Introduction

The Office of Public Health Practice is pleased to publish the e-book for the academic year of 2008-2009. It is a compilation of student practicum abstracts completed during the Spring of 2009. Students at the end of the semester had the opportunity to submit their abstract for the e-book. This is a unique opportunity because the experiences are not widely shared and disseminated to others. The Office of Public Health Practice presents these abstracts to highlight student experiences. The spring semester projects represented a wide variety of opportunities with regards to topics and settings. The abstracts in this e-book only represent students who chose to share their experience.
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Topic: Addiction Treatment

Title: Improving Change Readiness and Maintenance of Change for the Men Who Seek Help from the Open Door Mission: A Case for Integrating the Evidence Base of Science with Spiritual Principles to Promote Sustainable Recovery from Drug and Alcohol Addiction

By Steven L. Halterman

Public Health Significance
Untreated alcoholism and drug addiction has become a major public health problem in the United States. According to the National Survey on Drug Use and Health (2006), addictive behavior or abuse was seen in 9.2% of the population older than 12 years old. The same survey further shows that only 2.5% of those who needed treatment actually received treatment.

In a review of several independent studies for alcoholism, Miller, Walters and Bennett (2001) demonstrated that only 25 percent of those who receive treatment for alcoholism are able to abstain for 12 months. Drug addiction abstention rates are even lower. Those addicts and alcoholics who do not recover continue to be a problem for themselves, their families and for society in general. Recent estimates suggest that the financial cost of abuse of alcohol and drugs is nearly $300 billion annually in preventable health care costs, extra law enforcement, automobile accidents, crime, and lost productivity (Whitehouse.gov 2001).

The Open Door Mission is a privately funded, faith-based residential rehabilitation center for homeless men. We explored the unique recovery model used by the Mission and made intervention recommendations that were most suited to and feasible for implementation at the Mission. Understanding that scriptural studies and Christian principles are the primary course of study and the foundation for treatment at the Mission, we compared and contrasted various etiological models for recovery, to understand how certain interventions may or may not be integrative to the Mission’s unique recovery approach.
**Approach**
Our approach was that of a public health model, meaning all elements of the problems related to drug and alcohol abuse and addiction were considered. In evaluating the specific needs and goals of The Mission, we developed and executed the following steps: Conducted interviews with staff members and a representative group of patients from each of the Mission’s programs; Selected, administered and analyzed patient questionnaires specific to attitudes toward treatment and stages of change; Conduct research to identify and review previous studies of similar nature and identify specific interventions used for these populations; Determined and made suggestions for specific interventions most appropriate to the Mission’s needs; Prepared, presented and discussed the research report and suggested interventions.

**Findings**
The report summarized by this abstract was the final deliverable and represents the results of my research over a four-month period for which I worked closely with the Mission staff, board members, community partners and most importantly, the men who seek help from the Mission. The suggested interventions and program modifications were designed specifically to help Mission staff to utilize the processes and stages of change as well as other constructs of the Transtheoretical Model (TTM) for change. These interventions are tools for helping motivate the men toward taking their own action toward recovery by supporting continued action during their initial stay at the Mission and beyond the completion of their initial treatment.

Based on the findings throughout this study, several interventions were suggested. Some of these include TTM Questionnaires, Staff and Alumni Motivational Interviewing (MI) Training, Process Group Counseling Sessions, Aftercare (Alumni) Group Sessions, Twelve-Step Recovery Programs, Integration with Recovery Community, Smoking Cessation, and Nutrition and Physical Activity Promotion.

**Essential Services of Public Health**
This project primarily addressed evaluation, research and community mobilization, but also included elements of informing, educating and empowering people about health issues and linking people to needed personal health services.
Topic: Cancer-Related Fatigue

Title: The Methylphenidate Trial

By Pranjal Gholkar

The objective of my practicum was "To assess the efficacy of OROS (sustained release) Methylphenidate as compared with placebo for improvement of fatigue in patients with breast or Gastrointestinal cancer who are undergoing chemotherapy". "And also to examine the cytokine levels and their correlation with fatigue and cognitive function." Cancer-related fatigue is the most frequent severe symptom in patients undergoing treatment. It is usually not predictable by the stage of the disease, the type of tumor or illness, the treatment taken, but is considered a “crippling” illness since it is not relieved by either rest or sleep and may sometimes persist even after the treatment is complete. Some patients are in their early stages of cancer and are also on chemotherapy, the side-effects of which cause severe fatigue and loss of productivity not only at work but also in their routine activities. Fatigue can prevent a person from functioning normally and also impact’s a person’s quality of life. Getting diagnosed of “Cancer” is a very dreadful feeling and there could be many psychological afflictions due to this. Treating this cause of fatigue is very important since we want people to be able to manage their well throughout the treatment process and later and not become incapacitated. Fatigue can also lead to cause feelings of worthlessness and depression and cause suicidal tendencies.

The study involves learning the objectives for the ongoing clinical trial, screening of the patients as well as the analysis of the data collected. This is “Randomised, double-blind, two period, placebo-controlled crossover trial of a sustained release Methylphenidate in the treatment of fatigue in Breast or Gastrointestinal patients”. Since the proposed drug to be used in the study is “Methylphenidate”, which is a psychostimulant and has been used for the treatment of Attention deficit disorder and Narcolepsy in the past, and has proven to improve cognition, attention and social behavior in these patients. I had to screen and select patients who were older than 18 years of age and undergoing chemotherapy presently. At the same time I had to exclude people who had a high BP, anemia, had a past history of any major cardiovascular, psychiatric,
pulmonary disease, and are currently taking medications for the same, past history of any major drug abuse, patients receiving anticonvulsants, anticoagulants and other drugs which would cause interaction with the drug methylphenidate. After going through such stringent criteria and screening 700 patients I found 20 patients who were actually eligible for the study and who agreed to participate for our study. Since this is a prospective study we are still in the recruitment phase of the trial and our main goal is to enroll 30 patients for the study.

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Topic: Cause of Death Coding

Title: The validity of cause of death coding within the Surveillance Epidemiology and End Results (SEER) Registry

By Chung-Yuan Hu

Author Block
C. Hu, Y. Xing, J. N. Cormier, G. J. Chang; MD Anderson Cancer Center, Houston, TX

Background
Disease-specific survival (DSS) analysis within large cancer registries is more informative than other methods of survival analysis but requires accurate information regarding the cause of death (COD). The purpose of this study was to evaluate the validity of the COD code for patients diagnosed with colon cancer and the extent to which it varies with regard to age, sex, and race within SEER.

Methods
Patients with colon adenocarcinoma were identified from SEER (ver. 2008) from 1988 to 1998 to have at least 7 years of follow-up. Relative survival (RS) was calculated matching for age, sex, and the year of diagnosis using U.S. life-tables. Colon cancer cause of death was then assigned using SEER COD recode for colon and rectal death (21040-50). The number of observed and expected deaths by year was calculated to estimate deaths attributable to colon cancer. The ratio of this number to the recorded cause of death was defined as the validity of the COD code in SEER.
Results
86,641 patients were identified. Relative survival declined during the first 7 years of observation but then leveled indicating a minimum number of deaths subsequently attributable to colon cancer. At year 7 the observed number of deaths for the SEER cohort was 49,104; the expected number of deaths using life tables was 17,173. The difference (31,931) is theoretically attributable to colon cancer. Within the SEER cohort, 30,227 deaths were coded colorectal cancer deaths, an estimated validity of 94.6%. Stratified results demonstrated validity was sensitive to race but not age or gender (table).

Conclusions
Cause of death coding for colon cancer in SEER is highly valid, suggesting that the use of DSS for colon cancer is appropriate.

<table>
<thead>
<tr>
<th>Disease-Specific and Relative Survival for Colon Cancer Patient, by Age, Sex and Race</th>
<th>n</th>
<th>5-yr RS (%)</th>
<th>5-yr DSS (%)</th>
<th>Validity (%)*</th>
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</thead>
<tbody>
<tr>
<td>Overall</td>
<td>86,641</td>
<td>62.7</td>
<td>63.7</td>
<td>94.6</td>
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<td>Age at Dx &lt;50</td>
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<td>70.3</td>
<td>69.3</td>
<td>104.8</td>
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</tbody>
</table>

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The topic that I have perused during my practicum was the *Clostridium difficile* associated diarrhea. This is a well known organism causing antibiotic associated diarrhea more commonly seen in hospitalized patients.

