Doctor of Nursing Practice Projects

2012-2014 Inaugural Cohort

Northern Arizona University School of Nursing
A Message from the Dean...

I am honored to congratulate the first graduates of our DNP program. Although you would not have thought this when you started almost 2 years ago, but you are different nurses a people than before you started along this journey. You think differently and see healthcare from a more global perspective. To paraphrase Gandhi, be the change you wish to see [in healthcare].

Go forth and change the world!

Debera Thomas,
DNS, RN, ANP/FNP
Dean and Professor
School of Nursing

A Message from the DNP Coordinator...

Congratulations to the 2013 inaugural cohort of DNP graduates! Through your coursework and DNP projects you have demonstrated attainment of the competencies necessary to ensure the delivery of safe, patient-centered healthcare and respond to the changing health care system. As DNP graduates you will lead change and shape quality improvement initiatives, clinical practice guidelines and innovations across diverse settings.

Best wishes for your ongoing success!

Debbie J. Nogueras,
PhD, MSN, ANP/FNP-BC
DNP Coordinator
School of Nursing
Behavioral Health Self-help Interventions Conducted During Pain Management Visits in a Primary Care Setting

Purpose
This practice implementation assessed the feasibility and impact of implementing behavioral health self-help interventions during pain management visits in primary care.

Methodology
Baseline self-reported pain levels and pain assessment guide were administered at beginning of each visit with pain management provider. Time series data collection occurred following the implementation of behavioral health interventions utilizing self-help strategies that included the gate theory of pain control and sleep hygiene. Twenty eight participants receiving services at a rural community health center, and diagnosed with chronic pain, volunteered over a period of six months. Participants received monthly pain management visits conducted by their usual provider. The interventions were performed by a single behavioral health specialist for consistency. Paired t-tests were compared between multiple visit combinations.

Results
Paired t-test comparisons demonstrated a significant decrease in reported pain following the intervention phase, as compared to visits prior to the project. A mean pain score was calculated to reflect the mean for visits one and two, prior to the intervention. It was then compared to the mean of visit six, the farthest point out in the project time series. The mean comparison reflected a reduction from 5.92 to 4.22 on a scale of zero to ten, and improvement was sustained over a two month period following the intervention phase. Mean pain assessment guide scores, range of zero (no impact) to fifty (maximum negative impact), were similarly compared and demonstrated a decrease from 23.18 to 17.00 during the project.

Implications for Practice
This simple, brief behavioral health intervention, integrating gate theory and an individualized plan for self-management, has shown lasting impact on participant ability to control and manage response to pain outside of the clinic setting. Results from this study are consistent with results from similar interventions at larger institutions with larger sample sizes. Encouraging engagement and ownership of the individualized self-help activities by the patients is an important and empowering aspect of this intervention.
Advanced Practice Nurse Value by Time-Driven Activity-Based Costing

**Purpose**
To analyze the value of care provided to one group of patients cared for by an interprofessional team of physician and advanced practice nurse compared to two different groups of patients cared for by physicians alone, within the same practice and time period, using the method of Time-Driven Activity-Based Costing.

**Methodology**
Design: retrospective, longitudinal design, using the methodology of Time-Driven Activity-Based Costing to analyze demographic, outcomes, and costing variables. Setting: Non-profit, Magnet® designated, hospital-owned, bariatric surgical practice, caring for more than 5000 legacy patients, with 3 surgeons, and 1 advanced practice nurse. Sampling: Non-random, consecutive sampling of all laparoscopic sleeve gastrectomy, laparoscopic gastric bypass, and revisional surgery patients for the period of January 1, 2013 through June 30, 2013 (N = 247).

**Results**
Provider group 1 (physician and APN) performed 56% of the total surgeries and 77.6% of the revisional surgeries. Their mean metabolic acuity score was significantly higher than provider group 2 or 3 with no difference in rates of complications, re-admissions, or re-operations. ANOVA revealed differences in the costing variables of indirect, direct, and total operating room costs, however, only provider group 1’s mean direct operating room cost includes the assistant (APN). Post-hoc analysis indicated differences between provider group 2 and 1, and provider group 2 and 3. No difference between provider group 1 and 3. Provider group 1 performs significantly more procedures, on more complex patients, without negatively affecting outcomes resulting in significantly greater estimated net revenue for the studies time period.

