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Public Health Practice
Experience
Poster Presentation Session

Abstracts

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**DATA QUALITY AND RESOURCE EFFICIENCY IN THE
NORTH TEXAS HEALTHY HEART PROJECT**

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Site Supervisor: Kimberly Fulda, Dr.P.H.
Academic Advisor: Shande Chen, Ph.D.

Continuing the effort to identify racial/ethnic disparities in cardiovascular disease, the Primary Care Research Institute at University of North Texas Health Science Center initiated the North Texas Healthy Heart Study. 573 subjects, in two separate phases, participate in the ongoing multi-year study. To study the racial/ethnic disparities, each subject was given an initial in-depth physical exam with a questionnaire and then contacted again for yearly follow-ups over the phone and/or subsequent clinical visit. With 573 subjects and potentially over 1000 data points per subject, data entry and management can quickly consume a significant amount of resources. Focusing on importance of maintaining high quality data and efficiently utilizing resources, I researched potential improvements using technology.

**MATERNAL AND CHILD HEALTH RESOURCE INFORMATION RESOURCE
CENTER: CHALLENGES AND LIMITATIONS OF IMMUNIZATION DATA
IN TARRANT COUNTY**

Epidemiology and Health Information, Tarrant County Public Health
Site Supervisor: Micky Moss Moerbe, M.P.H., Biostatistician
Academic Advisor: Kathryn Cardarelli, Ph.D.

Retrospective immunization data of first-grade students for the 2006-2007 school year were obtained from thirteen Tarrant County independent school districts (ISD). Immunization information was gathered by Tarrant County Public Health through collaboration with ISD lead nurses. The collected data required conversion from the various Text, Word, Excel, and other formats in order to be condensed into one master database. The varying formats resulted in an appreciable amount of manual entry and time. The quality of the provided information varied regarding demographic information, exemption notation, and immunizations received. Since data were received from some ISDs on students other than first-graders, an inclusion criterion was formulated by dates of birth from August 31, 1999 through September 1, 2000. The analysis to be performed will provide the immunization rates and compliance of Tarrant County which will be utilized to influence public health policy and programs. Challenges and limitations will also be discussed.

**BAYLOR HEALTH CARE SYSTEM, INSTITUTE FOR HEALTH CARE
RESEARCH AND IMPROVEMENT, DEPARTMENT OF
QUANTITATIVE SCIENCES, BIOSTATISTICS**

Kelly M Bowers
Baylor Health Care System
Site Supervisor: Derek Blankenship, Ph.D., Director of Biostatistics
Academic Advisor: Karan Singh, Ph.D.

Statistical analysis provides invaluable tools within the health care industry. Every aspect of the mathematical science can be incorporated into the complicated process of running a large and successful hospital corporation. The responsibilities of the biostatisticians at Baylor quantitative sciences department are endless; it is their job to not only play an integral part in furthering health research by implementing their expertise in clinical trials, research projects or analyzing data bases, but they also are responsible for monitoring the operating status of each hospital by designing and conducting “report cards” and customer satisfaction analysis. The employees in the quantitative science department are responsible for designing nearly all of the electronic records and databases that contain valuable health record information. Their analysis of this data, in collaboration with the physician’s research questions is constantly providing the most recent and cutting-edge conclusions and discoveries in the field of public health and medicine.

**URBAN WATERSHED PROTECTION PROGRAM: AN OVERVIEW OF HOW A CITY
COUNTERACTS NON-POINT SOURCE POLLUTION**

Benjamin Cruz
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Site Supervisor: David Hunter, R.S., MPA
Academic Advisor: Joon-Hak Lee, Ph.D.

The City of Denton Watershed Protection Division has a multi-pronged approach aimed at mitigating the City’s nonpoint source pollution problems. The City manages the entire urban water cycle, including drinking water treatment/distribution and wastewater collection/treatment. Furthermore, water, wastewater, and storm water infrastructure within the city plays a critical role in pollution control and prevention. Our efforts focused on monitoring, collection, analysis, and interpretation of water quality data as well as consistent construction site inspections and utilization of technological innovation. We further investigated environmental modeling that simulates watershed-scale loading where monitoring is not feasible. My practicum experience touched on all these aspects of the Watershed Protection Division while gaining insight on how the City of Denton handles a rapidly expanding population in light of these issues. The outcome of this experience is evolving as the City faces issues with businesses, industries, and residential areas being identified as sources of pollution.

