

Abstracts Describing a Sample of Occupational Health Nursing Evidence-based Projects and Research

2016

Enhancing Professionalism for Army National Guard Occupational Health Nurses

Angelique Lawyer, RN, MSN, MPH, APHN-BC

Background: The Patient CaringTouch System (PCTS) was developed to reduce clinical quality variance by adopting a set of internally and externally validated best practices in order to improve the care provided to patients and their families. In line with the Patient CaringTouch System (PCTS) framework for nursing, the ARNG OHNs participated in activities aimed at increasing occupational health service quality and practice standardization. The Patient CaringTouch System (PCTS) is comprised of five core elements that, when combined synergistically, improve workforce outcomes and nursing staff effectiveness by ensuring the right person is doing the right job, the right way, at the right time. The PCTS 5 core pillars are: Enhanced Communication, Capability Building, Evidence-Based Practices, Healthy Work Environments, and Patient Advocacy.

Method: After months of independent study at their home states, attending a 3-day review course, and joining together in after-hour study groups; 14 nurses sat for the 3-hour COHN-S onsite examination.

Results/Implications: The ARNG nurses exceeded the national pass rate of 74%, 11 of the 14 (78%) passed the exam and became certified COHN-S. This educational training contributed to capability building efforts and nearly tripled the number of ARNG certified OHNs.

Management of Burns

Sylvia Judd, MSN, ARNP-CNP

Background: Burn injuries can have a devastating impact on a person's physical being, their mental health status and their quality of life. Since the skin is the body's largest organ, a burn injury can disrupt thermoregulation, the ability to fight infection and protection against the environment is impeded.

Purpose: This presentation is designed to familiarize the Occupational Health Nurse on the management of burns that may present in the workplace due to exposure to heat, electrical and chemical sources. Burns that cover a certain percentage of body area may be treated in an outpatient setting however it is instrumental to be aware of the burns that need to be referred to a hospital/burn center for specialized care.

Method: This poster will describe the initial care of burns, identify the difference between first, second, third and fourth degree burns, describe the initial care of burns, when to refer to specialized care and discuss follow up care of burns.

Implications: Occupational health nurses should be familiar if they are presented with a burn injury, to know how to properly manage a burn and when to refer to specialized care.

Diabetes at Work: Facing the Unknown

Dominique Bulgin, BSN, RN

Background: The experience of older working adults when managing Type II diabetes in the workplace is impacted by many factors.

Methods: Diabetes at Work: A grounded-theory pilot study explores how these factors affect older adults as they balance managing diabetes with maintaining gainful employment. In-depth qualitative interviews were conducted with six working older adults using grounded theory methodology. This secondary analysis of the study explores how the unpredictable nature of diabetes influences participants' attitudes towards changing their lifestyle and work life to be able to better manage their disease. Open Coding and line by line coding was performed initially, focusing on action and process. Memos were kept throughout the process both to track conceptual ideas and for the purpose of researcher reflexivity. Constant comparison methods were conducted across and between interviews.

Results: A common category emerged from the participants' experiences: acknowledging, fearing, accepting, and ultimately facing the unknown. The unpredictable nature of diabetes was found to be a mental burden to the participants; however, they were able to relieve some of the burden using proactive methods to manage diabetes in and outside of the workplace.

Conclusion/Implications: This pilot study illuminates the lived experience of older working adults with Type II diabetes. By understanding this phenomena, future

interventions can be developed that will allow these individuals better control of their diabetes, which can lead to the preservation of their productivity in the workplace.

Identification of Occupational Home Health Exposures Among Nurses and Aides

Beverly Hittle, BSN, RN, Noma Agbonifo, CSP, MSc, MIIRSM, Rassull Suarez, MD, and Kermit G. Davis, PhD

Background & Purpose: Home healthcare workers face a multitude of occupational exposures, yet there has been limited research. The purpose of this study was to identify the frequency of occupational exposures among home health nurses (HHNs) and home health aides (HHAs).

Methods: Thirty-one HHNs and 23 HHAs were interviewed about the frequency of exposures and hazards over a year of employment. Means for annual frequency of potential exposures and hazards were calculated for HHNs and HHAs with statistical differences identified using independent samples t-tests.

Results: HHNs and HHAs administered oral medications to patients at comparable frequencies. HHNs reported dispensing oral medications to patients 250 times per year compared to 199 times per year for HHAs. HHNs reported administering anti-cancer drugs 19 times per year compared to 10 times per year for HHAs. Both groups reported exposure to drug residue (HHNs at 145 times per year, HHAs at 122 times per year).

Conclusion: Aside from the legal concerns stemming from HHAs working outside their scope of practice, the findings suggest a potential increased risk for an occupational exposure associated with drug residue from oral medications, particularly oral chemotherapy agents. Due to lack of training, HHAs may not be aware of these risks.

Comparison of Vigilance Between Night and Day Shift Nurses

Ojai Prapanjaroensin, RN

Background: Twelve-hour shifts among nurses have been extensively studied because of concerns for both patient and nurse safety. Sleepiness is significantly associated with the risk of occupational injuries (e.g. needlestick injuries) and patient care errors or near errors. Also, performance on tasks requiring vigilance is enhanced during the circadian day and impaired during the circadian night.

Purpose: Therefore, the aim of this study is to determine whether night shift nurses have impaired vigilance at the end of a 12-hour shift compared to day shift nurses.

Method: In this nested, longitudinal study, we enrolled 15 day and 15 night shift nurses who worked at an acute care in southeast U.S. The Psychomotor Vigilance Test was used to measure sustained attention and reaction time at 3 days before the next working schedule as a baseline, at the end of each 12-hour shift for 3 consecutive working days, and at the end of 3 days off.

Results:

Overall, there are significant changes in the median reaction time (MRT) across 5 time periods ($F_{4,25} = 3.77$, p -value = .016). Day shift nurses had faster MRT than night shift nurses ($F_{1,28} = 0.295$, p -value = .592). Following days off, MRT improved in night shift nurses, but not in day shift nurses.

Conclusion:

Longer consecutive working days can affect vigilance among nurses, especially night shift nurses. Organizational and nursing administration should develop strategies to create good work environments for nurses in order to improve patient and nurse safety.

Burnout in the Nursing Profession: Concept Analysis

Aoyjai Prapanjaroensin, RN

Background: Nursing is key to improving the quality of patient care by reducing adverse outcomes. However, poor working conditions may lead to mental and physical health problems in nursing workforce. Poor physical and mental health in nurses could decrease nurse performance and quality of care therefore; nurse burnout has been associated with poor patient safety.

Purpose: Reducing burnout among nurses and improving patient safety are priorities for the American Nurses Association and the Joint Commission. To identify the first steps toward reducing professional burnout, the concept within nursing practice must be identified, defined, and analyzed.

Method: Walker and Avant's method provided the framework for this concept analysis. A review of nursing literature from 2005 to 2015 was conducted using the journal databases CINAHL and PubMed, from which twenty-two articles defining or describing burnout were selected. Results: Emotional exhaustion, negative feelings

and attitudes toward the recipients of the service, and a feeling of low accomplishment and professional failure characterize burnout. Factors preceding burnout among nurses include work overload, time pressure, and ethical conflicts, as well as personal characteristics. Consequences observed among nurses are diminished organizational commitment, turnover, absenteeism, and physical and mental illness. Three empirical indicators of burnout include the Maslach Burnout Inventory, the Copenhagen Burnout Inventory, and the Professional Quality of Life Scale.

Conclusion: Organizational and nursing administration leaders should develop strategies to create good work environments to reduce professional nursing burnout, which in turn will reduce the cost of burnout through employee turnover, replacing nurses, and will ultimately improve the quality of care.

An Integrative Review of Text Message Reminders for Medical Surveillance Exams

Tammy Lockhart, RN

Background: Text messaging has become a preferred method of communication with 81% of adults sending or receiving text. Since 2005, there has been increased usage of text messaging to improve attendance rates for outpatient clinic appointments. Medical surveillance exams are an important strategy for preventing occupational disease. The ability to notify employees of their scheduled appointments poses a challenge in the medical surveillance exam process. The use of text messaging can be expanded to occupational health settings to improve medical surveillance exam compliance by sending reminders to employees when these exams are due.

