Public Health Practice

Stories from the Field

The University of Texas School of Public Health

Student Practicum Experiences

Summer 2014 – 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 and DrPH curricula. 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 fourteenth-edition e-magazine showcases student practicum experiences throughout the Summer 2014 semester. (Prior semesters may be accessed through the e-book, a collection of student abstracts and e-magazines describing their experiences.)

UTHealth | School of Public Health
The University of Texas
Health Science Center at Houston

Practicum Topics

Serving Size: 1 Practicum per Student
Servings per e-Magazine: 4

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

Environmental & Occupational Health

	Student
Biological Hazards and Safety Protocol	Diana Blinn
Assessing Workplace Hazards	Mark Lies
Industrial Hygiene	Justin Lopez
Water Quality Testing in Galveston Bay	Tanu Uppal

Biological Hazards and Safety Protocol

Practicum Highlights

- Revision of the 1995 biological safety protocol for the University of Texas at Health Science Center
- Rotations through the EH&S divisions for the purpose of risk assessment, lab evaluations, environmental waste management, and physical safety standards.

Lesson Learned

- Prevention is key when it comes to issues of public health.
- It is of vital importance to educate and empower the community with the proper tools so that the best decisions will be made in a timely manner in the hopes of achieving the most beneficial outcomes.

Biological Safety Manual in Biomedical Laboratories

www.cdc.gov/biosafety/publications

The Update of the Biological Safety Handbook in Compliance with CDC and NIH

In accordance with CDC, I updated the 1995 UTHSCSA Biological Safety Handbook to its present edition.

I worked specifically on updating the current biohazard safety infectious agents, general principles of handling biohazards, disinfectants and toxicity, and risk assessments.

My sources were in accordance with CDC and NIH guidelines.

The final product is an up-to-date Biosafety Manual for the UTHSCSA which now includes NIH guidelines involving recombinant and synthetic nucleic acid molecules classified by risk group. A more in depth protocol for personal protective equipment, biological spill cleanup procedures guidelines, additional information on toxicity, and biological safety cabinets have been included.

Public Health Significance

The Public Health Essential Service that most closely relates to my practicum experience is to “inform, educate, and empower people about health issues.”

The practicum experience relates to this essential service most closely as the UTHSCSA employees now have an up-to-date biological safety protocol that they can reference.

My host organization is the Environmental Health and Safety Department for the UTHSCSA. Its role is to inform and protect all employees at the University by providing training in safety procedures, performing laboratory safety evaluations, and continuously updating and addressing environmental and biological safety hazards.

My project, in compliance with the code of the division was to further update and address biosafety in order to inform and educate the UTHSC community.

Industrial Hygiene/Assessing Workplace Hazards

Examples of Personal Protective Equipment worn in different industry settings. Image from: http://www.bu.edu/ehs/files/2010/05/ppe-636x391.jpg

Learning How to Protect Worker Health

By: Mark Lies

This summer I was trained in the fine art of field monitoring in the discipline that is called Industrial Hygiene. In general, Industrial Hygiene is the art and science of anticipating, recognizing, evaluating, and controlling workplace hazards they may have negative health consequences for workers or the environment. My internship took place at Baker Hughes Incorporated, which is an oilfield services company. They help their clients get oil and gas out of the ground. My job this summer was to travel to various Baker Hughes worksites and attach devices to Baker Hughes employees to help determine if they are being exposed to any harmful chemicals or too much noise. I visited facilities in The Woodlands, TX, Bryan, TX, Eldorado, TX, and Mountain Top, PA.

Public Health Significance

Of the ten essential public health services, my practicum experience most closely related to Monitoring, Diagnosing and Investigating, Developing Policies and Plans, and Enforcing Laws and Regulations.

My primary task this summer was to monitor workers for exposures to various air contaminants, as well as to monitor them for exposure to excess noise.

I learned how to devise a sampling plan, order the necessary media, calibrate and operate monitoring equipment, analyze my data, and prepare an internal report. The workers I monitored received the results of their testing in a timely fashion.

Baker Hughes contributes to public health by having an exceptionally strong safety culture, with the consequence that its workers receive all the safety equipment and training they need to perform their jobs in a safe manner.

Highlights from my field monitoring experiences

- Visited an active oil drilling site during well-site cementing operations
- Helped assess workplace exposures that may occur during pressure pumping.

Lessons Learned

- The biggest lesson I have learned is the importance of gratitude. I had a unique and interesting summer work experience and got to see how oil wells work and how how some really cool equipment is manufactured. I am truly grateful for the experience.

That's me wearing a hard hat, safety glasses, hearing protection, steel-toed boots and fire resistant coveralls. (I was also the photographer).

Industrial Hygiene

Top Left: Well-site, drilling in progress

Top Right: A Baker Hughes facility

Bottom Left: Cement Bulk Plant silos (focus of my summer project)

Bottom Right: worker coating drill pipes with metal.

All photos courtesy of Justin Lopez.

Occupational Health and Safety; Industrial Hygiene

By: Justin Lopez

Who: all Baker Hughes employees
What: Industrial hygiene assessments
When: May, June, July, August
Where: Facilities, rig sites, well-sites, pressure pumping well-sites.
How: Performing personal and area air sampling, personal noise monitoring and sound map surveys.

As an Industrial Hygienist, I was fortunate to work with a very experienced health team at Baker Hughes.

During the internship my duties included:

- Identifying chemical, air and noise exposure sources
- Developing sampling strategies
- Performing industrial hygiene monitoring
- Compiling data into reports and analyzing results
- Creating Health Hazard Profiles
- Supporting the design of ventilation engineering controls.