**Implications for Practice**
The results of this study support the existing body of literature on APN practice, healthcare policy, and organizational impact of optimal provider mix. Improved patient experience reports and improved health recovery may occur through the study’s transparent results of outcomes and cost of care. Interprofessional collaboration between physicians and APNs, through Time-Driven Activity-Based Costing (TDABC) may be implemented in other healthcare settings. Current healthcare policies and regulations supporting interprofessional practices may be examined to incorporate TDABC.
Recommendations for Promoting Culturally and Resource Appropriate Care for Native American (NA) Patients

**Purpose**
The purpose of this inquiry is to explore the provision of culturally competent (CC) care for Native American (NA) patients at a primary referral center for NA patients in Northern Arizona. This includes the execution of a clinician focused education needs assessment and development of education program based upon that data.

**Methodology**
An education needs assessment was developed by the researcher based upon existing literature and expert consultation. The survey was distributed to all clinicians with privileges at the institution. The need for education related to NA populations, interest in such a program, and specific topic areas were included. Subsequent data was used to create an institutional education program for clinicians, which is currently in progress. Post-program evaluations were used to assess the value and efficacy of the program.

**Results**
Only 26.4% of clinicians felt “greatly” equipped to deal with NA specific issues. Ninety-seven percent of respondents reported that they would “somewhat” or “greatly” benefit from additional education related to this population. End of life was identified as the subject of most interest, though the Indian health system, Indian reservations of Northern Arizona, traditional health beliefs, and appropriate use of interpreters were also supported as needed topic areas. A four part Grand Rounds series was developed based upon this data. Two of the four programs are complete, with evaluation data available for analysis. The programs have displayed high attendance rates. Attendees report that programs meet stated objective, provide insights useful to practice, contain clinically relevant information, and that speakers have good presentation skills.

**Implications for Practice**
High attendance and positive program evaluations confirm the need for such a program, and suggests that content is valuable to clinicians. The Grand Rounds presentations have brought forth care issues that can be expanded upon to support future population-based efforts. The project’s success verifies the need for institutional expansion of the program, with additional Grand Rounds and translation of content into more enduring formats such as a self-learning module. Data will be used by the institution to obtain and maintain population-based grant funding. This project supports the need to expand outcome evaluation efforts to quantify the impact of providing culturally and resource appropriate care by analyzing quality parameters such as patient satisfaction, provider satisfaction, length of stay, and readmission rates.
Diabetes: Barriers to Diet, Exercise, and Medication Adherence in a Rural Southern Arizona Clinic

Purpose
To identify patient reported barriers to diet, exercise, and medication adherence in adults who are type 2 diabetic (DM2) patients in a rural Southern Arizona family practice clinic.

Methodology
The Environmental Barrier Assessment Scale (EBAS) was used to measure barriers in participants with DM2. The EBAS is a 60 item self-reported survey addressing barriers to self-care in diabetes in the last seven days. This cross-sectional, quantitative survey was conducted over a three month time period with participants recruited during routine office visits at a rural Southern Arizona primary care clinic. Descriptive statistics of mode, frequency and percentage were calculated for each response to describe categorical variables. Mode was calculated for each question to determine the most common response to the question. Percentage and frequency were calculated and tables were constructed.

Results
Twenty one surveys were collected. Dietary barriers were reported by 52.3% of participants. 62% found that problems with their health kept them from following their diet. 66.6% reported not having the right food in the house, 57.1% admitted to having junk food in the house and 71.4% reported that others do not eat like they have to. Two-thirds of the participants (80.9%) reported not being able to find time to exercise. Problems with their health kept 76% of the participants from exercising. 61.9% of the participants reported forgetting to exercise and also found that changes in routine (57.1%) and getting back to exercising after a break (52.3%) were barriers. 42% participants reported forgetting to the take their medication on a regular basis.