Purpose: The purpose of this presentation is to evaluate the literature in relation to the use of text message reminders for promoting timely attendance at medical surveillance exams.

Method: The peer-reviewed literature database, SCOPUS, was searched for relevant studies between 2005-2015 using the keywords text message and appointments reminders. Nine articles met inclusion criteria.

Results: Authors for seven of the nine articles reported significant improvement in attendance rates. In one study, no significant improvement was found. In the final study, participants response showed that no show rates would be reduced by 50% if text message reminders were used.

Conclusion/Implications for Practice:

This integrative review establishes using text message reminders for medical surveillance may be an effective method to improve attendance at medical surveillance exam appointments. Future studies are needed to further the use of text message reminders in occupational health settings.

Implementation of Guided Actions to Reduce Recurrence of Sharps Related Injuries

Laura Walker, MSN, RN, CNE, CCRN

Background: Each year, nearly 400,000 needlestick and sharps-related injuries are reported by healthcare workers in hospitals throughout the United States. Since an exposure brings the risk of transmission of deadly bloodborne diseases healthcare organizations are mandated by the United States Occupational Safety and Health Administration to investigate every needlestick and sharps-related injury.

Method: In an acute-care academic hospital organization an educational taskforce was formed through the network wide sharps safety committee to standardize the existing electronic post-exposure investigation process in an effort to better identify behavioral actions and/or system failures that allowed the error to happen. The task force also focused on standardizing the managerial-led educative coaching process to ensure objective sharps-safety best practice remediation methods were being advised for the injured employee by management. Just culture concepts were integrated into the electronic post-exposure investigation and managerial-led educative coaching processes.

Results: Just culture concepts transformed the existing post-exposure investigation process. A fair and safety-supportive systematic approach was created to better assist managers in identifying, addressing, and advising educative actions to reduce the opportunity of future injury recurrences.

Conclusions & Implications: Understanding that many needlestick and sharps related injuries are preventative in nature the incorporation of just culture concepts provided a homogenous process in which managers were able to better identify behaviors and/or systems that allowed the error to happen and proposed corresponding meaningful objective educational resources for the employee in an effort to ensure sharp-safety best practices were cultivated.

Occupational factors associated with obesity and leisure-time physical activity among nurses: A cross sectional study

Dal Lae Chin, RN, PhD

Background: Adverse working conditions contribute to obesity and physical inactivity. The purpose of this study was to examine the associations of occupational factors with obesity and leisure-time physical activity among nurses.

Methods: This study used cross-sectional data of 394 nurses (mean age 48 years, 91% females, 61% white) randomly selected from the California Board of Registered Nursing list. Data on demographic and employment characteristics, musculoskeletal symptom comorbidity, physical and psychosocial occupational factors, body mass index (BMI), and physical activity were collected using postal and on-line surveys from January to July in 2013.

Results: Of the participants, 31% were overweight and 18% were obese; 41% engaged in regular aerobic physical activity (≥ 150 minutes/week) and 57% performed regular muscle-strengthening activity (≥ 2 days/week). In multivariable logistic regression models, overweight/obesity (BMI ≥ 25 kg/m²) was significantly more common among manager/supervisor level nurses (OR=2.54, 95% CI: 1.16-5.59) and nurses who worked full-time (OR=2.18, 95% CI: 1.29-3.70) or worked ≥ 40 hours per week (OR=2.53, 95% CI: 1.58-4.05). Regular aerobic physical activity was significantly associated with high job demand (OR=1.63, 95% CI: 1.06-2.51). Nurses with passive jobs (low job demand combined with low job control) were significantly less likely to perform aerobic physical activity (OR=0.49, 95% CI: 0.26-0.93). Regular muscle-strengthening physical activity was significantly less common among nurses working on non-day shifts (OR=0.55, 95% CI: 0.34-0.89). Physical workload was not associated with obesity and physical activity.

Conclusions: Our study findings suggest that occupational factors significantly contribute to obesity and physical inactivity among nurses. Occupational characteristics in the work environment should be considered in designing effective workplace health promotion programs targeting physical activity and obesity among nurses.

Revalidation (recertification) of nurses in UK public health practice

Helen Kirk, MA BSc(Hons) BA RN RM Queen's Nurse

Background:

In response to public concern about standards in healthcare the UK proposed a new system for periodically checking nurses and midwives were keeping up to date with developments in practice. This proposal was given additional impetus after a

Government sponsored review into serious failings in one hospital (the Francis Report). The UK regulatory body for nurses and midwives (the NMC) proposed a revalidation model built on existing systems of appraisal and Continued Professional Development (CPD) portfolios. The proposed system was piloted in Public Health England (PHE) in 2015.

Purpose: To establish whether a proportionate system could be introduced for checking the practice of nurses and midwives working in public health remains current.

Method: A quarter of PHE nurses and midwives were invited to volunteer for an assessment of their records of CPD and appraisal against proposed and existing NMC criteria. Each volunteer had an appraisal and prepared an on-line portfolio. Results 40 nurses and midwives expressed interest in participating in the pilot. 26 completed the pilot (this number was significantly impacted by a decision by NMC to shorten the pilot period) and provided feedback. Of these 19 provided additional feedback in a post-pilot survey.

Conclusion: Revalidation, as it was proposed for the pilot, is practicable for nurses and midwives working in public health.

Respiratory Protection Toolkit: Providing Guidance Without Changing Requirements. Can We Make an Impact?

Elizabeth Bien, BSN, RN, CNOR, MSN Student

Description: Come and see what life is like for an OHN in a Middle Eastern country. Learn about employee health and well-being in Doha, Qatar and see a variety of work challenges and opportunities. Qatar has been under the microscope due to its 2022 World Cup bid. Come and increase your understanding of the complexities of OHN practice in a Middle Eastern county.

Method: The poster will present data on work conditions in Doha as well as several pictures from a variety of workplaces, and other OHNs engaged in their work activities.

Background: With the widespread accessibility of international travel and the rise of respiratory infectious illness outbreaks both worldwide and nationally, United States healthcare workers are facing increasingly more respiratory exposures than in previous years. In order to ensure the highest quality safety initiatives are being met, one urban healthcare system used the recent written guidance from Occupational Safety and

Health Administration's (OSHA) May 2015 Hospital Respiratory Protection Program Toolkit.

Method: Using a quality improvement model of Plan-Do-Study-Act, the toolkit was used to identify potential opportunities for improvement within the current respiratory protection plan along with an observation tool and a short survey to identify gaps in practice placing employees at risk for exposures.

Results: The toolkit comparison showed strengths of a well-designed Respiratory Protection Program with one identified gap related to not using a respirator during an aerosol generating procedure on a patient suspected or known to have seasonal influenza. Data were collected and assessed for opportunities to mitigate identified controllable risk which included incorrect strap placement, failure to perform a user seal check, and reuse of disposable N95 filtering facepiece respirators. Subsequent interdisciplinary collaboration occurred to develop ideas for practice changes to decrease these risks and better prepare healthcare workers to be protected from potentially infectious respiratory illnesses.

Implications: The use of the toolkit provided a detailed and concise document to evaluate the respiratory protection program showing that while the requirements to meet OSHA guidelines have not changed, the addition of the toolkit can effect a positive change to protect healthcare workers.

Domestic Violence in the Occupational Health Setting: How to Screen and When to Intervene

Candace Sandal, DNP, MBA, APRN, COHN-S, FAAOHN

Background: Many standard occupational health questionnaires do not ask about domestic violence. This issue is pervasive in our society and frequently left unaddressed, leaving the client (and often children) in an unsafe and potentially fatal situation.

Purpose: This poster is designed as an educational module to heighten awareness among occupational nurses about the issue of domestic violence within the scope of work-related health. In the poster presentation, domestic violence is defined and the incidence of cases is acknowledged in the United States. The cycle of violence is explained with the identification of the issues surrounding the abuse including "why doesn't she just leave?" Crucial nursing assessment instructions of the victim are given, with detailed instructions on medical documentation of the findings.

