Office of Public Health Practice
Practicum Abstracts e-Book

Fall 2009
Introduction

The practicum experience is an integral part of the MPH curriculum. Students from all divisions are afforded the opportunity to interact with public health professionals, apply classroom knowledge, and be integrated into public health practice under the guidance of a community preceptor. Projects completed during the practicum provide students with a meaningful hands-on experience which directly benefits the host organization.

Since Spring 2007, the University of Texas School of Public Health, Office of Public Health Practice has compiled an e-book – a collection of abstracts in which students describe their practicum experiences and the projects in which they were involved. This showcase allows students to share their work with a broad audience and illustrates the breadth and scope of public health practice. Over the last two years, 26 abstracts have been selected for publication in the Texas Public Health Journal to celebrate National Public Health Week.

This ninth edition highlights student practicum experiences completed during the Fall 2009 semester.
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Topic: Adolescent Sexual Health

Title: REAL Talk Program and Evidence-Based Curricula

By MeLisa Creamer

Public Health Significance
Rates of adolescent teen pregnancy and STI are increasing, and central Texas teens have higher birth and STI rates than other Texas teens. Travis County adolescents (ages 15-17) have higher rates of Chlamydia, Gonorrhea, and live birth rates of other Texas and national teens the same ages.

According to the Youth Risk Behavior Survey (YRBS), only 85% of Texas adolescents have been taught in school about HIV or AIDS infection, compared to 90% nationally (Center for Disease Control and Prevention 2007). It is imperative that teenagers learn comprehensive sexual education that includes prevention of STI and pregnancy, ways to have healthy relationships, puberty, and sexual-decision making. A 2001 report by Douglas Kirby, written for the National Campaign to prevent Teen pregnancy, found that there were no abstinence-only programs that showed strong evidence in prevention of teen pregnancy or delay initiation of sexual practices (Kirby 2001).

Approach
I co-facilitated two sexual health education (REAL [Risk-reduction Education for Adolescent Life]) groups at middle schools in Austin ISD and Manor ISD. I had a 6th grade girls group and a 7th grade girls group; each group was smaller than ten girls. The topics covered puberty, sexual-decision making, setting goals and limits, pregnancy and STI prevention, healthy relationships, communication, and stress and anger management. Each group was different because we based lessons on the questions the girls asked or what information they already knew. In addition to having the “real world” experience of teaching the material, I researched the current literature on evidence based curricula for sexual education. I began by looking at the current curriculum used by REAL talk, and then used the National Campaign as a starting point for finding new curricula. I looked for individual curriculum that covered the same or most of the topics in the REAL talk groups.

Findings
Even though both groups covered similar material, there were large differences between the two groups. My 7th grade group was very connected to one another and asked detailed questions regarding pregnancy, STI, puberty, and having healthy relationships. The 6th grade group was much harder to work with, many did not have much background on topics such as puberty, and my co-facilitator and I spent a lot of time covering the foundations and trust-building among the girls. It was interesting to see the maturity differences between the two groups, and the different questions asked by the girls in the two groups.
As for my research, I identified a variety of evidence-based programs as well as programs that show promising outcomes, but are not yet considered evidence-based. Keepin’ it Real, All4You!, Safer Choices, Draw the Line, Making Proud Choices!, and Reach for Health Community Youth Service Learning, are all programs deemed by the National Campaign to prevent Teen Pregnancy to be effective evidence-based programs. Building Teen Power for Sexual Health and It’s Your Game: Keep it Real have both demonstrated positive outcomes regarding sexual behaviors in adolescents. The “It’s Your Game: Keep It Real” program has been shown to delay sexual initiation in teens in Houston. I summarized the various programs and presented them to my preceptor. Over the next few months, I will continue to work with LifeWorks in order to prepare a grant submission for the next fiscal year.

**Essential Services of Public Health**

This practicum served to promote and encourage healthy behaviors. In my groups we were constantly trying to the girls to engage in healthy sexual choices: this included explaining abstinence was the only way to prevent pregnancy and/or contracting a STI, giving them tools to be have a healthy relationship, and educating them about their bodies.

**References**


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**Topic: Adolescent Sexual Health**

**Title: Decision-Making Tool to Assess Readiness and Facilitate Adoption of Effective Adolescent Sexual Health Education Programs**

**By Shanna Songondo**

**Public Health Significance**

Adolescent sexual health is often a controversial topic, especially when in the context of schools. However, despite controversy, pregnancy, HIV, and STIs remain to be significant problems affecting youth. Many barriers to why schools do not implement sexual health education programs are known, and it is important to address these barriers. The need for effective sexual health education programs for youth is evident, and this project aims to help address these issues by creating a decision-making tool to assess readiness and facilitate adoption of effective programs among schools and school districts.
**Approach**
I began my practicum experience attending numerous meetings consisting of several researchers, community partners, and fellow students to conceptualize the direction of the project. As the project developed, a smaller team developed in which I was a part of. We had regular weekly meetings and began discussing the timeline and tasks for the project. We worked individually on some tasks, but would always share ideas and brainstorm with the group. My main tasks were to help create and revise interview guides for parents, school key informants, and superintendents, and to review literature about existing public health “toolkits.”

**Findings**
My contribution was only a small part of this large scale research project, which involves numerous individuals and organizations. Due to the magnitude of this project, the final products are continually evolving. However, my final products include interview guides for parents, school key informants, and superintendents, as well as a review of existing “toolkits.” After reviewing the literature on existing “toolkits,” it reinforced the need for a decision-making tool to assess readiness to adopt effective sexual health education programs. Although there are existing “toolkits” regarding adolescent sexual health, their usefulness is limited by lack of usability. By creating a decision-making tool, navigation through relevant and necessary information will be simplified.

The interview guides will help to gather uniform qualitative data. These interviews will provide insight to the climate of schools and districts regarding adolescent sexual health, and the decision-making process about adopting sexual health programs for use in the schools.

**Essential Services of Public Health**
Although during my practicum experience I only saw the beginning of this project, I was able to see that this overall project meets several essential services of public health. This project aims to inform, educate, and empower districts, schools, and individuals about adolescent sexual health and the need for effective sexual health education programs. The final goal of this project is to facilitate adoption of effective programs by providing all of the necessary resources and support needed to successfully adopt an effective adolescent sexual health education program. Also, this is a research project, so information and results from this project will be made available to further the field of public health.

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Topic: Air Quality

Title: Trend Analysis of Air Quality Complaints and Assessment of Correlation with Weather Trends.

By Ifunanya Okoli

Public Health Significance
The air quality in Houston has been known to be very poor. Much of the city’s air pollution is caused by the emission of toxic pollutants by industries along the ship channel. Air pollutants have short and long term health effects which range from bronchitis to chronic respiratory diseases and cancer. The facilities that emit toxic pollutants are sometimes located close to residential areas and these pollutants can affect the health and quality of life of the residents of such areas. Complaints relating to air pollution are reported to the air quality complaints department of the Bureau of Air Quality Control (BAQC), which is the agency charged with the task of handling air quality issues in the city of Houston.

Approach
A comprehensive database containing detailed information about air complaints reported to the air quality complaints department was created. Weather information (temperature, wind, precipitation) for the fiscal years 2007 – 2009 (a fiscal year was defined as July of a present year to June of the next year) was obtained from the National Weather Service website. STATA and a geographic information system (GIS) software were used to analyze the air complaints and weather data for trends and possible correlations.

Findings
The final product was a report describing the air complaints trends for the three fiscal years: 2007-2009. Most of the air complaints were odor related and came from the eastern part of Houston which has a lot of industries. No correlation was determined between air complaints and weather trends and this might be due to the way the data was reported and collected. Efforts are currently ongoing to improve data collection. The results of the study will probably drive staff and resource allocation to better handle air quality issues in Houston.

Essential Services of Public Health
This practicum primarily addressed the essential service of public health of assuring a competent public and personal health care workforce.

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Public Health Significance
According to gene expression studies, hormone-receptor positive breast cancer can be divided into 2 distinct subgroups (luminal A and luminal B) correlating with their differential outcomes (1). Luminal breast cancer is the most common subtype of breast cancer and has better prognosis compared to other subtypes but there are many breast cancer patients among luminal subtype who have poor outcome compared to others. Many studies have investigated the risk factors in association with subtypes of breast cancer but very few studies have examined luminal breast cancer separately into luminal A and luminal B subtypes. Most of these studies that classified luminal subtypes have used a panel of 3 biomarkers for classification of subtypes and defined luminal B as human epidermal growth factor receptor 2 (HER2neu) positive. This panel of 3 biomarkers is not sensitive enough to replace gene expression profiling to differentiate luminal breast cancer subtypes. One recent study has found that a panel of four biomarkers for breast cancer (estrogen receptor (ER), progesterone receptor (PR), HER2neu and Ki67) appeared to be able to distinguish them (2). The present study utilized a retrospective cohort of Caucasian women to investigate the association between epidemiological risk factors and luminal breast cancer subtypes which were defined using a panel of four biomarkers and the cut off value of 14 % for Ki67 index: luminal A (ER positive and/or PR positive, HER2 negative and low Ki67 index), luminal B (ER positive and/or PR positive, HER negative and high Ki67 index) and luminal-HER2 positive (ER positive and/or PR positive and HER2 positive). These risk factors can be used to identify women at increased risk for development of these breast cancer subtypes.

Approach
A cross sectional study design was used to investigate the epidemiological risk factors associated with luminal B and luminal-HER2 positive subtypes with luminal A subtype as a reference group. The study utilized the resources from Early Stage Breast Cancer Repository, an NCI funded retrospective cohort study of approximately 2400 women diagnosed with American Joint Committee on Cancer pathological stage I or II breast cancer at The University of Texas M.D. Anderson Cancer Center between January 1, 1985 and December 31, 2000. The present study included 709 Caucasian patients for whom information regarding ER, PR and HER2 status and Ki67 index was available. Univariate logistic regression was used to find the relationship between individual epidemiologic risk factors and luminal A, B and HER2 positive breast cancer subtypes by computing odds ratio (OR) and 95% confidence intervals (CI).
Findings
S Compared to luminal A cases, luminal B cases were less likely to use HRT (OR = 0.52, 95% CI = 0.34 to 0.82), less likely to be in menopausal status (OR = 0.61, 95%CI = 0.40 to 0.94) and less likely to be current smokers (OR = 0.55, 95% CI = 0.32 to 0.94). Compared to luminal A cases, HER2-luminal cases were more likely to be former OCP users (OR = 2.15, 95% CI = 1.07 to 4.13).

Essential Services of Public Health
Early identification of subgroups of breast cancer patients with poor prognosis by using novel biomarkers can help to reduce mortality and develop risk reduction strategies as some of potential risk factors are modifiable.

References

Topic: Cancer Treatment

Title: Treating Neuropathy in Lymphoma/Myeloma Patients with Acupuncture

By Robin Haddad

Public Health Significance
It is not necessary to state the numbers representing the great incidence and prevalence of people living with and otherwise affected by cancer worldwide to discuss the major place cancer has in our society. Having the opportunity to be a part of M.D. Anderson’s Integrative Medicine team, particularly, the Place…of Wellness, I encouraged patients to attend classes incorporating complementary and alternative health care programs. I myself participated in the programs as well, from Tai Chi to Qi Kong to Tibetan meditation. The therapies not only provided a wide range of services for those who were not deviating from, but adding onto their conventional treatments, but also gave some individuals a more culturally diversified and relevant experience. When I was not being an active member of the Place…of Wellness team, I shadowed and conducted background research for Dr. Kay Garcia, a research acupuncturist who is currently one of the investigators of the study on managing neuropathy with acupuncture. Even in the brief time I have been at M.D. Anderson, I witnessed great improvement of two of the 5 study patients with whom I had most frequent contact.
Both of these patients were on walkers at baseline, while one occasionally used a cane at study exit, the other no auxillary for walking or basic movement.

**Approach**

Much of my approach was observing the acupuncture services, both research and not, in action. As I have had prior exposure to a very different acupuncture service setting, wherein acupuncturists were not contract employees rather than employed by the institution as at MDACC, I was asked to keep a running commentary of differences between the two systems. I also conducted an informal systematic review of acupuncture studies used for treating cancer-specific issues such as xerostomia, hot flashes, and neuropathy.

**Findings**

My final product is a presentation scheduled for next week in which I will delineate the results of the systematic review as well as a brief comparison of acupuncture service types. I will also provide the Place…of Wellness with a script of general acupuncture-related research summaries; introductions to acupuncturists in the “Meet the acupuncturists!” section; and links for those interested in joining clinical trials. The script will be given to the marketing group for the creation of the new MDACC Acupuncture webpage early next year (2010).

**Essential Services**

My various roles at MDACC could be classified as part of Marketing health care services; program development; and program evaluation. Before preparing for my final presentation, I was asked to devise a screening tool which is now taken by each patient prior to any program or class to enhance patient safety, read and tabulate program evaluations completed by patients, and disseminate follow-up letters thanking physicians for recruiting patients to the acupuncture study and describing each patient’s progress.

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**Topic: Cancer Treatment Research: Phase I Targeted Therapy**

**Title: Retrospective chart review to assess toxicity of Phase I Targeted Therapy**

**By Bettzy Stephen**

**Public Health Significance**

Cancer is one of the leading causes of death around the world. People with advanced cancer who are usually refractory to standard therapy are enrolled in clinical trials which can provide new ray of hope. The primary goal is to evaluate the toxicity of the drug along with its pharmacokinetics, determine the safe dosage level and the efficacy of the drug. The department of Investigational Cancer Therapeutics at the M.D. Anderson Cancer Center is also engaged in providing personalized care by matching
the molecular profile of each patient’s tumor with a specifically targeted drug. This helps to reduce the debilitating side effects associated with standard chemotherapy regimens.

**Approach**

In order to assess the toxicity of Phase I Targeted Therapy, I was involved in the process of setting up a comprehensive database of all the patients who were treated in Center for targeted therapy at M.D. Anderson Cancer Center between 2006 and 2008. I learned to extract information about the patient’s demographics, tumor type, histology, baseline physicals and blood levels, the type of Phase I drug that was given, and the different kinds of serious adverse events and the survival data from Clinic Station and PDMS. This practicum also helped me to hone my communication skills and function as a team member alongside the research nurses and the research coordinators.

**Findings**

Analysis of this data will be done by the Principal Investigator of this study, which will help to understand the cost benefit ratio of the new therapeutic drugs that were used to provide targeted therapy.

**Essential Services of Public Health**

Testing of new drug combinations, regional therapies and dosing schedule of FDA approved drugs that were never before used in humans will revolutionize cancer care and will go a long way in making cancer history. This will also help to alleviate the fear in the minds of cancer patient and motivate them to benefit from the personalized, molecular targeted therapy.

Topic: *Clostridium difficile*

Title: Diagnosis and Methods of Control and Prevention of Clostridium Difficile Associated Diarrhea

By: Vishakha Pardeshi

**Public Health Significance**

*Clostridium difficile* is the most important cause of nosocomial (originating or taking place in the hospital) today. It is caused due to the use of antibiotic like clindamycin, cephalosporins (ceftriaxone,) and even chemotherapeutic drugs. It primarily occurs in hospitalized patient causing 3 million cases of diarrhea every year. The incidence of clostridium difficile associated diarrhea has increased from 30-40/ 100,000 in 1990’s to 84/ 100,000 in 2005. In addition only 20,000 cases are diagnosed on outpatient basis every year. This makes it an important public health issue.
Clostridium Difficile associated diarrhea can have symptoms ranging from mild to moderate abdominal pain to severe debilitating symptoms which increases the mortality rate to 10-30%. However prompt diagnosis and treatment is necessary to prevent the serious effects due to clostridium difficile; this includes cessation of the causative antibiotic and if necessary use of other antibiotic like metronidazole.

**Approach**
The task provided in the beginning of the practicum was to enroll patients for the study. Patients were enrolled for the study on clostridium difficile associated diarrhea. Informed written consent was obtained from them during the study. Patients who were on antibiotics were enrolled in the study. Patients were asked if they had experienced diarrhea and if they had diarrhea, whether they had any other symptoms like fever, abdominal cramps. These data sheets were then coded accordingly and data entry was done. These patients were then followed up till they were either discharged or not on antibiotics for at-least two days.

Environmental sampling was also one of the experiences gained during the practicum. This included sampling of certain places of clostridium difficile positive patients to find for spores in those samples, which could help detection and further control of disease spread. Whenever a patients stool was positive for clostridium difficile an email was sent to me by the research co-coordinator. The next day I had to collect the media from the research lab at School of Public Health and collect environmental samples from patients of St Lukes Hospital and return the samples to the research lab of School of Public Health.

There was also a presentation to be presented in the end regarding antibiotic associated diarrhea and its effects on today's society with the help of research papers reviewed.

**Findings**
Around 275 patients were enrolled in this study. However, there were many patients who did not enroll in the study, most likely due to the severity of their primary disease (like cancer). This practicum opportunity helped me to understand the pathogenesis of clostridium difficile, diagnosis and treatment. It gave me a chance to clinically observe the effects of clostridium difficile associated diarrhea. Regular rounds and follow up of patients made me realize the relatively long impact of the disease and the increasing rates of antibiotic associated diarrhea.

