

Public Health Practice Experience

Poster Presentation Session

Abstracts

July 26, 2011

Title of Project: DEVELOPMENT OF A RESPIRATORY PPE ASSESSMENT SYSTEM FOR AN OIL AND GAS PRODUCTION CHEMICAL COMPANY

Student Name: Alice Cole

Academic Advisor and Department: Dr. Sterling, PhD., Department of Environmental and Occupational Health

Site Supervisor and Location: Amanda Burwell, MPH, Product Compliance Manager MultiChem Houston TX

Introduction: Chemical exposures in the oil and gas industry are highly variable due to the wide variety of hazards and exposure scenarios. While personal protective equipment, or PPE, is available, exposures differ by task and it is not always clear which PPE should be selected. During this practicum, an exposure assessment model called Advanced REACH Tool (ART) is evaluated by comparing the predicted inhalation exposures against empirical data collected from air samples during actual field operations. If the model is sufficiently accurate, proper respiratory PPE for each chemical and scenario can be selected and exposures reduced.

Methods: The ART modeling program was developed to estimate exposure levels of specific chemicals by evaluating both the inherent emission rate of the chemical and the specific circumstances of a given exposure scenario. Industrial hygiene air sampling provided empirical data from liquid transfers and was compared to the ART model estimated data. After validation of the modeled data, the model will then be applied against chemicals where industrial hygiene samples are not yet available.

Results: The ART model estimated exposure levels for each scenario correlated well to the actual industrial hygiene air samples. Empirical data of one worker for glutaraldehyde was 0.02ppm when the ART model estimated 0.0289ppm when performing liquid transfer. The slight over predictions is on the side of caution and is still applicable to assigning respiratory PPE.

Conclusion: Modeling for chemical exposures is helpful when assigning PPE because of the cost effectiveness and relative ease. The ART model is a useful assessment tool when estimating for inhalation exposure to specific chemicals, after validation. Industries with highly variable chemical hazards and exposure scenarios can use modeling to help supplement and complement actual industrial hygiene sampling, which can be time and cost intensive.

Title of Project: COMMUNITY BASED PROGRAMS AND OPERATION SMART AT GIRLS INCORPORATED OF TARRANT COUNTY

Student Name: Alisha Ford

Academic Advisor and Department: Dr. Dennis Thombs, PhD, Social and Behavioral Sciences

Site Supervisor and Location: Melissa Oden, Girls Incorporated of Tarrant County

Introduction: Girls Incorporated of Tarrant County is a service organization with a mission of providing quality educational and relevant programming for adolescent girls. One component of Girls Incorporated is its community based programming that houses a number of programs provided throughout the year. During the summer months, Girls Incorporated puts on SMART Camps aimed at educating and changing girls' attitudes ages 6-18 years old about science, math, and relevant technology.

Methods: Using the National Institutes of Health Emerging and Re-emerging Infectious Disease curriculum, a week long SMART Camp was developed and centered around educating girls about emerging and re-emerging infectious diseases. The curricula used conveys the relationship between biomedical research and the improvement of personal and public health as an underlying goal.

Results: The results of the camp are still pending. However, we will base the success of the program on the pre- and post-test results from an abbreviated version of the Disease Detective curriculum that was implemented earlier in the summer. These results will also be used to make any necessary improvements to the program before the final camp. The desired outcome is to see an increase in participant awareness and knowledge about disease and disease related topics. Engaging participants and increasing participant self-efficacy in mastering science related topics will also be assessed.

Conclusion: The importance of the SMART Camps is to develop girls' enthusiasm and skills in science, technology, engineering, and mathematics. After completing the SMART Camp, girls should have increased knowledge and confidence of disease related topics. Girls should also feel more confident about pursuing careers in the scientific community.

Title of Project: EVALUATING HAZARDS OF WASTE ANESTHESIA GASES IN A HOSPITAL SETTING

Student Name: Jada Harrison

Academic Advisor and Department: Dr. Youcheng Liu – EOHS

Supervisor and Location: Joyce Hood, Occupational Health Services at Cook Children's

Introduction: The Occupational Health Services Department at Cook Children's Hospital re-evaluates the potential hazards of Waste Anesthesia Gases (WAGs) every few years. WAGs are small amounts of volatile anesthetic gases that leak from the patient's anesthetic breathing circuit into the air of operating rooms during delivery of anesthesia and may also be exhaled by patients recovering from anesthesia in the Post Anesthetic Care Unit (PACU). Several studies have linked long-term low concentration exposure to WAGs with DNA breakage and other genetic damage, spontaneous abortions, liver and kidney disease and cancer.