Method: Literature review of the issue and direct education from recognized providers in the field.

Results: How to screen for domestic violence is presented in a simple 2 question process to enable the professional nurse to identify the issue in a brief period of time within a patient encounter. Upon confirmation from the client that abuse has occurred, the poster indicates evidence based practice to assist the victim in obtaining help, understanding the resources available, and becoming empowered. The occupational health nurse is instructed in responses that are supportive and promote safety for the victim and her family.

Conclusions: Occupational health nurses need to be aware not screening for domestic violence is a missed opportunity to recognize this vulnerable population and offer support and resources.

Implications for Practice: Through the poster presentation, nurses can learn the skills to screen for domestic violence and offer support to the victim of abuse, as per best practice guidelines.

Three Masked Men

Nancy Pritchard, RN BSN

Background & Problem: Being a pediatric hospital, a lot of little patients with either a potential or definitive diagnosis of “whooping cough” or pertussis are treated.

Method: A study was conducted to determine the exposure levels and the risk to employees. Staff who would clinically benefit from vaccination were identified. Vaccinations were encouraged, convenient, and free. One department addressed staff concerns with exposure levels. In addition to education, that department identified patients at risk, the location of personal protective equipment, and signage.

Results & Implications: It was found that PPE needed to be increased and located in each room convenient to the staff that needed it and so it was timely to when they needed it. The use of signage was increased. Using a suction cup method on the door allow the risk to be identified rapidly because the sign was turned and all staff entering the room were made aware. The staff were educated on the procedure, the disease process, and the treatment algorithm if exposed. A fun team of Three Masked Men were selected to audit the risk reduction and protective process monthly. When noncompliance was found, that staff was invited to join the masked team. This created a fun way for the staff to engage, empower, and create results. This program

has reduced exposures to staff drastically, yet the patient base has not changed. The staff now feels this is an important way to live out their values and stay healthy.

Diagnosing Latent Tuberculosis Infection in Immunocompetent Adults with a History of Bacille Calmette-Guerin Vaccination

Amy Melvin, DNP, NP-C

Background: Accurate diagnosis and treatment of latent tuberculosis infection (LTBI) is essential to disease eradication in low incidence countries. However, lack of a gold standard for LTBI testing leads to variable clinical practice, and increased healthcare costs. Additionally, vaccination with bacille Calmette-Guerin (BCG) complicates LTBI diagnosis when the tuberculin skin test (TST) is used.

Description: This project presents an evidence-based algorithm for diagnosing LTBI in immunocompetent adults with a history of BCG vaccination to a group of 24 pulmonary clinicians working within a large, urban, public hospital system.

Purpose: The purpose of this project was to 1) determine best practice for diagnosing LTBI, 2) develop and disseminate an educational intervention and clinical algorithm, and 3) determine the effectiveness of the intervention.

Method: We conducted a narrative literature review to guide the development of the algorithm. We included 10 primary research studies analyzing the results of QuantiFERON®-TB Gold (QFT) compared to TST in 22,984 subjects, along with 3 systematic reviews comparing sensitivity and specificity between QFT and TST across 167 studies.

Results: Comparison of pre and post data showed improvements in selection of QFT as the preferred test for LTBI (43% to 100%) and acknowledgement of LTBI as an essential component to TB control (67% to 100%).

Conclusions: An evidenced-based algorithm and educational intervention to guide clinicians in the most appropriate use of QFT has the potential to improve the specificity of LTBI diagnosis.

Implications: Future research should include evaluation of additional education methods, and random chart reviews to assess recidivism rates.

Voluntary Smoke-free Policies in Manufacturing Facilities and Smoke-free Laws

Kacy Allen-Bryant, MSN, MPH, RN

Background: About 1 in 10 workers are exposed to secondhand smoke (SHS) on the job. Smoke-free manufacturing facilities, either mandated by local or state law or voluntarily adopted by the company, is associated with decreased exposure to SHS and employee smoking rates. Approximately 50% of the population is covered by 100% comprehensive smoke-free laws.

Purpose: The study aim was to examine the associations between the presence of voluntary smoke-free policies in manufacturing facilities and the presence of local smoke-free public policies, controlling for county-level sociodemographics and facility-level characteristics.

Method: A secondary analysis of data from the 2010 Kentucky Workplace Tobacco Survey, 2003 Census Urban and Rural Classification database, Kentucky Behavioral Risk Factor Surveillance System, U.S. Department of Agriculture, and the Kentucky Center for Smoke-free Policy database using multi-level regression analysis was conducted. Ninety-three counties (78% of all counties) and 560 facilities (69.1% participation rate) were included in the analysis.

Results: Counties with manufacturing facilities that had voluntary smoke-free policies and larger numbers of employees were more likely to have a comprehensive smoke-free law. Urban status was a significant indicator of comprehensive smoke-free law. County-level median household income, tobacco production, and facility-level smoking cessation resources for employees were not predictors of county-level smoke-free law.

Implications: As consultants, advisors, and advocates for worker health, OHNs in the workplace are in a unique position to influence the adoption of voluntary smoke-free policies and indirectly drive the passing of comprehensive smoke-free laws across the country. Such policies and laws will protect workers from tobacco smoke-related morbidities and premature death.

Posttraumatic Stress Disorder: Implication for Veterans in the Workplace * 1st Place Winner of 2016 Poster, Jacksonville

Candace Burns, PhD, ARNP

Background: Posttraumatic stress disorder (PTSD) is a chronic mental health disorder that follows exposure to a traumatic event. PTSD is a serious mental health

concern for U.S. military personnel who have a higher prevalence of PTSD than the general population – as high as 31% compared to 6-8%.

Purpose: The purpose of this review of literature is to provide occupational health nurses with general knowledge regarding PTSD with a focus on cognitive, physiological and social factors that may impact the reintegration of veterans in the workplace and discuss guidelines, practices and resources relevant to occupational health nursing practice.

Method: A review of literature was conducted using data bases such as PUBMED and CINAHL for relevant research and other literature for the past 10 years 2005-2015.

Results: Common traumatic combat experiences that may result in PTSD include improvised explosive device (IED) blasts, killing enemy combatants, being fired upon, witnessing death or serious injury, fearing loss of life, and being unable to prevent or stop tragic situations. Physical stressors may include harsh living conditions, fatigue, sleep deprivation, hunger, harsh climates, high impact noise, and other hazardous environmental exposures. Psychosocial stressors may include separation from family and friends, interruption in career or employment (especially for military reserve personnel), feelings of inadequate experience or training, and daily life concerns. Upon leaving military employment, there may be low levels of social and other supports in the civilian sector that serve as additional risk factors.

Relevance to Occupational Health Nursing: Occupational health nurses can identify employees' current and former military status through a health and occupational history as well as physical examination. Screening tools can be used including the PTSD Brief Screen, the Short Screening Scale - DSM-V Defined PTSD, and the PTSD Checklist (VA/DoD). PTSD is also commonly associated with coexisting mental health conditions including depression, sleep disturbances, anxiety disorders and substance abuse. If screening results are positive, a referral to specialized PTSD treatment can be made, provide collaborative mental health support and educate employees about PTSD and the positive impact a supportive environment can provide.

Macaque Monkeys & Herpes B Exposure: A Deadly Duo for Workers

Stephanie Hammond, DNP, CRNP

Background: Herpes B is a zoonotic agent, and is a naturally occurring agent among macaque monkeys. Macaque monkeys are the most commonly used monkey for research. Workers at greatest risk for exposure are laboratory workers, veterinarians,

and others who would have close contact with macaque monkeys. The virus is similar to herpes simplex virus in humans, but monkeys may show mild or no symptoms at all. The virus can result in encephalomyelitis, resulting in death or severe impairment in humans. Exposure can occur from bites or scratches, percutaneous inoculation with infectious materials, mucosal splash, and human-to-human transmission. The virus can only be transmitted during active viral shedding, which can occur when monkeys are stressed, immunocompromised, breeding, or ill. Symptoms of the virus include vesicular lesions at site of exposure, flu-like aches and pains, fever, chills, headaches, fatigue, shortness of breath, and muscular incoordination. Post exposure treatment includes care of the area exposed, laboratory testing, examination, education, and treatment. The medication of choice for prophylaxis is antivirals like acyclovir. The monkey and exposed worker undergo exam of the disease, serologic and PCR testing, and scheduled follow-ups.

