alaska)
- June 2011: Regional Chief Nurse Officer Forum in Renton, WA
  - Present to an audience of the Vice President of Patient Care at the System Office and the four Regional CNOs
- June 2011: Oregon Region Chief Nurse Officer Forum in Portland, OR
  - Present to an audience of the Oregon Region CNO and the 8 hospital CNOs

OREGON HEALTH & SCIENCE UNIVERSITY

DNP Competencies

- Practice within an advanced practice nursing specialty in a professional, evidence-based, skilled and ethical manner.
- Influence health and health outcomes of individuals, groups, and populations through clinical inquiry.
- Influence health policy and systems of health care in the local, regional, state, national and international forums

OREGON HEALTH & SCIENCE UNIVERSITY

Next Steps

- **Tomorrow & Next Week**:
  - ✲ ❄ ▲ ▼ ✌ ✲ ❄ ● ✿ ✌ ✳ ● ❄ ❄ ❐
- **Beyond Next Week**:
  - Med/Surg Clinical Documentation Specialist for the Oregon Region for New Providence EHR
  - Other Providence Oregon-wide Projects
  - Director level Nursing Position
  - Publish CIP, Case Studies & Systematic Review
  - Teaching Position

OREGON HEALTH & SCIENCE UNIVERSITY

Acknowledgements

Committee Members:

Anne Rosenfeld, RN, PhD, CNS, FAHA, FAAN

Teresa Goodell, PhD, RN, CNS, CCRN, APRN, BC

Other OSHU Staff:

Susan Norris, MD, MSc, MPH

Providence Staff:

Debbie Burton, RN, PhD, Vice President of Patient Care, System Office

Janyce Lundstedt, MS, RN, CNS, Oregon Region Director of Nursing Practice & Quality

Karen Logsdon, RN, MS, Chief Nurse Officer, Providence Portland Medical Center

Salomeja Garolis, RN, MS, CNS, Director of Professional Practice

OREGON HEALTH & SCIENCE UNIVERSITY

Final Thoughts . . .

Questions?

OREGON HEALTH & SCIENCE UNIVERSITY

Providence Health & Services
5251 N.E. Glisan St.
Building A, 3rd Floor
Portland, OR 97213-2967
t: 503.215.6512
f: 503.215.6632

Institutional Review Board

PROVIDENCE Health & Services

September 30, 2010

Victoria Hays, RN, CNS
PPMC Nursing Administration
4805 NE Glisan Ave
Portland, Oregon 97213

Re: EXPEDITED APPROVAL OF STUDY:
"Program Evaluation: Pressure Ulcer Prevention in Oregon Providence Hospitals" IRB #10-098B

Dear Ms. Hays,

This letter represents expedited IRB review and approval of the above referenced research study (IRB review form dated 9-23-10, and revised 9-30-10; consent form, invitation letters, and undated study proposal). This study has been assigned PH&S IRB# 10-098B. Please use this number when corresponding with the IRB regarding this study.

This study qualifies for expedited IRB review based on 45 CFR 46.110 because it is a study involving individual and group behavior collected through interview, observation, and/or survey techniques.

Laurie Skokan, Ph.D., acting-IRB Chairperson reviewed and approved the study proposal on 9-30-10. The approval is for one year. Prior to 9-30-11, you will need to submit a "Study Review Report."

Enclosed you will find the IRB date-stamped consent forms and invitation letters. Please use only these versions.

Any changes to this study must be reviewed and approved by the PH&S IRB prior to implementation.

The IRB members will be informed about this expedited study at the October 26, 2010 full-board meeting.

Sincerely,

Mark W. Schuster

Mark Schuster, MS, CIP
IRB Research Study Coordinator

Please note: This letter also serves as notification that our Institutional Review Board is organized and operates in compliance with Good Clinical Practice Guidelines as defined by the U.S. Food and Drug Administration under the Code of Federal Regulations (21 CFR Parts 50 and 56) and the Department of Health and Human Services regulations (45 CFR Part 46) pertaining to the protection of human subjects in research.

Appendix B
Oregon Region Pressure Ulcer Project
Prevalence Study Observations

Study ID Number	Observation Date	# of Staff on each Team	# of Inpatient Units	# of Prevalence Teams	Team Staff Mix	Process for Determining HAPU	Decision maker for HAPU	HAPU Debrief during Study?	If Debrief, includes RN & Patient?	When Results are Finalized	Results Shared with Staff Preliminary & Final
010	2/16/11	2	1-3	1 team/2 units	WOCN & RN	Chart Review Only	Not Observed	Not Observed	Not Observed	Not Observed	Not Observed
011	3/9/11	1-2	4-6	1 team/2 units	WOCN & RN	Chart Review Only	WOCN only	No	No	Days 2-6	Not observed
012	1/11/11	4	1-3	1 team/2 units	RNs only	Chart Review Only	Credentialed RN	No	No	Not Observed	Not Observed
013	1/12/11	2	1-3	1 team/2 units	WOCN & RN	Chart Review Only	Credentialed RN	Yes	No	Not Observed	Not Observed
015	4/7/11	1-2	1-3	1 team/2 units	RNs only	Chart Review Only	RN	No	Not Observed	Not Observed	Not Observed
016	11/10/10	2-3	11+	1 team/2 units	RNs only	Chart Review Only	Stage 1& 2: Credentialed RN Stage 3+: WOCN	Not Observed	Not Observed	Not Observed	Not Observed
017	1/11/11	2	1-3	1 team/2 units	RNs only	Chart Review Only	Credentialed RN	No	No	Not Observed	Not Observed
014	N/A	1-2	11+	1 team/1 unit	RNs only	Chart Review Only	Credentialed RN	Yes	Yes	Day 2	Preliminary = day of study Final = Next day

Appendix C
Oregon Region Pressure Ulcer Project
Team Leader Interviews

Study ID Number	010	011	012	013	014	015	016	017
# of Licensed Beds	25	168	77	40	483	25	483	143
Avg. Daily Pt Census	12	67	24	30	390	14	320	36
# of WOCNs	1 = 0.8 FTE	2 = 1.3 1 = On call	None	1 FT & 1 PT	2 FT=2.0	None	4 total 3 PT/FT 1 On call	None
Major Functions	Inpatient referrals, OP clinic, Home Health wound and Ostomy care & planning; reports to Surgical NM	F/u on wound care referrals on 5 units & MD offices, Eval & tx for Wound VACs, d/c planning for wound care pts, quarterly prevalence studies, skin care education, PU verification for CMS & attend regional monthly skin care meetings. Reports to NM	N/A	IP & OP referrals; participates in prevalence study	High percentage of time spent caring for Ostomy IP & OPs. Serves as NP backup as needed for wound care, follows up on specialty support surfaces, assists with monthly skin care meetings and education; provides new nursing orientation on PU prevention.	N/A	IP only: Participate in prevalance studies, stage all 3, 4, unstagable and DTIs, and as needed for other challenging skin care issues.	N/A
# of CNSs	None	None	None	None	1 PT Facilitates prevalence studies and skin care meetings, debriefs all HAPUs with unit teams, reviews all skin care UORs, participates with product trials, participates with regional wound group, on boards new nurses to skin care team	None	1 PT Facilitates prevalence study, double checks all CA & HAPUs from study, reviews all skin UORs, reviews debriefs for stage and greater, participates with product trials	1 PT

# of NPs	None	None	None	None	1 FT IP Follows up on wound care referrals for stage 3 and greater; verifies stage 3&4 PUs for CMS paperwork, follows up on Wound VACs (except by ortho)	None	1 OP Only	None
Staff Credentialed to Stage	1 skin care nurse; all other RNs describe their assessment	WOCNs only; currently creating skin care team from RNs from each unit	8 Skin care RNs	WOCNs and skin care RNs only; all other staff describe PUs in documentation	Skin Care RNs; during prevalence study only; All RNs describe PUs in documentation	4 Skin care RNs; all other nurses describe wounds/ulcers	Unit Skin Care RNs & WOCNs	Skin Care RNs: Complete NDNQI modules & signed off on competency
Process for Stage 3&4 PUs	All RNs describe & document PU. Automatic Referral to WOCN	All RNs describe & document PU. Automatic Referral to WOCN	RNs assess and document PUs; automatic referral to skin care team who in turn, notifies certified wound care nurse in OP clinic (who works 4d/week only)	All RNs describe & document PU. Automatic Referral to WOCN	All RNs describe & document PU. Automatic Referral to Inpatient NP	RN completes paper wound care referral for skin care nurse to follow-up on pt	All RNs describe and document PU. WOCN verifies PU and stages PU	All RNs describe a PU. For stage 3 & 4, RN must submit skin care referral for verification & contracted WOCN is notified.
Process for DTIs and Unstageable PUs	Same as above	Same as above	Same as above	All RNs describe PU. Unsure if referral is made to WOCN. *Request staff education on ulcers	All RNs describe PU. Automatic Referral to IP NP	Same as above	Same process as Stage 3 & 4 PUs	All RNs describe a PU. Skin Care RN follows up with ulcers. *Request staff education on ulcers
Other Variables to identify at-risk patients	Depends on RN assessing patient; varies	None	Depends on RN assessing patient; varies	Depends on RN assessing patient; varies	Depends on RN assessing patient; varies	Braden Scale only	Depends on RN assessing patient; varies	Depends on RN assessing patient; varies
Support Surfaces used, other than current mattresses	Facility recently approved to purchase Isoflex mattresses; Use Isoflex & Bariatric rental beds	Bariatric, Kinair IV beds and Gaymar Overlay rentals Triadyne bed for ICU	Bariatric beds & Gaymar overlay rentals	Bariatric, Kinair IV beds and Gaymar Overlay rentals	Bariatric, Kinair IV bed rentals, Overlay rentals, OR Stretchers	Rare use of a bariatric bed and clinitron for flaps/grafts/PUs	Bariatric bed & Overlay rentals; OR Stretechers	Bariatric bed & Overlay rentals
Appropriate Use of Support Surfaces	Daily rounds by Asst. Nurse Mgr for patients on any rentals	No follow-up	No follow-up	No follow-up	Used 0.5 FTE for 2 years to follow-up; nurses are educated; spot checks by WOCNs based on pt referrals	No follow-up	WOCNs received daily report & Charge Nurses follow-up on high risk patients (Braden less than 14)	CNS & Assoc. NM will randomly print KCI daily report to verify appropriate surface

Track rental bed costs	Yes (not by TL)	Yes (not by TL)	Yes (not by TL)	Yes (not by TL)	Yes	Yes (not by TL)	Yes (not by TL)	Yes (not by TL)
2010 budget compare to 2009	Greater than	Greater than	Greater than	Less than	Less than	Less than	Less than	Greater than
Prevalence study results shared with staff	Monthly; Email to staff, NMs, ED & Surgery, Risk Mgmt/Quality. Also email housekeeping and materials, as needed.	Quarterly; WOCN shares results with Director of Nursing Education within a few days of the study; Regional Report (listing current and previous 20 quarters) is shared with staff within 2 weeks.	Quarterly; Skin care nurse emails results to all staff; Results posted on Med/Surg staff bulletin board; discussed at next staff meeting	Monthly; Share info. at monthly staff meeting; occasional staff email	Monthly; Same day verbally; next day formally in hospital wide email	Monthly; Sends email to NMs to forward to staff	Monthly Beginning Jan. 2011; CNS checks all HAPU and CA PUs to ensure they are correctly marked.	Monthly; Shared at med/surg staff meeting; Critical Care: email
HAPU follow-up from study & timeframe	Email sent to RN(s) who did or did not document findings on admission.	Report sent via email to staff usually within 2 weeks of the quarter.	Discussed with direct care nurse on day of study; learning's shared in staff email and at staff meeting	Discussed with primary care nurse	Within 7 days of the study date with admission nurse and unit staff; learnings communicated house-wide to other departments	Usually within 24 hours	Skin Care Nurse, DCN & Charge Nurse discuss HAPU. Skin Care Nurse completes UOR. NM shares information with staff. CNS shares house-wide results with many Councils	One on one with staff and Nurse Manager; learnings shared at med/surg staff meeting
Engage ED in PU prevention	PU presentation provided to ED nurses June 2010. Additional educational would be helpful.	Complete UOR for HAPUs; needs several email/phone calls to solicit any response. "Not a good relationship with ED NM - Needs work."	No ED skin care nurse on team; Email sent to ED regarding a HAPU	None at this time	ED Skin Care Nurse on Team. Data collected on Prevalence form and shared with ED via email with specific pt info. from data collection form and copies of forms provided to ED; ED shares email with staff and discusses at monthly ED meeting.	None at this time	Pt info. shared in a graph with encounter number, prevalence study date and date of ED Visit	One follow-up to-date. CNS shared 1 HAPU w/ ED NM one month.

Engage Surgical Services in PU prevention?	PU presentation provided to surgery nurses June 2010. Additional educational would be helpful.	None	None	None at this time	SSU Skin Care Nurse on Team. Data collected on Prevalence form and shared with Surgery	None at this time	Pt info. shared in a graph with encounter number, prevalence study date and date of Surgery	One follow-up to-date. CNS shared 1 HAPU w/ Surgical NM one month.
Other Information	WOCN assigned to surgical services although a high percentage of her time is spent on Med/Surg & OP. Unclear as to the reporting structure and needs assistance from "management" on PU program.	Quarterly prevalence study debrief done with WOCN and Director of Nursing Education. Part-time WOCN challenged with PU program because: 1.No AA support 2.No formal communication tool between RNs 3.Need additional characters in electronic wound care referral so WOCN is informed 4.Prevalence study nurses charge time to Ostomy department instead of 'home unit' 5. WOCN requesting "management" support with initiative since majority of time is spent in patient care and not administrative support.	Assistant NM who serves as the staff responsible for program requests coaching/mentoring on this initiative to better manage the program.			The goal is to have 4-5 nurses from each unit savvy on the topic of wound care to assist peers and MDs with care. Requesting "management" support for initiative since SME is a staff nurse.	Staff/Units will be recognized beginning 1/11 at 1 mo., 3 and 6 mo. for consecutive months of 0% HAPU. Skin Care Mtgs will be moving from quarterly to monthly beginning 1/11.	WF now has 7 skin care RNs; planning on quarterly meetings

Appendix D
Magnet Team Leader Pressure Ulcer Interviews
Bed size greater than 400

Study ID No. State	101 PA	102 SD	103 DE	104 IL
# of Licensed Beds	520	545	1100	645
Avg. Daily Pt Census	486	255	946	552
# of WOCNs	4 WOCNs & 4 Certified Wound Care Nurses = 6.2 FTE Primary concern: IP; also provide OP services	3 WOCNs = 2.7 FTE Participate in prevalence studies, monitor high risk pts (Braden <14) and receives electronic referrals to WC by nursing and MDs	6 WOCNs – 4 FT/2PT All IP; except 1 day/week for OP Ostomy; Follow up on all wound care referrals & participate in system wide skin care team	2 FT – covers 1 ½ facilities Primarily responsible for IP ostomy pts; staff instructed to use algorithm for physical therapy (certified for wounds) and WOCN (for Ostomy)
# of CNSs	0	0	0	0
# of NPs	0	0	0	1 FT Primarily responsible for IP ostomy pt referrals for 1 ½ hospitals, facilitates monthly skin care team and serves as member of the system wide skin care team
Staff Credentialed to Stage	All RNs stage ulcers; automatic referral to Wound Care Department for documenting "ulcer" via the electronic system for all ulcers	RNs assess and describe ulcers/ wounds; WOCNs stage only. Automatic electronic referral to WOCN for any skin breakdown (wounds and ulcers)	RNs stage ulcers and refer to WOCNS if POC is not working, if pt has a fistula, or nursing needs approval for a support surface	RNs stage ulcers and responsible to provide care for stage 1&2 only

Process for Stage 3&4 PUs	All RNs stage ulcers; automatic referral to Wound Care Department via the electronic system for all ulcers; WOCNs follow-up with these patients 2x/week after initial consult	Same as above	RNs stage, however, all of these ulcers need to be referred to WOCN for verification and POC	RNs stage ulcers, however, all of these ulcers are automatic electronic referral to PT
Process for DTIs and Unstageable PUs	Same as above	Same as above	Same as above	Same as above
Other Variables to identify at-risk patients	Does NOT use Braden Scale. Developed own scale = S: surface/sensory K: kinetic/keep moving I: increased moisture N: Nutrition *any one category indicates pt is at-risk for PU development	Braden only	Braden only	Uses Braden and pre-albumin & nursing home admits Additional risk factors are integrated into nursing documentation
Does facility currently use pressure reducing mattresses in IP?	Yes	Yes	Yes	Yes
Support Surfaces used, other than current mattresses	Yes, uses rental beds bariatric, air overlay for pts with PUs, Kinair IV for pts with more than one PU, & Rotoprone	Yes, uses rental beds for bariatric pts and for air overlays for pts with a PU	Rentals for bariatric beds, low air loss for pts with PUs, Clinitron for flaps/grafts	Rentals for bariatric beds, Kinair bed for pts with PUs on 2 turning surfaces
Appropriate Use of Support Surfaces	WOCNs follow-up with PU referrals; APN in critical care tracks daily	None	RNs need approval from WOCN to order any support surface; except plastic surgeon	RN use algorithm; no follow-up for appropriate use

Track rental bed costs	Yes (not by TL)	Yes (not by TL)	Yes (not by TL)	Yes (not by TL)
2010 budget compare to 2009	Cannot locate information or responsible department regarding rentals; skin care team has asked for info. in the past, without success	Could not locate info	Could not locate info	Less than
How often does facility conduct prevalence study?	2011 – quarterly due to resources and facility attempting to track incidence from electronic record (Cerna) Prior to 2011, monthly studies for years	Quarterly	Monthly	Quarterly
Current HAPU Rate	Critical Care: 14% Med/Surg: 4% **Goal**: Critical Care: 11% Med/Surg: 3%	0.5% (same for last 7 years)	Tracked by units Not allowed to provide this answer to nurse researcher	0% for 2010 In Feb. 2011, 2 HAPUs
Facility achieving the 50th percentile according to NDNQI?	No, slightly above	Yes	Unsure; need to figure out what this means	Yes, uses percentile; 1 year to achieve
Name top 3 PU interventions that contributed to the program's success	1.Pressure reducing mattresses 2.Turning patients (as part of their protocol) 3.Moisture management in investing in disposable underpads	1.Mandatory education for all never events for all staff (not just RNs) 2.Annual education for HAPUs; use case studies for learning 3.Visibility of WOCNs and real time teaching	1.Continueal staff education for new hires and annual 2.Staff accountability; debrief each unit HAPU and share peer to peer 3.Visible support from Sr. leadership & capital $ to purchase products /surfaces	1.Devleoped regional skin care/PU policy 2. Support surface algorithm for staff 3.Education of nursing staff upon new hire and annually 4.Skin care champs on each unit and includes other disciplines, ED, dietary, respiratory, etc.

Other Information	Interviewed WOCN (BSN prepared) who manages the Wound & Ostomy department; chairs the quarterly skin care team & manages IP PU program. Challenged to hold staff accountable since they do not report to WOCN and lack of WOCN time due to full pt load daily. WOCNs average 50-60 PU pts daily and consult on each one; have 4 staff working daily. Conducted chart audit of 1,000 records and determined to develop own scale based on this data; currently working on validity studies; also conducting a study in critical care to better identify PU risk factors (vasopressors, diagnosis, etc.)	Interviewed lead WOCN (BSN prepared) who chairs the quarterly skin care committee that is multidisciplinary and uses unit champs; ED represented on team	WOCN (BSN prepared) manages department and has for last 4 years; does not have a hospital skin care team but a system wide skin care team; ED represented on team	Interviewed the NP/ WOCN who manages the department. There is no ED nurse on the skin care team, however, the other 3 facilities do have ED representation.

Magnet Team Leader Pressure Ulcer Interviews
Bed size 161-399

Study ID No. State	**201 NJ**	**202 TX**	**203 VT**	**204 IL**
# of Licensed Beds	271	252	188	286
Avg. Daily Pt Census	175	190	180	184
# of WOCNs	0 *uses skin care unit champions (RNs)	1 contracted WOCN per diem for wound/ostomy referrals (in the process of hiring a WOCN; previous one resigned for a different position)	2 FT Provides IP wound care to facility and to local nursing home, lymphedema clinic, physician office and OP clinic M-F with 2 pts chairs	1 = 1 FTE Certified Wound Care Nurse Receives electronic referrals for wound care, conducts prevalence studies
# of CNSs	0	0	1 CNS WOCN Same as above; and facilitates quarterly skin care team	0
# of NPs	0 1 NP – OP only; co-chairs skin care team	0	0	0
Staff Credentialed to Stage	All RNs stage ulcers; receive PU training during new hire orientation & annually during nursing skills day. RN protocol for treating stage 1 & 2 PUs	All RNs stage ulcers; receive PU training during new hire orientation & annually during nursing skills day. RNs trained to tx stage 1 & 2	RNs describe wounds/ulcers only; WOCNs stage only	All RNs stage and receive education upon new hire only; All stage 2 and greater PUs are automatic referral to wound care nurse

Process for Stage 3&4 PUs	All RNs stage ulcers; RNs must inform MD of stage 3 & 4 and receive orders (standing protocol that MD completes that is specific to the pt)	All RNs assess and stage ulcers; electronic referral to contracted WOCN, who receives orders from MD, as needed	Automatic referral to WOCN	Automatic referral to wound care nurse
Process for DTIs and Unstageable PUs	Same as above	Same as above	Same as above	Same as above
Other Variables to identify at-risk patients	Uses Braden Scale & indicates hx of PU or current PU (nursing must complete documentation screen on this info); assessed daily	Uses Braden Scale; other variables may be considered, however, this is nurse dependent upon experience and not consistent	Uses Braden Scale; other variables may be considered, however, this is nurse dependent upon experience and not consistent	Uses Braden Scale, other variables may be considered, however, this is nurse dependent upon experience and not consistent
Does facility currently use pressure reducing mattresses in IP?	Yes, on about 140 beds; trying to receive additional capital funds to purchase additional beds/mattresses	Yes	Yes	Yes
Support Surfaces used, other than current mattresses	Yes, uses rental beds for low air loss and for flap patients based upon the Braden Scale score, nurses are alerted to consider use of a surface via documentation screen	Rental beds for bariatric patients, low air loss for pts with stage 3&4's; uses Clinitron for grafts	Ehob waffle mattress for stage 1-2's, ortho & frail pts, air overlay for stage 3,4s; owns 2 bariatric beds	Rental beds for bariatric (purchased 2), air overlay to decrease sheer/friction, Clinitron for grafts

Appropriate Use of Support Surfaces	None	Nurse must follow algorithm and need MD order for surface; no follow-up for appropriateness	Ehob waffle mattresses are available on units; staff need approval from WOCN for other surfaces	None
Track rental bed costs	Yes; no limit to budget (not by TL)	Yes (not by TL)	Yes (not by TL)	Yes (not by TL)
2010 budget compare to 2009	Same	Could not locate information	Greater than	Less than
How often does facility conduct prevalence study?	Quarterly	Monthly	Quarterly	Quarterly
Current HAPU Rate	Overall: March 2011 4.45% for all stages Rate was 8.3% in 2003	0% for last 10 months; took several years to achieve	10^{th} %tile (would not provide specific rate)	5.9%
Facility achieving the 50^{th} percentile according to NDNQI?	Uses Mean, not percentile No – 2010 mean 3.3%	Ues percentile; Yes	Yes	No – uses mean
Name top 3 PU interventions that contributed to the program's success	1.Nursing education on staging, surfaces & nutrition 2.Improved wound care products and protocols (especially for skin tears) 3.Incontinent management; no diaper policy in facility	1.Skin care team – 2 nurses from each unit; no reps from ED or Surgery 2.Mo. study with timely feedback 3.Good products and support surfaces; both are applied quickly, often times for prevention 4.Annual skills day for CNAs to instruct on early pt ambulation, up to	1.Staff recognize wounds/ulcers quickly and intervene quickly 2.Referrals to WOCN who provides real time teaching daily to staff 3.Skin care team who serve as resource to peers, including ED & Surgery	1.Skin care team to provide assistance to floor staff; including ED & Surgery 2.Real time education by wound care nurse 3.Communication of HAPUs and skin care education

		chair for meals, skin assessments; communication with RNs		
Other Information	Interviewed med/surg nurse educator (BSN prepared); co-chairs skin care team that is multi-disciplinary; CNO participates too. Ops report provided to NMs daily regarding pts who have PUs; unsure if used by NMs	Interviewed Director of Nursing; co-facilitates program with a NM; facility conducts hourly patient rounding on all units; no soap used at hospital, uses Sage product to clean skin without using any washcloths (washcloths viewed as too harsh & promotes skin breakdown)	Interviewed WOCN (BSN prepared) who facilitates program	Interviewed wound care nurse (BSN prepared) who facilitates program

Magnet Team Leader Pressure Ulcer Interviews
Bed size < 161

Study ID No. **State**	**301** **WI**	**302** **CO**	**303** **NY**	**304** **PA**
# of Licensed Beds	80	93	113	157 (215)* *Recently added 60 beds within last 2 months
Avg. Daily Pt Census	70	72	60	200 (was 155)
# of WOCNs	8 certified = 8 FTE Wound Care Nurses (not WOCNs) 2 – medical unit 1 – ICU 1 – Surg ICU 2 – Surgical unit 1 Coordinator 1 WC nurse covers IP each day and follows up on electronic WC referrals; other days of the week, assist on unit with WC and takes a full pt load	1 = 0.6 FTE Recently resigned; currently using WOCN from nearby hospital prn; in the process of posting a position Round on units weekly and per referral	1 WCC (not WOCN) = 1.0 FTE Teaches all new nursing hires on the topic of wound care, receives an electronic referral for any stage 2 and greater ulcer and wounds Average referrals per day: 1-5 patients	1 = 1 FTE Hired a year and a half ago to facility; Primarily focuses on IP wound care by receiving electronic referrals from staff; consults on 3-5 pts/mo in OP; facilitates skin care team (ED participates on team); on call 24/7
# of CNSs	0	1 – Outpatient Only	0	0
# of NPs	0 1 NP – OP only	1 = Assigned to MD Offices Only	0	0
Staff Credentialed to Stage	All RNs stage ulcers (and describe wound/ulcer) and complete annual training via NDNQI PU modules; automatic electronic referral to WC nurse if "skin breakdown" is documented and/or	All RNs stage ulcers after completing new hire orientation and annual skills competency	All RNs stage ulcers after completing NDNQI competency upon new hire and annually; All wound care documentation is on paper.	All RNs stage ulcers after completing NDNQI competency upon new hire and annually; automatic electronic referral to WOCN for stage 2 and greater

	Braden 12 or less			
Process for Stage 3&4 PUs	Same process as above	RNs assesses, stages and documents ulcers; refer to WOCN who makes recommendations and notifies MD for orders	RNs assess, stages ulcers and documents care; electronic referral to wound care nurse	RNs assess, stages ulcers and documents care; electronic referral to wound care nurse
Process for DTIs and Unstageable PUs	Same as above	Same as above	Same as above	Same as above
Other Variables to identify at-risk patients	Braden Scale only	Completes Braden weekly and photographs all ulcers and wounds upon admission. Works well because documentation cues nurses to complete pt information	Braden Scale only	Braden Scale only
Does facility currently use pressure reducing mattresses in IP?	Yes	Yes	Yes	Yes
Support Surfaces used, other than current mattresses	Yes, uses rental beds for low air loss for pts with PUs, the Clinitron for flaps and Bariatric	Yes, owns 2 bariatric beds, 2 Clinitrons; rents air overlays as needed for pts with PUs	Yes, rents overlays for pts with PUs and Bariatric beds	Yes, rents bariatric beds, Clinitron for grafts, Rotoprone for ICU, Air overlay for moisture issues
Appropriate Use of Support Surfaces	Daily report sent to WC Coordinator who forwards to HUC to ensure if pt d/c's, the rental bed is picked up	None	None	WOCN prints KCI report daily and follows up with staff
Track rental bed costs	Yes (not by TL)	Yes (not by TL)	Yes (not by TL)	Yes (not by TL)

2010 budget compare to 2009	Could not locate info.	Less than due to recent purchases	Could not locate info.	Bed rental decrease, Wound VACs increased
How often does facility conduct prevalence study?	Monthly	Quarterly	Quarterly	Monthly
Current HAPU Rate	1.1% 2010 average: 2.14% Rate has remained around 1-2% for last 3 years	3.2% 1st Q 2010 >5% for HAPUs for last 2 years	Unable to provide information	3% past year All device related HAPUs
Facility achieving the 50th percentile according to NDNQI?	Yes - Mean 6.05% for HAPUs	Yes – uses %tile	Yes – uses %tile	Yes – uses %tile
Name top 3 PU interventions that contributed to the program's success	1.Nursing education to include RN and CNAs 2.Unit Accountability; scorecard provided monthly to staff; debrief every HAPU with unit during monthly staff meetings 3. Support surface usage – education and follow-up with staff	1.Staff education for all disciplines; this is not just a nursing outcome 2.Quarterly surveys 3.Debrief process with unit, house-wide and other disciplines	1.Documentation to cue nurses on what information to gather 2.Annual nursing competencies 3.Skin care team; RNs from each unit, including ED (assessment must begin in ED) 4.Debrief every HAPU and share learnings housewide; communication is key	1.Skin care team with unit champs on each unit, including ED & Surgery 2.Nursing education upon new hire and annually 3.Bundle concept; changed electronic documentation screens to better capture and prompt nurses to document
Other Information	Interviewed WC Coordinator; BSN prepared.	Interviewed Director of Nursing Education (BSN prepared) who facilitates skin care team; RNs from each of the 4 units who serve as the team leader; in addition, teams ask specific quality questions to pts on day of study to solicit feedback.	Does not use photography, however, looking into making this practice change in 2011/2012.	Interviewed master's prepared WOCN

		Examples include: handwashing, turning, nurse is looking at skin daily, etc.		