Methods: Personal exposure sampling was conducted for four hours with passive nitrous oxide monitors which were placed in the breathing zone of ten employees and analyzed for nitrous oxide concentration. Each concentration was then compared with both the recommended exposure limit (REL) from the National Institute for Occupational Safety and Health (NIOSH) and threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH).

Results: Analysis of the badges showed one of the ten employees was exposed to 82ppm of nitrous oxide which is above the REL of 25ppm and TLV of 50ppm. The median concentration was 4.75ppm. All other exposures were well below the REL and TLV.

Conclusion: Many of the recommended controls to reduce exposure to WAGs in the hospital setting were already in place at Cook Children's. However, the high nitrous oxide concentration found in the analysis of the passive monitoring badges requires further investigation.

Title of Project: OPERATION SMART: DISEASE DETECTIVES AND SCIENCE EXPLORERS SUMMER CAMPS

Student Name: Jennifer Holman

Academic Advisor and Department: Dennis Thombs Ph.D., FAAHB, Social and Behavioral Sciences

Site Supervisor and Location: Melissa Oden DHEd, LMSW-IPR, MPH, CHES, Girls Incorporated of Tarrant County

Background: The Operation SMART (Science, Math and Relevant Technology) program was first developed by Girls Incorporated in the 1980's in response to the shortage of women entering careers in science, math, engineering and technology. SMART programs are designed to increase interest and knowledge, as well as change girls attitudes about science, math and relevant technology fields. Today, Operation SMART programs are the most popular and widely implemented Girls Incorporated program. The purpose of this practicum was to plan and implement SMART camps focusing on health sciences.

Methods: Working with a team of interns we planned three SMART camps. The first two camps were held at Miss Endy's Christian Academy in the Como neighborhood. The Science Explorers camp, for girls aged 7-9, focused on nutrition, physical activity, sleep, hygiene, and animal and plant sciences. The Disease Detectives Camp, for girls aged 10-14 used National Institutes of Health approved activities focused on epidemiology and emerging and re-emerging diseases. The final Disease Detectives Camp is planned to be held at the University of North Texas Health Science Center during the last week of July for girls aged 12-14.

Results: A preliminary Girls Incorporated Operation SMART program evaluation found that the more SMART camps a girl participates in, the more interested she will be in science, math and relevant technology fields. The pre/post tests from the Disease Detectives and Science Explorers camps held at Miss Endy's Christian Academy showed the girls improved in their knowledge on topics covered in the camps. The same results for the final Disease Detectives camp are expected.

Conclusion: Overall, this practicum involved hands on experience in planning and implementing a program from start to finish, putting together theory-based lessons targeted at a specific audience, and practice in facilitation.

Title of Project: ACTIVITIES AT BEAR RIVER HEALTH DEPARTMENT

Student Name: Jeremy Jennings, MBA, Dual Degree DO/MPH Student

Academic Advisor and Department: Fernando Wilson, PhD, Department of Health Management and Policy

Site Supervisor and Location: Ed Redd, MD, Deputy Director/Chief Medical Officer, Bear River Health Department, Logan Utah

Introduction: This internship was designed to occur in the setting of a Health Department at the intersection of clinical medicine, administration, and public health practice. The emphasis was on experiencing and participating in as many of the department's activities as possible.

Methods/Discussion: Responsibilities at the internship involved assisting and participating with various employees of the Health Department in their respective duties and fulfilling tasks as assigned. Activities spanned various components of epidemiology, a number of differing clinics, environmental health, and working with the administration.

Results: I gained a new appreciation and knowledge of the breadth of activities undertaken at a health department and how these activities fit into the healthcare system. Through hands on involvement I also gained valuable insight into the human component of carrying out public health working with the community. I had daily access to public health professionals to discuss policy, funding, and what obstacles they face.

Conclusion: The population served by Bear River Health Department has little understanding of the services offered daily to protect and preserve their health. The experience and perspective gained through this internship will be assets as I move forward in my career as a healthcare professional. It became clear that the line between medicine and public health is significantly blurred the closer you get to actual practice.

