Introduction

The Office of Public Health Practice is pleased to publish the e-book for the new academic year of 2008-2009. It is a compilation of student practicum abstracts completed during the Fall of 2008. 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 fall 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: Antibiotic Resistance in Hospitals

Title: *Trypanosoma cruzi* prevalence and methicillin resistant *Staphylococcus aureus* (MRSA) antibiotic resistance in hospitals in Dallas, TX

By Christine O’Rourke

Public Health Significance
Chagas’ disease is a vector-borne disease caused by the parasitic agent *Trypanosoma cruzi* endemic to regions of Central and South America. During chronic infections with *T. cruzi*, damage mimicking heart disease can occur resulting in patients presenting to hospitals with heart disease or heart failure caused by this underlying parasitic disease. It is important for hospitals dealing with immigrant populations to be able to distinguish potential cases of Chagas’ disease. It is because of these concerns that a study has been undertaken at Parkland Hospital (Dallas, TX) to evaluate baseline prevalence of *T. cruzi* in immigrant populations that present at Parkland Hospital.

Methicillin resistant *Staphylococcus aureus* (MRSA) is a pathogen of public health significance in clinical settings where hospital infection control programs study and track outbreaks of this infection. Articles in the published literature have raised concerns as to whether resistance to the primary antibiotic, vancomycin, is increasing over time. Due to these concerns, a retrospective study was undertaken to determine if changes in resistance to vancomycin among MRSA isolates have occurred over a ten-year period of time at Children’s Hospital (Dallas, TX).

Approach
The prevalence study for *T. cruzi* has begun the initial stages of collecting, processing, and storing blood serum samples from suspected immigrant patients. Additionally, information regarding geographic origins of patients is attempting to be gathered. In later stages of the study immunosorbent assays will be used to determine percentages of serum samples with antibodies to *T. cruzi* and a database with all collected data will be created to store results.
The MRSA vancomycin study has recently concluded and results are currently undergoing analysis. This study used frozen MRSA isolates (all MRSA isolates grown in the Children’s Hospital laboratory are kept as part of an ongoing MRSA surveillance program) collected over a ten-year period of time. Antibiotic resistance testing of the isolates was accomplished by first culturing and purifying MRSA isolates followed by the use of two methods for determining vancomycin resistance to ensure accuracy and consistency in testing.

**Findings**
The final product for the *T. cruzi* study will be a reference database for use in future studies involving prevalence of *T. cruzi*. The final product of the MRSA study will be information useful for members of the infection control and surveillance teams at Children’s Hospital in regards to MRSA policies. It is hoped papers will be published from both studies.

**Essential Services of Public Health**
These projects addressed the public health services of monitoring and investigating health problems within the community.

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**Topic: Cancer and Weight Loss**

**Title: Predictors of survival and weight loss in cancer patients**

**By Bhavana Konda**

Principal Investigator and Community Preceptor: Jose M. Garcia, M.D.
Faculty sponsor: Shreela V. Sharma, PhD, RD, LDs

**Public Health Significance**
More than 1.5 million Americans are diagnosed with cancer every year. Various treatment strategies have been developed to prolong life in patients with cancer. However, cachexia (defined as an involuntary weight loss of 5% or more in 6 months) - in the setting of cancer - significantly compromises a patient’s quality of life and is associated with poor response to treatment and increased mortality. The mechanisms resulting in cachexia include increased resting energy expenditure, secondary to adrenergic activation and cytokine imbalance, and up regulation of ubiquitin-mediated proteolysis by Angiotensin II. Medications like Beta
blockers decrease resting energy expenditure and, Angiotensin Converting Enzyme Inhibitors (ACEIs) - which inhibit conversion of Angiotensin I to Angiotensin II-, have positive effects on muscle strength in patients with congestive heart failure. However, their role in the setting of cancer cachexia has not been established.

Our project, “Predictors of survival and weight loss in cancer patients” will determine whether patients with non-small cell lung cancer on Beta blockers, ACEIs, and Angiotensin receptor blockers (ARBs), are less likely to develop cachexia than those patients not on these medications. This is of major public health significance because, if these drugs prevent cancer cachexia, they could potentially be administered to cancer patients following future randomized control trials.

**Approach**
This project is a retrospective chart review. We record patient data including age, gender, height, weight, stage and histology of the cancer, and treatment modality. Patients are categorized into exposed and unexposed based on whether or not they received the study medications. Body weight measurements at 6 months and 1 year prior to diagnosis, at diagnosis, and 6 months and 1 year following diagnosis are recorded to note the trend of body weight change. The primary outcome measured is weight loss and the secondary outcomes are mortality and number of hospitalizations. Patients with co-morbid conditions or those taking medications which may have an impact on weight are excluded from the study.

Initial data analysis consists of descriptive summaries of all quantitative variables and percent occurrence of categorical variables. Assessment of change in body weight over a 6-month period is made by the SAS General Linear Model repeated-measure analysis of variance. The effect of co-variates like, the study medications, on body weight will be studied.

The effect of cancer stage on patient survival will be made using the SAS Life test (Kaplan-Meier) procedure. This would provide information on which of the co-variates would be included in the general step-wise Cox Proportional Hazards analysis. A p-value less than 0.05 without adjustment for multiple comparisons would be statistically significant. SAS software version 9.1 or later will be used.
Findings
The project is ongoing. We plan to complete the data collection in March 2009.

Essential Services of Public Health
If a significant difference is noted at the end of the study in patients with non-small cell lung cancer on the study medications, administering these drugs could help decrease the symptom burden in patients with cancer, thereby improving their quality of life.

Topic: Chemoprevention and Cardiovascular Risk

Title: Chemoprevention Benefit versus Cardiovascular Risk: Decisional Considerations Regarding Celecoxib Use Among Persons with Familial Adenomatous Polyposis

By Eunice Santos

Public Health Significance
Familial Adenomatous Polyposis (FAP) is a hereditary colorectal cancer (CRC) syndrome caused by germline mutations in the APC gene. Individuals with FAP develop numerous adenomatous colorectal polyps and have up to a 100% lifetime risk of developing CRC in the absence of prophylactic colectomy. Celecoxib, a selective COX-2 inhibitor, decreases polyp development in FAP but is associated with increased cardiovascular (CV) risk. This study evaluated perceptions regarding CV risks associated with celecoxib and preferences regarding celecoxib use for chemoprevention among FAP-affected persons.

This topic is an important public health issue because it can help to understand perceived risks and benefits of chemoprevention drugs among individuals at high-risk for colorectal cancer, and possibly other cancers. This understanding may also apply to the recruitment of individuals to clinical trials for chemoprevention agents.

Approach
Twenty-four persons who participated in a chemoprevention trial for FAP completed a semi-structured telephone interview regarding sources of health-related information, current use of celecoxib, perceptions regarding
health risks related to FAP vs. risks associated with celecoxib, and willingness to use celecoxib in the future for FAP chemoprevention.

Descriptive data were summarized using SPSS 15.0. Qualitative interview transcripts were analyzed using ATLAS.ti. Transcripts were coded for common themes, using a grounded theory approach. Themes were verified independently by different raters. Quantitative and qualitative data were triangulated using a mixed methods approach.

Findings
Most respondents received information about CV risks associated with celecoxib from a healthcare provider. At the time of the interview, some respondents were using celecoxib for FAP chemoprevention. Respondents also indicated that they worried more about CRC and other risks related to FAP compared with CV risks associated with celecoxib. More respondents indicated that they perceived a lower risk of CV events if celecoxib was used on a short-term basis vs. long-term basis. Accordingly, more respondents indicated a willingness to use celecoxib as part of clinical research vs. outside of clinical research. Decisional considerations for taking celecoxib as part of clinical research include the availability of adverse event monitoring and time-limited study duration.

FAP-affected individuals express greater worry about FAP-associated health risks compared to celecoxib-related CV risks; however, more preferred to use celecoxib as part of short-term research with monitoring. Education regarding CV risk factors and symptoms may reassure FAP-affected individuals who use or are considering celecoxib for chemoprevention.

Essential Services of Public Health
An essential service of public health includes research. This research project may provide insight regarding perceived risks and benefits among persons affected with Familial Adenomatous Polyposis regarding the use of agents for chemoprevention.

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Topic: Childhood Obesity

Title: Youth in Motion: A Formative Evaluation of a Community Healthcare Intervention to Promote Dietary, Nutrition Health, and Physical Activity in Mexican-American Youth.

By John Byrne

Public Health Significance
Childhood overweight and obesity is a significant public health concern among American youth, most especially amongst Mexican-American youth. With a high prevalence rate for overweight and obesity in Mexican American youth (37%) when compared to other minorities, there is an apparent need for effective intervention.\(^1\) Living a sedentary lifestyle along with being overweight or obese significantly increases the risk of chronic disease including heart disease and diabetes. Among youth in particular, 80 to 90 percent of type 2 diabetes cases are due to being overweight or obese.\(^2\) In order to avoid complications later in life, it is important for the youth to develop proper nutritional and exercise habits at this point in their lives.