Environmental sampling done by me and my colleagues usually came out to be tested negative for spores; however I learnt that some samples done during the previous summer semester were positive for spores.

The bottom line is I realized the effects of inadvertent use of antibiotics in individuals.

**Essential Services of Public Health**
Collaborating between different organizations and maintain confidentiality of the patient at the same time was one of the essential services addressed by this practicum experience.
Another essential service addressed was diagnosis and Research: This experience provided me a chance to observe and use the different diagnostic tools for detection of clostridium difficile. The extensive research done helped me identify the risk factors in the causation of antibiotic associated diarrhea.

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**Topic: Congestive Heart Failure**

**Title: Loss after Initial Gain in Ejection Fraction after Beta Blocker Therapy in Heart Failure patients.**

By Pavithra Pattabiraman, MPH

**Public Health Significance**

Congestive heart failure is a significant public health problem that affects an estimated 4.7 million Americans and 15 million people worldwide\(^1\,^2\). Data from the Framingham Heart Study indicate that as many as 465,000 new cases of CHF are identified each year in the United States and it is the most common diagnosis in hospitalized patients aged 65 years and older\(^3\). Mortality and hospitalization rates associated with CHF are high and continue to rise. The heart failure treatment was revolutionized when three large, randomized, controlled trials demonstrated a substantial mortality benefit for beta-blocker therapy in heart failure patients\(^4\,^5\,^6\). Beta-blockers appear to be cardioprotective in patients with depressed left ventricular function by restoring beta-1 receptor activity and through prevention of catecholamine activity. Many studies have clearly demonstrated that \(\beta\)-blocker therapy improves left ventricular ejection fraction in patients with reduced LVEF\(^4\,^5\,^6\). Though this effect is seen in majority of HF patients, 13-15% of patients have a decline in EF, which is also a predictor of mortality. Further, the superiority of high vs. low-to-moderate doses of beta-blockers in reducing mortality from chronic HF has not been documented convincingly. There is also a huge controversy over the end point for beta blocker treatment, whether it should be dosage or heart rate control. The exact pathophysiological mechanisms by which beta blockers act are also still unclear. The study that I am working on attempts to characterize the group of HF patients treated with \(\beta\)-blocker in whom there is a fall in EF following an initial gain. Findings of this study have the potential to alter some of the existing treatment guidelines and endpoints for \(\beta\)-blocker therapy and will also pave way for a better understanding of its mechanism of action.

**Approach**

During the practicum, I worked with the “Winter’s Institute for Heart Failure’s” research team at the Veteran’s affairs hospital. I started the project by doing a literature review on beta blocker treatment in heart failure; it’s mechanism of action, dose response, BP and HR variability associated with treatment. I attended the research group meetings to keep track of the ongoing research projects and clinical trials at the center. My study was a retrospective study and we chose the patient population from the VA hospital’s database. The study population included 369 patients diagnosed with heart failure between 1996 and 2004 and treated with beta blockers at some point of
time in their life. I collected and compiled data on a number of variables including etiology of heart failure, type and dosage of beta blocker, duration of therapy, serial values of Ejection Fraction, blood pressure and heart rate.

**Findings**

It is a little premature to report the findings of the study as we have just started the data analysis. This practicum opportunity gave me an in-depth knowledge of the challenges faced by the medical community in the treatment of heart failure. It made me realize how little we know about the use of beta blockers in heart failure and how much more there is, to be understood. Through the practicum, I also gained experience in secondary data collection, data analysis and scientific writing.

**Essential Services of Public Health**

The most important essential service that my practicum project addresses is research. The project aims to understand some of the existing variations in heart failure response to beta blocker treatment. The study also hopes to give a better understanding of the mechanism of action of beta blockers in heart failure treatment.

**References:**


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Topic: Dental Caries

Title: Correlation of Planned Treatment of Primary Caries with ICDAS Criteria

By Susan Roshan

Public Health Significance
Traditionally dentists were taught how to use an explorer for detection of primary dental caries lesions of teeth. Any cavitation (catch) was either “watched” or restored using dental materials. However, this approach did not address the probability of developing new carious lesions or a change in the size or activity of existing lesions. In modern caries management a visual diagnostic system (International Caries Detection and Assessment System or ICDAS) and an individualized caries risk assessment are used to determine the severity of caries and how it needs to be treated. This approach will result in better prevention, less number of treatment procedures, and saving more tooth structure. This in turn will result in improving oral health of general public and at risk populations more effectively through preventive and conservative treatments. This pilot study was performed to evaluate compatibility of primary dental caries management in our clinic with the treatments recommended according to the ICDAS code assigned to each lesion and caries risk assessed for the patient.

Approach
After approval by the Institutional Review Board (IRB), fifty-four patients were randomly selected and their posterior teeth were photographed using an intra-oral camera. Each patient was asked questions on his/her oral hygiene practices, diet, frequency and type of dental care received, and a standard Oral Disease Risk Assessment (ODRA) form was completed. These forms are based on guidelines recommended by American Dental Association and were used accordingly to determine each patient’s caries risk. After an oral and radiographic examination, each patient received an individualized treatment plan. Later the photographs and ODRA forms were reviewed by a different operator, not involved in the clinical diagnosis and treatment planning. Based on the photographs and ICDAS criteria, primary dental caries lesions of posterior teeth were coded and assigned a recommended treatment. These recommendations were compared to the actual treatment plan and variations were reviewed.

Findings
153 posterior teeth form fifty-four patients (mean age of 45.8) were selected and reviewed. Patients were mostly (45 patients or 83%) at “high-risk” for caries and the teeth were more likely to have an ICDAS 2 (60 teeth or 39.2%). The other ICDA codes were observed as follows: ICDAS 0: 1 tooth, ICDAS 1: 6 teeth, ICDAS 3: 53 teeth, ICDAS 4: 28 teeth, and ICDAS 5: 5 teeth. Planned treatment included no treatment (16 teeth), fluoride (65 teeth), sealants (10 teeth), restorations (58 teeth), extraction (three teeth), and root canal treatment (1 tooth). Recommended treatments were sealants (92 teeth) and restorations (61 teeth). All these patients were
recommended to receive fluoride treatment; however in 11 cases (20%, 29 teeth) treatment plans did not include a fluoride application.

**Essential Services of Public Health**
This project primarily involved “Research for new insights and innovative solutions to health problems”. The findings of this project can be used to “Assure a competent public health and personal healthcare workforce”.

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**Topic: Dental Homes**

**Title: Dental Home Initiative for Head Start Children**

**By Ayman Bizra**

**Public Health Significance**
The Head Start program provides comprehensive developmental services for low-income preschool children between the ages of three and five and support services for their families. Head Start provides diverse services consistent with goals for: education, health, parent involvement and social services.

As a part of that process, Head Start is obligated by Federal regulations to ensure that each child has an ongoing source of continuous, accessible health care which includes a dental home.

A dental home means that each child's oral health care is delivered by a licensed dentist in a clinic or office where comprehensive care is provided, referrals are made and emergency care can be provided – so that parents are not using the hospital emergency room for their child’s dental care.

To help find a dental home for each child the American Academy of Pediatric Dentistry (AAPD) and the Office of Federal Head Start (OHS) are partnering at the national, regional, state, and local level to develop networks of dentists to link Head Start Children with dental homes.¹

**Approach**
We started off with a list of dentists provided by the State of Texas. The list included licensed dentists who underwent First Dental Home (FDH) training. However, the dentists’ location, the most vital part for our project was missing. We looked up the address of each dentist and grouped them by counties. Subsequently, we matched each dentist to the nearest Head Start Center in their respective county.

For counties with large dentist population and a large number of Head Start Centers, we matched dentists and centers by zip codes.

When the list of FDH dentists runs out, we used a list of Medicaid dentists.
Findings
This is the first phase of a long project carried out in cooperation with the Texas Dental Association (TDA), the American Academy of Pediatric Dentistry and Office of Head Start. Among over 1200 Head Start Centers, we were only able to contact a little over 900 which were then classified into high, medium and low need Head Start Centers. At this phase, only one dentist was matched for each center. More dentists should be added at later phases.

Essential Services of Public Health
In Texas, a network of pediatric dentists and general dentists will be created to provide dental homes for Head Start children. The project will also train teams of dentists and Head Start personnel in optimal oral health care practices, and assist Head Start programs in obtaining comprehensive services to meet the full range of Head Start children's oral health needs. This partnership will also provide parents, caregivers and Head Start staff with the latest evidence-based information on how they can help prevent tooth decay and develop positive oral health practices.¹

Source: http://www.aapd.org/headstart/

Topic: *E. coli* Diarrhea.

Title: Enzyme Linked Immunoassay (ELISA) Detection of Heat Labile Enterotoxins production by *E. coli*.

By Shamim Ejaz, MPH Candidate.

Public Health Significance

- Major cause of diarrhea in humans throughout the world. (Sack, 1975; Albert et al., Gaastra & Svennerholm, 1996).
- Cause of morbidity and mortality in children less than 5 years of age in developing countries. (Black, 1993).

Approach
The objective of this practicum was to establish a quantitative enzyme linked immunoassay (ELISA) to measure the amount of heat labile enterotoxin (LT) produced by clinical isolates of enterotoxigenic *E. coli* (ETEC LT). We compared three techniques published in the literature. The first technique was a sandwich ELISA. In this method we used two antibodies, i.e. primary and secondary that bind to ETEC LT toxins or the structurally related Cholera toxin. This method used rabbit anti-*E. coli* LT B unconjugated polyclonal antibody as the primary antibody and mouse anti –*E.
coli LT B unconjugated antibody as the secondary antibody. Cholera toxin B subunit from *Vibrio cholerae* was used as a control. This method did not work well as it was unable to measure concentrations of the toxin. The second method was done using GM1 ganglioside for coating of micro titer ELISA plates. GM1 is an epithelial protein to which LT binds. In this method, we used a rabbit anti-*E. coli* LT B unconjugated polyclonal antibody as our primary antibody and mouse anti-*E. coli* LT B unconjugated monoclonal antibody as our secondary antibody. This GM1 ELISA method did not work well either. This was probably because the secondary antibody was detecting in addition to cholera toxin, non specific *E. coli* proteins. Finally, we used a modified GM1 ELISA with mouse anti-*E. coli* LTB unconjugated monoclonal antibody as our secondary antibody and a mouse monoclonal to B subunit cholera toxin as our secondary antibody.

**Findings**

GM1 ELISA was able to detect *E. coli* LT. The GM1 ELISA showed that clinical isolates differ in the ability to produce ETEC LT. After optimization of reagent concentration, the GM1 quantitative ELISA will be used to screen a transposon mutated library of ETEC LT to identify proteins that regulate the production of LT by ETEC inflammatory response and how LT relates to intestinal epithelial cells.

**Essential Services of Public Health**

*E. coli* is one of the most common causes for diarrhea throughout the world. The measurement of ETEC LT production by individual ETEC LT strains identified by PCR will allow for studies that correlate LT production with host inflammatory response to this enteropathogen.

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**Topic: Emergency Departments (ED) for Routine Care**

**Title: Preventing Indigent Patient’s Inappropriate Use of ED for Routine Care by Establishing them Medical Homes at Community Clinics**

By Muhammed Saidykhan

**Public Health Significance**

Harris County residents made 761,077 non-hospitalized ED visits in 2007, which accounted for about 72% of all visits to 25 major hospitals in the Houston/Harris County area according to Begley at el. Most importantly, almost half or 48.7% of these visit were for routine primary care services of which 32% was made by the area’s uninsured. Compared to the Texas uninsured rate of 24%, the highest in the nation, the city of Houston/Harris County is even worst with 30.2% of the population being uninsured. The usual choice of routine care resources for these indigent patients is the city and county hospital EDs at debilitating cost of longer wait times, lower patient...
satisfaction rates and insurmountable cost to tax payers. The need to provide a more appropriate care homes for this population at community clinics is essential for a sustainable healthcare cost management for our hospitals.

Approach
The focus of my practicum was to conduct a qualitative and descriptive analysis of a data set from the Memorial Hermann's Navigator Program through the Hospital's Community Benefit Department. The hospital started this program two years ago with the aim of reducing the number of patient visits to the hospital system’s emergency departments (ED) for routine care services that could be more conveniently and cost-effectively provided at community clinics. Navigators were trained and placed in the EDs to educate as well as connect patients especially the uninsured, to medical homes in community clinics, with the objectives of reducing unnecessary ED wait times, reducing hospital uncompensated costs and preventing unwarranted patient financial burden of higher ED care rates compare to clinics rates.

My practicum assignment is focused on analyzing the data from this program to try to uncover why uninsured patient continue to come to the ED rather than use the lower cost community resources available to them. The program manager was also concerned about the quality of data they were collecting and requested me to help create a better spreadsheet that would allow them to capture a more useful data for future analysis. I conducted a descriptive analysis of the data using Stata statistical software from the school’s computer lab. However, the qualitative part of the data was unfortunately wrongly coded by the navigators and unsuitable for any meaningfully analyses. I then focused the remainder of my practicum on developing a spreadsheet that is tailored to the kind of information the program director needs to see.

Findings
The final product of the project is a report on the descriptive analyses and the spreadsheet I developed. The Navigators have already started using the spreadsheet in their daily interviews and data collection.

Essential Services of Public Health
The essential service most impacted by my practicum experience is the Research for new insights and innovative solutions to health problems. My report will be helpful in informing the program manager about who in terms of age, gender and ethnicity are coming to the ED and how best to target this population with better education regarding the importance of using health services more appropriately. The spreadsheet will be also important for future analyses of the health behavior of these patients and their unique challenges in accessing healthcare services that might be driving them to the Emergency rooms.

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Topic: Epilepsy Self-Management

Title: Socioeconomic Differences in Epilepsy Self-Management and its Impact on Treatment Adherence, Healthcare Use, and Health Outcomes.

By: Biebele Iyagba

Public Health Significance
Epilepsy is a neurological condition characterized by recurrent unprovoked seizures. An estimated 2.3 million people in the U.S. are affected by epilepsy and approximately 181,000 new cases of epilepsy are diagnosed each year. Although epilepsy may start at any age, incidence rates peak before the ages of 5 and after 60. In addition, seizures that begin during adolescence may have greater psychosocial impact than seizures beginning at a younger age. The social burden of epilepsy has been well documented in terms of incidence and prevalence, quality of life, health care use and costs. Epilepsy impacts a wide range of social, physical, and psychological aspects of life and may have a devastating impact on a person's economic and social future. Per capita rates of health care use for people with epilepsy in the U.S. have been assessed and the annual cost of health care services for people with epilepsy was estimated at $1.9 billion in 1995.

Approach
The project examined the relative importance of attitudinal, social, behavioral, and environmental antecedents in predicting self-management behavior and the relative importance of self-management behavior in predicting treatment adherence (blood anti-epileptic drug (AED) levels and days missed taking AEDs), and outcomes (ER visits and hospitalizations, seizure control, quality of life, and functional status) in a socioeconomically diverse population of people with epilepsy. The project involved working with an already identified 1-year cohort of 450 incident and prevalent patients from two clinical sites in Houston, Texas who are enrolled in the CDC-funded Epilepsy Care and Outcomes Study. The patients were asked to complete four interviews on a quarterly basis to obtain longitudinal information on their seizure characteristics, knowledge and attitudes about epilepsy, health care use, and quality of life. Patients were recruited for a supplemental survey that covered various self-management domains and the antecedent factors associated with self-management. Their medical charts were reviewed to obtain information on medication adherence as measured by drug levels. The complementary data on self-management and drug levels was merged with the longitudinal data already collected on drug taking behavior, acute health care use, and health outcomes to allow us examine several hypotheses about the determinants of self-management and its relationship to adherence and outcomes.

Findings
A total of 241 patients completed the final phase of the self-management questionnaire. The participants had a mean age of 40.9 years (SD= 15.5). Almost 60% were female. They were diverse with regard to race-ethnicity. The majority (48%) were married.
Most (37%) had attended college. Of those who attended college, about 18% had obtained a college degree. 38% were employed full-time, 10% part-time, and 48% unemployed. About 28% were 100% below the federal poverty level and 32% were 400% above the federal poverty level.

About 55% had private insurance, 14% had public coverage, and 22% were uninsured. The average age when participants were first diagnosed with seizures was 20.3 years and participants had had seizures for an average of 22.0 years (SD=16.8). Most participants (60.1%) reported having had a seizure within the past year. About half (48%) of participants reported some form of generalized seizure either as a primary or as a secondary type.

Tests of association between self-management, socio-demographic and seizure characteristics showed that gender, income and employment were statistically significant when comparing mean self-management scores with socio-demographic and seizure-related characteristics. Females reported higher levels of self management than males. Unemployed participants reported higher levels of self management. In addition, participants with Medicaid and Medicare reported higher levels of self management. A significance in site differences was shown for scale scores with one hospital scoring higher on knowledge, self-efficacy, social support and outcome expectations and lower on self management, stigma, depression, patient satisfaction and quality of life. Significant correlations exist between self-management and antecedent factors of knowledge.