**THE ASSOCIATION BETWEEN HYPERTENSION AND FOLATES: A STUDY
IN DISPARITIES AT THE NATIONAL LEVEL**

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Academic Advisor: Sumi Suzuki, Ph.D.

A lack of Folates in an individual's diet has been associated with an increase in the homocysteine concentration in the body. Elevated homocysteine levels result in lower Nitric Oxide production which inhibits vasodilation. Previous work has demonstrated the inverse association between Folate levels and hypertension, homocysteine and Folates, and homocysteine and CVD, but never on a nationally represented sample for the US. To study this association we performed a secondary data analysis using NHANES 2005-2006. The study so far shows that the hypertensive have the highest levels of Red blood cell Folates, while the normotensive have the lowest level of Folates. This suggests that the lack of Folates in the normotensive group will usher them into the pre and hypertensive categories. Where the hypertensive are taking more appropriate measures to help manage their blood pressure so their Folate levels are lower.

**TARRANT COUNTY PUBLIC HEALTH: A GLIMPSE AT THE
TUBERCULOSIS ELIMINATION DIVISION**

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Tuberculosis Elimination Division
Tarrant County Public Health
Site Supervisor: Drs. Guadalupe Munguia-Bayona and Stephen Weis
Academic Advisor: Sue Lurie, Ph.D.

Tarrant County Public Health aims to promote and maintain the health of the entire community. One department inline with this vision is the Tuberculosis Elimination Division, which works to combat one of the world's most widespread infections. Through a collaborative effort between physician, nursing staff, researchers, and outreach workers, the division endeavors to prevent, treat, and develop innovative approaches to tackling tuberculosis in Tarrant County. Two important tasks of the division include location-based screenings at the many homeless shelters in Fort Worth and coordination of directly observed therapy. As a DO/MPH student, witnessing the actions of the physician within this team reinforced and enhanced two key tenants of practice for the public health physician: preventative care and population-based medicine.

THE USE OF BMI IN RISK ASSESSMENT OF MULTISTATE TRANSPORTATION EMPLOYEES

Emily Mire

Medical and Environmental Health Department of a Multistate Transportation Company

Site Supervisor: Sharon Clark, DO, M.P.H., FACOEM

Academic Advisor: Terry Gratton, Dr.P.H.

As body mass index (BMI) increases, so does the prevalence of diseases such as hypertension, diabetes, and sleep apnea, all of which can have serious implications in the workplace. To study this correlation within a subpopulation of multistate transportation employees, height, weight, and reported disease status data was extracted from Federal Motor Carrier Safety Administration Commercial Motor Vehicle Driver Certification examinations. When available, previous BMI data was extracted, allowing trends to be identified. Within this population, the odds of obese examinees having a diagnosed disease are 2.47 times the odds of non-obese examinees having a similar diagnosis. A weight gain of 4.4 lbs per 1.6 years was found, and significant difference in the mean BMI from matched pairs of previous and current exams does exist ($P < .05$). The results have been used to create a proposed risk matrix which can identify employees considered “high risk” and begin the prevention and screening process.

WHICH FACTORS DO DETERMINE MEDICAL EXAMINERS' ATTITUDE TOWARDS EMPLOYING PHYSICIAN ASSISTANT IN FUTURE?

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Medical examiner's (ME) survey was conducted after randomly selecting the email list of National Association of Medical Examiners by Dept. of PA studies. The survey consisted of 16 questions related to demographics and attitudes of ME's towards hiring PA in future. Based on some questions four new variables were created: 1)potential PA capacity in ME's office; 2)potential PA capability for working with ME; 3) potential economic and efficiency benefits of employing a PA in ME's office; 4)ME's familiarity with employing PA. There were three variables significant in univariate analysis: potential capacity, potential capability and potential economy ($p \text{ value} < 0.05$). Using model building procedure (Forward stepwise), results showed that only potential capacity and potential economic benefit are significant variables. Even after controlling for potential capability, I found that potential PA capacity and potential economic benefits are the only significant factors which determines whether ME will employ a PA or not ($P \text{ value} < .05$).