Purpose: The purpose of this presentation is to educate the audience of the potential risk involved after an exposure to Herpes B. While the exposures are rare, a potential exposure can be fatal if not properly evaluated and treated. In 1997 a worker contracted the virus from a mucosal splash and exposure and died as a result. It is important to educate nurses and providers of potentially exposed workers about the possible deadly consequences of an exposure.

Method: This presentation will include background information about Herpes B, prevention of an exposure, and evaluation and treatment post exposure.

Results: Occupational health nurses will have increased knowledge of Herpes B, potential exposure risk and the treatment and follow-up required after a Herpes B exposure, after reviewing the poster presentation.

Conclusion/Implications: Occupational nurses and providers can use the information and treatment provided in this presentation for potential exposures in the future.

Impact of Vaccine Preventable Diseases Policy on Increasing Influenza Vaccination Rates in Healthcare Workers

Linh Tran, MS, RN, OCN

Background: MD Anderson Cancer Center (MDACC) is a comprehensive cancer care and research institution in Houston, Texas with over 20,000 employees.

Purpose: To describe the impact of an institutional policy and mandatory participation program on increasing influenza vaccination rates in health care workers (HCW).

Method: MDACC designed and implemented the Vaccine Preventable Diseases Policy (VPD) which mandated participation in the annual influenza campaign for all clinical operations (12,000+) employees in 2012. The institutional policy required all employees to either receive a flu shot or wear a surgical mask when caring for patients for the duration of the respiratory virus season. Program compliance consisted of receiving a flu shot or signing a waiver/declination. Compliance stickers on identification badges were issued to serve as a visual confirmation to those who have been vaccinated.

Results: The overall employee vaccination rate for the 2011-2012 flu season was 75%, 86% in high-risk areas and 83% in nursing. Following policy implementation in 2012, vaccination rates rose from 10-18% in all targeted groups in one year. For the 2012-2013 season, Employee Health provided 17,883 flu shots, the overall vaccination rates increased to 93%, high risk areas achieved 96%, and nursing reached 95%. Since 2012, vaccination rates have steadily risen to to >95% in all groups

Conclusion: The VPD policy has had a major impact on increasing HCW vaccination rates at MDACC. Institutional policies, supported by mandatory participation programs, are an effective mechanism to increase and maintain HCW vaccination rates.

Develop Home Healthcare Workers Stress Scale

Geunjae Lee RN, COHN-S, MSN Graduate Assistant

Background: Home health care is one of the most rapidly growing industries in the United States. Turnover is very high among home healthcare workers(HHCWs). More than 60% of caregivers working for private duty home care companies quit or were fired in 2014. Attracting and retaining HHCWs is a high priority for many home healthcare agencies. While multiple studies have been conducted relating to occupational stress/job satisfaction for HHCWs, there is no psychometric tool designed specifically for home health care workers. Properly measured stressors will help administrators and the home health care industries create efficient interventions and stress management programs.

Purpose: The purpose of this proposed study is to develop a psychometrically sound instrument that measures stressors in home health care workers.

Method: Design and method Quantitative, cross-sectional survey research design will be used to measure the component of the HHCW's occupational stresses. The sample will be drawn from State board of nursing public data base. Respondents will be emailed a link to complete the consent and survey using the secured web-based survey collector known as Research Electronic Data Capture (REDCap). Data will be extracted from the REDCap database and imported into IBM SPSS for statistical analysis. Expected result/Hypothesis 1. Test- retest reliability coefficient will be 0.7 or greater 2. Cronbach alpha for the HHCW questionnaire will be 0.70 or greater 3. Content Validity Index (CVI) score for the HHCW questionnaire will be average of 0.80 and above 4. Factor analysis results will establish construct validity of the instrument.

Implications: Developed questionnaire will specifically measure stressors that focus on HHCWs. Data and knowledge gathered through developed questionnaire will engage with further study to collect larger, validated, reliable data to understand and measure accurate components of stressors. With accurate and adequate stress data, administrators and home health care industries can implement effective and precise stress prevention or manage strategies to address the current issues.

Evaluation of the Civilian Health Promotion Services Program at Air Force Materiel Command – Are Modifiable Health Risks Reduced and What is the Return on Investment (ROI)?

Judith Holl, BSN, MPH, COHN

Background: Modifiable health risk factors such as obesity and high stress are associated with increased health care costs for workers and reduced productivity. Employers that implement risk reduction programs can achieve long-lasting population health improvement at a reasonable cost. Evidence-based programs may also increase workforce performance and force readiness.

Description: Air Force Materiel Command (AFMC), in collaboration with Federal Occupational Health (FOH), implemented the Civilian Health Promotion Services (CHPS) program in FY06 to improve population health and maintain a productive workforce in order to support civilian employees and the mission of the Air Force. The components of the CHPS program include a wellness web portal, education classes, wellness challenges, awareness campaigns, body composition screenings, and Cardiac Risk Profiles (CRPs). The key to the CHPS program is mobile worksite wellness and a population health management approach.

Method: AFMC, FOH, and Truven Health Analytics utilized information gathered from the CHPS program as well as medical cost data provided by the Office of Personnel Management to document longitudinal changes in health risk assessment (HRA) participation, population health outcomes, and economic impact (measured as a return-on-investment (ROI)).

Results: The evaluation found there were risk reductions in obesity, high cholesterol, high blood glucose, physical inactivity, poor nutrition, tobacco use, and high alcohol consumption in the aggregate sample and the aggregate sample achieved a positive ROI.

Implications: The project underscored accountability for human capital investment programs from both a health and a financial perspective.

An Analysis of Workplace Violence Training Programs Used in Healthcare Settings

Donna Zankowski, MPH, RN, COHN

Background: Workplace violence is a serious work-related hazard for all healthcare workers, and a very important concern for OSHA. In the summer of 2014, the Graduate Nurse Internship Program of the Office of Occupational Health Nursing at OSHA was given the opportunity to analyze the content of commercially available training programs used to prevent workplace violence (WPV) in healthcare settings.

Purpose: The objective of this project was to create a set of relevant criteria elements for evaluating WPV prevention training, create and populate a usable database, and analyze and present the findings.

Method: Through a search of available information (including research papers, legal statutes, on-line resources, previous OSHA citations, and the WPV prevention training recommendations of professional organizations), a set of 42 qualitative data elements were identified. After receiving samples of 12 different WPV prevention programs training materials, a thorough review of all training materials content was conducted using the 42 data elements. The relevant coded data were then compared to OSHA's recommended training criteria for healthcare settings.

Results: The results demonstrated many important, and consistent gaps in training content.

Implications for Practice: The information obtained from this project will assist OSHA to better understand what healthcare workers are being taught as part of their on-the-job WPV prevention training. It can also alert Occupational Health Nurses,

Administrators and Managers to be aware that the WPV prevention training conducted at their healthcare facility may be missing critical information in the prevention of WPV.

Understanding the Interactions between Young Adult Cancer Survivors and Occupational Safety and Health Professionals

Dawn Stone, PhD(c), RN, ANP-BC, COHN-S
Wendie A. Robbins, PhD, RN

Specific Aim and Goal: **Aim:** To understand the interactions of employed young adult cancer survivors with occupational and environmental health professionals within the workplace **Goal:** To generate theory grounded in the words of young adult cancer survivors and OEH participants that explains interactions within the workplace.

Rationale/Background: Approximately 70,000 young adults (age 15-39) are diagnosed with cancer annually in the United States (NCI, 2015). Despite this high number, young adult survivors have received little attention from researchers in comparison to children and older adults diagnosed with cancer. Recent studies support the view that people between the ages of 18 and 40 are the most underserved age group in cancer research (NCI, 2011). The National Institute of Occupational Health and Safety also recognizes the need to research and eliminate health discrepancies in cancer survivors as indicated in their Occupational Health Disparities Program (2012).