**Public Health Significance**
This topic is of high importance since it is associated with a high mortality in the patients associated with it. It is generally seen in the hospitalized patients who are on multiple antibiotics. The injudicious use of antibiotics in these patients depletes the normal intestinal flora and the relatively resistant bacterium of *Clostridium difficile* proliferates in the gut to cause diarrheal infection. A study carried out from 1999 to 2004 showed that *C. difficile* caused 20,642 deaths out of which 12,264 were reported to have CDAD as the underlying cause of death. A rise in the death rate was reported during this period being 5.7 per million population during 1999 to as high as 23.7 deaths per million population in the year of 2004.

Furthermore strains resistant to the conventional therapies have been found and the rate of infection amongst the normal non hospitalized population has been also increasing. This infection has also been associated with increased incidence of Vancomycin resistant enterococcal infection amongst the hospitalized patients, a nosocomially attained infection which is highly resistant to treatment. Hence we can say that this deadly disease is spreading its fangs and may be a potential threat to a large scale population in the future, hence preventive measures in the form of research looking for better therapeutic methods for this infection and methods for controlling environmental contamination should be sought for. There is also limited knowledge about the risk factors associated with this infection which needs to be explored. During this practical experience I have also found a potential topic of thesis which I may pursue in the future, which is obesity as a risk factor for *C. difficile* infection.

**Approach**
During the group meetings we had during the practicum I was exposed to the discussions about this infection which enlightened me on this topic. It
was this knowledge and the positive attitude which gave me the motivation to pursue further research into the topic of thesis I have selected. I read several research articles and papers on the online databases such as Ovidmed and Pubmed to gain more knowledge about this topic. Furthermore there were weekly journal clubs held where we discussed about the research articles related to *C. difficile* infection.

**Findings**

My final product is a potential topic for my thesis which I have found, which I will diligently pursue in the future. I will be volunteering with the same group once again to use their support and help to achieve my target.

**Essential Services of Public Health**

My project may be considered to fall in the following essential services of public health:

EPHS 10: Research for new insights and innovative solutions to health problems.

This is so since I will be looking into obesity as a risk factor (my probable thesis topic) which may be used as a screening factor to administer prophylactic medication in the high risk patients to prevent the occurrence of *C. diff* associated diarrhea.

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**Topic: Colon Cancer**

**Title: Evaluation of Outcomes with Endoscopic and Surgical Management of Large Colon Polyps**

**By Rashmi Thatte**

**Public Health Significance**

Colon cancer is the third leading cause of cancer mortality in the US population, both male and female. Colon cancer can occur sporadically or can be familial. Colon cancer is often preceded by colonic outgrowths in the form of pre-cancerous polyps. Endoscopic method of dealing with colonic polyps includes colonoscopy as the principle means of investigating colon polyps especially in the population above the age of 50 years. Screening for cancer is an important public health issue which should be given priority while considering health issues of the population. Cancer screening behavior should be advocated within the 50+
population as the incidence of various carcinomas, including colon cancer, is very high in this category. The healthcare burden of treating cancer which possibly could have been prevented can be reduced by implementing regular colonoscopic screening and treating the large colon polyps via endoscopy before they turn premalignant.

The reason for concern, for public health professionals, is that it is a preventable form of cancer. The large colon polyps may have a higher risk of becoming malignant and their treatment via colonoscopic methods can lead to a non-invasive solution to a larger public health problem.

**Approach**
The study begins with a chart review of patient records for the patients who have undergone any kind of polypectomy via colonoscope between the years 2005-2006. The patient records are accessed via Clinic Station software at MD Anderson Cancer Research Center, Houston. The pathology reports of the polyps resected from these patients were screened for size. Those which were > 2cm either on colonoscopy or after pathological resection were selected to be in the study. I was successful in short listing the patients who fulfill the study criteria from the year 2006. The next step involved creating a spreadsheet with the data on patients shortlisted and tabulating various characteristics of the patients.

**Findings**
The project is in the initial phase of short listing patients who fulfill the criteria for what are considered to be big polyps (>2cm). The records of these selected patients will then be analyzed in further detail to gather data on epidemiological and other associated factors that might be related. Then the treatment modalities will be compared in all aspects and the conclusion will be made regarding the better method of treatment.

**Essential services of Public Heath primarily addressed**
My project addresses the essential public health service of cancer screening. Diagnosing cancer in the early stages is extremely important for reducing the burden of cancer related deaths and complications. Colon cancer is one of the important cancers affecting the >50 population today and providing cancer screening to the entire population should be encouraged. Colonoscopy as a tool to screen for cancer and identify those at risk for colon cancer based on polyp size is the main public health service addressed through my project.
Topic: Colon Cancer

Title: Colon Cancer-“Proteomic analysis for potential tumor markers.”

By Salil Sethi

Why do we care?
Colon Cancer is the third most common cancer affecting mankind. The age adjusted incidence rate was 49.1 per 100,000 men and women per year for the year 2007. The treatment for colon cancer is based on its stage. Early stage non metastatic disease can be cured through several treatment modalities including surgery and chemo radiation. However, as expected, the same doesn’t hold true once the tumor metastasizes to other organs. Patients undergoing treatment for early stage colon cancer are at an increased risk of getting diagnosed of metastatic disease within 5 years of receiving the initial diagnosis. Hence, active surveillance is recommended which includes tumor marker levels every three months and yearly colonoscopies. The tumor marker that is currently being used for these patients is Carcinoembryonic Antigen. However, the same has a very low sensitivity of 70% which limits its effectiveness. The current study aimed at identifying new tumor markers with enhanced sensitivity that can be used instead.

What is the scope?
New tumor markers that will be used for surveillance will help detect development of recurrence/metastatic disease in early stage colon cancer patients who have undergone treatment.

Approach
I was working on a retrospective study and a prospective study. I was assigned different job roles in each study that helped me further develop skills learned during my MPH course work. I was responsible for creating the database for the retrospective study in which we also tried to perform disease free and overall survival of these patients. I was responsible for data collection for the prospective study, ranging from patient recruitment to sample collection. I got a chance to make changes to the protocol when it was decided by the Principal Investigator to include all the stage II patients instead of just the high risk ones. I corresponded with the IRB at
M.D. Anderson which helped me learn the process of literature review and protocol writing.

**Findings**
The results of the retrospective study were published as an abstract. Three tumor markers have been found to be statistically significant. These results will now be correlated to the findings of the prospective study before new recommendations for the follow up of these patients can be made.

**Essential Services of Public Health**
I believe that I learned the methods to perform research in the field of healthcare to develop new methods aimed at improving the patient outcome. Informing and educating the patients about health issues is another spectrum that was touched upon when I got the chance to explain and talk to the patients regarding our study. I also got a chance to accompany physicians in the clinics when I learned the social and behavioral aspects of healthcare by observing the way physicians interacted with their patients.

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**Topic:** Ductal Carcinoma In Situ

**Title:** Model to predict the Proliferation Index in Ductal Carcinoma in situ of the Breast

**By Anup Kumar Kasi Loknath Kumar**

**Public Health Significance**
Invasive breast cancer is the second leading cause of death in women in the United States. Ductal carcinoma in situ (DCIS) is the most important known precursor because 1) it can be treated and 2) if it isn’t treated, it is likely to progress to breast cancer, which is a deadly disease. In 2007, there were over 60,000 cases of DCIS alone. More importantly, 80% of the nearly 180,000 cases of invasive breast cancer in 2007 had co-existing DCIS. The three most important prognostic markers for invasive breast cancer are Estrogen receptor (ER), Progesterone receptor (PR) and HER2/neu. All three markers are known to increase proliferation of cells in invasive breast cancer. However, they have not been well studied in DCIS. It is very important to study the distribution of these markers in DCIS and highlight the role played by these markers in proliferation of
DCIS. This would give us a better understanding of how cancer evolves and whether these markers, which are very important in prognosticating morbidity and mortality in invasive breast cancer, appear early on in the development of breast cancer.

**Approach**

We did a retrospective chart review of 29 de-identified DCIS patients who were treated in MDACC. The abstraction also involved capturing and analyzing the de-identified Immunohistochemically stained tissue images to get counts of positive and negatively stained nuclei and cells. We have used the fraction of ki-67 positive tumor cells to represent the proliferative index (PI). We hypothesize that the PI, defined as the fraction of ki-67 positive cells, is determined by interplay between ER, PR and HER2/neu receptors. Before analysis, various quality control measures were employed and made sure that there were not any errors. Standard statistical methods were employed for analysis.

**Findings**

Our final products are:
1) Writing up my Thesis Proposal.
2) Poster presentation at the AACR (American Association for Cancer Research) Conference 2009.

The results of our experiment demonstrate that PI of DCIS is a function of the interplay between ER, PR and HER2/neu activity.