Public Health Significance

Essential Public Health Services

Monitor: followed up and assessed current health hazards from previous IH reports and current monitoring projects.

Diagnose and investigate: by visiting and communicating with facilities and well-site personnel, identified health hazards and developed sampling strategies.

Inform, educate and empower: explained the monitoring process, rationale, and results to employees.

Evaluate: assessed the effectiveness of current engineering controls through ventilation assessments and noise surveys, and monitored the usage of correct PPE.

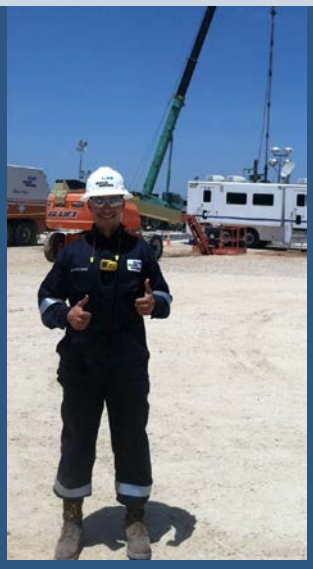
Research: identified complex health problems and helped design and organization new engineering controls.

Highlights

- Designed and carried out my own sampling strategy.
- Worked one-on-one with local HSE personnel and Baker Hughes employees.

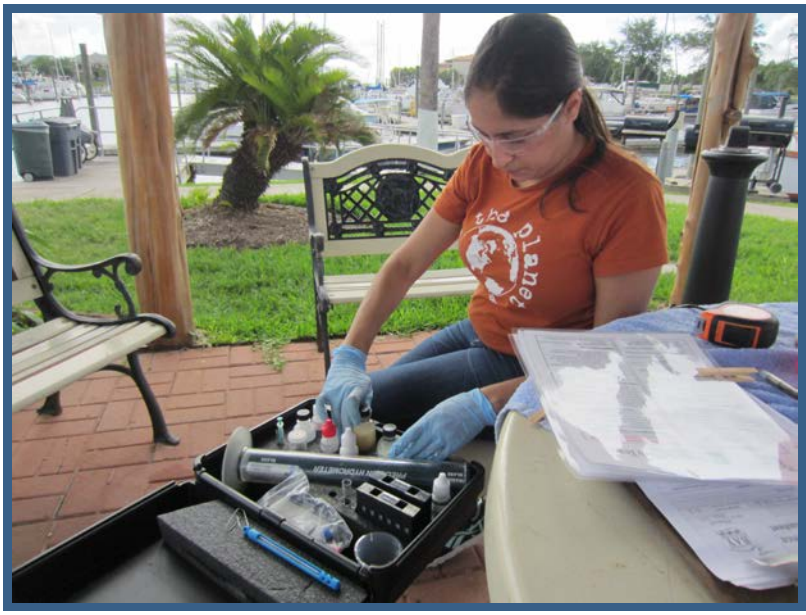
Advice

- Don't be afraid to ask questions!
- I came into the internship with little drilling knowledge – but now have a much better grasp of the complex drilling techniques and what health hazards are present.



Pressure pumping well-site visit. Photo courtesy of Justin Lopez

Water Quality Testing in Galveston Bay



Tanu Uppal conducting water quality testing using protocols by Texas Stream Team at Marina Del Sol, Kemah, Texas. Photo courtesy of Katie McCann.

Assessing Possible Sources of Bacteria in Galveston Bay

By: Tanu Uppal

As a Water Quality Intern with the Galveston Bay Foundation, I collected and analyzed water samples from two marinas in Clear Lake to assess the overall health of the water. Some data parameters I assessed were: pH, dissolved oxygen, salinity, temperature, turbidity, and concentration of enterococci, which serves as a fecal bacterial indicator of possible human pathogens. I also explored possible non-point sources of bacterial contamination of these two locations.

Specifically, I investigated the relationship between wet weather runoff, weekend boater activity, and presence of waterfowl on the concentrations of enterococci.

These results were presented to marina managers and other stakeholders in order to present some possible solutions for improvements to local recreational water quality.

Public Health Significance

Bacterial impairment of Galveston Bay poses a threat to public health. Ingestion of human pathogens from recreational activities can lead to gastroenteritis, vomiting, hepatitis, diarrhea, fever, and ear, eye, and respiratory infections.

My practicum involved monitoring the health status of Galveston Bay and identifying areas that could pose a threat to human health. I also diagnosed and investigated sources of these health hazards. Lastly, I presented my findings to interested stakeholders in order to inform and educate others regarding possible sources of bacterial contamination in these water systems and possible routes of remediation.

Galveston Bay Foundation uses water quality data to mobilize community partnerships and provide recommendations to policy makers in order to identify and solve health-related problems of Galveston Bay. Furthermore, the water quality data we collected this summer as well as ongoing data will support regulatory agencies that are involved in monitoring the health of Texas watersheds.

Special events/ duties during your practicum

- Water Quality Monitoring Certification from Texas Stream Team
- Clean Water Initiative workshop on Microbial Source Tracking

Lessons Learned [OR] Advice for Future Students

- Don't be afraid to ask questions! You'll be amazed at what you can learn when you ask for a new perspective, even on topics where you think you might be an expert.

Laboratory test showing positive detection of bacteria from water samples collected at Lakewood Yacht Club, Seabrook, Texas. Photo taken by Tanu Uppal.

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/