**Essential Services of Public Health**

This study will make a significant contribution to the proposed CDC epilepsy self-management network by building on previous work in understanding the relationship between self-management behavior and its hypothesized antecedents and examining the predictive value of self-reported self-management in explaining variance in treatment adherence and outcomes while controlling for other important factors such as socioeconomic status (SES) and seizure frequency. Exploring these interrelationships in both adult and adolescent samples will provide an important foundation for developing more effective behavior change interventions to improve self-management in diverse populations of people living with epilepsy.

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**Topic: Farmworker Health Profile**

**Title: Using Data from Migrant Health Centers to Profile the Health of Farmworkers in the United States: A Pilot Study**

**By: Kathleen Urbansky**

**Public Health Significance**

Farmworkers in the United States are often mobile, located in rural areas, and difficult to track. Determining the health status of these workers is further complicated by the
lack of a robust assessment system. Farmworker health needs impact the healthcare capacity of the local area. Without health assessment data determining those needs and how they impact the community is difficult. Additionally, funding for indigent health care programs in the United States is based on health status statistics. Without the inclusion of migrant farmworkers in these indicators, may geographical areas may be substantially underfunded.

Approach
De-identified billing and patient data from Migrant Health Centers in New Jersey were used to develop demographic and health status profiles of farmworkers. The demographic data provided included age, gender, ethnicity, race, marital status, zip code, language preference, and farmworker status (migrant, seasonal, other). Encounter data included procedure codes, date of service, primary and secondary diagnosis, provider, site, and visit type (new, established).

Tables representing unique patients and encounters were created using Excel 2007. The data was transferred into SPSS 16.0 where age was recoded into a new age category variable using 10 year increments through age 59, and a five year increment for ages 60-64. Patients age 65 and older were grouped together. Frequencies and cross-tabulations were calculated for both demographic and encounter data. Cross-tabulations were calculated for migrant status compared to race, ethnicity, gender, age group, marital status, language preference, most common diagnosis, and visit frequency.

Findings
There is a total of 50,686 unique patients in the dataset. The average age is 31 with a median age of 29. Women represent 64% of patients and 42% are Hispanic, 33% Caucasian, 20% African-American, and 5% other race or unknown. Of the Hispanic patients, 44% were Black Hispanic, 43% White Hispanic, and 12% unknown. Over 80% of patients are unmarried, and 75% preferred English.

Most patients are not migrant or seasonal workers (75%); of workers 9% is migrant, 5% seasonal and 10% unknown. Migrant workers are predominantly women (56%), younger (median age 25), Black Hispanic (55%), prefer Spanish (87%), and are single (70%). Seasonal workers are predominately women (57%), slightly older (median age 27), Black Hispanic (50%), need translation (85%), and are single (67%).

In 2008 and 2009 there were a total of 219,062 unique visits. The majority of visits were established patients and 7% were new patients. Most visits were for evaluation and management. The top five diagnoses for established patients during this period were routine pregnancy (13%), diabetes (10%), routine child follow-up (5%), high blood pressure (5%), and routine gynecological exams. The top five diagnoses for new patients were routine child exam (10%), routine general medical (9%), first pregnancy visit (5%), upper respiratory infection (5%), and back pain or disorder (5%).
Essential Services of Public Health
This project addresses the public health service of monitoring health status to identify community health problems. This is a component of assessment, a core public health function.

Topic: Gastroenterology and Public Health

Title: Investigation Modalities in Gastroenterology and their Diagnostic Utility.

By Vikas Gupta

Public Health Significance
One of the main objectives in gastroenterology is primary prevention, screening, early detection and optimal care of cancers of the digestive tract. Colorectal cancer is the fourth most common cause of cancer in US and the cumulative mortality and costs of gastrointestinal cancers are significant. There are investigation modalities like Endoscopic Ultrasound which are helpful in early detection of cancers. The availability of such modalities has the ability to impact diagnosis, treatment and prognosis. Other techniques like studying molecular markers in pancreatic cysts have enabled better diagnostic accuracy in these lesions. More studies are required to validate the effectiveness and utility of these techniques in the diagnostic arena of different gastrointestinal cancers. Issues like sensitivity, specificity, diagnostic accuracy and cost effectiveness need to be further studied before these modalities are used more commonly. As these techniques are expensive and not frequently available, research can shed more light on their wider application and utility.

Approach
I studied the effectiveness of EUS in different cancers and was asked by my preceptor to conduct a retrospective study on the utility of EUS in rectal cancer and its correlation with Body Mass Index at staging. I analysed patient data for the last 4 yrs at MD Anderson for patients who underwent EUS staging for rectal cancer and reviewed patient details for BMI and other characteristics.

To study the utility of molecular markers in pancreatic cystic lesions, I reviewed published literature and wrote a review article on “Molecular markers in pancreatic cysts”. I studied the sensitivity and specificity of various markers as described in all current literature and wrote a review including all latest and pertinent information.

Findings
In the retrospective study that I performed, higher BMI did not appear to be associated with an advanced EUS stage of rectal cancer at initial presentation. An abstract of this study was submitted to American Gastroenterology Association (AGA) for the Digestive Disease week (DDW) meeting next year.
The findings of the review on the utility of molecular markers in pancreatic cysts indicated that there was no clear cut agreement on the levels of various molecular markers and further validation studies needed to be conducted to identify the correct algorithm for diagnosing pancreatic cysts. The review will be submitted for publication soon to the Journal of Gastroenterology and Liver Diseases (JGLD).

**Essential Services of Public Health**

The practicum involved quite a few essential services of public health. It involved diagnosis of health problems, evaluation of effectiveness of diagnostic tools and researched new insights into diagnosis of gastrointestinal cancers.

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**Topic: Health Communication**

**Title: Revision of a Birth Defects Risk Factors Reports using Plain Language**

**By Frances Meissner**

**Public Health Significance**

Most Americans read below a 9th grade level, while most health information is written above a 10th grade level. People with low literacy are less likely to take part in disease prevention and health promotion programs. To improve communication, health materials should be written in plain language that eliminates jargon and has a clear message.

The Texas Department of State Health Services (DSHS) posts birth defects risk factor reports, originally written for a scientific audience, on its website. However, the majority of people accessing the reports are parents or relatives of children with birth defects. Only half of surveyed readers strongly agreed that the reports were at the appropriate reading level for them and improved their understanding of what might cause a birth defect. These reports can be used for birth defect prevention, but only if the readers can understand the information.

**Approach**

The purpose of this project was to establish a protocol for revising birth defect risk factor reports guided by a well-validated health communication theory and using plain language principals to increase clarity and readability. The Elaboration Likelihood Model of Persuasion (ELMP) is a health communication theory that identifies central and peripheral routes of persuasion. Attitudes developed through central route processing tend to be stronger and more resistant to change. However, central route processing is decreased when the information is overwhelming or confusing.

An online survey on the Texas Department of State Health Services website was used to gather information about the target audience. The risk factor report on
omphalocele was chosen for revision. To increase the likelihood of central route processing, the readability and clarity of this report was improved through plain language methods. Plain language guidelines issued by the CDC and the NIH were used for the revision. Most medical jargon was replaced by everyday language. The remaining terms were defined and some were spelled phonetically. Pictures were provided for clarity. Evidence for and against risk factors was presented graphically for quick and easy evaluation.

Findings
The revised report and a short online survey were sent to public health students, mothers, and others for evaluation. Their feedback was incorporated into the report. Of 14 respondents, 11 (78.6%) stated that the reading level was appropriate for them and 13 (92.9%) said that the report helped them understand what might cause the birth defect.

The final product of this project is a revised risk factor report along with the process used to develop the report. DSHS can use this process to rewrite the other reports on their website.

Essential Services of Public Health
This project addresses the essential service of promoting and encouraging health behaviors. Using plain language in health communication will help those with low health literacy understand important health messages. Improving understanding in health communication materials is one way to increase the likelihood of central route processing of information, thereby developing stronger attitudes in the reader that are more predictive of behavior and better able to guide that behavior over time.

Topic: Health Promotion

Title: Individual Active Participation in Health – A Multi-National Studies

By Jacky Lee

Public Health Significance
The study of Individual Active Participation (IAP) in health holds great public health significance because Global Knowledge Exchange Network (GKEN) wants to find out an effective method to encourage individuals to be actively involved in their own health behavior. In addition to the United States, GKEN and I studied developed countries in Europe and Asia to look for health policies in different countries, both in public and private sectors. By investigating different policies in countries of different continents, GKEN can publish a comprehensive report on its website as a free resource for individuals as well as health agencies.
Approach
My project with GKEN is a literature review of both peer-reviewed publications and non-academic articles from various reputable internet sources. The methods for completing this project are searching, organization, and compilation of existing resources. On-line search engines EBSCO Medline and Google were used to perform the search and gathering of the data pertaining to the project. GKEN and I worked in collaboration to sift through the incoming information and published a coherent report.

Findings
The final product of my project with GKEN is an article published on GKEN’s website. Health policies in public and private sectors were studies in the United States, Netherlands, Germany, and Japan, etc. There are effective policies that both federal and local governments can implement to help its citizens to be more physically active. Policies such as restructuring the infrastructure of a community or simply adding a bus route for easier access to healthy food are proven to have a positive impact on individual’s health behavior. In the private sector, company’s insurance policy that promotes healthy lifestyle has shown effectiveness. Employees have incentives to maintain or improve their health when employers offer discounts and refunds on the insurance premium based on employees’ health status and health behavior.

Essential Services of Public Health
My project addressed the essential service of public health in “informing, educating, and empowering people about health issues.” The published report is an educational resource that available for free for everyone with internet access. By being properly informed and educated with the health knowledge, governmental agencies and private companies can mimic and implement policies that have been proven successful. These policies will subsequently promote individuals to practice better health behavior.

Topic: Healthcare Associated Infections (HAI)

Title: HAI Prevention Action Plan

By Tina Mishra Satapathy

Public Health Significance
Healthcare associated infections (HAI) are the infection that the patient acquired while receiving treatment in healthcare facilities like acute-care hospitals, ambulatory surgical centers, long term care facilities and home health care. It can be transmitted to the patient from other patients, healthcare worker or the visitors. HAI is one of the top ten leading causes of death in the United State accounting for an estimated 1.7 million infections and 99,000 associated deaths in 2002. In hospitals they are the significant cause of mortality and morbidity. In addition to substantial human suffering, the financial burden due to HAI is estimated to be $33 billion in excess
healthcare cost each year. Texas, with a population of over 23 million residents, has an estimated 200,000 HAI infections annually causing 8,000-9,000 deaths.

**Approach**

An estimated 60% or more of HAI infections are preventable through the improved application of existing infection control recommendations and guidelines. To be successful in controlling the HAI, unification and standardization of HAI prevention and surveillance activities statewide is essential which is lacking at the moment.

Since 2005, the Texas Department of State Health Services (DSHS) has made efforts to address HAIs in the State by appointing an HAI advisory panel to study and make recommendations for collecting and reporting HAIs. The advisory panel surveyed and found a severe deficiency in the number of infection prevention staff and computerized surveillance software that would be required for HAI reporting. In 2008 they recommended using the National Health and Safety Network (NHSN) reporting system for statewide HAI reporting. DSHS also made available funding of $1,233,977 for 28 months to the States through the American Reinvestment and Recovery Act (ARRA) to support State HAI prevention activities. The input and recommendations from the meeting (i.e. the 2009 Statewide Healthcare-Associated Infections (HAI) Planning Meeting) held by DSHS in October, 2009 in Austin helped in developing the Draft HAI Plan for Texas. The Draft Plan is required for the ARRA cooperative agreement and due January 1, 2010. This plan will provide the necessary framework for the primary implementation of a Texas HAI reporting and prevention program.

My participation in this project was to research background material on both technical and public policy, such as existing policies in other States and Programs and apply this research to assist in establishing a framework to be considered for the Texas HAI Program. Pivotal legislations I reviewed were Senate Bill 288, Chapter 98 Health and Safety Act and Senate Bill 203, which is the foundation for implementing the Texas reporting requirements and policies for HAIs. I assisted in the planning and organization of the Statewide HAI Planning Meeting in Austin. This meeting was convened to bring together the HAI stakeholders to formulate the Draft State Plan, which will help in achieving the following goal; 1) Progress towards national prevention targets, 2) Use and improve the metrics and supporting systems needed to assess progress towards meeting the target, and 3) Prioritization and broad implementation of current evidence-based prevention guideline recommendation.

**Findings**

The reporting and prevention of HAIs in Texas is in the early stages of development. The Draft State HAI must be approved by DHHS and CDC. A limited HAI Program implementation is planned due to insufficient funding and many of the plan components will require education, planning, training, staffing, research and many other activities.

**Essential Services of Public Health**

Improved HAI prevention plan can assist the public health agencies to improve surveillance for, and response to infectious diseases by (1) Strengthening epidemiologic capacity; (2) enhancing laboratory practice; (3) improving information systems; (4)
developing and implementing prevention and control strategies and (5) providing quality healthcare.

Topic: Hepatitis B

Title: Hepatitis B in the Asian Community (HBAC) Screening Program

By Jordan Cahoon

Public Health Significance
Hepatitis B is an infection of the liver that can result in liver scarring and malfunctioning and may cause liver cancer. Hepatitis B virus (HBV) is spread through blood and bodily fluids and can be spread through unclean needles, unprotected sex, and transmission from mother to child. 1 out of 10 Asian Americans has HBV, the highest rate in the United States, and account for more than 50% of all Hepatitis B cases. Asians also have the highest rates of liver cancer of any ethnic group. Asian subpopulations are not homogenous, and HBV prevalence varies among ethnicities.

A blood test is the only way to diagnose Hepatitis B. Approximately 30% of people with HBV have no symptoms, and can infect others without knowing it. Early diagnosis can decrease damage to the liver. Screening for HBV in Asian populations to determine prevalence, as well as to provide individuals with test results and vaccination opportunities, is important in decreasing the public health burden of HBV in this at-risk population.

Approach
The HBAC Project began with limited CDC funding for Hepatitis B screening in the Asian populations of Houston. The HDHHS Adult Viral Hepatitis program organized a workgroup including interested community partners and I began my involvement at the beginning of the project. I helped design a screening tool, informed consent forms, and information packets. I organized “event kits” with the necessary forms and supplies for each event. Screening events were held at churches, community centers, and community health clinics utilizing community volunteers, and included an educational presentation by a physician. I participated in different roles at several screening events, including drawing blood and processing forms. Results were returned by mail, with an opportunity to speak to a physician regarding the results and a voucher for a free HBV vaccination series at a local community health clinic, provided by HDHHS. Data will be analyzed and shared with the community partners.

Findings
To date, six screening events in four Asian (Vietnamese, Korean, Southeast Asian and Chinese) communities have been conducted. 619 subjects completed a questionnaire and Hepatitis B test. 22.9% were immune to HBV due to prior vaccination, 33.9%
were immune due to past infection, 36.0% were susceptible to HBV, 1.9% had chronic HBV infections, and 5.17% had unclear laboratory results. 51.9% of Vietnamese subjects were immune due to past infection, compared to 45.1% in Korean, 21.0% in Chinese, and 11.0% in Southeast Asian subjects. Southeast Asians had the highest prevalence of susceptibility to HBV (65.2%). Immunity due to vaccination was close to 22% across all groups, from 20.9% (Korean) to 23.7% (Vietnamese). Chronic infections were found only among Vietnamese (4.5% of screened Vietnamese subjects).

**Essential Services of Public Health**

This project primarily addressed two essential services of public health: research and informing, educating and empowering populations. Research was conducted on the prevalence of Hepatitis B in the Asian community of Houston, and that community was also informed about their current HBV status and educated about Hepatitis, liver health, and personal risk factors.

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**Topic: HIV in the IDU population**

**Title: HIV Behavioral Surveillance and Testing in Injection Drug Users**

**By Ritu Goradia**

**Public Health Significance**

More than 40,000 Americans are infected with HIV annually and the average lifetime cost of HIV/AIDS related medical care is $618,000 per infected individual. According to the CDC, Texas has the fourth highest number of AIDS cases in the United States with 72,828 cumulative cases reported in 2007. Since the inception of the HIV/AIDS epidemic in the 1980's, injection drug use has been directly and indirectly associated with 36% of AIDS cases in the United States, making behavioral surveillance and HIV testing services essential in this population. Furthermore, due to the legal, professional, and familial consequences of illicit drug use, injection drug users (IDU) remain a hidden population that is difficult to access by researchers. Further research identifying behavioral risk factors and assessing HIV prevalence levels in the Houston IDU population may help local health officials design effective HIV prevention strategies to reduce the number of individuals infected in the community.