Overall, it appears that PI, when HER2/neu is negative, can be predicted from a simple, linear function of hormone status. However, if HER2/neu is positive, then proliferation is activated via a different mechanism which favors cells to be in cell cycle status. Thus we hypothesize that HER2/neu overexpression dominates the proliferation machinery and overwhelms hormone status in controlling cell cycle status.

**Essential Services of Public Health**

My project primarily addresses the following essential public health services:

- EPHS 2: Diagnose and investigate health problems and health hazards in the community.
- EPHS 8: Assure a competent public health and personal health care workforce.
• EPHS 10: Research for new insights and innovative solutions to health problems.

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Topic: Emergency Toxocology

Title: Toxi-Lab Practicum

By Kathryn Ruth

Public Health Significance
The key to substance toxicity is knowing the difference in dose between a poison and a remedy. Any substance can become a poison if it is taken in excess, or in combination with other toxins. Toxicology requires the knowledge of drug fate and transport through the human body, including the liberation, absorption, distribution, metabolism, and excretion of the drug within the body. The area of clinical toxicology encompasses the branches of Therapeutic Drug Monitoring (TDM) and Emergency Toxicology. TDM is a field of study that focuses on identifying the therapeutic ranges of drugs, as well as their effects when combined with other drugs. Emergency toxicology includes specimen analysis in poisoned patients, and was the focus of this practicum. The other main branch of Toxicology is Forensic Toxicology, which focuses on the analysis and detection of drugs in performance and workplace testing, as well as for postmortem specimens.

Approach
This practicum focused on the branch of Emergency Toxicology, in which drugs are identified among overdosed patients. It is preferred that this form of testing be done on urine samples as opposed to blood samples. However, it is not always possible to obtain urine samples from overdosed patients since unresponsive and comatose patients would be unable to provide samples.

Toxidromes were used throughout this practicum to match patient symptoms with the known side effects for the different drug classes. The toxidromes were categorized as cholinergic, opiate, sedative-hypnotic, anti-cholinergic, and stimulant. Each toxidrome would cause different patient symptoms, and their proper identification could lead to a timely diagnosis and treatment.
Findings

The practicum covered two main projects: the case studies and the laboratory work. Patient overdose scenarios were supplied with the case studies, along with clinical findings and laboratory testing results. The class of drug taken and the presumptive identification of the drug could be determined with these results. The second part of the practicum entailed testing six different unknown specimens. After obtaining toxigrams on each of these six specimens, the drug could be properly identified. The results of this practicum are outlined in this paper, along with descriptive characteristics of the drugs found in all cases and specimens.

Essential Services of Public Health

The case studies and laboratory work for this practicum demonstrated the importance of Emergency Toxicology in the proper identification of drug overdose. These experiments illustrated the useful of TDM, and the therapeutic window for drug effectiveness. Taking more than the needed amount of any drug can result in an overdose, and proper identification of these misused drugs can help lead to the proper patient treatment. This practice can help to reduce the morbidity and mortality rates associated with drug overdose, and to inform patients of the seriousness of properly taking both prescribed and over-the-counter medication. The toxidromes were an essential tool in the identification of the presumptive drug class by allowing the evaluation of patients’ symptoms.

The lessons learned during this practicum can prove to be a valuable tool in both the clinical and Forensic fields. In the future I hope to use the skills that I established through this process to further a career in Forensic Toxicology and laboratory research. This practicum provided me with useful knowledge regarding specimen collection, analysis, and interpretation, which I know will prove to be valuable in my future endeavors. I was also able to solve Toxicological cases by learning about the different drug classifications, and using patient’s symptoms to identify the drug taken.

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Topic: Flood Fatalities

Title: Flood Hazards in Texas

By Hatim Sharif

Public Health Significance
The adverse human health impacts of flooding are complex and far-reaching: these include drowning, injuries, spread of infectious diseases, and an increased incidence of common mental disorders. Most vulnerable groups to the health impacts of flooding are the elderly, disabled, children, women, ethnic minorities, and those on low incomes. Floods are the leading cause of fatalities related to natural disasters in Texas. Texas leads the nation in flash flood fatalities. There are three times more fatalities in Texas (822) than the following state Pennsylvania (256). Flood fatalities in Texas represent a serious public health problem.

Approach
This study examined flood fatalities that occurred in Texas between 1959 and 2008 as a public health problem. Flood fatalities statistics were extracted from three sources: flood fatality databases from the National Climatic Data Center, the Spatial Hazard Event and Loss Database for the United States, and the Texas Department of State Health Services. The data collected for flood fatalities include the date, time, gender, age, location, and weather conditions. Inconsistencies among the three databases were identified and discussed. Hydrologic analysis of a flood event that resulted in five fatalities was applied. A comprehensive survey of health behavior literature addressing flood hazards was performed.

Findings
Analysis reveals that most fatalities result from driving into flood water (65%). Spatial analysis indicates that more fatalities occurred in counties containing major urban centers – some of the Flash Flood Alley counties (San Antonio, Austin, Dallas/Fort Worth), Harris County (Houston), and Vale Verde County (Del Rio). The hydrologic model was able to simulate the water level at a location where a vehicle was swept away by flood water resulting in the death of the driver. An intervention strategy targeting the behavior of driving into flood water is proposed. The intervention is based on the Health Belief model.
The main conclusion of the study is that flood fatalities in Texas can be reduced through a combination of improved hydrometeorological forecasting, educational programs aimed at enhancing the public awareness of flood risk and the seriousness of flood warnings, and timely and appropriate action by local emergency and safety authorities.

**Essential Services of Public Health**

The study addresses essential services of public health directly related to three objectives of Healthy People 2010: reducing deaths from motor vehicle accidents (Objective 15-15), reducing nonfatal motor vehicle injuries (Objective 15-17), and reducing drownings (Objective 15-29).

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**Topic: Free Clinic Operation**

**Title:** Public Health Practicum at Thomas Street Clinic is the title of the Abstract

**By Marquita Renee Decker**

To gain an understanding of how a “free clinic” is funded and how it is run, a practicum was undertaken at the Thomas Street Clinic, a publically funded clinic serving people with HIV and AIDS.

**Public Health Significance**

In a time of rising healthcare costs and high prevalence of uninsurance, funding and delivery of healthcare for the uninsured are public health concerns. Healthcare administrators and providers are constantly challenged to provide low cost healthcare to those in need. Underserved communities often depend on “free clinics” and publically funded services to meet their healthcare needs. How these needs are met is a subject of interest for those who wish to dedicate their careers to providing for them. The Thomas Street Clinic provides a model for understanding some aspects of publically funded healthcare in the United States.

**Approach**

In order to obtain a macroscopic view of the clinic initially, the student shadowed the medical director of the clinic to observe meetings, communications, clinical and administrative duties. Then more
microscopic perspectives were observed by interviewing people from each of the following departments and rotating within the clinic: Triage, Infectious Disease Clinic, Social Services, Pharmacy, Central Supply, Grants and Funding.

**Findings**

The final product was a presentation and discussion of the objectives met and additional lessons learned. After shadowing and meeting with the medical director, the objective of understanding his public health related roles was met. The roles of the medical director of Thomas Street Clinic span far and wide, from needs assessment to community outreach. Rotating through each department of the clinic allowed for an understanding of how the patients’ needs are met. Meeting with the administrative staff and the Patient Advisor Committee achieved the objective of understanding how the community’s needs were met. Additionally the elements of a community founded upon a clinic were observed.

**Essential Services of Public Health**

The essential services of public health that this project primarily addressed mobilization and linkage. The mobilization of community partnerships (support groups, faith-based organizations, advocacy groups, community members) to identify and provide for the health needs of people with HIV/AIDS was a focus of this practicum. The partnerships that exist in the HIV/AIDS community may be a model for mobilization of the underserved breast cancer community that the student plans to serve in the future. Lastly linkage between underserved people to the health services they need was the other major focus of the practicum. Thomas Street Clinic stands out among other clinics in the Harris County Hospital District, and other clinics funded by the Ryan White HIV/AIDS Program, due to its exceptional provision of services and community outreach, which contributes to prevention of the spread of disease and effective treatment. The Thomas Street Clinic is a useful model for provision of public health services to the underserved.
Topic: HIV

Title: Review of Electronic Medical Records at the Center for AIDS Research

By Simit Doshi

Public Health Significance
I am currently working at the Center for AIDS research (CFAR) at Baylor College of Medicine. The Centers for AIDS Research (CFAR) program at the National Institutes of Health provides administrative and shared research support to synergistically enhance and coordinate high quality AIDS research projects. There are currently 21 CFARs across US. AIDS is a significant health problem with over a million people living with AIDS in US and about 35,000 new cases reported each year. The practicum involves working on improving the electronic medical records currently used at the CFAR clinic (Thomas Street Clinic) and making it part of an established cohort of CFAR centers (CNICS-CFAR Network of Integrated Clinical Systems) to obtain research quality data directly from the Medical Records. This would foster the implementation of research projects on a countrywide scale resulting in better understanding of the disease epidemiology.