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Ahmad, Cherry, Lendel, Mauger, Service, et al., 2007 Retrospective Study	N: 295,561 The Pennsylvania Trauma Systems Foundation database from 27 trauma Centers from Jan. 1984-Dec. 2002	To determine outcomes of pts with diabetes hospitalized for trauma who developed PUs.	PUs were 2.36 (95% Confidence Interval, (CI)1.91-2.92) times and sepsis was 2.17 (95% CI, 1.71-2.76) times more likely to occur in patients with diabetes. Author Recommendations: Diabetic trauma pts are at greater risk for developing PUs, sepsis and pneumonia than non-diabetic pts.	All diabetic pts, including trauma pts, need early PU prevention upon admission and throughout their hospitalization
Amlung, Miller, Bosley, 2001	N: 42,817 in 356 U.S. hospitals	Point prevalence conducted in March 1999.	NPU: 7.1% ICU had highest NPU: 13.0% Pre-dominate age group with PUs: 71-80 yr olds (29%) Author's Recommendations: Use national benchmark data to improve practice and wound care protocols.	Older pts (age 71 yrs and <) are at higher risk for PU breakdown. PU prevention begins upon admission and throughout hospitalization for older pts and all age groups.
Batson, Adam, Hail & Quirke, 1993 Prospective Cohort Study - pilot	N:51 pts Admitted to ICU in two London teaching hospitals and one general hospital	19 published risk factors were evaluated every 24 hours (from admission to the unit to the 5th day only) to determine PU development.	Authors did not provide a number or percent of Pts who developed a PU. Diabetes was significant (P<0.001) for predicting PU development. Age, BMI and PVD were not significant risk factors. Author's Recommendations These risk factors require additional study due to the small sample size; a main objective was to determine the feasibility of conducting this study on a larger scale in multiple hospitals.	Diabetes is one co-morbidity identified as a predictor for PU development in critically ill adults. Accurate pt history and prevention measures are important to begin upon admission.
Baumgarten, Margolis, Berlin, Strom, Garino, et.al., 2003 Retrospective Cohort Study	N: 9400 1983-1993 at 20 hospitals located in Pennsylvania, Texas, New Jersey and Virginia. Secondary analysis of data from a blood transfusion study; those who refused transfusion were excluded.	Pts aged ≥ 60 years, with a hip fracture from chart data from admission through the 30th day following surgery or time of discharge for development of PUs.	824 pts or 8.8% had hospital acquired PU by discharge. Pts with a preoperative ICU stay was significant (P=<.0.05) for PU development. Increasing age, the Charlson Comorbid Index, & the Sickness at Admission (hip fracture version) score were all significant in the multivariable model. Author's Recommendations This finding emphasizes the importance of developing and evaluating PU prevention interventions in the ICU.	Important to begin PU prevention in ICU settings upon admission due to the patient status. Comorbidities measured by the Charlson Comorbidity Scale and hip fracture Sickness at Admission score were significant.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Baumgarten, Margolis, Localio, Kagan, Lowe, et al. 2008 Nested Case Control Study	N: 792 1998-2001 in two teaching hospitals in Philadelphia, Pennsylvania	Pts aged ≥ 65 years were assessed on the third day of hospitalization for PUs. 3 controls were sampled for each case with a PU.	195 pts or 24% had ≥ 1possibly or definitely hospital acquired PU. The odds of PUs were twice as high for those with a ICU stay (adjusted odds ratio 2.0, CI 1.2-3.5) Author's Recommendations This finding emphasizes the importance of developing and evaluating PU prevention interventions in the ICU.	Important to begin PU prevention in ICU settings upon admission due to the patient status.
Bours, Last, Halfens, Lubbers, 2001. Dutch Hospitals	N: 850 pts in ICUs	Point prevalence on one day in 1998 & 1999.	28.7% of pts had NPUs. Age (60 yrs) was significantly associated with PU development (P <0.05) Author's Recommendations: Point prevalence studies are only one indicator regarding the quality of care provided to pts to prevent PUs. Predicting PUs in ICU pts is difficult and needs further research.	Older pts admitted to ICU need PU prevention measures started immediately upon admission and throughout their stay to be effective.
Capobianco, McDonald, 1996 Descriptive Correlational Study	N: 50 pts Admitted from Oct –Nov. 1993 in a NE U.S. teaching hospital	Adult pts were admitted every Mon., Wed., Fri., within 4 hours of admission and assessed on those days for PUs.	14 pts (28%) developed PUs. 2 pts (4%) were underweight. Authors Recommendations: Underweight status may increase the likelihood of PU development.	Small sample size of pts who were underweight developed PUs; early PU prevention for underweight pts must begin upon admission.
Chauhan, Goel, Kumar, Srivastava & Shukla, 2005. University Hospital in India	N: 445 pts on 20 clinical units	Point prevalence on one day	22 pts (4.94%) had NPUs. Of these 22 pts, 36.4% were aged >61 years 59% were hyperglycemic (>100mg/dl) Author's Recommendations: Point prevalence studies are only one indicator regarding the quality of care provided to pts to prevent PUs. The study data cannot be generalized to state or national levels.	Age (>61 years) and hyperglycemia were found in one third and over half of pts found to have a PU. Elderly pts and persons with diabetes require early prevention measures upon admission to the hospital.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Compher, Kinosian, Ratcliffe & Baumgarten, 2007 Prospective Cohort Study	N:3,214 pts Admitted from 1998-2001 to two hospitals in Pennsylvania	Pts aged ≥ 65 years were assessed on the third day of hospitalization for PUs.	PUs were identified in 378 pts (11.8%) on day 3. 84 pts (27.3%) developed PUs in the BMI category <18.5 as underweight. The odds of PU development was 1.8 times greater (95% Confidence interval 1.2-2.6) for underweight than optimal weight pts and declined as BMI increased. Overweight, obese and severely obese were at significantly lower risk than underweight and normal weight participants. Author's Recommendations: Nutritional screening of elderly pts is important upon admission. Calculation of BMI upon admission is needed for accurate data collection since a % of participants self-reported in this study.	BMI should be obtained upon admission for all pts, especially elderly pts, to help determine appropriate strategies for PU prevention. Add your conclusions about BMI here.
Compton, Hoffmann, Hortig, Straub, Frey, et.al., 2008 Prospective Cohort Study	N: 698 pts Admitted to a medical ICU for at least 72 hours and without a PU upon admission between 2001 –2004 in Berlin	Date were retrieved from a database during the first 24 hours of admission for pts who developed a stage 2 or > PU.	121 pts (17.3%) developed a PU. Sepsis (P =0.011) correlated with PU development in univariate, but not multivariate analysis. BMI and age did not correlate significantly with PU development. Author's Recommendations: Nursing's subjective findings were identified as significant indicators for PU development (i.e., assessment of skin, red, mottled, edematous or moist).	Pts who developed PUs weighed significantly more, however, there was no statistical difference in BMI. Important to begin PU prevention in ICU settings upon admission due to the patient status.
Cunha, Frota, Arruda, Cunha, Teixeira, 2000 Retrospective Study	N: 105 Adults autopsied between 1986-1996 from a 400 bed University Hospital in Brazil	Pts with complete records (gender, age, wt and height) were assessed for PUs (stage 2-4 only).	5 malnourished (according to a BMI of <18.5) and 7 non- malnourished (≥ 18.5) Pts had PUs Authors Recommendations: PUs were equally common findings in necropsied persons according to BMI	In autopsied pts, there were no differences in PU development for low BMI or normal BMI.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Eachempati, Hydo, Barie, 2001 Prospective Cohort study	Phase 1 N: 2,615 pts admitted from 1/1/93 –6/1/97 Phase 2 N: 412 pts admitted from 1/1/98 – 8/31/98 Surgical ICU at NY Presbyterian Hospital, NY	Phase 1: observational study of pts who developed stage 2 or > PU 97% of pts with PUs occurred in LOS >7 days. As a result, Phase 2: comparison study of pts with LOS >7days whodeveloped a PU.	Phase 1: 101 pts (3.8%) developed a PU. Phase 2: 33 pts (8%) developed a PU Age: 73.4 years (P<.002) increases risk of developing a PU. Greater than 50% of PUs occurred in pts with sepsis. Author's Recommendations: Aggressive prevention to include early ambulation, use of CURS (Cornell Ulcer Risk Scores) tool – although CURS was not sig. in multivariate analysis - , turning pts and use of support surfaces.	PU prevalence is statistically significant for age greater than 73 years old; a sepsis diagnosis implies a greater risk of PU development. Aggressive PU prevention for all elderly patients with a diagnosis of sepsis is paramount upon admission to the facility.
Feuchtinger, Halfens, Dassen, 2007 Prospective Descriptive Design	N: 53 ICU pts in a German hospital during a 4 week period	Risk and skin assessments were conducted on the day of surgery and each day for four days.	26 pts (49%) developed PUs in surgery. 7 pts (13%) developed in ICU. Author Recommendations: Small sample size of pts developed PUs after surgery in ICU	Did the N=7 (13%) develop in ICU because the pt was in ICU or because they had surgery?
Fife, Otto, Capsuto, Brandt, Lyssy, et al., 2001 Prospective Cohort Study	N: 186 Admitted to a Neuro ICU Hospital in Texas during 3 months	Within 12 hours of admittance, initial PU assessment, photographs, & Braden Scale were completed. Pts were re-examined every 4 days or at discharge from the unit.	12.4% or 23 pts developed PUs. 6 underweight pts (according to BMI <19) represented 4% of the total, had an incidence of 50% of PUs (non-significant P=0.08). Braden and BMI were only sig. predictors of PU in multivariate analysis. Authors Recommendations: Underweight pts are at greater risk for PU development than overweight pts.	Underweight pts (according to BMI) are at an increased risk of PU development and early intervention must occur upon admission for these pts.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Fisher, Wells, Harrison, 2004. Teaching hospital in Ontario, Canada	N: 1,992; In 1996, N:581 served as the validation sample	Point prevalence studies between 1993-1996.	NPU prevalence included: 1993: 14.7%; 1994: 10.4%; 1995: 11.7%; 1996: 12.2% Mean age: 62.5 years (95% Confidence interval: 61.7 – 63.2 50% of subjects between 70-80 years Author's Recommendations: The odds of having a PU increased with age. Early intensive prevention measures for older patients is critical to prevent PUs.	Older pts admitted to the hospital need PU prevention measures started immediately upon admission and throughout their stay to be effective.
Frankel, Sperry, Kaplan, 2007 Retrospective Study	N: 820 pts Admitted to a Surgical ICU	Data were identified from a ICU-9 discharge database for pts who developed a stage 2 or > PU	25 pts (3%) developed PUs Hx of diabetes (P<0.01) increased risk of PU development. Age >60 years (odds ratio 1.08 and 95% CI 0.0026-0.0131) had an odds ratio 3-fold higher risk for PU development. High creatinine (authors call this renal insuff.) sig. in multivariate analysis. Author's Recommendations: A tool to better identify PU risk factors for ICU pts need to be developed to incorporate impaired skin perfusion and other risk factors.	Diabetes and age >60 years correlate significantly with PU prevalence. Aggressive PU prevention for all elderly patients with a diagnosis of diabetes is paramount upon admission to the facility.
Frat, Gissot, Ragot, Desachy, Runge, et al., 2007 Prospective Study	N: 206: 82 obese pts compared to 124 nonobese pts Admitted to nine hospital critical care units in France between Sept 2002 and June 2004	The incidence of PUs was recorded between the two groups of intubated pts.	12 (15%) of obese pts and 20 (16%) of nonobese pts developed PUs. Obese: ≥ 35 kg/m^2 Author Recommendation: No difference between the two groups in the development of PUs	No difference between the two groups in the development of PUs.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Gardner, Miller, Legg, Gomez, McGillion, et al., 2009.	N: 370 in June 2006 in Australian Acute Care Hospitals	Point prevalence in 3 hospitals	Combined NPU prevalence for all 3facilities: 28.2%. Significant correlation between age in years and presence of PUs (P<0.01). Pts aged 50 years and older were 4x more likely to develop a PU. No significance was attributed to diabetes. Author Recommendations: More attention needs to be provided to older patients for prevention of PUs in the acute care.	Older pts admitted to the hospital need PU prevention measures started immediately upon admission and throughout their stay to be effective
Guanghong, Hiltabidel, Liu, Chen, Liao, 2009. Teaching Hospital in China	N:2,913 on 61 units in a hospital	Point prevalence on one day	NPU rate: 1.54%; ICU had highest rate:45.5% (5 of 11) Avg age with a PU: 63.48 Author Recommendations: Low rate may be attributed to preventative measures by nursing; however, article does not provide details regarding measures. Each hospital in China needs to assess its PU prevalence.	Older pts admitted to ICU or any unit need PU prevention measures started immediately upon admission and throughout their stay to be effective.
Haleem, Heinert, Parker, 2008 Retrospective Study	N: 4,654 pts at one hospital between July 1989-July 2006	Incidence of PUs among hip fracture pts upon admission, throughout hospitalization and 6 weeks after discharge	178 pts (3.8%) developed PUs. Increased age (82.1, <0.0001) and DM (16.9%, <0.0001) was significant for an increased risk of PU development. Author's Recommendations: Elderly diabetic pts with fractured hips are at greater risk for PU development.	Elderly, diabetic pts are at higher risk for PU development; PU prevention must begin upon admission.
Hanan, Scheele, 1991 Non-experimental descriptive design	N: 72 from a 800 bed medical center located in the Midwest	Pt assessment upon admission and during hospitalization for PU development	12 (17%) developed PUs. 7 pts (58%) developed PUs had a weight greater than 110% of ideal body weight (IBW) and 4 (33%) developed PUs with a weight below 90% IBW. Author Recommendations: IBW alone is not a predictor of PU development	The weight of a pt alone may not be a predictor of PU development, however, this is one piece of information nursing needs to consider in preventing PUs.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Hengstermann, Fischer, Steinhagen-Thiessen, Schultz, 2007	N:484 in a hospital over an 8 month period in 2005	Assess pts for PUs 48 hours after admission	PU prevalence 16.7%. Age and DM was not significant for PU development. Pts with a PU had a significantly reduced BMI in comparison to non-PU pts. Author Recommendations: Underweight pts may be at higher risk for PU development.	Early PU prevention must begin upon admission for underweight pts.
Jesurum, Joseph, Davis, Suki, 1996 Randomized Quasi-experimental Design	N:36 admitted to a large for-profit hospital located in South central U.S. between Dec. 1, 199 –May 31, 1996	Daily skin assessments of cardio vascular surgery pts requiring an intra-aortic balloon pump support when placed on a standard bed to determine PU development.	6 pts (16.7%) developed PUs. Renal insufficiency pts (P=0.02) were more likely to develop PUs postoperatively. Pts who developed PUs were 6 yrs older (68 versus 62) than those whose skin remained intact (P=0.04) Author Recommendations: Although a small sample size, age and history of renal disease may indicate these pts are at higher risk for PU development.	Age (greater than 68) and a pts history of renal insufficiency may indicate a higher risk for PU development after cardiac surgery; it is important to provide PU prevention measures prior to and after surgery.
Jiricka, Ryan, Carvalho, Bukvich, 1995 Exploratory Descriptive Design	N:85 pts admitted to ICU at a public hospital in the Midwest	Within 24 hrs of admission, skin assessment and Braden Scale were completed every other day until discharge	48 pts (56%) developed PUs. No statistical significance related to age or history of diabetes for PU development. Author Recommendations: Although a small convenience sampling, critical care pts are at higher risk for PU development	Although age and diabetes were not significant factors for PU development, 56% of ICU pts did develop PUs; early assessment and interventions is important for critical care patients.
Leblebici, Turhan, Adam, Akman, 2007 Prospective Cohort Study	N: 22,834 pts Hospitalized pts in two teaching hospitals in Turkey from Jan. 1, 2004-Dec. 31, 2004	Pts were assessed daily for PU development on all units.	360 pts (1.6%) incidence rate; 213 of these pts (59.2%) developed PUs in critical care. Mean age was 64.4 ± 15.5 yrs; Stroke, CV surgery and ortho surgery pts. accounted for 48% of pts.who developed PU. Author Recommendations: Pts are at higher risk for PU development in critical care.	Early assessment and PU prevention measures must begin upon admission for all critical care pts.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Maklebust, Magnan, 1994. Hospital in Detroit, Michigan	N: 2,189 during 5 audits over two years (1991- 1992)	5 separate hospital wide audits	NPU rate: 12.3% Mean age: 66.28 years for pts with PUs and Mean age: 56.39 years for pts without ulcers represents a statistical significance (P<.001) DM and PVD (P<.001) were both significantly Associated with PUs. Author's Recommendations: On average, pts who were older in age developed PUs than younger pts.	Although PU risk is greater for older pts, a prevention program needs to incorporate several variables aimed at all age groups, especially those with DM and PVD.
Mecocci, Strauss, Cherubini, Ercolani, Mariani, et al. 2005 Observational Prospective Study	N: 13,729 pts 81 community and university Hospitals in Italy for 20 months between 1991 and 1998	Pts aged ≥ 65 were assessed daily and chart reviews were conducted for development of PUs.	PUs were already present in 3% of pts. 74 pts (<1%) developed new PUs during hospitalizing. Very advanced age (≥85) were 2.3 times greater to develop a PU than younger pts (95% CI 0.9-5.8) Author Recommendations: Older age pts have a significant increased risk for PU development.	Older age pts (≥85) have a significant increased risk for PU development. Assessment and PU prevention must begin upon hospital admission.
Newell, Bard, Goettler, Toschlog, Schenarts, et al., 2007 Prospective Cohort Study	N: 1,543 pts Admitted to a trauma center in Greenville, NC between July 2001 – November 2005	Assess adult trauma pts for BMI and complications, with one being the development of PUs.	97 PUs (7%) developed during hospitalization. Morbidly obese (BMI ≥ 40.0 kg/m^2 was associated with PU development (OR 2.841, 95% CI, 0.353 to 1.856), renal failure (OR 13.506, 2.388 to 76.385) and pneumonia (OR 2.487, 95% CI, 1.483 – 4.302) Author Recommendations: Morbid obese trauma pts are at higher risk for developing pneumonia, renal failure and PUs.	Morbidly obese pts may be at higher risk for developing pneumonia, renal failure and PUs, when associated with trauma. Early PU prevention must begin upon admission.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Nijs, Toppets, Defloor, Bernaerts, Milisen, et al., 2008 Prospective Cohort study	N: 520 total pts Part 1: 463 pts Admitted 11/27/03 – 3/15/04 Part 2: 444 pts admitted during same timeframe to a Surgical ICU in Belgium	Part 1: documented risk factors within 24 hrs of occurrence of PU. Part 2: documented risk factors within 48 hrs of occurrence of PU.	115 pts (20.1%) cumulative development of PU; Sepsis with organ failure ($P<0.0001$) was significant with the development of PUs but only in univariate analysis. Medical hx of vascular disease was sign. 48 hours before development of PU. Dialysis and CVVH suggest acute and chronic renal failure was also associated. Author's Recommendations: A new risk assessment tool is needed for ICU patients to predict PU development to incorporate risk factors not captured in current tools.	PU prevalence was significant for a diagnosis of sepsis. An accurate pt history and on-going pt assessment are important in the prevention of PUs
Olson, Langemo, Bord, Hanson, Hunter, et al., 1996. Prospective study	N:149 on Medical and Surgical units Acute care hospital in a Mid-Western state	Part 1:Pts assessed within 36 hours of admission and 3x per week for 2 weeks or until discharge	Incidence of PUs: 13.4% Mean age was 67 years; age and lower body weight were not statistically significant. Of Stage II PU pts, 12% had DM. Author Recommendations: Assessment and re-assessment of patients using an at-risk tool is important to help determine risk for PU development	Pts admitted to the hospital need PU prevention measures started immediately upon admission and throughout their stay to be effective.
Papanikolaou, Clark, Lyne, 2002 Prospective Cohort Study	N: 213 pts In two acute care hospitals, every 5th admission to five clinical units	Pts aged 65 yrs and greater were assessed upon admission and again at 7 days and 14 days	47 pts (22%) developed PUs. Pts aged 75-80 and greater than 81 years was significant ($P=0.01$) for PU development. Author Recommendations: Ageing has a significant impact on the likelihood of PU development.	Pts aged 75 yrs and greater are more likely to develop a PU; early PU prevention must begin upon admission.
Papantonio, Wallop, Kolodner, 1994 Prospective Cohort Study	N:136 Elective cardiac surgery pts over 2 months	Pts were assessed eight times during six days: Pre-op and post-op days one through five for PU development	37 pts (27.2%) developed PUs. Significantly more pts with PUs had diabetes. Pts aged 60-69 were 2.54 times and pts aged 70 and over were 5.38 times more likely to develop PUs. Trend toward more ulcers with underweight and obesity pts. Author Recommendations: Age, diabetes and weight may be predictors of PU development in pt undergoing cardiac surgery.	Hospitalized pts, especially older, diabetic, underweight and obese pts undergoing surgery may be at higher risk for PU development; interventions must begin upon admission.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Sayer, Turgut, Dogan, Ekici, Yurtsever, et al., 2008 Descriptive Prospective Design	N:140 pts 3 ICUs in a Turkey hospital between May 9-June 24, 2005	Pts were assessed upon admission and daily for PUs	14.3% of pts developed PUs. Age was not significant for PU development. Author Recommendations: PU prevention needs to focus on pts with extended LOS, immobile and unconscience.	In ICU, age was not a factor for PU development.
Shahin, Dassen, & Halfens, 2008. Hospitals in Germany	N: 1760 pts in 3 ICUs over 5 years (2002 – 2006)	Point prevalence on one day.	2002-2005: mean PU prevalence rate of 30% 2006: mean PU prevalence rate of 16.2% Age 69.3 yrs was significant ($P \leq 0.05$) for PU development The mean age of women (68.5 yrs) was almost 5 yrs older than men ($P \leq 0.02$) who developed PUs More than half of pts in all ICUs were overweight (BMI $\geq$ 25). Author's Recommendations: Advancing age is a risk factor for developing PUs; strategies to prevent PUs need to incorporate these risk factors in ICU.	Older pts admitted to ICU or any unit need PU prevention measures started immediately upon admission and throughout their stay to be effective.
Stausberg, Kroger, Maier, Schneider, Niebel, 2004. University Clinics in Germany	N: 25,075 over 6 months	Point prevalence on one day.	NPU prevalence rate: 1.4%; Incidence rate: 0.6% Cross sectional rate: 5.3%. Pts with PUs were older 60.23 years ($P<.001$) compared to pts without PUs 48.46 years Author Recommendations: For correct PU rates, hospitals need to conduct cross sectional surveys and include length of stay (the longer LOS, the higher risk for PU development)	PU prevalence is statistically significance for age greater than 60 years. Aggressive PU prevention for older pts is paramount upon admission to any facility to reduce/eliminate PUs.

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
Schoonhoven, Grobbee, Donders, Algra, Grypdonck, et al., 2005 Prospective Cohort Study	N:1229 pts in 2 hospitals in the Netherlands between Jan. 1999 and June 2000	Pts were assessed within 48 hours of admission and once a week until a PU developed, pt discharged or hospital stay of greater than 12 weeks	121 pts developed PUs (10%); Age:50 and greater (P=<0.001) and less than 54 kg and greater than 95 kg were independent predictors of PU development. PUs developed in 9 (47%) of ICU pt weeks. Author Recommendations: Age, pt's admission weight and a critical care stay during hospitalization help identify pts at risk for PU development & prevention	Age (50 yrs and greater), pt's admission weight (less than 54 kg and greater than 95 kg) and a critical care stay during hospitalization help identify pts at risk for PU development that necessitates early prevention.
Terekeci, Kucukardali, Top, Onem, Celik & Oktenli, 2009 Prospective Cohort study	N: 142 pts admitted to an ICU in a Turkish hospital	Several risk factors were evaluated upon admission and discharge only	PU prevalence upon admission was 14 (9.8%) and upon discharge was 25 (17.6%) Age 76(P<0.05) and sepsis (P<0.05) was significant for new PU developed prior to discharge. BMI not sig. Author's Recommendations: Detailed screening for risk factors for PU development on admission and strict prevention measures will decrease the occurrence of PUs.	Detailed screening of risk factors (to include age and medical history) for PU development on admission and strict prevention measures will decrease and/or eliminate the occurrence of hospital acquired PUs.
Theaker, Mannan, Ives & Soni, 2000 Prospective Study	N: 332 ICU pts	22 published risk factors were evaluated every 8 hours to determine PU development	286 pts with 3 or more risk factors, 77 of these pts (27%) developed a PU. Age ≥ 60 years: p < 0.025; Diabetes: P < 0.002; Peripheral vascular Disease (PVD): P < 0.003 Author's Recommendations: Early identification of high risk pts, use of specialty beds and an interdisciplinary approach is needed to reduce risk and medical costs of PUs.	PU prevalence is statistically significantly associated with age > than 60 years old, and adiagnosis of diabetes or PVD. Aggressive PU prevention for all elderly patients with a diagnosis of diabetes and PVD is paramount upon admission to the facility

Appendix E
Evidence Table for Primary Studies

Key Question: Are co-morbidities, age, intensive care unit stay, and/or a patient's weight associated with the risk for adult hospitalized patients to develop a pressure ulcer?

Author, Year & Study Design	Sample Size & Population Setting	Study Aims	Results & Recommendations	Clinical Significance
VanGilder, MacFarlane, & Lachenbruch, 2008. Acute Care Hospitals & Other settings	U.S. Data from 2006 & 2007 International PU Prevalence Surveys. 85% in 2006 and 91% in 2007 of study participants were from acute care settings. Greater than 75,000 pts participated.	Point prevalence studies on one given day.	Underweight BMI: <18.5; Normal BMI: 18.5-24.0 Extremely obese BMI: 40-49.9 NPU prevalence is highest in underweight pts (around 25%, P < .001) compared to all other BMI categories for 2006 & 2007. Underweight pts had more back ulcers (P<.001) and fewer on the buttocks (P<.001). As BMI increases or decreases from 35, prevalence of Stage 3 PUs increases. Pts BMI of 40 or more had fewer Stage 1 (P=.02) and more Stage 2 PUs (P=.004). 50% of pts weighing 500lb+, had a Stage 2 in 2007, compared to 80% in 2007. Equally significant was that normal BMI had higher NPU prevalence than over-weight and obese categories combined (P<.001). 64% of pts surveyed were overweight or obese Author's Recommendations: PU prevention is key upon admission to any facility. Adoption of appropriate surfaces and equipment need to account for trends in all weight categories.	PU prevalence is statistically significance in underweight and obese BMI categories and has important clinical implications. Aggressive PU prevention for all weight categories is paramount upon admission to any facility. .
Walsh, Plonczynski, 2007 Prospective Intervention Study	Phase 1:N: 70 Phase 2-4: 242 pts and 24 nurses Pts admitted to a Community hospital on two units in Chicago, IL	Phase 1: reviewed pt charts over 2 yr time period to determine risk factors for heel PUs Phase 2: Two 10-day assessment & tailored intervention periods Phase 3: Prevalence day assessments of interventions compared to control group Phase 4: staff survey comparing current & heel trial product	Phase 1: FAPU - N:41; 65% were type 2 diabetics, PVD also a factor Phase 2: FAPU – N:4/155; no significance in age with PU development Phase 3: FAPU – N:1/67 intervention group; 3/51 in control group; no significance to age or comorbidity Phase 4: 24 nurses ranked trial heel product higher than current product used in facility Authors Recommendations: Accurate heel assessment, documentation and interventions are key to decreasing FAPUs	Accurate heel assessment (and all other bony prominences), documentation and interventions is important to prevent FAPUs.
Whittington Patrick, Roberts, 2000.	N: 17,560 for point prevalence Prevalence N:5,463 for incidence conducted in March 1999, 116 U.S. hospitals	Point prevalence on one day.	Prevalence: 2,705 pts had PUs (15%); 72% were older than 65 Years; Incidence: 383 pts had PUs (7%); 73% were older than 64 years Authors Recommendations: Using consistent methodologies, prevalence and incidence studies must be routinely conducted; Using a Wound, Ostomy nurse is an excellent resource to develop and implement a PU program.	Older pts admitted to the hospital need PU prevention measures started immediately upon admission and throughout their stay to be effective.

Appendix F

Oregon Region HAPU Rates by Facility for All Stages

Study ID No.	Average HAPU Rate for 2008	Average HAPU Rate for 2009	Average HAPU Rate for 2010	1st Quarter HAPU Rate for 2011
010	0%	3.2%	0.9%	3.0%
011	9.0%	4.5%	14.9%	2.8%
012	5.6%	3.2%	2.6%	6.9%
013	3.9%	3.8%	4.4%	5.6%
014	5.1%	3.6%	1.6%	0%
015	0%	0%	0%	0%
016	6.2%	9.8%	5.1%	2.2%
017*	Not Available	Not Available	Not Available	2.1%

*This hospital became a Providence facility in mid-2010 and was not conducting prevalence studies until late 2010.

The Revision of a Nursing Practice Guideline to Eliminate Deep Tissue Injuries:

An Acute Care Case Study

Victoria Hays

Oregon Health & Science University

Abstract

Introduction: Pressure ulcers (PU), specifically deep tissue injuries (DTI), are challenging to accurately identify and prevent in any healthcare facility. The purpose of this paper is to illustrate how one facility was able to tailor their evidence based practice guidelines to eliminate DTIs using a patient case study.

Review of the literature: The current U.S. staging system, written by the National Pressure Ulcer Advisory Panel (NPUAP) had modified the definition of a DTI in 2001 from "a deep bruise" to the 2007 definition as a "purple or maroon discoloration over intact skin or a blood filled blister". Currently, there are no recognized diagnostic tools used to identify DTI, therefore, clinicians need to rely on visual inspection and palpation. Although staging PUs is within the scope of the registered nurse, nursing staff continues to struggle with accurately assessing this ulcer.

Case Presentation: A 65-year old female patient presented with a strong cardiac medical history, undergoes surgery and during her hospitalization, develops three DTIs on three different locations of her body.

Conclusion: Effectively using just one patient case study can glean many lessons learned that can positively result in revisions to the nursing PU practice guideline and eliminate DTIs within a facility.

PU are a significant economic and healthcare issue for all patient care settings. The Centers for Medicare and Medicaid believe a facility acquired PU is an avoidable event and no longer warrants a higher reimbursement for the patient's admitted condition unless the PU was present on admission. The reported PU prevalence in the United States (U.S.) varies from 10% to 17% in the acute care setting (Ayello & Braden, 2002) and this figure has remained fairly constant from 2006 to 2008 (VanGilder, et al, 2010).

To assess the prevalence, nursing staff must be able to stage ulcers accurately. Staging ulcers, in particular, the newest addition to the staging classification system, DTI, can be challenging for staff to differentiate between a DTI and a stage 1 PU based upon visual assessment only. Assessment and prevention of DTI injuries are critical to ensure patients do not further develop a more serious ulcer that can result in a stage 3 or 4 (Black, 2005). Full thickness ulcers, such as a stage 3 or 4, heal by scar and never regain more than 70% of their original tensile strength (Zulkowski, Langemo & Posthauer, 2005).

The NPUAP, the most prominent U.S. organization to define staging of PUs, also provides evidenced-based guidelines, in the form of major themes, to prevent and treat PUs. Examples of major themes include: skin assessment, nutrition for PU prevention, and support surfaces. It is the responsibility of each facility to use these guidelines and define, in greater detail, their own PU prevention and treatment program. The purpose of this paper is to illustrate how one facility was able to tailor their evidence based guidelines to eliminate facility acquired DTIs using a patient case study.

A review of the literature accessed two electronic databases, MEDLINE and CINAHL, using key words that included "deep tissue injury", "assessment" and "pressure ulcer". The

search dates were from 1950 to October, 2010, and included published studies in which the full text was available in English.

PU Staging

The original staging system was developed by Shea and was based on his understanding of the pathology involved in PU development (Shea, 1975). Shea classified PUs using Grade 1 (acute inflammatory response) through Grade 4 (ulcers that have penetrated through the deep fascia) (Shea, 1975). A simplified version of Shea's ulcer classifications were developed by the Wound, Ostomy, Continence Nurse (WOCN) Society in the early 1990's and was intended to identify the level of tissue damage only; not the development of a PU (International Association of Enterostomal Therapy, 1988). This system classifies ulcers according to Stage 1 (Erythema not resolving within 30 minutes of pressure relief, epidermis intact) through Stage 4 (Deep tissue destruction extending through subcutaneous tissue to fascia and may involve muscle and/or bone) (Doughty, 2006).

The current U.S. staging system, originally based on the WOCN society's classifications, has been further modified by the NPUAP to include the four stages of PUs and has added two additional classifications: DTI and unstageable (Table 1) (NPUAP, 1998). In 2001, the initial proposed description of a DTI was a pressure related injury to subcutaneous tissues under intact skin that may have the appearance of a deep bruise (Ankrom et al, 2005). The NPUAP held a consensus conference in 2005 to better define DTI and in 2007, published the following definition that remains in effect today: "Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as

compared to adjacent tissue" (NPUAP, 2007). DTIs should not be confused with bruises, contusions, hematomas or gangrene (Black, 2005).

The definition of a DTI was based on case reports, clinical observations and experience; unfortunately, there has not been any validity or reliability testing conducted on this classification (Gefen, 2009). Other interpretations that have characterized a DTI include the presence of necrotic tissue under intact skin that extends to the subcutaneous layer (Salcido, 2006) and may also include deeper tissue, namely muscle, that is thought to be caused by mechanical stress and pressure (Berlowitz & Brienza, 2007). There remains considerable confusion amongst clinicians as to the cause of DTIs and how they develop, therefore, additional research is needed on this topic.

Assessment of DTI

Currently, there are no recognized diagnostic tools used to identify a DTI, therefore, clinicians need to rely on visual inspection and palpation. One important clinical issue associated with the difficulty of correctly identifying a DTI is that hours or even days after the injury, no or only minor skin alterations are visible (Edsberg, 2007). This is why it is very important for clinicians to take a comprehensive patient history of any PUs upon admission to a facility. In addition, to determine how long a patient may have been found "down" after a stroke, heart attack or any other medical condition in which the patient was found conscious or unconscious.

The challenge is to confirm a DTI using visual inspection only. One study that used intermediate-frequency ultrasound was performed on a total of 144 patients at the University Hospital in Tokyo and 12 of these patients had a confirmed DTI that were originally staged as a 1, 2 and unstageable PU (Aoi, 2009). This study also raises questions about the existing staging system and the ability to classify PUs accurately related to tissue damage. A study conducted by

Nagase et al. (2007), demonstrated using ultrasound to confirm a DTI on one study case of an unusual peri-anal induration that occurred after a 16 hour surgery. Although ultrasound has been proven to be safe, non-invasive, economical, and can be performed at the bedside; however, there is scarce data (two studies) in the literature to support this diagnostic tool. There have also been very few studies to determine a DTI using computed tomography and magnetic resonance imaging, mainly due to the expense of the test, lack of bedside equipment and the technology is not appropriate for daily assessment of PUs (Stekelenburg et al, 2007; Firooznia et al, 1982).

Additional Concerns Regarding DTI

Clinicians are often confused by the differences in the stages of pressure ulcers, especially, differentiating between a stage 1 PU and a DTI. Even experienced clinicians may lack agreement in labeling PUs by stage (Defloor & Schoonhoven, 2004). A stage 1 PU is defined as "Intact skin with non-blanchable redness of a localized area, usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area" (NPUAP 2007). In essence, the difference between visually assessing a stage 1 PU versus a DTI is being able to differentiate between the colors of red and purple, and using palpation (Appendix A).

Staging PUs is within the scope of the Registered Nurse practice. According to the NPUAP's paper on staging PUs, per the *Scope and Standards of Nursing Practice* detailed in the statement from the American Nurses Association president, Rebecca M. Patton,, MSN, RN, CNOR, RNs are expected to assess the patient's skin, stage the wound and implement an individualized plan of care based on the patient needs (Patton, 2010). However, staff nurses tend to lack the sufficient knowledge required to adequately assess and manage DTIs, as well as other more serious PUs (Aydin & Karadag, 2010).

According to the International PU Prevalence Study survey that included over 90,000 patients each year from 2006 to 2009, the overall nosocomial PU decreased by 1% ($P < .001$), however, the proportion of DTIs increased 3 fold, to 9% in 2009 (Kottner, Dassen & Lahmann, 2009). Compared with other PUs, DTIs are more commonly found on the heels ($P < .001$) and ankle and foot ($P < .001$) and less prevalent on the sacrum/coccyx ($P < .001$) and ischial tuberosities ($P < .001$) (Kottner, Dassen & Lahmann, 2009). This raises concerns in regards to nursing staff being able to discern between stage 1 PUs and DTIs accurately, especially, since DTIs appear to be increasing in the acute care setting.

Case Study

An acute care hospital, located in the Pacific Northwest, had developed a PU prevention and treatment program in January 2007 that mainly focused on PU stages 1 – 4, with little attention to DTIs. The hospital has ten medical/surgical units, two critical care units and one rehabilitation unit that utilize the PU protocol. In June 2009, a patient in the facility developed several DTIs during her hospitalization and based upon the lessons learned from the treatment of this patient, the PU prevention and treatment guidelines were modified to better incorporate the assessment and prevention of DTIs.

Patient History and Physical

A 65 year-old Caucasian female presented to the Emergency Department (ED) with shortness of breath that had increased over the last two months and upon arrival to the ED, her respirations were 24 and her oxygen saturation on room air was 92%. Other vital signs included a blood pressure of 158/88 and heart rate of 122. She also complained of nausea, dizziness and a chronic cough, although the cough had improved since her furosemide was recently restarted by her primary care doctor. According to the patient, she has had to sleep in a recliner at home

because she cannot lie flat and it usually takes her several hours to get to sleep because of the discomfort. Typically, she spends the majority of her day in the recliner and is able to walk to the front door of her home to get her daily mail. A cardiac workup was completed and according to the echocardiogram, she had severe mitral and tricuspid insufficiency with coronary angiography demonstrating multi-vessel coronary artery disease (CAD).

The patient had a history of mitral insufficiency, tricuspid insufficiency, CAD, atrial fibrillation, asthma, hyperlipidemia and arthritis. The patient's current medications include: Advair, 250mg inhaler, as needed; Albuterol MDI inhaler, as needed; Candesartan 4mg once daily; Claritin 10mg once daily; Lipitor 10mg once daily; Nexium 40mg once daily; Toprol 12.5mg once daily; Lasix 40mg daily; Iron polysaccharide complex 150mg daily; Docusate 100mg twice daily; Aspirin 81mg daily; Coumadin 2.5mg daily; Hydrocodone 5/500mg 1-2 tablets, every 4-6 hours as needed. The patient's laboratory data is listed in Table 2.

Physical assessment upon admission to the ED revealed an anxious female who is noted to be short of breath upon rest. Chest was clear with the exception of dullness noted on the right lower lobe. Her heart had an irregularly irregular rhythm and the cardiac monitor displays atrial fibrillation. The patient had +2 pitting edema in both lower legs, dry, fragile skin, however, she did not have any PUs. Her height was 62 inches and a weight of 71.8 kilograms (158 pounds) with a body mass index of 28.9, which is considered overweight.

Based upon the cardiac workup, the patient agreed to have a mitral valve replacement and a coronary artery bypass surgery that day. After the six and a half hour surgery, the patient was taken to the cardiac intensive care unit (CICU) for the next three days. On day three, the surgical incision appeared reddened, edematous and taut against the sutures. With permission from the surgeon, nursing submitted a referral to the Wound, Ostomy, Continence Nurse (WOCN) to

consult on the wound. In addition to examining the surgical incision, the WOCN conducted a complete head-to-toe skin assessment and found a total of three DTIs located on the occipital, first metatarsal on the left foot (Appendix B) and on the anterior calves from the sequential compression devices (SCD) applied to the lower extremities after surgery.

Lessons Learned & Action Taken

The WOCN conducted a debrief as to the cause of each DTI by reviewing nursing documentation and in talking with several of the CICU nurses who provided care to this patient immediately following surgery and throughout her stay on the unit (she talked with both day shift and night shift staff) . There were lessons learned from each DTI that resulted in actions taken and changes incorporated into the PU nursing practice guideline.