**Approach**

I was part of a project conducted by the Houston Department of Health and Human Services, CDC, and UTSPH that implemented the National HIV Behavioral Surveillance (NHBS) System in Houston. This research study examined the behaviors that place individuals at high risk for HIV infection and assessed the trends in HIV prevalence in Houston. Participants were recruited by respondent driven sampling (RDS), in which participants recruit each other from within their own networks. This
type of sampling is believed to be the most effective way of reaching the hidden IDU population. My role in this project was to interview injection drug users on their drug use behaviors, sexual practices, and local prevention services and to test them for HIV. Counseling individuals on HIV testing and local services available to them was another one of my duties. The interview instrument I used was a structured, closed-ended questionnaire that was administered on a hand held computer. Furthermore, all HIV tests were administered orally and test results were available after 20 minutes.

**Findings**

Funding of needle exchange programs are not currently supported by the federal government, however, needle sharing in the IDU population continues to be a common method of HIV transmission. Increased funding for prevention and treatment services for HIV/AIDS is necessary in Houston.

**Essential Services of Public Health**

1. Monitor the health status to identify and solve community health problems.
2. Research for new insights and innovative solutions to health problems.


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**Topic: HIV/AIDS in Adolescents**

**Title: Management of HIV through a Teen Camp**

By Widumini Liyanage

**Public Health Significance**

HIV/AIDS has been a worldwide pandemic for many years; therefore, HIV management is an extremely important public health concern. Forty thousand Americans become infected with HIV every year and since 1981, approximately 23,000 cases of AIDS have been reported in Houston. If managed correctly, those living with HIV can prevent manifestation of the virus into AIDS, and can increase their longevity and improve their quality of life.

**Approach**

In order to address this public health issue, the AIDS Foundation of Houston created Universal Teens, a specific program/camp for teens ages 15-19, to help adolescents
make the transition to adulthood while living with HIV. The camp consisted of numerous presentations and interactive experiences which addressed treatment and medication issues, HIV status disclosure, dating and relationship issues, college or vocational options, and career development. The camp also provided an environment for HIV positive teens to meet, interact, and create friendships and support groups with other HIV positive teens from Houston, Dallas, and Florida. I participated in the camp as a mentor to the teens. Along with the director and another mentor, we provided support and guidance to the adolescents throughout the course of the program.

**Findings**
On the final day of the program, evaluation surveys were conducted. However, the acquired data has not yet been analyzed. As a mentor, I noticed that many of the adolescents seemed to enjoy the experience. In the beginning of the camp, some of the teens were unsure of what to expect, but towards the end, friendships were made, and many were excited to return the next year. It is an annual camp, and those who were not able to attend this year will have the opportunity to attend in the following years. This program not only provided participants with a support group, but also with knowledge and information that they can carry with them and use throughout life. As long as funding is available from various sources, HIV positive youth around America will continue to have this experience available to them.

**Essential Services of Public Health**
This practicum successfully addressed the services of public health by informing, educating, and empowering HIV positive adolescents about living with and managing HIV. It is necessary to provide information and to raise knowledge about issues related to HIV in order to help adolescents living with HIV become self-reliant and to help them successfully make their transition into adulthood.

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**Topic: HIV/AIDS**

**Title: Interprofessional Care and Patient Safety in HIV/AIDS**

**By Joseph A. Lopez**

**Public Health Significance**
Landmark reports from the Institute of Medicine in 2001 and again in 2003 emphasized the importance that “All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches and informatics.” The benefits of joint learning, information sharing, and collaboration to facilitate coordination of patient care were recognized as vital to optimizing patient safety and quality of health care. This new paradigm in healthcare education would allow students from multiple professions to learn to work together, make decisions, and solve
problems by integrating the cultural differences between them and harnessing their joint competencies, resulting in improved clinical outcomes and patient satisfaction and healthcare worker job satisfaction.

This approach is applicable to a variety of clinical settings in which multiple healthcare/support disciplines are present or required, including the recognized need to ensure medication safety in patient care, as outlined in The Joint Commission 2009 National Patient Safety Goal #8, Medication Reconciliation. This important goal also involves National Patient Safety Goal #13, active involvement of the patient in their care. Medication Reconciliation contributes to a higher level of health literacy, potentially saving billions of dollars in healthcare costs.

**Approach**

My practicum included didactic, self-paced lectures, written self-reflective exercises, and a clinical experience at the University Health System Family Focused AIDS Care and Treatment Services (FFACTS) Clinic in downtown San Antonio, which promoted an interdisciplinary approach with attention to patient safety, health literacy, medication reconciliation, use of treatment guidelines, and social support networks/agencies. The clinical experience involved “shadowing” FFACTS medical providers and nursing staff as they cared for HIV/AIDS patients in this outpatient clinic. Medication reconciliation forms were completed on each patient to assess that process. This experience also provided me the opportunity to participate in a community service learning project as I joined with one of the HIV/AIDS service agencies, the Alamo Area Resource Council (AARC), to observe how their various disciplines worked together, from initial intake interview, to case management, to counseling to meet the wide-ranging medical and psychosocial needs of their patients. Finally, I got to participate in a Group Case Analysis with the other student members taking this practicum and our sponsoring faculty present.

**Findings**

As a result of my practicum experiences, I have become better-acquainted with the current clinical aspects of HIV care, and the importance of patient safety, health literacy, medication reconciliation, and interprofessional teamwork. My familiarity with HIV/AIDS care had been limited in my military medical practice, but I have learned quite a bit in these past few weeks. I have been impressed by the multiplicity of very effective HIV medications and treatments available today, and this has caused me to re-evaluate the notion of HIV/AIDS as a death sentence or terminal illness. It is clear to me now that patients are able to enjoy long, productive, symptom-free lives. I have also come to a better understanding of the challenging socio-economic aspects of managing HIV/AIDS patients. In addition, I am more aware of the administrative workings unique to the HIV/AIDS clinic such as their patient intake and re-evaluation procedures, nursing functions, and features of the clinic electronic medical record as they relate to patient safety and medication reconciliation.

My findings regarding the medication reconciliation process in the FFACTS Clinic are that, overall, the process is meeting National Patient Safety Goals. However, there appear to be inconsistencies in the process in “closing the loop” to ensure patients
leave the clinic with their most current medication list in hand and are instructed to bring it with them at every clinic visit. I recommend that all the clinic staff be given recurrent in-service training on patient safety and medication reconciliation and that these clinic processes be reassessed periodically.

This practicum has been a positive learning experience for me. Delving into the broad spectrum of HIV/AIDS care has been a rare opportunity I would not have had otherwise, from being able to interact with HIV/AIDS patients to working with HIV clinic/support agency providers and staff. Moreover, the lessons I have learned about the importance of a multi-disciplinary approach to caring for a complex medical condition, such as HIV/AIDS, are invaluable. I will be able to more-confidently take this professional knowledge and apply it when I return to providing medical care to our men and women in uniform, to their families, and to military retirees.

Essential Services of Public Health
This project addressed the importance of interprofessional/interdisciplinary patient care in HIV/AIDS and patient safety from the standpoint of medication reconciliation.

Topic: HIV Risk among Heroin Users
Title: Mapping Intravenous Drug Users (IDUs) congregation areas in Dar es Salaam
By Linda Mungai

Public Health Significance
Illicit drug use and injecting practices are a relatively recent phenomenon in East Africa. Consequently, the role of intravenous drug use in the HIV epidemic in Africa has received little attention. In recent years, heroin use in Tanzania has increased. Previous research carried out in 2003-2004 by McCurdy et al., indicated that intravenous use of heroin as well as high risk HIV behaviors such as needle and paraphernalia sharing were on the rise. The researchers found that HIV seropositivity of blood residues in needles presented by heroin injectors ranged from 0-90% in different Dar es Salaam neighborhoods (McCurdy et al., 2005).

Approach
Muhimbili University College of Health and Applied Sciences (MUHAS), in collaboration with UTSPH organized a research team to recruit and interview IDUs. An outreach worker who had been recruited for a previous project by one of the principle researchers of the project, Dr McCurdy, accompanied me for the mapping project. Using a GPS system, I mapped congregation areas, (geto’s, maskani and vijive’s) of IDU’s in different neighborhoods in Dar-es-Salaam. Locations were verified using MapInfo and Google Earth. Along with mapping locations, we recruited individuals to participate in interviews for the project.
Findings
The final product was a written report submitted to Dr McCurdy, of congregation areas, number of people at each location, maximum number of people at peak times, gender differences and type of heroin used at the location. Accessibility, parking space availability and suitability for either a storefront or a caravan for each location was also reported. Due to time constraints, I was unable to map all the neighborhoods in Dar es Salaam and the remainder of the mapping exercise was completed by other members of the research team.

Essential Services of Public Health
The project is an ongoing needs assessment of the IDU’s knowledge, practices and attitudes, in Dar es Salaam. With the information obtained, effective HIV prevention strategies can be planned and implemented. CDC strategy calls for provision of mobile units and/or caravans in high IDU traffic areas for information decimation and HIV testing as part of a HIV prevention strategy.

References

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Topic: HIV/AIDS

Title: *Interprofessional Care and Patient Safety in HIV/AIDS*

By Ramon Yambo-Arias

Public Health Significance
Over 1,000,000 injuries and 100,000 deaths occur annually in the United States due to medication errors. This is an important public health issue because these injuries are largely preventable. HIV patients may be at an increased risk of medication errors because of side effects from multiple medications. These errors can be avoided by implementing a medication reconciliation plan in the clinic and hospital setting. During this practicum I assessed the medication reconciliation process of an HIV clinic. To maximize learning, this assessment was performed in an interdisciplinary setting. The recommendations of the 2003 Institute of Medicine emphasized the importance that “all health professionals should be educated to deliver patient-centered care as members of an inter-disciplinary team, emphasizing evidence-based practice, quality improvement approaches and informatics.” Because medication prescription, dispensation and education fall within the realm of various disciplines, collaboration of health professionals from different backgrounds is important in optimizing patient safety.
Approach
This was a one-semester rotation at the Family Focused AIDS Care and Treatment Services (FFACTS) Clinic in downtown San Antonio, Texas with two days dedicated to the Alamo Area Resource Council (AARC) non-governmental organization. This rotation was performed over a period of six weeks, two to four hours a week. I was a member of an interdisciplinary team consisting of students of medicine, public health, pharmacology, respiratory therapy, and social work. The team met for orientation prior to the start of the rotation. Afterwards, we worked individually to observe and assess the FFACTS Clinic medication reconciliation program. I shadowed patients from check-in to check-out including the healthcare provider visits. During these visits, I completed medication reconciliation forms on each patient. I also observed how patient safety was handled at AARC. Complementing this practicum were online didactic lectures on patient safety and interdisciplinary interactions. I wrote biweekly, online self-reflective exercises. At the end of the semester, the interdisciplinary team came together to share what we had learned. We used these tools in a Group Case Analysis of a hypothetical patient with newly diagnosed AIDS.

Findings
The FFACTS staff worked well together in reconciling medications for their patients. The nurses were very thorough and provided the healthcare provider with a printed, updated medication list. The provider, in turn, further updated the list while the patient was present. Social workers and AARC personnel added another safety net to this process.

Working among bright and motivated students of various health fields was the most exciting part of this practicum. By the end of the practicum, the team was brainstorming an HIV case scenario with marked effectiveness. The various disciplines participating in this practicum demonstrated that the care of complex patients can be optimized by creating a collaborative interdisciplinary environment. Hopefully, this collaboration will become a common scene in healthcare workplaces.

Essential Services of Public Health
This project addressed the importance of interdisciplinary patient care in HIV/AIDS and patient safety from the standpoint of medication reconciliation.

Topic: Hygiene
Title: Promoting Hygiene in Indian Orphanages
By Maudie Roberts
Public Health Significance
I joined the medical consultant for The Miracle Foundation, an organization that cares for children in three orphanages in rural India, to develop hygiene promotion and infection control educational materials and training. Diarrheal disease and acute
respiratory infections are responsible for 39% of all childhood deaths in India. The majority diarrheal illness is related to unclean water and improper hygiene and sanitation. Hand washing and hygiene promotion can decrease the prevalence of diarrhea by as much as 45%. Because illness can spread quickly in schools and residential homes, hygiene and hand washing promotion for children and their caregivers is imperative for disease control in these settings.

**Approach**
I developed a comprehensive hygiene program based on the Health Belief Model. Increasing perceived risk for infection, perceived benefits (cleanliness), and self-efficacy were implemented into a teaching plan. Perceived severity was incorporated into a blood borne pathogen training for caregivers. Cues to action included visual and verbal reminders. A recommendation of accessible soap and hand sanitizer was made to decrease barriers. Environmental assessments were performed to determine potential barriers to proper hygiene.

**Findings**
The teaching plan consisted of a presentation to the children explaining germs and demonstrating how germs are spread using glitter. A song about hand washing with hand motions provided a cue to action. Demonstrating the proper hand washing technique and allowing children to practice enhanced the children’s self-efficacy for hand washing. A poster design with universal hand washing image was provided to the organization for posting in the orphanages as cues to action.

The teaching plan had to be manipulated based upon resources for hygiene available at each orphanage, and a Hindi translator was required to translate the teaching. Accessibility to soap and water varied between orphanages. One orphanage only had 4 wells, located several yards from latrines, and one bar of soap for a total of 265 children. Another orphanage had two wash stations located outside of the latrines. The third orphanage consisted of 8-10 children living in one home with indoor plumbing and a sink directly outside of the bathroom. Assessment findings were shared with the organization’s medical consultant. To decrease barriers to hand washing, rudimentary “soap dispensers” were made using bars of soap placed in handkerchiefs tied to the wells.

Rates of infectious disease were highest at the orphanage with the wells and little soap. Other hygienic concerns at this orphanage included open urination and defecation, animals roaming in the schoolyard, the children sitting in the schoolyard to eat, and the children walking barefoot.

**Essential Services of Public Health**
My practicum addressed the essential services of diagnosing and investigating health problems in the community and informing, educating, and empower people about health issues.
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Topic: Immunizations

Title: Prevention of Pertussis in Infants through Vaccination of their Mothers with Tdap Vaccine During The Postpartum Period

By Luis A. Castagnini

Public Health Significance
Pertussis is the only vaccine preventable disease on the rise in the United States, with more than 50,000 cases in the years 2004-05. Children under the age of 6 months are too young to have completed their primary immunization series against pertussis and are at increased risk of complicated disease and mortality. Undiagnosed mothers are the most common source of infection. Several strategies have been studied to prevent pertussis in these infants, including maternal immunization during pregnancy and vaccination of the newborn infant with inconsistent results. In 2006 the Centers for Disease Control and Prevention recommended routine vaccination with tetanus, diphtheria and acellular pertussis (Tdap) vaccine to mothers during the postpartum period in an effort to block transmission to the susceptible infant (the cocoon strategy), but this strategy has not been widely implemented.

Approach
In December 2007, Ben Taub General Hospital (BTGH) in Houston Texas started the cocoon strategy. All mothers eligible have been receiving Tdap vaccine as a routine order in the hospital during the post partum period and before discharge. BTGH has become in the first center to successfully implement this intervention in the U.S.

Findings
Approximately 9,500 doses of vaccine have been given since the program started. More than 95% of women offered Tdap vaccine received it, with no reported serious side effects. Since June 2009, more than 2,000 family members have also been vaccinated. The aim of this program is to establish a new vaccination platform effectively. The effectiveness of this intervention in preventing pertussis in young infants has not been studied and is subject of ongoing research.
Essential Services of Public Health
My project primarily addressed the essential public health service of research for new insights and innovative solutions to health problems. Pertussis in infants younger than 6 months of age is a significant health problem for which we do not have an effective prevention strategy. This new immunization platform seeks to prevent this serious illness in vulnerable infants.

Topic: Infection Control
Title: Reducing the rates of Hospital Acquired Infections
By Antonio Bonilla

Public Health Significance
Each year hospitals spend millions of dollars treating nosocomial, or hospital acquired infections (H.A.I.). The prevention of HAI’s is significant to public health because patients check into a hospital to get treated for an illness, not to acquire a new illness. The prevention of HAI’s is an essential element of hospital management because even one nosocomial MSRA infection can cost thousands of dollars. Reducing infection rates can have an immense impact on spending as well as the reduction of length of stay. Both factors are crucial for an efficient healthcare system.

Approach
There are three main components to my approach; active surveillance, isolation/bundle rounds, and employee education. The company I worked for, Infection Prevention and Management Associates trained me in these techniques and provided an invaluable resource and support group during my work. There are two main components to active surveillance. First, each day every positive lab culture from the previous day is entered into a database for tracking. Infections that occur more than 48 hours after admission are compiled on a weekly basis. Each of these infections is analyzed using CDC guidelines to determine if it was acquired while the patient was in the hospital or if it was incubating upon arrival. The four main infection types that we focus on are central line associated bloodstream infections, catheter related urinary tract infections, ventilator associated pneumonia, and surgical site infections.