Approach
The practicum consisted of an initial period of understanding the events of the Youth in Motion program (i.e. participating with the youth in lecture and exercise sessions, and assisting the leadership in teaching). To better understand the program and its strengths and weaknesses, I formatted an evaluation for both the participants who completed and those who failed to complete the program (DNF). Focus groups with each group (participants – completed, participants – DNF) were subsequently held. An analysis of the focus group had been completed and a formal evaluation of the program has been ongoing.

Findings
An analysis of the program guidelines and the evaluation of the program have been ongoing. Guidelines for research purposes for future use in studies of obesity and intervention have been established. An assessment of the program will be sent to the directors of the program (i.e. how to improve the program, how to expand to benefit a larger number of
individuals). An abstract has been written and will be submitted to the APHA Annual Meeting.

**Essential Services of Public Health**
The practicum was focused on the evaluation of the effectiveness and quality of the personal health service for the children and families. The program, though established for several years, is still young. It is important for an assessment to take place in order to continue to keep the program at the forefront of health practices/procedures. The evaluation of the program is also essential for forward progress and for the development of the program to benefit a greater number of children in the San Antonio community.


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**Topic: Childhood Obesity**

**Title: Evaluation of Association between Obesity and Ear Infection among US children using National Health and Nutrition Examination Survey (NHANES)**

**By Priyank J. Yagnik**

**Public Health Significance**
Obesity among US children is an emerging national health problem. According to the National Health and Nutrition Examination Survey (NHANES), 1999-2002, the prevalence of obesity has increased from 5.0% in 1999 to 13.9% in 2002 for 2-5 year old children, from 6.5% to 18.8% for 6-11 year old children and from 5.0% to 17.4% for 12-19 year old children. According to American Academy of Pediatrics, annual
occurrence of acute otitis media is about 5 million, which results in around 10 million annual antibiotic prescriptions and about 30 million annual visits to doctor's offices. Ear infection accounts for fifty percent of antibiotics consumed by pre-schoolers in the US. There is a plausible association between obesity and ear infection. In this study we evaluated such an association using the National Survey of Children’s Health (NSCH) database.

**Approach**
I started with literature review. I did my literature review through PubMed, Ovid, Web of Science and Google Scholar. I found 54 references describing obesity and ear infection in children. I used the EndNote program to organize the search results. My community preceptor, Dr. Ahmad did the analysis for the paper. He also guided me in scientific writing. The process of paper writing is continuing and we are hoping to submit the paper by the end of December.

**Findings**
My aim was to submit the paper for peer review. However, by the end of the semester, we were not able to accomplish our objectives. However, the first draft of the paper is finished and the final version will be submitted by the end of December.

**Essential Services of Public Health**
Our project primarily addressed two of the emerging public health issues, i.e., obesity among children and ear infection among children.

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**Topic: Children and Mental Health**

**Title: Pasarla Bien**

By Madan Dang

**Public Health Significance**
Pasarla Bien in collaboration with Healthy Communities of Brownsville is a pilot program focusing on providing psychiatric assessment and coordinating mental health services for students with mental and behavioral disorders at Besteiro Middle School located in Brownsville, Texas. Studying the mental health problems and planning specific
interventions to tackle this issue in school-going children is of extreme public health importance. Children with psychiatric problems do poorly at schools and in the future it may be difficult for them to have a good earning. This can also lead to adoption of anti-social behaviors. Children are the future of a nation and that is why their health is very important.

**Approach**
A multi-approach intervention was provided to students and parents over the course of one year to meet the short-term objectives of an increase in the GPA and in the internal and external assets of students, combined with a decrease in discipline referrals and absences/tardies. The long-term objective of the program is to increase the graduation rate of the students at the Besteiro Middle School. The various interventions that were incorporated into the program were psychiatric assessments and student counseling, social skills training for students, parenting workshops, and workshops for teachers. The outcomes are to be measured using pre- and post-test questionnaires administered to students and parents at the end of the program.

**Findings**
The final product was a pre-post comparison of certain parameters before and after the interventions like the school attendance, school grades, social skill measurements and parent’s perception about the child’s health and behavior. Overall, these criteria showed significant improvement after the interventions.

**Essential Services of Public Health**
Studying the health behavior in school going children with psychiatric illnesses and applying the principles of health promotion to adopt effective interventions in order to tackle the issue.

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**Topic: Clostridium difficile Infection**

**Title: Clostridium difficile Infection - An Emerging Threat**

**By Stephen Harold**

Organization: St. Luke’s Episcopal Hospital, 6720 Bertner Avenue, Houston, Texas 77030
Public Health Significance

*Clostridium difficile* infection (CDI) accounts for 3 million cases of hospital acquired infectious diarrhea and colitis in the United States with an annual cost of treatment that exceeds 1.1 billion dollars. The incidence of CDI has increased since 2000 with the emergence of hyper-virulent strains associated with increased severe disease, morbidity, and mortality. Further research in identifying the risk factors may help physicians to identify severe CDI early in the course of the disease and thereby help reduce morbidity and mortality due to CDI. This will also throw more light on the additional preventive measures that could be adopted to protect vulnerable population from CDI.

Approach

I worked with the St. Luke’s Episcopal Hospital infection control team, the laboratory, the pharmacy and the nursing department and learned how these groups worked in unison towards the control and management of the nosocomial infection, *Clostridium difficile*. I was able to participate actively in review meetings, research meetings, and journal club presentations and also had an opportunity to present an article in the weekly *Clostridium difficile* journal club.

The practicum helped me to gain more insight into the importance of *C. difficile* infection in the US, through intense literature reviews. As part of the Antibiotic Associated Diarrhea Quality of Life research team, I learned the process of obtaining consent and data collection by administering questionnaires to patients with antibiotic associated diarrhea. I was further given access to Patient Data Management System (PDMS) of this large tertiary care hospital, which enabled me to abstract clinical data and treatment history from the physician’s portal. I acquired data entry skills by entering the data files using the Microsoft Access program. The time I spent in the research laboratory helped me to understand the various toxin assays and the culture methods available for confirming the diagnosis of *C. difficile*. To add credence to my practicum opportunity, I was able to meet with my supervisors every week to clarify my doubts, discuss the intricacies of data collection and enrich my knowledge by their rich experiences.
This practicum opportunity at St. Luke’s Episcopal Hospital helped me to understand the significance and the disease burden of \textit{C. difficile} infection in the US and also in other parts of the world like Europe and Canada. This opportunity helped me to gain a wealth of information regarding the risk factors, pathogenesis, clinical signs and symptoms, diagnostic tools, and the current concepts in the management of \textit{C. difficile} infection. It also helped me to gain insight into various ongoing clinical trials like Salix Rifaximin study, Pathogenesis study, and AAD Quality of Life study that are in progress at St. Luke’s Episcopal Hospital.

From the public health perspective, I learned about the control measures and preventive aspects of community acquired \textit{C. difficile} infection as well as \textit{C. difficile} infection in the hospital setting.

Above all this hospital-based practicum equipped me for better job opportunities in the field of Public Health Research.

\textbf{Essential Services of Public Health}
My hospital-based Practicum primarily addressed the following two essential services of Public Health.

1) \textbf{Diagnose and investigate} health problems and health hazards in the community.

2) \textbf{Research} for new insights and innovative solutions to health problems.

\textbf{Topic: Colon Cancer}

\textbf{Title: Evaluation of Outcomes with Endoscopic and Surgical Management of Large Colon Polyps}

\textbf{By Rashmi V. Thatte}

\textbf{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. I began to work on the data from 2005 as well during this semester.

**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 Health**
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: Colorectal Cancer Screening

Title: The use of computer-based questionnaire to increase colorectal cancer screening rates: A clinical trial

By Justin Colacino

Public Health Significance
Colorectal cancer is the second leading cause of cancer-related mortalities worldwide. According to the Centers for Disease Control and Prevention, nearly 150,000 Americans were diagnosed with colorectal cancer in 2004 and over 50,000 died from the disease. However, regular screening for colorectal cancer can catch the disease early. There are several different screening tests available, including colonoscopy, flexible sigmoidoscopy, barium enema, CT colonography, and stool blood tests. Early detection of the disease can preclude the need for surgery or chemotherapy and can decrease the morbidity, mortality and cost due to colorectal cancer.

Approach
The study is an NIH-funded clinical trial to test whether the use of a touch screen computer program that asks questions about the patient's personal and family health histories and provides feedback can increase colorectal cancer screening rates. The intervention group in the study receives tailored colorectal cancer screening recommendations based on the answers they provided in the questionnaire. The control group received a generic American Cancer Society cancer screening recommendations brochure. The study is designed to test whether there is a difference in the rates of colorectal cancer screening between the two groups in the next 12 months. I joined the research team before the start of the study and thus helped develop the recruitment materials for the study as well as the intervention through beta testing and cognitive interviews with patients. Multiple iterations of interviews were conducted, after which, the materials were revised and then retested with a new group of patients. The cognitive interviews typically lasted from fifteen minutes to an hour and involved asking patients about the clarity of the materials,
the layout, how informative the feedback was, if they had any problems understanding the questions being asked and how they normally interacted with their health care provider.