Methods: Constructivist grounded theory was the qualitative design used for this study. Semi-structured individual interviews generated data from young adult cancer survivors five years post treatment. Survivor sample was obtained through a dataset from the California Surveillance Program in Los Angeles. During the interviews, survivors identified the professionals that were most helpful to them in the workplace. Based upon this feedback, occupational health professionals were recruited from their respective professional organizations and also interviewed individually. Data analysis utilized constant comparative analysis of verbatim transcription of interviews and memos that constructed categories and themes. This study was approved by IRBs at UCLA and the State of California.

Results: Many young adult cancer survivors are working, however some experience lingering pain or fatigue, influencing functionality in the workplace. Cancer survivors often expressed fear about limited employment opportunities as a consequence of the late effects of cancer or its treatments, as well as stigma or discrimination from others.

The impact of cancer on people's working lives is an increasingly important concern but knowledge about this issue by occupational and environmental health professionals is variable. Major themes grounded in the words of the participants included identity, disclosure, support, and uncertainty.

Implications: Understanding the interactions between young adult cancer survivors and occupational health professionals within the context of the workplace has potential to improve quality of life for survivors while promoting awareness of the challenges confronted and the services needed for support. Ultimately, assessments and interventions can be developed with the aim to manage symptoms associated with the consequences of cancer while promoting adaptation to the workplace. Exploring strategies to keep survivors working will help reduce fiscal burdens of utilizing public support for those that are disabled. The National Cancer Institute can use this theory to develop evidence-based guidelines for occupational health and oncology nursing practice.

Improving HIV Post-exposure Follow-up in Healthcare Workers

Linda Gutierrez, MSN

Background: Occupational exposure to HIV is a significant risk for all healthcare workers. In the United States every year, 1 out of 10 U.S. healthcare workers suffers a blood or body fluid exposure (BBFE). Transmission of one serious blood-borne infection can cost more than a million dollars for medications, follow-up laboratory testing, clinical evaluation, lost wages, and disability payments. Completion of HIV PEFU in HCWs is very low nationally. It is estimated only approximately 27-43% of HCWs complete PEFU, even when the source patient is known to be HIV positive. The PEFU adherence rate among HCWs for a major Southern California VA Medical Center was poor. None of the 52 HCWs reporting BBFE in 2013 completed recommended follow-up.

Purpose: The purpose of this practice change is to increase the rate of adherence to evidence-based guidelines for HIV post-exposure follow-up (PEFU) in healthcare workers (HCWs) through implementation of revised infection control policy and reminder system.

Method: This evidence-based practice change involved development of an infection control policy based on new evidence-based US Public Health Service guidelines for occupational blood/body fluid exposures to HIV and creation of a reminder system for follow-up care.

Results: Preliminary Data: Since initiating the NP led practice change in December 2014, 100% of employees (N=37) involved in BBFE have completed recommended HIV PEFU.

Conclusion/Implications for Practice: This post-exposure follow-up program increased adherence to the new infection control policy and improved the rate of HIV PEFU in healthcare workers.

Workplace Sexual Violence in Female Truck Drivers: A Conceptual Framework to Look at the Problem

Kimberly Bourne, MSN, RN. SANE, CEN
Debra Anderson, PhD, PHCNS-BC

Background: Worldwide, workplace sexual violence affects more than 50% of women; 33% are harassed, 8% are raped, and approximately 40% of workplace deaths are the result of homicide. In the United States, the majority of these deaths are related to intimate partner violence. Due to the characteristics female truck drivers share with victims of workplace sexual violence and the nature of their job, they are at risk for this problem. Little is known about workplace sexual violence in this population.

Purpose: The purposes of this presentation are to discuss what is known about three types of workplace sexual violence (harassment, sexual assault and intimate partner violence) and to present a new conceptual framework that will be used to study workplace sexual violence in female truck drivers.

Methods: Articles in English between 1980 and 2015 were searched in PubMed, CINAHL, PsycInfo, and MedLine using the keywords female truck drivers, rape, harassment, and intimate partner violence.

Results: Workplace sexual violence victim characteristics include: black and white race, middle aged or younger, lower incomes, and lower education levels. Workplace risks include: working late hours at night or early in the morning, working alone, working in isolated areas, working with the public, and working in a mobile workplace. Female truck drivers are white (75%) and aged 30 to 50 (60%), have low to middle incomes (62%), and high school to some college education (90%). They have irregular schedules, drive and park in high crime areas, and work daily with the public. Implications for Practice: This conceptual framework provides information about the trucking industry, including female driver characteristics, and presents a framework

outlining how variables (background, psychosocial, and social/work environment) can increase the risk for workplace sexual violence in this vulnerable population.

Effects of A Workplace Environmental Intervention on Improving Physical Activity, Prolonged Sitting, Cardiometabolic Health and Productivity in Sedentary Workers: A Pilot Study

Yun-Ping Lin, PhD

Background: There is little research on effective programs for increasing physical activity and reducing sitting aimed at improving worker health and productivity. Purpose: To test the feasibility and efficacy of a 3-month workplace environmental intervention.

Method: A pilot study using a quasi-experimental design. A total of 99 office workers (52.5% women; mean age=49.8±8.6 years), from two workplaces, participated in this study. The intervention included five components: monthly newsletters; motivational tools; pedometer challenge; environmental prompts; and walking paths. The comparison group received monthly newsletters only. Measures were collected at baseline and 3 months and included blood glucose, insulin, cholesterol (total, HDL, LDL), triglycerides, blood pressure, waist circumference, BMI, physical activity, occupational sitting and physical activity, and productivity loss outcomes. Generalized estimating equations were used to examine changes over time for the outcome variables.

Results: The intervention group showed significant improvements in BMI ($p<0.001$), diastolic blood pressure ($p<0.001$), total cholesterol/HDL ratio ($p=0.021$), and physical activity ($p=0.018$). Although no treatment effects were seen for waist circumference, week-day sitting time, workplace sitting and walking time, and productivity loss, significant improvements were observed in both groups ($p<0.05-0.001$).

Conclusions: Preliminary evidence suggests that the workplace environmental intervention is feasible, and it can improve worker health and lost-productivity. Even with only monthly newsletters, we observed some positive effects on the comparison group.

Implications for practice: Employers should consider implementing interventions, focusing not just on increasing physical activity but also on reducing sitting. Our findings can be used by occupational health professionals to guide the implementation of environmental interventions.

Use of physiologic markers to evaluate firefighters' reactions when exposed to stressors

Georganne Kincer, RN, MSN, COHN-S

Background: The National Fire Protection Association reported that of 64 firefighter fatalities during 2014, 36 (56%) were due to heart attacks. The literature on firefighters supports that deaths from heart attacks (or sudden cardiac death) have been the number one cause of on-duty firefighter fatalities for a decade (NFPA, 2015). It is imperative to find ways to reduce risks to firefighters.

Purpose: The proposed study seeks to examine vital signs as early warning signs of cardiovascular and respiratory distress during firefighting activities. The ultimate goal is early detection of firefighter distress allowing for interventions to reduce acute exposures prior to occurrences of cardiovascular or pulmonary compromise, while still allowing firefighters not demonstrating distress to perform their essential job functions and trainings.

Method: Investigators will monitor firefighters' blood pressure (BP), heart rate (HR), tympanic temperature (TT), oxygen saturation levels (SpO₂), perceived exertion (RPE), and respiratory distress (RD) levels during routine live-burn training exercises. HR will be continuously monitored during the live-burn training scenarios using Zephyr Bioharness, and pre- and post-scenario measurements of BP, HR, TT, SpO₂, RPE, and RD will be gathered. This quantitative, repeated measures research design will be used to measure vital signs on a convenience sample of approximately 55 firefighters.

