

Public Health Practice



Stories from the Field

The University of Texas School of Public Health
Student Practicum Experiences

Spring 2012 - Environmental & Occupational Health

Prevention diabetes safe kids clean water policy disaster
response cancer adolescent sexual health HIV/AIDS research
obesity alcohol empowerment vaccinations maternal & child
health

The practicum experience is an integral part of the MPH curriculum. Public health students are provided with the opportunity to apply their classroom knowledge to real world settings through which they make a meaningful contribution to a public health organization.

Under the guidance of a community preceptor and faculty sponsor, students from all divisions gain a deeper understanding of public health practice, interact with professionals in the field, and expand their repertoire of professional skills.

This seventh-edition e-magazine showcases student practicum experiences throughout the Spring 2012 semester. (Prior semesters may be accessed through the e-book, a collection of student abstracts and e-magazines describing their experiences.)



Practicum Topics

Serving Size: 1 Practicum per Student

Servings per e-Magazine: 5

Hours per Week per Student	Approximately 12
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Campuses (Houston)	1
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Division	1
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Student

Environmental & Occupational Health

Pancreatic Cancer Biomarkers	Harsha Vardhan Adoni
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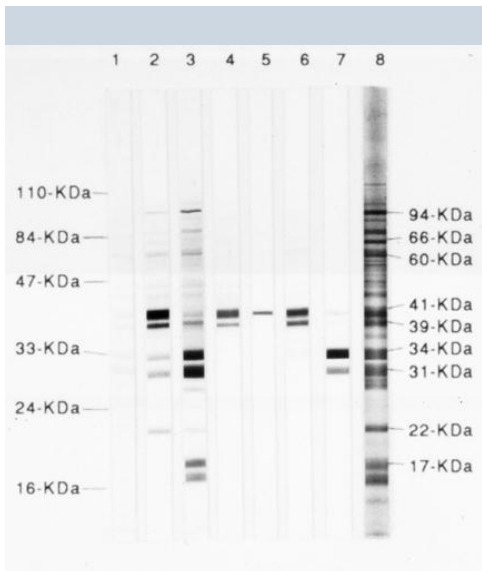
Infection Control	Mehul Bhalja
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Radiation Effects in Dentistry	Rashmi Mishra
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Air Quality	Paayal Patel
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Drinking Water	Daniel Yuan
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Pancreatic Cancer - Biomarkers



Western Blot

Source:

www.bio.davidson.edu/courses/molbio/molstudents/spring2003/woodc/western.html

To study and develop salivary diagnostic markers for early detection of pancreatic cancer.

By: Harsha vardhan Adoni

At the department of surgical oncology, they were working on finding early diagnostic biomarkers for pancreatic cancer. Most of the researchers were trying to find biomarkers in serum and blood. As a graduate research assistant, my job was to try and find possible salivary biomarkers for pancreatic cancer. As part of my job, I was required to lookup numerous articles and studies done on salivary biomarkers for cancer and identify potential markers for pancreatic cancer and compare the results with salivary proteomic analysis of pancreatic cancer patients. I also did tissue culture work, bacterial transformation, western blot and other experiments relevant to the research in terms of identifying the effect of knocking down certain oncogenes in pancreatic cancer induction and progression. As of today, I have found that it is extremely difficult to find salivary

markers as there are several cancers which may express many substances in the saliva and blood contamination also hampers results in certain cases. Despite these difficulties, I have managed to identify two substances which could act as potential biomarkers. Research needs to be conducted on them to determine their potency as biomarkers.

Practicum duties

- Review articles and studies related to salivary biomarkers for cancer.
- perform tissue culture, bacterial transformation, western blotting experiments.

Public Health Significance

Pancreatic cancer has the fourth highest cause of cancer mortality in the United States. It is not only a public health problem but also a global issue. At the MD Anderson cancer center, valuable research is being done towards diagnosing the cancer early and finding a cure to pancreatic cancer. Research is an important service of public health which constantly pushes the boundaries of what is known, in order to improve the health of the people. By conducting research to help diagnose pancreatic cancer at an early stage, it is possible to improve the lifespan and the quality of life for the patients and even treat the cancer. This practicum project thus has a direct impact on public health. MD Anderson Cancer Center is a research hub where all forms of research is conducted on various cancers and treatments with one common goal, "making cancer history", thereby having a significant contribution towards public health.