Title of Project: TRIUMPH IMAGERY FOR CANCER: DELIVERY AND INTEGRATION OF A GUIDED IMAGERY PROGRAM INTO PATIENT CARE

Student Name: Christopher Klekar

Academic Advisor and Department: Dr. Karan Singh, Department of Biostatistics

Site Supervisor and Location: Dr. Susan Franks, UNT Health Science Center, Texas Prevention Institute, Primary Care Research Center, Fort Worth, TX

Introduction: Guided imagery is one of the most identifiable complementary cancer therapies. As a form of cognitive therapy, it has been shown to improve the immune system, psychological health and quality of life. Despite these known advantages, imagery has not been fully integrated into the modern medical care of cancer patients. The goal of the TRIUMPH program is to improve the integration of guided imagery into cancer care by providing easily accessible, self-directed educational resource materials for cancer patients, their caregivers and healthcare personnel.

Methods/Discussion: Cancer support centers from across the continental United States who are service-only organizations have been targeted as sites for the delivery of this program. In addition to being established non-profit organizations, the client base of these service centers offer a reliable source of subjects to gauge program interest and utilization. Additionally, these centers will accommodate educational outreach programs necessary to impact awareness and increase the use of imagery programs in the care of cancer patients.

Results: The program has currently recruited 50% of the necessary 50 cancer service centers within the continental United States as partners for the TRIUMPH Imagery for Cancer program. Community outreach programs using guided imagery lectures at cancer service centers and using a Facebook community page have been developed and implemented as methods to promote awareness of the program within the cancer-patient and healthcare community.

Conclusion: TRIUMPH Imagery for Cancer currently is currently in the recruitment phase and the collection of statistics for utilization patterns is not underway. The results of these data will be used for reporting to the funding agency and in securing funding for the future expansion of the program. Guided Imagery lectures have been completed at three out of the proposed six centers. A web site is currently in its planning stage.

Title of Project: CLOSING THE GAPS IN REFUGEE ACCESS TO HEALTHCARE SERVICES

Student Name: Anne Lantey

Academic Advisor and Department: Dr. Claudia Coggin, PhD, CHES, Social and Behavioral Sciences

Site Supervisor and Location: Laila Amara, Fort Worth Area Director, Refugee Services of Texas, Inc.

Introduction: The Refugee Services of Texas (RST) is a non-profit agency that assists refugees with their resettlement process in the Fort Worth Area. As a service to its clients, RST assists them by setting up medical appointments, offering transportation to initial healthcare visits, and applying for their Medicaid coverage. However, after the initial eight months in the U.S., Medicaid coverage is no longer available to adult refugees and many are left without access to medical care. In addition, gaps also in access to dental care and mental health services

Methods: Clients who no longer had Medicaid coverage were identified from the list of 2010 client arrivals. These clients were contacted and those without private insurance were assisted with navigating application and eligibility process of John Peter Smith (JPS) hospital's Connection program. JPS Connection is a low, fixed cost assistance program that will give clients access to a wide array of medical services, low cost prescriptions, and discounted dental care. A quick reference folder has been created for the case managers to assist clients in the future. Relationships have also been established with key contacts in several agencies aimed at simplifying the referral process to dental and mental health services.

Expected Results: Ensured and seamless transition from Medicaid coverage to JPS Connection resulting in continuity of medical care, and access to dental care not previously covered through Medicaid. Linking clients with culturally appropriate mental health services is expected to increase utilization of these services.

Discussion/Conclusion: No conclusion can be made at this time about the effectiveness of this project, but the procedures in place are expected to close existing gaps in healthcare access.

Title of Project: ARE PRIMARY CARE PHYSICIANS MISSING OPPORTUNITIES FOR PRIMARY PREVENTION?

Student Name: Patrick Ndudi

Academic Advisor and Department: Dr Kristine Lykens HMAP

Site Supervisor and Location: Dr Harrison Ndetan Parker University Research Institute

Background: Healthy people initiatives have called for more preventive services and health promotion. The purpose of the study was to assess self-reported levels of engagement in general health education (HEd) services among the medical (MD) and osteopathic (DO) primary care providers.