Approach
Currently the Electronic Medical records are being assessed to ensure that the patient data available from it is both complete and accurate. The extraction of the data to a common database and its evaluation and quality assurance and control are the most immediate aims. Once the medical records are evaluated the development of a protocol to extract data to a common database for research purposes would begin with the final aim of linking it to the CNICS cohort.

Findings
It is difficult to comment on or point out a specific aim or bottom line for the project. It is a continuous effort to improve the existing patient records and develop a strong database which can enable high quality research leading to better understanding of the disease characteristics. Some of the aims would be the improvement in data gathering and record keeping techniques at the Thomas Streets Clinics which improve quality of
patient treatment and serve as an ideal source of information for future research studies.

**Essential Services of Public Health**
The project is very important considering that it would benefit both the individual and the community. Developing and maintaining a strong record system enables better implementation of health care in patients. This data being highly accurate and complete would be an ideal source of information for all future research which would increase our knowledge on the determinants and demographics of HIV/AIDS. The project aims to serve as an important initial step in the study of HIV/AIDS epidemiology on a larger scale.

**References**
http://www3.niaid.nih.gov/research/cfar/

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**Topic:** HIV Surveillance

**Title:** Risk Ascertainment Among New HIV Cases Diagnosed in Houston in 2007 Without Risk Specification in The Initial Case Reports

**By Moorine Penninah Sekadde**

**Background**
The HIV surveillance program at the City of Houston Health Department is responsible for tracking HIV/AIDS trends in Houston as well as studying the risk to HIV infection.

**Public Health Significance**
HIV/AIDS is a current public health challenge and risk ascertainment is fundamental to planning and resource allocation geared towards its prevention. In 2007, Houston accounted for 31.1% of persons living with HIV/AIDS in Texas.

**Approach**
This project was conducted under supervision at the HIV Surveillance Program, City of Houston Health Department. The main objective of the project was to identify HIV risk factors and close new HIV cases
diagnosed in Houston in 2007 without risk specification in the initial case reports. We abstracted HIV risk information from patient records at the various health facilities where the patients received care for HIV as per the program protocol. The risk information obtained was recorded onto a standardized HIV risk ascertainment form and later entered into a secure and well monitored ACCESS database.

**Findings**
We investigated and closed 72.4% of the new HIV cases diagnosed in Houston in 2007 without risk specification in the initial case reports.

**Essential Services of Public Health**
With the project, we investigated risk factors to HIV infection and provided better risk information to HIV prevention.

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**Topic: HPV Vaccine Media Message**

**Title: Investigating Mother’s Exposure and Reaction to Media Messages about the Human Papilloma Virus (HPV) vaccine study**

**By Shingisai Chando**

**Public Health Significance**
*Why is this topic an important public health issue/problem/concern?*
The study that I was working with is a pilot study whose goal is to “assess exposure to media messages about the HPV vaccine as well as to examine the impact of media exposure on mothers’ attitudes and behaviors toward HPV vaccination for their adolescent daughters…” This topic is important because HPV is associated with 70% of cervical cancers and other infections such as genital warts.

*Why do we care?*
The HPV vaccine (Gardisil) can protect against HPV infection thereby reducing the chance that an individual will develop cervical cancer. The fact that infection is preventable makes vaccination an important public health issue.
**Scope**
The goal of the pilot study is to recruit 460 women in the Dallas area, of which 230 will be recruited from two community clinics and the other 230 from the community. We were able to recruit a little over 70 women into the study from the clinics during that time that I was working with the study.

**Approach**
Our data collection tool was a self-administered questionnaire. We approached all women entering the clinics and asked if they would be interested in participating in the study by completing the questionnaire. We had to ask them eligibility questions first before proceeding with obtaining informed consent.

**Findings**
I wrote a report of the recruitment process and made recommendations for managing the data processing.

**Essential Services**
When we recruit we also provide educational material on Cervical Cancer, the Human Papilloma Virus, and the vaccine to the participants or to those that requested the information but were not able to participate. We had both English and Spanish versions of the educational material.

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**Topic: Injury Prevention Program**

**Title: Harris County Public Health and Environmental Services Tailored Injury Prevention Program Practicum**

**By Leigh Cunningham**

**Public Health Significance**
Unintentional injury is the leading cause of death in children over the age of one in the United States. And for every death there are approximately 20 hospitalizations, over 230 emergency room visits, and many more visits to pediatricians’ offices or urgent care clinics due to these injuries. Over 90% of injuries in children younger than five happen in the home and almost all, if not *all* injuries are preventable (Nansel et al., 2002).
Anticipatory guidance regarding safety behavior is an objective of all well-child visits; however parents often receive little to none, or receive generalized comments or brochures that may be redundant or not personally relevant. Studies have shown that parents are much more likely to make safety behavior changes when messages are tailored to their child’s age-specific and environment-specific risks (Nansel et al., 2002).

Project Description
Harris County Public Health and Environmental Services (HCPHES), in partnership with Texas Department of State Health Services (DSHS), are disseminating a program called the Tailored Injury Prevention Program (TIPP), which has had success a few other states. HCPHES aims to implement this program into the standard of care in two school-based clinics within the county.

The program uses a computer-based questionnaire called “Safe ‘N Sound” to identify a child’s top two risks to the healthcare provider. The healthcare provider delivers tailored messages to the parents, addressing these risks and offering concrete steps they can take to make their child safer. Parents are also provided a handout at the visit and receive tailored booster information by mail a few weeks after the visit. A final follow-up call assesses the program’s effect on parental safety behavior.

Approach
My role in the project was to collaborate with TIPP stakeholders in order to assist with the design, execution and evaluation of a training curriculum for the healthcare providers implementing the program. I researched the health problem and health behavior theory, and devised strategies for training that would most effectively achieve provider and parent “buy-in” for the program. The evaluation tool will be delivered to providers at the second part of their training, and will assess perceived barriers, outcome expectations and self-efficacy with regard to project implementation and sustainability. I also may assist in the development of booster materials for parents as well as the TIPP launch in the clinics.

Findings
Project deliverables include the curriculum, training sessions, and the evaluation tool.
Essential Services of Public Health

While, this project addresses many essential services, it mainly assures a competent workforce (provider training) and informs, educates and empowers people (tailored parent messages and booster material).

References


Topic: Irritable Bowel Syndrome

Title: Professor of Infectious diseases and Director, Center for Infectious diseases

By Stephen Harold

This practicum opportunity helped me gain a good insight into Irritable Bowel Syndrome and Post infectious IBS. Irritable bowel syndrome is one of the most common chronic and expensive medical conditions prevalent among the general population. It is essentially considered as a psychiatric disorder. But studies have established a biologic component in many patients and sub groups. The project in which I am doing my practicum is a comprehensive research study designed to analyze the host risk factors, genetic makeup, the potentially preventable post infectious IBS and the presence of intestinal inflammation. This study has been approved by the IRB of St. Luke’s Episcopal Hospital, Houston. My role as a data collector, after obtaining the written informed consent, I collected the stool specimen, a blood sample and administered a required voluntary questionnaire. The first part of the questionnaire assessed the type of IBS whether it is idiopathic or post infectious IBS, while the latter part assessed the quality of life in these patients who were enrolled in the study #3.

In another study (Study #3), as per the guide lines, I was using three other data collecting instruments, the IBS questionnaire, the QOL questionnaire SF-36, and an anxiety questionnaire. In addition, I was also given opportunities to learn and perform Lactulose breath hydrogen test on the...
subjects with IBS. On the whole this practicum opportunity helped me to learn more and enhance my skills in the area data collection, documentation, data entry and maintenance of case records.

My community Preceptor, Dr. DuPont was very helpful to me and was available for any question that I had. This practicum gave me a good insight in to the objective criteria Rome II and Rome III criteria which is used to establish the diagnosis of IBS and Post IBS and gave a good understanding of the pathophysiology of IBS and post IBS. Although irritable bowel syndrome is not life-threatening, symptoms of irritable bowel syndrome can have a major impact on a person's life by affecting the quality of life. I was able to understand the public Health significance of this disorder, the genetic factors and the impact of stress on the pathogenesis of IBS and the Post infectious IBS and I was able to achieve the learning objectives of this practicum.