**IS THERE ANY DEMOGRAPHICAL VARIATION AND/OR EFFECT OF SMOKING,
DIABETES AND ALCOHOL DRINKING ON SEVERITY OF PERIODONTAL
LOSS OF ATTACHMENT?**

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Loss of attachment (LOA) of periodontal ligament is the unique diagnostic sign of periodontitis. Past studies had shown that there is racial variation in the prevalence of the disease. Also very few studies has been done using national database on periodontitis. I selected all the persons with age 18 or older and having at least some kind of LOA during oral examination from NHANES 2003-2004 dataset. Then I categorized LOA in severe ($LOA \geq 3\text{mm}$) and less severe ($LOA < 3\text{mm}$). After running univariate analysis for LOA using demographical variables, smoking, alcohol drinking and diabetes as predictors, I found that age, gender, income, education, diabetes, alcohol drinking and smoking were significant ($P \text{ value} < .05$) in determining the severity of LOA. After using model building procedure, I found that income, education, alcohol drinking had significantly protective effect on LOA ($P \text{ value} < .05$) where as age and smoking had detrimental effect on LOA ($P \text{ value} < .05$).

**DEPRESSION AND SOMATIZATION ASSESSED AMONG
THOSE RECEIVING EXPERIMENTAL TREATMENTS
FOR CHRONIC LOW BACK PAIN: A PILOT STUDY**

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John C. Licciardone, D.O., M.S., M.B.A.
Academic Advisor: Shawn Jeffries, Ph.D.

This study assesses the relationship between depressive mood behavior, somatic perception and experimental treatments among those subjects participating in the Low Back Pain Study. A total of 180 surveys were gathered from 29 subjects. We obtained baseline data, and followed subjects through weeks 1, 2, 4, and 8. Data gathered using SPSS 15.0 showed that 24% received treatment group A (OMT and ultrasound), 20.7% received group B (sham OMT, ultrasound), 27.6% received treatment group C (OMT, sham ultrasound), and 27.6% received treatment group D (sham OMT, sham ultrasound). Repeated measures analysis of variance showed no main effect of time. ($F=0.245$; $p=0.784$). There was also no significant interaction between time and type of treatment ($F=0.249$; $p=0.781$). In addition, there was no significant interaction between time and depression/somatization scores ($F=0.557$; $p=0.695$). A larger sample size may be needed to identify any relationships between OMT and depression and somatization, if they truly exist.

**GEOSPATIAL MAPPING OF MOTOR VEHICLE COLLISIONS
INVOLVING PEDIATRIC PATIENTS**

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Academic Advisor: Kyung-Mee Choi, Ph.D.

Injuries resulting from motor vehicle collisions is the number one cause of death for children over the age of one in the United States. Geographic Information Systems (GIS) is a computer mapping program that enables spatial and statistical analyses to be performed using multiple variables of data. In collaboration with Children's Optimal Health, a GIS mapping program will be used to generate a series of maps using multiple variables of data. Maps will show restraint usage in motor vehicle collisions by residential location, and locations of motor vehicle, pedal cycle, and auto-pedestrian collisions that occurred in Travis County. We will conduct a retrospective review of data from medical records for patients seen in the Emergency Department at Dell Children's Medical Center for motor vehicle collision injury who were younger than fifteen years old. The resulting maps will be used to inform Austin area injury prevention programs to better target preventative resources and education efforts to areas of greatest need.

**PATIENT TEACHINGS IMPARTED TO SPANISH-SPEAKING
POSTPARTUM WOMEN**

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Academic Advisor: Claudia Coggin, Ph.D.

All postpartum women at Parkland Hospital receive a "Mother & Baby" booklet containing information on self-care and newborn-care. All the contents for this patient teachings project for Spanish-speaking women came from the booklet; and the most relevant information imparted in Spanish one-on-one by reading, explanation, or "questions & answers" in two settings. In the first setting were illiterates, primiparas or both. Teaching emphasis for primiparas was on everyday issues. The number of illiterates may be one per month; however, they require special tutoring, mostly through reading. Today illiterates are not receiving personalized teachings. In the second setting were mothers of infants in-treatment, premature or both upon discharge from Neonatal Intensive Care. These mothers received newborn-care teachings with great emphasis on being comfortable in their knowledge of daily and emergency care. Currently Pediatric Nurse Practitioners use Interpreters when teaching newborn-care; and, this project's success may include "Educator" in the Interpreter's function.