Tissue culture hood

Source:

www.tc.umn.edu/~seong001/facility.html

"There is nothing called good or bad result. There is just one result in research."

Go Home Safe!



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"Go Home Safe Today"

Special

events/duties

- Shadowed infection control and occupational health practitioners
- Participated in Joint Commission Hospital survey
- Designed and conducted 'Awareness Survey'

Infection control and occupational health and safety

By: Mehul Bhalja

I shadowed infection control and occupational health practitioners to learn how they maintain safe and healthy workplace environment at the Memorial Hermann Hospital (MHH). A month later, I initiated one project to assess the level of awareness regarding hospital acquired infections and preventive measures. I did a paper survey at MHH hospital to see how much healthcare workers, including physicians, nurses, residents and medical/nursing students know about infection prevention. I and Dr. Ostrosky will later design an intervention based on survey results. While working here, I got the opportunity to work with all level people, from manager to staff, as I participated in the Joint Commission Hospital Inspection survey.

Public Health Significance

This practicum centered on core public health functions- Assessment, Policy development, Assurance and Research.

This experience helped me understand how work related injuries, especially infections are reported and the sequential steps that follows upon incident notification. It also provided me with a searing insight into the importance of diverse work culture, essence of team work and how to make effective policy, most importantly how to collaborate and convince other professionals (doctors, nurses) to walk along with you as you practice public health.

I involved myself directly in the evaluation of a mandatory flu shots policy that they introduced last year. I worked on the database to see how effective is this policy in terms of reducing flu incidence and work days lost. Apart from that, I also conducted 'Awareness survey' to assess the level of awareness among healthcare workers on infection prevention.

Say No to Infections



Photo courtesy: worldtruth



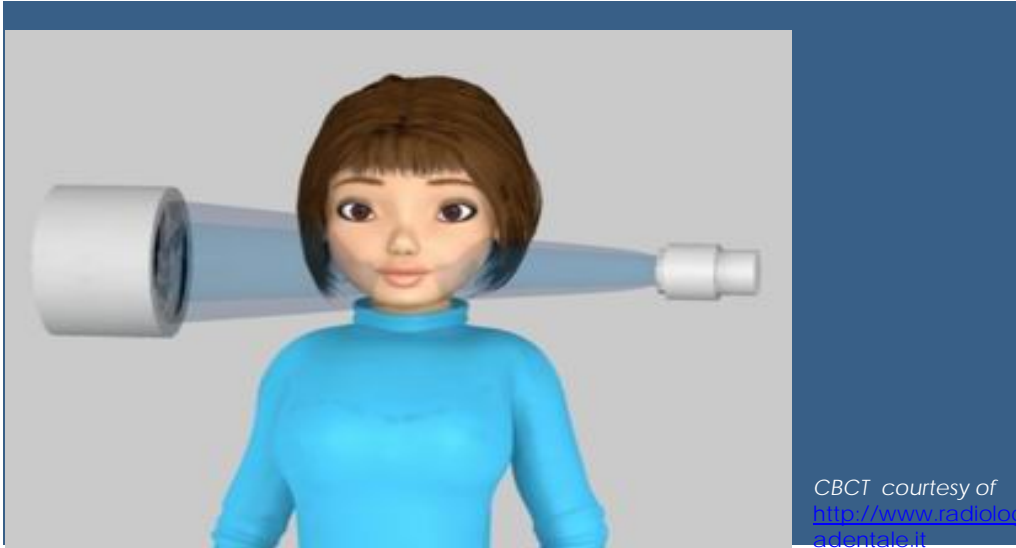
Photo courtesy: chain of infection graphic.
Caption describing picture or graphic.