First Lesson Learned: Occipital DTI

The patient had undergone a six and a half hour surgery in the supine position that puts this patient at-risk for PUs due to the length of the surgery and the body position (Schoonhoven et al, 2002; Ayello & Lyder, 2007). The operating room (OR) staff did their due diligence to ensure a gel mattress was provided under the patient during surgery as well as a gel pad specifically designed to protect the patient's occipital region during surgery. Mathias (2008) states using pressure reducing gel mattresses, pads and positioners assisted their surgical staff in one Illinois hospital to decrease their surgical PU rate from 9.4% to 1.5%. When the patient was transferred to the CICU, the patient was placed on a pressure reducing mattress, however, a standard hospital pillow was placed under the occipital region that unfortunately, does not provide any pressure reducing capabilities. And due to the criticality of many CICU patients, who are often times intubated, there is very little head movement, resulting in the head (occipital region) staying in one position for several hours.

Action Taken

The Clinical Nurse Specialist (CNS), WOCN, CICU quality nursing team and the Nurse Manager discussed the case at length and made the decision to purchase occipital gel pads (same gel pads used by OR) to be used for all cardiac patients whose surgery lasts greater than three hours and the patient remains intubated after surgery. The rationale for the purchase was so CICU can continue the PU prevention practice from the OR as the patient transitions to the inpatient setting. CICU is a 22 bed unit and 22 gel pads were purchased for a total cost of $5,500. The PU prevention practice guideline was revised to incorporate this new change for the CICU and all staff was educated to the revision via an educational in-service by the WOCN.

Second Lesson Learned: First metatarsal on the left foot DTI

Upon review of the nursing documentation from the ED admission, a "bruise" that measured 2.5cm x 2.5cm was located on the first metatarsal of the left foot. When nursing had asked the patient about the "bruise", the patient responded that "my shoe on my left foot is always a bit tight and hurts my toe. However, I do not have the money to purchase new shoes." Each CICU nurse who cared for this patient also documented their assessment as a "bruise" and believed it was not a DTI. The WOCN discussed this issue with several ED nurses and CICU nurses in regards to their understanding of a bruise, DTI and stage 1 PU. It was evident, based upon the many discussions with staff, that bedside nurses were challenged with being able to differentiate between these three wounds, even after showing staff nurses pictures to depict the difference and a review of the definitions.

In a study conducted by Aydin and Karadag (2010) in three acute care hospitals in Turkey, they assessed a sample of 237 nurses to help determine their knowledge and practice related to stage 1 and DTI PUs. The mean score of correct answers was 48.85 ±11.99 of 100 and

there was a low correct response rate (25.2%) for nurses who were able to diagnose a DTI accurately. Significant correlations were found between the percentage of correct answers and level of education for those nurses with a baccalaureate or master's degree (Aydin & Karadag, 2010). This was also found to be true by Pancorbo-Hidalgo, Garcia, Lopez-Medina & Lopez-Ortega (2007), that a baccalaureate education positively influenced knowledge of PU prevention.

Action Taken

The CNS and WOCNs discussed the topic of DTI, stage 1 PU and a "bruise" with the facility skin care team that is comprised of over 30 registered nurses, each representing a clinical unit, and who serve as a skin care resource nurse to their peers on their assigned unit. There was confusion amongst the nursing staff in being able to accurately differentiate a "bruise" from a DTI and as a result, the decision was made to have staff submit a referral to the WOCN for all bruises assessed over a bony prominence to ensure appropriate assessment and classification of ulcers would be made and to ensure an accurate plan of care was in place for each patient with a DTI. The PU prevention practice guideline was revised to incorporate this new change and all nursing staff in the facility was alerted via a written flier provided to each nurse and additional communications were provided by the unit skin care nurse.

Third Lesson Learned: Bilateral anterior calves with a DTI

SCDs were applied by the OR staff to the lower extremities after surgery to prevent deep vein thrombosis (DVT). Applying SCDs is important to ensure the SCD fits appropriately and is not too tight or too loose against the lower extremities so the patient benefits from the intermittent compression devices. The other important aspect to applying the SCDs is to monitor the skin integrity every two to four hours per the hospital protocol. Upon review of the nursing documentation, there were major gaps in time that ranged from ten to fourteen hours in which

there was no skin assessment documented in regards to the nurse removing the SCDs to inspect the skin. In addition, this patient's skin was dry, fragile, edematous and the laboratory results included an abnormally high PT, APTT and INR that places this patient's skin at higher risk for potential breakdown.

Action Taken

The CNS, WOCN, CICU quality nursing team, CICU Medical Director, Hospitalist Medical Director and CICU Nurse Manager discussed this case at length and made the decision to continue using SCDs, even on patients with an abnormally high laboratory clotting values because the benefits of preventing a potential life-threatening DVT outweigh the negative consequences of potential skin breakdown. However, the nursing PU practice guideline was updated to reflect that assessment of SCDs and any other type of equipment used on patients with these abnormally high laboratory values must include hourly skin assessments to prevent tissue damage. All nursing staff in the facility was alerted via a written flier to each nurse (that also included the change in practice from the second lesson learned too) and the unit skin care nurses conducted random patient audits to ensure the practice change was hard-wired with staff. Two months of unit data collected resulted in a 96% compliance rate.

Conclusion

Although there remains controversy within the wound care arena over the classification of a DTI, these ulcers demand early assessment and intervention to prevent the development of a full thickness ulcer. The use of a case study serves as an opportunity for continued learning and to modify existing nursing practice guidelines to improve care at the bedside. As a result of the changes made to the practice guideline 12 months ago, the facility has not had any additional hospital acquired DTIs. PUs, including DTIs, is a timely topic and will only become more

important to the government, health care organizations, consumers and the media as regulations continue to focus on quality performance in hospitals.

Table 1

Staging of PUs by NPUAP

PU Stage	Description
Stage 1	Intact skin with non-blanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area. **Further description:** The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue. Stage I may be difficult to detect in individuals with dark skin tones. May indicate "at risk" persons (a heralding sign of risk)
Stage 2	Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum-filled blister. **Further description:** Presents as a shiny or dry shallow ulcer without slough or bruising.* This stage should not be used to describe skin tears, tape burns, perineal dermatitis, maceration or excoriation.
Stage 3	Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunneling. **Further description:** The depth of a stage III pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and stage III ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep stage III pressure ulcers. Bone/tendon is not visible or directly palpable.
Stage 4	Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunneling. **Further description:** The depth of a stage IV pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and these ulcers can be shallow. Stage IV ulcers can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis possible. Exposed bone/tendon is visible or directly palpable.
Unstageable	Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed. **Further description:** Until enough slough and/or eschar is removed to expose the base of the wound, the true depth, and therefore stage, cannot be determined. Stable (dry, adherent, intact without erythema or fluctuance) eschar on the heels serves as "the body's natural (biological) cover" and should not be removed.
Deep Tissue Injury	Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue. **Further description:** Deep tissue injury may be difficult to detect in individuals with dark skin tones. Evolution may include a thin blister over a dark wound bed. The wound may further evolve and become covered by thin eschar. Evolution may be rapid exposing additional layers of tissue even with optimal treatment.

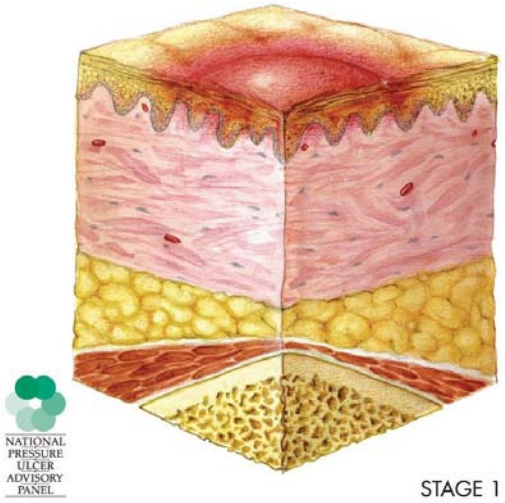
Table 2

Patient Case Study Laboratory Results

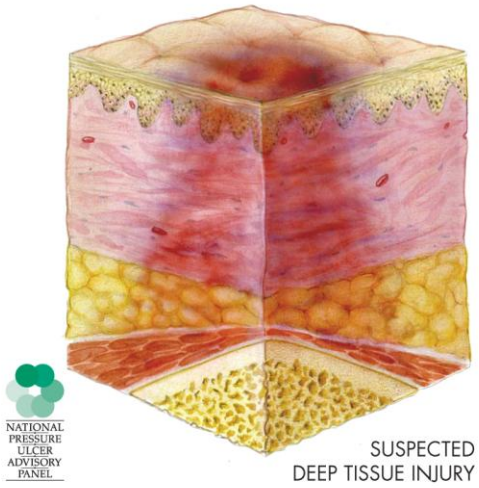
Laboratory Test	**Unit of Measurement**	**Patient's Results**
Sodium	135-144	142
Potassium	3.7-5.5	3.6 L
Chloride	99-110	115 H
Carbon Dioxide	20-31	19 L
Glucose	60-109	127 H
BUN/Creatinine	6-23 / 0.6-1.3	15 / 0.6
Calcium	8.3-10.4	6.7 L
Magnesium	1.7-2.5	3.1 H
Phosporus	2.3-4.7	1.9 L
White Blood Cells/Red Blood Cells	3.5-11.0 / 3.8-5.2	14.7 H / 2.82 L
Hemoglobin/Hematocrit	11.7-15.7 / 34.9-46.0	8.6 L / 25.4 L
PT	11.8-13.8	24.0 H
INR	0.9-1.1	2.1 H
APTT	22.0-35.0	48.0 H
Fibrinogen	200-400	120 L
Platelet	140-444	73 L
D-Dimer	< = 0.50	0.6 H

Appendix A

Stage 1 PU



DTI



Pictures downloaded from the National Pressure Ulcer Advisory Panel, 2010

Figure 1

First Metatarsal DTI

Patient picture reprinted from a hospital in the Pacific Northwest, 2010

References

(2007). Pressure Ulcer Stages Revised by National Pressure Ulcer Advisory Panel. Retrieved From http://www.npuap.org/pr2.htm

Ankrom, M., Bennett, R., Sprigle, S., Langemo, D., Black, J., Berlowitz, D., & Lyder, C. (2005). Pressure-related deep tissue injury under intact skin and the current pressure ulcer staging systems. *Advanced Skin & Wound Care, 18*:35-42.

Aoi, N., Yoshimura, K., Kadono, T., Nakagami, G., Iizuka, S., Higashino, T., Araki, J., Koshima, I. & Sanada, H. (2009). Ultrasound Assessment of Deep Tissue Injury in Pressure Ulcers: Possible Prediction of Pressure Ulcer Progression. *American Society of Plastic Surgeons, 124*(2):540-550.

Aydin, A.K. & Karada, A. (2010). Assessment of Nurses' Knowledge and Practice in Prevention and Management of Deep Tissue Injury and Stage 1 Pressure Ulcer. *Journal of Wound, Ostomy, Continence Nurse, 37*(5):487-494.

Ayello, E.A. & Braden, B. (2002). How and why to do pressure ulcer risk assessment. *Advance Skin & Wound Care, 15*:125-133.

Ayello, E.A. & Lyder, C.H. (2007). Protecting patients from harm: preventing pressure ulcers in hospital patients. *Nursing, 37*(10):36-40.

Berlowitz, D.R. & Brienza, D.M. (2007). Are all pressure ulcers the result of deep tissue injury? A review of the literature. *Ostomy and Wound Management, 53*(10):34-38.

Black, J.M. (2005). Moving Toward Consensus on Deep Tissue Injury and Pressure Ulcer Staging. *Journal of Wound Care, 18*(8):415-421.

Defloor, T. & Schoonhoven, L. (2004). Inter-rater reliability of the EPUAP pressure ulcer classification system using photographs. *Journal of Clinical Nursing, 13*:952-959.

Doughty, D., Ramundo, J., Bonham, P., Beitz, J., Erwin-Toth, P., Anderson, R. & Rolstad, B.S. (2006). Issues and Challenges in Staging of Pressure Ulcers. *Journal of Wound, Ostomy, Continence Nurse, 33*:125-132.

Edsberg, L.E. (2007). Pressure ulcer tissue histology: An appraisal of the current knowledge. *Ostomy Wound Management, 53*(10):40-49.

Firooznia, H, Rafi, M., Golimbu, C., Lam, S., Sokolow, J. & Kung, J.S. (1982). Computed tomography of pressure sores, pelvic bases and osteomyelitis in patients with spinal cord injury. *Archives of Physiology Medical Rehabilitation, 63*:545-548.

Gefen, A. (2009). Deep Tissue Injury from a bioengineering point of view. *Ostomy Wound Management, 55*(4):26-36.

International Association of Enterostomal Therapy. *Dermal Wounds: Pressure Sores*. Laguna Beach, California: IAET; 1988.

Kottner, J., Dassen, T. & Lahmann, N. (2010). Prevalence of deep tissue injuries in hospitals and nursing homes: Two cross-sectional studies. *International Journal of Nursing Studies, 47*:665-670.

Mathias, J.M. (2008). Save our skin: Periop teams rally to prevent pressure ulcers in OR. *OR Manager 24*(3): 11-13.

National Pressure Ulcer Advisory Panel. *National Consensus Conference on Stage of Pressure ulcers*. Washington, DC: National Pressure ulcer Advisory Panel; 1998.

Nagase, T., Koshima, I., Maekawa, T., Kaneko, J., Sugawara, Y & Makuuchi, M. (2007). Ultrasonographic evaluation of an unusual peri-anal induration: A possible case of deep tissue injury. *Journal of Wound Care, 16*(8):365-367.

Pagana, K.D & Pagana, T.J. (2005). *Mosby's Diagnostic and Laboratory Test Reference 7th edition*. St. Louis, Missouri: Elsevier Inc.

Pancorbo-Hidalgo, P.L., Garcia, F.P., Lopez-Medina, I.M. & Lopez-Ortega, J. (2007). Pressure Ulcer Care in Spain: Nurse's Knowledge and Clinical Practice. *Journal of Advance Nursing, 58*:327-338.

Patton, R.M. (2010). Is Diagnosis of Pressure Ulcers within an RN's Scope of Practice? *American Nurse Today,5*(1):20.

Salcido, R. (2006). What is the "purple heel"? *Advances in Skin & Wound Care,* 19:6.

Schoonhoven, L. Defloor, T., Ingeborg, V.T., Buskens, E. & Grypdonck, M.H.F. (2002). Risk factors for Pressure Ulcers During Surgery. *Applied Nursing Research, 16*(2): 163-173.

Shea, J. (1975). Pressure sores: Classification and Management. *Clinical Orthopaedics and Related Research, 112*:89-100.

Stekelenburg, A., Strijkers, G.J., Parusel, H., Bader, D.L., Nicolay, K. & Oomens, C.W. (2007). Role of ischemia and deformation in the onset of compression-induced deep tissue injury: MRI-based studies in a rat model. *Journal of Applied Physiology, 102:*2002-2011.

VanGilder, C., MacFarlane, G.D., Harrison, B.A., Lachenbruch, C. & Meyer, S. (2010). The Demographics of Suspected Deep Tissue Injurty in the United States: An Analysis of the International Pressure Ulcer Prevalence Study 2006-2009. *Advances in Skin & Wound Care,* 23(6): 254-261.

Zulkowski, K., Langemo, D., & Posthauer, M.E. (2005). Coming to Consensus on Deep Tissue Injury. *Journal of Wound Care, 18*(1):28-29.

Preventing and Treating Pressure Ulcers in the Emergency Department:

How One Facility turned a Challenge into an Opportunity

Victoria Hays

Oregon Health & Science University

Abstract

Introduction: Pressure ulcer (PU) prevention and treatment is challenging to any Emergency Department (ED) in due to its unique setting and patient population. The purpose of this paper is to describe how one ED was able to tailor their evidence based guidelines to improve practice and severely reduce hospital acquired PUs in their facility.

Review of the literature: There are four basic factors that may cause PUs in the acute care setting, including the ED: pressure, shear, friction and moisture. In addition to understanding the wound etiology, the ED clinicians must be able to effectively assess the PU risk for individuals that include a variety of factors, such as, the length of stay in the ED, if the patient resides in a long term care facility as well as the use of mechanical devices, such as the use of a backboard.

Case Presentation: A 73-year old male patient was diagnosed with pneumonia and altered mental status secondary to hyponatrimia by the ED. The patient was admitted to the hospital, from the ED, with a stage 3 PU without a physical assessment of the ulcer, documentation and a care plan completed by the ED.

Conclusion: Using just one patient case study can effectively identify many lessons learned that result in revisions to the nursing PU practice guideline and the development of a physician education program.

PUs are a significant economic and healthcare issue for all patient care settings, including the ED. Frequently, the PU discussion focuses on the acute care setting only which implies the inpatient setting of a hospital or facility; this also includes how PUs are reported by a facility or as aggregate data. For example, the PU prevalence in the United States (U.S.) varies from 10% to 17% in the acute care setting (inpatient) (Ayello & Braden, 2002) and this figure has remained fairly constant from 2006 to 2008 (VanGilder, et al, 2010). This information causes one to question: what role does the ED play in PU prevention and treatment with many patients entering the ED that become an inpatient to the facility?

Depending upon the ED diagnosis, the length of stay in the department can vary from just a few minutes to several hours. According to the Centers for Disease Control and Prevention report in 2005, over 56% of patients seen in the ED nationwide had a length of stay greater than two hours, suggesting patients in the ED may be vulnerable to hospital acquired PUs (Nawar, Niska & Xu, 2007). Due to the unique setting of the ED where shifting priorities may change quickly, early prevention and treatment of PUs need to be integrated into clinical practice by an interdisciplinary team to help ensure the ED is not further compromising safe, patient care.

The National Pressure Ulcer Advisory Panel (NPUAP), the most prominent PU research organization, provides evidenced-based guidelines, in the form of major themes, to prevent and treat PUs for all healthcare settings, including the ED. Examples of major themes include: skin assessment, support surfaces and patient education. It is the responsibility of each facility to use these guidelines and define, in greater detail, their own PU prevention and treatment program. The purpose of this paper is to illustrate how one ED was able to tailor their evidence based guidelines to help improve practice and severely reduce hospital acquired PUs in their facility.

A review of the literature accessed two electronic databases, MEDLINE and CINAHL, using key words that included “pressure ulcer”, “emergency service” and “emergency hospital”. The search dates were from 1950 to December, 2010, and included published studies in which the full text was available in English.

PU Etiology

There are four basic factors that cause pressure ulcers: pressure, shear, friction and moisture. The primary cause of ulcers is pressure that is exerted over a bony prominence (sacrum, heels, etc.) that exceed the normal arterial capillary pressure of 32mm Hg (Reger, Ranganathan & Sahgal, 2007). In the supine position, the sacrum, buttocks, heels and occiput have sustained pressures of 40 to 60 mm Hg; a common position for many ED patients (Trott, 1992). However, when the patient is in this same position using a pressure reducing visco elastic foam mattress, lower than normal interface pressures were achieved (Defloor and De Schuymer (2000). ED gurneys need to be equipped with pressure-reducing mattresses as one way to prevent PUs.

Shearing occurs when two surfaces are pulled in opposite directions; usually this is the underlying tissue moving one way and skin moving a different way (Wright & O’Connor, 2007). Shearing usually occurs when bones move; however, the skin remains stationary. An example of shearing is when an ED patient is moved and/or may slide down on the gurney during their stay in the department. It is important to ensure the patient is comfortable and their extremities are well supported to prevent sliding down on a gurney or in a chair.

Friction is when two surfaces rub against each other; the rougher the surface, the greater the friction (Wright & O’Connor, 2007). An example of friction is when an ED patient is pulled or dragged against a hard surface, such as an X-ray table in diagnostic imaging. It is important to

use proper body mechanics and actually lift, not drag a patient across a surface. Slider tubes (similar to a large plastic garbage bag) or hovermatts are an excellent choice to use to move regular sized and bariatric patients to prevent friction ("SWAT Team," 2007).

Lastly, moisture is usually associated with irritation, inflammation and erosion attributed to prolonged exposure to urine, feces, perspiration and/or wound exudate (Gray, 2007). An example of moisture is when an ED patient may have a moist or saturated pad or piece of clothing removed over an already irritated or damaged skin from an increased pH level or from digestive enzymes present in urine or feces. It is important to ensure any pads or clothing is gently removed away from a patient and in conditions with trauma patients, clothing may need to be removed by using scissors.

PU Wounds: Acute & Chronic

The ED often cares for patients with one or both types of major category of wounds: chronic and acute. A chronic wound is generally defined as a wound that fails to progress over a period of 30 days (Mustoe, 2004). These wounds primarily affect people age 60 years or greater and most frequently include pressure ulcers, venous and arterial ulcers (Mustoe, 2004). An acute wound is generally defined as a wound from a recent surgery, trauma and/or a pressure ulcer that has been present for less than 30 days (Arroyo-Novoa et al. 2009). Over 60% of pressure ulcers develop during acute care hospitalization, including the ED setting, with patients aged 70 years or older (Reddy, Gill & Rochon, 2006).

When a patient arrives to the ED, the healthcare team is concerned with the patient's ABCs: airway, breathing and circulation. Once these systems are surveyed and stable, a more thorough history can be obtained (Hartoch, McManus, Knapp & Buettner, 2007). The history initially focuses on the patient's chief complaint; however, it is also important for the clinician to

ask the patient about any skin care issues that include rashes, wounds and/or pressure ulcers. This is important because the wound/ulcer may contribute to the chief complaint, however, this may not necessarily be known without taking a thorough patient history and conducting a physical assessment (Hartoch, McManus, Knapp & Buettner, 2007). Early identification of PUs in the ED is key to help ensure patients receive safe, quality care as well as to begin the plan of care that will be continued from the outpatient ED to the inpatient setting.

PU Risk Assessment & Other Factors

The ED must choose a valid, reliable method of assessing risk for developing a PU that ensures a systematic evaluation of individual risk factors. The PU risk assessment tool most frequently used in U.S. hospitals is the Braden Scale, developed by Barbara Braden, PhD and Nancy Bergstrom, PhD (Armstrong, et al., (2008). This scale assesses risk of pressure ulcers using a numerical scoring system of six risk factors: sensory perception, moisture, activity, mobility, nutrition and friction/shear. This tool is easy to use, requires minimal staff education and has been clinically validated (Bergstrom, Braden, Laguzza & Holman, 1987). The recommendation for assessing risk of PU development by the NPUAP (2007) is upon admission, every 24 hours and with any change in the patient's condition.

Other PU risk factors to consider for ED patients is the amount of time spent in the department waiting for a test, procedure or just waiting because other, more critical patients just arrived that now take priority. Pressure ulcers may develop in less than two hours in acute care; however, they may not be clinically present for up to two to seven days (Thomas, 2001). A study conducted by Danby and Rowlands (2010), demonstrated that out of 125 patients who developed a hospital acquired PU, 99.2% had a length of stay (LOS) longer than two hours in the ED. However, a study conducted by Baumgarten et al. (2008) demonstrated that out of 195

patients who developed hospital acquired pressure ulcers, there was no association linked to the ED LOS and the mean time spent in the ED was just over seven hours.

A patient arriving from a long term care facility may be at higher risk for PU development because often times, these residents arrive to the ED without family or friends to advocate on their behalf and they are elderly. A study conducted by Denby and Rowlands (2010) demonstrated that 31.2% of patients with a hospital acquired pressure ulcer arrived from long term care and the two prevalent admission diagnoses were altered mental status and hip fracture. In a similar study by Keelaghan, Margolis, Zhan and Baumgarten (2008), 26.2% of elderly patients aged 65 years or greater with pressure ulcers, arrived from a long term care facility and stage 3 and 4 PUs were most common among patients from a nursing home ($p=0.003$). Prevention of PUs, especially for elderly and already compromised patients, must be implemented early during the ED visit.

Mechanical devices, such as a backboard or splint may contribute to skin breakdown by limiting movement and mobility; as well as creating shearing and friction by producing a hard surface that is rubbing against bony surfaces. Patients who remain on a backboard for greater than three hours are three times at higher risk for developing PUs than those patients who were not placed on a backboard (Goodrich and March, 1992). Additionally, the patient who is removed off the backboard but is not turned for extended periods of time is also at higher risk for skin breakdown (Goodrich and March, 1992). Once the patient has been stabilized, the backboard removed, a skin assessment needs to be completed to document any skin issues and to begin prevention measures.

Case Study

An acute care hospital, located in the Pacific Northwest, had developed a PU prevention and treatment program in January 2007 that focused on the inpatient setting, with less attention to the ED. The hospital has ten medical/surgical units, two critical care units and one rehabilitation unit that utilize the PU protocol. In October 2007, an ED patient was admitted to the inpatient setting without any documentation or care provided for a stage 3 PU. Based upon the lessons learned from this case study, the PU prevention and treatment guidelines were modified for nursing and an education program was developed for the ED physicians.

Patient History and Physical

A 73 year-old Caucasian male arrived to the ED via ambulance from a long term care facility with mild shortness of breath and confusion. According to the EMT, the patient, over the last several weeks had become more confused and within the last week, developed a productive cough and mild shortness of breath. Vital signs upon arrival to the ED were blood pressure 152/82, heart rate 98, respirations 22, oxygen saturation on room air was 92%, afebrile, and a blood sugar of 125 mg/dl.

The patient was a poor historian so the ED received the patient's medical history by making a telephone call to the long term care facility and received a faxed copy of his medication list and chart from the center. A peripheral intravenous (IV) line was started, blood was drawn for basic chemistry tests and sodium chloride 0.9% IV fluids were started at 75cc/hour. A sputum sample was collected from the patient and the ED technician removed the patient's shirt only and helped him into a hospital gown. The patient was supine on the gurney with the head of bed elevated to 45 degrees and oxygen, via a nasal cannula, was applied at 2 liters per minute which increased his oxygen saturation rate to 98%.

The patient's medical history included type 2 diabetes, colon polyps via a colonoscopy 2 years ago, peripheral vascular disease and back pain from a fall 3 years ago at the care center. Current medications included: Insulin: Lantis, 44 units subcutaneously each evening; Aspirin 325mg once daily; Simvastatin 80mg once daily; Plavax 75mg once daily; Amitriptyline Hydrochloride 25mg once daily; Lisinopril 20mg once daily; Lactulose 30mg once daily; Miralax 17gm once daily; Colace 100mg twice daily; Oxycodone Hydrocholoride 2.5mg every 4 hours, as needed for pain. Current medication allergies included codeine, sulfate and penicillin.

The patient does not have a history of smoking cigarettes, drinking alcohol or any intravenous drug use. He has never been married and has resided at the long term care facility for the last four years. The patient's height was 70 inches and his weight was 102 kilograms (224.4 pounds) with a body mass index of 32.1 which is considered obese.

Physical assessment of the patient, upon admission to the ED, revealed rales and rhonchi in both lower lobes of each lung. Chest was non-tender and the patient was in mild respiratory distress with facial grimacing, respirations of 22 and oxygen saturation on room air at 92%. Examination by nursing and the physician of the lower extremities consisted of pushing up the sweat pants of each leg to physically assess the foot, calf and knee; each appeared normal and without any cyanosis, clubbing or edema. Skin was documented as warm, dry and normal without the physical assessment of the sacrum and buttocks. Neurologically, the patient was not oriented to place or time and there was no impairment to speech. The patient used a walker for mobility and needed a one person assist from the bed to the chair and from the bed to the walker. Current laboratory data is available in Table 1.

Forty minutes after arriving to the ED, the patient was transported via gurney to diagnostic imaging where the patient was pulled across the gurney to the X-ray table using a

linen draw sheet by two X-ray technicians for a chest x-ray test. After the test was finished, the patient was once again pulled from the X-ray table back to the gurney using the same draw sheet. The chest X-ray confirmed pneumonia in both lungs and the patient was administered IV antibiotics in the ED while awaiting a bed on one of the medical units.

The ED nurse called report to the medical unit and the patient was transported, via gurney, to the unit; with a total time of three hours and ten minutes spent in the ED. Upon arrival to the medical unit, the nurse removed the rest of the patient's clothing that included his socks, sweat pants and underwear and at that time, assessed and documented a stage 3 PU on his sacrum. This information was neither provided in verbal report to the medical nurse from ED nor was there any documentation in the ED notes by nursing or the physician.

Lessons Learned & Action Taken

The Clinical Nurse Specialist (CNS), who serves as the PU team leader for the hospital, conducted a debrief related to the lack of a skin assessment, documentation and care of the PU by reviewing nursing and physician documentation and in talking with several ED nurses and the physician who cared for the patient. There were three lessons learned from this one patient experience that resulted in actions taken and changes incorporated into the PU nursing practice guideline and the development of a an education program for physicians and other providers.

First Lesson Learned: Nursing Skin Assessments & Basic Care of PUs

According to the standard of practice for nursing, a physical assessment was predicated upon the chief complaint upon arrival to the ED. For example, a patient who complained of chest pain would have his heart and lungs assessed, however, this would not include having his/her buttocks examined unless the patient stated there was a problem or there was some other

cause for examination. In addition, there was no further expectation of a more thorough skin assessment if the patient were to be admitted to the hospital.

Further information gleaned from the nursing staff was the lack of using any risk assessment tool to identify patients who were at risk for skin break-down so early interventions could be implemented in the ED. And lastly, the nursing staff stated they felt inadequately prepared to care for PUs due to the lack of education and the ability to stay current on this topic. In this case study, the patient arrived from a long term care facility, was elderly and had a PU on his sacrum which classified him as high risk for PU development.

Action Taken

The CNS, inpatient Wound, Ostomy, Continence, Nurse (WOCN), ED quality nursing team and the ED Nurse Manager discussed the case at length during one of the quality team's monthly meetings. The decision was made to modify the standard of practice guideline to incorporate a complete skin assessment for any patient that would become an inpatient. This included removing all clothing for better visualization and ensuring the patient was placed in a hospital gown. A skin assessment includes performing a head to toe, front to back physical assessment upon admission to any facility, with special attention to bony prominences such as the sacrum, ischium, heels, elbows and the back of the head (NPUAP, 2007). At Vanderbilt Medical Center in Nashville, TN, to improve the continuity of care between the ED and the inpatient setting, as well as improve the quality of care for patients, the ED nurses have made it mandatory to ask every patient about skin breakdown and perform a skin assessment ("Match Skin Care," 2009).

The team made the decision to further modify the practice standard to include a tool for assessing risk for PU development using the Braden Scale. The inpatient units were already

using this tool and education was provided to the staff by the CNS and WOCN at the following ED mandatory monthly staff meetings. A final decision was made by the team to include an ED nurse on the hospital's skin care team that met monthly for an educational meeting. In addition, the ED manager granted three hours a month to the skin care unit champion to audit patient charts, in real time, to provide feedback to peers for timely improvement in PU care. This also included ensuring ED had the appropriate wound care supplies to care for PUs. It is important to develop a user friendly system of ED wound care supplies that are linked to the stages of PUs so nursing can administer the correct treatment ("Match Skin Care," 2009).

Second Lesson Learned: Develop a Physician PU Education Program

Similar to nursing, physicians assess the patient based on the major complaint. Using the patient scenario of chest pain, the physician is concerned about the heart and will listen to the heart and lung sounds as well as sign standing orders for blood chemistry tests, an IV line, EKG and an 81 mg Aspirin. Typically, physicians will not examine other body systems unless, based on the patient history, warranted such an examination.

Action Taken

The CNS, inpatient Nurse Practitioner (NP) (who is also a WOCN) discussed the patient case with the ED Medical Director who agreed that physician practice needed to change and arranged for the CNS and NP to attend the monthly ED physician meeting to provide PU education to the team. The CNS provided a brief PowerPoint presentation on why the PU initiative is important to physicians by ensuring the most serious PUs (stage 3 and 4) are assessed and to ensure maximum reimbursement for the department. According to the changes occurring with The Centers for Medicare in Medicaid in 2007, stage 3 and 4 PUs, would result in the

prevention of facilities being paid additional costs associated with hospital acquired conditions (if not documented upon admission) (Mattie and Webster, 2008).

The NP provided a PowerPoint presentation on basic PU education that included: assessment, staging and treatment. During the presentations, the physicians had many questions and based on the discussion, the CNS and NP agreed to draft tools to assist the physicians with staging PUs and provided definitions to assist them when they needed to dictate their history and physical related to a PU. The CNS and NP were invited to the following physician meeting to finalize the tools (Appendix A & B) and answer additional questions. The tools were laminated and placed next to each physician dictation phone and were also laminated as 3x5 cards and provided to each physicians to keep in their lab coat pocket for easy retrieval.

The physicians also agreed that nursing staff needed to take the lead on conducting a complete skin assessment for any patient being transferred to the inpatient setting, however, if a PU was assessed, nursing needed to inform the physician who would then conduct their own assessment and document findings. Nursing agreed to this proposal and this agreement was put in writing for both nursing and physician standards of care in the ED. PU prevention and education is a topic discussed quarterly at the physician meetings to ensure clinicians stay current with practice and evidence.

Third Lesson Learned: Reducing Friction Surfaces in the ED & Diagnostic Imaging

Over 30% of the 70,000 patients who enter the ED doors are transported to diagnostic imaging for a variety of tests that may include an X-ray, computed tomography and/or a magnetic resonance imaging to help determine a diagnosis related to their chief compliant, according to the Director of Diagnostic Imaging at the Pacific Northwest hospital. Unfortunately, many patients are not able to move themselves from the gurney to the diagnostic

table due to their acute medical condition and/or bariatric weight. Patients weighing greater than 400 pounds (the maximum weight on the ED gurney and inpatient beds) represented 38% in 2007 and this percent has increased to 45% in 2010. This poses potential friction issues when moving patients from a gurney to the diagnostic table by simply using a linen draw sheet as well as an unsafe condition for the patient and staff if the patient is bariatric.

Action Taken

The CNS, WOCN NP, ED nursing quality team, ED Nurse Manager, Director of Diagnostic Imaging and the Ergonomic Specialist Manager discussed this patient case as well as other recent patient complaints that had resulted in patients being pulled or pushed by staff from a gurney to a diagnostic table. The decision was made to trial a hovermatt that could be used to turn, reposition and laterally transfer patients weighing up to 1,000 pounds from a gurney to any other surface quickly, efficiently and with the assistance of only two staff. The 60 day trial in the ED and diagnostic imaging was successful based upon increased patient satisfaction, increased staff satisfaction and a decrease in the number of back injuries suffered by staff. The department purchased 4 hovermatts at a cost of $2,500 each by receiving funds awarded by the hospital's foundation. The use of a hovermatt was also included in the revision to the nursing practice guideline to use with obese patients (BMI of 30 and greater) to decrease friction and to improve the safety of patients and staff.

Conclusion

Using the three lessons learned from this one patient case study, the ED was able to positively impact patient care by ensuring every ED patient that becomes an inpatient is physically assessed for PUs, a PU is documented by nursing and the physician and treatment begins in the ED. In partnering with the inpatient units, this has resulted in the facility achieving

0% hospital acquired PU rate for stage 3 and 4's since October 1, 2008. In addition, the use of this case study has strengthened the professional relationship amongst nursing and their physician partners resulting in improved collaboration on this and other related topics in the department. PUs, in every clinical setting, including the ED, will only become more important to the government, health care organizations, consumers and the media as regulations continue to focus on quality performance in hospitals.