Isolation/bundle rounds are equally as important. New admissions are screened daily for current infections or a history of infection. If a patient is admitted with an infection caused by a multdrug resistant organism such as MRSA or VRE (vancomycin-resistant enterococcus), they are placed in one of three types of isolation; contact, droplet, or airborne. After new admissions are screened, each patient which is required to be in a specific isolation is checked to make confirm that there is proper signage indicating the correct isolation and that there is personal protective equipment available for each room. A bundle round consists of weekly checking of each line that a patient has for proper dressing changes, labeling, and capping. Central and PICC lines are commonly checked lines. The purpose of bundle rounds is to reduce the number of line infections by ensuring proper maintenance. The final component of my approach is patient and
employee education. This task is completed as needed and could consist of a variety of topics including, proper hand hygiene, cough etiquette, correct use of PPE, and MDRO facts. Additionally, a power point presentation is given at each new employee orientation stressing the importance of infection control.

Findings
I discovered that proper infection control can help reduce the rate of Hospital acquired infections. There is a noticeable correlation between increases in hand hygiene and PPE compliance with decreasing infection rates. Although there are many more components that determine infection rates, it was apparent that things that we often take for granted such as proper hand washing can impact infection rates in hospitals.

Essential Services of Public Health
The essential service of public health that I provided was assisting healthcare workers with information, education, and observation. The goal is to work together in an effort to provide optimum healthcare in a hospital setting.

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Topic: Infection Control
Title: Contact Isolation Compliance in a Hospital Setting
By Jill Bunting

Public Health Significance
Contact isolation is needed when caring for a patient who has an infectious agent that can be transmissible from direct or indirect contact. Bodily fluids, fecal matter and even excessive wound drainage increase the risk of transmission. When caring for a patient who has been placed in contact isolation, personal protective equipment such as a gown and gloves are worn from first entering the room until leaving the patient’s room. The most common bacteria that cause contact isolation at the practicum site, which was a rehabilitation hospital, include VRE (Vancomycin-resistant Enterococci), MRSA (Methicillin-resistant staphylococcus-aureus) and C-difficile (Clostridium Difficile). The majority of the patient population are elderly persons, already putting them at risk for acquiring hospital acquired infections since they usually have a decreased immune system. From a public health standpoint, it is important to follow the CDC guidelines to help maintain the health and safety of the infected patients and the rest of the patient population within the hospital.

Approach
The first three weeks of the practicum involved performing observations of all of the units within the hospital. Staff members were unknowingly observed walking into patient rooms and it was recorded if the staff member donned the gloves and gown, dismissed the contact isolation sign and went into the room and lastly, if wearing the
PPE, discarded it prior to leaving the room. After the three weeks of observations were completed, staff meetings were held for all of the units to show the results of the observations and to review CDC guidelines for hospital staff to follow when caring for a patient in contact isolation. The remainder of the practicum was spent performing more observations to see if the information given along with the observation results would make a difference in the compliance level from the staff members.

Finding
The findings from the initial observations were quite poor. One unit averaged 71% compliance and the other unit averaged 17% compliance. The staff members were shocked with the poor compliance rate and after answering many questions during the in-services, they had seemed to have a better understanding of why infection control is so important in this setting. The main reason for not wearing the PPE was due to the poor placement of the signs and the fact that they were not eye catching for the staff members. Suggestions were made to increase the size of the signs as well as place them with a neon backing to be more noticeable.

New signs were made for the placement on doors for patients in contact isolation. However due to hospital policy, approval was needed by administration before making changes to the current signs. This was set to occur after the practicum was completed. The compliance levels after the in-service changed slightly. One unit decreased in compliance from 71% to 50% and the other unit increased in compliance from 17% to 29%. Hopefully once the signs are in place, the compliance level will increase.

Essential Services of Public Health
The essential service provided by this practicum was to ensure that the hospital patient population’s needs are met by protecting them from hospital acquired infections. Another essential service provided was the enlightenment and empowerment of the hospital staff members to take notice that their actions have a large impact on their patient’s health.

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Topic: Infection Control

Title: Hand Hygiene Evaluation and Promotion in a Clinical Setting

By Stephanie Stroever

Public Health Significance
Health care-associated infections (HCAI) present a major challenge in patient safety around the world. Millions of people are affected by this every year around the world, both in developing and developed countries. The impact of an infection acquired in the hospital setting is quite alarming. Not only do patients who have HCAI face prolonged hospital stays and increased financial burden, but there is also the risk of
long-term disability, excess deaths, and increased development of anti-microbial resistant microorganisms. Hand hygiene has been identified as a primary determinant of the incidence of HCAI, and there is extensive evidence in the literature that hand hygiene can reduce the transmission of these pathogens and decrease the incidence of HCAI.

**Approach**

Although hand hygiene is identified as an important part of patient care, many hospitals continue to struggle with hand hygiene compliance. The goal of this project was to promote hand hygiene in a clinical setting in effort to reduce the number of HCAI and meet the hand hygiene goals of a rehabilitation hospital in Austin, TX. Hand hygiene promotion is a complex issue with many barriers to compliance. Therefore, before designing an educational program, it was important to determine the level of compliance with the hand hygiene policies of the hospital and identify specific weaknesses on which to focus. I collected baseline hand hygiene observations of several different shifts throughout the month of September and processed this data to determine the level of compliance. Each observation was broken down by type of healthcare worker and the activity that prompted the observation. These activities included, but are not limited to, before patient contact, after direct contact with the patient’s skin, after removal of gloves, and before eating. The data analysis revealed several weaknesses in compliance that became the focus of the educational program. In-services were available to all staff and were specific for the type of healthcare worker in attendance, including nursing, therapy, physicians, and hospital administration. Informational flyers were also posted around the hospital and served as constant reminders to perform hand hygiene. Following the educational program, I performed follow-up observations to note any improvement to hand hygiene compliance.

**Findings**

It was determined from baseline observations that the overall hand hygiene compliance was only 55%. The major weaknesses identified were hand hygiene prior to patient contact and hand hygiene following the removal of gloves. The educational in-services were designed to specifically address these issues, as well as remind the staff of the importance of adhering to hand hygiene recommendations. The follow-up observations revealed an improvement in hand hygiene with total hand hygiene compliance reaching 80%. Although the goal for compliance is 100%, there was definitely an improvement.

**Essential Services of Public Health**

The essential services of public health that I primarily addressed were informing, educating, and empowering people, and assuring competent public health and personal care workforce. The in-services provided an opportunity for promotion of hand hygiene to ensure patient safety, as well as provide staff members an occasion to ask questions and become more familiar with hand hygiene recommendations.
Topic: Infection in Immunocompromised Patients

Title: Intravesical Cidofovir Instillation in HSCT Recipients with Hemorrhagic Cystitis.

By Dhanesh B. Rathod

Public Health Significance
Hemorrhagic cystitis (HC) is a well-recognized complication in patients with prior hematopoietic stem cell transplant (HSCT). The two major viruses associated with it are adenovirus and BK virus, and there is no accepted therapy. The severity of this complication varies among patients causing pain, severe hematuria, urinary obstruction, renal failure, and death. Furthermore, several studies have associated HC with reduced survival. Yang et al. also noted that the occurrence of HC was associated with increased hospital costs, length of hospitalization, and mortality. This makes HC a significant complication of HSCT, which influences economic and survival outcomes.

Approach
There is no accepted therapy for adenovirus or BK virus infections, but Cidofovir has been shown to have in vitro activity against both of them. There are anecdotal reports of HC caused by both viruses responding to systemic antiviral agents. Systemic administration of cidofovir has the potential for causing nephrotoxicity and cannot be used in patients with impaired renal function. Since HC is localized to the bladder, it is possible that topical cidofovir therapy injected into the bladder may be effective and avoid the systemic side effects of the drug. However, before we could assess the safety and efficacy of this modality of treatment, it was important to do a single dose Pharmacokinetic study of Intravesical cidofovir to determine if a favorable concentration gradient exists between bladder and blood, and its safety and tolerability. Our study design was reviewed by the Food and Drug Administration (FDA). Changes suggested by them to decrease the risks to the participants and strengthen our study were incorporated by us.

Findings
We have finalized the protocol and it has been accepted by the Institutional review board of M D Anderson Cancer Center. An abstract will be published after compilation and analysis of data. The results will determine if this treatment method should be evaluated in a larger patient population and/or at multiple centers.

Essential Services of Public Health
I have been involved in the drafting and amendment of the study protocol. Since this is a prospective study with patient enrollment, it gave me extensive exposure to the workings of such a study including drafting and explaining the informed consent to the patients. My MPH experience helps me better understand the statistical aspects of this study and its design. A successful outcome of the study will help reduce the morbidity and mortality in this subgroup of patients.
References:

Topic: Influenza

Title: Validation of an rRT-PCR Influenza Test for Novel H1N1 in a Large Houston Hospital Laboratory.

By Kristen N. Correia

Public Health Significance
In April 2009, a distinct influenza virus was detected in cases of influenza-like illness (ILI) in California. This virus carried a unique genetic assortment of swine influenza strains never before seen in humans. The newly identified novel H1N1 sustained rapid human-to-human transmission and was quickly elevated to pandemic status by the World Health Organization (WHO).

One imperative issue that was recognized at the onset of the 2009 pandemic was the importance of continued and accurate surveillance. Early on, rapid influenza testing kits were evaluated for their sensitivity and specificity for detecting the Pandemic H1N1/09 antigen. These tests had significant limitations in their sensitivity, ranging from 10-70%. Consequently, a negative rapid test could not definitively rule out the presence of the influenza virus.

The combination of low specificity of the rapid influenza testing and the absence of a definitive test for H1N1 created a significant problem for laboratory confirmation of influenza. The CDC quickly responded with a real-time reverse-transcriptase-polymerase-chain-reaction assay (rRT-PCR) protocol specific for the novel H1N1/09 subtype. Hospitals responded by adapting this protocol for clinical diagnosis. Along with the new rRT-PCR test, an algorithm was established to assist laboratories with prioritizing patient testing.

Approach
The molecular genetics and virology department at St. Luke’s Hospital in Houston combine efforts and resources to develop a rRT-PCR diagnostic test to test for
Influenza A and the H1N1 subtype. Once the protocol was designed, a two-fold validation process was necessary. The first stage was to determine the sensitivity and specificity of the test. Phase two involved a blind validation with the City of Houston Public Health Laboratory. My portion of the project entailed propagating influenza A cell cultures for use in the validation study. I used these cultures to create serial dilutions. These dilutions were then tested using both the new rRT-PCR test and by viral culture. The next step was to use a known set of samples and create a blind validation. The validation was tested at both St. Luke’s Hospital and by the City of Houston Public Health Laboratory. Assuming our results correlated with the city and the new test was at least as sensitive as viral culture, the test could be cleared for patient use.

**Findings**
The rRT-PCR test proved to be as sensitive as viral culture and the validation with the City of Houston was 100% accurate. In fact, one specimen that the city reported as inconclusive for H1N1 tested positive with our protocol. There were limitations with our protocol however. The H1N1 test was less sensitive than the influenza A portion, indicating that low viral titers may be inconclusive.

**Essential Services of Public Health**
The project I worked on provided a substantial advantage to rapid diagnosis and clinical management of influenza A and the novel H1N1 subtype. The availability of the test in the hospital gave health care providers the results they needed to correctly prescribe anti-viral therapy, cohort ill patients, and institute isolation procedures.

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**Topic: Influenza**

**Title: Surveillance of Influenza in Harris County from October 2007-October 2009**

**By Dinna Lozano**

**Public Health Significance**

Influenza is a significant annual morbidity in the United States between the months of October and April. The Centers for Disease control estimates that between 5 to 20% of the American population contracts influenza annually, with more than 200,000 hospitalized from ‘flu-related complications’ and 36,000 Americans dying from ‘influenza-related deaths’ (Key facts about seasonal influenza, 2009). Seniors, children, pregnant women and people suffering from conditions such as asthma and diabetes are at increased risk to suffer from ‘severe complications of seasonal flu illness’ (Key facts about seasonal influenza, Centers for Disease Control, 2009).
With the advent of the H1N1 influenza virus in April of 2009, efforts to monitor influenza patterns at a local level may be able to alert public health officials of the emergency of new strains of the virus, such as the H1N1 which initially was reported to be highest in the 5 to 24 year old age group (2009 Early H1N1 Early Outbreak and Disease Characteristics, Centers for Disease Control, 2009).

Although the Harris County Public Health and Environmental Services (HCPHES) epidemiology unit receives surveillance reports in HCPHES jurisdiction, this data has not been used to analyze influenza case pattern annually and to compare infection patterns and rates across different years for more effective monitoring and surveillance.

**Approach**

I used weekly reports submitted by thirteen sentinel hospitals within HCPHES jurisdiction as well as individual reports submitted by laboratories, other hospitals and clinics throughout the typical influenza season from the 2007-2008 season and 2008-2009 season to tabulate the number of people who tested positive for influenza A, influenza B, and an undetermined form of influenza. Weekly reports submitted by schools within jurisdiction were used to collect data of influenza-like illness tabulated by school nurses for the two aforementioned typical influenza seasons. All data was then entered into Microsoft Excel spreadsheets in order to produce graphs comparing seasonal rates of influenza A, total influenza cases and influenza-like illnesses reported by school districts.

**Findings**

The graph for the 2007-2008 season shows influenza A reaching a height of approximately 350 cases diagnosed in the beginning of February, with the majority of new positive cases occurring between mid-December and the end of March. Meanwhile for the 2008-2009 season, the peak only reached 125 new cases diagnosed, with the majority of new positive cases occurring between the beginning of January and mid-March.

Total influenza cases for the two seasons were quite similar in distribution, with both peaking at 325-350 new cases, although the 2008-2009 season showed a slight latency of the distribution in time towards May while the 2007-2008 season diminished at the beginning of April. The number of influenza-like illnesses reported by schools vastly outnumbered those in 2007-2008, with the highest peak reaching over 550 cases in 2008-2009, and only 150 cases being identified in one weekly period in 2007-2008. Moreover, this increase occurred throughout January, February and March in 2008-2009, with new cases never quite reaching baseline all the way through May.

This result especially illustrates the difference in which individuals were affected in the 2008-2009 season, with H1N1 affecting youths more often and more severely than elderly individuals. Results may be confounded by differential reporting of influenza-like cases between different school districts, with some schools not reporting when there are cases that exist in the district. Further research to elucidate the differences between H1N1 and other types of influenza can be done by comparing the age distributions of those testing positive in group, sex, and ethnicity/race data.
**Essential Services of Public Health**

This project primarily addressed the essential service of public health of monitoring health status to identify community health problems. By establishing a more or less baseline level of influenza as seen in the 2007-2008 season, the Harris County Public Health epidemiology unit can use future influenza surveillance data to detect aberrations between the influenza pattern of the current season and those of the past.

**References**


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**Topic: Influenza: Health Department 2009 H1N1 Response**

**Title: Childhood usage of Emergency Rooms during H1N1 Pandemic**

**By Christopher S. Walker**

**Public Health Significance**

The 2009 H1N1 Influenza A pandemic has presented many challenges to the public health community. On the forefront of the issue have been the local and regional health departments. The issue of preparedness is vitally important. The Influenza A pandemic this year has proven to be a good opportunity to test our state of preparedness.

**Approach**

For my practicum, I chose to look at a specific area in the public health preparedness. I looked at the usage of emergency rooms by pediatric patients with flu-like symptoms. I developed a survey that would illustrate some of the reasons why a parent would take a child to an emergency department rather than to their personal physician (if they even have one). The survey has been developed but has not made it through IRB yet so it has not been actually fielded. This is an important aspect of preparedness because access to care during a pandemic will be a critical issue to be addressed by the public health leadership.

**Findings**

Another part of my practicum was to sit in on weekly teleconferences with the Texas State Department of Health Services Region 8 health departments. These teleconferences dealt with the region’s 2009 H1N1 response. This was a very
enlightening experience and allowed me to get a first-hand exposure to the coordination necessary to respond to a public health emergency.

**Essential Services of Public Health**

My practicum addressed many different essential functions of public health. The primary one was in the preparedness realm. Seeing how the regional headquarters staff responded to the H1N1 pandemic allowed me to see the importance of this function. As we learn lessons from this response and apply them to the existing plans we will be better prepared to respond to the next emergency. Another function of public health that I got to experience was data collection. Even though I did not get to the point where I was in an emergency department collecting original data, I did go through the survey development process including the approval process through an investigational review board (IRB). This was a new experience for me and also very enlightening.

Topic: Kidney Injury

Title: Role of Fenoldopam in Protecting Against Acute Kidney Injury (AKI) – Preclinical Study

By – Vikash K Sinha

**Public Health Significance**

Fenoldopam is a weak selective Dopamine D1 receptor partial agonist which acts by lowering the blood pressure by mainly acting on the coronary and renal vessels. It is widely known for its use in lowering the blood pressure postoperatively and also to lower acute rise in blood pressure in Hypertensive crises.

Acute Kidney Injury is a major cause of morbidity and mortality in preoperative, postoperative and Intensive care patients. Another major concern is the amount of health budget spent in improving the patient outcome suffering from Acute Kidney Injury (e.g. dialysis, renal transplantation, etc.).