**Findings**
The results of the cognitive interviews were used to revise and edit both the computer-based intervention and the recruitment materials. The trial is currently underway, with approximately one thousand patients being recruited each month in three different UT Southwestern clinics. Around fifty patients, of a goal of 2500 total, have completed the intervention and either received tailored or generic feedback. I have been hired on as a Research Assistant II and will continue as a member of the project team until I graduate. I will present the findings of the cognitive interviews to the principal investigator, co-investigators and other research staff at an upcoming staff meeting.

**Essential Services of Public Health**
1. Research for new insights and innovative solutions to health problems.

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**Topic: Compliance on Hazardous Waste Release**

**Title: Compliance Monitoring for Hazardous Waste Releases for the UTHSC-H**

**By Vanessa Benavides**

**Public Health Significance**
According to RCRA of the EPA, hazardous waste is dangerous and potentially harmful to people, animals, and the environment. Federal, state, and local legislators, as well as organizations establish regulations and policies that limit public exposure to hazardous waste and protect from the health effects. Research facilities of the UTHSC-H must not be in violation of the ‘no chemicals down the drain’ policy instituted by Environmental Health & Safety, Environmental Protection Program (EPP). Compliance monitoring is essential to ensure proper disposal of hazardous waste materials; thereby minimizing the exposure and possible health effects associated with hazardous waste material.
Approach
Hazardous waste determinations were created for the spent cadaver tank solution of the medical school, which is subsequently drained into the sanitary sewer system. The chemical composition of the tanks includes: 1% phenol, glutaraldehyde, formaldehyde and fats released from the cadaver. Additional determinations were created for the UTHSC-H sanitary sewer system and the silver recovery units (SRU) that also release effluent into the sanitary sewer system.

All the equipment required for sampling was provided by EPP, a division of Environmental Health & Safety for the UTHSC-H. Sampling locations for the UTHSC-H campuses were determined and mapped prior to field sampling. Sampling of the sanitary sewer system was performed at all the campuses of the UTHSC-H using an automatic composite water sampler and delivered to a TCEQ accredited laboratory for analyses. The Medical School cadaver tanks were sampled manually, in addition to the effluent from the silver recovery units used in radiographic film processing. The collected samples were delivered to the TCEQ accredited laboratory for analyses.

Findings
Hazardous waste stream determinations for spent cadaver solution for the University of Texas Medical School Building, sanitary sewer water for the UTHSC-H, and effluent from silver recovery units (SRU) for the UTHSC-H indicate that the environmental water releases are all below local, state, and national regulatory levels. The chemical composition of the spent cadaver tank solution is below City of Houston ordinance limits. The wastewater effluent from the UTHSC-H is less than the local influent limits to Publicly Owned Water Treatment Plants (POTWs) as established by the City of Houston Ordinance Code. The silver contained in the fixer solution used in photo imaging is a RCRA hazardous waste; however, the SRUs are efficient in removing the silver (concentration less than 5 ppm) resulting in non-hazardous effluent released into the sanitary sewer system. Ultimately, the UTHSC-H remains in compliance with environmental regulations set forth to protect the public.

Essential Services of Public Health
The project primarily addressed protecting the public’s health from the dangers and injuries that arise as a result of environmental hazards.
Topic: Dementia

Title: Antihypertensive Drugs and Dementia

By Kairav Shah

Public Health Significance
Dementia is one of the most common health concerns of aging population today. More than 33 million people in the world have dementia today. It is expected to be the largest social, economical and emotional burden of illness in elderly. Dementia is not a single disease, but it refers to a group of disorders that can involve different functions of the brain like memory, learning, behavior, and communicating problems. Hypertension has proven a decisive role in the pathogenesis of dementia, whether Alzheimer or vascular, but the mechanism underlying this association is still ambiguous. There is growing evidence that antihypertensive agents used to control hypertension have its effect on preventing cognitive impairment or dementia beyond its antihypertensive properties. Our aim is to review all randomized and non-randomized studies, which looked at the relationship of these antihypertensive agents and dementia beyond blood pressure control.

Approach
A systematic literature search was done using Pubmed, Ovid Medline, EBSCO Medline, and Cochrane databases. We used combinations of different search terms. We searched Pubmed and Medline for all relevant articles in English. After selection of final articles, we created a quality assessment tool for examining the rigor and quality of epidemiological studies and search terms.

At this stage, we have reviewed the articles and will start writing the results and discussion section.

Findings
Our final product will be a review article for the effect of antihypertensive agents on the incidence of dementia or severity of dementia beyond blood pressure control.
Essential Services of Public Health
Antihypertensive drugs have effect on the incidence of dementia beyond blood pressure control. So the use of antihypertensive drugs in dementia should be studies further.

Topic: Diabetes
Title: Antihypertensive Drugs and Dementia
By Otila Martinez

Public Health Significance
Based on established research and the research conducted by the Houston team assigned to the HHS Hispanic Elder’s Pilot Project diabetes in Hispanic Elders is an area of foremost concern. Diabetes, escalating in numbers, is an issue of major concern in this population. The CDC reports this disease as the sixth leading cause of death and the leading cause in disability in the US. The number of people with diabetes tripled from 5.6 to 15.8 million between the years 1980 to 2005.

Houston is the fourth largest city in the US and approximately one third of its inhabitants are of Hispanic origin. As this minority’s numbers steadily increase so do the number of elderly within the group. With rapidly growing numbers of elders in the community, and their ailments, too comes a need for services that promote physical, social and psychological well-being of this underrepresented population.

Public health professionals are liaisons between underrepresented communities, such as the one observed, and resources or programs that can diminish their disease burden. Taking into consideration the growing number of elders and the economic burden accompanying them, the public health sector has a responsibility to research and provide as many cost effective strategies as possible. For this reason I believe center such as CRMH at MD Anderson (although a cancer center) provide opportunities for employed professionals to interact and devote time and brain power to projects like the HHS Pilot Project.

The main focus of the HHS project is to identify the needs of older Hispanics in Houston, develop useful strategies and reduce health
disparities in the population. The project places a great deal of importance in building a link between service providers, healthcare providers, community organizations and public agencies to promote use of available resources, as well as implement prevention programs to reduce health disparities among this underserved population. Aside from Houston, the project is being conducted in 7 metropolitan areas across the U.S. which highlights the proposed need of Hispanic elders.

**Approach**

Gaps in services and lack of cultural competence, identified by participating organizations, were derived from initial forums organized in Harris County. The same local community leaders were set out to assess the needs of Hispanic elder residents. Review methods of current literature were used by several members of the coalition (including myself) to provide scientific support for vital stats and demographic information. Additional information was compiled on successful evidence-based programs, support systems and community guidance tactics. The Houston coalition met every month to discuss findings and share ideas regarding promising solutions. Web and phone conferences were held periodically and a learning network was put in place to encourage communication among the 8 nationwide teams. To compliment data found in research, a survey was administered to key informants in the Hispanic community. The purpose was to gain knowledge and ideas from key people working out in the community.

**Findings**

Literature research and community input were analogous regarding the issues surrounding Hispanic elders in Houston. At the projects initiation several chronic conditions and management were topics of interest for the community observed. After the analysis phase it was determined, by literary support and community perception, that diabetes was the most prevalent and detrimental condition in the community. Health disparities were most evident in limited access to affordable and quality care.

Based on the survey, Hispanic elders do not have sufficient knowledge and/or support to properly manage their disease. The bottom line is that there is an enormous growing population that lacks knowledge, support and cost effective community programs. There is lack of knowledge on how to navigate the Medicare and medical system; how to manage chronic disease and support systems and how to access community services.
Although this was a main focus in my practicum, other works were produced simultaneously. A preliminary report delineating the project is still in process. With help and guidance of my mentor this 50 page report is up to date on the projects’ findings. Based on the same line of research, I co-authored on a submitted paper on older Mexican-American caregivers, emotion based support and religiosity. I also had the opportunity to help with a paper on inclusion of older adults in clinical trials.

**Essential services of Public Health**

The project is still ongoing; the next phase is the intervention in the selected community. Currently several essential public health services have been conducted by the project including mobilization of community partnerships to help the community in need. The project provided the opportunity to investigate and identify a prevalent health problem in the community and identify accessibility gaps. The research conducted provided insight to new and cost effect solutions for the health problem. The plan is to move forward by implementing an evidence-based cost effect program in the largest Hispanic community in Houston, TX. There are continuous efforts to bridge the gaps in health disparities in underserved populations in this country and this project provided me the opportunity to be an integral part of this effort. The experience and knowledge gained so far is invaluable.

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**Topic: Diabetes**

**Title: System analysis of the diabetes disease management program at Community Health Choice (CHC)**

**By Rita D. Sheth**

**Public Health Significance**

Diabetes is of extreme public health importance both due to the increasing prevalence as well as the potential for adverse outcomes that affect the health and finances of the population. Insurance-based disease management (DM) programs have been established for a variety of chronic diseases including diabetes, in an attempt to reduce the medical and financial burdens associated with chronic disease. CHC is a Medicaid/CHIP HMO serving mainly pediatric patients.
**Approach**
A system analysis study was conducted to assess the efficacy of the diabetes disease management program and assess clinical outcomes of diabetic members at CHC. A computer-based analysis was performed using the CHC computer program to identify all diabetic members <21 years enrolled at CHC between 1/1/2006 – 6/30/2008. Patients were identified as diabetic based on HEDIS criteria using claims-based diagnosis codes, with verification of diabetes status by pharmacy claims.