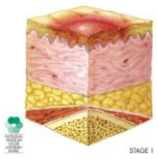
Table 1

Patient Case Study Laboratory Results

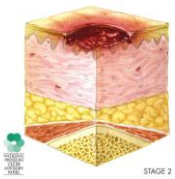
Laboratory Test	**Unit of Measurement**	**Patient's Results**
Sodium	135-144	127L
Potassium	3.7-5.5	3.8
Chloride	99-110	115 H
Carbon Dioxide	20-31	19 L
Glucose	60-109	125 H
BUN/Creatinine	6-23 / 0.6-1.3	15 / 0.8
Calcium	8.3-10.4	8.5
Magnesium	1.7-2.5	2.3
Phosphorus	2.3-4.7	2.4
White Blood Cells/Red Blood Cells	3.5-11.0 / 3.8-5.2	14.7 H / 3.9
Hemoglobin/Hematocrit	11.7-15.7 / 34.9-46.0	12.5 / 38.2
PT	11.8-13.8	12.1
INR	0.9-1.1	0.9
APTT	22.0-35.0	33.0

Appendix A
Pressure Ulcer Staging

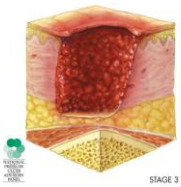
Stage 1:
Intact skin with non-blanchable redness of a localized area over a bony prominence.
The area may be painful, firm, soft, warmer or cooler compared to adjacent tissue.




Stage 2: ICD-9 Code 707.22
Partial thickness loss of dermis presenting as a shallow open ulcer with a red, pink wound bed, without slough. May also present as an intact or open/ruptured serum-filled blister.

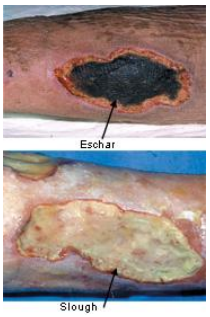



Stage 3: ICD-9 Code 707.23
Full thickness tissue loss. Subcutaneous fat may be visible but bone, muscle and tendon are **NOT** exposed. May include undermining and tunneling. The bridge of the nose, ear or occiput do not have subcutaneous tissue and a stage 3 may be shallow.




Stage 4: ICD-9 Code 707.24
Full thickness tissue loss **WITH** exposed bone, tendon or muscle. Slough may be present on some parts of the wound bed. May include undermining and tunneling.


Unstageable: ICD-9 Code 707.25
Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green, etc.) and/or eschar (tan, black or brown) in the wound bed so staging cannot be determined.

Suspected Deep Tissue Injury:
Purple or maroon area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear.

Appendix B

Pressure Ulcer Staging and Vocabulary

Stage 1:
Intact skin with **non-blanchable redness** over a bony prominence.
The area may be painful, firm, soft, warmer or cooler compared to adjacent tissue.

Non-blanchable redness: After losing color, the blanched skin does not regain color within 3-5 seconds

Stage 2: **ICD-9 Code 707.22**
Partial thickness loss of dermis presenting as a **shallow open ulcer** with a red, pink wound bed, without slough. **May also present as an intact open/ruptured serous-filled blister**. Often described as an abrasion.

Denuded: Loss of epidermis (first layer)

Partial Thickness: Loss of epidermis and/or possible partial loss of dermis.

Stage 3: **ICD-9 Code 707.23**
Full thickness tissue loss. Subcutaneous fat may be visible but bone, muscle and tendon are **NOT** exposed. **May include undermining and tunneling**. The bridge of the nose, ear or occiput do not have subcutaneous tissue and a stage 3 may be shallow.

Full Thickness: Tissue loss through the dermis to involve subcutaneous layer and possibly bone/muscle (definition applies to both Stage 3 & 4)
Tunneling: a narrow channel or passageway
Undermine: tissue destruction under or along intact wound margins

Stage 4: **ICD-9 Code 707.24**
Full thickness tissue loss **WITH** exposed bone, tendon or muscle. Slough may be present on some parts of the wound bed. May include undermining and tunneling.

Slough: loose, avascular (dead) tissue; often yellow in color and odiferous

Unstageable: **ICD-9 Code 707.25**
Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green, etc.) and/or eschar (tan, black or brown) in the wound bed so staging cannot be determined.

Eschar: thick, leathery necrotic tissue

Suspected Deep Tissue Injury:
Purple or maroon area of discolored intact skin or **blood-filled blister** due to damage of underlying soft tissue from pressure and/or shear.

Resources Available to the ED:

Inpatient Nurse Practitioner, (Name)

Clinical Nurse Specialist (Name)

Wound, Ostomy, Continence Nurses (Names) are available via Vocera or by dialing 6-7165

References

Armstrong, D.G., Ayello, E.A., Capitulo, K.L., Fowler, E., Krasner, D.L., Levine, J.M., Sibbald, R.G., and Smith, A.P. (2008). New Opportunities to Improve Pressure Ulcer Prevention and Treatment: Implications of the CMS Inpatient Hospital Care Present on Admission Indicators/ Hospital-Acquired Conditions Policy. *Advances in Skin & Wound Care 21*(10):469-478.

Arroyo-Novoa, C.M., Figueroa-Ramos, M.I., Miaskowski, C., Padilla, G., Stotts, N. & Puntillo, K. (2009). Acute Wound Pain: Gaining a better understanding. *Advances in Skin & Wound Care, 22*(8):373-380.

Ayello, E.A. & Braden, B. (2002). How and why to do pressure ulcer risk assessment. *Advance Skin & Wound Care, 15*:125-133.

Bergstrom, N., Braden, B., Laguzza, A. and Holman, A. (1987). The Braden Scale for Predicting Pressure Score Risk. *Nursing Research 36*:205-10

Defloor, T. & De Schuymer, J.D.S. (2000). Preventing pressure ulcers: An evaluation of four operating table mattresses. *Applied Nursing Research, 13*(3):134-141.

Denby, A. & Rowlands, A. (2010). Stop Them at the Door. *Journal of Wound, Ostomy, Continence Nurse, 37*(1):35-38.

Eskes, A., Ubbink, D., Lubbers, M., Lucas, C., & Vermeulen, H. (2010). Hyperbaric oxygen therapy for treating acute surgical and traumatic wounds. *Cochrane Database of Systematic Reviews*, (10).

Goodrich, C. & March, K. (1992). From ED to ICU: A focus on prevention of skin breakdown. *Critical Care Nursing, 15*(1):1-13.

Gray, M. (2007). Incontinence-related skin damage: essential knowledge. *Ostomy Wound Management*, 53(12), 28-32

Hanson, D., Langemo, D., Anderson, J., Thompson, P., & Hunter, S. (2010). Research forum. Friction and shear considerations in pressure ulcer development. *Advances in Skin & Wound Care*, 23(1), 21-24.

Match skin care supplies to stages of pressure ulcers. (2009). ED Nursing, 12(7):78.

Mattie, A.S., and Webster, B.L. (2008). Centers for Medicare and Medicaid Services' "Never Events" An analysis and recommendations to hospitals. *The Health Care Manager, 27*(4):338-349.

Mustoe, T. (2004). Understanding chronic wounds: a unifying hypothesis on their pathogenesis and implications for therapy. *American Journal of Surgery*, *187*(5 Suppl): S65-70.

National Pressure Ulcer Advisory Panel (2007). Retrieved from http://www.npuap.org/pr2.html on January 15, 2011.

Nawar, E.W., Niska, R.W. & Xu, J. (2007). *National Hospital Ambulatory Medical Care Survey: 2005 Emergency Department Summary. Advance Data from Vital and Health Statistics*; No. 386. Hyattsville, MD: National Center for Health Statistics; 2007.

Reddy, M., Gill, S., Rochon, P. (2006). Preventing pressure ulcers: A systematic review. *Journal of the American Medical Association, 296*(8):974-84.

Reger, S., Ranganathan, V., & Sahgal, V. (2007). Support surface interface pressure, microenvironment, and the prevalence of pressure ulcers: an analysis of the literature. *Ostomy Wound Management*, 53(10), 50-58.

SWAT team uses Hover Mat. (2007). *Oregon Nurse*, 72(1), 5.

Take steps now to prevent pressure ulcers in your ED. (2009). *ED Nursing*, *12*(7):76-77.

Trott, A. (1992). Chronic skin ulcers. *Emergency Medicine Clinics of North America*, *10*(4):823-45.

VanGilder, C., MacFarlane, G.D., Harrison, B.A., Lachenbruch, C. & Meyer, S. (2010). The Demographics of Suspected Deep Tissue Injury in the United States: An Analysis of the International Pressure Ulcer Prevalence Study 2006-2009. *Advances in Skin & Wound Care*, 23(6): 254-261.

Eliminating Hospital Acquired Pressure Ulcers in Acute Care By Utilizing an Advance Practice Nurse

Victoria Hays

Oregon Health & Science University

Abstract

Introduction: Pressure ulcer (PU) prevention and treatment is challenging to any acute care hospital due to the complexity of various patient populations that enter its doors. The purpose of this paper is to describe how an advance practice nurse (APN), a Clinical Nurse Specialist (CNS), developed a quality program to eliminate hospital acquired (HA) PUs.

Review of the literature: Quality measures are often linked to financial reimbursement for healthcare organizations and pressure ulcers are one of these measures. There is continued cause for concern regarding reducing/eliminating HAPUs in the acute care setting, despite several resources available to facilities.

Case Presentation: An acute care hospital, located in the Pacific Northwest, was able to eliminate their HAPU rate from 20% to 0% by successfully utilizing a CNS to facilitate change and improve nursing practice.

Conclusion: The three major spheres of influence within the CNS practice: individual clients and populations, consulting and collaborating with multidisciplinary teams and utilizing system-wide evidence based change strategies can and do positively impact patient care.

PUs is a significant economic and healthcare issue for all patient care settings. The reported PU prevalence in the United States (U.S.) varies from 10% to 17% in the acute care setting (Ayello & Braden, 2002) and this figure has remained fairly constant from 2006 to 2008 (VanGilder, MacFarlane, Harrison, Lachenbruch, & Meyer, 2010). As a result, resources must be expended by the hospital that may include increased lengths of stay and higher medical and legal costs. The cost to treat a PU may range from $2,000 to as high as $70,000 depending upon the severity and complexity of the ulcer (Fogerty et al., 2008). The annual cost of treating HAPU's is estimated at $5 and $8.5 billion (Fogerty, et al., 2008).

The Centers for Medicare and Medicaid Services (CMS) believe a HAPU is an avoidable event and no longer warrants a higher reimbursement for the patient's admitted condition unless the PU was present on admission. Using an APN, specifically a CNS, to facilitate this or other major quality indicators, would be highly beneficial to any hospital. The CNS practice uses three spheres of influence: individual clients and populations, consulting and collaborating with multidisciplinary teams and utilizes system-wide change strategies within clinical settings to positively influence health and health care outcomes at the local, regional and national forums. The purpose of this paper is to describe how an APN, a CNS, developed a quality program to eliminate HAPUs in the acute care setting.

A review of the literature accessed two electronic databases, MEDLINE and CINAHL, using key words that included "pressure ulcer", "advance practice nurse" and "clinical nurse specialist". The search dates were from 1950 to January 2011, and included published studies in which the full text was available in English.

HAPUs: A 'No Pay' Condition

Effective October 2008, CMS will not provide reimbursement for full thickness ulcers in acute care and several key events have led to this conclusion. In the early 1980's, diagnostic-related groups revolutionized the way hospitals were reimbursed. In essence, hospitals received a fixed payment for specific diagnosis and procedures; and if a complication arose, the hospital would receive a higher reimbursement, especially for those acquired in the hospital. In 1999, the Institute of Medicine's (IOM) publication, "To Err is Human: Building a Safer Health System" stated that possibly up to 98,000 patients die each year in the U.S. as a result of preventable medical errors. An additional IOM report in 2001-2005 stated two million patients each year are affected by hospital acquired infections, resulting in thousands of deaths and costing billions of dollars; once again, with an emphasis to improve the care received in hospitals (Mattie & Webster, 2008).

In 2002, to establish a consensus among key stakeholders that included consumers, providers, researchers and other health care personnel and organizations, the National Quality Forum published a report titled, "Serious Reportable Events in Healthcare" that identified preventable adverse events that should never occur in hospitals (Nicholson & Mitchel, 2008). In addition, many states, private organizations and the media pushed for healthcare reform to link reimbursement and patient care outcomes within U.S. hospitals. As a result, in 2006, President Bush signed a mandate that allowed the Secretary of the Department of Health and Human Services to choose conditions that could have been reasonable prevented through the application of evidenced-based guidelines in the hospital setting. These conditions resulted in the prevention of facilities being paid additional costs associated with hospital acquired conditions; a stage 3 and 4 PU being one condition (Mattie & Webster, 2008). Other such conditions include foreign

object retained after surgery, patient falls, catheter associated urinary tract infection, vascular catheter associated infection and surgical site infection, to name a few. Prevention of HAPUs is the key to help ensure patients receive safe, quality care and hospitals receive the maximum, allowable reimbursement for the care they deliver to patients.

HAPUs: Continued Cause for Concern

Despite numerous efforts by healthcare organizations and hospitals, the prevalence of PUs in acute care remained unchanged from 16% over a 6-year period from 1999 through 2004 (Whittington & Briones, 2004). The incidence of PUs in acute care hospitals has varied between 7% and 9% during this same period (Whittington & Briones, 2004). In addition, during this same 6-year period, about 70% of individuals older than 65 years with PUs also developed new PUs (Whittington & Briones, 2004). Another source, Rich, Shardell, Margolis and Baumgarten (2009), also cited that elderly hospital patients are at particularly high risk of developing a PU.

Despite hospitals having access to a variety of evidence based resources for years, patients who develop HAPUs experience increased length of stay and increased morbidity and mortality (Schultz, 2005; Redelings, Lee & Sorvillo, 2005). According to Brown (2003) and Comfort (2007) there is a link between a nosocomial PU and mortality. In 2000 and 2001, PUs were cited as 1 of the top 3 hospital acquired errors that lead to patient deaths and unfortunately, this number has been translated to an occurrence rate of close to 12% of the time (Russo, Steiner & Spector, 2006). However, a diagnosis of PU is rarely found on the death certificate. Instead, the diagnosis is usually sepsis, pneumonia or a urinary tract infection, all of these, which may be complications from a HAPU (Russo, Steiner & Spector, 2006).

In addition to the personal toll on the patient and their family, the cost to treat PUs by a facility is quickly increasing, at the same time reimbursement is on the decline. Treatment of

PUs, depending upon the complexity of the wound may include several dressing changes each week, special therapy, such as hyperbaric oxygen, nursing staff time by a Registered Nurse (RN) or a Wound, Ostomy, Continence Nurse (WOCN), increased lengths of stay, and rental equipment that may include a specialty support surface, such as an air overlay mattress. Results of a 2009 market research study demonstrate that wound care equipment and supplies is one of the most costly components of the world healthcare system with an estimated $14 billion market in 2008 with a growth rate of 7% each year (Global Industries, 2010). In the U.S. alone in 2008, over 89 million patients were treated for wound conditions at a cost that exceeded $25 billion (Global Industries, 2010). And the U.S. is not alone in this dilemma, pressure ulcers affect one in five Irish patients and the cost to treat a stage 3 or 4 PU averages 119,000 euros per a patient (Gethin, 2008). Early prevention of HAPUs is key to improving patient care and ensuring every hospital receives the allowable maximum reimbursement. One solution to early prevention and treatment of PUs in the acute care setting is to utilize a CNS.

One Solution: CNS

A CNS is a licensed RN who has graduate preparation (Master's or Doctorate) in nursing as a CNS and is an expert clinician in a specialized area of practice. The specialty may be identified in terms of a population (e.g. geriatrics), setting (e.g. critical care), disease or medical subspecialty (e.g. diabetes), type of care (e.g. rehabilitation) or type of problem (e.g. wound care) (National Association, 2011). A CNS may practice in a variety of health care settings and research demonstrates that using a CNS can positively impact patient care outcomes in wound care, reducing hospital costs and length of stay, improved pain management, patient satisfaction and reduced medical complications in hospitalized patients (Woodard, 2009; Barnason, Merboth, Pozehl & Tietjen, 1998; Jacavone, Daniels & Tyner, 1999; Mullin, Opperwail & White, 1995).

Many state boards of nursing, 37 in total, provide licensor to the CNS practice as an APN specialty; similar to other APN specialties such as a Nurse Practitioner (NP), Nurse Midwife and Nurse Anesthetist practice.

In the U.S. alone, over 69,000 RNs have the education and credentials to practice as a CNS and over 14,000 are qualified to work as a nurse practitioner and CNS (National Association, 2011). In general, the salary for a CNS may range from $65,000 to over $110,000 annually depending on the region of the country and practice specialty (National Association, 2011). National certification is available by examination via the American Nurses Credentialing Center for many CNS specialties: adult health, psychiatric & mental health, diabetes management, gerontology, home health, pediatrics and public/community health nursing, to name a few.

The National Association of CNS (NACNS) was founded in the 1990's and officially launched its first meeting in the fall of 1995. By-laws and a Board of Directors were appointed and in 18 months, membership grew from 67 to 530. Currently, NACNS has grown to over 2500 members. NACNS continues to play a critical role in local, regional and national forums on the topics of the APN, education, regulation, certification, reimbursement and other legislative issues. There are three major spheres of influence within the CNS practice: individual clients and populations, consulting and collaborating with multidisciplinary teams and utilizing system-wide evidence based change strategies to positively impact patient care.

Case Study

An acute care hospital, located in the Pacific Northwest, had a HAPU rate of 20% in 2005. The hospital has ten medical/surgical units, two critical care units and one rehabilitation unit with an average daily census of 295 patients. In fall 2004, the hospital hired a

medical/surgical CNS and in the summer of 2005, the CNS became responsible for facilitating the pressure ulcer program that ultimately resulted in reducing the HAPU rate from 20% to 0% by successfully utilizing all 3 spheres of influence within the CNS scope of practice.

Individual Clients and Populations

One of the CNS spheres of influence or core competencies specifically relates to direct care of individual clients and/or patient populations. In this case study, the patient population was 13 acute care units that included medical, surgical, rehabilitation and critical care patients. Initially, the CNS conducted a comprehensive assessment of the PU program and found several opportunities for improvement that included: prior to the CNS facilitating the program, there was lack of leadership by a clinician for this initiative, lack of evidence based PU guidelines for patient care, lack of unit based PU resources available to staff, lack of collaboration amongst other healthcare disciplines that directly impacted patient care in the prevention of PUs and lack of support from senior leadership to provide resources to this initiative.

The Development of Evidenced Based Guidelines

The National Pressure Ulcer Advisory Panel (NPUAP), the most prominent U.S. organization to define staging of PUs, also provides evidenced-based guidelines, in the form of major themes, to prevent and treat PUs. Examples of major themes include: skin assessment, nutrition for PU prevention, and support surfaces. It is the responsibility of each facility to use these guidelines and define, in greater detail, their own PU prevention and treatment program (NPUAP, 2011). The CNS reviewed the PU guideline (that was dated from 2001) and conducted a review of the literature on the topic of prevention and treatment. Utilizing the newly formed regional wound care team for the healthcare system in which the CNS was a member, the CNS presented the topic at the monthly meeting and during the following four months of meetings, the

CNS facilitated the revision of the practice guideline from one generic policy to two evidenced based policies: PU prevention and PU treatment. Education of the newly approved PU guidelines needed to be provided to the 1200 nurses in the facility which ultimately led to the creation of unit based skin care champions.

Unit Based Skin Care Nurses

The first step in developing unit based skin care nurses was for the CNS to define goals, objectives, including committee expectations, and patient outcomes. Goals, objectives and expectations were useful in recruiting RNs from every inpatient unit, including the Emergency Department (ED), Surgical Services and Behavioral Health. The monthly meeting included one hour of education on PU prevention and treatment and has expanded to other topics to include venous and arterial ulcers, incontinent dermatitis, wound care products, specialty support surfaces and more recently, the team is conducting its first nursing research study. According to one PU program conducted by a CNS, their HAPU rate decreased by 57% as a result of using unit based skin care nurses (Lancellot, 1996).

In addition to a monthly meeting, the skin care nurses were also allocated three hours on their assigned unit to conduct real-time audits on patients who were at-risk or had actual skin breakdown. A minimum of three audits were expected to be completed by each skin care nurse to help determine the accuracy of the direct care nurse's skin assessment, Braden Scale score and plan of care for the patient. By providing real time feedback to their peers, this served as an extremely powerful tool to positively change nursing practice. Based upon the audit results and the monthly education meeting, each skin care nurse was required to write a brief email to the unit staff, highlighting education and lessons learned so all nurses could continue to improve their practice on the topic of PU prevention and treatment.

Additional Skin Care Staff: WOCN & NP

Critical staff to employ in the acute care hospital is a WOCN and a WOC NP who are the only healthcare providers whose training is focused specifically on managing PUs as well as other skin care and continence issues that are often times associated with PUs (Jankowski, 2010). The WOCN services are designed to meet the needs of a variety of patient populations and responsibilities may include: patient and staff education, topical wound care management, developing evidenced-based guidelines, evaluating support surfaces as well as provide expertise to other initiatives such as surgical site infections and catheter-related urinary tract infections. What is unknown is the number of WOCNs needed to effectively manage a PU program in the acute care setting. Currently, there is not any information in the literature to speak to this issue. In this case study, the two full-time WOCNs work closely with the CNS to co-facilitate the monthly skin care meetings, monthly prevalence studies and follow-up daily, via a query report that is based on nursing documentation from the previous 24 hours of admission, of patients who may have a PU.

The NP advance practice role requires a master's degree and depending upon the program's objectives, employing a WOC NP may be beneficial as an independent provider for inpatient and outpatient billable services that may include punch biopsies and sharps debridement (Jankowski, 2010). In this case study, the WOC NP has been instrumental to provide advance skin care at the bedside, especially for patients with complex wounds and stage 3 and 4 PUs. The NP has built trusted relationships with physician partners (residents, hospitalists, surgeons, and the ED team) that resulted in, on average, over 50 skin care consults a month for NP services. One outcome that has resulted from hiring the NP has been the achievement of 0% HAPU rate for stage 3 and 4's since October 1, 2008. In addition, the

average monthly inpatient charges for NP services have been $8,000, which is one way to clearly demonstrate a return on investment for the facility.

Collaboration with Multidisciplinary Teams

PU prevention education must be implemented in an organized and comprehensive manner to instruct healthcare providers, patients, family and caregivers (NPUAP, 2007). And to truly be successful in an acute care setting, this approach must be multidisciplinary to include the WOCN, physicians, physical therapists, information services, dietary, respiratory services and nurses in all specialties to develop guidelines and educational materials (Jacobson, Tescher & Miers, 2008). Two additional departments that need consideration is materials management because this team is critical to ensure staff have the necessary products and equipment to use on the clinical units and patient transportation because this team uses a variety of equipment (gurney, wheelchair, bed, etc.) to transport patients all over the facility and to do so in manner that decreases friction/shear issues.

Patient Transportation Services Example

In this case study, multidisciplinary team members are invited to the monthly skin care meeting on a quarterly basis to provide updates to the team in regards to recent changes/revisions in their departments as well as solicit ideas from the skin care team on process improvements in patient care. This forum has served to be instrumental in changing practice across departments that impact patient care. One example discussed by the team and transportation services in 2008 was the amount of patients who are transported via gurney throughout the hospital for various procedures and/or for diagnostic imaging studies. Unfortunately, many patients are not able to move themselves from the gurney to the diagnostic or procedures table due to their acute medical

condition and/or bariatric weight. This poses potential friction and shearing issues when patients were being moved by using a linen draw sheet only.

The CNS, WOCN, Transportation Manager, and Ergonomic Specialist Manager discussed this issue and part of this discussion included the recent success the Emergency Department has had utilizing the hovermatt that could be used to turn, reposition and laterally transfer patients weighing up to 1,000 pounds from a gurney to any other surface quickly, efficiently and with the assistance of only two staff. Slider tubes (similar to a large plastic garbage bag) or hovermatts are an excellent choice to use to move regular sized and bariatric patients to prevent friction ("SWAT Team," 2007). The team believed the use of hovermatts house-wide would be the answer to appropriately transfer patients.

The CNS, in collaboration with the Ergonomic Specialist Manager, wrote a proposal to the Chief Nurse Officer (CNO), outlining the need to purchase two hovermatts for each clinical unit to decrease the potential for friction/shearing forces against patient's skin and to decrease the number of employee related back injuries specific to patient transfers. The CNO approved the capital equipment request of $65,000 ($2,500 per hovermatt for 13 acute care units) and within 6 months, there were 0% HAPUs related to shearing/friction issues and a decrease in employee back injuries by 30%.

Respiratory Department Example

In fall 2008, the two critical care units were experiencing a high number of mucosal PUs (14%) related to the endotracheal (ET) tube in patient care. The CNS met with the skin care nurses from both units, the Intensive Care Unit and Cardiac Intensive Care Unit Nurse Managers, WOCN and the Respiratory Department Manager. Discussion at the meetings focused on the role of the respiratory therapist and the RN in caring for the patient with an ET tube. During the

next six months, the critical care unit's trialed two ET tube holder products without success (continued HAPUs were the result).

The CNS conducted a literature search and utilized the Magnet list serve (an internet forum for all Magnet facilities to use to share best practice) to ask what other Magnet facilities were doing to eliminate HAPUs in patients with ET tubes. This resulted in improved collaboration amongst the RNs and the respiratory therapists because each staff had a role to play that was important in providing patient care. The respiratory therapist was responsible to move the ET tube from one side of the mouth to the other by removing the silk tape that held it in place, observing for any skin breakdown, cleaning the face and applying a skin barrier spray to the skin, prior to re-taping the ET tube to the opposite side of the mouth, once every 24 hours. Nursing's role was to monitor the ET tube around the clock to ensure the tube was not causing pressure against the mouth/skin. The result of this collaboration and due diligence in the care of patients with an ET tube has had a demonstrated outcome of only one HAPU PU related to the ET tube in the last 24 months.

System-wide Change Strategies

A CNS is able to articulate the value of nursing care within the organization and influences system changes that facilitate improvement of quality, cost-effective patient care outcomes. Systems leadership is characteristic of the CNS and according to Hamric, Spross and Hanson (2008), the APN has the ability to manage change and empower others to influence clinical practice and political processes within and across systems. The CNS had facilitated several system-wide strategies to help eliminate the HAPU rate and positively impact other quality initiatives, such as reducing patient falls and improving patient satisfaction. For the

purposes of this case study, one of these system-wide strategies will be shared: implementing patient rounding on the clinical units.

Purposeful Patient Rounding

In July 2007, the CNS used the Change Acceleration Process (CAP) project to implement patient rounding as the CNS had recently completed CAP facilitator training. Use of the CAP tools to support the implementation of patient rounding would provide the structure and techniques necessary to address the challenges identified by both staff leaders and the nursing management team. The model was designed to address change at the front line by engaging those who know the most about the process and are most impacted by the change (nursing staff).

To help ensure the success of this project, the CNS conducted a conference call with Chris Meade, PhD, the Principal Investigator in the rounding research cited in the *American Journal of Nursing*, titled, "Effects of Nursing Rounds: on Patients' Call Light Use, Satisfaction, and Safety" (Meade, Bursell, & Ketelsen, 2006). Dr. Meade shared several "learnings" from her research project that she believed were important to successfully implement regular and purposeful patient rounding, which were incorporated into the planning and execution of this project.

Three 8-hour meetings were facilitated by the CNS with participation from nursing staff representatives from every inpatient clinical unit that consisted of RNs, Charge Nurses, Certified Nurse's Aids, a Nurse Manager, a Nurse Educator and informal nurse leaders who were not considered early adopters of practice changes. At the conclusion of all three meetings that stretched over a 6 week period of time, the team had identified and analyzed resistance to this change, strategies and tools to address the resistance, a vision for purposeful rounding, an agreement of what rounding was and the frequency, and an action plan to take back to their units.

Beginning October 2007, patient rounding was implemented on the clinical units and an educational brochure was developed for patients and their families; this brochure was added to the new admission packet to inform patients about hourly rounding and why this initiative contributes to their safety. In addition, patient rounding was incorporated into new nursing orientation and later added to the annual nursing competencies:

Integrates frequent (1-2hrs) patient rounding to the daily work routine to identifying patient issues, care needs and safety concerns.
Uses patient rounding to assesses and reassesses patient pain levels per policy and assessment requirements.
Uses patient rounds to continually assess risk to fall. a. Check alarms are engaged b. Evaluation of toileting needs. c. Evaluation of availability of call light, phone, urinal etc. d. Reinforces with pt importance of calling for assistance.
Uses patient rounding protocol to regularly assess skin integrity and identify patients at risk of skin breakdown.

Outcome measures were identified by the project team that included HAPUs, reducing patient falls and improving patient satisfaction by achieving the 50th percentile, according to the National Database for Nursing Quality Indicators benchmark, which was achieved within 12 months of implementing this project (Table 1).

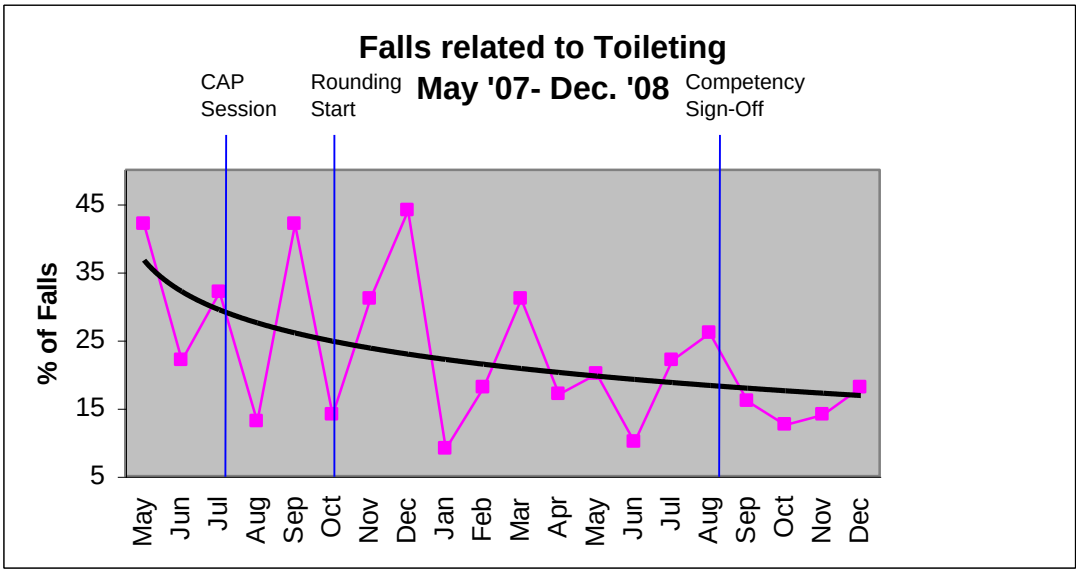
Conclusion

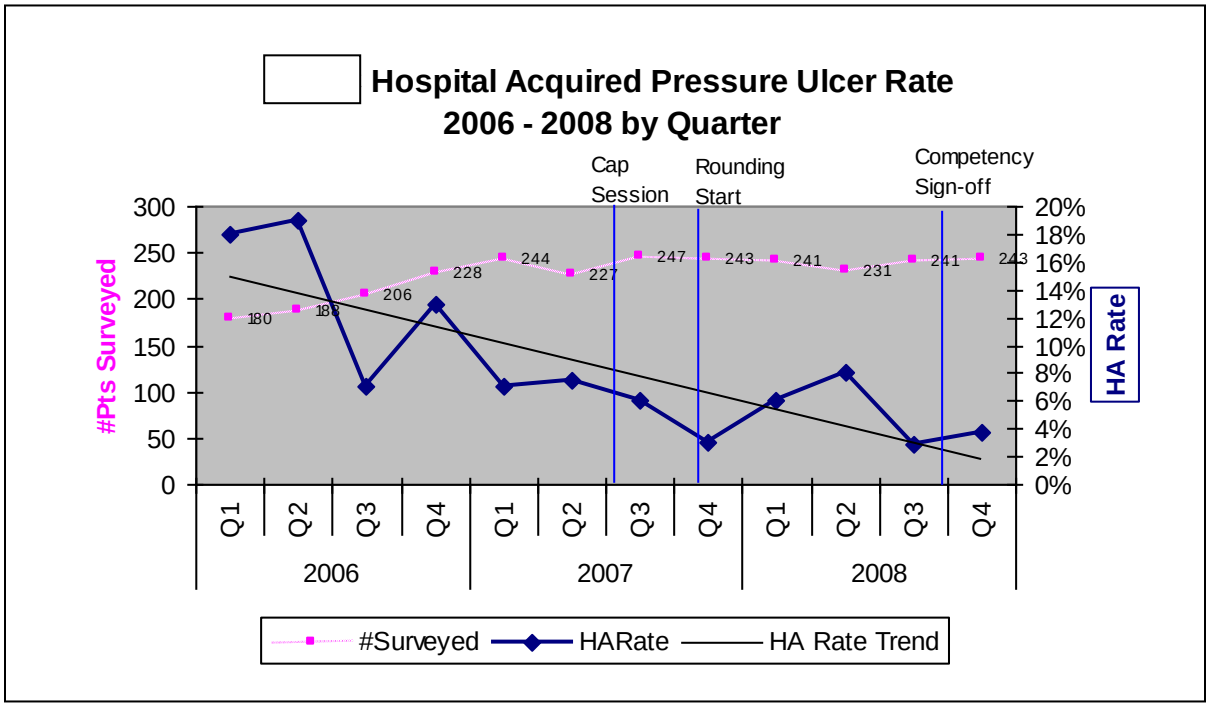
A CNS is an excellent choice to lead and facilitate a house-wide PU prevention program, as well as other quality initiatives, whose focus is quality improvement and collaboration with an interdisciplinary team across inpatient settings. The CNS practice uses three spheres of influence: individual clients and populations, consulting and collaborating with multidisciplinary teams and utilizes system-wide change strategies within clinical settings to positively influence health and health care outcomes. By utilizing a CNS within the acute care hospital, the return on

investment is evident via positive patient care outcomes: eliminate HAPUs (Table 2), decrease patient falls, and increase patient and staff satisfaction.