Topic: Locally Grown Food

Title: Sustaining Communities

By José L. Medina

Public Health Significance
Strengthening local food systems and improving access to nutritious food is at the core of any public health program. Without access to food, we wouldn’t have the chance to grow, mature, and have a chance to become a healthy individual, much less a healthy community. This is what the Sustainable Food Center (SFC) does at a local level: secure access to affordable, locally grown food.

This issue is particularly relevant because low socio-economic status communities carry a disproportionate burden of chronic diseases that could “easily” be prevented by adequate nutrition and physical activity.

The scope of this SFC program includes underserved communities in d zip codes areas (78723, 78724, 78752, 78753) carrying a disproportionate amount of chronic disease in east of Austin, TX.
**Approach**

The SFC has many programs in place to reach out to specific segments of their targeted communities. My primary involvement was with the Sprouting Healthy Kids (SHK) program. This program provides in-class lessons about nutrition and food systems, after school organic gardening and cooking programs, coordinates the access of locally-grown foods in school cafeterias, connects local farmers with local schools, and exposes children to local farms.

First, we developed lessons for the in-class component of the SHK program and then facilitated after-school programs designed to teach children about food systems, organic gardening, and healthy cooking.

Second, we delivered classes in school settings to teach children about local food systems and the importance of a good nutrition.

Additionally, I developed a behavioral journalism-based newsletter to further engage program participants and help with recruitment efforts.

In addition, I was also fortunate to be involved with the program evaluation aspect of the Sprouting Healthy Kids program as well as in charge of developing a social marketing campaign for the SFC.

**Findings**

My final product for the SFC was a combination of lesson development, evaluations, and behavioral journalism newsletter.

New lessons were developed to teach middle age-school children about food systems, as they relate to weather events, organic gardening, and nutrition education.

We also delivered existing curricula in a classroom setting and in the after-school program. These lessons were also evaluated to further tailor and meet unmet needs.

Lastly, a behavioral journalism piece was developed to further engage children in the after school program, encourage creativity through poetry, drawing, and media, and help with recruitment efforts for the following school year.
Children exposed to after school program were enthusiastic about gardening, engaged in better nutrition habits, committed to healthful changes, and practiced organic gardening in school and at home.

**Essential Services of Public Health**

Two of the essential services that my project addressed were the promotion of healthy behaviors and prevention of the obesity epidemic at a local level.

These two closely linked services were the programs’ underlying motivation. Promotion of healthy behaviors, such as healthy eating and physical activity through gardening, and obesity prevention through nutrition and healthy cooking classes were paramount to the successful delivery of the SFC Sprouting Healthy Kids project.

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**Topic: Lung Cancer**

**Title: Potential Screening Test for Lung Cancer**

**By Aditya S. Bharadwaj**

**Public Health Significance**

Lung cancer is the leading cause of cancer death in the world with an estimated 160,390 deaths in the United States alone in 2007 (1). What was earlier the most common cancer in men is now dubbed in women as the cancer to have the fastest growing incidence. The health system in the United States spends a staggering amount of several billions of dollars each year on the treatment of lung cancer. From what has been elucidated as the causative factors for lung cancer, smoking emerges as the most important, preventable risk factor.

In the light of the above discussion, it is more than evident that the magnitude of breast cancer as a public health issue is enormous. The amount of effort and resources spent in research and epidemiologic studies of breast cancer justifies the ends. Likewise elucidating the etiology of this disease, assumes paramount importance. Epidemiologic studies go a long way in documenting the risks due to various exposures.
The study of environmental and genetic factors that play a role in the causation and affect the prognosis of lung cancer is of utmost importance. Among the numerous molecular factors have been implicated in carcinogenesis, telomere dysfunction emerges as an early event associated with genetic instability. Telomeres are nothing but nucleoprotein complexes composed of non-coding TTAGGG repeats and associated telomere binding proteins. The biological function of telomeres is to cap the ends of chromosomes and to protect chromosomes from degradation, end-to-end fusion and atypical recombination (2).

The telomere dysfunction in cancerous cells can be studied by Fluorescent In situ Technology (FISH). The consistency with which these telomere abnormalities were detected, opens the possibility of using these genetic abnormalities as a screening test for lung cancer in high risk individuals like heavy smokers. While a common X-ray radiograph is often inconclusive, CT scans are very expensive and their cost proves prohibitive for routine use. If FISH techniques performed on sputum cells or cells obtained from biopsy was included as part of the screening procedure, it would be very effective.

**Approach**

I was in charge of creating part of the data base that included lung cancer patients enrolled for treatment at M. D. Anderson Cancer Center. Their demographic factors, brief medical history, diagnosis, staging, grading and prognosis were part of the data I had to abstract. This gave me a hands-on experience in data abstraction.

Once I abstracted the data, and performed FISH technique on the lung cancer tissue, I was also in charge of taking photographs of these under the florescent microscope and measuring the telomere lengths with the help of a computer software. These telomere lengths had to be then updated to the data-base.

This whole process of data abstraction and data entry taught me the application of the principles of Field Epidemiology that I had learnt in the class room. Concepts of Reliability check, data verification and editing was experienced firsthand.

I also assisted in the process of data analysis.
Essential Services of Public Health
As elaborated earlier, if it is proved time and again by studies that there are consistent genetic abnormalities in telomeres in lung cancer tissue, we should explore the possibility of using this as screening test for lung cancer among high risk individuals like smokers. Screening has been accepted as an important public health tool as far as early diagnosis and reducing the prevalence of diseases is concerned. The classic example being the use of pap smears for the detection of cervical cancer, reduced the mortality. Lung cancer, being the leading cause of cancer death in the world, if we could introduce a screening test it would be very beneficial. Another important advantage with the use of a screening test in the setting of lung cancer is that the most important risk factor, namely smoking has already been established. We can thus restrict the screening test just to these high risk individuals. This project addressed the concept of developing a new screening technique.

References

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Topic: Maternal Smoking

Title: Community-Based Smoking Research Experience

By Tiffany Dean

My Public Health Practicum experience required intensive patient interaction throughout this community based research study, by approaching, consenting and interviewing mothers of patients in the Neonatal Intensive Care Unit at Memorial Hermann Children’s Hospital. Not only have I gained education on tobacco smoke as a major environmental contaminant, but I have also learned about the consequences of secondhand smoke exposure to NICU infants, children and pregnant mothers, as well as observed some consequences of maternal smoking. In addition, I have learned about study methods on
lowering ETS exposure to infants and children and gained an understanding and awareness of parental knowledge and attitudes on cigarette smoke.

**Approach**
Number of mothers approached and screened for the study on a particular date in the NICU.

**Consent**
Number of mothers of those screened for the study that signed a consent form to participate on a particular date in the NICU.

**Baseline**
Number of consented mothers that a baseline interview was conducted with on a particular date.

Baseline Interview: Hour long interview conducted that inquires on the life, environment, wellbeing of the mother and infant as well as the smoker and how smoking is viewed and handled in the home and car.

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Topic: Methicillin-Resistant Staphylococcus Aureus

Title: “Reduction in the Transmission of Hospital-Onset MRSA at a Military Hospital”

By Aurelia M. Thomas

Public Health Significance

Methicillin-Resistant Staphylococcus Aureus (MRSA) has emerged as one of the predominant pathogens in healthcare-associated infections. MRSA is a bacterium that has developed a resistance to certain antibiotics and may cause skin and mucous membrane infections. As a result, infections are more difficult to treat. Active surveillance performed by the CDC demonstrated that the greater number of invasive MRSA infections were healthcare-associated. For these reasons, the management of hospital-onset MRSA is of notable public health significance.

Approach

I reviewed laboratory results of patients that were diagnosed with MRSA from January 01 through March 31, 2009 at a military hospital in El Paso, TX. I then reviewed patients’ notes to determine if positive MRSA cultures were isolated more than 48 hours after hospital admission. Gathered information was then utilized to calculate the rates of hospital-onset MRSA per 10,000 occupied bed days for the quarter. Compliance
with hand hygiene, isolation precautions, and active surveillance cultures in the intensive care unit (ICU) were also monitored and reviewed.

**Findings**

The conclusion of my practicum experience produced tremendous results. It was determined that the rate of hospital-onset MRSA for the first quarter of 2009 declined from 8.6 to 3.0, as compared to the first quarter of the previous year. The marked decrease may be attributed to active surveillance cultures that were collected by the ICU. Upon admission into ICU, every patient is now screened for nasal carriage of MRSA. Implementation of this practice began in July 2008. Improvement of hand hygiene practices and isolation precautions also contribute to the significant decrease. Suspension of this study is scheduled for April 2009. The results were presented at the quarterly Quality Review Conference.

**Essential Services of Public Health**

This practicum primarily addressed the importance of active surveillance in controlling hospital-onset MRSA and the significance of healthcare epidemiology.