Implications for Practice
Overall identification of self-reported barriers will help patients and providers manage DM2. Taking a few extra minutes to discuss the patients’ daily routine and habits provides insight to their daily care and struggles. Once a barrier is identified the provider and the patient can work as a team to formulate a plan for success. This study found that future research is warranted in regards to the self-reported problems of health. Providers need to better understand the patient’s definition of problems with health and develop strategies to overcome them.

Ambur Linstrom-Mette
Debera Thomas (Chair)
Debbie Nogueras
A Screening Tool for Early Recognition and Treatment of Sepsis

Purpose
This study investigates the use of a sepsis screening tool to decrease the length of time from triage to treatment.

Methodology
Exploratory study using descriptive statistics to determine if using a sepsis screening tool in triage in the Emergency Department will reduce the time from triage to treatment of septic patients. Data was gathered using a sepsis screening tool developed for this project and then analyzed using Welch’s t-test and chart reviews.

Results
The use of the sepsis screening tool in triage reduced the time from triage to treatment from 29.2 minutes in 2012 to 15.5 minutes in 2013. Time from triage to treatment is significant because the overall length of time to treatment impacts the morbidity and mortality of septic patients.

Implications for Practice
This study increases the knowledge base, empowers, and advances the evidence based practice of registered nurses in the emergency department. It suggests that interventions can be used to reduce the time to treatment for patients with suspected sepsis and thus improve the outcome of those patients.
Testosterone Replacement in Symptomatic Men: Assessing Knowledge, Barriers, and Prescribing Habits of Nurse Practitioners

**Purpose**
The purpose of this study was to assess the knowledge, attitudes, and prescribing habits of nurse practitioners (NPs) who are treating men with androgen deficiency.

**Methodology**
An online, cross-sectional/correlational descriptive study was selected to obtain self-reported data from a convenience sample of advance practice nurses (APNs) providing healthcare for adults. The questionnaire developed using a Knowledge, Attitude and Practice (KAP). Data were downloaded from Qualtrics and imported into SPSS, version 21. Fifty-nine respondents completed the survey. Summary scores were calculated for knowledge and attitude. Kolmogorov-Smirnov tests were used to assess distributional normality for these summary scores. Independent-samples t-tests were conducted to assess differences in knowledge and attitude summary scores based on responses to questions concerning practice habits.

**Results**
A summary of the results indicated that a majority of the respondents were female, certified as Family NPs and held a master’s degree. Independent-samples t-tests assessing differences in knowledge and attitude summary scores based on responses to questions concerning practice habits showed no statistically significant differences between adherences to any of the practice habits and correct on the knowledge score. Statistically significant differences were seen between attitude and practice scores suggesting a favorable attitude is positively related to practice habits. More than 50% of respondents routinely evaluate testosterone levels and treat men complaining of fatigue and low libido and treat men with low testosterone in their practice setting. This is higher than published literature that less than 15% of men with low testosterone are treated.

**Implications for Practice**
The findings in this survey identify APN knowledge, attitudes, and practice related to testosterone replacement therapy in symptomatic men in a specific region. Through this evaluation of current knowledge, attitude and practice habits of APNs, educational interventions may be developed to address any deficiencies that have been identified. The APNs in this study were more likely to evaluate and treat low testosterone in symptomatic men in their practice than the published studies have found. Despite these favorable findings, 81% of the respondents still expressed interest in continuing medical education opportunities for screening, diagnosing, and treating low testosterone. NPs can be instrumental in translating evidence into practice through improvement in the identification, treatment, and monitoring of men with low testosterone.
Impact of Teaching Breathing Techniques on Patient Health Outcomes: A Systematic Review

Purpose
A systematic review of the literature was conducted to determine evidence of improved health outcomes through teaching breathing techniques in the primary care setting. This review sought evidence of specific health conditions that could be affected by teaching breathing techniques, and specific breathing techniques best suited for primary care.