Mehul Bhalja

MHH

Infection Control

Radiation Effects in Dentistry



Consideration Of CBCT Health Effects on Adolescent Patients Undergoing Orthodontic Treatment

Rashmi Mishra

- My project was focused on the issue of radiation risks/benefits associated with the use of cone beam computed tomography (CBCT) as compared to standard radiographs in adolescent patients .
- The advent of CBCT technology has made it possible to visualize the dentition, the maxillofacial skeleton, and the relationship of anatomic structures in three-dimensions. Significant increase in use of this technology has been noted in the literature. Among dentists in the U.S. and Canada, 34.2% of 3,844 respondents of a recent survey indicated that they were utilizing CBCT in their work. But this technology also carries with it an increased level of radiation exposure to patients. My work involved the development of objective patient education materials about the risks, benefits and alternatives of CBCT.

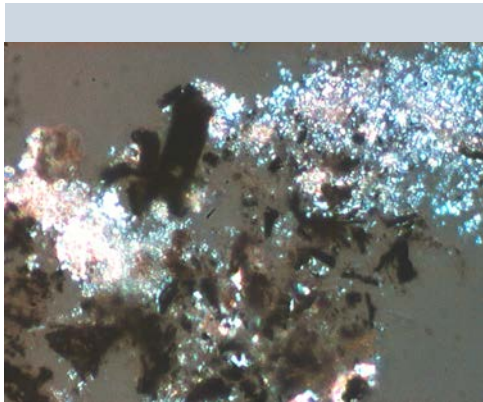
Public Health Significance

- In a normal orthodontic therapy for one or more years, median number of seven extra-oral radiographs and twenty-four intra-oral radiographic films are needed. The extra-oral radiographs include three panoramic radiographs and three cephalometric radiographs. Ordinary X ray image are 2 dimensional flat pictures .Your teeth and jaws are 3-dimensional and so require a 3 dimension image offered by CT scan or CBCT.The radiation dose to the patient with CBCT is markedly lower than that of multi-slice CT; doses are 3 to 7 times more than panoramic doses and 40% less than conventional CT.

As a patient or a parent you should ask your dentists if the CBCT is "absolutely necessary, "what radiation doses will be delivered, and what are the radiation protection measures they use to shield organs vulnerable to radiation's effects

Caption describing picture or graphic.

Airborne Particulate Matter



Cigarette Ash under the Microscope

Source:

<http://www.microlabgallery.com/gallery/CigaretteAsh4.aspx>

“Safeguarding your health is our full time job.”
-HCPHES

Assessing Indoor Air Quality from a Particulate Standpoint.

By: Paayal Patel

My experience was at the Harris County Public Health and Environmental Health Services Department within the Environmental Public Health Division.

The main goal and final product of this project was to create a micro library of typical airborne particulate matter found in an indoor residential and office setting.

The method of tape lifting was used to gather various particulate matter found indoors. The particulates were then observed under the microscope. Pictures were taken of particulates through a camera attached to the microscope lens. These photos were uploaded to a database library so that various collected indoor particulate

samples could be identified through comparison with known particulates in the digital library.

Common particulates found included mold, natural and synthetic fibers, human hair, insect parts, road dust, sheetrock dust, and many more.

Special events/ duties/highlights during my practicum

- *Went on indoor air quality complaints throughout the city*
- *Collected samples of indoor particulates*
- *Used different instruments and tools that monitor indoor air quality*

Public Health Significance

The Environmental Public Health Division has a significant duty to monitor the health status of the community and to investigate health problems and health hazards in the community. Although HCPHES delivers many of the ten Public Health Essential Services, these two were the two most common services that I came across during my time with HCPHES.

My project was involved in diagnosing and investigating public health hazards and problems. Particulate matter that was gathered at businesses and a residential setting that provided a complaint of hazardous indoor air quality was observed and identified to be hazardous or not.

Besides the project that I was involved in, other departments deliver many essential services. Some of these services include food safety, drinking water and pool safety, occupational health, disease control and many more services.

I enjoyed my time working with a health department that delivers essential public health services and makes a difference in our community.