Table 1

Implementing Patient Rounding: Outcome Measures





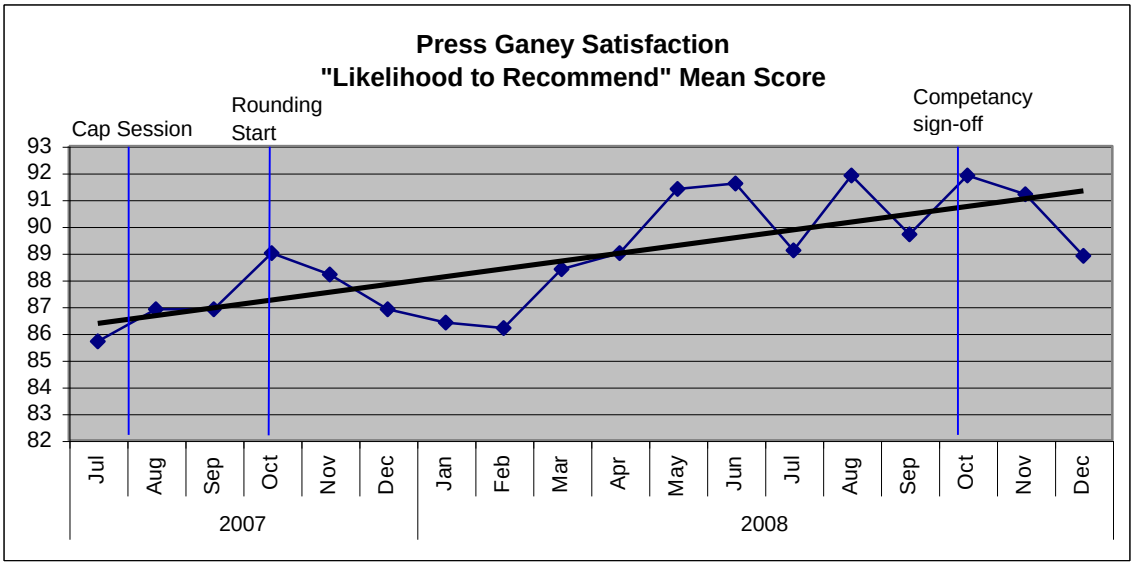
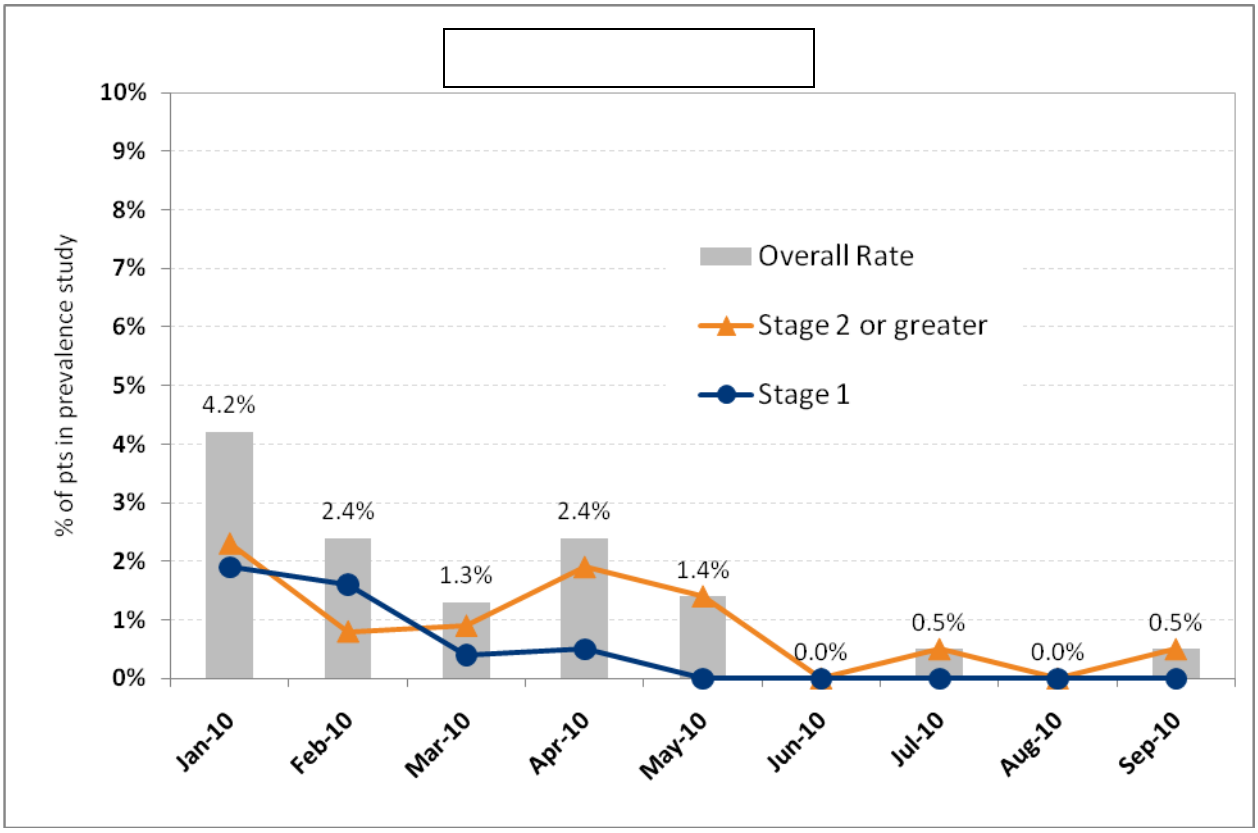

Press Ganey Satisfaction
"Likelihood to Recommend" Mean Score
Cap Session
Rounding Start
Competancy sign-off
93
92
91
90
89
88
87
86
85
84
83
82
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2007
2008

Table 2

2010 HAPU Rates



References

Ayello, E.A. & Braden, B. (2002). How and why to do pressure ulcer risk assessment. *Advance Skin & Wound Care, 15*:125-133.

Barnason, S., Merboth, M., Pozehl, B. & Tietjen, M. (1998). Utilizing an Outcomes Approach to Improve Pain Management by Nurses: A Pilot Study. *Clinical Nurse Specialist 12*(1): 28-36.

Brown, G. (2003). Long-term outcomes of full-thickness pressure ulcers: healing and mortality. *Ostomy and Wound Management, 49*(10):42-50.

Comfort, E.H. (2007). Reducing Pressure Ulcer Incidence through Braden Scale Risk Assessment and Support Surface Use. *Advances in Skin & Wound Care 21*(7):330-334.

Fogerty, M.D., Abumrad, N.N., Nanney, L., Arbogast, P.G., Poulose, B., and Barbul A. (2008). Risk factors for pressure ulcers in acute care hospitals. *Wound Repair Regen*. Jan-Feb;16(1):11-18.

Gethin, G. (2008). Long Road Ahead. *Nursing in the Community, 9*(5):33-34.

Global Industries Analyst Inc., Wound Care Products, Global Strategic Business Report. Available at: http://www.researchandmarkets.com/reportinfo.asp?report_id= 1095203&t=t&cat_id=. Accessed on February 24, 2011.

Hamric, A.B., Spross, J.A., & Hanson, C.M. (2008). *Advance Practice Nursing: An integrative approach*. St. Louis, MO: Elsevier.

Jacavone, J., Daniels, R. & Tyner, I. (1999). CNS Facilitation of a Cardiac Surgery Clinical Pathway Program. *Clinical Nurse Specialist, 13*(3):126-132.

Jankowski, I.M. (2010). Matching Patient Safety Goals to the Nursing Specialty. *Journal of Nursing Administration 40*(1):26-31.

Lancellot, M. (1996). CNS combats pressure ulcers with skin and wound assessment team. *Clinical Nurse Specialist, 10*(3):154-160.

Mattie, A.S., and Webster, B.L. (2008). Centers for Medicare and Medicaid Services' "Never Events" An analysis and recommendations to hospitals. *The Health Care Manager, 27*(4):338-349.

Meade, C.M., Bursell, A.L., & Ketelsen, L. (2006). Effects of Nursing Rounds: On Patients' Call Light Use, Satisfaction, and Safety. *American Journal of Nursing, 106*(9):58-70.

Mullin, M., Opperwall, B. & White, S. (1995). CNS Development of Health Maintenance Programs: Quality Improvement and Cost Reduction. *Clinical Nurse Specialist, 9*(1): 45-49.

National Association of Clinical Nurse Specialists (2011). Retrieved from http://www.nacns. org/AboutNACNS/History/tabid/61/Default.aspx retrieved on February 22, 2011.

National Pressure Ulcer Advisory Panel (2007). Retrieved from http://www.npuap.org/pr2.html on March 2, 2011.

National Pressure Ulcer Advisory Panel. *National Consensus Conference on Stage of Pressure ulcers.* Washington, DC: National Pressure ulcer Advisory Panel; 1998.

Nicholson, D.C. and Mitchel, L.A. (2008). A medical error happened: now what? The implications for medical errors heat up. *Journal of Health Care Compliance, 10*(1):5-9.

Redelings, M., Lee, N., and Sorvillo, F. (2005). Pressure ulcers: more lethal than we thought? *Advance Skin & Wound Care, 18:*367-372.

Rich, S.E., Shardell, M., Margolis, D., and Baumgarten, M. (2009). Pressure Ulcer Preventive Device Use Among Elderly Patients Early in the Hospital Stay. *Nursing Research, 58*(2):95-104.

Russo, C.A., Stiner, C., & Spector, W. (2006). Hospitalization Related to Pressure Ulcers. HCUP Statistical Brief, #64. Rockville, MD: Agency for Healthcare Research and Quality, 2008.

SWAT team uses Hover Mat. (2007). *Oregon Nurse*, 72(1), 5.

Shultz, A. (2005). Predicting and preventing pressure ulcers in surgical patients. *Journal of periOperative Registered Nurse,81:*986-1006.

VanGilder, C., MacFarlane, G.D., Harrison, B.A., Lachenbruch, C. & Meyer, S. (2010). The Demographics of Suspected Deep Tissue Injury in the United States: An Analysis of the International Pressure Ulcer Prevalence Study 2006-2009. *Advances in Skin & Wound Care*, 23(6): 254-261.

Whittington, K.T. & Briones, R. (2004). National prevalence and incidence study: 6-year sequential acute care data. *Advanced Skin Wound Care,17*:490-494.

Woodard, J. (2009). Effects of Rounding on Patient Satisfaction and Patient Safety on a Medical-Surgical Unit. *Clinical Nurse Specialist, 23*(4):200-206.

Eliminating Hospital Acquired Pressure Ulcers in Acute Care By Utilizing an Advance Practice Nurse

Victoria Hays

Oregon Health & Science University

Abstract

Introduction: Pressure ulcer (PU) prevention and treatment is challenging to any acute care hospital due to the complexity of various patient populations that enter its doors. The purpose of this paper is to describe how an advance practice nurse (APN), a Clinical Nurse Specialist (CNS), developed a quality program to eliminate hospital acquired (HA) PUs.

Review of the literature: Quality measures are often linked to financial reimbursement for healthcare organizations and pressure ulcers are one of these measures. There is continued cause for concern regarding reducing/eliminating HAPUs in the acute care setting, despite several resources available to facilities.

Case Presentation: An acute care hospital, located in the Pacific Northwest, was able to eliminate their HAPU rate from 20% to 0% by successfully utilizing a CNS to facilitate change and improve nursing practice.

Conclusion: The three major spheres of influence within the CNS practice: individual clients and populations, consulting and collaborating with multidisciplinary teams and utilizing system-wide evidence based change strategies can and do positively impact patient care.

PUs is a significant economic and healthcare issue for all patient care settings. The reported PU prevalence in the United States (U.S.) varies from 10% to 17% in the acute care setting (Ayello & Braden, 2002) and this figure has remained fairly constant from 2006 to 2008 (VanGilder, MacFarlane, Harrison, Lachenbruch, & Meyer, 2010). As a result, resources must be expended by the hospital that may include increased lengths of stay and higher medical and legal costs. The cost to treat a PU may range from $2,000 to as high as $70,000 depending upon the severity and complexity of the ulcer (Fogerty et al., 2008). The annual cost of treating HAPU's is estimated at $5 and $8.5 billion (Fogerty, et al., 2008).

The Centers for Medicare and Medicaid Services (CMS) believe a HAPU is an avoidable event and no longer warrants a higher reimbursement for the patient's admitted condition unless the PU was present on admission. Using an APN, specifically a CNS, to facilitate this or other major quality indicators, would be highly beneficial to any hospital. The CNS practice uses three spheres of influence: individual clients and populations, consulting and collaborating with multidisciplinary teams and utilizes system-wide change strategies within clinical settings to positively influence health and health care outcomes at the local, regional and national forums. The purpose of this paper is to describe how an APN, a CNS, developed a quality program to eliminate HAPUs in the acute care setting.

A review of the literature accessed two electronic databases, MEDLINE and CINAHL, using key words that included "pressure ulcer", "advance practice nurse" and "clinical nurse specialist". The search dates were from 1950 to January 2011, and included published studies in which the full text was available in English.

HAPUs: A 'No Pay' Condition

Effective October 2008, CMS will not provide reimbursement for full thickness ulcers in acute care and several key events have led to this conclusion. In the early 1980's, diagnostic-related groups revolutionized the way hospitals were reimbursed. In essence, hospitals received a fixed payment for specific diagnosis and procedures; and if a complication arose, the hospital would receive a higher reimbursement, especially for those acquired in the hospital. In 1999, the Institute of Medicine's (IOM) publication, "To Err is Human: Building a Safer Health System" stated that possibly up to 98,000 patients die each year in the U.S. as a result of preventable medical errors. An additional IOM report in 2001-2005 stated two million patients each year are affected by hospital acquired infections, resulting in thousands of deaths and costing billions of dollars; once again, with an emphasis to improve the care received in hospitals (Mattie & Webster, 2008).

In 2002, to establish a consensus among key stakeholders that included consumers, providers, researchers and other health care personnel and organizations, the National Quality Forum published a report titled, "Serious Reportable Events in Healthcare" that identified preventable adverse events that should never occur in hospitals (Nicholson & Mitchel, 2008). In addition, many states, private organizations and the media pushed for healthcare reform to link reimbursement and patient care outcomes within U.S. hospitals. As a result, in 2006, President Bush signed a mandate that allowed the Secretary of the Department of Health and Human Services to choose conditions that could have been reasonable prevented through the application of evidenced-based guidelines in the hospital setting. These conditions resulted in the prevention of facilities being paid additional costs associated with hospital acquired conditions; a stage 3 and 4 PU being one condition (Mattie & Webster, 2008). Other such conditions include foreign

object retained after surgery, patient falls, catheter associated urinary tract infection, vascular catheter associated infection and surgical site infection, to name a few. Prevention of HAPUs is the key to help ensure patients receive safe, quality care and hospitals receive the maximum, allowable reimbursement for the care they deliver to patients.

HAPUs: Continued Cause for Concern

Despite numerous efforts by healthcare organizations and hospitals, the prevalence of PUs in acute care remained unchanged from 16% over a 6-year period from 1999 through 2004 (Whittington & Briones, 2004). The incidence of PUs in acute care hospitals has varied between 7% and 9% during this same period (Whittington & Briones, 2004). In addition, during this same 6-year period, about 70% of individuals older than 65 years with PUs also developed new PUs (Whittington & Briones, 2004). Another source, Rich, Shardell, Margolis and Baumgarten (2009), also cited that elderly hospital patients are at particularly high risk of developing a PU.

Despite hospitals having access to a variety of evidence based resources for years, patients who develop HAPUs experience increased length of stay and increased morbidity and mortality (Schultz, 2005; Redelings, Lee & Sorvillo, 2005). According to Brown (2003) and Comfort (2007) there is a link between a nosocomial PU and mortality. In 2000 and 2001, PUs were cited as 1 of the top 3 hospital acquired errors that lead to patient deaths and unfortunately, this number has been translated to an occurrence rate of close to 12% of the time (Russo, Steiner & Spector, 2006). However, a diagnosis of PU is rarely found on the death certificate. Instead, the diagnosis is usually sepsis, pneumonia or a urinary tract infection, all of these, which may be complications from a HAPU (Russo, Steiner & Spector, 2006).

In addition to the personal toll on the patient and their family, the cost to treat PUs by a facility is quickly increasing, at the same time reimbursement is on the decline. Treatment of

PUs, depending upon the complexity of the wound may include several dressing changes each week, special therapy, such as hyperbaric oxygen, nursing staff time by a Registered Nurse (RN) or a Wound, Ostomy, Continence Nurse (WOCN), increased lengths of stay, and rental equipment that may include a specialty support surface, such as an air overlay mattress. Results of a 2009 market research study demonstrate that wound care equipment and supplies is one of the most costly components of the world healthcare system with an estimated $14 billion market in 2008 with a growth rate of 7% each year (Global Industries, 2010). In the U.S. alone in 2008, over 89 million patients were treated for wound conditions at a cost that exceeded $25 billion (Global Industries, 2010). And the U.S. is not alone in this dilemma, pressure ulcers affect one in five Irish patients and the cost to treat a stage 3 or 4 PU averages 119,000 euros per a patient (Gethin, 2008). Early prevention of HAPUs is key to improving patient care and ensuring every hospital receives the allowable maximum reimbursement. One solution to early prevention and treatment of PUs in the acute care setting is to utilize a CNS.

One Solution: CNS

A CNS is a licensed RN who has graduate preparation (Master's or Doctorate) in nursing as a CNS and is an expert clinician in a specialized area of practice. The specialty may be identified in terms of a population (e.g. geriatrics), setting (e.g. critical care), disease or medical subspecialty (e.g. diabetes), type of care (e.g. rehabilitation) or type of problem (e.g. wound care) (National Association, 2011). A CNS may practice in a variety of health care settings and research demonstrates that using a CNS can positively impact patient care outcomes in wound care, reducing hospital costs and length of stay, improved pain management, patient satisfaction and reduced medical complications in hospitalized patients (Woodard, 2009; Barnason, Merboth, Pozehl & Tietjen, 1998; Jacavone, Daniels & Tyner, 1999; Mullin, Opperwail & White, 1995).

Many state boards of nursing, 37 in total, provide licensor to the CNS practice as an APN specialty; similar to other APN specialties such as a Nurse Practitioner (NP), Nurse Midwife and Nurse Anesthetist practice.

In the U.S. alone, over 69,000 RNs have the education and credentials to practice as a CNS and over 14,000 are qualified to work as a nurse practitioner and CNS (National Association, 2011). In general, the salary for a CNS may range from $65,000 to over $110,000 annually depending on the region of the country and practice specialty (National Association, 2011). National certification is available by examination via the American Nurses Credentialing Center for many CNS specialties: adult health, psychiatric & mental health, diabetes management, gerontology, home health, pediatrics and public/community health nursing, to name a few.

The National Association of CNS (NACNS) was founded in the 1990's and officially launched its first meeting in the fall of 1995. By-laws and a Board of Directors were appointed and in 18 months, membership grew from 67 to 530. Currently, NACNS has grown to over 2500 members. NACNS continues to play a critical role in local, regional and national forums on the topics of the APN, education, regulation, certification, reimbursement and other legislative issues. There are three major spheres of influence within the CNS practice: individual clients and populations, consulting and collaborating with multidisciplinary teams and utilizing system-wide evidence based change strategies to positively impact patient care.

Case Study

An acute care hospital, located in the Pacific Northwest, had a HAPU rate of 20% in 2005. The hospital has ten medical/surgical units, two critical care units and one rehabilitation unit with an average daily census of 295 patients. In fall 2004, the hospital hired a

medical/surgical CNS and in the summer of 2005, the CNS became responsible for facilitating the pressure ulcer program that ultimately resulted in reducing the HAPU rate from 20% to 0% by successfully utilizing all 3 spheres of influence within the CNS scope of practice.

Individual Clients and Populations

One of the CNS spheres of influence or core competencies specifically relates to direct care of individual clients and/or patient populations. In this case study, the patient population was 13 acute care units that included medical, surgical, rehabilitation and critical care patients. Initially, the CNS conducted a comprehensive assessment of the PU program and found several opportunities for improvement that included: prior to the CNS facilitating the program, there was lack of leadership by a clinician for this initiative, lack of evidence based PU guidelines for patient care, lack of unit based PU resources available to staff, lack of collaboration amongst other healthcare disciplines that directly impacted patient care in the prevention of PUs and lack of support from senior leadership to provide resources to this initiative.

The Development of Evidenced Based Guidelines

The National Pressure Ulcer Advisory Panel (NPUAP), the most prominent U.S. organization to define staging of PUs, also provides evidenced-based guidelines, in the form of major themes, to prevent and treat PUs. Examples of major themes include: skin assessment, nutrition for PU prevention, and support surfaces. It is the responsibility of each facility to use these guidelines and define, in greater detail, their own PU prevention and treatment program (NPUAP, 2011). The CNS reviewed the PU guideline (that was dated from 2001) and conducted a review of the literature on the topic of prevention and treatment. Utilizing the newly formed regional wound care team for the healthcare system in which the CNS was a member, the CNS presented the topic at the monthly meeting and during the following four months of meetings, the

CNS facilitated the revision of the practice guideline from one generic policy to two evidenced based policies: PU prevention and PU treatment. Education of the newly approved PU guidelines needed to be provided to the 1200 nurses in the facility which ultimately led to the creation of unit based skin care champions.

Unit Based Skin Care Nurses

The first step in developing unit based skin care nurses was for the CNS to define goals, objectives, including committee expectations, and patient outcomes. Goals, objectives and expectations were useful in recruiting RNs from every inpatient unit, including the Emergency Department (ED), Surgical Services and Behavioral Health. The monthly meeting included one hour of education on PU prevention and treatment and has expanded to other topics to include venous and arterial ulcers, incontinent dermatitis, wound care products, specialty support surfaces and more recently, the team is conducting its first nursing research study. According to one PU program conducted by a CNS, their HAPU rate decreased by 57% as a result of using unit based skin care nurses (Lancellot, 1996).

In addition to a monthly meeting, the skin care nurses were also allocated three hours on their assigned unit to conduct real-time audits on patients who were at-risk or had actual skin breakdown. A minimum of three audits were expected to be completed by each skin care nurse to help determine the accuracy of the direct care nurse's skin assessment, Braden Scale score and plan of care for the patient. By providing real time feedback to their peers, this served as an extremely powerful tool to positively change nursing practice. Based upon the audit results and the monthly education meeting, each skin care nurse was required to write a brief email to the unit staff, highlighting education and lessons learned so all nurses could continue to improve their practice on the topic of PU prevention and treatment.

Additional Skin Care Staff: WOCN & NP

Critical staff to employ in the acute care hospital is a WOCN and a WOC NP who are the only healthcare providers whose training is focused specifically on managing PUs as well as other skin care and continence issues that are often times associated with PUs (Jankowski, 2010). The WOCN services are designed to meet the needs of a variety of patient populations and responsibilities may include: patient and staff education, topical wound care management, developing evidenced-based guidelines, evaluating support surfaces as well as provide expertise to other initiatives such as surgical site infections and catheter-related urinary tract infections. What is unknown is the number of WOCNs needed to effectively manage a PU program in the acute care setting. Currently, there is not any information in the literature to speak to this issue. In this case study, the two full-time WOCNs work closely with the CNS to co-facilitate the monthly skin care meetings, monthly prevalence studies and follow-up daily, via a query report that is based on nursing documentation from the previous 24 hours of admission, of patients who may have a PU.

The NP advance practice role requires a master's degree and depending upon the program's objectives, employing a WOC NP may be beneficial as an independent provider for inpatient and outpatient billable services that may include punch biopsies and sharps debridement (Jankowski, 2010). In this case study, the WOC NP has been instrumental to provide advance skin care at the bedside, especially for patients with complex wounds and stage 3 and 4 PUs. The NP has built trusted relationships with physician partners (residents, hospitalists, surgeons, and the ED team) that resulted in, on average, over 50 skin care consults a month for NP services. One outcome that has resulted from hiring the NP has been the achievement of 0% HAPU rate for stage 3 and 4's since October 1, 2008. In addition, the

average monthly inpatient charges for NP services have been $8,000, which is one way to clearly demonstrate a return on investment for the facility.

Collaboration with Multidisciplinary Teams

PU prevention education must be implemented in an organized and comprehensive manner to instruct healthcare providers, patients, family and caregivers (NPUAP, 2007). And to truly be successful in an acute care setting, this approach must be multidisciplinary to include the WOCN, physicians, physical therapists, information services, dietary, respiratory services and nurses in all specialties to develop guidelines and educational materials (Jacobson, Tescher & Miers, 2008). Two additional departments that need consideration is materials management because this team is critical to ensure staff have the necessary products and equipment to use on the clinical units and patient transportation because this team uses a variety of equipment (gurney, wheelchair, bed, etc.) to transport patients all over the facility and to do so in manner that decreases friction/shear issues.

Patient Transportation Services Example

In this case study, multidisciplinary team members are invited to the monthly skin care meeting on a quarterly basis to provide updates to the team in regards to recent changes/revisions in their departments as well as solicit ideas from the skin care team on process improvements in patient care. This forum has served to be instrumental in changing practice across departments that impact patient care. One example discussed by the team and transportation services in 2008 was the amount of patients who are transported via gurney throughout the hospital for various procedures and/or for diagnostic imaging studies. Unfortunately, many patients are not able to move themselves from the gurney to the diagnostic or procedures table due to their acute medical

condition and/or bariatric weight. This poses potential friction and shearing issues when patients were being moved by using a linen draw sheet only.

The CNS, WOCN, Transportation Manager, and Ergonomic Specialist Manager discussed this issue and part of this discussion included the recent success the Emergency Department has had utilizing the hovermatt that could be used to turn, reposition and laterally transfer patients weighing up to 1,000 pounds from a gurney to any other surface quickly, efficiently and with the assistance of only two staff. Slider tubes (similar to a large plastic garbage bag) or hovermatts are an excellent choice to use to move regular sized and bariatric patients to prevent friction ("SWAT Team," 2007). The team believed the use of hovermatts house-wide would be the answer to appropriately transfer patients.

The CNS, in collaboration with the Ergonomic Specialist Manager, wrote a proposal to the Chief Nurse Officer (CNO), outlining the need to purchase two hovermatts for each clinical unit to decrease the potential for friction/shearing forces against patient's skin and to decrease the number of employee related back injuries specific to patient transfers. The CNO approved the capital equipment request of $65,000 ($2,500 per hovermatt for 13 acute care units) and within 6 months, there were 0% HAPUs related to shearing/friction issues and a decrease in employee back injuries by 30%.

Respiratory Department Example

In fall 2008, the two critical care units were experiencing a high number of mucosal PUs (14%) related to the endotracheal (ET) tube in patient care. The CNS met with the skin care nurses from both units, the Intensive Care Unit and Cardiac Intensive Care Unit Nurse Managers, WOCN and the Respiratory Department Manager. Discussion at the meetings focused on the role of the respiratory therapist and the RN in caring for the patient with an ET tube. During the

next six months, the critical care unit's trialed two ET tube holder products without success (continued HAPUs were the result).

The CNS conducted a literature search and utilized the Magnet list serve (an internet forum for all Magnet facilities to use to share best practice) to ask what other Magnet facilities were doing to eliminate HAPUs in patients with ET tubes. This resulted in improved collaboration amongst the RNs and the respiratory therapists because each staff had a role to play that was important in providing patient care. The respiratory therapist was responsible to move the ET tube from one side of the mouth to the other by removing the silk tape that held it in place, observing for any skin breakdown, cleaning the face and applying a skin barrier spray to the skin, prior to re-taping the ET tube to the opposite side of the mouth, once every 24 hours. Nursing's role was to monitor the ET tube around the clock to ensure the tube was not causing pressure against the mouth/skin. The result of this collaboration and due diligence in the care of patients with an ET tube has had a demonstrated outcome of only one HAPU PU related to the ET tube in the last 24 months.

System-wide Change Strategies

A CNS is able to articulate the value of nursing care within the organization and influences system changes that facilitate improvement of quality, cost-effective patient care outcomes. Systems leadership is characteristic of the CNS and according to Hamric, Spross and Hanson (2008), the APN has the ability to manage change and empower others to influence clinical practice and political processes within and across systems. The CNS had facilitated several system-wide strategies to help eliminate the HAPU rate and positively impact other quality initiatives, such as reducing patient falls and improving patient satisfaction. For the

purposes of this case study, one of these system-wide strategies will be shared: implementing patient rounding on the clinical units.

Purposeful Patient Rounding

In July 2007, the CNS used the Change Acceleration Process (CAP) project to implement patient rounding as the CNS had recently completed CAP facilitator training. Use of the CAP tools to support the implementation of patient rounding would provide the structure and techniques necessary to address the challenges identified by both staff leaders and the nursing management team. The model was designed to address change at the front line by engaging those who know the most about the process and are most impacted by the change (nursing staff).

To help ensure the success of this project, the CNS conducted a conference call with Chris Meade, PhD, the Principal Investigator in the rounding research cited in the *American Journal of Nursing*, titled, "Effects of Nursing Rounds: on Patients' Call Light Use, Satisfaction, and Safety" (Meade, Bursell, & Ketelsen, 2006). Dr. Meade shared several "learnings" from her research project that she believed were important to successfully implement regular and purposeful patient rounding, which were incorporated into the planning and execution of this project.

Three 8-hour meetings were facilitated by the CNS with participation from nursing staff representatives from every inpatient clinical unit that consisted of RNs, Charge Nurses, Certified Nurse's Aids, a Nurse Manager, a Nurse Educator and informal nurse leaders who were not considered early adopters of practice changes. At the conclusion of all three meetings that stretched over a 6 week period of time, the team had identified and analyzed resistance to this change, strategies and tools to address the resistance, a vision for purposeful rounding, an agreement of what rounding was and the frequency, and an action plan to take back to their units.

Beginning October 2007, patient rounding was implemented on the clinical units and an educational brochure was developed for patients and their families; this brochure was added to the new admission packet to inform patients about hourly rounding and why this initiative contributes to their safety. In addition, patient rounding was incorporated into new nursing orientation and later added to the annual nursing competencies:

Integrates frequent (1-2hrs) patient rounding to the daily work routine to identifying patient issues, care needs and safety concerns.
Uses patient rounding to assesses and reassesses patient pain levels per policy and assessment requirements.
Uses patient rounds to continually assess risk to fall. a. Check alarms are engaged b. Evaluation of toileting needs. c. Evaluation of availability of call light, phone, urinal etc. d. Reinforces with pt importance of calling for assistance.
Uses patient rounding protocol to regularly assess skin integrity and identify patients at risk of skin breakdown.

Outcome measures were identified by the project team that included HAPUs, reducing patient falls and improving patient satisfaction by achieving the 50th percentile, according to the National Database for Nursing Quality Indicators benchmark, which was achieved within 12 months of implementing this project (Table 1).

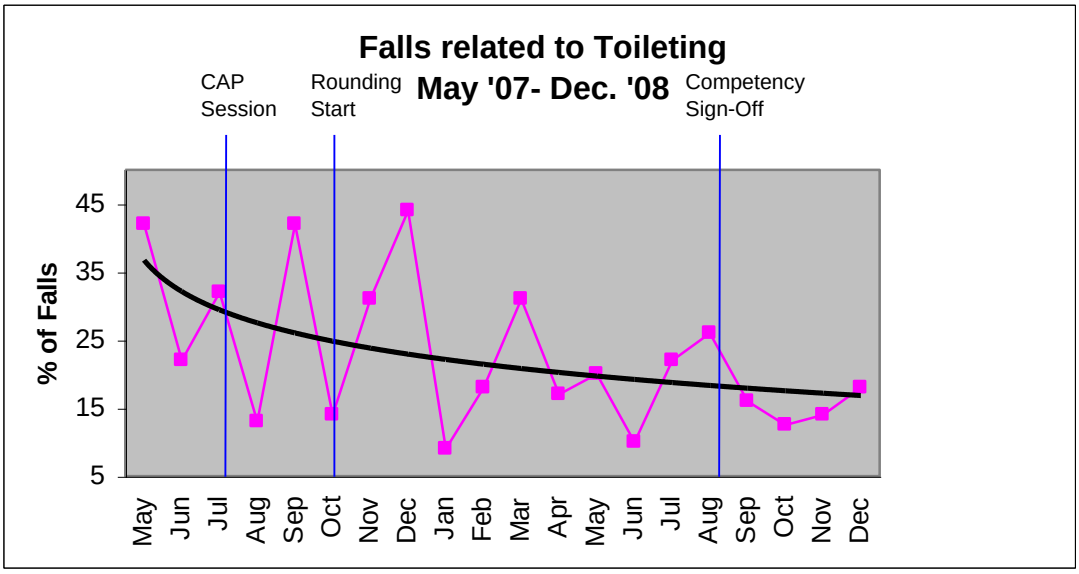
Conclusion

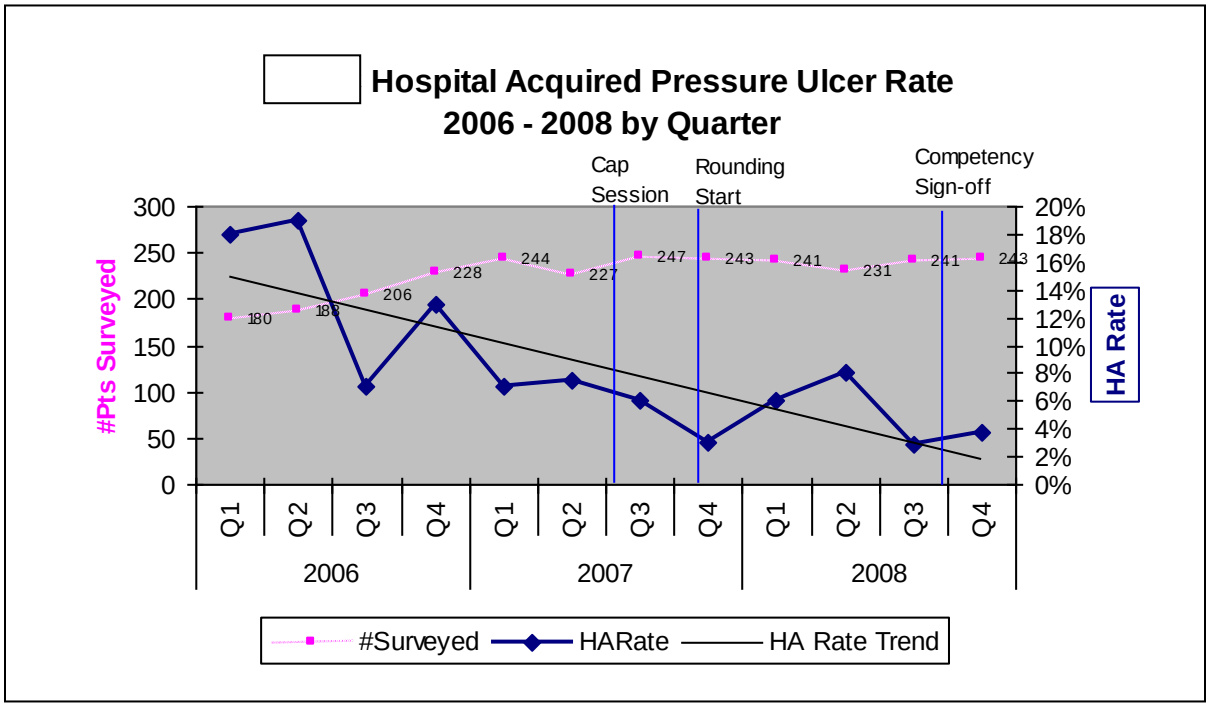
A CNS is an excellent choice to lead and facilitate a house-wide PU prevention program, as well as other quality initiatives, whose focus is quality improvement and collaboration with an interdisciplinary team across inpatient settings. The CNS practice uses three spheres of influence: individual clients and populations, consulting and collaborating with multidisciplinary teams and utilizes system-wide change strategies within clinical settings to positively influence health and health care outcomes. By utilizing a CNS within the acute care hospital, the return on

investment is evident via positive patient care outcomes: eliminate HAPUs (Table 2), decrease patient falls, and increase patient and staff satisfaction.