Methodology
This systematic review used the PRISMA guidelines for analyzing integrity and value of each article. Inclusion criteria: specific breathing techniques affecting change related to specific health conditions, articles published between 2009 and 2014, articles written in the English language, and research including quantitative, quasi-experimental, systematic reviews, qualitative studies, and hypothesis articles. Exclusion criteria: Research dated prior to 2009, articles containing multiple modalities of complementary and alternative medicine (CAM) techniques, and research that addressed breath concerns unrelated to the improvement of specific health conditions.

Results
Statistically significant improvements in health outcomes are noted by teaching breathing techniques. Improvements are noted in specific health conditions such as: blood pressure, asthma, pulmonary function, post prandial insulin levels, glucose levels, antioxidant potential, lipid profile, stress response, numerous quality of life measures, esophageal reflux symptoms, seizure threshold, and autonomic modulation. Numerous trained breathing techniques are available to improve health outcomes. Among them, diaphragmatic or abdominal breathing, and focused nostril breathing, either left, right or alternating nostril breathing, improve health outcomes and are cost and time effective for teaching in the primary care setting. The autonomic nervous system played a key role in improved health outcomes when studied in relationship to teaching breathing techniques.

Implications for Practice
Teaching breathing techniques improves health outcomes for a variety of physical conditions. Further research into specific types of breathing techniques that are most useful for teaching in the primary care setting is important. Although numerous breathing techniques have been studied, many require significant commitment of time for patients. Of those breathing techniques showing improvement in health outcomes, the simplest training, such as the focused nostril breathing or diaphragmatic breathing technique, appears most time effective in the primary care setting and should be taught during a patient encounter. The autonomic nervous system related to breathing techniques play a key role in improved health outcomes. More research is necessary to determine the best tools to test the autonomic nervous system related to specific breathing techniques.
Obesity Management: A Pilot Test of an Electronic Health Record Prompt

**Purpose**
To address lack of screening/treatment for obesity in primary care by conducting a pilot study to initiate provider practice change through full utilization of the electronic health record (EHR). The goal is to determine the relationship between the implemented EHR additions and provider response to the change (adherence, work-around, recommended revisions).

**Methodology**
The project used a descriptive qualitative design. Seven providers at a rural community health center pilot tested the Red Flag body mass index (BMI) prompt, an obesity template incorporated into the EHR system. The BMI prompt, along with the resources list in the exam room, aided in providing obesity screening and management. Focus group narrative served as the data collected for the project. Using semi-structured interview, information about providers’ experiences with implemented EHR additions (BMI Red Flag prompt, obesity template, and resource list) was collected.

**Results**
The results of the pilot study indicate that the BMI Red Flag prompt helped providers acknowledge the overwhelming number of patients in the clinic who are obese. The acknowledgment indicates how the providers accepted the change of incorporating obesity screening and management in the EHR. Additionally, ownership through the process of participating in the study and focus group discussions was identified. The template was found to be a practical component in obesity management and a practical way to make change. Having a resource list available for patients in the exam rooms was noted to be needed, useful, and time saving.

**Implications for Practice**
Implementing a recommendation for discussions in provider monthly meetings will help providers utilize the template better and individualize it to their practice. The findings in this pilot study demonstrate a successful implementation of an obesity screening and management addition to the EHR in a rural community health center using a combination of the BMI Red Flag prompt, obesity template, and resource list. There is a potential benefit for other clinics to implement this project into their practices to help further improve obesity management.
Executive Summary for Postmortem Sexual Evidence Collection

**Purpose**
The purpose of the practice improvement initiative for Forensic Nurse Examiners (FNEs) was to design a multimedia training module (MMTM) in postmortem sexual evidence collection. FNEs, as clinical experts in ante mortem sexual assault and interpersonal violence evidence collection, are uniquely qualified for role expansion in postmortem sexual evidence collection.