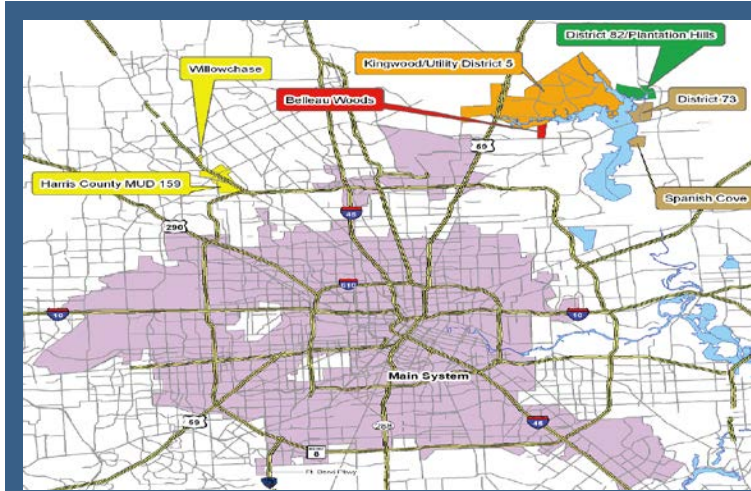


Stachybotrys spores under the microscope.

Source: http://www.florida-mold-inspection.com/toxic_mold.html

“Toxigenic and allergenic components of molds are found at the highest concentrations in the spores.”

Houston's Drinking Water



Picture from: documents.publicworks.houstontx.gov/documents/divisions/utilities/water_quality_report_2011.pdf

Houston's Water Systems

Highlights

- Publishing Houston's 2011 Consumer Confidence Report
- Visiting the South East Water Plant experience
- Driving around the greater Houston Area to help map the water system

Monitoring Your Drinking Water

By: Daniel Yuan

The City of Houston Public Works and Engineering Drinking Water Operations (DWO) serves 95% of all people living in the greater Houston area. Our goal is to ensure that the city has safe, clean drinking water.

One of the major duties of DWO is to create the annual Consumer Confidence Report. This report outlines the results of hundreds of water tests conducted over the past year.

Everything from arsenic to xylenes are carefully monitored and if necessary, reported in a way that's easy to understand.

Fortunately for our customers, Houston has once again delivered what the Texas Commission on Environmental Quality considers to be "superior" drinking water.

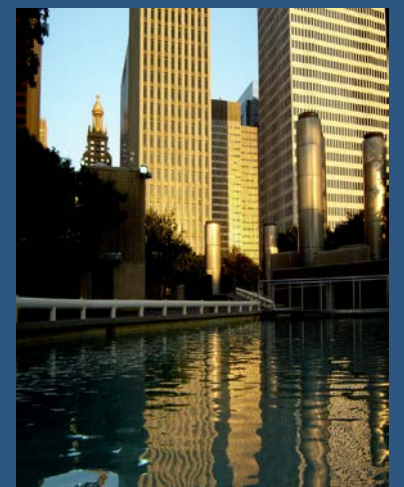
"You haven't lived until you've seen the beauty of flocculation at work in raw water."

Public Health Significance

For most, clean drinking water is under appreciated. However, we only have to look to our neighbors to the south or to the Milwaukee *Cryptosporidium* outbreak of the 1990s to understand the importance of safe, potable water.

Drinking Water Operations most essential public health service lies in the constant assessment of our drinking water. Water quality is constantly monitored from source of raw water to the taps of the customer. At the water plants, measurements such as turbidity

and alkalinity are carefully monitored to prevent issues from occurring at a customer's tap. However, in the event that there is a customer complaint, DWO immediately sends out operators to diagnose any potential issue. Even though customer complaints have yet to reveal issues in the drinking water, every complaint is taken very seriously and fully investigated. These efforts ensure that Houston continuously has the cleanest drinking water in the state.



<http://static.panoramio.com/photos/original/23794252.jpg>

Tranquility Park

For more information regarding
The University of Texas School of Public Health,
Office of Public Health Practice
and the practicum program, please visit:

<https://sph.uth.tmc.edu/practicum/>