**Findings**
Three hundred and seventy-three diabetic members were identified by claims data, 304 (81.5%) had been referred to the DM program. Of the 304 patients, 44 patients had a negative pharmacy profile, 67 had GDM, 37 NIDDM, 156 IDDM. 51.7% of the identified patients were referred, 15% (56 members) were missed. The sensitivity of the claims-based process was 77.5%, with a false positive rate of 29.8%. Of the “true diabetics, 197/253 (77.8%) members were appropriately referred. 41/197 (20.8%) of referred members were enrolled in the DM program.

The main cause for non-enrollment was inability to contact the patient in 83/156 (53.2%) members. Non-enrolled members had an average phone contact attempt of 2± 1.2 (range: 0-5); 25.3% had no documentation of a sent invitation letter. The cases were closed on average after 133.7±179.8 (range: 13-1184) days.

Forty-one patients were enrolled in the DM program, 35 members had a single assessment. Completion rates for data entry in the DM program were as follows: 100% diabetic type, 80.5% disease duration, 82.9% risk & compliance stratification, 80.5% DQOL survey and 100% for neuropathy screen. Clinical data was available in the module in 12.2% of members for MD notes, 12.2% for BMI, 19.5% for HgbA1c, 2.5% LDL, 4.8% Umicroalbumin data compared to members claims data for HgBA1c (66.7%), LDL (52.5%) and Umicroalbumin (23.1%).

Recommendations for improvement included evaluation of the referral process including referral filters, initiation of a triage system, re-referral after insurance lapse and methods for increasing contact to improve enrollment. Suggestions to improve the diabetes DM module included formatting the computer system to improve data collection & entry methods, establishing liaisons with MD offices for improved data retrieval.
and coordination of services and strategies to improve diabetes disease management.

**Essential Services of Public Health**

This practicum provided a system analysis study to review the effectiveness of the DM program and provided CHC with multiple recommendations to improve the DM program for young diabetic patients. This will allow pediatric diabetics to have improved health outcomes, decrease the public financial burden and allow CHC to maintain URAC accreditation.

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**Topic: Esophageal Cancer**

**Title: PET Imaging in Esophageal Cancer**

**By Srikrishna V. Patnana**

**Public Health Significance**

It is predicted that nearly 16,470 people will be diagnosed with esophageal cancer in the US in 2008 and the incidence is on a rise with an Annual Percentage Change (APC) of 0.5%. The major treatment modalities available are chemoradiotherapy and surgery. Surgery for esophageal cancer is a high risk procedure with a lot of morbidity and mortality issues. Even after surgery, many patients will die because of disease recurrence. So, it becomes very important to see if such a highly morbid procedure can be avoided and protect such patients from the deleterious effects of surgery by looking at various markers which can predict the cancer behavior. One such marker is Positron Emission Tomography (PET) imaging Standardized Uptake Value (SUV).

**Approach**

A data abstraction instrument was prepared by the principal investigator, Dr. Jaffer A Ajani. We did a retrospective chart review of 272 esophageal cancer patients who were treated in MD Anderson Cancer Center. The abstraction involved going through the patients’ electronic medical records and entering pertinent information in the database. 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 product is a poster presentation in the International Society of Gastrointestinal Oncologists (ISGIO) Conference 2008.

The conclusions derived are:
1. Post-chemoradiation PET SUV can be helpful in defining the clinical biology of patients.
2. Further validation of these findings might allow esophageal sparing in some patients with a favorable PET SUV.

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.

References

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Topic: Genetic Disorders and Quality Care

Title: Mountain States Genetics Resource Collaborative Center

By Larissa J. Estes

Public Health Significance
The mission of the Mountain States Genetic Resource Collaborative Center (MSGRCC) is to “ensure that individuals with heritable disorders and their families have access to quality care and appropriate genetic expertise and information in the context of a medical home.” The MSGRCC covers eight states in the mountain west: Arizona, Colorado, Montana, New Mexico, Nevada, Texas, Utah and Wyoming. These states are not only some of the culturally diverse, but also geographically diverse with extremes in rurality, urbanity and everything in between. According
to the MSGRCC website, over 600,000 births occur annually within this region, and 3 to 5 percent of these births are complicated by a genetic condition (MSGRCC, 2008). Consequently, as many as 18,000 infants and their families require genetic services each year. The resources to serve these families are limited within each of our eight states. Coordination and collaboration among all people concerned with genetics services, lay and professional, help to maximize the use of relatively scarce resources. To help maximize the scarce resources, this practicum project focused on developing user-friendly products to be used by lay and professionals across this region.

**Approach**

The learning objectives of this project were to 1) develop resources to advance and sustain consumer involvement in public health programs; 2) develop program communication strategies; and 3) assess and document public and private services available from providers, clinical and non-clinical in the region. The products created to meet these objectives included: 1) a revised resource directory for the MSGRCC website; 2) a revised services directory for the Consumer Advocacy workgroup; 3) a dissemination plan for the resource directory; and 4) a newsletter template for the MSGRCC to help disseminate program news and updates. To revise the resource directory for the MSGRCC website and the revised services directory for the Consumer Advocacy workgroup, I worked with the MSGRCC program manager and Consumer Advocacy workgroup co-chair to improve access to the key clinical and service providers within each state. The current directories were formatted by state and requests were sent to each state’s contact via email. Once the updates were received and formatted, the directories were given to the MSGRCC webmaster for appropriate formatting for the internet. Formatting includes ensuring Federal 508 compliance to eliminate barriers in information technology. Barriers include vision impairments and improving accessibility. To facilitate access to information and news in the Mountain States region, a bi-annual MSGRCC newsletter template was created to feature workgroup updates, state programmatic highlights, MSGRCC program and upcoming events.

**Findings**

The final product was a massive document over 100 pages that included the resource and service directories, a dissemination plan and newsletter template. The bottom line was to provide MSGRCC with resources that could be easily used and updated on a regular basis.
Essential Services of Public Health
The practicum project primarily addressed to inform, educate, and mobilize essential public health services. The MSGRCC provides information to empower people and mobilize them in action to address the impact of genetic disorders on individuals and their families.

Topic: Health Disparities

Title: Health Care Disparities and Utilization in Texas among Hispanics

By Jason Callahan

Purpose
To describe health disparities among Hispanics in Texas in relation to how they influence healthcare utilization. The main focus is on disparities of Ambulatory Care Sensitive Conditions (ACSC), which the Institute of Medicine (IOM) lists as preventable diseases with proper primary care. The goal is to describe hospital utilization rates of Hispanics in Texas.

Methods
Literature search for the papers on U.S. hospitalization rates among different ethnic groups. Additionally, this study used cross-sectional analysis of 2,700,000 hospital discharges from a TxDSHS public use data file (2004) provisioned by the UTHSC-Dallas.

Results
Hispanics in Texas experience worse determinants than non-Hispanic Texans which is one factor among others that leads to poor health outcomes for Hispanics. Age-specific hospital utilization rates per 10,000 among Hispanics were higher for diabetes mellitus and hypertension compared to non-Hispanics but was lower for Chronic Obstructive Pulmonary Disease (COPD) and Congestive Heart Failure (CHF). The utilization rates were higher among Hispanic Medicaid benefactors compared to non-Hispanics, but lower for Medicare and privately insured patients.
Conclusion
Hispanics under-utilize healthcare services compared to non-Hispanics and are more at risk for developing end stage disease due to lack of primary and preventative care as evidenced by high rates of ACSC.

Topic: Health Disparities
Title: Emergency Department Navigator Program at Memorial Hermann Southwest Hospital
By Dena Shugart

Public Health Significance
The rates of individuals under/uninsured in the State of Texas, specifically in the Houston/Harris County region, have risen to alarming numbers in the past decade. Along with the rising rates of under/uninsured are the rising numbers of this same population utilizing the Emergency Departments (EDs) of many Houston area hospitals for primary care-related health problems. The financial burden to the city of these inappropriate visits is astounding. Per the Houston Hospitals Emergency Department Use Study, “…the estimated cost of those visits (to EDs) was $66,465,840. If those same visits had taken place in an office-based setting, the estimated cost would have been $14,361,369” (School of Public Health, 2008). In addition to the financial burden, the physical overcrowding of EDs leads to longer wait times for those who need urgent medical attention. This overcrowding can also lead to less effective care by the medical staff that is often understaffed and overburdened. Memorial Hermann Healthcare System’s Emergency Department (ED) Navigator Program is an innovative program designed to ease this burden and make a difference in the lives of many individuals.

Approach
Over the course of this fall semester, I have had the opportunity to evaluate the program at Memorial Hermann Southwest which was the first MHH to utilize a patient navigator. After spending several weeks in the ED with Miriam Bell, the patient navigator, to understand how the program worked, follow-up calls were made to those patients who had been seen six months prior by the navigator. Individuals were asked to complete a brief phone survey which assessed the effectiveness of the
program. Data reported were entered into a computer program managed by Gateway to Care.