**Methodology**
A 25-item survey to evaluate module content was created and distributed to 23 nationally recognized forensic experts. Forensic experts from nursing, medicine and academic backgrounds were recruited as survey participants to critique the training module for essential content. Recruitment criteria included baccalaureate education, 5 years’ experience and direct forensic practice. Fifteen surveys were completed and analyzed using descriptive statistics and percent agreement in four specific content areas. Survey results included expert reviewer feedback. This feedback was integrated into the MMTM to meet specifically identified organizational needs. Reviewer open-ended comments were also incorporated in the analysis.

**Results**
Content reviewers exceeded minimal qualifications. Descriptive statistics included raw data and percent agreement for data analysis. Expert content agreement was supported with statistically significant Intraclass Correlation Coefficient (ICC = .838, 95% CI = .638, .944, p < .001) and average pairwise agreements of 90.5% and 89.1% respectively. Survey analysis revealed high levels of expert agreement as comprehensive in ten critical content areas and for meeting forensic standards. The MMTM outline was found to be inclusive of essential content to prepare FNE’s for this expanded role. The MMTM met organizational and expert reviewer expectations for training FNEs in postmortem sexual evidence collection.

**Implications for Practice**
This practice improvement initiative provides the scientific foundation for a multimedia training module as an ideal training platform to expand Forensic Nurse Examiner practice. The design combines the most recent national guidelines for forensic best practice. The multimedia format improves advanced nursing practice and forensic investigations by increasing injury pattern education and specifics on evidence collection. Implementation of the postmortem evidence collection initiative will standardize didactic training in postmortem cases to improve outcomes in both the quality and consistency of sexual evidence collection for female homicide victims. The MMTM is a cost effective, sustainable program for ongoing education in this expanded role. Future pilot testing of the online module and development of clinical components as an interprofessional process with agency experts is anticipated.
Telehospice: A Systematic Review

Purpose
A review of the literature was conducted in order to identify, appraise, and report on the use of telehospice in patient care. Questions addressed in the review were, what is the current state of telehospice practice, who is using telehospice technology, and how is it being utilized in patient care?

Methodology
Inclusion criteria for the review were articles concerning hospice care providers, patients, and family caregivers involved with telehospice. Telehospice interventions for patient care were included in the review. Editorial reviews and commentaries concerning telehospice were excluded for review. Search strings were designed to identify telehospice use and applications. A total of 78 searches were run in 12 databases using search strings with MeSH typology. Data limiters for the searches were peer reviewed articles in English with the range from 1988 to 2013. The grey literature was searched using an ancestry approach.

Results
Using a PRISMA technique, the literature searches yielded 229 articles from the databases and the ancestry search of the literature. There were 125 articles excluded for reasons such as articles were duplicates, policy analysis, commentaries or not relating to telehospice technology and patient care. There were 104 full text articles concerning telehospice that were assessed for review eligibility with 80 of these articles excluded. There were a total of 25 articles included in the review. The 25 articles were published in 18 different journals indicating little possibility of journal bias. The review reflects telehospice use in the U.S. and the United Kingdom.

Implications for Practice
It is clear that the practice of telehospice has relevance for patient care at the end of life. Telehospice has the potential to decrease patient and caregiver isolation during the dying process. Telehospice has the potential for hospice agencies to decrease costs and travel time and allow staff to monitor patients in a timely fashion. Telehospice technologies are significant tools for the delivery of future hospice care. The next evolution for telehospice care may be translational research such as developing an iPad application incorporating patient self-reporting using a standardized end of life assessment and conducting a pilot study. Interdisciplinary research and practice, makes it feasible to develop hardware and software technology that can be incorporated into end of life patient care with measurable patient benefits.
Chronic Pain: Relationship to Depression

**Purpose**
Depression symptoms in people with chronic pain synergistically affect pain perception, and response to pain management and rehabilitation. Providers often fail to recognize and treat depression in patients with chronic pain, which negatively impact rehabilitation outcomes. Limited research exists within the physical medicine setting about the chronic pain–depression relationship.