Table 1

Implementing Patient Rounding: Outcome Measures





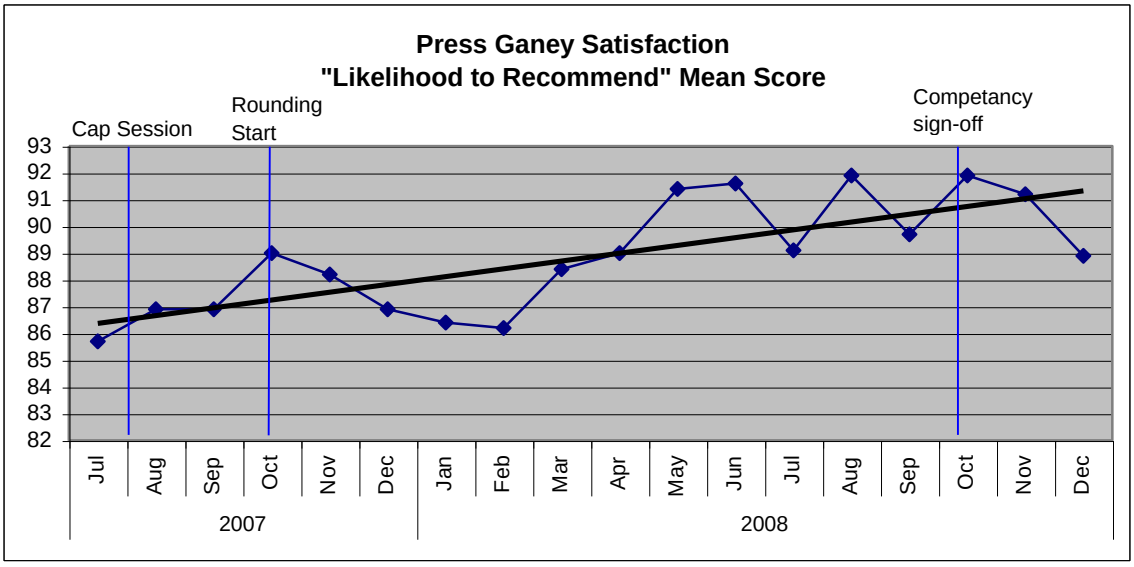
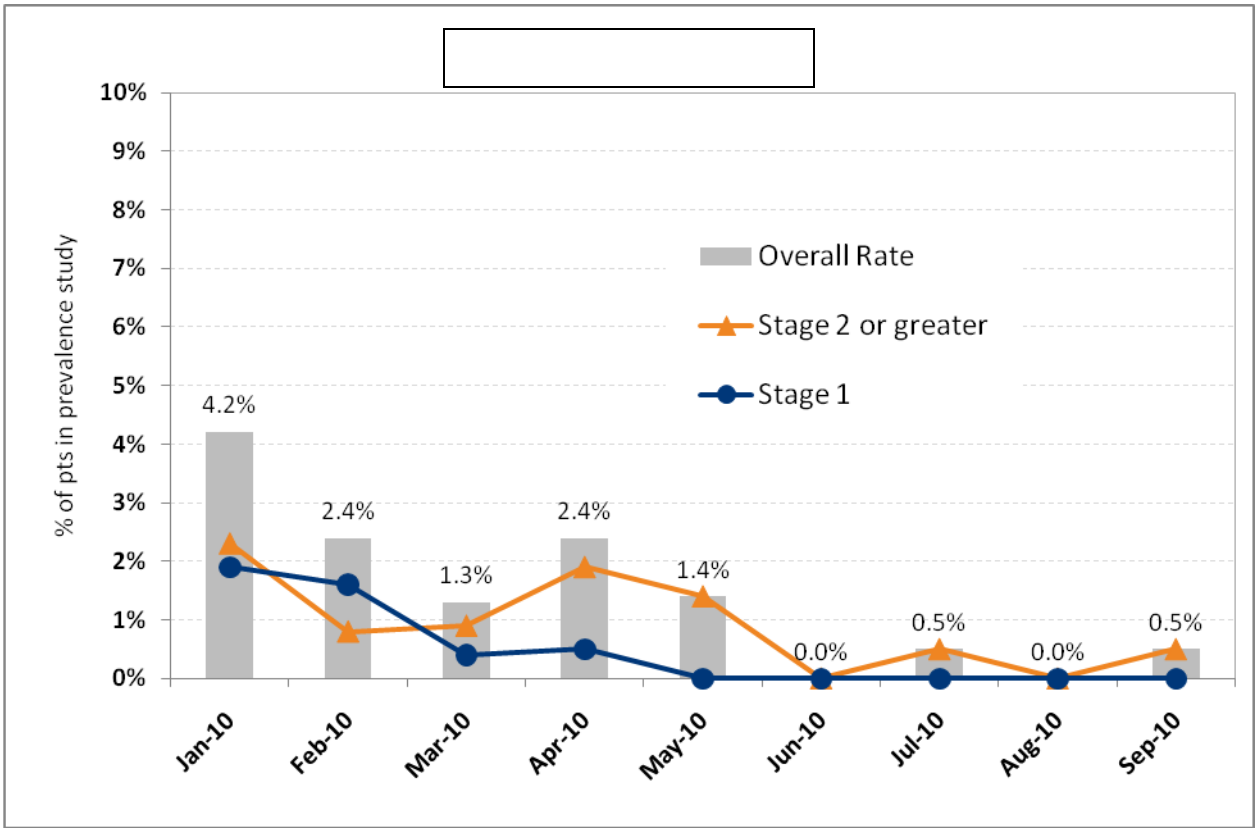

Press Ganey Satisfaction
"Likelihood to Recommend" Mean Score
Cap Session
Rounding Start
Competancy sign-off
93
92
91
90
89
88
87
86
85
84
83
82
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2007
2008

Table 2

2010 HAPU Rates



References

Ayello, E.A. & Braden, B. (2002). How and why to do pressure ulcer risk assessment. *Advance Skin & Wound Care, 15*:125-133.

Barnason, S., Merboth, M., Pozehl, B. & Tietjen, M. (1998). Utilizing an Outcomes Approach to Improve Pain Management by Nurses: A Pilot Study. *Clinical Nurse Specialist 12*(1): 28-36.

Brown, G. (2003). Long-term outcomes of full-thickness pressure ulcers: healing and mortality. *Ostomy and Wound Management, 49*(10):42-50.

Comfort, E.H. (2007). Reducing Pressure Ulcer Incidence through Braden Scale Risk Assessment and Support Surface Use. *Advances in Skin & Wound Care 21*(7):330-334.

Fogerty, M.D., Abumrad, N.N., Nanney, L., Arbogast, P.G., Poulose, B., and Barbul A. (2008). Risk factors for pressure ulcers in acute care hospitals. *Wound Repair Regen*. Jan-Feb;16(1):11-18.

Gethin, G. (2008). Long Road Ahead. *Nursing in the Community, 9*(5):33-34.

Global Industries Analyst Inc., Wound Care Products, Global Strategic Business Report. Available at: http://www.researchandmarkets.com/reportinfo.asp?report_id= 1095203&t=t&cat_id=. Accessed on February 24, 2011.

Hamric, A.B., Spross, J.A., & Hanson, C.M. (2008). *Advance Practice Nursing: An integrative approach*. St. Louis, MO: Elsevier.

Jacavone, J., Daniels, R. & Tyner, I. (1999). CNS Facilitation of a Cardiac Surgery Clinical Pathway Program. *Clinical Nurse Specialist, 13*(3):126-132.

Jankowski, I.M. (2010). Matching Patient Safety Goals to the Nursing Specialty. *Journal of Nursing Administration 40*(1):26-31.

Lancellot, M. (1996). CNS combats pressure ulcers with skin and wound assessment team. *Clinical Nurse Specialist, 10*(3):154-160.

Mattie, A.S., and Webster, B.L. (2008). Centers for Medicare and Medicaid Services' "Never Events" An analysis and recommendations to hospitals. *The Health Care Manager, 27*(4):338-349.

Meade, C.M., Bursell, A.L., & Ketelsen, L. (2006). Effects of Nursing Rounds: On Patients' Call Light Use, Satisfaction, and Safety. *American Journal of Nursing, 106*(9):58-70.

Mullin, M., Opperwall, B. & White, S. (1995). CNS Development of Health Maintenance Programs: Quality Improvement and Cost Reduction. *Clinical Nurse Specialist, 9*(1): 45-49.

National Association of Clinical Nurse Specialists (2011). Retrieved from http://www.nacns. org/AboutNACNS/History/tabid/61/Default.aspx retrieved on February 22, 2011.

National Pressure Ulcer Advisory Panel (2007). Retrieved from http://www.npuap.org/pr2.html on March 2, 2011.

National Pressure Ulcer Advisory Panel. *National Consensus Conference on Stage of Pressure ulcers.* Washington, DC: National Pressure ulcer Advisory Panel; 1998.

Nicholson, D.C. and Mitchel, L.A. (2008). A medical error happened: now what? The implications for medical errors heat up. *Journal of Health Care Compliance, 10*(1):5-9.

Redelings, M., Lee, N., and Sorvillo, F. (2005). Pressure ulcers: more lethal than we thought? *Advance Skin & Wound Care, 18:*367-372.

Rich, S.E., Shardell, M., Margolis, D., and Baumgarten, M. (2009). Pressure Ulcer Preventive Device Use Among Elderly Patients Early in the Hospital Stay. *Nursing Research, 58*(2):95-104.

Russo, C.A., Stiner, C., & Spector, W. (2006). Hospitalization Related to Pressure Ulcers. HCUP Statistical Brief, #64. Rockville, MD: Agency for Healthcare Research and Quality, 2008.

SWAT team uses Hover Mat. (2007). *Oregon Nurse*, 72(1), 5.

Shultz, A. (2005). Predicting and preventing pressure ulcers in surgical patients. *Journal of periOperative Registered Nurse,81:*986-1006.

VanGilder, C., MacFarlane, G.D., Harrison, B.A., Lachenbruch, C. & Meyer, S. (2010). The Demographics of Suspected Deep Tissue Injury in the United States: An Analysis of the International Pressure Ulcer Prevalence Study 2006-2009. *Advances in Skin & Wound Care*, 23(6): 254-261.

Whittington, K.T. & Briones, R. (2004). National prevalence and incidence study: 6-year sequential acute care data. *Advanced Skin Wound Care,17*:490-494.

Woodard, J. (2009). Effects of Rounding on Patient Satisfaction and Patient Safety on a Medical-Surgical Unit. *Clinical Nurse Specialist, 23*(4):200-206.

An Outpatient Wound Care Clinic:

One Clinic's Journey to a Quality Patient Program

Victoria Hays

Oregon Health & Science University

Abstract

Introduction: Treating acute and chronic wounds in the outpatient setting is challenging due to the complexity of the wounds, the patient population and lack of sufficient funding from the insurance industry. The purpose of this paper is to describe how one outpatient Wound Care Clinic (WCC) improved the quality of care to patients in a cost effective manner.

Review of the literature: An accurate and complete patient history and assessment of the wound is critical to determine the appropriate treatment for wound healing. The treatment for acute and chronic wounds usually includes one or more of these modalities: cleansing, debridement, measures to increase oxygenation and perfusion, negative pressure, topical agents, antibiotics and nutrition.

Case Presentation: A 68-year old female patient was referred to the clinic for a non-healing diabetic ulcer on her left foot. The referring physician, who frequently referred patients to the clinic, believed there was a 'delay in treatment' when this patient had a greater than a six week wait time for a new patient appointment.

Conclusion: Using just one patient case study can effectively identify many opportunities to improve clinic operations with positive quality outcomes for an outpatient WCC.

Wound care is an expensive component of the United States (U.S.) health care system and more specifically, the care of chronic wounds. Often times, chronic wounds are typically associated with elderly people who have multiple comorbidities and complex wounds with exposed anatomical structures. Health care costs for a single lower leg ulcer were estimated to be between $5,000 to as much as $28,000 for all care up to two years after diagnosis (Frykberg, 2000). If you multiple this figure by the 800,000 current active ulcer cases in the U.S., the total medical costs are estimated to be more than $5 billion annually (Frykberg, 2000).

An accurate and complete history and physical assessment of the patient and wound is paramount in choosing the correct treatment as well as to provide education and counseling to the patient and family to prevent future skin breakdown. Depending upon the wound condition, treatment may include one or more of the following: cleansing, debridement, measures to increase oxygenation and perfusion, negative pressure, adequate nutrition, use of topical agents and antibiotics. Factors that influence wound healing can be local or systemic; an example of a local factor includes incontinence and an example of a systemic factor may include nutrition.

Wound care is delivered in several settings: an acute care hospital, rural or urban outpatient clinic, home health, hospice and via telehealth medicine. Outpatient WCC's are particularly challenged due to the complexity of the wounds, patient population and diminishing funding from the insurance industry. The purpose of this paper is to describe how one outpatient WCC improved the quality of care to patients in a cost effective manner.

A review of the literature accessed two electronic databases, MEDLINE and CINAHL, using key words that included "chronic wounds", "acute wounds" and "wound care treatment". The search dates were from 1950 to March, 2011, and included published studies in which the full text was available in English.

Wound Assessment

Skin is the largest organ of the body, covering 3,000 square inches and is supplied with one third of the bodies circulating blood volume (Wysocki, 2002). Skin is a multifunctional organ that provides protection, sensation, thermoregulation, biochemical, metabolic and immune functions. Any one or more of these functions may be disrupted by the presence of a wound. Management of wounds must first begin with a thorough assessment of the patient. This assessment includes a medical history, including all current prescriptions and over the counter medications and a review of body systems.

It is important for the clinician to determine any systemic factors that may affect the patient's ability to heal and these include age, anemia, chemotherapy agents, corticosteroids, hypovolemia, hypoxia, malnutrition, obesity, smoking, stress, recent surgery lasting more than 3 hours, trauma and any underlying pathology (diabetes, arthritis, etc.) (Vap & Dunaye, 2000). Local factors that may hinder wound healing include excessive moisture, mechanical stress, presence of drains, pressure, suture material, use of antiseptics and use of radiation (Vap & Dunaye, 2000). Any necessary laboratory tests may also be ordered to help determine a complete health picture of the person and these include a complete blood count, hemoglobin, hemoglobin A1c, hematocrit, prealbumin, lymphocyte count and electrolytes (Singh, Armstrong & Lipsky, 2005).

The wound must be visually examined which often includes wound measurements, a complete description of the wound documented in the chart and a picture of the wound. In addition, a comprehensive history of the wound, treatment options already tried and other clinicians who have examined and/or treated the wound. A basic nutritional assessment must be completed to include the person's height, weight and body mass index because adequate

nutrition is important to wound healing. Additional diagnostic tests may be ordered that include monofilaments to test for neuropathy in diabetic foot wounds, doppler studies for venous leg ulcers, venograms, arterial studies, and measures of oxygen saturation (Milne & Houle, 2002).

Chronic & Acute Wounds

An outpatient WCC frequently cares for patients with both types of major category of wounds: chronic and acute. A chronic wound is generally defined as a wound that fails to progress over a period of 30 days (Mustoe, 2004). Chronic wounds are generally attributed to inadequate blood supply in the tissue, repeated and prolonged insult to the tissue and underlying pathological processes; for example, diabetes. These wounds primarily affect people age 60 years or greater and most frequently include pressure ulcers, venous and arterial ulcers (Mustoe, 2004).

A pressure ulcer is localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear (NPUAP, 2011). A venous ulcer occurs in the lower extremities (calf region) as a result of edema from venous insufficiency in patients who have heart, renal and/or hepatic failure (Valencia, Falabella, Kirsner & Eaglstein, 2001). Arterial ulcers also occur in the lower extremities (toe, foot & malleolus) as a result of impaired blood flow that causes tissue ischemia and necrosis from peripheral artery disease and many times, diabetes (Hooi et al., 2001).

An acute wound is generally defined as a wound from a recent surgery, trauma and/or a pressure ulcer that has been present for less than 30 days (Arroyo-Novoa et al. 2009). Acute wounds normally proceed to healing, without complication, because of this normal course of events: an injury disrupts blood vessels, followed by blood clotting which stimulates the release of growth factors to initiate the wound healing process. Examples of acute wounds include

abrasions, cuts, bites, stab wounds, first and second degree burns, incisions and grafts (Clark, 2002).

Treatment of Wounds

An accurate patient history and wound assessment serves as the foundation to selecting the correct course of treatment to enhance wound healing. The first step in preparing the wound bed for treatment includes cleansing the wound, typically with normal saline; in the outpatient setting, this can be done by a nurse using high pressure irrigation with a 35-ml syringe and a 19 gauge angiocath with saline. Wound cleansing can also be incorporated into the patient's home regimen by having the patient remove the dressing before or during showering. This can effectively cleanse the wound with warm water and effectively increase oxygen perfusion (Wysocki, 2002).

Debridement of a wound is useful to remove necrotic, devitalized tissue and surface bacteria that inhibits growth factors. If necrotic tissue is not removed, endotoxins are released that sustains a prolonged inflammatory process (Steed, Donohoe, Webster & Lindsley, 1996). There are a number of methods used to debride a wound and one example is a chemical debrider that uses enzymatic properties to remove necrotic tissue within 15 to 30 days (Bates-Jenson, 1998). Sharp debridement is the most rapid method and may be the most appropriate for removing areas of thick, adherent eschar; even with signs of cellulitis or sepsis present (Bates-Jenson, 1998). Small wounds may be debrided in an outpatient setting with larger wounds requiring a surgical procedure.

Pulsatile lavage is a portable method used to debride wounds in the outpatient setting, long term care, acute care and home health. This is a form of hydrotherapy that uses a hand held, gun-shaped irrigation device that is placed directly against the wound that delivers a high-

pressure irrigation with a built in suction to remove the irrigant and debris (Morgan & Hoelscher, 2000). The use of sterile maggots for debridement was widely used before the 1940's, however, it is used infrequently with the introduction of antibiotics. Maggot therapy is not widely accepted by patients on a routine basis, although the outcomes note complete debridement of the wound bed usually within 48 hours (Sherman, 1998). In this case study, the outpatient WCC and the hospital associated with the clinic uses maggots in the inpatient setting with results of complete debridement within 48-72 hours.

The use of negative pressure therapy can be used in acute, outpatient, long term and home care settings. This therapy uses mechanical action of sucking pressure to stimulate granulation tissue growth, reduce edema and control wound drainage. This occurs by using a specialized medical grade foam dressing with a catheter that is embedded in the wound that is hooked to a device that applies negative pressure to the wound. In a study conducted by de Leon et al. (2009), with a total sample size of 51 patients (36 using negative pressure therapy and 15 using non-negative pressure therapy), there was a statistical significance (P=0.01) of greater reduction of the wound bed between the negative pressure therapy group compared to the non-negative pressure therapy group. This translated to an average cost per cubic centimeter reduction in volume of \$11.90/cm^3 for the negative pressure therapy group compared to \$30.92/cm^3 for the non-negative pressure therapy group (de Leon, et al., 2009). In this case study, the outpatient WCC uses negative pressure therapy 38% of the time in the care of chronic and acute wounds.

Hyperbaric oxygen therapy is defined as high-dose oxygen inhalation therapy in which a person breathes 100% oxygen inside a pressurized hyperbaric chamber (Sheffield & Smith, 2002). The most important effect of hyperbaric oxygen is to increase the partial pressure of

oxygen in all the tissues of the body. At a pressure higher than the normal atmospheric pressure, oxygen behaves like a drug with specific results that improves the oxygen environment necessary for wound healing, diminish tissue edema and improve circulation. The number of hyperbaric treatments can vary, according to protocol, and can range from as few as 6 to as many as 40 treatments based upon the complexity and size of the wound(s).

Topical agents for wound care may come in many forms and these include silver impregnated dressings, tissue engineered human skin equivalents and antibiotics. Silver impregnated dressings are relatively inexpensive, reduce the biofilm (a slimy polysaccharide covering of the wound that impairs healing) and need to be changed every 3-5 days. Tissue engineered human skin equivalents (Apligraf, Organogenesis) contain characteristics of both the dermis and epidermis to promote growth factors and has shown to be very effective in the treatment of diabetic wounds and venous ulcers (Frykberg, 2000). However, these engineered tissues are expensive and the co-pay for the patient, sometimes hundreds of dollars, often is financially unfeasible. Topical antibiotics are used to decrease the local bacterial colonization in both burn wounds and pressure ulcers (Pruitt, McManus, Kim, & Goodwin, 1998). However, with the recent development of more sophisticated dressings, the use of topical antibiotics is used infrequently.

Nutrition is important to maintain normal skin integrity and serves as a necessary component to wound healing. An adequate intake of protein, carbohydrates, fats, vitamins and minerals consistent with the daily recommendations is essential and an excess of vitamins has not been shown to improve wound healing (Thomas, 2001). Clinicians need to be alert to inadequate nutrition in older individuals, especially those who live alone. Banks, Graves, Bauer & Ash (2010) states thirty to fifty percent of hospitalized patients have evidence of malnutrition

that occurs in both underweight and overweight people; this is why it is important for the clinician to order a prealbumin laboratory test to ensure the person has adequate protein stores for wound healing.

Case Study

An outpatient WCC, affiliated with a large acute care hospital, is located in the Pacific Northwest. The clinic has three patient rooms that are equipped with a bariatric reclining chair that can tolerate patient weights up to 400 pounds each. The clinic is open during regular business hours, five days a week and consults on average, a total of 92 patient visits weekly. In this case study, the outpatient WCC provides care 72% of the time to patients with chronic wounds. In July 2008, a primary care physician who frequently refers patients to the clinic, was attempting to schedule an appointment for one of his patients with a complicated chronic wound and was informed the first available appointment was more than six weeks away. The physician contacted the new Nurse Manager, a Clinical Nurse Specialist (CNS), to discuss his frustration of long wait times for patients who need an appointment sooner than six weeks.

Patient Example

The patient referred to the outpatient WCC was a 68 year-old Caucasian female who developed a diabetic foot ulcer on her left foot. She arrived to the clinic by herself and did not appear to be in any distress. The patient stated she worked as a security guard and was on her feet for most of the 10 hour shifts she worked, four days a week. She had developed a large blister on the left ball of her foot that turned into an ulcer over the last three months. The patient was initially followed by a podiatrist who had provided the patient with a walking boot, debrided the wound using a sharp curet and placed the patient on the antibiotic Bactrim for possible

infection. Unfortunately, the wound was not improving, so the patient's primary care physician referred her to the outpatient WCC.

The patient was an excellent historian and her medical history included type two diabetes for the last 15 years with the complication of neuropathy in her lower extremities, hyperlidemia, arthritis and the only surgery that occurred "many years ago" was a hysterectomy. Her current medications included: Metformin 1000mg twice daily, Glipizide 5mg once daily, Vicodin 5/500 as needed for foot pain, and a multivitamin once daily. Medication allergies included codeine and sulfa.

The patient had a history of smoking two packs a day of cigarettes and was a 'heavy drinker' for thirty years before quitting both habits in 1999. Past family medical history included a brother that died from cardiomyopathy and her mother was diagnosed with diabetes. She denied any intravenous drug use. The patient was married and lived in an apartment with her husband for the last twenty years. The patient's height was 66 inches and her weight was 186 pounds with a body mass index of 30, which was considered obese.

The patient's vital signs upon arrival to the clinic were: blood pressure 140/90, heart rate 88, respirations 20, afebrile, and a blood sugar of 236 mg/dl. Physical assessment of the patient was negative for all body systems except the lower extremities. She had evidence of varicose veins in both lower extremities and mild edema in her left extremity. She had palpable distal pulses in both lower extremities and the monofilament testing bilaterally resulted in 0 out of 10; the patient could not detect/sense any of the 10 locations on her feet. She had a significant ulceration on the distal plantar aspect of her left foot at the base of the 2^{nd} through the 4^{th} toes and measured 2.4cm x 1cm x1 cm. The ulcer also had significant undermining from 11 o'clock

to 5 o'clock, approximately 0.6cm, over 50% slough covered the base of the wound and a significant callus around the ulcer.

Her laboratory data from three months prior had revealed a wound culture that grew MRSA, which was sensitive to sulfa. A hemoglobin A1c was 10.1 (normal: less than 7) and her blood sugar was 339 mg/dl (normal: 70-120). Electrolytes, creatinine, white count, hemoglobin and hematocrit were within normal range. The WCC physician ordered a prealbumin to check her nutrition level, a hemoglobin A1c since it had been three months from her last check and she had started taking the medication Glipizide within the last two months, an X-ray of the left foot to check for osteomyelitis and a noninvasive arterial study given her history of diabetes.

The WCC physician debrided the ulcer wound bed using a sharp curet and removed a significant amount of the callus surrounding the ulcer. There was some bleeding that resolved with compression. The wound was dressed with Iodosorb and mild compression was applied using a Tubigrip dressing. The physician discussed with the patient that tight control of her blood sugar was critical to healing this ulcer and her sugars must be under 150mg/dl each day. She may need to increase the Glipizide dose or begin using insulin to provide better control; the WCC physician was to follow-up with her primary care physician regarding this topic. The patient was also instructed that offloading her left foot was very important to allow the ulcer to heal and she declined the use of a wheelchair and crutches; she would continue to use the walking boot only. Lastly, the patient was provided a brochure on nutrition and counseled on eating the necessary nutrients, especially protein in her diet for wound healing.

Within the first week of receiving treatment at the clinic, the patient was laid off from her job as a security guard that resulted in her primary medical insurance changing from a commercial payer to Medicare. The payer mix for the clinic averaged each month 55%

Medicare, 15% Medicaid, 20% Commercial, 5% uninsured and 5% worker's compensation. With this type of reimbursement, the clinic consistently operated in the red each year, however, being affiliated with the hospital, the clinic doors remain open because the hospital views this clinic as a necessary community service.

Opportunities for Improvement & Action Taken

The CNS, who recently began managing the outpatient WCC in June 2008, made the decision to meet individually with all nine clinic staff and talk to a few of the physicians who referred high volumes of patients to the clinic to help determine opportunities for improvement. As a result of these meetings, there were three opportunities identified to improve the quality of patient care received at the clinic: timely appointments scheduled for first time patients, streamline products and usage, and establish quality measures for patient and staff satisfaction.

First Improvement: Establish Timely Patient First Time Appointments

According to each of the physicians who referred patients to the clinic, first time patient appointments averaged between four to six weeks before the patient was seen in the clinic and although the wounds were not classified as 'urgent', waiting a month or longer was viewed by the physicians as a 'delay in treatment'. There were four physicians employed in the outpatient WCC on a part-time basis, 5 wound care nurses who also worked part-time and one front office assistant who worked full-time. New patients were consulted on by the physician and nurse and the physician consulted with the patient upon discharge from the clinic; patient visits after the initial consult and before discharge was provided by a registered nurse (RN).

Action Taken

The CNS, WCC physicians, RNs and the front office assistant met four times in two months to discuss improving the amount of time it was taking to schedule a first time patient

appointment in the clinic. The CNS facilitated the meetings and the team initially brainstormed all possible ideas for improvement and then narrowed the ideas down to three: more frequent physician follow-up with clinic patients, create a patient welcome letter that clearly stated patient responsibilities that patient's were held accountable to (16% of patients were showing up late or not at all) so the wound would heal in a timely manner, and revising the patient referral form that was completed by the referring clinician. The WCC physicians agreed to follow-up with patients every two weeks after their initial clinic consultation to ensure the wound was progressing; if the wound was not progressing, changes to the plan of care was made in collaboration with the patient, physician and RN. This was viewed as a positive change by the RN's because it provided a mini patient care conference every two weeks to help ensure the patient was progressing according to the plan of care.

The CNS drafted a patient letter, outlining specific responsibilities of patient's who choose to become a clinic patient and these included: arriving on time for their scheduled appointments, diabetic patients tracking their blood sugar results each day, pre-medicating themselves prior to the appointment, as needed; and following their plan of care developed by the physician, nurse and patient. The team reviewed the draft, made minor changes and the information was then shared with each new patient over the telephone when their first appointment was being scheduled. In addition, the RN had the patient read the document (Attachment A) during their first appointment, sign the letter and was provided a copy, with the original copy placed in their chart; this process was also implemented with existing clinic patients. Within three months of implementing this new process, the percent of patients showing up late or not at all to their appointment decreased to three percent.

The CNS reviewed the referral form that was completed by each referring clinician and added additional information requirements that included patient's weight, BMI (to ensure the patient chair can accommodate their weight of 400 pounds or less), laboratory values that needed to be completed *prior* to the appointment, ambulation status and if the patient was able to provide their medical history. By adding this information to the form, the clinic could better prepare for the patient appointment and prevent a potential delay in treatment by having the basic laboratory results. The team approved the changes and the front office assistant sent copies of the revised form (Attachment B) to each of the referring physicians, accompanied by a letter explaining the changes that was signed by the clinic Medical Director and Nurse Manager. Within six months of implementing these three changes, this resulted in first time patient appointments being scheduled within two weeks of receiving the referral rather than four to six weeks. These changes allowed the clinic to consult on average, 115 patients weekly (a 20% increase) from the 92 patients per a week that were originally being seen in the clinic.

Second Improvement: Streamline Products and Usage

The CNS conducted random chart audits that represented 10% of the current clinic patients to review the types of products being used on the various wounds, frequency of product use and product changes by staff. In addition, further information was obtained by Materials Management in regards to current products that were pared in the clinic versus special order products and a review of the clinic budget, specifically, the line item designated for wound care products for the last three years. What was discovered was that the clinic budget for supplies had increased by almost 10% over the last three years and depending upon the RN who was caring for the patient, each RN had their 'favorite' wound care products they liked to use. For example,

the clinic pared 6 different brand names of foam dressings; all performing the same function, however, the different brands provided different sizes of the dressing and varied in cost.

Action Taken

The CNS scheduled a total of six meetings over six months with the front office assistant (who was responsible for ordering all wound care products) and representation from the RNs and physicians to discuss the topic of streamlining products and usage based on stewardship and quality patient care. The team reviewed the information provided by Materials Management, line item by line item to determine which product classifications to keep (primary dressings, secondary dressings, barrier creams, etc.) and within each classification, which products to keep, based on the evidence, with no more than a total of two products, from each classification that can be used by all staff. The recommended changes were presented at a joint RN and physician staff meeting and approved with very little discussion. Within six months of revising the clinic products, there was a 21.7% reduction in budget or $24,948 cost savings.

Third Improvement: Improve Patient & Staff Satisfaction

Staff Satisfaction: One theme identified in the initial meetings with staff and the CNS was their lack of satisfaction with their job and the lack of appreciation by management to recognize them for doing a good job. Reasons provided for their lack of satisfaction related to having clinic decisions made only by management and without staff input, lack of communication by management in regards to clinic changes and really no way to formally recognize each other for doing a good job.

Patient Satisfaction: The clinic was providing patients a survey that was created by the staff to solicit feedback on the patient care experience. Unfortunately, the survey was handed to

the patient randomly, infrequently and there wasn't any one person designated to review the surveys and provide a summary to staff during a designated timeframe (i.e. quarterly) so staff could improve aspects of the patient care experience. In addition, the CNS was receiving, on average, two to three patient complaints each week related to clinic operations and/or care received by staff.

Action Taken

Staff Satisfaction: Staff was heavily involved with improving the timeliness of scheduling first time patient appointments and with streamlining clinic products. In addition, the CNS provided funding for nurses to study for and take the national wound care certification test which increased the number of certified nurses from two (40%) to five (100%). During the monthly staff meetings, time was allocated to recognize staff for doing an outstanding job and the CNS recognized one person monthly by providing them a hand written thank you note and $5 gift card to the local coffee shop; in addition, staff were also provided time to recognize each other, as needed, for doing a good job. Comparing the 2009 staff survey to 2008 (that is conducted by Human Resources for all departments), staff were extremely satisfied with their organization as a place to work at 92% (up from 68% in 2008), staff would recommend their employer to others who needed healthcare at 92% (up from 79% in 2008) and staff feel appreciated for the work they do at 75% (up from 57% in 2008).

Patient Satisfaction: The clinic began providing a survey to discharged patients from Press Ganey which was the survey choice used for inpatients and from consultation from the Studer Group, a leading organization that had contracted with the hospital to improve patient and staff satisfaction. The survey was mailed to discharged clinic patients from Press Ganey and returned to Press Ganey for tabulation. The clinic chose to primarily focus on one survey

question that summed up the patient care experience – Likelihood to Recommend the Clinic to Others. In 2009, the clinic achieved the 62nd percentile for this question and in 2010, improved this score to achieve the 91st percentile which clearly demonstrated improvement from the patient's perspective. In addition, the CNS began to track and trend data for the major category of wounds the clinic provided care for and once again, improved patient care outcomes were achieved in January 2010 compared to 2008, using the national benchmark of 300 U.S. WCCs using the software Wound Expert (Table 1).

Conclusion

As important as it is to accurately assess the wound and the medical history of a patient, it is equally important to ensure the WCC is providing quality care to each patient in a cost effective manner. This is even more important to outpatient WCCs as the volume of Medicare and Medicaid patients are on the rise and reimbursement is on the decline. Using the improvements from one patient case study, the outpatient WCC was able to positively impact the quality of care received by patients in terms of improved healing rates, more timely first patient appointments, streamlined products and improved patient and staff satisfaction.

Attachment A

Dear Wound Care Patient:

Thank you for choosing the Outpatient Wound Care Clinic as a healing environment for your wound and skin care needs. Our staff is committed to providing you with excellent service and skin care during each patient appointment.

In order to best serve you, we believe your responsibility for your care includes:

1. **Arrive on-time for each patient appointment.** It is important to arrive at least 15 minutes early for each appointment to ensure staff has the time to provide timely care and education to each patient. When scheduling your appointment, please take into consideration traffic, parking and weather. When a patient is late for an appointment, the clinic staff may need to re-schedule the appointment.
   If you need to cancel an appointment, please call the clinic at (503) 215-5545 at least 4 hours in advance of your appointment.
   A patient who misses, cancels or does not show for 2 appointments within 30 days will need to speak with the Clinic Manager prior to scheduling another appointment.

2. **Diabetic Patients Need to bring their Daily Journal to Each Wound Care Visit.**
   To help ensure staff is monitoring your wound's progress, it is important to test your blood sugar daily. Your blood sugar needs to be tightly controlled each day at 150mg/dl or less. We need each diabetic patient to keep a journal each day of your blood sugar levels and share this information with the wound care staff at each appointment.

3. **Pre-medicate yourself for dressing changes.** It is important to ensure each patient is comfortable during their dressing change so the clinic encourages each patient to pre-medicate themselves prior to painful dressing changes. If you are take a pain pill to help control your pain, please remember you cannot drive yourself to your clinic appointment.
   If you need pain medication, it is the responsibility of the patient to receive pain medication from their primary doctor or the doctor who is referring the patient to the wound care clinic.

4. **Follow your plan of care.** The doctor and nurse will work with you to determine a plan of care to treat your wounds. It is important that you follow this plan of care at home too.

5. **Do not wear perfume or cologne to your scheduled appointment.** Many patients and staff have acquired skin and smell sensitivities in the clinic that cause allergic reactions. We request that you do not wear any perfume or cologne prior to your appointment.

If you have any questions regarding the care you are receiving at the clinic, please talk to your nurse or you are welcome to call the clinic at (503) 215-5545.