**Findings**
Forty-four percent of the individuals spoken with were able to identify a health home for themselves 6 months after meeting with the navigator. There was a very high attrition rate of 33 percent. Individuals have often moved and/or disconnected their phone number permanently or temporarily. Of the individuals contacted who were unable to identify a health home for themselves, several different reasons were offered including lack of time to get to the clinic, they lost the information provided to them, and the clinic to which they were referred was too expensive/too far away/not appropriate. Individuals were offered additional information which might better suit their needs at the time of the phone call. Most individuals were receptive to the follow-up “survey” phone call as well as additional information when provided. It was determined that the program is making a difference but could benefit from some changes which might make it more effective.

**Essential Services of Public Health**
This program addresses the issue of health disparities in the City of Houston. It educates and empowers under/uninsured individuals to make better choices for their health and the health of their families while attempting to decrease unnecessary visits to overburdened emergency departments.

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**Topic: Laboratory Certification**

**Title: Responsibilities of a CAP Coordinator**

**By Margaret Nwachukwu**

**Public Health Significance**
My practicum experience as a College of American Pathologists Coordinator was one that was very worthwhile. This position at the Center for Infectious Diseases under the coordination of Dr. Herbert DuPont and Dr. Zhi Dong Jiang, had great public health significance. Local, state, national, and international laboratory certification is critical
components of a successful public health practice, particularly one with a
global impact such as the Center for Infectious Diseases.

**Approach**
The project required me to become familiar with local, state, national, and
international policies that regulate laboratories. I was also required to assist
in the implementation of a quality system program for the laboratory.

**Findings**
The final product of the project was the preparation and maintenance of a
Standard Operations Procedure Manual, a Quality Control Manual, a
The success of my practicum experience will be evaluated by an external
group that monitors the success of the application for College of
American Pathologist certification.

**Essential Services of Public Health**
An essential public health service that my project addressed was the
enforcement of regulations that protect health and ensure safety. This was
done by my requirement to be certified in Basic Laboratory and Clinical
Safety, Basic Radiation Safety, Shipping Infectious Substances, and Blood
borne Pathogens training. This was also done by ensuring the quality and
safety of everything made inside the lab or brought into the lab. This
ensured that lab findings were satisfactory.

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**Topic: Lymphocyte Count and Medulolblastoma**

**Title:** Can absolute lymphocyte count really be a prognostic
indicator for overall survival in patients with Medulolblastoma?

**By Digvijaya Navalkele**

Navalkele, Digvijaya D; Vats, Tribhawan S; Nagel, Margaret; Mahajan,
Anita; Wolff, Johannes E

Address: Division of Pediatrics, The University of Texas MD Anderson
Cancer Center, Houston, Texas 77030, USA
Background
Recently, in a number of studies a link between absolute lymphocyte count and survival rate was shown. The purpose of this study is to determine if absolute lymphocyte recovery is an independent prognostic indicator in an overall survival in patients with medulloblastoma.

Methods
After institutional review board approval, a retrospective chart review is being conducted for patients diagnosed with medulloblastoma treated at MD Anderson Cancer Center between years 1988-2008. The clinical data collection includes the absolute lymphocyte count (ALC), hemoglobin, platelet count, white blood cell count and absolute neutrophil count (ANC).

Result
Data was available on 33 patients for analysis. Median age is 9 years (14 months to 32 years), males (n = 20), females (n = 13), median survival time is 2.05 years. After analyzing the data using log rank test on the various blood parameters in different combinations no significant relationship could be established between the blood count and the survival rate. The only significant finding was in the sub-group of males who had ANC at day 15 of the treatment more than 1.5K/UL. Total (n = 19), ANC15< 1.5 = 4, ANC15 >1.5 = 15 (median overall survival 1.81 years versus 3.52 years, p = 0.001). No finding was significant for females with ANC15>1.5.

Conclusion
No correlation could be found between ALC and survival rates in patients with medulloblastoma. This is different from almost all other malignancies examined so far and could be due to the use of steroids in patients with medulloblastoma decreasing the ALC count which is not the case in ALL, AML and Ewing’s sarcoma.
Topic: March of Dimes- Making Progress For Preemies

Title: Caring for and supporting mothers on high risk pregnancy for preterm through the Antepartum family support program

By Vijayashri Rallapalli

Public health significance
More than a half million babies are born prematurely (less than 37 weeks gestation) each year, and those who survive face the risk of lifelong health consequences, such as breathing and feeding problems, cerebral palsy and learning problems.

Babies born too soon and too small accounted for a growing proportion of infant deaths, according to statistics released from the National Center for Health Statistics (NCHS-July 2008). “Preventing preterm birth is crucial to reducing the nation’s infant mortality rate and giving every baby a healthy start in life.”

Approach
The March of Dimes is the leading nonprofit organization for pregnancy and baby health. It works to improve the health of babies by preventing birth defects, premature birth and infant mortality. It carries out this mission through programs of research, community service, education, and advocacy to save babies' lives.

Part of this big mission is the program called Antepartum Family support program for which I was program volunteer coordinator. I was involved in volunteer recruiting and training in conjugation with the hospital sites’ volunteer orientation. Each day we spent time with pregnant woman on bed-rest in the Antepartum unit in Woman’s Texas hospital to provide the following services. Delivered March of Dimes NICU support materials to the families; provided social support via one-to-one interaction through conversation and companionship. Facilitated access to information on what to expect if their baby comes early, using the March of Dimes information brochures. I was involved in entering data from the program evaluation forms, participant data, pre-evaluation data and post-evaluation data. Helped in submission of mid-year progress report.
**Findings**
The program effectiveness is evaluated by the post-evaluation forms which are sent out after the expected date of delivery. So how effective we were based on the post-evaluation reports would be after 3-4 months from now, but from my interaction with the mothers in the Antepartum unit, I was pretty confident that my one-to-one interaction was very comforting to mothers on long bed rest confined to the four walls of the hospital room. Also there were many mothers who did not know much information and they would listen to me with attention and were very glad about the educational material which was handed out to them.

**Essential Services of Public Health**
I personally learned a lot, first how to be a better human being, caring for others by just listening to what they are saying and from the course work; it was applying the principles learned in class to a real world setting. I got to know how the big organizations like March of Dimes target an important health issue and come up with varied programs according to the needs and advances towards its completion with determination. March of Dimes had demonstrated this in the past by conquering polio and one day it will definitely with prematurity and I am proud to be a part of it.

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**Topic:** Mosquito Control

**Title:** Mosquito Control-West Nile and St. Louis Encephalitis Surveillance

**By Jesse Dunkle**

**Public Health Significance**
The Harris County Public Health and Environmental Services have performed arbovirus surveillance in mosquito vectors since St. Louis Encephalitis (SLE) became endemic in the 1960’s.

In 2003, The Harris County Mosquito Control Division confirmed the presence of West Nile Virus (WNV) in a dead bird, only two years after WNV was found in the United States for the first time. Since then, the Mosquito Control Division has continued active SLE and WNV surveillance via mosquito trapping techniques in high-risk zip codes and passive virus testing of dead bird specimen reported by the public. The
virology laboratory conducts rapid testing of these specimens using antigen (virus)/capture Enzyme-Linked ImmunoSorbent Assay (ELISA) techniques followed by various confirmatory testing on pooled mosquito specimen, and reports virus positive areas for insecticide spraying.

The WNV infections have occurred in the Houston area every year since 2002, and the efforts of the Harris County Mosquito Control Division have reduced the risk of these diseases by surveillance and community education.

**Approach**
My practicum experience was in working mainly in the laboratory during the primary summer months when WNV is most active. Mosquito pools were brought to the laboratory pools and reduced to only the potential vector species. At this point, the pools were homogenized in order to isolate potential virus, on which the antigen capture ELISA testing was performed. This procedure is based on the WNV surveillance protocol designed by the Centers for Disease Control and Prevention (CDC). Suspected virus-positive pools were marked for confirmatory testing.

Molecular techniques for virus detection such as PCR are not available with county funding, so the Mosquito Control Division is limited to other various techniques for confirmatory testing of WNV and SLE. It is rare that the county receives any SLE-positive mosquito pools during the WNV season, so my experience was limited confirmatory testing of WNV.

An additional component of my practicum was in experiencing the field aspects of the division, specifically in the trapping and retrieval of mosquitoes from various areas of the county and in the sorting of competent vector species from retrieved pools.

**Findings**
My final product is in researching cost-effective surveillance methods for Dengue virus that could be adopted by the county in the case in with Dengue becomes endemic in the county. There are already confirmed reports of Dengue in the border counties of Mexico, and because the Houston area contains the appropriate mosquito vector, there is a real threat of human illness, and thus a need for mosquito surveillance methods.
Essential Services of Public Health
My practicum activities focused mainly in the public health service of diagnosing and investigating health problems and hazards as illustrated by the WNV surveillance and mosquito spraying programs.