**Methodology**
With IRB approval and facility agreement, a retrospective chart review was performed to answer the following question: In a sample of males and females ≥18 years of age with chronic pain, are there any significant differences in response to pain management between those who report depression and those who do not, controlling for gender, co-morbidity, age, and other theoretically important variables? Data was obtained from a convenience sample of 103 participants. Descriptive statistics, paired t-tests, and exploratory multiple regression were conducted to answer the study question.

**Results**
Study participants included twenty-eight males (27.2%) and seventy-five females (72.8%) aged 21 to 70, mean age 42.8 (SD=11.82). Approximately 40 percent of participants reported depression at intake; 45% of females and 25% of males. Chi-square analysis revealed no significant relationship between gender and intake depression, χ² (1, N=103) =3.52, p 0.06, although a trend could be inferred. The bivariate analysis showed moderate (± .3) to large (± .5), correlations between drop in pain and depression. A paired t-test showed a significant drop in both pain and depression between time one and time two. A scatter plot revealed a linear relationship of drop in pain by depression. Regression results supported a significant relationship between pain and drop in depression (R² =.199, F (5, 97) = 4.826, p<.001); no other predictors were significant.

**Implications for Practice**
The literature supports assessment and treatment of depression in patients presenting with chronic pain. In patients with chronic pain, treatment of depression improves treatment response for both chronic pain and depression, including positive outcomes on functional rehabilitation. Every patient presenting for treatment of chronic pain should be screened for depression symptoms, and depending on the screening results, assessed for depression and suicidal ideation. A procedure should be in place for treatment and/or referral, particularly when suicidal ideation is present. In terms of risk management and quality of care, it is recommended that if items to assess depression symptoms are included in any intake and/or ongoing clinic paperwork, then a policy and procedure for review and follow-through must also be in place.
Influenza Education to Improve Vaccination Rates Among College Students

**Purpose**
The purpose of this project was to provide influenza vaccine education and improve vaccine uptake among Eastern Arizona College dormitory residents. College students living in dormitories are considered a high-risk population for influenza, and the current vaccination rate for this age group is reported as 41.1% nationally, compared to Healthy People 2020’s goal for influenza vaccination of 80%.

**Methodology**
The project involved implementing an education intervention and collecting post-intervention data to determine (a) the number of students who received the influenza vaccine the previous (2012–2013) season, (b) the number of students who reported getting the influenza vaccine this year (2013–2014), and (c) if the intervention influenced the students’ decision to get the influenza vaccine. The researcher offered a 10-minute CDC-created video about influenza vaccination to students during the first week of school (August 19, 2013), when the dormitory residents had their mandatory meetings. The components of the presentation included an overview of the pathology of influenza and information about the seriousness of influenza, including the fact that healthy people do get influenza and spread it to family and friends.

**Results**
Three hundred students were offered the education intervention, and 187 students responded to the post-intervention survey. The results did not show a statistically significant improvement in vaccination over the previous year. Barriers to vaccination included students who did not think the vaccine was necessary and did not believe they would get influenza. The data analysis methodology used cross-tabulation between watching the video (yes/no) and getting the influenza vaccine this year (yes/no) using chi-square. One hundred eighty-seven students completed the survey, 14 chose not to participate in the survey on the first question, and these responses were removed from the data. Fifty-two (27.81%) students stated they received an influenza vaccination this year; and 135 (72.19%) stated they did not get an influenza vaccination. Forty-two (22.46%) of the students stated that the influenza education provided influenced them to get vaccinated; 47 (37.30%) students that received the education did not get vaccinated.

**Implications for Practice**
Further review is needed to determine a better educational approach for the college dormitory residents. A health policy that assists with the vaccination goal and allocates resources to make it a priority is needed to achieve an improved vaccination rate. It is important to understand that the underlying system of beliefs and values must be transformed for change to be sustainable. An educational program needs to be developed to close the knowledge gap for these students, with the goal of increasing the students’ vaccination rate. Further assessment of college student knowledge of influenza and directed education are needed to increase the influenza vaccination rate among this population.