Results: A statistically significant ($p = 0.05$) increase in firefighters' vital signs, RPE, and RD scores and a decrease in SpO₂ will be demonstrated during post-live-burn training compared to baseline measures, after adjustment for potential confounders and covariates.

Conclusion/Implications for Practice:

Feasibility:

- Determined feasible to acquire previously collected VS data and replicate VS collection methods in expanded study.
- Total required sample size: projected for expanded firefighter VS study analysis ($N = 55$).
- An estimated total of ten additional live burn exercises at regional sites will be required to achieve a sufficient sample size for a VS analysis.

- Determined feasible to acquire previously collected VS data and replicate VS collection methods in expanded study.
- Fire departments and fire fighters accepted VS surveillance during the live- burn trainings.

Limitations:

- Majority of sample subjects in prior TRT effort have been urban, Caucasian men.
- Not all fire departments perform annual medical testing or provide stress tests for their firefighters providing fewer sample subjects that meet study eligibility criteria.

Practice Implication:

- Fire Departments and fire fighters assented to surveillance of VS during live burn exercises. Suggests VS surveillance may be tolerated during fire fighting in the field.

Factors Affecting Back Pain in Firefighters * 3rd Place Winner of 2016 Poster, Jacksonville

Mantana Damrongsak, PhD, RN

Background: Occupational back pain is a significant health and safety problem in many industrialized countries for persons who are required to perform work-related forceful movement and lifting. Firefighters, an occupational group at high risk for back injury, perform many job tasks under hazardous work conditions. Almost one-third (30.20%) of the firefighters reported current back pain. Occupational stress, age, history of back pain, and BMI predicted the variability in current back pain among firefighters.

Purpose: This study aimed to: 1) identify the best subset of predictors of back pain in firefighters from the set of occupational stress and demographic factors (age, history of back pain, BMI, and waist circumference); 2) test whether the addition of job satisfaction and perceived supervisor social support to the best predictive model increased predictive ability; and 3) to test whether the addition of physical fitness to the model increased predictive ability.

Method: A non-experimental, correlational design was used in this study.

Results: A convenience sample of 298 male firefighters completed the Job Stress Survey, Job Satisfaction Survey, and the Content of Communication scale instruments. The findings showed almost one-third (30.20%) of the firefighters reported current back pain. The set of factors that included occupational stress, age,

history of back pain, and BMI predicted the variability in current back pain among firefighters (pseudo R² = 0.351). Age and history of back pain were significant independent predictors of back pain.

Conclusion/Implications for Practice: Statistically significant independent relationships between occupational stress and job satisfaction and between perceived supervisor support and job satisfaction were found. Further studies should validate the model and explore relationships among perceived supervisor support, occupational stress, and job satisfaction in other occupational groups including nurses.

Interdepartmental Collaboration to Reduce Conjunctiva Exposure Risk: Process Improvement to Increase Awareness and Enhance Compliance

Victor R. Lange, BS, BA, MS, MSPH, *JD, ICP, CRC, CRA

Background: While most clinicians make an effort to avoid needle-stick injuries and hand contamination, less attention is given to preventing infection risk from body fluid and/or contaminant splashes to the eye. Infectious pathogens, such as HIV and hepatitis, can transfer through eye mucous membranes. An estimated 62% of all reported non-sharp blood and body fluid exposure incidents occur to the conjunctiva and greater than 90% of these occur without proper eye protection.

Purpose: The purpose of this presentation is to demonstrably improve employee safety.

Method: This study embarked on an interdepartmental, collaborative, process improvement program to reduce and prevent eye-splash exposure through increased risk awareness and enhanced protective eyewear compliance. Detailed education on risk, including discussion about exposure incidences and best-practice prevention, was attended by all clinical staff. Easy-to-access protective eyewear dispensers with eyewear were installed in Surgery, Med-Surg, Intensive Care, Cardio-Pulmonary Lab, Engineering, and Environmental Services. Staff were reminded to review risk prior to initiating an action where a splash may occur. Mask- and glove-level eye protection was implemented. A splash reporting tool was placed near eyewear dispensers. Splash exposures and "splash saves" were tracked.

Results: Compared to the prior 12 months of baseline data, program implementation resulted in 100% reduction in eye splashes and, in 90 days, 15 splash saves

Conclusion/Implications for Practice: Collaboration among Infection Prevention, Occupational Health, Nursing Education, and Executive Management as well as use and availability of appropriate protective equipment provide an opportunity to virtually eliminate eye exposure and significantly improve healthcare worker safety.

Internet Usage of Commercial Drivers: Implications for Practice and Research

Karen Heaton, PhD, CEN, FNP-BC
Bryan Combs, MSN, CRNP, FNP-BC, CNL, ATC

Background: Mobile health device (mHealth) use has significantly increased and has targeted smoking cessation, dietary intake, diabetes, and prostate cancer screening. However, mHealth or internet use of commercial truck drivers (CTD) is unknown, in spite of the availability of smart technology and wifi.

Purpose: The purpose of this poster is to discuss the significance of commercial driver internet accessibility and usage as related to health information and telemedicine.

Method: Participants (N = 106) completed a survey in a study of the feasibility and effectiveness of an internet-delivered sleep hygiene program. To be included in the study, all participants had to have access to and use a laptop computer or smart phone.

Results: The sample consisted mostly of white, married males aged 50 years old. Drivers were experienced (m = 18 years); on the road, on average, five days in a row and traveled just over 1,500 miles during a typical trip. Most used laptop computers and smartphones for truckstop internet access using portable wifi devices. Many CTD reported no internet usage during the day. Reasons for internet use differed during personal vs. work time. For personal use, the CDT accessed the internet for news, weather, and social networking. For job use, CDTs accessed the internet to get directions or maps, interact with dispatchers, and transmit logs or other documents. CDTs accessed the internet less than once a day for health information on and off the job. CDTs use the internet differently on and off the job, and did not use the internet for health information.

Conclusion/Implications for Practice: Further research is needed to determine if the internet is the best way to deliver health information or care (telemedicine) to CDT.

Predictors of U.S. Healthcare Utilization by Agricultural Workers

Abby Mutic, CNM, MSN

Background: Agricultural workers have disproportionately high risk of occupational injury and disease yet have insufficient access to healthcare. Despite expansion of clinical networks, utilization remains inadequate.

Purpose: This poster examines the characteristics of farmworkers who accessed healthcare services and evaluates the influence of English literacy on the likelihood of seeking healthcare.

Method: Data from the 2011-2012 US National Agricultural Workers Survey were examined from 12 regions. Workers, surveyed at their workplace, reported on work, family, and health conditions.

Results: Survey methods were utilized to account for complex survey design when estimating parameters and computing variance estimates. Bivariate analysis were performed on a subset of characteristics to test for significance with accessing health services in the last two years. A logistic regression determined characteristics likely influencing tendencies to access care. Workers (n=3025) were comprised mostly of Spanish-speaking (70%) males (72%). Sixty three percent had a 10th grade education or less, 32% were uninsured, and 61% accessed care. Migrant farmworkers were 60% (OR: 0.4, CI 0.3, 0.5) less likely to access care than non-migrants. Female workers were 3 times (CI: 2.3, 4.0) more likely to access healthcare than men. Those with chronic health conditions were significantly more likely to access care. Workers who engaged in adult education (ESL, migrant ed., job training, even start, or college) or who read English were almost two (CI: 1.5, 2.2) and three times (CI: 1.9, 3.7) more likely to access care respectively.

Conclusion/Implications for Practice: Aside from chronic conditions and insurance, gender and English literacy were most predictive of healthcare utilization.

2015

Diabetes at Work: Facing the Unknown * 2nd Place Winner of 2016 Poster, Jacksonville

Dominique Bulgin, AD; Elizabeth Anne Thomas, PhD, RN, ANP-BC, COHN-S, CNL, FAAOHN

Aim: The experience of older working adults when managing Type II diabetes in the workplace is impacted by many factors. *Diabetes at Work: A grounded-theory pilot study* explores how these factors affect older adults as they balance managing diabetes with maintaining gainful employment.