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Topic: Nanoparticles

Title: Assessment of Work Practices and Ambient Monitoring in Laboratories where Nanoparticles are used at a Major Biomedical Research Facility

By Duane A. Beasley

Public Health Significance
Nanoparticles are dispersible particles having at least one dimension between 1 and 100 nanometers (nm) in length. Manipulation of matter at the nano-scale can give rise to new and unique physical, chemical, and biological properties. University investigators (among others) are trying to leverage these properties to develop new biomedical products and applications. These unique properties, however, also present new challenges to occupational and environmental health and safety (OEHS) professionals.

Several investigators at the University of Texas Health Science Center at Houston (UTHSC-Houston) are currently engaged in projects that involve nanoparticles. Safety, Health, Environment, and Risk Management (SHERM) works in conjunction with these investigators to protect the health and safety of employees and the public, without placing undue burden on their research endeavors. In the absence of federal standards and clarity about health risks, OEHS professionals within SHERM must devise a set of “best practices” for the handling and disposal of nanoparticles. This practicum, which took place within SHERM, had a three-fold purpose: (1) assess SHERM’s recommended “best practices” and investigator compliance with them, (2) devise a nanoparticle monitoring plan, and (3) perform area monitoring for nanoparticles in laboratories to evaluate the effectiveness of SHERM’s exposure control and disposal recommendations.
**Approach**

Investigators who plan to work with nanoparticles must abide by the exposure control recommendations of UTHSC’s Institutional Chemical Safety Committee, which relies on SHERM’s research and advice. These recommendations were analyzed for consistency and appropriateness as part of my practicum. I also located current literature from federal regulatory bodies and non-governmental organizations regarding “best practices” for the handling and disposal of nanoparticles. This information was used to update SHERM’s guidance document on nanoparticles. The bulk of the practicum, however, consisted of area monitoring using TSI’s Nanoparticle Aerosol Monitor and TSI’s P-Trak (Ultrafine Particle Counter) during all laboratory procedures (i.e. dry weighing, suspension-based procedures, animal injections) involving nanoparticles that took place in the course of my practicum.

**Findings**

My practicum identified several areas of concern: (1) inconsistent and inappropriate exposure control recommendations, (2) the presence in several laboratories of nanoparticles too small to detect with SHERM’s instruments, and (3) occasional noncompliance with SHERM’s recommendations. Concerns #1 and #3 were addressed immediately. The exposure control procedures were corrected as needed with my assistance. In addition, I updated SHERM’s guidance document to help SHERM provide appropriate and consistent recommendations to all investigators.

Drawing on my experience with area monitoring, I devised SHERM’s first nanoparticle monitoring protocol. Moreover, I put together a template form for investigators to fill out prior to receiving Committee approval. The information on this form will enable SHERM to better characterize the nanoparticle work being done at UTHSC-Houston and to rationally plan all future nanoparticle monitoring.

The results from all area monitoring showed no increase in the level of ultrafine particles over background levels.

A summary of the monitoring results and the new monitoring protocol will be presented to the full Chemical Safety Committee at the next meeting.
**Essential Services of Public Health**
This practicum primarily involved monitoring and enforcement of existing safety rules.

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**Topic: Needs Assessment**

**Title: A Lesson in City Government Relations**

**By Kikelomo Majasan**

The purpose of this project is to assist with a “needs assessment” of the Texas Medical Center institutions and Houston-based biomedical organizations as part of an implementation of the Houston-Calgary Bilateral Agreement recently signed by the mayors of the two cities.

**Public Health Significance**
This project is an important public health issue because it involves bringing together two big cities to collaborate in areas of health. This could lead to better education of students in the institutions and employees in the biomedical organizations so that more innovative technology is developed to improve the health of both communities.

**Approach**
My role in the project was to begin scheduling meetings with key people in Texas Medical Center institutions so that a “needs assessment” could be performed. To do this, I created a list of the contact information of key people in Texas Medical Center institutions that would be able to provide the information needed. My community preceptor created the letter to be sent to these institutions to request an initial meeting.

**Findings**
The bottom line of this project has not been accomplished yet because we are still in the process of sending out the letters to these institutions and biomedical organizations to request meeting days. Once these meetings have been scheduled, I will create a list of questions to be asked as well as a pamphlet that would give more information to them about the purpose of the project. After the meetings are completed, I would create a report on my findings and submit it to my community preceptor who will in turn submit it to the Calgary committee.
Essential Services of Public Health
The first essential service of public health that this project addressed was the development of the bilateral agreement, a policy to facilitate the collaboration of Houston and Calgary. The second essential service of public health is the mobilization of community partnerships.

This project is still ongoing and I am looking forward to completing it soon.

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Topic: Parkinson’s Disease

Title: Nurr1 Protein and its association in Parkinson’s Disease

By Keyur K. Patel

Public Health Significance
Parkinson’s disease is a degenerative neurological condition in which there is loss of dopaminergic neurons in the substantia nigra of the brain and the lack of dopamine produces motor and gait symptoms. The prevalence of Parkinson’s disease is estimated to be 1.5 million people in the United States.

Approach
The treatment of Parkinson’s disease is focused mainly on restoration of the dopamine levels in the body by giving dopamine analogue like levodopa but the treatment with levodopa is short lived and the patients usually start to have on-off phenomenon after several years of treatment, so it was necessary to have an alternate better source for the treatment of Parkinson’s disease. Nurr1 protein is a member of a nuclear receptor superfamily and is necessary for the functional and phenotypic maintenance of the dopaminergic neurons. It can potentially protect the dopaminergic neurons and modify the disease course by regulating the expression of several Dopaminergic neuron related genes like TH, DAT, VAMT2 which are important for the dopamine synthesis and dopaminergic neuron functions. A Nurr1 analogue was synthesized which can easily cross the blood brain barrier and show anti-Parkinsonian effect by enhancing the transcriptional activity of TH (tyrosine hydroxylase) and DAT (Dopamine transporter). I studied the literature to find out the long term anti-parkinsonian effects of Nurr1 analogue on the animal models of
Parkinson’s disease and used Western Blot technique to find out the levels of Nurr1 protein in the peripheral lymphocytes of the patients with Parkinson’s disease.

**Findings**
Nurr1 is proposed to be a very useful tool in the diagnosis of Parkinson’s disease and it can be a good target for developing novel drugs like SH1 that can modify the course of the disease rather than the current drugs which can just target the symptoms of the disease.

**Essential Services of Public Health**
A Nurr1 gene target therapy can be developed which can be a very good symptomatic and neuroprotective treatment of a growing public health problem of Parkinson’s disease.

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**Topic: Pediatric HIV Infection**

**Title: Caring for HIV-infected Children and Adolescents in Underserved Communities**

**By Marape Marape**

**Public Health Significance**
HIV/AIDS is a serious infectious disease that disproportionately affects ethnic minorities and people from lower socio-economic classes. According to the Centers for Disease Control and Prevention (CDC, 2008), even though African-Americans make up only 13 percent of the total US population, they accounted for 49 percent of all new HIV/AIDS cases reported in 2006. In 2005 blacks accounted for 63 percent of all newly diagnosed HIV cases in children less than 13 years of age. Hispanics, who make up 15 percent of the US population, accounted for 17 percent of new HIV infections and 19 percent of all AIDS cases in 2006 (CDC, 2008). HIV-infected ethnic minorities also do not survive as long as other ethnic groups. According to the CDC, one of the reasons for the high incidence, prevalence and reduced survival in ethnic minorities is poverty, with resultant high rates of lack of health insurance and hence poor access to health care.
**Approach**

I spent a total of 12 weeks working with the Baylor International Pediatric AIDS Initiative (BIPAI), mainly at the Harris County Hospital District’s Thomas Street Health Center in Northwest Houston. I mainly spent time in the adolescent HIV-clinic where we saw an average of 10 patients per day on Wednesdays. This clinic offers free, comprehensive health care to poor, uninsured HIV-infected patients. I also attended weekly BIPAI meetings at Texas Children’s Hospital where difficult patients were discussed and management decisions made. At these meetings we also received reports about the BIPAI network’s HIV Treatment Centers in Botswana, Lesotho, Swaziland, Malawi, Uganda, Tanzania and Romania.

**Findings**

During my practicum at Thomas Street Health Center, I noticed that the vast majority of the patients were either of African American (60%) or Hispanic ethnicity (24%), with non-Hispanic Whites making up a disproportionate minority (15%). The patients received comprehensive medical care. In addition to the Pediatric Specialist Medical Care, we also referred the patients for regular preventive specialist services with ophthalmologists, dentists, obstetrics and gynecologists, etc. Regular pap smears and screening for sexually transmitted diseases (STD) such as syphilis was done routinely and treatment promptly provided whenever an STD was diagnosed. Counseling and education about the importance of safe sex was emphasized at every visit. Drug screening and counseling was also done on a routine basis. Social workers worked with the patients to find ways to assist those without shelter or otherwise with other psychosocial problems. Transportation was also provided to the patients to enable them to make the trip to the clinic and back to their homes.

**Essential Services of Public Health**

During my practicum, I worked with physicians from BIPAI and other health professionals at Thomas Street Health Center to provide comprehensive medical and preventive services to poor HIV-infected adolescents without medical insurance. I was particularly focused on emphasizing prevention messages with the hope of lowering the risk of transmission of HIV and other sexually transmitted diseases between the patients and their sexual partners as well as other members of society. The screening for STD’s and their prompt treatment as well as the focus on prevention messages is likely to lower the rate of transmission of both HIV and other STD’s both in these patients and in the underprivileged communities from which they come.