_____ _____

Patient Name Date

Attachment B

NEW PATIENT INFORMATION
WOUND CARE CLINIC

Patient Name: _____ Date: _____

Address: _____ Birth date: _____
_____ Phone: (____)_____

Primary Physician:	**Phone: (____)_____** **Fax: ( )**
Referring Physician:	**Phone: (____)_____** **Fax: ( )**

Diagnosis: _____

ICD #	**Medical Record:**
Insurance:	**PLEASE HAVE PATIENT BRING ALL MEDICATION BOTTLES OR A COMPLETE LIST OF MEDICATIONS TO THEIR FIRST CLINIC VISIT**

Does the patient have the following:

History of diabetes? Yes___ No___ If yes, managed with: Insulin ___ Oral ___
Most recent Blood Sugar: _____ mg/dl
***Blood sugars must be controlled at <150mg/dl to be admitted to the clinic**

Has MD evaluated wound? Yes ___ No ___
If yes, current treatment: _____

_____

Ambulation status: □-Independent □-Walker □-AMR transport □-Wheelchair
Can patient self transfer: □-Yes □- No □- NA
If no, does staff need to use a hoyer Lift: □-Yes □- No □1 person assist □2 person assist

Patients weight _____ BMI □-<18.5 □-18.5-24.9 □-25-29.9 □-30 and greater

Oriented to time & place? Yes ___ No ____
Can patient provide their medical history: □-Yes □- No

Is English their first Language? □-Yes □- No Does patient need an interpreter: □-Yes □- No

Laboratory Results: Prealbumin: _____ Hemoglobin A1C: _____
***Lab results must be drawn prior to referral to the clinic**

Table 1

Outpatient WCC Data Compared to the National Benchmark
(Wound Expert used by 300 U.S. clinics)

2009 Data

Etiology	Avg Days Wounds Healed January 2009	Avg Days Wounds Healed January 2009 Benchmark
Arterial	**65**	62
Diabetic Foot	**69.8**	56
Ischemic	24	28
Pressure Ulcer Unstageable	45	58
Pressure Ulcer Stage II	22.6	50.7
Pressure Ulcer Stage III	**151.7**	124.8
Pressure Ulcer Stage IV	**228**	225.8
Surgical	54.5	70.9
Trauma	**49.5**	46.4
Venous Leg Ulcer	**92.8**	75.1

2010 Data

Etiology	Avg Days Wounds Healed January 2010	Avg Days Wounds Healed January 2010 Benchmark
Arterial	56	62
Diabetic Foot	49	56
Ischemic	24	28
Pressure Ulcer Unstageable	43	58
Pressure Ulcer Stage II	21	50.7
Pressure Ulcer Stage III	122	124.8
Pressure Ulcer Stage IV	**226**	225.8
Surgical	54.5	70.9
Trauma	**47**	46.4
Venous Leg Ulcer	**80**	75.1

References

Arroyo-Novoa, C.M., Figueroa-Ramos, M.I., Miaskowski, C., Padilla, G., Stotts, N. & Puntillo, K. (2009). Acute Wound Pain: Gaining a better understanding. *Advances in Skin & Wound Care, 22*(8):373-380.

Banks, M.D., Graves, N., Bauer, J.D. & Ash, S. (2010). The costs arising from pressure ulcers attributable to malnutrition. *Clinical Nutrition, 29*(2):180-186.

Bates-Jenson, B.M. (1998). Management of necrotic tissue. In C. Sussman & B.M. Bates-Jenson (Eds). *Wound Care: A collaborative practice manual for physical therapists and nurses* (pp. 139-158). Gaithersburg, MD: Aspen.

Clark, J.J. (2002). Wound Repair and Factors Influencing Healing. *Critical Care Nursing Quarterly, 25*(1):1-12.

De Leon, J.M., Barnes, S., Nagel, M., Fudge, M., Lucius, A. & Garcia, B. (2009). Cost-effectiveness of Negative Pressure Wound Therapy for Postsurgical Patients in Long-term Acute Care. *Advances in Skin & Wound Care, 22*(3):122-127.

Frykberg, R.G. (2000). Diabetic foot disorders: A clinical practice guideline. *Journal of Foot & Ankle Surgery Supplement, 39*(5):1-6.

Hooi, J.D., Kester, A.D., Stoffers, H.E., Overdijk, M.M., van Ree, J.W. & Knottnerus, J.A. (2001). Incidence of and risk for asymptomatic peripheral arterial occlusive disease: a longitudinal study. *American Journal of Epidemiology, 153*:666-672.

Milne, C. & Houle, T. (2002). Current Trends in Wound Care Management. *Orthopaedic Nursing, 21*(6):11-18.

Morgan, D. & Hoelscher, J. (2000). Pulsed lavage: Promoting comfort and healing in home care. *Ostomy/Wound Management, 46*(14):44-49.

Mustoe, T. (2004). Understanding chronic wounds: a unifying hypothesis on their pathogenesis and implications for therapy. *American Journal of Surgery, 187*(5 Suppl): S65-70.

National Pressure Ulcer Advisory Panel (2011). Retrieved from http://www.npuap.org/pr2.html on March 28, 2011.

Pruitt, B.A., McManus, A.T., Kim, S.H. & Goodwin, C.W. Burn wound infections: Current status. *World Journal of Surgery, 22*:133-145.

Sheffield, P.J. & Smith, P.S. (2002). Physiological and pharmacological basis of hyperbaric oxygen therapy. In Bakker, D.J. & Cramer, F.S., eds. *Hyperbaric Surgery Perioperative Care* (pp.63-104). Flagstaff, AZ: Best Publishing.

Sherman, R.A. (1998). Maggot therapy in modern medicine. *Infections in Medicine, 15*(9):651-656.

Singh, N., Armstrong, D.G. & Lipsky, B.A. (2005). Preventing foot ulcers in patients with diabetes. *Journal of the American Medical Association, 293*:217-228.

Steed, D., Donohoe, D., Webster, M.W. & Lindsley, L. (1996). Effect of extensive debridement and treatment on the healing of diabetic foot ulcers. *Journal of the American College of Surgeons, 183*:61-64.

Thomas, D.R. (2001). Improving outcome of pressure ulcers with nutritional interventions: a review of the evidence. *Nutrition, 17*:121-125.

Valencia, I.C., Falabella, A., Kirsner, R.S., & Eaglstein, W.H. (2001). Chronic venous insufficiency and venous leg ulceration. *Journal of the American Academy of Dermatology, 44*:401-421.

Vap, P.W. & Dunaye, T. (2000). Pressure ulcer risk assessment in long-term care nursing. *Journal of Gerontological Nursing, 26*:37-45.

Wysocki, A. (2002). Evaluating and Managing Open Skin Wounds: Colonization Versus Infection. *Advance Practice in Acute and Critical Care, 13*(3):382-397.

Healthcare Clinicians & African American Patients: A Relationship Based on Mistrust

Victoria J. Hays

Oregon Health & Science University

Doctor of Nursing Practice Program

Abstract

A critical factor in African Americans receiving the needed health care is dependent on a trusted relationship with their prescribing clinician and unfortunately, this infrequently occurs. Three reasons were cited why African Americans mistrust their health care provider: 1. Unfavorable previous experiences when the physician did not explain in detail the health care issue. 2. An unwelcoming atmosphere in person or over the telephone. 3. Feelings that the physician did not have an interest in helping or treating them. This translates to a disparity in the delivery of care by the clinician and the receiving African American patient.

Additionally, medical providers may negatively influence ethnicity and the relationship between the patient and clinician via three interconnected ways. First, providers may communicate lower expectations for disadvantaged patients. Secondly, the patient may misunderstand or lack of understanding by the provider in regards to health promotion and disease prevention behaviors. Lastly, providers are the gatekeepers to health care services and African Americans may experience differential access.

Solutions to resolving this mistrust between the African American patient and prescribing clinician include having both parties examine their own bias, prejudices, beliefs and value system to begin to understand how behavior impacts communication. In addition, provide educational courses to providers *and* patients to promote "honest dialogue" and lastly, additional quantitative and qualitative research is needed to better understand the disparity and develop tools to equip clinicians and patients to build better relationships in the health care setting.

African Americans have the highest morbidity and mortality rates of all ethnic minority groups in the U.S. (Barton, 2007; IOM, 2003). Additional studies report between 1991- 2000, age-adjusted mortality rates for Caucasian male and females were an average of 24% - 29% lower than those of African Americans (Woolf, Johnson, Fryer, Rust & Satcher, 2004). A study of 1.7 million patients, African Americans were significantly less likely than Whites to receive a major therapeutic procedure in almost half of the 77 disease categories, regardless of insurance status, age and severity of illness (Harris, Andrews, & Elixhauser, 1997). This ethnic disparity is often times explained by socioeconomics, the environment and cultural differences. However, a critical factor in African Americans receiving the needed health care is dependent on a trusted relationship with their prescribing clinician and unfortunately, trust, on both sides, continues to be a struggle for the patient and clinician.

Although legalized segregation of African Americans has been eliminated in the U.S. for many years, discrimination continues to inflict this population in many sectors and this includes health care; more specifically, the relationship with their prescribing clinician. In addition, it is challenging to ignore history and the African Americans previous experience related to the Tuskegee syphilis experiment where there was a lack of informed consent provided to these men and the participants were blatently denied treatment for their syphilis. More recently, efforts to reduce or eliminate disparities among ethnic groups in the U.S. have become a priority of the National Institute of Health and the Department of Health and Human Services because these institutions recognize ethnic disparities can often result in limits on access to health care services and physiological responses to the chronicity of discrimination (Cain & Kington, 2003).

This paper will examine current literature from the African American perspective as well as the perspective from the prescribing clinician on the topic of historical mistrust in the health care setting.

African American Perspective

Peterson (2002) defines trust as, "an expectation that the word or promise of another person or group can be relied upon. In addition, a key element of trust facilitates open communication and an exchange of information." Trust is the basic foundation for any healthy relationship and this is especially important when we are discussing the health and well being of patients. Trust is often associated with loyalty, listening and in health care, discussing a plan of care that is mutually agreed upon between the patient and clinician.

It is difficult to ignore the historical health care experiences African Americans have endured and the feelings of being devalued by a White society that continues to discriminate based on race, income level, education, housing, insurance status and compliance with health care programs. According to a study conducted by Hughes, Sellers, Fraser, Teague and Knight (2007), they found three reasons why African Americans mistrust their health care provider: 1. Unfavorable previous experiences when the physician did not explain in detail the health care issue. 2. An unwelcoming atmosphere in person or over the telephone. 3. Feelings that the physician did not have an interest in helping or treating them. This translates to a disparity in the delivery of care by the clinician and the receiving African American patient.

The first reason cited above was a recent concern for an outpatient Wound Care Clinic in Portland, Oregon, that consists of the following patient demographics: 61% Caucasian, 10% African American and 29% other ethnic groups. There are five physicians and seven nurses who are employed in the clinic and over the last 12 months, the staff (physicians and nurses) has

strived to improve patient satisfaction and patient compliance with the plan of care. As a result, the staff revised the patient consent form to incorporate verbiage so patients receive an explanation of their condition, treatment options are discussed with the patient and the patient is provided time to ask questions of their health care team (physician and nurse present in the room). The consent is then signed by the patient after each of these elements has been achieved.

In addition, a patient letter was developed to specify the expectations in becoming a patient of the clinic. The letter is verbally discussed with all new admission patients and the patient is required to sign the letter, thereby, accepting the terms. A copy is provided to the patient and the original signed copy is added to their chart. As a result of these changes, patient satisfaction has increased from 87% to 93% over the last 3 months and patient noncompliance with the plan of care has decreased from 9% to 3% over this same time period. By ensuring patients have a clear understanding of their diagnosis and treatment options, this has facilitated improved compliance with the plan of care that is developed by the care team: patient, physician and nurse.

Despite some of these changes, Carlson and Chamberlain (2004) make a strong argument detailing a perception gap and health disparity gap between the Caucasian and African American populations. Within our own communities and nationally, there has been information and education provided on the topic of cultural competence, however, “there has been very little honest dialogue about how race and racism influences health.” Carlson and Chamberlain (2004) also share, from the African American perspective, there has been a long history of distrust, frustration and anger with the Caucasian community. Even successful African Americans share these same thoughts. And this history of distrust does not stop at the entrance of our hospitals or clinics. Often times, according to Carlson and Chamberlain (2004), health care workers may see

a young African American adult as one that may belong in jail rather than a person who may need health care. Unfortunately, this speaks to personal bias, prejudice and beliefs of health care workers that determines our behavior, right or wrong, when interacting with individuals, especially ethnic individuals in our daily practice.

Cooper and Roter (2003) confirm that race, class, education, culture, gender and age do influence how patient care is delivered to individuals. Just as patients bring their own set of feelings, life experiences, culture and expectations to the medical appointment, the clinician also does the same. And these factors all influence how the clinician and patient verbally and nonverbally communicate with one another. Often times, in the outpatient Wound Care Clinic, staff would be observed standing near a seated patient, causing the patient to look up at the staff during the discussion for their health care issue. Soon after, every treatment room was equipped with enough chairs so the clinician could sit down and talk with the patient, not at the patient. Not only is this a form of respect for the individual, this demonstrates to the patient that the clinician is interested in helping and treating the patient as a person.

Clinician Perspective

Medical schools have offered cultural competence and social sensitive courses to their students since the mid 1970's and two examples of such schools include the University of California Davis and Harvard Medical School. Although various medical schools throughout the U.S. have created formal and informal courses as part of the curriculum, rarely, however, "do students have the time to critically analyze the profession and institutions of care to examine how medical culture, quality of care and research practices are shaped or how medical culture can produce processes that evolve into racism in clinical practice" (DelVecchio Good, Good & James, 2004). Medical students are taught medicine: diagnose, treat and evaluate outcomes;

unfortunately, the medical model does very little to take into consideration the population differences among ethnic groups and the training necessary to develop a trusting relationship between the patient and clinician to achieve positive outcomes.

Physicians are taught to be highly efficient and to determine a plan of care for their patient during a routine 15 minute office appointment. However, this is difficult to achieve when a typical patient presents with this scenario: a patient is having difficulty controlling their diabetes and their blood pressure medication remains on the pharmacy shelf because of lack of health insurance from a job loss two months ago. Physicians are severely challenged to provide care to these socially complex patients and problems because they do not fit into the medical model framework that is taught to physicians in school. Coupled with a lack of understanding the ethnic minority patient, in this case, the African American, a goal of delivering adequate care will be a challenge, at best.

According to Van Ryn and Fu (2003), public health and medical providers may negatively influence ethnicity and the relationship between the patient and clinician via three interconnected ways. First, providers may negatively influence patients intentionally or unintentionally in how the patient views themselves compared to the rest of the population. This can result in the provider communicating lower expectations for disadvantaged patients than for more advantaged patients. Geiger (2004) identifies areas of medicine where minority patients were offered and/or treated with subordinate procedures when compared to Caucasians. For example, African Americans were significantly more likely to have amputations and less likely to receive limb-sparing procedures such as arterial revascularization than Caucasians. In addition, Caucasian patients were more likely to be treated with heart sparing medications and

cardiac catheterization while African Americans patients were less likely to be offered thrombolytic drugs or revascularization procedures.

Geiger (2004) provides a possible reason for these health disparities and suggests that discrimination in medicine occurs frequently, subconsciously and usually unintentionally by providers who are committed to anti-discrimination principles. When these clinical decisions were made by physicians that resulted in sub-standard care and brought to the attention of the physician, their reaction was one of denial. This speaks to health care provider bias that may influence our decision making based on lifestyle choices, socioeconomics, cultural beliefs and the clinician's definition of health.

A second method that public health and medical providers may use to negatively influence the relationship between the patient and clinician may occur by the patient misunderstanding or lack of understanding by the provider in regards to health promotion and disease prevention behaviors (Van Ryn & Fu, 2003). This speaks to the need for the physician to present information to a patient so they can understand the basic concepts and make an informed decision. It is important for the physician to communicate using a variety of teaching methods: verbal, in writing, education video, etc. because individuals learn and comprehend information in a variety of ways.

Recently, in the outpatient Wound Care Clinic, a physician explained to a male African American patient that he needed to debride the patient's wound on his left leg; by removing the dead tissue on top of the wound with a scalpal, the wound would begin to grow new cells and heal. This particular patient was a large man and his height and weight were 6'3" and 235 pounds. The physician stated, "this won't hurt much, plus, you're a tough guy, right?" The physician did not pre-medicate the patient for pain prior to beginning the debridement. Within a

few minutes of beginning the debridement, the patient was in discomfort by his facial grimacing and clenched fists. Quietly walking into the treatment room, I distracted the patient and asked the patient if he was in pain. To make a long story short, the physician ended up injecting the wound with lidocaine and finished debriding the wound successfully. The patient left the clinic looking relaxed, smiling and thanked the staff "for such great care."

In talking to the physician after the procedure, the question was asked, "why did you not pre-medicate the patient since the area you were debriding was below the knee which has thinner skin and more nerve endings than above the knee? The physician thought because he was such a "big guy", he could tough it out and in the physicians mind, it was not a big deal. Unfortunately, this type of thinking leads to stereotyping individuals and when this occurs, people mentally assign the individual to a particular class or group, often times unconsciously and automatically, resulting in greater disparity and a relationship based on perpetual mistrust.

The last method that public health and medical providers may use to negatively influence the relationship between the patient and clinician is differential access to treatment because it is the providers who are the powerful gatekeepers to health care services (Van Ryn & Fu, 2003). An example includes kidney transplant rates and in one study, African Americans were less likely to be informed about transplantation than Caucasians and of those African Americans who wanted a kidney transplant, these patients were less likely to be referred for evaluation and placed on a waiting list than Caucasians (Ayanian, Cleary & Weissman, 1999). In additional studies, it has been demonstrated that U.S. and UK psychiatrists are more likely to prescribe antipsychotic medications to non-Caucasian patients than Caucasian patients. African Americans have been found to be less likely than Caucasians to receive treatment guideline and follow-up for mental health services (Young, Klap, Sherbourne & Wells, 2001).

The U.S. has created an incredibly complex medical system that is challenging for patients to navigate successfully. Many insurance companies require a physician referral specifically requesting the need for the referral to a specialist for a patient. This implies the patient has a primary care physician or frequents an urgent care clinic in their neighborhood who is willing to write the referral. Within the outpatient Wound Care Clinic, 47% of the patients do not have a primary care physician; the patients referred to this clinic are usually from one of three sources: local Emergency Department, community clinic, or a surgeon. Without a trusting relationship between the patient and clinician, it is very challenging for any patient, much less an African American patient, to receive the needed medical care in the U.S.

Discussion

The historical relationship between the clinician and the African American patient has been based, many times, on mistrust and the inequity of health care delivered to this ethnic population primarily by Caucasian dominated physicians. This "mistrust" has taken years to cultivate and nurture; as a result, possible solutions to this dilemma will take time to break down barriers and rebuild relationships. A first step to rebuilding the relationship includes understanding the perception gap in shifting our assumptions about the African American population (Carlson & Chamberlin, 2003). This includes examining one's own bias, prejudices, beliefs and value system so we can begin to understand our own behavior and how our behavior can impact how we communicate with African Americans and other ethnic populations. This is an important first step for providers and African American individuals to do in tandem, so we can better understand each other.

A second step to rebuilding this relationship is to provide educational courses to providers *and* patients to honestly recognize and dialogue about cultural competencies. The key

is “honest dialogue” and the importance of providing clinicians and patients with tools that empower them to successfully communicate with each other navigate the complex health care system in a positive, relational manner. Perez (2004) cites one example of how Harlem Hospital in New York created a patient program that provided on-site patient advocates to assist individuals in asking questions about their health care issues and provide ways to navigate the health care system. Too often, I believe clinicians take their medical knowledge and access to the health care system for granted; unfortunately, clinicians, often times forget our patients are reading at a sixth grade level, living paycheck to paycheck and are unfamiliar with accessing, much less using the health care system.

In partnership with an education course on the topic of “honest dialogue” in cultural competencies is the recognition of the nature of “ethnic stereotyping” and identifying disparity practices within our own practice and organization (Geiger, 2004). This is when the education course moves out of the classroom setting to a rural hospital/clinic setting for all clinicians to experience as an integral part of their residency/clinical hours in caring for ethnic populations. According to Carlson and Chamberlain, (2004), “Academic lectures on cultural sensitivity or competency only reach us on a cognitive level and it is important to find ways to connect with each other on an emotional level in order to change ingrained attitudes and behaviors.” By equipping our clinicians with tools to build relationships with our patients, mistrust will begin to be replaced with trust.

A third step to rebuilding relationships includes additional quantitative and qualitative research to provide a better understanding under what conditions providers do and do not influence ethnic disparities among African Americans in their practice (Van Ryn & Fu, 2003). In addition, this research must be conducted with communities and not on communities to ensure

the research is examining a balanced approach to the study groups: African Americans and clinicians. In addition to gaining greater knowledge in asking the "why" questions, researchers must also examine evidence-based interventions and tools to positively influence communication and trust among patients and clinicians.

The three steps proposed in this paper represent the bare essentials in beginning to understand and resolve the relational mistrust that has occurred between African American patients and clinicians in the health care setting.

References

Ayanian, J.Z., Cleary, P.D., Weissman, J.S., & Epstein, A.M. (1999). The effect of patient preferences on racial differences in acces to renal transplantation. *New England Journal of Medicine,* 341:1661-1669.

Barton, P.B. (2007). *Understanding the U.S. Service System,* Administration Press.

Cain, V., & Kington, R. (2003). Investigating the role of racial/ethnic bias in health outcomes. *American Journal of Public Health*, *93*(2), 191-192.

Carlson, E. & Chamberlain, R. (2004). The black-white perception gap and health disparities research. *Public Health Nursing, 21*(4) 372-379.

Cooper, L.A. & Roter, D.L. (2003). Patient-provider communication: The effect of race and ethnicity on process and outcomes of healthcare. In B. Smedley, A.Y. Stith, & A.R. Nelson (Eds.), *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (pp. 552-593). Washington, D.C.: The National Academies Press.

DelVecchio Good, M., Good, B. & Becker, A. Paper from Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare (2004), National Academies Press.

Geiger, H.J. (2004). Racial and ethnic disparities in diagnosis and treatment: A review of the evidence and a consideration of causes. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare,* National Academies Press.

Harris, DE., Andrews, R., & Elixhauser, A. (1997). Racial and gender differences in use of procedures for black and white hospitalized adults. *Ethnicity & Disease*. 7:91-102.

Hughes, G.D., Sellers, D.B., Fraser, L., Teague, R. & Knight, B. (2007). Prostrate cancer community collaboration and partnership: Education, awareness, recruitment and outreach to southern African-American males, *Journal of Cultural Diversity 14*(2), 68-73.

Institute of Medicine (2003). *Unequal treatment: Confronting racial and ethnic disparities in healthcare.* Washington, DC. The National Academic Press.

Kennedy, B.R., Mathis, C.C., & Woods, A. (2007). African American and their distrust of the health care system: Healthcare for diverse populations. *Journal of Cultural Diversity: An Interdisciplinary Journal, 14*(2), 56-60.

Peterson, L.A. (2002). Racial Differences in Trust: Reaping what we have sown. *Medical Care, 40*(2), 81-82.

Perez, T. (2004). The Civil Rights Dimension of Racial and Ethnic Disparities in Health Status. In , National Academies Press. *Papers from Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare* (pp. 625-663).

Van Ryn, M., & Fu, S. (2003). Racial/ethnic bias and health. Paved with good intentions: do public health and human service providers contribute to racial/ethnic disparities in health?. *American Journal of Public Health, 93*(2), 248-255.

Woolf, S., Johnson, R., Fryer, G., Rust, G., & Satcher, D. (2008). The health impact of resolving racial disparities: an analysis of US mortality data. *American Journal of Public Health, 98*S26-8.

Young, A.S., Klap, R., Sherbourne, T., & Wells, K.B. (2001). The quality of care for depressive and anxiety disorders in the United States. *General Psychiatry,* 58:55-61.

Policy Analysis: Oregon Hospital Provider Tax

Victoria Hays

Oregon Health & Science University

Abstract

Health insurance for adults and families is often times tied to employment status and for those individuals who work a part-time job or are unemployed, obtaining health insurance is often a dream, rather than reality. For the last one and a half years, Oregon has suffered with unemployment figures in double digits and prior to the economic recession, Oregon was one of the lowest unemployment states. Compared to people with private health care coverage, the uninsured individual receives less than half as much care and pays a larger share out of pocket for medical services.

Since 2004, the Oregon Health Plan was financed by a provider tax on the 25 largest hospitals (with 50 or more beds) to provide coverage for 25,000 adults with incomes below the federal poverty level. However, effective October 1, 2009, the hospital tax and funds from Medicaid Care Organization expired and on this same date, the federal government enforced new rules that deny matching funds for certain provider taxes, such as the Oregon provider tax being paid by the hospitals.

Oregon House Bill 2116 proposed to renew and increase the provider tax by the 25 largest hospitals to increase enrollment for uninsured adults *and* children who fall below the federal poverty level. With the need to provide medical insurance to additional Oregonians that move beyond this bill, Oregon has three options: 1. Do nothing and this would leave two thirds of Oregonians without health insurance. 2. Develop a communication program to better advertise safety net medical services within communities and the state. 3. Raise additional funds for health insurance via the increase of “sin” taxes associated with alcohol, cigarettes and gambling.

Policy Analysis: Oregon Hospital Provider Tax

The United States (U.S.) is rich in culture and diversity due to the many individuals and minority populations that call this country their "home". Unfortunately, if an individual lives below the federal poverty guidelines, the odds of receiving timely, quality health care is unlikely, especially if they are located in smaller, rural areas. The complex medial healthcare system in the U.S. is heavily dependent upon employer sponsored programs and unfortunately, many individuals work in a part-time position or multiple part-time positions to make ends meet which means many of these individuals are uninsured. Compared to people with private health care coverage, the uninsured individual receives less than half as much care and pays a larger share out of pocket, 35% versus 17% (Hadley, Holahan, Coughlin & Miller (2008).

Adults constitute more than 80% of the uninsured in this country and account for 87% of the uncompensated care (Hadley, Holahan, Coughlin & Miller (2008). Uncompensated care is care received but not paid for by either the uninsured themselves or by a health insurer. Often times, this is called "charity care" by hospitals who provided the care. In Oregon, the average charity care provided to patients in 2008 by hospitals was 3.6% and in 2009 (January to August) was 4.2% (See Appendix A for a complete list of hospitals) (E. Olson, CFO, Providence Portland Medical Center, Personal Communication, November 10, 2009).

The Oregonian poverty estimate for all 36 counties in 2000 was 10.6% and in 2007, the figure has risen to 13% (U.S. Census, 2008). In addition, according to *Business Oregon* (2009), 32 of the 36 counties are distressed because unemployment has exceeded greater than 8%, with Crook County well above the national average at 19.7%. Distressed counties are frequently provided funding for technical assistance, programs and projects (job assistance in all fields) to geographic areas determined to be economically distressed as prescribed by Oregon law.

Unfortunately, unemployment often equates to being without health insurance. In 2003, the percent of individuals living in Oregon without health insurance was 13.7% and in 2006, this figure had risen to 15.9%. With regards to issues of social determinants, ethnicity plays its role. Although Caucasians account for a large number of uninsured in Oregon, Hispanics account for 66% of the uninsured in 2008, over double the rate of Caucasians at 29%. In addition, Hispanics of every income and education level are less likely to have health insurance than non-Hispanic individuals (Lemmon, 2009). Nation-wide, access to health insurance from 1999-2003 was much lower for African Americans and American Indians compared to Caucasians (Agency for Healthcare Research & Quality, 2005).

African Americans have the highest morbidity and mortality rates of all ethnic minority groups in the U.S. (Barton, 2007; IOM, 2003). Additional studies report between 1991- 2000, age-adjusted mortality rates for Caucasian male and females were an average of 24% - 29% lower than those of African Americans (Woolf, Johnson, Fryer, Rust and Satcher, 2004). Additionally, a study of 1.7 million patients, African Americans were significantly less likely than Caucasians to receive a major therapeutic procedure in almost half of the 77 disease categories, regardless of insurance status, age and severity of illness (Harris, Andrews, and Elixhauser, 1997). These statistics are staggering and additional attention needs to be focused on the role ethnic disparities play in the provision or lack of provision of quality health care, especially for those in a lower income bracket.

Since 2004, the Oregon Health Plan (OHP) was financed by a provider tax on the 25 largest hospitals (with 50 or more beds) at 0.63% and matching funds from the federal government (Medicaid Managed Care Organizations (MCO)) to provide coverage for 25,000 adults with incomes below 100% of the federal poverty level ($10,400). However, effective

October 1, 2009, the hospital tax and funds from the Medicaid MCO expired and on this same date, the federal government enforced new rules that deny matching funds for certain provider taxes, such as the Oregon provider tax being paid by the hospitals. This provider tax has been critical to assist thousands of Oregon adults to receive health care benefits that otherwise would not have been provided by any other resources in the state.

Define the Context & State the Problem

Oregon House Bill 2116 (2009) proposed to renew and increase the provider tax by the 25 largest Oregon hospitals and restructure the provider tax paid by Medicaid MCO to apply to all managed care organizations in the state. In August 2009, Senate Bill 2116 successfully passed and included:

a. Increased enrollment from 25,000 to 100,000 uninsured adults below 100% of the federal poverty level will be enrolled in the OHP.
b. 60,000 uninsured children below the 200% federal poverty line will be enrolled in the OHP.
c. 20,000 uninsured children between 200%-300% of the federal poverty line now have access to subsidized commercial health insurance.
d. A 2.8% hospital tax and a 2.8% tax on commercial insurers to be paid directly to the state based on net revenue.

The goal of this bill is to reduce the number of uninsured individuals in the state. When these newly insured persons walk through the front doors of a hospital, the facilities charity care will decrease and the federally funded matched monies will actually allow about 70% of these hospitals who are responsible for paying the 2.8% tax to break even on the monies paid to the state. Oregon is not the only state to recently pass this legislation. In April 2009, Colorado

lawmakers passed a hospital tax to increase every patient's bill by 5.5% called the Health Care Affordability Act and the state will reimburse hospitals for any costs associated with implementing the fees. The result is expected to raise $600 million annually and in matching federal funds to provide coverage to 100,000 of the 800,000 uninsured Coloradans. Both of these states, with similar ideas, are attempting to reduce the number of uninsured individuals and promote healthcare to all citizens.

There are many stakeholders who have an interest in House Bill 2116. A proponent of primary importance with the ability to move his agenda is the Governor for Oregon, Theodore Kulongoski. One of Governor Kulongoski's priorities was to expand the health care for all children. According to the 2009-2011 Governor's Recommended Budget document, enacting the Governor's Healthy Kids Plan is a critical first step to providing coverage to thousands of children who otherwise would be without coverage in the next three years. In addition, the budget makes a significant investment to support the growing demand for health care services for low-income adults covered through the OHP.

For the Oregon legislature and residents, health care is a paramount issue locally and nationally because health insurance is tied to employment and when individuals are unemployed or employed at a low paying job, the likelihood of being able to afford health care insurance is not an option for these people. Two of the largest Counties, Clackamas is 10.7% unemployment and Multnomah is 11.2% unemployment (Business Oregon, 2009). The Oregon economy will benefit as the state brings in millions of dollars of federally matched funds that will result in the creation of new jobs and services for Oregon communities. According to Bill 2116, for every $1 provided by the 25 largest hospitals, the federal government will reimburse $1.66 back to the hospitals and communities.

Another powerful stakeholder and opponent of the bill includes the 25 largest hospitals who are responsible for paying the provider tax based on gross revenue. The hospitals, due to the recession over the last 18 months, have witnessed their charity care increase substantially and their reimbursements decrease (Eric Olsen, CFO, Providence Portland Medical Center, personal communication on November 10, 2009; Janiece Burger, CEO, Providence St. Vincent Medical Center, personal communication on November 16, 2009; Theron Park, CEO, Providence Milwaukie Medical Center, personal communication, November 12, 2009). Elective surgeries are slow to recover and the increase of Emergency Room (ER) visits had increased, in part, due to the H1N1 flu and because the ER is often times used as an urgent care facility for uninsured individuals. For one 485 bed facility in Portland, Oregon, their total ER visits in 2008 were 64,000 and in 2009 (from January – October), the number of visits are 62,980 with two months left in the year. Another Portland hospital, similar size, can also make this same case in regards to an increase in ER visits, especially by individuals without health insurance (J. Florea, ED Nurse Manager, Providence Portland Medical Center, Personal Communication on November 3, 2009). Lastly, smaller, rural hospitals were also stakeholders because they are exempt from paying the provider tax and will benefit from the expanded coverage of the uninsured.

Problem Statement

Too little public funding is available to insure unemployed Oregonians with healthcare insurance, therefore, individuals will not seek medical attention until the condition/disease becomes an emergency, causing an additional financial burden on tax payers.

Literature Search

According to the U.S. Census Bureau, the number of uninsured individuals nationally between 2004 and 2006 increased by 3.4 million people and the primary reason for the increase

in uninsured was the result of a decline in employer-sponsored insurance. During this same timeframe, poverty in the U.S. population increased from 11.3% to 12.7% and coverage in Medicaid and other state programs increased from 8.8% to 11.2% to provide some assistance in off-setting the number of uninsured individuals. Ethnic populations also experienced declines in employer-sponsored health insurance. For example, Hispanics accounted for more than half of the growth in the U.S. population between 2004-2006, however, Hispanics had lower rates of employer coverage insurance jobs and higher insurance rates than African Americans and Caucasians (Holahan & Cook, 2008).

The decline in employer coverage healthcare affected individuals at all income levels, however, the effect was much greater for low income adults and children. For example, between the years of 2004-2006, employer coverage fell by 6.2% for those individuals below 200% of the poverty level and 0.6% for individuals above 400% of poverty (Holahan & Cook, 2008). As health insurance becomes more expensive, it is more challenging for organizations to shift this cost back to the employees, especially for low wage positions. As a result, organizations become less likely to offer healthcare coverage. Unfortunately, it is often times this population of people who need medical care, especially for chronic health care conditions and in the case of children, early prevention programs.

Low income adults are not the only individuals affected by lack of health insurance; middle class Americans are also affected by this dilemma. High medical bills can lead to financial problems, such as bankruptcy, home foreclosure and insurmountable debt. As a result, medical debt is the second leading cause of bankruptcy (Batchis, 2005). And with many Americans living paycheck to paycheck, the choice of healthcare ranks low on the priority list

when individuals have other basic needs, such as housing, food, electricity and transportation each month.

More recently, hospitals have voluntarily begun to review their billing and collection practices. The American Hospital Association has issued guidelines for billing practices with recommendations to assist hospitals in this endeavor. For example, the Hospital Corporation of America, one of the largest for-profit hospital chains in the U.S, changed its policies in 2003, stating it would provide free care to uninsured patients whose income was twice the poverty level (Kuntze, 2008). Additionally, in New York, hospitals cannot charge uninsured patients anymore than they would charge Medicare or Medicaid (N.Y. 2807). Lastly, the former Minnesota Attorney General made agreements with over 60 hospitals to trial a new policy for two years to allow individuals earning less than $125,000 per year the same discounts provided to major health insurance companies; the policies success led the new Attorney General in 2007, to extend the agreement until 2012 (Jurand, 2005).