Various studies have pointed towards the protective effects of Fenoldopam in preventing end-organ failure (including kidney – a major concern) in patients in emergency and ICU settings. The proposed mechanism is that Fenoldopam induces the release of Hemeoxygenase-1 (Ho-1), a transcription factor acting as a protective factor for cells to cope with stress conditions (e.g. decreased circulation, hypoxia, ventilation-related injury, acute trauma, post-operative stress, etc.).

If successful, Fenoldopam can be used in above patients with anticipated kidney injury as well as other end-organ failure (e.g. respiratory failure, brain death) and stall the tissue injury before it occurs.
Approach
I was involved in a pre-clinical study on Male Sprague dawley rats where they are injected with cisplatin (a renal toxin) to induce Acute Kidney Injury. The treatment group receives Fenoldopam before receiving cisplatin to induce protection. The control group receives saline instead of Fenoldopam before receiving cisplatin. A third group received saline twice (for fenoldopam and cisplatin respectively) which acts a negative control to confirm that Kidney damage is caused by cisplatin and not anything else.

Plasma Creatinine is used to measure the extent of kidney injury (as used in clinical settings). The levels of plasma creatinine correlates with the degree of kidney injury and is used the parameter to measure the final outcome of the disease.

Findings
The study is not complete and I would be presenting the findings of the pilot study that our lab took to establish the model. The levels of plasma creatinine were more in the group of rats injected with cisplatin as compared to those injected with saline which proves the success of cisplatin in producing kidney damage. The levels were higher in the group not pretreated as compared to those pretreated with Fenoldopam.

Essential Services of Public Health
The study involved essential application of the tenets of public health in every aspect. From defining the controls to the indispensable tool of statistical analysis in finding the difference in the levels of plasma creatinine, epidemiology and statistics made it possible to understand the components of the study and contribute as a researcher. It was a culminating experience where I learned the practical application and interplay of the tools of public health with the real world medical science.

References:

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Topic: *Legionella* Pneumonia

Title: Usage of Urinary Antigen to Diagnose Legionella Pneumonia in San Antonio Hospitals

By: Joseph A. Ouma, MD

Public Health Significance

The outbreak of Legionella Pneumonia has been rising more rapidly in San Antonio, TX for the last 10 years than in any part of the country with mortality of between 5 to 8 deaths annually and the probability of Legionella Pneumonia should be suspected in any patient who develops community acquired pneumonia in San Antonio. In 1996 San Antonio recorded 16 cases of Legionella Pneumonia (also known as legionnaire’s disease) cases which showed a sharp rise from previous years. According to Kool et al (Infect Control Hosp Epidemiol 1999) a rise in cases became more noticeable shortly after physicians started ordering Legionella urinary antigen tests. This prompted the State and Federal disease trackers to come and tested 12 large hospitals in San Antonio and 4 hospitals in Austin. In their findings published in 1999 (Kool JL; et al. Epidemiol.1999) out of the 12 San Antonio hospitals inspected, 11 had Legionella growing in their water systems. Hospital no. 12 had recently eliminated the bacteria after some hospital acquired cases were confirmed there earlier. No Legionella was found at any of the Austin hospitals. The difference between San Antonio and Austin was because the San Antonio water system uses chlorine to disinfect its drinking water while Austin uses monochloramine which is a mixture of chlorine and ammonia that is better suited to treating water from lakes and reservoirs because chloramine persists longer than chlorine in distribution systems and may also penetrate biofilms within pipes more readily, (Kool JL et al. Epidemiol 1999). Records shows that on May 25, 2006, Texas Department of Health (TX DSHS) notified CDC of six deaths due to Legionella Pneumonia in a San Antonio hospital. A total of 11 people were diagnosed with the disease with 10 of them from the same hospital. The outbreak was attributed to construction problems and flows in water heaters at North Central Baptist hospital which was undergoing a major building expansion. Currently, there are no mandatory or legislative guidelines available for preventing or diagnosing nosocomial Legionnaire’s disease across the nation’s hospitals or health care facilities. It is up to the individual states, hospitals or health care facilities to formulate their own guidelines for prevention and diagnosis. For example a task force from Texas State Department of Health published a study (May 26, 2003) that decided not to recommend that hospitals routinely test for Legionella bacteria, as some states require. That might divert money and resources from more pressing problems, they decided. As such, the guidelines the State has in place are not part of standard of care but up to individual hospitals or health-care facilities to decide whether to adopt them or not on individual cases. Based on the studies conducted by the University of Pittsburgh in collaboration with Allegheny County Health Department of Aug.23, 2003 the development of proactive guidelines for hospital-acquired legionnaire’s disease prevention has lead to the virtual eradication of legionnaires in Pittsburgh.
Approach
The most appropriate method has been a retrospective review of electronic records of 16 San Antonio hospitals from January 2006 to June 2009. This involved contacting laboratory department of each hospital for permission to review the records. An IRB was required in most cases and most hospitals have their own requirements to be fulfilled before permission can be granted for the records’ review. This will be complemented with prospective studies from August 2009 to April 2010 during my practicum phase of studies. More data will also be obtained from San Antonio Health department since all data from San Antonio hospitals are channelled to the Health department. These data will be used to identify patients (age, race and sex) with the diagnosis of legionnaire’s disease or Community-Acquired Pneumonia. Any community-acquired pneumonia will have to meet the Clinical features with or without radiologic evidence of pneumonia. After data is accumulated, hospitals will be sub-divided into those who did urinary antigen tests routinely on every patient who presented with Community Acquired Pneumonia and those who did not do this test as a routine.

Findings
It is expected that the hospital(s) using urinary antigen tests per routine as standard of care on every community acquired pneumonia has had no more fatality/mortality from Legionnaire’s disease in their hospitals while those hospital(s) that don’t use this test routinely continues to have outbreaks with mortalities. Cost-effective identification of Legionella Pneumophila for pneumonia and Legionella Disease will: Decrease mortality rate, Decrease number of broad-spectrum antibiotics prescribed, shorten patient wait time/hospital stay, Decrease need for unnecessary ancillary testing and Improve patient outcomes through rapid, focused therapy.

Essential Services of Public Health
My Practicum which is connected with my thesis is a research project that will continue till spring next year because it is a data collection practicum. The outcome of my research will help the public health with the ability to diagnose Legionnaire’s disease in a faster way so that patients can be treated promptly in a timely manner.

References
1. Texas State Department of Health Study (May 26, 2003)


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Topic: Maternal and Child Health

Title: March of Dimes Program Services for the Fall 2009: Community Health Fair and Prematurity Awareness Symposium

By K. Michelle Garcia

Public Health Significance
In order to address the public health significance, we must first address the organization and its mission. The March of Dimes adheres to its mission to improve the health of babies by preventing birth defects, premature birth, and infant mortality. Such mission is accomplished through research, community service activities, educational programs and services, as well as political advocacy. The ultimate goal of this mission is to reduce prematurity, birth defects and low birthweight. These topics pose a public health concern for several reasons, but primarily because the US is in a position where infant mortality should be in a decline particularly in risk factors that attribute such; however, the US is slow to achieve these declines. In their latest report, the US was reported having a preterm birth rate of 12.7% of all live births, when compared to Healthy People 2010, the projected preterm birth is 7.6% of all live births. Preterm births and factors associated with such have been identified as the leading cause of infant mortality. Furthermore, the long term adverse health effects attributed to preterm births are also a factor of interest to achieve the mission of the organization. Long-term health effects include, mental and physical disabilities or impairment, long-term hospital stays in NICU, as well as increased susceptibility to infections.

Approach
The topic was addressed primarily in the form of community events sponsored by March of Dimes. My practicum entailed direct involvement with the Program Services Committee. As a volunteer, I served as co-chair for both the March of Dimes Community Health Fair and the Prematurity Awareness Symposium. As part of the committee, it was my duty to assist and oversee the planning, coordinating, and implementation of these two events. The goal of the MOD Community Health Fair was to increase MOD capacity and utilize its resources so that its mission can be achieved. Through the Prematurity Awareness Symposium, all women’s health and infant providers were invited to attend a seminar on the progress and mission goals of MOD. Guest speakers were invited to share the latest research and innovative programs, supported by MOD, that help reduce the risk of infant mortality.

Findings
The final product was to increase awareness of MOD as well as increase provider awareness of MOD’s mission. During the community health fair, all MOD sponsored programs (Centering Pregnancy, Stork’s Nest, and Baby Café) were promoted; over 400 people attended the health fair and nearly 50 separate organizations participated. The health fair was implemented in a low socioeconomic area to target women and children of high at-risk status. Implementation and planning of the health fair also increased the organization’s network ties. The symposium addressed the latest report
on prematurity rates as well as infant mortality; it also communicated ways for providers to decrease premature deliveries. Having both the health fair and symposium well received by the professional and lay community, MOD is going to hold two large-scaled health fairs to increase its community ties as well as change the target group of the prematurity awareness symposium. March of Dimes is now changing its approach towards the mothers and future mothers of the community and increase their knowledge base such that they can be empowered and educated enough to reduce their own risk to infant mortality.

Essential Services of Public Health
The project primarily addressed two essential services of public health: inform, educate and empower the community about health issues, as well as mobilize community partnerships to identify and solve health problems. By sponsoring both the health fair and symposium, MOD was able to provide key information that supported its cause to reduce infant mortality. These events provided the material, resources as well as the programs that it utilizes to achieve its mission. Additionally, these events incorporated other organizations that help promote the health of the community as well as embraced the March of Dimes’ mission.

Topic: Maternal and Child Health

Title: To Improve the Health of Babies by Preventing Prematurity, Infant Mortality and Birth Defects in High Risk Pregnant Women through Education and Social Support

By: Rosemary Olisa Ojogwu

Public Health Significance
Prematurity and birth defect is of public health significance. Prematurity is the leading cause of newborn death and a major determinant of illness and disability among infants, including developmental delays, chronic respiratory problems, and vision and hearing impairment. Each year, more than 460,000 babies in the United States are born too soon, some so small they can fit in the palm of a hand. Many of these babies must fight just to survive; others will struggle with lifelong health problems.

Approach
The approach to this was through the provision of social and emotional support to high risk pregnant women who are on bed rest in the hospital. We provided this support through multiple visits to these women, provision of gifts in form of personal gift items (toothbrush, toothpaste, bath wash, shampoo, e.t.c.). We also provided them with books, pamphlets and other educational materials on prematurity, birthing and new born care.
Findings
We gave them a survey to fill which assessed their knowledge of prematurity and birth defects. The survey also asked what time it was best to visit them and the amount of support they had from family. We found out that most of the women had little knowledge on prematurity. Most of the women claimed they had strong family support.

Essential Services of Public Health
The essential services of public health which my project addressed include the following:
1. To inform, educate and empower people about health issues. They provide public education through prematurity awareness, online access to Perinatal education and information (www.askus.com) and professional conferences.
2. Evaluate effectiveness, accessibility, and quality of personal and population-based health services. This is ongoing and data is being collected and entered to evaluate the Ante partum Support Program.
3. Advocacy: the organization has been highly effective in advocating for women's and children's health, for example working through its volunteers to pass legislation guaranteeing women a minimum hospital stay of 48 hours after giving birth to a baby. Mothers' and Newborns' Health Protection Act passed. They ensure via Texas Public Affairs Program that maternal and child health issues are a top priority during legislative sessions. They assist in developing policies to ensure children and pregnant women have comprehensive and affordable healthcare provided via the Children's Health Insurance Program and Children's Medicaid.

Topic: Military Medical Readiness

Title: Use of a Computerized Toll for Evaluation of Military Medical Readiness

Mark McPherson MD FAAFP

Public Health Significance
The current operational tempo of the military has led some to suggest that we are deploying a disproportionate number of Soldiers who are not medically ready. This directly impacts the number of Soldiers available to meet our country’s need for Soldiers in combat.

Approach
The USAMEDD C OM created a new computerized system for processing Soldiers preparing to deploy. This project used descriptive epidemiologic methods to describe the results from 4 months of data collected as Soldiers were processed using the new system.
Findings
Overall 90% of Soldiers processed using the SRP checklist were medically ready at
time of screening. There was some variance between females and males and Active
and Reserve Components. There was very little difference by age.

Essential Services of Public Health
This project provided needed epidemiologic data to decision makers regarding an
important population. It leads to the next question of why there is variance between
some of the groups and what are the reasons for this difference. A new program is
current under development to address this question.

Topic: Methicillin Resistant Staphylococcus Aureus (MRSA)

Title: Study of Community Associated - Methicillin Resistant
Staphylococcus Aureus (CA-MRSA) seen in Texas Med Clinics, San
Antonio, TX

By L. Renee Boyd

Public Health Significance
Community Associated- Methicillin Resistant Staphylococcus aureus (CA-MRSA) has
emerged as a major cause of skin and soft-tissue infections (SSTIs) such as boils and
abscesses throughout the United States within the last ten to fifteen years. In the fall of
2007, the Centers for Disease Control (CDC) provoked a wave of public anxiety
reporting that deaths due to MRSA were greater than those caused by AIDS with an
estimated 18,650 Americans dying in 2005 during hospitalizations from invasive
MRSA. (1)  MRSA are bacteria that have been reported in the media as the “new”
strains of antibiotic resistant Staphylococcus aureus and have called the “superbug”,
“flesh eating bacteria”, and “deadly strains”. Reports of MRSA infections occurring in
community settings (i.e. day care centers, schools, sports teams – St. Louis Rams)
along with reports of deaths in healthy children and adults have heightened public
awareness of MRSA. (1,2)  Due to these concerns and requirements for increased
awareness of epidemiology, clinical presentation, and treatment regimes, state
legislatures in California, Minnesota, Pennsylvania, Tennessee, Texas, Maryland,
Illinois, Utah, West Virginia, and New Jersey have all proposed measures to target
MRSA control, including the mandated use of surveillance cultures to screen
hospitalized patients for MRSA and public reporting of MRSA infections. (1,2)  Given
these concerns, a MRSA pilot study conducted by the Texas Department of State
Health Services, clinical and hospital laboratories within Bexar, Potter, and Randall
complied with reporting all positive (MRSA) cultures for specimens collected during
March 1, 2009 through March 31, 2009. 775 positive cultures were collected and used
to determine if it was feasible to make reporting MRSA mandatory. (1)
Approach
Dr. Bryan Alsip, Assistant Director of Health, San Antonio Metropolitan Health District introduced me to Dr. David Gude, Chief Operating Officer, Texas Med Clinics, because he knew of my interest in MRSA and Dr. Gude agreed to work with me on how to collect data for detecting the prevalence of MRSA in San Antonio. As an urgent care center, Texas Med Clinics sees thousands of abscesses a year and the goal of this practicum was to assist TMC and the Health Department with determining the prevalence of MRSA in San Antonio in order to educate providers and patients on this health dilemma.

According to Tex Med Clinic general surgeon, Dr. Matilda Perkins, TMC conducted a data base search of patients with abscesses over the past several years. In 2006, 2,467 patients with abscesses were seen. In 2007, 3,633 patients with abscesses were seen and in 2008, 4,102 patients with abscesses were seen. From January to September 2009, 2,463 patients with abscesses were seen. Most of the patients that are seen with abscesses have cultures sent to either Quest (80% of cultures) or LabCorp (20% of cultures) depending on the patient’s insurance. If the patient is self pay, then a culture is usually not sent to save the patient $50.

Since 2006, Texas Med Clinics have incorporated electronic charts in patient care. Unfortunately, it is not simple to collect MRSA information from the thousands of patient’s charts with a diagnosis of abscess. When Quest faxes the culture results to Texas Med Clinics, it is sent in a PDF format and TMC incorporates this file into the electronic chart. At the time the abscess is treated with incision and drainage, the culture results are not available for several days so no diagnosis of MRSA is made. After the culture results are faxed and it is incorporated into the electronic chart, it is reviewed by a physician, but no diagnosis of MRSA is made and therefore cannot be searched in a database. Numerous meetings with TMC’s Director of Information Services revealed that unless each chart was reviewed individually, this information could not be obtained via a database. Requesting Quest culture information was the only means of obtaining this information. The challenge here was searching on thousands of TMC culture samples (from 9 clinics) from the Quest database from April 2006 to August 2009 and would take weeks if not months to obtain this information since this would not be a top priority for Quest.

Findings
This study is currently pending IRB approval and primary data collection has not been completed. Based on the proposal, this study will be a retrospective review of electronic charts from TMC from April 2006 to August 2009 will be conducted to search for the diagnosis of wound, abscess, incision & drainage who have wound cultures from Texas Med Clinics. Quest data will be requested for diagnosis of positive MRSA cultures from April 2009 to August 2009. A database review of charts identified by a ticket number from Quest which have positive wound cultures will be reviewed for antibiotic sensitivities and then linked to the ticket number on the electronic chart and standard prevalence calculations will be determined. Charts will also be reviewed for antibiotics prescribed, number of follow up appointments in a 14 day time period,
and what type of physician (family medicine versus emergency medicine) saw the patient.