Method: In-depth qualitative interviews were conducted with six working older adults using grounded theory methodology. This secondary analysis of the study explores how the unpredictable nature of diabetes influences participants' attitudes towards changing their lifestyle and work life to be able to better manage their disease. Open Coding and line by line coding was performed initially, focusing on action and process. Memos were kept throughout the process both to track conceptual ideas and for the purpose of researcher reflexivity. Constant comparison methods were conducted across and between interviews.

Results: A common category emerged from the participants' experiences: acknowledging, fearing, accepting, and ultimately facing the unknown. The unpredictable nature of diabetes was found to be a mental burden to the participants; however, they were able to relieve some of the burden using proactive methods to manage diabetes in and outside of the workplace.

Conclusion: This pilot study illuminates the lived experience of older working adults with Type II diabetes. By understanding this phenomena, future interventions can be developed that will allow these individuals better control of their diabetes, which can lead to the preservation of their productivity in the workplace.

Sleep Quality and Obesity among Female Hospital-Based Registration Nurses

Julia Buss, MS, RN

Aim: Shift-working nurses are vulnerable to poor sleep quality. Previous research findings show short sleep increases preference for high fat/high sugar foods, and is associated with obesity. This study describes prevalence of obesity, and its association with sleep duration and sleep quality among hospital nurses.

Method: A cross-sectional web-based survey was used to collect data from members of the Academy of Medical/Surgical Nurses. Participants self-reported caffeine and alcohol intake, waist circumference, and height and weight used to calculate body mass index (BMI). Obesity is defined as BMI >30kg/m²; abdominal obesity is waist circumference >88cm. Sleep quality and duration were measured with the Pittsburgh Sleep Quality Index (PSQI). Scores can range from 0-21, and >5 indicates poor sleep

quality. Pearson correlations were used to test associations between BMI, waist circumference, and sleep variables.

Results: A total of 256 nurses completed the survey; 35% were obese, 50% had abdominal obesity, 78% reported poor sleep quality, with mean sleep duration 7.4 ± 1.5 hours. Worse sleep quality was correlated with higher BMI ($n=220$ $r=0.23$ $p<0.001$), higher waist circumference ($n=198$ $r=0.23$ $p=0.001$), use of alcohol to sleep ($n=219$ $r=0.14$ $p=0.03$), and use of caffeine to stay awake ($n=220$ $r=0.26$ $p<0.001$). Sleep duration was negatively correlated with BMI ($n=226$ $r= -0.15$ $p=0.02$) such that the shorter the sleep duration, the higher the BMI.

Conclusion: Sleep quality and short sleep may be important risk factors in vulnerability for obesity in female hospital nurses. Interventions to improve sleep among shift-workers need to be included in worksite wellness programs.

Stress Evaluation in a Brazilian Nursing Team: Salivary Cortisol Levels, the Job Stress Scale and the Perceived Stress Scale

Angelica Consiglio, PhD, MSC, RN; Ann Paula Scherer de Brum, RN; Jassica Porto Faira de Paula; Ana Maria Muller Magalhes, PhD, RN

Aim: To evaluate stress in an emergency nursing team using

Method: 56 women who work in a nursing team in Emergency Room and Pre and Post Surgery Units were evaluated according to their salivary cortisol levels, the Perceived Stress Scale and the Job Stress Scale. Salivary cortisol levels were determined in three time points: at awakening, 30 minutes after waking up and before sleeping at night. Data was submitted to a t- test; $p < 0.05$ was considered statistically significant. The study was approved by the local ethics committee.

Results: The average perceived stress score was (25.03 ± 7.71) and the Job Stress Scale was (38.13 ± 4.22) . The cortisol levels taken 30 minutes after awakening were higher in the Emergency Room team $(32.64 \pm 16.08$ nmol/L) when compared to the Pre and Post Surgery Units team $(23.56 \pm 12.56$ nmol/L), $p=0.04$.

Conclusions: Stress, as a risk factor for many diseases, is indeed high in the E.R. nursing team. E.R. has an intense workload demands. The cortisol, as a biological marker is, not only above the normal range within this group, but also higher than in the other Unit.

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A Systematic Review of Control Measures to Reduce Hazardous Drug Exposure for Healthcare Workers * 1st Place Winner of 2015 Poster, Boston

Rachael Crickman, MN, BSN, RN, OCN, AOCNS, BA

Question: What evidence-based control measures exist to reduce or eliminate the risks of occupational hazardous drug exposure for healthcare workers? **Search**

Methods: Databases included in the search were PubMed, the Cumulative Index to Nursing and Allied Health (CINAHL), the Cochrane Library, and Embase. The search covered years from 1979 to March, 2014.

Review of Evidence: The initial search yielded 499 publications, 29 of which met final review criteria.

Method of grading evidence: Selected articles and guidelines were graded according to the strength and quality of the evidence, using the Johns Hopkins Nursing Evidence Rating Scale (2012).

Synthesis of findings: Strategies to reduce risk of occupational exposure to hazardous drugs were hazard identification, engineering controls, personal protective equipment, and environmental monitoring.

Next steps: Few studies examine the effectiveness of a comprehensive hazardous drug control program employing multiple interventions for reducing or eliminating risk for all healthcare workers. Additional research is needed to evaluate this, as well as explore the level of precautions required for non-cytotoxic hazardous drugs, and the reproductive risk posed to males for hazardous drug exposure.

Development, Implementation and Evaluation of an Evidence-Based Safety Guideline to Reduce the Risk of Musculoskeletal Injuries for Older Workers

Nancy Delloiacono, DNP, RN, ANP-BC

Background: There is a paucity of evidence-based nursing guidelines available for occupational health nurses to assess, educate and evaluate musculoskeletal changes that occur with age. These changes increase the risk of workplace injuries many times resulting in extended lost work time, disability, or even death. The number of older workers will increase dramatically in the coming years and therefore, occupational health nurses will be faced with many challenges when caring for the "new" workforce.

Aim: The purpose of this project was to provide occupational health nurses with the knowledge needed to provide quality care for older workers.

Method: New Jersey occupational health nurses were surveyed to identify the top three work-related injuries seen in their practice. Overexertion injury was the most prevalent. Because there were no existing nursing guidelines addressing musculoskeletal safety for older workers, an evidence-based guideline was developed to fill this gap. To disseminate this guideline, an online educational program was developed. To evaluate this program, occupational health nurses completed a pretest and posttest. One month following the program, the nurses were assessed for their knowledge retention. To see if the knowledge gained resulted in a change in practice, nursing documentation in older worker employee health records at three New Jersey organizations were reviewed.

Results: Chart review demonstrated a change in practice by incorporating the new knowledge.

Conclusion: In order for occupational health nurses to care for these individuals using "best practice," they need evidence-based safety guidelines. These guidelines help to reduce injury, guide practice and impact policy for older workers.

CPAP on the Road-The Experience of Long-haul Truck Drivers: A Case Study
***Tied for 3rd Place Winner of 2015 Posters, Boston**

Kenya Kirkendoll, MSN, MPH, RN
Karen Heaton, PhD, FNP-BC

Background: Obstructive sleep apnea (OSA) is a chronic health condition characterized by recurrent episodes of upper airway collapse and obstruction which result in episodes of apnea and hyperpnoea during sleep. The prevalence of OSA in the general population is estimated at 4% among males and 2% among females. This is in stark contrast to estimated OSA prevalence of 13% to 28% among commercial

motor vehicle CMV) drivers. Untreated or ineffective treatment of OSA is associated with changes in cognition, increased risk of motor vehicle crashes and daytime sleepiness. Treatment of OSA with continuous positive airway pressure (CPAP) for as few as 2-7 days has been associated with improved performance on a driving simulator. Much of the sleep disordered breathing research among CMV drivers focuses on OSA prevalence. With high estimations of OSA among CMV drivers, it is imperative that empirical research explores CPAP use in this population.

Aim: The purpose of this qualitative descriptive study was to describe long-haul truck drivers' experiences with CPAP when they were on the road.