Funding sources for uncompensated care is subsidized by various public programs and about 75% of total uncompensated care or $42 billion dollars has been spent with the majority of monies ($18.1 billion) provided by two public programs: Medicaid and Medicare (Hadley, Holahan, Coughlin & Miller, 2008; Almgren, 2007). Medicaid provides payments to hospitals, long term care facilities and large numbers of individuals who meet or fall below the federal poverty guidelines. Medicare payments are also provided, many times to hospitals, to care for the elderly as well as many low income individuals who meet the guidelines for public assistance.

According to Hadley, Holahan, Coughlin and Miller (2008), the cost of expanding coverage to the 16% of Americans who are uninsured would add 5% to the national health

spending. This translates to over $122 billion which is an increase of almost $68 billion from just seven years ago. There are several reasons for the sharp increase in monies needed to insure all Americans. First of all, there has been a rapid increase in medical cost. Between 2001 and 2008, per capita health care spending, which incorporates changes in both price and use, grew by 53% in just seven years (CMS, 2008). In addition, the U.S. is known for its innovation and state-of-the-art medical technology, however this technology, comes with a hefty price tag that is often times passed along to the patient. For example, one hospital in Portland recently purchased a million dollar piece of robotics equipment to use in surgery and this hospital is just one of five hospitals in the U.S. to begin using this technology. Because the technology is so new, the potential benefits are unknown, however, the hospital can certainly advertise about being on the "cutting edge" with its surgery program and the pressure is on the other hospitals to follow suit, evidence or no evidence. At some point in time, the hefty price tag for purchasing, maintaining and enhancing the equipment is passed along to the consumer or patient.

A second reason for the sharp increase in funds needed to insure all Americans is the increased numbers of uninsured individuals. The size of uninsured people grew by almost 3.4% per year between 2001-2006 or from 39 million to 47 million people. And lastly, the sharp increase may also be attributed to the uninsured is both older (14%) and in poorer health (38%) which translates to additional money being spent on the elderly and chronic health problems (DeNavas-Walt, Proctor and Smith, 2007).

Oregon is just one of many states nation-wide struggling to ensure all of its citizens have health care insurance. With the recent passage of Oregon House Bill 2116, over a hundred thousand adults and children will now receive coverage which reflects a first step towards

improving increased healthcare access for these individuals. The near future considerations need to include a further reduction in the uninsured for the state of Oregon.

Policy Alternatives

#1 Alternative: Do Nothing

We may think of alternative approaches to the problem as possible interventions in the system that hold the problem in place or keep it going (Bardach, 2005). One such alternative to the problem of not having enough public funds to insure Oregonians would be for the state to do nothing more than passing House Bill 2116. By not doing anything more, the state of Oregon will insure a total of 155,000 additional adults and children, leaving 445,000 individual in Oregon without health care insurance. And the Governor can boast that he has now reduced the number of uninsured by 34% in his state which is much higher than most states without a national healthcare plan.

The outcome of this alternative is that only a third of Oregonians will be covered with health insurance, leaving two thirds in the same situation of being uninsured. This results in individuals waiting until the last minute to access medical care when often times, this care would have been less inexpensive if the individual would have accessed care when symptoms first appeared rather than allowing the disease or condition to worsen (Hadley, Holahan, Coughlin, & Miller (2008).

This alternative of doing nothing, would only benefit the health needs of the 155,000 individuals in Oregon, thus, leaving 66% of individuals uninsured and the target population is to insure all Oregonians. Without national healthcare reform, the state of Oregon is making some progress by finding creative ways to finance programs to benefit the uninsured. Efficiency is yet to be determined because House Bill 2116 became law on September 28, 2009 so the month of

October was the first month of implementation. And according to the first month's accounting figures, the "breaking even" by hospitals who paid the provider tax versus funds received from the federal government did not match the forecast. In other words, the hospitals received less monies than expected from the government. As stated previously, for every $1 paid by the 25 largest hospitals, the federal government is to reimburse the hospitals and communities $1.66. When in reality, the hospital was reimbursed only $0.70 cents (B. Shaw, Regional Cost & Accounting, Providence Health & Services, personal communication on November 18, 2009).

The overall impact of doing nothing would continue to have a negative impact on the health of Oregonians who are left uninsured, especially affecting ethnic populations who are low income and uneducated. Ethnic disparities exist in many settings within the U.S. and this includes health care. Disparities are often explained in terms of socioeconomics to include many variables, two of which, include income and education. In regards to income, poor people generally are more likely to have difficulty gaining access to healthcare than individuals who live above the federal government's poverty guidelines (Perez, 2004). Education can also negatively impact accessibility to healthcare and resources when individuals do not graduate from high school or receive a General Equivalency Diploma (Fagan, Moolchan, Lawrence, Fernander and Ponder, 2007). Our most vulnerable populations are low income and often times, uneducated, and these individuals are at greatest risk for falling through the "cracks" of our healthcare system.

#2 Alternative: Communication Program

A second alternative to consider in addressing the problem of not having all Oregonians insured may not have anything to do with health insurance, instead, may be a communication program to advertise safety net services within communities and the state by leveraging a variety

of multimedia resources. Currently, uninsured individuals have access to healthcare services through community health centers and other safety net providers such as public hospitals, community hospitals, local health departments, teaching hospitals, Indian health services and the Veterans Administration (Almgren, 2007). Unfortunately, the uninsured are not always aware of providers in their neighborhood that offer reduced cost health care services to them.

In a recent study conducted by Cunningham, Hadley, Kenney, & Davidoff (2007), the authors examined the 2003 Community Tracking Study household survey that randomly chooses 60 communities in 34 states and totaled over 46,000 uninsured participants. The survey is primarily a telephone survey and supplemented with in-person interviews if the household is without a telephone. The primary focus of the survey is to assess health insurance coverage, use of services and access to services. One of the results of this study included that less than half (47%) reported that they used or were aware of a lower priced provider in their community that was within 5 miles of their home. Outreach efforts in the community need to leverage a variety of communication strategies to ensure uninsured individuals, minorities and alike, are provided the access within their neighborhoods, at a reduced cost, to health care.

By ensuring the uninsured are made aware of these community health centers, may improve the health of Oregonians who gain access to healthcare for a reduced fee based on income, using a sliding scale. Although this strategy does not specifically impact additional Oregonians from receiving health insurance, the intent is to advertise these low cost health services to Oregonians in their own communities. Unfortunately, this alternative may prove to be ineffective due to the limitations of these safety net providers who often have capacity constraints, staff shortages and limitations on the services they provide. Often times, referrals to specialists are needed who may not be a safety net provider which results in the uninsured

individual from seeking care from the specialist due to lack of personal funds. (Hadley and Cunningham, 2004)

#3 Alternative: "Sin" Tax

A third alternative to raising additional public funds for health insurance is to increase "sin" taxes, such as additional taxes on alcohol, cigarettes and gambling. This is not a new concept, the government has traditionally used taxation in many forms to change public behavior in areas that are considered unhealthy to society and in this case, use the revenue to provide healthcare insurance to our low income citizens. For example, taxes on tobacco products had proven to be highly effective in reducing smoking and other forms of tobacco use and has traditionally been responsible for a decrease in use of 0.4% annually since the 1970's (West, 2007).

In a similar study, Frieden et al. (2005) demonstrated that a growing body of evidence documented the effectiveness of public health, clinical interventions and increased taxation contributed to reducing cigarette consumption. Currently, cigarette smoking remains the leading cause of preventable death in the U.S. and causes serious illness to an estimated 8.6 million persons at a cost of $157 billion annually (CDC 2000). In 2002, New York State and city tax increased from $1.11 to $1.50 per a pack of cigarettes; this 32% increase resulted in the cost of one pack of cigarettes to be $6.85. By 2003, smoking prevalence among New York adults decreased by 11% (140,000 smokers) among all age groups, ethnicities and income levels (Frieden et al. 2005).

More recently, Oregon lawmakers proposed a 15 cent tax on a 12 oz. glass of beer and an increased tax on a pack of cigarettes to raise revenues by millions of dollars. Currently, Oregon beer is taxed at less than a penny a glass and this figure has not increased in over 30 years.

Governor Kulongoski was pushing for higher cigarette taxes for his health care session and a few Democrats wanted to use the proposed revenue from these taxes for drug and alcohol addiction services. Strong proponents of the increased taxation were two influential and experienced lobbyists in the Capitol from the Oregon Beer and Wine Distributors Association and a second lobbyist who represents deep-pocketed tobacco maker Reynolds American and beer king Anheuser-Busch. In the end, Oregon lawmakers refused to raise taxes on beer and tobacco citing the reason they did not want to increase taxes on the working class.

The Decision

In a country rich in resources, it is a shame that not every citizen is provided health insurance during their life span. In addition, Oregon currently has over a quarter of a million people uninsured and often times, the decision to access health care is made only in urgent circumstances due to cost and affordability. As a result, to raise additional funds to insure Oregonians with health insurance, raising taxes on tobacco alone is needed to ensure public health is provided to our citizens. Currently, any talk about raising taxes is a delicate subject in the midst of recovering from a recession for the state and nation. However, this intervention is relevant to raising millions of dollars of additional revenue to insure Oregonians and this intervention is consistent with state and national priorities to decrease the number of cigarette smokers and increase the overall health of our citizens. By passing additional taxation legislation on tobacco, this may be a highly effective tool to deter citizens from smoking and will result in less monies being spent on illnesses associated with smoking. Politically, this will be a challenging alternative to “sell” to lawmakers, especially when the proponents are from large, well funded tobacco organizations. However, this alternative would also speak to the value that

Oregon places on providing health insurance to our citizens and our commitment to better health for all.

Conclusion

The body of literature to support health insurance for all citizens is staggering, yet, the U.S., including the State of Oregon has been slow to address the problem. Government funding is exhausted and the two public programs, Medicare and Medicaid, are close to bankruptcy in the near future if changes to both programs are not made soon. Although taxation on tobacco is not a new concept, never the less, taxation can produce millions of dollars in revenues to insure thousands of people in Oregon as well as reduce the overall numbers of cigarette smokers and decrease the money needed to treat illnesses associated with smoking. Raising taxes on tobacco would send a clear message to our citizens that we value them and their health; in addition, this message may shame tobacco industries for making a product that continues to actively harm people and cause death.

Appendix A

Oregon Hospital - Charity Comparison **January - Aug 2009 YTD (in millions)**

Hospital	Gross Revenue	Charity	Self Pay Revenue	Charity % of Gross
Adventist Medical Center	369,357,231	14,266,235	19,105,391	3.86%
Ashland Community Hospital	61,857,860	870,745	2,999,903	1.41%
Bay Area Hospital	183,123,777	5,234,739	17,339,744	2.86%
Blue Mountain Hospital	12,274,359	194,434	1,061,451	1.58%
Columbia Memorial Hospital	58,208,506	1,014,688	5,106,542	1.74%
Coquille Valley Hospital	13,931,462	274,519	1,141,930	1.97%
Cottage Grove Community Hospital	16,317,381	997,605	1,937,989	6.11%
Curry General Hospital	22,831,305	329,073	1,551,455	1.44%
Good Samaritan Regional Medical Center	314,846,446	7,204,635	16,833,709	2.29%
Good Shepherd Medical Center	69,961,146	3,312,089	6,390,609	4.73%
Grande Ronde Hospital	45,542,631	1,941,522	3,518,836	4.26%
Harney District Hospital	11,356,263	227,415	368,562	2.00%
Holy Rosary Medical Center	77,111,982	2,396,336	5,085,530	3.11%
Kaiser Sunnyside Medical Center	-	-	-	-
Lake District Hospital	10,846,695	151,565	896,467	1.40%
Legacy Emanuel Hospital & Hlth Ctr	651,645,366	49,614,380	47,102,383	7.61%
Legacy Good Samaritan Hosp & Med Ctr	406,199,967	22,969,238	22,549,595	5.65%
Legacy Meridian Park Hospital	218,123,080	10,379,348	8,121,460	4.76%
Legacy Mount Hood Medical Center	149,477,578	13,696,826	10,348,306	9.16%
Lower Umpqua Hospital	16,286,169	308,472	1,455,363	1.89%
McKenzie-Willamette Medical Center	166,649,485	2,543,069	-	1.53%
Mercy Medical Center	282,156,032	12,657,119	13,011,895	4.49%
Mid-Columbia Medical Center	106,989,234	4,119,357	5,338,088	3.85%
Mountain View Hospital	28,574,295	885,222	2,718,111	3.10%
OHSU Hospital	1,214,609,498	41,510,394	61,943,756	3.42%
Peace Harbor Hospital	53,241,818	4,562,408	5,610,610	8.57%
Pioneer Memorial Hospital (H)	4,503,086	87,314	383,788	1.94%
Pioneer Memorial Hospital (P)	22,350,119	1,033,965	1,959,229	4.63%
Providence Hood River Memorial Hospital	67,349,000	3,718,000	4,568,000	5.52%
Providence Medford Medical Center	244,171,000	15,840,000	19,536,000	6.49%
Providence Milwaukie Hospital	114,026,000	8,232,000	12,323,000	7.22%
Providence Newberg Hospital	100,878,000	5,688,000	7,768,000	5.64%
Providence Portland Medical Ctr	729,922,000	35,570,000	48,518,000	4.87%
Providence Seaside Hospital	49,222,000	4,490,000	5,748,000	9.12%
Providence St Vincent Medical Ctr	853,225,000	34,739,000	46,099,000	4.07%
Rogue Valley Medical Center	472,588,121	13,862,335	26,627,803	2.93%
Sacred Heart Medical Center RB	526,098,276	21,955,664	37,637,973	4.17%
Sacred Heart Medical Center UD	64,974,400	5,328,567	9,684,765	8.20%

Salem Hospital	576,443,626	30,300,974	-	5.26%
Samaritan Albany General Hospital	121,919,872	3,555,001	7,507,292	2.92%
Samaritan Lebanon Community Hospital	86,528,368	2,453,797	7,338,910	2.84%
Samaritan North Lincoln Hospital	52,373,462	1,542,426	4,363,399	2.95%
Samaritan Pacific Communities Hospital	68,509,706	1,611,223	5,408,294	2.35%
Santiam Memorial Hospital	27,684,921	464,504	2,781,053	1.68%
Silverton Hospital	112,713,173	6,967,758	10,119,934	6.18%
Sky Lakes Medical Center	195,266,400	6,654,374	14,222,375	3.41%
Southern Coos Hospital & Health Center	13,873,056	171,314	-	1.23%
St Anthony Hospital	54,212,025	2,593,758	4,217,731	4.78%
St Charles Medical Center - Bend	435,133,660	14,919,325	27,150,169	3.43%
St Charles Medical Center - Redmond	88,142,364	3,103,584	5,086,283	3.52%
St Elizabeth Health Services	28,379,024	767,408	2,291,494	2.70%
Three Rivers Comm Hospital	183,907,493	8,239,340	13,959,898	4.48%
Tillamook County General Hospital	45,928,332	3,499,159	4,459,738	7.62%
Tuality Healthcare	234,369,787	6,208,634	16,127,397	2.65%
Wallowa Memorial Hospital	12,862,533	158,903	910,755	1.24%
West Valley Hospital	19,331,747	985,318	-	5.10%
Willamette Falls Hospital	134,930,934	2,915,837	9,795,866	2.16%
Willamette Valley Med Ctr	156,272,981	1,730,868	8,895,618	1.11%
Total for Oregon State	**10,459,610,032**	**451,049,783**	**627,027,449**	**4.31%**

References

Almgren, G. (2007). Health Care Politics, Policy, and Services. New York:Springer Publishing Company.

Anonymous. (2009, November 12). Distressed Areas in Oregon. *Business Oregon.* Retrieved from http://www.oregon4biz.com/The-Oregon-Advantage/Oregon-Economic-Data/Distressed-Areas-in-Oregon/.

Batchis, L. (2005). *Can lawsuits help the uninsured access affordable health care:Potential theories for uninsured patient plaintiffs, 78 Temp. L. Rev. 493, 494.*

Bardach, E. (2005). A Practical Guide to Policy Analysis: The Eight-fold path to more effective problem solving. Washington DC:CQI Press.

Barton, P.B. (2007). *Understanding the U.S. Service System,* Administration Press.

Centers for Disease Control and Prevention. Cigarette smoking-attributable morbidity-United States, 2000. *MMWR Morbidity Mortality Weekly Report*, 2003; 52: 842-844.

Centers for Medicare and Medicaid Services (2008). Office of the Actuary, *National Health Expenditure Data, Projected* Retrieved from http://www.cms.hhs.gov/ NationalHealthExpendData/03_NationalHealthAccountsProjected.asp.

Cunningham, P., Hadley, J., Kenney, G., & Davidoff, A. (2007). Health insurance. Identifying affordable sources of medical care among uninsured persons. *Health Services Research, 42*(1 Part 1), 265-285.

DeNavas-Walt, C., Proctor, B., & Smith, J. (2007). *Income, Poverty, and Health Insurance Coverage in the United States:2006,* Pub. No. P60-233, (Washington: U.S. Government Printing Office, 2007), 58.

Fagan, P., Moolchan, E., Lawrence, D., Fernander, A., & Ponder, P. (2007). Identifying health disparities across the tobacco continuum. *Addiction, 102*5-29.

Frieden, T., Mostashari, F., Kerker, B., Miller, N., Hajat, A., & Frankel, M. (2005). Adult tobacco use levels after intensive tobacco control measures: New York City, 2002-2003. *American Journal of Public Health, 95*(6), 1016-1023.

Hadley, J., & Cunningham, P. (2004). Availability of safety net providers and access to care of uninsured persons. *Health Services Research, 39*(5), 1527-1546.

Hadley, J., Holahan, J., Coughlin, T., & Miller, D. (2008). Covering the uninsured in 2008: current costs, sources of payment, and incremental costs. *Health Affairs, 27*(5), w399-415.

Holahan, J., & Cook, A. (2008). The U.S. economy and changes in health insurance coverage, 200-2006. *Health Affairs, 27*(1-2), w135-44.

Institute of Medicine (2003). *Unequal treatment: Confronting racial and ethnic disparities in healthcare.* Washington, DC. The National Academic Press.

Jurand, S.H. (November 2005). *Major hospitals agree to stop overbilling uninsured patients,* 41, *Trial 80.*

Keeping Oregonians Healthy: Preventing Chronic Diseases by Reducing Tobacco Use, Improving Diet and Promoting Physical Activity and Preventive Screenings. (2007). Oregon Department of Human Services.

Kuntze, C. (2008). Insured versus uninsured: the fight for equal pricing in health care. *Journal of Legal Medicine*, *29*(4), 537-552.

Lemmon, D., Henrich-Koenis, G., & Meissner, R. (2009, March 31). New report finds 1.1 million Oregonians were uninsured at some point in 2007-2008. *Families USA*. Retrieved from http://ww.familiesusa.org/resources/newsroom/press-releases/2009.

Oregon House Bill 2116, chapter 867 (2009 law). Effective September 28, 2009.

Perez, T. (2004). The Civil Rights Dimension of Racial and Ethnic Disparities in Health Status. In , *National Academies Press*. *Papers from Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare* (pp. 625-663).

New York Public Health § 2807 (McKinney, 2007).

U.S. Census Bureau. (2008). U.S. Department of Commerce, Economics and Statistics Administration. *Small Area Income & Poverty Estimates: 2007.*

Woolf, S., Johnson, R., Fryer, G., Rust, G., & Satcher, D. (2008). The health impact of resolving racial disparities: an analysis of US mortality data. *American Journal of Public Health, 98*S26-8.

Social Change Agent: Holly Mercer, JD, RN

Oregon State Board of Nursing

Victoria Hays

Oregon Health & Science University

Introduction

The Oregon State Board of Nursing safeguards the public's health and well being by providing guidance and regulation of entry into the profession, nursing education and continuing safe practices for all levels of nursing, including advance practice nurses. The Board of Nursing also determines licensure and certification requirements, interprets the Oregon Nurse Practice Act, evaluates and approves nursing education programs, and investigates complaints and takes disciplinary action against nurses and nursing assistants who violate the Oregon Nurse Practice Act.

During mid-2006, a three month investigation of the Oregon State Board of Nursing was conducted by the *Portland Tribune* newspaper who alleged system failures that had resulted in the Board failing to protect the public from unsafe nurses. More specifically, fewer than three in ten cases the Board pursued of nurses providing unsafe care produced a completed investigation within 120 days of complaints being received, as mandated by state law (Korn, 2006). In addition, the Board of Nursing had consistently failed to report nurse's alleged criminal activity to law enforcement and the Nurse Monitoring Program was protecting drug addicted nurses whose consistently failed attempts at the program severely lacked any disciplinary action by the Board (Korn, 2006).

Governor Theodore Kulongoski assembled an auditing team to investigate the potential lack of oversight by the State Board of Nursing and this resulted in the Executive Director voluntarily resigning in August 2007 and one of her manager's, soon thereafter, being fired from the Board. Public safety and public trust was being questioned by many stakeholder groups and as a result, a swift candidate search was conducted and Holly Mercer, JD, RN was hired in December 2007 with a start date of January 2008.

Social Change Agent: Holly Mercer, JD, RN

Ms. Mercer graduated from Lewis & Clark Law School in 1978 by attending night school for four years and then moved to Boise, Idaho (her home state) and practiced as a worker's compensation attorney for 16 years. She states she had always had a fascination with the nursing profession and in the early 1990's, received an Associates of Nursing degree from Boise State, however, she has never practiced as a nurse. According to Ms. Mercer, "The day I graduated from nursing school, I utilized this new knowledge to provide me a more balanced approach between the law and the medical field". She chose a career in management that included Regional Director and soon thereafter, Executive Director for the Department of Health and Services in Idaho. She had also worked for many private companies as a national Risk Manager and Safety Director; one such company provided safety services to the Flamingo and the Paris Casino Hotels in Las Vegas, Nevada.

Upon returning to Oregon, Ms. Mercer worked as an attorney in worker's compensation and joined the Oregon State Board of Nursing by successfully interviewing with members from the State Board and the Governor's office. She is a member of the Oregon and Idaho State Bar Associations and is licensed as a Registered Nurse in Oregon, Idaho and Washington. In early 2009, Ms. Mercer was unanimously voted to the Board of Directors for the Oregon Center for Nursing to assist in addressing the nursing shortage in the State by providing a planned approach to recruitment and retention.

Beginning her employment with the State Board, Ms. Mercer conducted her own investigation to determine the "current state" of the organization and found many of the allegations to be true. For example, numerous nurses files were located under staff desks that were never investigated, nurses were graduating from the Nurse Monitoring Program that had

not been compliant with the program and over 30% of the files in probation were never completed or followed through by staff employed at the Board. She determined her immediate top three priorities for her position as the Executive Director included: 1) Increase transparency with all major stakeholders; 2) Build stakeholder relationships within the community and 3) Improve the operational efficiencies within the State Board.

"Within the first six months of my employment, I met with key legislators from the House and Senate Healthcare Committee and my approach was to come across as non-defensive, to not make excuses for the lack of oversight by the State Board and answer the legislator's questions honestly. The results of my investigation were written in a memo to the Chairs of the Healthcare Committee and I presented the findings in-person to the Committee on several occasions with an action plan to provide data to the Committee on improvement in the operations of the Board" (Holly Mercer, Executive Director, Oregon State Board of Nursing, personal communication on February 19, 2010).

According to Ms. Mercer, building this relationship with the legislators early in her employment was critical to ensure transparency between the Board of Nursing, Healthcare Committee and the Governor's office. As a result of her efforts, Ms. Mercer knows every member on the Healthcare Committee by their first name and does not hesitate to pick up the telephone when assistance by the Committee is needed by the Board. In addition, Ms. Mercer has a weekly telephone conference call with Claudia Black, Senior Healthcare Advisor to the Governor that has also been beneficial to help ensure two-way, open communication consistently occurs between the State Board and the Governor's office.

A second key stakeholder was the governmental affairs representative for the Hospital Association because it was important for the State Board to partner with this organization in the

protection of public safety with competent nurses at the bedside and to assist in the legislative process on the topic of healthcare. Again, Ms. Mercer spent time with the Hospital Association representative to establish a trusting relationship that has proven to be beneficial, especially on the passage of healthcare legislation for the State. A third key stakeholder was the Oregon Nurses Association (ONA) because this association was the strongest nursing lobby group in Salem and was primarily the only voice for licensed nurses. There were certainly other nursing groups, however, they were not as large as ONA nor as organized as ONA. According to Ms. Mercer, the ONA has proven to be an excellent resource to the State Board over the last two years to assist with legislation and professional practice issues. Although ONA has not always agreed with the State Board, according to Ms. Mercer, "the relationship that has now been established between both organizations ensures there are no "surprises" in the nursing practice arena."

A fourth key stakeholder was building a relationship with law enforcement because when criminal acts were committed by nurses, there severely lacked any resources or connections to law enforcement. Thankfully, the newly hired Manager for Investigations at the State Board of Nursing (during the same time Ms. Mercer was hired) had a law enforcement background and helped to arrange a series of meetings that included herself, Ms. Mercer and the Tri-County District Attorneys from Clackamas, Multnomah and Washington. Together, they were able to develop processes, with guidance from the Department of Justice, on criminal acts that included prescription forgery, elder abuse and sexual assault cases by nurses. As a result of this partnership, the State Board begins the initial nurse investigation and when certain criteria is met, the case is given to law enforcement to pursue criminal action and the State Board appropriately disciplines the nurse within the licensing arena.

Another key stakeholder was Peter Korn, writer for the *Portland Tribune* who, according to Ms. Mercer, prior to her hiring, the reporter was very frustrated with the Board of Nursing because his telephone calls were rarely returned and the Board appeared to be consistently defensive in communications with him. Based on guidance from the Governor's office and the State Board of Nursing's Communication office, Ms. Mercer met with Mr. Korn on 3 separate occasions within the first 9 months of her employment to begin to build a trusting relationship in which information was shared without breaking confidentiality.

As a result of these meetings, Ms. Mercer had introduced Mr. Korn to the Communications Manager, who now has developed a relationship with him and fields all of the reporter's questions to help ensure a frequent, two-way dialogue occurs between the Board and the newspaper. In addition, Mr. Korn had published subsequent articles on the topic of the Board and the positive changes that were occurring within the organization since the hiring of Ms. Mercer. These articles were important to the last key stakeholders: nurses and the public. The public and the nursing profession in Oregon needed to be reassured that the Board's focus was public safety and to be able to read, over time, that positive improvements were being made to safeguard the public.

Critique

Holly Mercer had agreed to meet with me at the State Board office and granted me a 60 minute interview with her. In order to maximize our time together, I emailed her eight questions I was interested in asking her based upon the research I had conducted on this topic and based upon our class readings (Appendix A). She thanked me for providing the questions a few days in advance so she "could thoughtfully prepare for the interview". My initial impression upon meeting her for the first time was that she appeared genuine, warm, and was quick to offer a

smile to help put me or anyone else she may be talking with, at ease. She began the interview by asking me a few questions about my employment, the DNP program and my next steps after graduation. I was impressed with how easy she made it feel to have a conversation with her because it was a wonderful mix of professionalism, genuine curiosity and the ability to learn about a peer and potential future resource.

In the hour I spent with her, I can understand why she was successful in building trusting relationships with key stakeholders because it is obvious she does her homework ahead of time and her delivery of the message conveys confidence, honesty and an understanding of the problem. It was also evident that she took her position with the State Board very seriously by making comments that included, "what I consistently need to gauge very carefully – what is the degree of transparency that is reasonable and necessary because of a lot of what we do is confidential?" and "I was not walking into a job whose company was losing money from the bottom line, I was walking into a position that was very public and was risking public safety. This is what kept me awake at night" (Holly Mercer, Executive Director, Oregon State Board of Nursing, personal communication on February 19, 2010).

According to Dwyer (1995), the three functions of organizations include: attracting resources, transforming resources and allocating resources. I believe Ms. Mercer was successful in attracting resources by building transparent relationships with key stakeholders within the community and state of Oregon. She worked side-by-side with powerful legislators, the Hospital Association and ONA to stay current, informed and as a result, was afforded opportunities to positively impact healthcare agenda's at many levels. It was only after Ms. Mercer spent time building these relationships and proving herself was she granted expert power by these key stakeholders. I believe one of the ways she was able to gain expert power was to communicate

frequently with stakeholders and each time, provide an up-to-date action plan with data and next steps clearly defined with established timeframes.

Without spending time with key stakeholders and building trusting relationships, I don't believe Ms. Mercer would have been successful or positive change would have occurred much more slowly by the Board. In addition, by asking key stakeholders what they "needed" from the Board, Ms. Mercer was able to focus her time and attention to meeting these needs, whether it be data, action plans, etc., she did not spend time "guessing" what the stakeholders were interested in knowing, and thereby, moving the Board's role forward in the eyes of many of these important institutions and organizations.

Once a leader has the necessary resources, it is equally important to transform and appropriately allocate these resources to benefit, improve and innovate the organization. An example of how Ms. Mercer was able to accomplish this was the role she played in ensuring the Board established relationships and connections to law enforcement. Once this was accomplished, next steps included agreed upon processes so both organizations were working in tandem, not solo. As a result, law enforcement determines and disciplines nurses for criminal acts and the Board disciplines those nurses appropriately in the license arena.

A second example to demonstrate allocation of resources is the way Ms. Mercer re-defined roles at the Board. She has 10 managers report directly to her (her boss believed this was a bit top heavy), although four of these managers are part-time and are practice or education consultants for the Board. In addition, these four managers have fewer than three staff who report to them and in total, there is 50 staff who work directly or indirectly for the Executive Director. According to Ms. Mercer, within the operations of the Board, there severely lacked written processes and procedures or outdated procedures so staff, at all levels of the organization,

could not be held accountable for their current job responsibilities and it made it challenging to train any new staff. As a result, staff was not doing their job well and/or there was a lack of accountability that caused poor monitoring of several programs administered by the Board. This caused the Executive Director to convene a sub-group of staff and managers to develop and update procedures so staff can now be held accountable to the expectations of their job; all staff are now considered to be on the same "playing field," so to speak.

I believe the revisions/updates to staff policies were a critical *second* step to changing the culture within the Board. The first step was to choose a group of managers and staff to participate on the sub-committee that provided a balanced approach to the assignment. According to Ms. Mercer, she purposely took time in becoming acquainted with staff because she chose to specifically include a variety of staff: employees who were ready to accept these new changes, as well as a few naysayers, skeptics and the informal leaders in the organization. When it finally came time to introduce and communicate the new policies to staff, it was volunteers within the sub-committee who were provided this responsibility, not the Executive Director. I believe this sends a powerful message to those receiving the message that the process was driven by their peers and staff is in support of these changes. Through this process, in my opinion, staff may have granted Ms. Mercer legitimate power as a result of her approach she used in revising all policies and for the positive culture change that is occurring at the Board. The few remaining staff that are more slowly to accept these changes may certainly feel the pressure by peers to either accept them or possibly move onto other employment.

If I had led this change at the Board, I would have followed this same path, with one exception. I believe it is critical to establish trusting relationships with key stakeholder groups in any position of power and influence. This is especially important in a new employment position

as well as being asked to participate on a Board, committee or to facilitate a project for the first time since in each of these situations, you are considered the "new person" and you need to establish yourself. This also includes entrusting power and authority to your direct reports.

After two years of being with the Board, the Executive Director continues to meet with each manager every two weeks for one hour which translates to 20 hours of meetings every month for her. The rationale provided was because if these meetings did not occur, there would be consistent, daily interruptions with questions or concerns that usually focused on conflicts amongst staff or with nurses they serve (the public) and in the mind of the Executive Director, "either needed to be resolved by the manager themselves or could wait until the next bi-monthly meeting." In my mind, the Executive Director may need to facilitate conflict resolution techniques that empower the staff individually as well as to strengthen the team as a whole.

A recommendation from Heifetz, Grashow and Linsky (2009) on the topic of orchestrating conflict is to move the organization forward by using these creative tensions to allow different points of views to move toward resolution rather than something that needs to be eliminated or neutralized. My recommendation would be to schedule a two-hour or four-hour retreat with the managers and use the seven steps outlined in *The Practice of Adaptive Leadership* book. In my opinion, the first step is critical to ensure the key elements of conflict have been identified by the management team. In addition, establishing ground rules with the managers is also critical to ensure safety during discussions with each other. This may include basic courtesies such as eye contact during discussions, PDA/cell phone/pager's are turned off, and an agreed upon time to meet by both staff has been established. The other four steps are important, however, I believe one of the most empowering techniques the Executive Director can encourage amongst her managers is to institute peer leadership consulting so they can self

manage themselves and each other in a supportive, collaborative process. This will take time and practice, however, once the managers begin to use these techniques, they in turn, can mentor their staff and the Executive Director is spending a smaller percentage of her time on issues of conflict that truly need her attention.

Conclusion

Successful leaders use influence, authority and power to attract, transform and allocate resources that benefit the organization and the position they hold. Holly Mercer has done a good job building trusting, transparent relationships with external stakeholders. I believe her next steps are developing these same types of relationships with her direct reports and staff. Additionally, if Ms. Mercer desires to be known as a transformational leader, she needs to generate leadership among her staff that cause people to routinely go beyond their job description.

Appendix A

Leadership & Change Agent Skills Interview
Holly Mercer, JD, RN
Executive Director of the Oregon State Board of Nursing
Friday, Feb. 19, 2010
10:00am – 11:00am

1. Please provide a brief biography of your education and work experience
2. What were your top 3 priorities for the Oregon State Board of Nursing when you were first hired by the Board?
3. What is the current status for each priority (achieved? Partially met? Unmet?)? If the status is less than achieved, why is that?
4. Who were the stakeholders you needed to include to achieve each of your priorities?
5. How did you attract and allocate resources for each priority?
6. How did you utilize power, influence and authority to achieve your priorities?
7. During your time with the Board thus far, what is one accomplishment you are proud of achieving?
8. With hindsight being 20/20, looking back at your time with the Board thus far, what is one opportunity for growth for you as a leader you would like to improve?

Based on the information I glean from the interview, I am required to write a paper for my doctoral leadership and systems class.

References

Charles Dwyer (1995). Organizational Myths and Realities. Valley Forge, PA: Executive Multimedia Productions.

Heifetz, Ronald, Grashow, Alexander & Linksy, Marty (2009). *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World*. Boston: Harvard Business Press. ISBN: 978-1-4221-0576-4

Korn, P. (2006, March 7). Nursing Chaos: Is the Oregon State Board of Nursing protecting nurses at the expense of the public's safety? *Portland Tribune,* p. B1, B4.

Oregon State Board of Nursing. Retrieved from http://www.oregon.gov/OSBN/.

OREGON HEALTH & SCIENCE UNIVERSITY

SCHOOL OF NURSING
Ashland Klamath Falls La Grande Portland

DNP Clinical Inquiry Project Report & DNP Portfolio Approval

Student Name: Victoria J. Hays

Degree: Doctor of Nursing Practice

Title of Study:

Program Evaluation: Pressure Ulcer Prevention in Oregon Providence Hospitals

APPRDVED:

Committee Chair: Signature: _
(name and credentials)

Committee Membe Signature: _
(name and credentials)

Committee Member: _____ Signature: _____
(name and credentials)

Michael R. Bleich, PhD, RN, MPH, FAAN
Dean, School of Nursing Signature:

Date: _____

Submit completed original form to the Graduate Program office.

Revised 4/2009