Topic: Pediatric Traumatic Head Injury

Title: Outcomes Analysis of Hypertonic Saline versus Mannitol in Pediatric Traumatic Head Injury

By Sachin Tadphale

Public Health Significance
The aim of public health has always been to prevent disease, morbidity and mortality as well as improve the quality of life. One of the ways to reduce the morbidity and/or mortality is to provide the correct treatment and always keep searching for better alternative methods. This is exactly what my project centers around. In our project, the main aim is to compare two currently used treatments in pediatric traumatic head injury, one method being traditionally used and the other one being relatively modern. After the completion of this project we will be able to analyze two modes of treatment and possibly come out with a better treatment method which will reduce the morbidity and mortality rates in the pediatric population.

Approach
In the first few days, I worked on the topic per se and read the literature on the subject. During this period, with the help of my community preceptor, I was able to delineate the variables that were going to be incorporated into the study. It was then when my preceptor gave me another task of devising a working database that would be customized as per the variables used in the study. I took some classes in the School of Public Health computer lab and came out with a Microsoft Access based database. The broad categories of variables include patient demography, laboratory data, radiological findings and some pre-calculated scores.

Findings
At the end of this semester, we have come up with a working tool in the form of database that will be later used to input data of patients and then basic statistical tests could be run to see the significance of the hypothesis.
Essential Services of Public Health

From the point of view of Essential Services of Public Health, the project caters to the issues of “evaluation of health services” by studying the current methods of treatment and comparing it to a potentially better mode of treatment and “Research” with respect to investigating a novel method of treating a particular condition. It also tries to provide the correct treatment to the patients who need it. This will help reduce the morbidity and morbidity due to traumatic head injury.

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Topic: Perinatal Outcomes

Title: Perinatal Periods of Risk Analysis for Dallas County

By Reema Mustafa

Public Health Significance

Healthy Start assists in the disseminating of information by educating its members as well as the public at large on the need for programs that will help reduce infant mortalities, low birthweight, and racial disparities in perinatal outcomes. Healthy Start also works to increase public awareness concerning the needs of pregnant women and infants. Healthy Start works to improve future outcomes by identifying common factors that impact maternal and child health status.

Perinatal Periods of Risk (PPOR) analysis is a more detailed approach to investigating the sources of maternal and child health problems. Through PPOR analysis, we are better able to pinpoint whether a community's issues lie in early delivery, low birthweight, prenatal care, maternal health issues, inconsistencies in care, or infant health. From this, programs can be developed that are better suited to target the issues of a community.

Approach

PPOR analysis partitions birth outcomes into four categories based on birthweight and age at death to determine cause of death within the first year of life. Linked Birth-Death records and fetal death records for Dallas County from 2001-2003 were used for this analysis in affiliation with Parkland Hospital's
department of Strategic Planning and Population Medicine. From this data, excess rates were calculated in comparison to a reference group. We compared the perinatal outcomes of different "service areas" of Dallas, as well as different race/ethnicities.

**Findings**
- Excess mortality is seen in all race/ethnicity groups in Dallas County, with Non-Hispanic Blacks experiencing the highest excess mortality rates.
- The excess rate of deaths due to infant health in the African-American population indicates the need to address SIDS.
- When comparing service areas, the South Dallas area has the highest rates of feto-infant mortalities, followed by South Oak Cliff.

**Essential Services of Public Health**
Healthy Start works to address disparities in the community by developing community-based programs. With PPOR analysis, the Dallas chapter can better identify gaps in the community, which can lead to more effective programs. Programs in Dallas County will need to focus on the South Dallas area, as well as address the perinatal outcomes of the African-American population.

**References**
[http://www.citymatch.org/por_index.php](http://www.citymatch.org/por_index.php)
Topic: Premature Babies

Title: Working with March of Dimes to expand the Antepartum Family Support Program

By Joy Jetter

Public Health Significance
One in eight babies are born early. Prematurity is the leading cause of infant mortality. Prematurity affects mothers of every race and age. Many women do not know the signs and symptoms of pre-term labor and are ill-prepared to deal with high risk factors for pre-term labor.

Approach
The March of Dimes Antepartum Family Support program is instituted to provide educational and social support for pregnant women in local hospitals who are on bed-rest and at high risk of delivering prematurely. I met with women on the Antepartum floor of the Labor and Delivery department of Memorial Herman Hospital in the Texas Medical Center. I spent time answering women’s questions about pre-term labor, listening to their stories, and providing them with books and resources to learn more about pre-mature labor, birth, babies and child care. I also recruited and trained several volunteers to assist with this program. I met with a total of 65 women and made a total of 100 visits. I trained six volunteers. Additionally, I assisted with a Prematurity Awareness Campaign in the hospital.

Findings
The March of Dimes Antepartum Family Support program is designed to reduce stress and increase knowledge among Antepartum patients. To date, only 10 patients have completed follow-up surveys. The current data indicates that women appreciate the program; however the conclusive effects of the program cannot be determined without further evaluation.

Essential Services of Public Health
This program aimed to (1) increase awareness and understanding of pre-term labor and pre-mature birth and (2) reduce stress among women on bed rest for high-risk pregnancy.
Topic: Smoking and Renal Cell Carcinoma

Title: Smoking and its association with T3b & T3c Renal Cell Carcinoma (RCC)

By Abhishek B. Mehta

Public Health Significance
Renal Cell Carcinoma (RCC) is the most common type of kidney cancer and accounts for about 85% of renal cancers. As per CDC, estimated 51,190 new cases and 12,890 deaths occurred in United States in 2007. Cigarette smoking is a major risk factor. Cigarette smokers are twice as likely as nonsmokers to develop kidney cancer. Smoking and its association with RCC has been proven a number of times in research. Therefore there is a lot of scope for research on smoking and its association with survival. We are comparing how smoking has an impact on survival/mortality in T3b & T3c staged Renal Cell Carcinoma patients. The study also looks at the current trend of association of smoking with T3b & T3c RCC in the United States.

Approach
This is one of the largest studies of RCC at a single institution. We are using M.D. Anderson Hospital-based cancer registry. I pulled data from clinic station based on the literature review. We decided to evaluate smoking and its association with T3b & T3c renal cell carcinoma. We performed a retrospective chart review of a few patients out of 564 RCC patients. The project is ongoing as it has a huge compilation of data. At present, we are calculating various parameters such as smoking history in detail, survival/mortality, etc.

Findings
I am still collecting the data on this project. I have done literature review so far. I will continue this practicum next semester because it is a huge study.

Essential Services of Public Health
This project primarily addressed the research on smoking and its association with T3b & T3c Renal Cell Carcinoma.
Topic: Spinal Cord Injury System

Title: Internship in Houston Model Spinal Cord Injury System (MSCIS)

By I-Hsuan Tsai

Public Health Significance
MSCIS is a longitudinal database established in 1970, which encompasses whole nature history of SCI by collecting patients’ data when they were first admitted, and following up every five years. This nation-wide database could recruit patients from 15 regions and cover different ethnicities. The collected information is broad, which covers physical, functional, geographical, socioeconomic, and psychological information for three decades. The database could be used for surveillance, trend analysis, and longitudinal study.

Approach
1) It was secondary analysis. Dr. Graves me the variable that he was interested in from the database. I did a small cross-sectional study about the association of Internet use and employment in SCI patients. I organized the data by using access and deleted the missing data, recoded the variable. Calculated the crude odds ratio of employment in patients who use Internet and who did not used Internet. Then used Chi-square test for significance test. Used stratified analysis and logistic regression to deal with possible confounders, such as age, injury level, and educational level. Evaluated the Internet use and type of employment.
2) To know the research administration, including interview procedure, data entry, and file management.

Findings
1) Internet use associated with higher employment rate had statistical significance, before and after adjustment with injury level, educational level, age, gender. Internet use is less associated with generally perceived physical demanding job. However, the explanation of missing data is not sufficient, and it is difficult to tell the physical demanding level by job type or job code. Missing data explanation and the method of outcome measurement are limitations in my study.
2) The research administration part is helpful in understanding the subjects in Field Epi class.

**Essential Services of Public Health**
Biostatistics and epidemiology.

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**Topic: Teen Pregnancy-Quality and Public Health in Community Oriented Primary Care**

**Title: Teenage Pregnancy (Maya Angelou Project)**

**By Linah Nyamori**

**Public Health Significance**
Teenage pregnancy continues to be a problem in different parts of the world despite the increased availability of birth control measures. Texas has a large number of teenage pregnancies especially among minority communities which in turn leads to increased dropouts from schools, increased rate of poverty, and in general low standards of living in the affected communities. The age at which girls are getting pregnant seems to be getting younger and younger which calls for increased intervention at an early age.