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**Topic: Physician Shortage**

**Title:** Research on Physician Compensation and Overhead Expense

**By Chuzhi Yin**

**Public Health Significance**

In recent years, physician shortages nationwide have been noted by various trade publications and associations, and efficient medical recruiting becomes more and more important so that both cost-effectiveness and quality of care could be improved. Whitaker Medical is an locum tenens job placement and physician recruiting firm which contributes to public health by providing staffing solutions to a large variety of healthcare organizations seeking professionals to fill locum tenens physician jobs in all sub specialties, thus physicians compensation and the overhead expense percentage are critical information for efficient search.
Approach

Compare available source of physician compensation, and Physician Compensation and Production Survey: 2007 Report Based on 2006 Data (published by Medical Group Management Association (MGMA)) has been selected as the main reference. Search both literatures and web pages for the overhead expense percentage of different specialties, and Statistics: Medical and Dental Income and Expense Averages, 2004 Report Based on 2003 Data (published by the National Association of Healthcare Consultants, The Society of Medical-Dental Management Consultants, and the Academy of Dental CPA's) was the main reference for the overhead expense percentage. Mean data of physician compensation were applied to the final graph, and available overhead expense percentage was applied to the corresponding specialties.

Final Product

Two graphs were produced to show the physicians’ income by specialty and the gross income after deducting the overhead expense.

Essential Services of Public Health

Correct compensation information is the base of proper marketing and efficient physician placement.

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Topic: Primary Care Demands

Title: An Empirical Model to Estimate the Demand for Primary Care In Urban Settings

By Phuc Le

Objective

To measure the demand for primary care and its associated factors by building and estimating a demand model of primary care in urban settings.

Data Source

Secondary data from 2005 California Health Interview Survey (CHIS 2005), a population-based random-digit dial telephone survey, conducted by the UCLA Center for Health Policy Research in collaboration with the
Study Design
A literature review was done to specify the demand model by identifying relevant predictors and indicators. CHIS 2005 data was utilized for demand estimation.

Analytical Methods
The probit regression was used to estimate the use/non-use equation and the negative binomial regression was applied to the utilization equation with the non-negative integer dependent variable.

Results
The model included two equations in which the use/non-use equation explained the probability of making a doctor visit in the past twelve months, and the utilization equation estimated the demand for primary care conditional on at least one visit. Among independent variables, wage rate and income did not affect the primary care demand whereas age had a negative effect on demand. People with college and graduate educational level were associated with 1.03 (p < 0.05) and 1.58 (p < 0.01) more visits, respectively, compared to those with no formal education. Insurance was significantly and positively related to the demand for primary care (p < 0.01). Need for care variables exhibited positive effects on demand (p < 0.01). Existence of chronic diseases was associated with 0.63 more visits, disability status was associated with 1.05 more visits, and people with poor health status had 4.24 more visits than those with excellent health status.

Conclusions
The average probability of visiting doctors in the past twelve months was 85% and the average number of visits was 3.45. The study emphasized the importance of need variables in explaining healthcare utilization, as well as the impact of insurance, employment and education on demand. The two-equation model of decision making, and the probit and negative binomial regression methods, was a useful approach to demand estimation for primary care in urban settings.
Public Health Significance
My project is to help the Alzheimer’s Association Houston Chapter evaluate the effectiveness of one of their educational program – ESP (Early Stage Program).

13% of the people aged 65 and above have Alzheimer’s disease. It’s affecting not only the patients but also their family members, friends, and neighbors. Patients in the early stage often experienced frustration for unable to keep up their past capability, and families are also stressed with lacking resources and emotional burden. ESP is designed to offer information about the disease, researches and drugs to let patients and families understand the disease; provide coping strategies; form friendships that will support each other; and giving information on resources in the community.

In this project we hope to understand how effective the program is and gain some idea for future improvement. And it could also serve as a reference as to whether or not to introduce this program to other chapters. Although given the size of the group, I have a very small sample size, but I made sure to keep records and explanations so AA could re-use the evaluation tool on the future groups.

Approach
I started in literature review and finding the appropriate instrument. The evaluation form can’t be too long for the patients, have to address as many aspect of a person’s wellbeing as possible, could be given to patients as well as caregivers, and the result analyzable with AA’s existing equipments.

I located a QOL questionnaire with comprehensive questions. After the ESP members signed a written consent, I did a pre-test at ESP’s first session and a post-test at the last session 7 weeks after the first.
Findings
The overall start score is comparable with general healthy adults. However the patients were apparently above average and caregivers lower, which is quite understandable. After the post test, both groups improved with the caregiver’s score increases twice as much as the patients’ score. When compare to other studies also used the same QOL questionnaire, the effect size falls in moderate range although that study was 6-month long and ESP was only 7 weeks. Also, the questions with improved score are about the same for caregivers and patients, about activities, self-satisfaction, entertainment, independence…etc, but the one question (socialization) I expected to improve the most has close to no improvement.

Essential Services of Public Health
Evaluation of the effectiveness of an educational program for people with Alzheimer’s disease and their caregivers.

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Topic: Selection Program

Title: Aeromedical Consult Service

By Hans C. Bruntmyer, D.O.

Public Health Significance
Selection programs are designed to avoid training attrition, reduce operational failure and enhance operational performance by selecting out individuals who produce the characteristics known to be associated with training or mission/operational failure and to select in individuals who possess characteristics associated with mission/operational success. Thus, a critical incident (e.g. psychological or behavioral failure), could result in a significant national security concerns which could endanger the American government and it’s citizen’s health and welfare (i.e. terrorists, etc). This scenario is equally applicable to law enforcement officers and fire-fighters. The public’s health and safety could be significantly impacted by a critical incident.

This Service performs this selection process for the Department of Defense (DoD).
**Approach**
The population being studied included all applicants to a DoD organization between 1993 and 2001 as part of a unit assessment and selection process (A&S). 1900 records were included in the analysis. This organization has a 55% selection rate at the current time. Over this nine year period, seventy-two individuals were determined to have had a critical incident. This group was compared with a sample group (“good performers”) of individuals, matched for occupation, race, gender, age, year of assessment, etc. Demographics, to include occupations, as well as evaluation scores and interview findings were compared to determine if there are common indicators of bad outcomes.

**Findings**
The Critical Incidence study population was primarily made up of men compared to women; however this was similar to the “good performer” population. The job category and rank for each group was very similar. There was also no significant difference between the two groups when compared by marital status, number of children or age.

Upon comparison of psychometric testing several items were noted to be different. The two groups were similar when their IQ levels were compared using the MAB. When looking at the MMPI, there appeared to be a difference on the MMPI Social Introversion; the Critical Incidence group scored somewhat higher. The number of Critical Items highlighted by the MMPI was compared as well. In our two comparison groups there did not appear to be any significant difference.

When the two groups’ scores on the NEO were compared, Openness T score was the only demonstrable difference.

The bottom line is there was little difference between the two groups. This means that more research needs to be done as to why some individuals have bad outcomes or critical incidents. These studies are being formulated at this time.

**Essential Services of Public Health**
Within the public health discipline of Social and Behavioral Sciences, my project described a public health problem in terms of magnitude, person, time, and place and allowed me to comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
Topic: Reducing Recidivism

Title: Motivational Interviewing in the Dallas County Community Supervision and Corrections Department

By Malissa Cornett

Public Health Significance
According to the Bureau of Justice Statistics (2004), Texas has one of the largest probation populations in the United States. Texas legislation has recommended reducing case loads, increasing alternatives to incarceration, and developing progressive sanctions to address technical violations of probation all in efforts to strengthen community supervision. In light of these recommendations, much enthusiasm has been placed in the implementation of Evidenced Based Practice (EBP) into the community supervision and corrections system in order to reduce recidivism among probationers. Project ENCORE was an intervention designed to increase compliance of probation sentences and ultimately reduce the recidivism of their criminal behaviors by training probation officers to use Motivational Interviewing (MI) while conducting meetings with probationers.

Approach
As part of measuring the secondary outcome of the ENCORE project, The Motivational Interviewing Treatment Integrity (MITI) was used to formally assess the efficacy of MI in probation settings by coding taped sessions between the probation officer and probationer. Three individual coders were trained in using the MITI. To ensure intra-rater reliability, intraclass correlation coefficients (ICCs) were calculated for all sessions.

Findings
Many of the probation officers had a difficult time surrendering the dual role as both protector of society and as a counselor for rehabilitation to execute the essentials of MI which requires a directive, client-centered counseling style for enhancing intrinsic motivation to change. Thus, in some sessions the probation officers would revert to constructional strategies such as focusing on consequences by directly addressing past behaviors, rather than being an empathic listener and eliciting change talk; both being essentials of MI. Another finding was that it was difficult to discern the target behavior at times due to a multitude of behaviors being
individually addressed and inquired upon by the probation officer; this was also in violation to the MI essentials as it hindered the progress of motivational direction within the session.