Methods: Multiple logistic regressions was applied to the 2005-2007 National Ambulatory Medical Care Survey (NAMCS) data to assess the provision of HEd counseling by MDs and DOs with patient, visit, and practice characteristics. The complete multistage probability design structure was applied to generate national population estimates of patient visit encounters where HEd services were provided.

Results: About 286 million patient visits were made to both provider groups during 2005-2007 with 7.5% to DOs and 92.5% to MDs. HEd was provided on 103.8 million (37.1%) visits. Fewer services were rendered as patient s aged but did not differ by gender. More HEd was offered to blacks than whites [OR 1.4, 95%CI (1.02, 1.27)] as were “other” races [OR=1.36, 95%CI (1.12, 1.64)]. Providers were more likely to advise patients they diagnosed with hypertension, diabetes, or obesity but not based on computed blood pressure levels or body mass index. Self-paying patients were more likely to receive advice but general advice levels did not differ by provider group. Level of HEd increased with the involvement of nurses in patient care.

Conclusion: No significant difference in HEd engagement could be identified between MDs and Dos. Despite health care initiatives for primary prevention opportunities are still being missed by primary care physicians.

Key Words: Health education, patients’ visits, primary care

Title of Project: COMMUNITY HEALTH NEEDS ASSESSMENT

Student Name: Hannah Pervin

Academic Advisor and Department: Dr. Sejong Bae, PhD., Biostatistics.

Site Supervisor and Location: Deborah Blake; Department of Community Health Improvement, Texas Health Resources, 612 E Lamar Blvd, Arlington, TX 76011

Introduction: Non-profit hospitals must conduct a Community Health Needs Assessment (CHNA) every three years to determine which people in the communities they serve have disproportionate unmet health-care needs. The Texas Health Resources (THR) system will be conducting a CHNA for all their hospitals from 2012-2013.

Methods: Planning is currently being done to determine what internal and external data is desired for this assessment, and these needs are being communicated to system personnel and consulting data collection firms who will be involved in the project.

Results: The major areas that will be addressed in the CHNA surveys and focus groups are 1) perceived health care needs in the community, 2) underserved groups, 3) barriers to access and/or utilization, and 4) areas of dissatisfaction with existing services. The "area served by each hospital" also will be defined over the course of the assessment, and the demographic characteristics of those communities described.

Conclusion: Once the areas of greatest need have been identified for the hospitals in the THR system, community development and health education resources can be directed based on the assessment's results to address them and improve the health of the populations.

Title of Project: HAZARD ANALYSIS OF REPETITIVE STRESS INJURIES AND IDENTIFICATION OF TARGETED INJURY PREVENTION STRATEGIES WITHIN A COMPANY'S WORKFORCE

Student Name: Sunzida Sharmin

Academic Advisor and Department: Joon-Hak Lee, PhD, Environmental and Occupational Health

Site Supervisor and Location: Lilly Ramphal, MD, MPH, Mentor (Johnson & Johnson)

Introduction: According to the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), repetitive stress injuries are the nation's most common and costly occupational health problem, affecting hundreds of thousands of American workers, and costing more than \$20 billion a year in workers compensation. All companies and employees have an interest in reducing repetitive stress injuries. To achieve this goal, it is essential to understand and describe the nature of occurrence of repetitive stress injuries in each working environment. The objective of this project was to identify the areas where these injuries were occurring in Mentor, LLC, in order to apply preventive measures.

Methods: The injury data, demographics and other related information was collected from the Nurse Practitioner at Mentor LLC. Chi-square analysis was used to test the injury rate, race, gender, departments and injured body parts to find out targeted areas where injuries were occurring with highest frequency and severity so that targeted preventive measures could later be applied in these areas with greatest efficacy. SPSS software was used to do the statistical analysis.

Results: The test showed that there were more injuries among females than males ($p=0.004$). Injuries were more common in the upper extremities than lower extremities or lumbar region ($p=0.004$). A higher incidence of injuries occurred in the packaging department ($p=0.022$) where repetitive activities were occurring on daily basis.

Conclusion: This project has provided an opportunity to apply the concentration specific competencies, hazard identification, data analysis and to identify the most vulnerable employees where the repetitive stress injuries were occurring at Mentor (Johnson & Johnson), LLC. Mentor has introduced a targeted preventive exercise program to reduce repetitive stress injuries. The effect of this program will be assessed later this year with similar statistical methodology.