**Approach**
For my practicum, I worked with Parkland Health & Hospital Systems’ (PHHS) Division of Community Oriented Primary Care (COPC). COPC focuses on the surrounding communities that the hospital serves by addressing the physical, emotional, spiritual, environmental and financial health of the members of these communities. I worked on the Maya Angelou project which deals with pregnant girls from Maya Angelou High School in Dallas, Texas. The school enrolls pregnant girls from different schools in Dallas. Here the girls are given a chance to continue their normal schooling while pregnant. They are also educated on how to maintain a successful pregnancy term and at the same time prepared for motherhood. After delivery, the girls have the option to return to their home schools or continue their education at Maya Angelou High School. During the course of my practicum, the school had a total of 59 girls enrolled. As far as the age groups go, the girls were in the sixth to the twelfth grade with the majority of them being in the ninth grade. The
project involved developing a curriculum that will better serve this population by addressing the challenges that these girls face during and after pregnancy. My main contributions involved researching on ways to prevent subsequent pregnancies, analyzing raw data on the girls to give a clearer picture of what race and age group were most affected.

**Findings**
We found that it was beneficial for the girls to be around other girls who were in the same situation as they were. It made it easier for them to attend classes in this setting rather than in their home schools where they felt alienated and like they were constantly being judged. We determined that more family and community support is a requirement for these girls because they appeared to be withdrawn. For the students enrolled, 70% were black, 25% were Hispanic and 5% were white.

**Essential Services of Public Health**
The Maya Angelou project assists and educates teenage girls in ways of dealing with pregnancies at an early age, and preventing subsequent pregnancies. The program also encourages these girls to stay in school and follow their dreams. It gives them hope and the necessary tools to prepare them for a better future.

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**Topic: Water Chemistry and Toxicity Test**

**Title: Methods and Application of Toxicity and Chemistry Tests Used for Water and Sediment Samples at the Biology Section of Region 6 Environmental Protection Agency (EPA) Laboratory in Houston**

**By Enoh Ughanze**

**Public Health Significance**
The biology section of Region 6 EPA laboratory supports 65 tribes in the states (Texas, New Mexico, Louisiana, Tennessee, Arkansas and Oklahoma) within the region providing complementary testing services for waterways therein.

Waterways provide aquatic habitats; sources of water for industry, agriculture and domestic use. The water and sediment samples collected
from priority sites are sent to the biology lab where they undergo toxicity and chemistry tests investigated through the mortality rate of the aquatic organisms exposed to these samples and its chemical properties respectively.

These services support the Clean Water Act and National Pollution Discharge Elimination System which lend to overall water quality in the region.

**Approach**

These methods are outlined in the EPA Laboratory Standard Operating Manual for toxicity and wet chemistry tests.

Aquatic organisms used in the EPA laboratory are *Pimephales promelas* (fathead minnow) and *Ceriodaphnia dubia* (water fleas).

**Toxicity test**

Acute and chronic tests run for 4 and 7 days, respectively. The test samples in which the organisms are introduced are placed in the environment room (with temperature of 25 degrees Celsius and photo timer that mimics 16 hours of light and 8 hours of darkness), and inspected for mortality every 24 hours. Dissolved oxygen and temperature of the test samples are measured as well.

Upon sustained exposure, the mortality rate of the organisms is analyzed to assess potential toxicity of the parent water body.

**Chemistry test**

These include Ph, alkalinity, Conductivity, salinity, ammonia and hardness.

Ph- A ph sensor dipped into the 50ml of sample indicates the value.

Alkalinity (mg/L) – 50ml sample titrated using Sulfuric acid yields result when a Ph of 4.5 is achieved. Volume of titrant is multiplied by a factor of 20.

Conductivity (uhms) - The conductivity probe placed in the sample indicates the value.

Total chlorine- this kit analyzes and gives a reading based on the color coded reaction between the reagent and the sample.

Salinity (parts per million) - A refractometer reading is multiplied by a factor of 2.

Ammonia (mg/L) – A color reaction is compared to a standard color scale and multiplied by a factor of 1.2.
Hardness (mg/L) - 50ml of sample, titrated with Ethylene Diamine Tetracetic Acid (EDTA) results in a color change. The hardness value is the amount of EDTA at this point multiplied by a factor of 40.

Results
All laboratory results are recorded in a log book, analyzed using a statistical program ToxCalc 5.0 which is then submitted to the regional headquarters division that oversees water quality. Because of the nature of waterways and the variations they are subject to, testing occurs on an ongoing basis and not considered conclusive in the short term.

Essential services of Public Health
EPA monitors ambient water, promoting environmental responsibility and health of the communities that they serve.

Topic: West Nile Virus

Title: West Nile Virus—An Ongoing Study of West Nile Disease in the Houston Cohort at the University of Texas Health Science Center at Houston, School of Public Health under Dr. Kristy Murray

By Jennifer M. Bigbee

Public Health Significance
West Nile virus has become a significant public health problem in the United States since its introduction to New York in 1999. Since then, it has caused a significant amount of human disease. To date, 28,906 total cases have been reported (e.g. the CDC classifies cases reported as West Nile fever, West Nile meningitis/encephalitis, and clinically unspecified). Of reported cases 40.4% have resulted in West Nile neuroinvasive disease and 57% as West Nile fever. This is important to public health in many ways, for one it is essential to minimize disease through local health department activities to reduce mosquito populations capable of spreading the virus. In terms of research, it is important to study the human body’s response to the virus so that more can be understood about the pathology of disease and its long-term effects on patients with severe disease.
Approach
Progress has been made on this topic in many different academic genres—from understanding the ecology and transmission cycles of West Nile virus to understanding the effects of disease in patients by doing epidemiologic studies. Dr. Kristy Murray of the University of Texas Health Science Center at Houston, School of Public Health has studied many aspects of West Nile disease including antibody kinetics and long-term sequelae. The Houston Cohort is an ongoing cohort that has biannual meetings to educate patients, relay current research to patients, and collect urine and blood samples for laboratory diagnostics.

All cases that are eligible to be in the study have been reported by the City of Houston Department of Health and Human Services or Harris County Public Health and Environmental Services, since infection with West Nile is a reportable disease. Cases are then invited to participate in the study, if they agree, patients are consented, an initial interview is done, and blood/urine samples are taken. Patients are then contacted every six months to do a follow-up interview and obtain new blood/urine samples.

Another aspect to this practicum was learning medical record abstractions at the two local health departments for a separate, incoming grant. This particular project, which dealt with other flavivirus activity in the Houston area, demonstrated the crucial relationship between academia and the local health department.

Findings
The findings of the practicum are ongoing and part of my practicum was to help maintain the study by helping with laboratory diagnostics and patient interviews. In addition, to this practicum, an idea for a thesis paper arose, which is something I will pursue further this coming semester.

Essential Services of Public Health
Dr. Murray’s laboratory is very much committed to educating the patients in the Houston Cohort and learning as much about the pathology and effects of disease on the human body—research that is invaluable to the body of literature surrounding a relatively new virus to the United States.

Sources
Centers for Disease Control and Prevention—Department of Vector-Borne Infectious Diseases.
Topic: Youth Violence

Title: Evaluation Tool for Community Organization Working with Teens in Ciudad Juárez

By Donna Lormand

Public Health Significance
In Cuidad Juárez, violence is a pervasive problem that affects the daily lives of many. Youth are particularly vulnerable as they face violence from peers, family, dating relationships, and in the streets, especially due to increasing drug violence. Some estimates have found a prevalence of experiencing violence among adolescents to be as high as 59.6% in other parts of Mexico. Despite the lack of data specifically for Ciudad Juárez, individual stories and newspaper reports indicate that violence is an ongoing issue in the lives of many. Casa Amiga Centro de Crisis A.C. is a non-profit organization dealing with violence in Ciudad Juarez. Casa Amiga offers counseling, legal help, shelter, intervention workshops, and various prevention activities to the people of Ciudad Juarez. One such intervention program, “Taller para Adolescentes” (Workshop for Adolescents), is designed to provide “a space for information, guidance, and tools so that the adolescents make better decisions in personal, family, and social situations with non-violent alternatives” (Casa Amiga, translation). The purpose of my practicum was to help create an evaluation tool for the Workshop for Adolescents to allow staff to identify strengths and weaknesses and directions for the future of the workshop.

Approach
I assisted the staff for the teen workshop in designing an evaluation that would help staff monitor the program and evaluate its effectiveness. After discussions with program staff, it was decided that open-ended measures would be more appropriate given staff expertise and resources. Measures were developed through a literature review and discussions with program staff. Several workshop sessions were observed to help facilitate my understanding of the program goals and lesson plans. A 17 item questionnaire was developed in English and Spanish using the resources
described above. Once developed, I was responsible for the preliminary translation and a Spanish speaking staff member was responsible for final review and translation. Faculty at SPH also reviewed the evaluation tool.

**Findings**
The final product was a 17 item questionnaire. Response options were open-ended. This evaluation tool will help staff to monitor the program, identify strengths and weaknesses, make adjustments when necessary, and develop objectives for the future of the workshop. The open-ended responses will allow for data that is richer and has more depth than quantitative measures.

**Essential Services of Public Health**
This practicum aimed to help create an evaluation tool for monitoring program effectiveness and process, addressing an essential service of public health, i.e., ‘evaluate effectiveness’. It is my hope that the program staff will use the tool to monitor and assess the efficacy of future workshops.


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