**Essential Services of Public Health**
This project assessed the public health services of evaluation of efficacy and research to develop new insights of systems to serve the community.

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**Topic: Self Perceived Quality of Life**

**Title: Self Perceived Quality of Life (SP-QOL) in an Impoverished Mexican-American Community in Texas along the U.S.-Mexican Border**

**By Sartaj Alam**

Sartaj Alam\(^1,2\), Belinda M. Reininger\(^1\), Dr. PH; M. H. Rahbar\(^1,2\), Ph. D

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**Objectives**
This study examined the SP-QOL in an impoverished, minority-majority neighborhood in the Lower Rio Grande Valley. By exploring the association between life status, perceptions, and QOL outcomes, the study aim was to inform program planning, outreach activities and community-based participatory action research and suggest interventions. In addition to scholars of Hispanic health and QOL, the results of this study should prove useful to policymakers and the advocacy agencies and academic institutions that promote development, implementation, and analysis.

**Methods**
A simple random sample of 402 households were administered a survey via a trained outreach worker. Participants were able to conduct the interview in their language of choice, with over 95% selecting Spanish. The neighborhood represented a defined geographical area containing a defined population of interest, with every household having a known, nonzero, and equal chance of being included in the sample. The response
rate was 80% (320/402). All data collection protocols had prior approval from the Committee for the Protection of Human Subjects (CPHS) of the University of Texas.

The survey instrument, based on the work of M.J. Sirgy et al, assessed levels of satisfaction with various life domains and specific local government, non-profit services and neighborhood social capital. SP-QOL measures were assessed using the “Delighted-Terrible” scale and were treated as continuous variables.

Results
Linear regression procedures developed statistical models including subjective and objective variables. Demographic variables like Age and Sex were not significant statistically and were kept in the model as confounding variables. Subjective factors which were more effective at predicting outcome and significantly contributed positively to the model included: satisfaction with ‘Personal Health’ (p<.001), ‘Community’ (p<.001), ‘Friends’ (p<.001), and ‘Education’ (p<.05). Therefore, participants who reported an increase in satisfaction in any of these variables also reported greater SP-QOL. Similarly, objective variables which positively contributed significantly are Health (p<0.001), Education Level (p<0.01), and Opportunities to Exercise/ recreation (p<0.01). None of the factors contributed negatively towards the outcome. One of the most conspicuous results was the strong interaction between subjective and objective terms. Education Level strongly modified the effect (interaction effect) of ‘Satisfaction with Education’ in its relationship to the outcome (p<0.05). ‘Satisfaction with Friends’ also showed strong interaction with ‘Opportunities to Exercise / Recreation’ vis-à-vis SP-QOL (p<.001).

Conclusion
Analysis of the survey results showed subjective outcomes such as SP-QOL and other terms based on perceptions do not always match up with objective life status. The predominantly Mexican-American participants expressed generally higher levels of SP-QOL with various life domains than would seem justified by their objective health situation and living conditions.
Topic: Spread of HIV Delay

Title: A policy approach to reducing the spread of Human Immunodeficiency Virus.

By Jessica Schleifer

Public Health Significance
HIV/AIDS is an epidemic that is sweeping across the world. In the United States 56,300 people became newly infected in 2006, well above the 40,000 cited in recent years according to the CDC. In Texas, we are 4th in the nation for reported cases of AIDS, and there are pockets in Houston where infection rates rival that of African nations. Thankfully, HIV is no longer a death sentence, but it is clear that early diagnosis is a key to fighting the disease and its spread.

Approach
Over the course of the semester I spent my practicum at the state legislature working in the office of a Senator as a health policy advisor. As a legislator, the Senator has the ability to change policies, and offer citizens the resources to aid them in improving and making responsible decisions regarding their health. I was able to assist in the process of drafting, researching, and educating others regarding our health prevention bills. One important bill regarding HIV testing is 81(R) SB 877 which implements the 2006 CDC recommendations. The recommendations call for health care providers to test individuals aged 13-64 for Human Immunodeficiency Virus (HIV) as part of their routine medical exam, unless the individual declines. There is evidence that knowledge of one's positive status leads to behavior that reduces the probability of transmission. In the drafting of the legislation we tried to address all of the issues and barriers associated with testing by conducting research on the issue, meeting with the Department of State Health Services, talking with government relations staff from insurance companies and hospitals, and meeting with constituents. We also held a press conference and had several newspaper articles published to educate the public on the importance of HIV testing.
Findings
Final passage of this legislation is still in progress. SB 877 has not yet received a hearing. This issue is one that many are afraid to approach, but is one that is essential to the health of the public. There is still time in the session to move the legislation, but if nothing else comes from this bill at least there was increased discussion regarding the importance of HIV testing and individuals knowing their status to reduce the spread. As a result we have drafted letters and are forwarding the Senator's policy to legislatures in Congress to see if there is any interest in implementing this legislation on the federal level.

Essential Services of Public Health
While we had many pieces of preventative legislation, HIV testing was one of the big parts of the legislative agenda this session. My practicum project focused on the essential public health service of policy development. This legislation focused on educating and empowering people by encouraging knowledge of their HIV status. We worked with community, state organizations, and other stakeholders to identify barriers to testing and tried to implement the best policy possible to achieve our goal of increasing HIV testing and reducing the spread of the disease.

Topic: Stroke Rehabilitation

Title: Evaluation of the Service and Effectiveness of a Rehabilitation Program at TIRR Memorial Hermann

By Shut-yee Jessica Yeung

Public Health Significance
One of the common causes of severe, long-term disability is stroke which also killed 143,579 people in 2005 in the United States according to the statistics from American Heart Association. Beside stroke, multiple sclerosis, head and spinal cord injuries disable hundreds of thousands of people each year. Clinical treatment takes care of the initial stage of the disease, and rehabilitation provides the necessary care and training to improve the quality of life and independency of patients whose recovery time is relatively lengthy. Rehabilitation services become as important as other frontline clinical care in public health.
Approach
By volunteering at The Institute for Rehabilitation and Research of Memorial Hermann Hospital, I gained the chance to observe and evaluate the services provided by one of the best rehabilitation facilities in the country. Assisting nurses by doing clerkship tasks at the head injury and stroke unit helped me understanding the phase when a patient was just admitted to the rehab hospital. After patients recover to a point that they attend outpatient therapy services, they can join the Strength Unlimited program which is the second place that I volunteered. Assisting people doing special exercises in the program enables my comprehension of the rehab patients’ need and the advantage and disadvantage of the current program.

Findings
A report of the evaluation is written to list out all the findings and suggestions. For Strength Unlimited program, in addition to the main purpose of offering accessible, economical, exercise location and program to people who have disabilities, it supplies a supportive social network for people with similar health situation and needs. This program offers around two hours of assisted workout for individuals to train certain muscles and movement of their bodies to maintain or improve the mobility. People participate in the program almost know each other by name; they also insist on continuous participation and focus on the prescribed training. Comparing with the general population without any disabilities, I found that this population values the importance of exercising a lot. Condition similarities and involvement of the participants combining with the encouragement of licensed staffs (e.g. physical therapist) and the availability of equipment make the program a success. The suggestions for the program include improvement in hygiene of the equipment and wrapping bands for limbs position stabilization, adding music to lighten up the exercise environment, promotion of recruiting volunteers due to shortage of assistance, increase in equipment, more ergonomic positions of all equipment since some individuals are in wheelchairs, and computerization in rotating turns for each individual to minimize the wait time before starting exercise.

Essential Services of Public Health
My project primarily addressed an essential service of public health - rehabilitation facilities and services. Unlike other clinical and healthcare services that patients recover after a short period of time and get
discharged to go home, rehabilitation requires continuous care, therapy and support for the disabled population.

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**Topic: Tuberculosis Screening**

**Title:** Establishing Baseline Tuberculosis Knowledge and Infection in *Colonias* in South Texas – TB screening and testing in Del Rio and Eagle Pass, Texas.

**By Ileana Valdez**

**Public Health Significance**

Incidence rates of Tuberculosis (TB) in cities along the South Texas-Mexico border are much higher than those in non-border cities. Since Tuberculosis is a highly infectious disease that requires complex treatment, it is of critical importance to public health departments that those persons infected with TB be identified and treated as soon as possible. Residents of *colonias* along the South Texas-Mexico border are at high risk of TB infection because they lack many basic living necessities and may be less likely to seek treatment.