**Essential Services of Public Health**
This project primarily addressed informing, educating, and empowering people (providers and patients) about spread of MRSA and how it can be prevented.

**References**
5. [http://www.dshs.state.tx.us/idcu/investigation/conditions/Summary.pdf](http://www.dshs.state.tx.us/idcu/investigation/conditions/Summary.pdf)
6. Summary Report – Relating to a Pilot Program to Require Reporting of Methicillin-resistant Staphylococcus aureus. Prepared by the Texas Department of State Health Services as required by House Bill 1082, 80th Regular Texas Legislative Session

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**Topic: Neonatal Outcomes Research**

**Title: How effective is the CDC’s “limited evaluation” of asymptomatic neonates that receive less than four hours of intrapartum antibiotic therapy for group B streptococci prophylaxis?**

**By Binara Assylbekova**

**Public Health Significance**
In 1970 Group B streptococcus (GBS) was described as a major cause of neonatal sepsis, pneumonia, and meningitis. Prior to prevention guidelines established by CDC in 1997 the incidence of neonatal GBS infection ranged from 2 to 3 cases per 1,000 live births.

**Approach**
The CDC guidelines recommend that pediatricians observe asymptomatic full-term infants for 24 to 48 hours if their mothers received more than 4 hours of intrapartum antimicrobial prophylaxis. If mothers at risk received less than 4 hours of intrapartum antibiotics, pediatricians should order a Complete Blood Count (CBC), blood culture, and observe neonates for 48 hours. According to studies done on GBS and the experience of the physicians at the Woman’s Hospital of Texas antibiotic prophylaxis during labor does not change the onset of infection in infants, and physicians do not necessarily follow CDC guidelines for babies of mothers with less than 4 hours of...
antimicrobial prophylaxis (CBC, blood culture). The objective of the study is to evaluate the utility of obtaining a CBC and blood culture screening on term infants with incomplete intrapartum antibiotic prophylaxis for GBS.

**Findings**
At this point we have reviewed over 4,000 charts of women and their infants delivered at The Woman's Hospital of Texas in 2006 and 2007 to evaluate the utilities of CBC and blood culture, and the effect of it on the onset of neonatal sepsis. It is a retrospective case-control study of two groups of infants: study group-infants whose mothers received 4 or more hours of intrapartum antibiotic prophylaxis, and control group- infants whose mothers received less than 4 hours of intrapartum antibiotic prophylaxis. The study population is all women delivered at The Woman’s Hospital of Texas from January 1, 2003 through December 31, 2007 at ≥ 37 weeks of gestation colonized with GBS and received less than 4 hours of intrapartum antibiotics. The preliminary analysis of the charts reviewed for 2006 and 2007 shows that the early onset of the group B streptococcal disease is not affected by the duration of antibiotic prophylaxis and not all infants whose mothers received less than 4 hours of intrapartum antibiotics undergo CBC and lumbar puncture for cultures.

**Essential Services of Public Health**
If term infants whose mothers receive less than 4 hours of antibiotic prophylaxis have no increased risk of GBS infection, less invasive procedures may be utilized with healthcare cost savings. By doing a research on new solutions to the important neonatal health problem, this study addresses many essential public health services.

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**Topic: Neonatology & Perinatology Research**

**By Riddhi Shukla**

The culminating experience this semester is going to be very helpful for my career. I got a chance to work with Dr. Nehal Parikh, Associate Professor, UT Houston Medical School, Division of Neonatology and Perinatology. He is a good guide and I definitely recommend him to students like me who have interest in research in Pediatrics.

As a part of my practicum, I was working on several projects, at different phases. This was to learn the various stages a research study goes through. One the studies I was working looked to identify clinical and radiologic correlates of developing delayed milestones and mental retardation in extremely low birth weight infants (less than or equal to 1000 grams). Initially a part of the dataset was incomplete. I looked up medical records to complete all the datasets. Once we had the desired sample size, the next step involved using software NCSS, looking up outliers and missing data. This helped us have a second look at the dataset and this made sure the dataset which had missing variables was truly so due to missing or not recorded data. There were multiple datasets (clinical variables, radiological variables), so I learnt how to merge datasets.
using statistical software STATA. Once again the dataset was checked for missing
variables and outliers. In the final stage statistical analysis was performed, using
STATA. This study was submitted to an Academic Society for their upcoming annual
meeting.

Another project that I was working on involved in involved literature review. I learnt
about the various available online resources. I also learned about how to go about
doing a specific and sensitive searches using Pubmed.

It was a great learning experience in all!

Topic: Neural Tube Defects

Title: Fumonisins, Folate And Neural Tube Defects Along The
South Texas Border

By John Cotton

Public Health Significance
In 1991, a cluster of children born with neural defects was investigated by the Texas
Department of State Health Services in South Texas. Folate deficiency was found to
be a causal factor in these cases. The same year, new recommendations for prenatal
folate supplementation were set forth. Despite this and enrichment of cereal products
with folate, the rates of neural tube defects are still higher among Hispanic women
along the South Texas Border. A possible etiology is the ingestion of fumonisin, a corn
mycotoxin that has been shown to interact with folate transport and neural tube
development in animal studies. Since Hispanics along the Border consume greater
amounts of corn relative to the general population, this may explain the persistent
disparity in neural tube defects rates. Elucidating the factors that contribute to relative
folate deficiency can aid in developing strategies at reducing these rates in the at-risk
population.

Approach
In working with the Texas Birth Defects Epidemiology and Surveillance Branch, a
review of the literature was conducted to gain a better understanding of the link
between fumonisins, folate, and neural tube development. Contact with
representatives of several regulatory agencies was also made to determine whether
fumonisin levels are being monitored in food products and which agency is
responsible. Food products containing grain were surveyed in Border grocery stores
for folate content.

Findings
Findings are to be compiled and presented as a culminating experience. The
conclusion is that fumonisin limits in grain products are established by FDA guidance
recommendations with voluntary compliance by the food industry. Folate enrichment levels for cereal products are also established by the FDA. However, some corn products imported from Mexico do not have folate. The proportionately higher consumption of corn, coupled with the lack of folate in some products, may lead to higher levels of fumonisin and result in a relative folate deficiency in the diet. This may be the underlying cause of the increase in neural tube defects along the Border.

**Essential Services of Public Health**

The primary public health service utilized was in identifying the cause of this problem by analyzing the gaps in regulations and cultural differences. Secondarily, this project also served to use the findings as a springboard for the development of better risk communication and mitigation strategies for a population at-risk.

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**Topic: Obesity**

**Title: 10 Top Tips for Healthy Kids**

**By Geoffrey Lerew**

**Public Health Significance**

The purpose of my practicum was the prevention and/or reduction of childhood obesity via the increased involvement of parents and the home environment. Childhood obesity is known to be a risk factor for various negative health statuses in childhood as well as in adulthood. The current obesity epidemic in the United States and throughout the world is a major public health concern. Obesity carries with it many chronic health issues including diabetes and heart disease that tax myriad medical and financial systems in our country that have resources which could be undoubtedly be better spent elsewhere if the levels of obesity in the US were not as high as they currently are.

**Approach**

We designed a series of 10 over-sized postcards that were sent home with 4th grade students via their homework folders that attempted to educated parents about healthy options for food and strategies to healthier lifestyles. Also included with the postcards were magnets that we hoped would serve as more permanent reminders of ways that the families could construct an atmosphere more conducive to healthy behaviors. In addition to delivering the postcards to the schools, my major task during my practicum was to enter the data from the acknowledgment cards into the new software if NVivo, a qualitative data analysis program that, while very complicated, is very flexible and useful when dealing with such large amounts of qualitative data. After figuring out how to transform the Microsoft Word data into a format that could be efficiently imported into the NVivo program, I went through each feedback response from the parents and “coded” the information into various categories which we can then look through to discern any number of themes or patterns that can better help us to improve the
subject matter of the program and the methods that we use to implement it. I was also able to experience how to design, plan, schedule, and obtain IRB approval for focus groups of teachers, students, and parents, including the drafting of interview documents and informed consent.

Findings
We found that more than 98% of responding parents reacted positively toward the postcards, and many reported that they did initiate positive health behaviors in response to them. While the 10 Top Tips for Healthy Kids seems to be somewhat effective, we are still trying to find out ways in which we could better motivate the students and parents to be more involved in the program. Much of the project is ready to go, but we would like to develop brief lessons that could be included with each card to better emphasize the “tip” that goes with each card.

Essential Services of Public Health
This program endeavored to “inform, educate, and empower people about health issues.” Not only did we provide information about nutrition and physical activity, we attempted to do so in a way that would be appealing to both children and parents. We provided important information that parents could use to better care for their children as well as themselves.

Topic: Obesity

Title: CHAMPS (Choosing Healthy Activities and Meals and Positive Self-Esteem) – Pediatric Obesity SMA (shared medical appointments)

By Honey Muigai

Public Health Significance
According to the CDC (2007), data from the NHANES surveys (1976 -1980) and (2003 and 2006) indicate that the prevalence of overweight and obesity among children has increased. Based on the 2000 CDC gender-specific growth chart, obesity is percentiles of equal to or greater than the 95th percentile BMI-for-age for children 2 years or older. Whereas, overweight is percentiles of the 85th to the 95th percentile BMI-for-age for children 2 years of age or older. Per the CDC (2007), prevalence of obesity for children ages 2-5 years increased from 5.0% to 12.4%. For ages 6-11 years, prevalence of obesity increased from 6.5% to 17%, while in ages 12-19 years, it increased from 5% to 17.6%. This trend is well recognized in several developed countries and the adverse effects that arise due to its occurrence lead to childhood obesity being described as an epidemic.

Obese children as compared to other children are more likely to have problems such as diabetes type 2, high cholesterol and hypertension, which are also risk factors for
cardiovascular disease and stroke (Wille & Erhart, 2008). Per the CDC (2007), 25% of obese adults were overweight as children, and those who were overweight before the age of 8 years, were more likely as adults to be severely obese. In the last decade or so, there have been several studies done about the causes of childhood obesity. However, the most important thing is prevention, as if left untreated, the prevalence of childhood obesity will be a tax to the country’s health and economic systems.

**Approach**

I worked with a team of physicians, nurse practitioners, nutritionists and public health educators, where I shadowed each of the different occupations and participated in group meeting where we made adjustments to the CHAMPS program. Overweight or obese patients and their parents were then recruited and informed consent obtained, they attended a group session where they saw a medical provider, had their weight and vital signs taken, as well got educated by a nutritionist and public health educator. The first session addressed behavior modification and the 54321 logo which emphasized the need to have at least 5 servings of fruits and vegetables a day, 4 servings of water, 3 servings of low fat dairy, 2 hours or less of screen time and 1 hour or more of physical activity a day. The second session addressed self esteem, the third session addressed conflict resolution and behavior management while the fourth session addressed stress management. The 54321 logo, reading of food labels, choosing of healthy food, types of physical activity and community resources were reviewed in each session. I got to teach some sessions and posters, games, handouts, questionnaires as well as hands on teaching methods were used for both parents and children.

**Findings**

Rotating with the staff members helped me understand the different public health roles, but I also noted that data collection and follow up were not being done effectively or consistently, and thus it was difficult to assess the effectiveness of the program.

**Essential Services of Public Health**

My practicum emphasized the need for behavior modification via self regulation as a means to help patients lose weight and make healthier choices. We knew that other elements such as healthcare disparities and socioeconomic status played a role in childhood obesity rates; but we wanted patients and their parents to understand that they could still choose a healthier lifestyle, and the education was an empowerment tool.
Topic: Obesity

Title: Identifying an Efficient and Cost-Effective Obesity Assessment Tool for Use in Texas-Mexico Border Communities

By Nguyen V.T. Tran

Public Health Significance
Obesity prevalence has increased dramatically during the last thirty years; in Texas, about two-thirds of the population is either overweight or obese. Obesity is associated with a higher risk for morbidity and mortality. Obesity is also associated with higher need for medical care and increase the burden on the health care system. Much research has been conducted, programs evaluated and surveillance systems created in order to monitor trends in obesity prevalence.

One priority area for obesity prevention for the Texas Department of State Health Services (DSHS), Region 8, is along the Texas-Mexico border. These communities are a concern because of greater obesity prevalence among Hispanics compared to Non-Hispanic Whites and the vulnerability of these communities.

Out of necessity, most surveillance systems are based on larger communities; therefore little is known about obesity prevalence in smaller communities along the Texas-Mexico border. Surveillance systems use the Body Mass Index (BMI) to classifying weight categories, because it is non-invasive, cost-effective and low-tech. The use of BMI has limitations, though. Accuracy depends on the person’s skill in measuring height and weight and some surveillance systems rely on self-reported data, which tend to deviate from the real value. In addition, BMI does not take into account the body fat composition or muscle mass and has different implications in risk assessment among different ethnicities.

My goal is to find evidence to support an easier, faster and more cost-effective alternative to the BMI to assess obesity prevalence in smaller communities.

Approach
DSHS has an obesity prevention program named the “Nutrition, Physical Activity and Obesity Prevention Program” (NPAOP). During my practicum I have reviewed the strategies and projects developed by the NPAOP Program, and attempted obtain any information known about obesity prevalence at the smallest community level. A literature review was also performed to identify alternatives for obesity classification, while considering its appropriateness for the specific border communities.

Findings
The communities along the border have specific characteristics that must be considered during the assessment process: culture, language and health literacy of the population.
The data collected through the 2007 Behavioral Risk Factor Surveillance System targeted only 15 counties, divided into five regions. No further micro data was found for smaller communities.

During the literature review, I have identified a pictorial method used to classify obesity instead of BMI. This method was used in a Mexican National Health Survey. The final results and recommendations will be presented to Texas DSHS Region 8.

**Essential Services of Public Health**

Prior to program implementation, the target population should be assessed, and lack of information might lead to the use of less effective strategies for obesity prevention. Identifying a quicker and cheaper assessment tool might create new insights and innovative solutions for obesity prevention programs. This novel method could also facilitate in monitoring, identifying, investigating and diagnosing obesity related health problems in the community.

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**Topic: Organ Donation**

**Title: Promoting Texas Organ Donor Registration and Family Communication**

**By Wendy J. Manuel**

**Public Health Significance**

Organ donation is a significant public health behavior that prolongs life through community effort. As of December 2, 2009, there are 105,181 individuals on the U.S. waiting list for organ transplant. (1) The demand for organs greatly outpaces the supply. Only 20% of the 400,000 U.S. patients with end-stage renal disease are listed for transplantation and only 4% actually receive transplants annually. In 2006, $22.7B or 6.4% of Medicare budget was spent on .6% of the Medicare beneficiaries for ESRD treatment and dialysis. In contrast, $1.8B was spent on kidney transplant patients. (2)

**Approach**

Texas Organ Sharing Alliance (TOSA) is one of three Organ Procurement Organizations in Texas. TOSA conducts public education campaigns to increase knowledge about organ donation and promote donor behavior. My project supported this health education effort by completing a literature review on the attitudes of the African American and Hispanic communities towards organ donation. I also participated in organ donation awareness events.

**Findings**

Key issues in the African American and Hispanic communities contributing to lower organ donation rates include medical mistrust, religion, family communication, and how to talk about taboo subjects (3, 4). I developed a strategy for TOSA to apply for a
HRSA grant on public education. I recruited a grant advisory team of health behavior and organ donation experts and serve as the grant writer.

**Essential Services of Public Health**

Essential services addressed are to inform, educate, and empower people about health issues and to mobilize community partnerships to identify and solve health problems.

**References**


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**Topic: Patient Assistance Program**

**Title: An Evaluation of Patient Assistance Program Sponsored by the Pharmaceutical Sector**

By Chin-Fun Chu, M.S.

**Public Health Significance**

As the cost of prescription drugs continues to rise, affordability of medications has a very influential significance to the maintenance of population health and this issue is especially important for the underprivileged patients who have limited financial means to pay for the medications they need. Federal health program such as Medicare has restricted prescription drug plans that will not support the drug coverage fully. Other types of private health insurances with the tiered co-payment system can directly or indirectly affect patients’ access to the needed medication as well. In addition, in the cases of people who suffer from chronic illnesses, they are required to have a continuous supply of their medications to prevent any worsen conditions caused by their ill health.

Therefore, patient assistance program that can provide the uninsured or low-income families with the prescription medications they need with no cost or at a minimal charge is a practical approach to help the struggling patients to obtain their medicines. With the participation and collaboration of pharmaceutical companies and other pharmacy businesses in this program, patients can be qualified to receive their medications to avoid any unnecessary hospitalization and possible expensive surgeries.
**Approach**
My practicum allowed me to work with research specialist in the Division of Pharmacy at the University of Texas MD Anderson Cancer Center.

Drugs from Top 200 Drugs by dispensed prescriptions (Pharmacy Times 2008) were selected to evaluate the availability and the requirements established by the pharmaceutical companies that would let the patients to apply for the patient assistance program. A search of electronic database RxAssist was performed to collect the data of the availability of drugs (brand name/generic), and eligibility criteria (citizenship, permanent residency, private insurance and income limits) for each drug. The association between the types of pharmaceutical products and each eligibility requirement was explored by using statistical analysis.