Method: Individual interviews were conducted with two long-haul drivers who were diagnosed with OSA and used CPAP. A semi-structured interview guide was used to explore their CPAP experiences. Both were solo, company employees with a combined 33 years of professional experience. Interviews were audio recorded and transcribed verbatim. Content analysis was used to identify similarities and differences in CPAP experiences.

Results: The experiences of being diagnosed with OSA and using CPAP were very different for the two participants, yet there were similarities. Participant #1 was knowledgeable of OSA and CPAP and believed using CPAP had a positive impact on his life. In contrast, participant #2 did not feel CPAP was beneficial and struggled with acceptance of the OSA diagnosis. Both were compliant with CPAP therapy despite challenges encountered using CPAP on the road.

Conclusion: Findings from the case study can be used to raise awareness about the challenges faced by long-haul truck drivers in their efforts to adhere to CPAP therapy and to inform CPAP adherence initiatives and policies in the transportation industry.

Factors Associated with Safe Patient Handling Behaviors and Lift Use Among Hospital Nurses: A Statewide Survey of California Nurses

Soo-Jeong Lee, PhD, RN; Joung Hee Lee, MSN, RN

Background: Unsafe patient handling is the primary cause of musculoskeletal injury among nurses. Safe work practices are important to prevent musculoskeletal injury. This study investigated factors associated with safe patient handling behaviors and lift use among hospital nurses.

Methods: This cross-sectional study analyzed data from a statewide random sample of 212 California hospital nurses who performed patient handling. Data were

collected using postal and online surveys on socio-demographics, organizational safety practices, physical and psychosocial job factors, musculoskeletal symptoms, risk perception, perception about lift use, frequency of lift use, and safe patient handling behaviors.

Results: Lift equipment was available for 65.6% of the participants (n=139); these nurses reported using lifts $\leq 25\%$ of the time (51.5%), 26-50% of the time (18.1%), 51-75% of the time (10.9%) and 76-100% of the time (19.6%) when lifting/transferring physically dependent patients. Positive perceptions about lift use (easiness, patient comfort, time, access, storage) were associated with frequent use of lifts ($p < 0.05$). In multiple linear regression analysis, safe patient handling behavior was associated with safety climate (beta=0.29, $p = 0.0004$), availability of lifts (beta=0.25, $p = 0.0002$), older age (beta=0.14, $p = 0.041$), and day shifts (beta=0.13, $p = 0.048$). For physical workload, job strain, and musculoskeletal symptoms, only bivariate associations were observed with safe patient handling behaviors. Risk perception was not correlated with safe patient handling behaviors.

Conclusions: The findings suggest that safety climate, lift availability, and perceptions about lifts are important factors for safe work practices of nurses. Special attentions are needed to younger nurses working non-day shifts to promote safe work practices.

Mining Career Firefighter Injury Data to Build a Proactive Occupational Health Program

Cynthia M. Lyons, BSN, RN, OHN-S
Karyl A. Kinsey, PhD
Stephanie Phelps, PhD(c)
OiSaeng Hong, PhD, RN, FAAN, NP

Objectives: 1. Describe occupational injuries among career firefighters in Austin, TX and the settings where they are most likely to occur. 2. Evaluate impact of treatment delays on costs and days lost by comparing compensable claims that started as “incident only” reports to those that started as medical. **Background:** Firefighting has a high incidence of occupational injury. The National Fire Protection Association estimated 65,880 firefighter on-the-job injuries occurred in 2013. This report examines the prevalence and characteristics of occupational injuries among Austin firefighters to identify areas where occupational nurses can provide a more proactive approach to medical assistance.

Methods: Data were coded from 472 First Report Injury forms filed by Austin firefighters in 2013.

Results: 72% of injury reports started as “incident only” (IO), meaning no intent to seek medical treatment, however 14% (n=68) later converted to medical. On average, compensable claims that started as IO cost \$1,437 more and had 39.6 more hours lost than claims started as medical, and were more likely to occur for training and exercise injuries and to involve the abdomen, foot, hip, and groin. Overall, the major injury-producing activities were fitness exercises (27%), dispatched incidents (23%), and training (17%). Weight-lifting exercises had four times the cost and days lost than all other exercise injuries combined. Higher costs/days lost for non-exercise injuries involving lifting/lowering or pushing/pulling suggest moving heavy objects as a possible common factor across settings.

Conclusion: Occupational nurses can play a key role in reducing unnecessary treatment delays by reviewing reports to determine the need for prompt treatment and intervening if necessary before problems worsen. The higher costs of weight-related injuries point to a need for more training on proper lifting techniques, given the necessity of moving heavy patients, tools, and objects in the course of job duties.

Occupational Health Impact of a Non-Surgical Treatment for Carpal Tunnel Syndrome

Michael Politis, PhD

People who can avoid the expense and uncertainties of surgery for carpal tunnel syndrome (CTS) by effectively managing their symptoms should be able to maintain job productivity. One such management tool is a popular home therapy device called Carpal Rx, yet little is known about its impact on job productivity.

Aim: This study followed subjects using the device for 6 months to ascertain 1) if they avoided surgery, and 2) if the device affected their job productivity.

Method: Subjects were interviewed monthly for 6 months. Thirty-one subjects completed the survey. Each subject answered a series of subjective questions pertaining to occupation, symptoms, and the device. Other health and demographic parameters were recorded. Each question required a numerical response and results were analyzed using rank-sum nonparametric analyses. Subjects came from 20 distinct industries (e.g., food service, assembly line, secretarial) and all subjects used the Carpal Rx at least once daily for 30 days. Device use frequency and duration generally curtailed non-linearly up to 6 months.

Results: No subject scheduled surgery during this time. Except for 3 subjects (who quit or were terminated for non-CTS reasons), all reported working in the same job. This research demonstrates that an effective non-surgical therapy can be used to help CTS sufferers maintain their jobs.

Conclusion: It is concluded that the Carpal Rx can relieve carpal tunnel symptoms substantially so that patients can avoid surgery and maintain their jobs.

Health Effects of Van Pooling to Work

Dawn Stone, PhD(c), RN, ANP-BC, COHN-S
Wendie Robbins, PhD, RN

Aim: Shared commutes to work such as vanpooling benefit the environment and provide economic gain for riders in terms of fuel cost and personal vehicle wear and tear. Although ride sharing is commonly believed to promote health through stress reduction, there are limited publications on this topic and findings vary.

Method: We explored perceived health and well-being of vanpoolers using a qualitative, descriptive study. Five focus group of vanpoolers and two individual interviews with drivers were conducted.

Results: Stress, change in sleep patterns, and interpersonal relationships emerged as major themes. Employee insights about the impact of vanpooling on work and implications for van pool programs were also important findings in this study.

Emergency Preparedness: A Case Study in Massachusetts Hospitals

Mary Taschner, MS, ANP-BC

Background: Emergency preparedness in Massachusetts hospitals has evolved since 9/11 and has been challenged by threats of terrorism, meteorological disasters and public health emergencies. Understanding the development and implementation of emergency preparedness policy and practice in Massachusetts hospitals may illuminate areas for improvement in disaster response as we face future events. **Objective:** To examine the development and implementation of emergency preparedness policy and practice in Massachusetts hospitals following the 9/11 terrorist attacks to identify areas for improvement and areas of success in future response.

Methods: This case study used a qualitative descriptive approach. Data utilized were documents and archival records related to emergency preparedness and hospitals and

federal and state emergency preparedness policy. In addition, a systematic literature review of emergency preparedness in the hospital setting for nurses and other first responders was conducted. A snowball technique was used to recruit key informant nurses and other leaders with historical and present knowledge of emergency preparedness policy and practice in Massachusetts hospitals. Twelve semi-structured interviews were conducted and content analysis was completed to identify emerging themes and lessons learned.

Findings/Conclusions: Four key findings are identified. The importance of standardized training and inter-professional collaboration across health care and other first responder disciplines; the value of all-hazards planning and regional cooperation among organizations; the impact meteorological events, public health emergencies, and terrorist incidents have had on emergency preparedness planning and response and the impact of decreased funding. Findings will inform current emergency preparedness efforts in Massachusetts.

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