**Approach**

The aim of this study is to investigate the baseline levels of tuberculosis exposure and knowledge of the disease in Del Rio and Eagle Pass, Texas. Two screening sites were set up in the *colonias* of the two towns. Residents of the *colonias* were invited to participate in the screening and have the TB skin test placed by community health workers. A knowledge, attitude, and practice (KAP) survey was administered at the time of screening and testing to determine the community’s level of understanding and knowledge of TB infection, transmission, and treatment. Those parts of the survey with incorrect answers were noted and will be addressed in an informational pamphlet to be distributed to the community.

**Findings**

A total of 49 participants answered the questionnaire and received screening and testing. In Del Rio, 24 people completed the survey and 27 people were screened and tested. In Eagle Pass, 25 people completed the survey and 22 people were screened and tested. There was one positive TB skin test result in Eagle Pass and 2 positive results in Del Rio. Those
with positive TB skin test results were referred to the health department for follow-up treatment. When asked how TB was spread, the survey showed that 13 people thought that TB could be acquired by sharing food with an infected person and 12 people answered that they did not know how TB was transmitted. Thirty-eight people considered Tuberculosis to be a serious to very serious disease yet only 13 people considered TB to be a problem in their area. When asked about the treatment of Tuberculosis, 11 people did not know how to treat TB and 5 answered that there was no cure. Twenty-four participants did not feel well informed about TB and almost all the participants (47) were interested in obtaining more information. The KAP survey clearly identified the gaps in knowledge for these communities and will be addressed in the informational brochure to be designed.

**Essential Services of Public Health**

Improved Tuberculosis education and screening will help protect the community by raising awareness, identifying new cases, and decreasing stigma and fear as more people understand the epidemiology behind the disease.

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**Topic: Tooth Decay**

**Title: Delivery of Preventive Dental Care to Children in Non-Traditional Settings**

By Paul Ngande

**Public Health Significance**

Tooth decay is the single most common chronic disease in children (Oral Health in America: A Report of the Surgeon General, 2000). Tooth decay is a preventable disease. Poor oral health can affect a child’s ability to speak, eat, and grow. Children in the United States lose more than 51 million school hours per year due to oral diseases.

Low income children are twice as likely to have dental decay as children from higher income families. Uninsured children are 2.5 times less likely to receive dental care than children with insurance. Twenty-five percent of poor children have not seen a dentist before entering kindergarten. Preventive dental care delivered through non-traditional settings and
models can improve access to care and quality of life for low income children.

**Approach**
My practicum goal was to gain experience and knowledge in delivering preventive care in the field setting. During this practicum I participated in preventive dental programs performed by state and local dental public health teams and in Community Health Center dental clinics. These programs were performed in small, large, rural, and urban settings.

I was actively involved in all phases of these field clinics; planning, preparation of paperwork and supplies, transportation, and I supplied administrative support during the performance of the clinic. I met with other dental public health entities performing preventive programs and collaborative efforts throughout Texas. I received experience using portable dental equipment in a field environment.

**Findings**
During this practicum I gained experience and knowledge in the delivery of preventive dental care for children across different public health models. Because of my practicum experience I believe school based and other non-traditional dental preventive programs are effective ways to deliver preventive care to children.

**Essential Services of Public Health**
Improving access to care and the benefits of preventive healthcare are two essential services of public health. School based preventive dental programs improve access to care by bringing the clinic to the child. Preventive dental care can improve a child’s ability to eat, grow, and learn and therefore can improve their present and future quality of life.
Topic: University Health and Safety Programs

Title: A Safety Climate Survey Tool for Universities

By Janet M. Gutierrez

University health and safety programs contribute to public health primarily through a focus on workplace safety. The health and safety programs address specific state and federal public health laws at the university, for example, workplace exposures to hazardous agents such as bloodborne pathogens, hazardous chemicals and radiological agents. The critical evaluation of health and safety programs in universities across the United States allows for the identification of where to best target limited resources for improving the public health and safety of the employees and students. An assessment of the safety climate at the university serves to evaluate the strengths and weaknesses of the health and safety program. Safety climate is defined by Tsung-Chi Wu et al. “as employees’ perceptions of safety culture in the organization;” (Wu (Safety Climate), 2007). Although safety climate has been evaluated and studied for many years, little research exists on the safety climate of universities. The only study of safety climate in university and college laboratories was by Tsung-Chi Wu et al. of 100 universities and colleges in Taiwan (Wu (Safety Climate), 2007). The practicum project included: developing an unique safety climate tool for universities, performing a test study with university employees and utilizing their feedback to enhance the online safety climate tool. To minimize respondent time burden, an abbreviated safety climate survey tool for universities was developed with input from a practicing professional representing a large and prestigious university and the Campus Safety Health and Environmental Management Association Research (CSHEMA) & Survey Committee Chair. Once the survey was created, feedback from respondents from the University of California – Irvine safety employees was gathered for enhancement of the online safety climate survey tool. The well polished online safety climate survey tool will likely be utilized as a tool for benchmarking with other universities in the future through safety organizations such as CSHEMA.

Topic: Zoonotic Diseases

Title:

By Jennifer Rinderknecht

I performed my abstract at the National Center for Foreign Animal and Zoonotic Disease Defense (FAZD Center) at Texas A&M University in College Station, TX. The FAZD Center is one of several Centers of Excellence (COEs) founded by the Department of Homeland Security’s (DHS) Science and Technology Division. Its primary mission is to develop products and technology to prepare our nation for potential animal and zoonotic disease events. The FAZD Center is focused on 3 themes: Biological Systems, Information and Analysis Systems, and Education and Outreach Systems. Within the Biological Systems theme, FAZD primary investigators (PIs) research new and novel techniques to detect, diagnose, and prevent the spread of Rift Valley fever, avian influenza, and foot and mouth disease. Information and Analysis Systems focuses on computer and infrastructure analysis to detect and assess potential outbreaks. One of the computer programs developed under this theme, B-COP (Biosurveillance Common Operating Picture), was showcased at the DHS University Programs Summit in Washington, DC and has recently been adopted by the Dept. of Agriculture and other governmental agencies to aid in the surveillance of the H1N1 influenza pandemic. The third FAZD Center theme is Education and Outreach Systems. The theme focuses on train-the-trainer techniques and educating future and current scientists. The CASHN (County Animal Security and Health Network) is also being used for the current influenza pandemic to monitor possible outbreaks or events among swine.

During my practicum, I completed many different tasks. These included:

- Developing a database to track the “deliverables” of each FAZD project,
- Reviewing and assisting in the composition of a DHS grant application, continuation proposal, and other documents
- Organizing annual work plans and reports
• Entering and organizing information for the DHS University Programs Website

• Searching the literature for relevant information regarding the H1N1 virus pandemic

• Researching and organizing international and national centers that share the FAZD Center’s core focuses

During the time at my practicum, I also gained invaluable knowledge on the following:

• Development of grant applications and proposals

• Budgeting and use of funding offered through grants

• Ways in which the public health community interact with those in the DHS and other governmental agencies

• Involvement of internal and external stakeholders

• Organization and distribution of scientific projects and research

• Corresponding and working-with members of other institutions and organizations

• Overall organization of the FAZD Center and DHS (especially within its Science and Technology Division)

I personally feel that some of my most valuable experience came from my participation and attendance at core FAZD/DHS meetings and events. Some of these included:

• DHS compliance visit

• Meeting with Texas A&M Office of Research individuals

• Discussion of possible FAZD Fellowship with members of the United States Veterinary Corps

• Meeting and conversations with FAZD Center PIs

• Staff meetings among members at the FAZD Center
• DHS S&T (Science and Technology) University Programs Summit in Washington, DC (discussed in further detail below)

The highlight of my practicum was my attendance at the University Programs Summit in Washington, DC in March. Attending were members of the DHS community, students and researchers, and other key members of COEs (Centers of Excellence) and participating institutions. I was able to learn about current research being done across the country on a wide-range of DHS-related issues, ways in which public health is involved in the DHS, and the overall workings/organization of the DHS.

As for my future after the completion of my practicum, the Center has asked me to continue there as a student worker during the summer. Furthermore, I will be heavily involved in the organization and execution of the FAZD Center’s Annual Meeting in late June/early July. In attendance will be both external and internal stakeholders and all FAZD Center researchers. Also, Texas A&M’s President, Dr. Murano, has invited DHS Secretary Napolitano to visit and speak at the meeting. Furthermore, I believe that the Center will continue to be heavily involved in the current H1N1 influenza event.

In summary, I was extremely pleased with my practicum and know my experiences at the FAZD Center will be of great importance when entering my field.

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