**Findings**
Our study found that there was a significant correlation between some of the patients’ eligibility requirements for the patient assistance program and the availability of the prescription medications. The results also suggest that different insurance coverage levels can have some effects on the accessibility to the medication provided through this program.

**Essential Services of Public Health**
This study of patient assistance program targets several essential services of public health:
- The program helps link the qualified vulnerable population to the service that caters their essential medication needs when otherwise unavailable.
- The study provides evaluation of the availability and accessibility of prescription drugs by patient assistance program.
- This project may also present other perspectives for future research studies that deal with advanced solution to the health problems.

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**Topic: Pediatric Injury Prevention**

**Title: Evidenced-Based Child Injury Prevention through Health Education**

**By Whitney Davidson**

**Public Health Significance**
According to the National Safe Kids campaign, unintentional injury is the leading cause of death among children ages 14 and under. Although injury prevention efforts have contributed to a declining death rate, children remain at risk for unintentional injury-related disability and death. Unfortunately, one in every four children experience injuries that require medical attention each year.
Fortunately, unintentional injuries are preventable. The flourishing branch of injury prevention epidemiology continuously contributes evidenced-based science to direct these preventive efforts. Through proper education, environmental improvements, community involvement, and advocacy and enforcement of safety legislation, many injuries can be prevented.

**Approach**

To begin my project, I attended Trauma Services department meetings, met with the principal investigators of injury prevention research, and worked closely with health educators for community endeavors. Gaining knowledge of the most threatening childhood injuries and proven prevention strategies allowed for better efficacy when executing community outreach projects.

Researching and meeting with the scientists combined with working with the health educators aided in successfully relating information from the hospital/lab environment to the community. Many Children’s Medical Center physicians have recognized the difficulty of communicating proper injury prevention methods with parents or caregivers. In effort to universalize evidenced-based prevention techniques, my project was to create prevention tip documents for many injury topics. This objective included research on the most current prevention procedures as well as meeting with physicians and parents for creating an accessible and affective document format.

**Findings**

Based on preventive medicine research publications, an injury prevention tip sheet was created for the topics of open water, pools, car passenger safety (ages 0-13), furniture tips-overs, all-terrain vehicles, bike safety, pedestrian safety and poison prevention. The most well received format was written on a third to fifth grade reading level, with pictures and captions in addition to the descriptive text. The prevention tip sheets are available in common areas throughout the hospital, for doctors to give patients and parents on a case-by-case basis, and for the health educators to disperse at various community events.

**Essential Services of Public Health**

My project on pediatric injury prevention addressed the Epidemiologic as well as Health Promotion and Behavioral Science services of public health.

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Topic – Physical Activity

Title – Action Plan for Physical Activity for Texas

By Priyank Shah

Public Health Significance
Physical inactivity is a major risk factor for a large number of chronic diseases. Physical activity is recognized as one of the ten leading indicators of health by Healthy People 2010. Despite several efforts to promote physical activity in the recent years, the levels of physical activity in the United States have been fairly constant for the last few years. We need some policy changes along with the promotion efforts to increase the physical activity levels in the population. The first step to a policy development is to have a planning document. Several states in the country have their own state plan for physical activity. We also have a National Plan for physical activity. However, there is no specific plan pertaining to physical activity in Texas.

Approach
One of the major assignment that I was assigned to do for this project was to come up with a summary on the benefit to cost analysis of physical activity promoting interventions in various settings. I did a literature review on this topic and summarized the findings. Other than this, I was one of the note takers at the focus group meeting at the Active Texas Summit which was held in Jan. 2009. I regularly attended the biweekly meetings with Dr. Kohl, Donna Nichols, and Hallie Duke on the progress of the plan.

Findings
My final product was a summary report on the return on investment on the physical activity promoting programs, which is a now a subchapter in section 7 of the plan. The draft of the plan is ready and is going through the editing process. The final planning document will be out sometime in Jan. 2010. The bottom line is that there is a positive return on investment for physical activity promoting interventions in a variety of settings.

Essential Services of Public Health
My work highlights the financial implications of physical inactivity and provides the perspective of benefits of physical activity promoting programs in monetary terms. This is absolutely critical for employees who wish to embark on such projects but are hesitant due to the initial cost in implementation.

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Topic: Preventative Healthcare Services

Title: Development of a Peer Health Advisor Program at Northwest Vista College

By Amanda K. Miller

Public Health Significance
Students in a community college environment, predominately those ages 18 to 24 years, have specific preventative health care needs. Many individuals in this age group are uninsured or underinsured and as such, need to be aware of how to prevent chronic illness and acute injury. Overweight and obesity are becoming increasingly prevalent across all age groups as are complications of these conditions such as diabetes. Sexually transmitted infections and substance abuse are also common health concerns in this age group. Evidence has found that the use of peer educators is an effective way to disseminate health information to college-age students.

Approach
Prior to the beginning of the fall 2009 semester the BACCHUS Peer Educator certification program was ordered and training programs on basic nutrition, weight management and eating disorders were developed. Male and female students were recruited during the bi-annual “Club Rush” event held on campus. Students recruited during Club Rush were invited to participate in two four-hour training sessions to cover the certification program and selected health topics. Based on low participation in the training programs, enrollment was extended through the end of the semester. Students interested in the Peer Health Advisor Program were then trained during one-on-one sessions. During training, students aided Health & Wellness Center staff in health promotion activities such as diabetes awareness, Great American Smoke Out and Halloween Safety.

Findings
We were unable to implement a successful Peer Health Advisor Program as originally conceptualized due to low participation of students on campus. New recruitment strategies are currently being developed for future semesters including: recruiting students from established health care-related student organizations and partnering with the Northwest Vista Ambassador program. It has been suggested that a student health needs assessment be conducted to determine the health topics students are interested in and the level of commitment students are willing to provide to a program. In addition, future Peer Health Advisors may be utilized to promote health and wellness events on campus that are presented by Northwest Vista College staff or guest speakers as opposed to presenting the programs themselves.

Essential Services of Public Health
The Peer Health Advisor Program at Northwest Vista College addressed three (3) Essential Services of Public Health. Of the Essential Services of Public Health the
Peer Health Advisor Program at Northwest Vista College primarily addresses “Inform, Educate and Empower People.” Students involved in the Peer Health Advisor Program were responsible for disseminating information on diabetes prevention, smoking cessation, food safety, Halloween safety, and nutrition and weight management to those on campus. In addition, as originally planned, one-on-one health counseling sessions would empower students to make positive health behavior changes in their lives. Additionally, Peer Health Advisors were instructed to refer students to needed personal health services whether it is in-depth nutrition counseling or sexual health services offered only off-campus. Finally, by collaborating with local agencies and organizations, the Peer Health Advisor Program was able to mobilize community partnerships to provide the necessary information and ensure the best care available to students.

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Topic: Probiotics

Title: Data Analysis of the Impact of Consumption of Probiotic Strains on Immune Response to Influenza Vaccination Using SAS

By Hongyun Dong

Public Health Significance
Probiotics are live microorganisms thought to beneficially affect the host by improving its intestinal microbial balance, thus inhibiting pathogens and toxin producing bacteria. The beneficial effects include alleviation of chronic intestinal inflammatory diseases, prevention and treatment of antibiotic-associated diarrhea, travellers' diarrhea, pediatric diarrhea, allergies (Goldin & Gorbach, 2008). Probiotics as dietary supplements may contribute in maintaining a healthy immune system and/or reinforcing a weakened immune system. The study I worked on during my practicum mainly focused on investigating the effect of selected probiotics on the occurrence and progression of influenza and related disease. Previous studies have shown that consumption of certain probiotic can reduce the length and number of acute respiratory infection episodes, upper respiratory tract infections and influenza-like illness episodes (Pregliasco et al, 2008) and improve immune response to influenza vaccination in elderly subjects (Boge T et al, 2009).

Approach
a) Generate a SAS program to summarize the immune response parameters in placebo group and study group.
b) Generate a SAS program to analyze if the immune responses increase after 6 weeks of supplementation of selected probiotic strains.
c) Generate a SAS program to analyze if the changes on immune responses are different between placebo group and study group.
d) Perform multiple comparisons by SAS to analyze the interested parameters among sub-study groups.
e) Calculate and summarize mean fold increase, seroconversion rate in different groups and perform comparisons between the groups.

**Findings**
After analyzing data it was concluded some influenza-specific antibody titres are significantly increased after vaccination, being consistently higher in the probiotic product group compared to the control group under probiotic consumption.

My final product is statistical charts and tables as well as interpretation of the findings of my analyses.

**Essential Services of Public Health**
This project addressed Research New Insights/ Innovative solutions to health problems.

**Reference**


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**Topic: Prostate Cancer**

**Title: Promoting informed patient decision making about prostate cancer screening**

**By James Mason**

**Public Health Significance**
Prostate cancer is the 2nd most common cancer among U.S. men, and the 5th most common cause of death; however, the most common method of detection, the PSA test, has certain limitations. The benefits of PSA screening are controversial. Also, there is the danger of over-diagnosis. The treatments for prostate cancer can be quite severe, leading to impotence, and incontinence. Informed Decision making is a process by which physicians share information with patients about the potential benefits and risks of a certain medical procedure or screening, find out what role the patient wants to play in the decision making process, and allow the patient to make their own decision.
Approach
A continuing medical education course was designed for physicians. In addition, an information booklet was designed for patients to educate them on the benefits and risks of prostate cancer screening. A number of Houston health clinics were selected for participation. The clinics were matched based on certain characteristics, one became the intervention clinic, and the second became the control. Patients were interviewed before and after they saw the physician for a routine visit. At intervention clinics, physicians were given the CME, and their patients were given the information booklet before visits.

Findings
Follow-ups and data management are still ongoing.

Essential Services of Public Health
This informed decision making and prostate cancer screening study helps to inform, educate, and empower the public about the issues, benefits and risks, of prostate cancer screening. Also, it encourages physicians to do the same, to bring patients into the decision making process when the science is not clear about the benefits of a medical screening test, or procedure. The study also helps to assure a competent public.

Topic: Stem Cell Transplant Survivors

Title: Healthcare and Information Needs in Survivors of Bone Marrow Transplantation / Stem Cell Transplantation following Hematological Malignancies

By Your Name: Kiran Naqvi, MD

Public Health Significance
To conduct qualitative assessment of the overall needs, knowledge, expectations, and concerns of survivor-recipients of bone marrow transplantation (BMT) or stem cell transplantation (SCT) following diagnosis of hematological cancer, in order to determine their current healthcare utilization patterns, healthcare needs, and knowledge and information needs concerning their disease and its late effects.

Approach
Our study included adult survivors, ages 18 years and up who underwent a BMT / SCT between 2000 and 2002 at UT M.D. Anderson Cancer Center (MDACC). Patients were included irrespective of the type of transplantation received: allogeneic, autologous or syngeneic. We conducted 3 focus groups of 3-4 participants each and 12 telephone interviews. Discussions included 7 major themes: (1) general health, (2) lifestyle, (3) late effects of cancer therapy, (4) current healthcare utilization patterns, (5) perceived healthcare needs, (6) current health screening practices and prevention measures, and (7) perceived information needs.
Findings
A total of 22 patients participated in the study out of which 11 were male and 21 were white. Preliminary results obtained from the discussions were as follows: (1) Several survivors are satisfied with their current health; however, about a third (n=6) reported poorer health than before diagnosis and treatment. Most participants still fear disease recurrence or late graft rejection. (2) Unemployment due to disability from the disease and its treatment and frequent time off from work immensely affects the careers and finances of survivors. Survivors faced marked changes in family and social life, ranging from closer bonds to relationship problems. (3) Neuropathy and graft versus host disease (GVHD) involving the eyes, skin and gastrointestinal tract cause most morbidity. (4) Although mostly followed by their family doctors (non-oncologists), most survivors prefer care from their BMT specialists at MDACC. (5) The internet is a major source of information regarding BMT/SCT and GVHD. However, survivors feel there is a lack of direct input from their BMT specialist. To meet their needs, they recommend increasing funding, implementing survivor-specific programs, and decreasing appointment waitlists, to name a few. (6) Poor adherence with cancer screening is noted mainly due to out of pocket expenses.

Essential Services of Public Health/Conclusion:
Many survivor-recipientsof BMT/SCT are content with their health, but health problems persist for some. Health burden impacts finances and quality of life. Many participants express a lack of direct information regarding long term complications of BMT/SCT as well as GVHD from their specialists. Healthcare providers should develop comprehensive cancer survivor programs to address their physical, emotional and social effects and promote a more clear understanding of post-cancer healthcare procedures and outcomes.

Topic: Veterinary Public Health

Title: Tricks for Pits

By: Sarah O’Day

Public Health Significance
Tricks for Pits is an interesting program in that it is aimed mainly towards animals. However, it also greatly benefits people. It was created in response to the increasing number of pit bulls being brought into the Harris County Veterinary Public Health shelter. Many of these animals were brought in due to bite cases. A task force was created to address why there were so many pit bulls being brought in and ways to halt this. Out of this task force came the idea of creating a program, specific for pit bulls, that would teach proper dog obedience and responsible pet ownership. The hope is that this program, Tricks for Pits, will teach at-risk youth owners responsible pet ownership and will then reduce bite cases related to pit bulls. The scope of this problem reaches many people, especially those who live in low-income neighborhoods, where stray dogs, many of which pit bulls, run loose and can attack people. As such
people are afraid to walk around in their own neighborhoods and therefore do not exercise much, creating a whole new problem of obesity. If this issue of stray dogs can be controlled, obesity can be effectively addressed.

**Approach**
In order to fully understand this project, I read reports concerning the pit bull problem seen in the shelter. In addition, I read monthly reports from the staff who were in charge of this program and was able to appreciate the amount of work it takes to have a successful program for the public. Lastly, I attended many of the classes and met the participants and their dogs.

**Findings**
My task was to create a timeline that showed the major activities that led up to this program. I then created graphs which showed the numbers of bite cases per month per year leading up to the program and during it. I then matched up the activity to the bite case numbers to determine if the activities leading up to the program and during it truly had an impact on the number of bite cases being called into the shelter. After creating and reviewing these documents, we found that in the months leading up to the program and during it, bite case numbers fell.

**Essential Services of Public Health**
While I believe this program fulfills many of the essential services of public health, one that truly describes it is informing, educating, and empowering people. We specifically targeted at risk youth who live in an area of Aldine which has a low socioeconomic status. Many of these teenagers had no idea how to be a responsible pet owner because they had never been educated on it. After completing this program, many of these kids told us how much fun they had and how much better they thought of their dogs. We hope they become role models in their neighborhoods to improve the human to animal relationship, which will lead to less strays on the streets and fewer bite case numbers.

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**Topic: Water Supply and Purification**

**Title:** Indonesia’s Water Crisis and a Practice in Implementing Water Supply and Water Purification Techniques to Provide Indonesians with Access to Safe Drinking Water

**By Gary W. Fuqua**

**Public Health Significance**
Water is essential to life, and pure water is an essential factor for a healthy life. By some estimates, more than 70% of Indonesians obtain their water from a source that may be potentially contaminated. In actuality, probably no public water in Indonesia is actually free of contamination and safe to drink. This lack of access to pure water for
Indonesians and the resulting illnesses and possible morbidity severely affects the overall public health in Indonesia.

**Approach**
The practicum began with my community preceptor providing a directed study of common water contamination and filtration techniques. We worked together to provide a training session for local workers on the topics of water contamination and associated health risks. We then proceeded to fieldwork for the remainder of the practicum. First, we set up and established a simple water-testing lab used to provide a reasonable estimate of the water quality. Our main areas of focus included both the water source and the water stored in the tanks. We used a membrane filter kit for the test. Second, we built concrete water-storage tanks within a close proximity to a community. The tanks served to store water within easy access. Third, we went to the ceramic filter production factory and learned about technical methods used to produce the ceramic filters coated with colloidal silver.

**Findings**
First, education is perhaps the single most important aspect required to improve the public health of Indonesia, or anywhere. People do as they know how, and as they’ve always done, unless they learn otherwise. Poor practices compromise the quality of the water, no matter how good it was to begin with. Second, approaches taken to influence the public health of Indonesia need to be culturally relevant. People of all cultures are typically so indoctrinated in their own ways of doing things, how they’ve always done it, that they can’t easily change. New methods should incorporate existing practices or be so simple and easy that a person can’t help but change to the new way. Third, sustainability of an organization is important to the continual success of a group and their work. Fourth, credibility is essential. The community welcomed workers who had credibility, and allowed them to continue working within the community. In addition, credible workers could address other health issues among the community – and the people would listen.

**Essential Services of Public Health**
My practicum primarily informed and educated national people about water-related issues (contamination, filtration, disinfection, supply, storage, and prevention). We also provided a reliable water supply and methods to purify the water.