Public Health Practice

Stories from the Field
The University of Texas School of Public Health
Student Practicum Experiences
Summer 2015 – Environmental & Occupational 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 seventeenth-edition e-magazine showcases student practicum experiences throughout the Summer 2015 semester. (Prior semesters may be accessed through the e-book, a collection of student abstracts and e-magazines describing their experiences.)
**Practicum Topics**

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**Student**

**Environmental & Occupational Health**

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Disease control and Clinical Prevention

Public Health Significance

The DCCP division is pivotal to Public health practice in the Harris county area. Its core functions resonates with most of the 10 essential public health services and population-focused disease control activities. The services provided by the clinics target mostly primary and secondary prevention interventions. Health service include; immunization, family planning, dental services for children, HIV counseling and disease control services like disease surveillance, awareness.

Quality Control in Primary health Clinic

By: Don-pedro Data

The Disease Control and Clinical Prevention division of the Harris county Public Health & Environmental Services (HCPHES) provides clinical, population-based preventive health services and population-focused disease control activities. The services provided by the clinics target mostly primary and secondary prevention interventions. Health service include; immunization, family planning, dental services for children, HIV counseling and disease control services like disease surveillance, awareness. Programs and health screening for refugees. As a Project intern, I was involved with quality control and assessments of two clinics (Antoine and Southeast) using lean six sigma methodology, process mapping and process analysis to establish protocols for waste, resource and time management to ensure effective work flows to enhance hospital productivity and patient outcomes. I also was involved in root cause analysis which occurs prior to policy dev. The policies outlined by our recommendations would be implemented in federal funded grants.

Public Health Significance

Assure competent public and personal health care workforce. The evaluation for effectiveness, accessibility and quality of personal and population based health is at the crux of the project I was involved in. Due to the massive influx of patients, living below Federal poverty line; it is necessary to ensure shorter wait times to provide better coverage for about 10,000 persons/week that use the primary health system.

Lessons Learned/ Advice for Future Students

• You would always meet with diversity; but always embrace it because good communication is the only way to learn and impact
• There is no I in team
• Do your part no matter how little, it goes a long way

Special events/duties during your practicum

• Field trips to the Antoine and Southeast clinics for quality assessment procedures.

I took the pictures of the lab (where I was assigned in the team) to show the “actual state” before our intervention.

Creating awareness as a step to prevention
The Isoflurane project was conducted in an effort to evaluate the conditions under which private investigators are using Isoflurane in their personal laboratories, as well as to ensure that all procedures are compliant with Institutional Animal Care and Use Committee (IACUC) standards.

The most notable project that I completed at MD Anderson was the Isoflurane level laboratory inspections of twelve laboratories. A MIRAN SapphiRe was used to perform the gas monitoring in the laboratory. Areas of focus for the gas monitoring consisted of facial areas and fume hood openings. Of the twelve laboratories inspected, only 58% were in compliance with the IACUC 2 PPM regulations. Also, only 16% of Isoflurane users wore eye protection while conducting experiments with Isoflurane. Other assignments included; fire alarm audio visual inspections, performing fume hood flow rate inspections, distributing lab equipment safety seals, Conducting on site quarterly kitchen inspections, and implementing equipment inventory management program.

**Special events/duties/highlights during your practicum**

- Learned how to use a MIRAN SapphiRe
- Conducted personnel protection equipment inspections
- Conducted exposure monitoring

**Public Health Significance**

The Public Health Essential Service that most closely relates to my practicum experience is monitoring health status to identify and solve community health problems. The mission of The University of Texas MD Anderson Cancer Center is to eliminate cancer in Texas, the nation, and the world through outstanding programs that integrate patient care, research and prevention, and through education for undergraduate and graduate students, trainees, professionals, employees and the public. All of the activities/duties that I performed were for the benefit of the patients, staff, and visitors on the premises. For example, the Isoflurane project was conducted in an effort to reduce the risk of exposure of laboratory personnel to halogenated gases. Exposure to some halogenated anesthetic gases can result in toxicity in humans. Health effects from short term exposure include; irritation of eyes, skin, respiratory tract; cough, sore throat, headache, drowsiness, dizziness, and unconsciousness. The health effects from long term exposure are unknown. MD Anderson recognized the health issues associated with over exposure to Isoflurane and set forth in their efforts to find any issues arising from its use in order to maintain a safe environment.

**Advice for Future Practicum Students**

“Be proactive, curious, and useful. Find your niche and flourish!”

Terra Gaines utilizing a MIRAN SapphiRe to perform Isoflurane level laboratory inspections at MD Anderson Cancer Center.
Public Health Significance

My practicum experience, while not relating directly with public health as I deal with occupational issues, still relates to the essential public health services. The isopleths I created are instructions on how to follow OSHA regulations on hearing protection.

OSHA requires employers to provide proper hearing protection and an effective hearing conservation program to all employees who work at or above 85 dBA as an 8-hr TWA. These isopleths will ensure employee safety and health is a priority.

My project also related to developing policies and plans to support health efforts. During my summer practicum, I sat in meetings pertaining to updating our hearing conservation program, which the isopleths are required under.

Advice for Future Students

• Don’t be afraid to work in an environmental outside of your comfort zone. Working in the ‘field’ or a new area makes you a well-rounded employee!
Public Health Significance

My practicum experience is related to many of the Essential Services of Public Health. I believe that the three services that relate most closely to my practicum experience are: monitoring health status to identify and solve community health problems; diagnose and investigate health problems and health hazards in the community; and enforce laws and regulations that protect health and ensure safety.

Most exposures I sampled for had exposure limits set by either OSHA or the state of Washington, so when I sampled I worked on identifying any that were overexposed and worked to bring them back into permissible limits in order to protect the workers and their health.

Comprehensive Sampling Evaluations at Boeing’s Everett Site

By: Samantha Howe

This summer I was lucky enough to be able to intern at The Boeing Company in their Commercial Airplanes Division, Everett Environmental, Health, and Safety for the Industrial Hygiene team.

My practicum experience was centered on two different projects: a comprehensive exposure survey for chemicals and particulates in the Interiors Responsibility Center (IRC) and a noise survey for factory tool rooms.

For my evaluation of exposures in the IRC, I developed and researched a sampling plan based on the processes conducted in the IRC. I then proceeded to carry it out over the summer.

The noise survey of the tool rooms consisted of identifying potential high noise tool rooms then coordinating to find high noise days in the nearby production and manufacturing operations and sampling for noise on those days.

Overall, this was an extremely productive summer for me. By the time my practicum is complete I will have gathered a total of 140 samples collected on 110 different media over 10 different processes resulting in a total of approximately 10 written reports.

Intern Highlights

- Going to the Customer Experience Center and seeing the inside of all the different planes. My favorite to tour was the 747.
- Walking the factory floor every single day and seeing all the planes being built.
- Going on the flight line and touring the cockpit of a 787 waiting for delivery.

Advice for Future Students

- Don’t be afraid of stepping outside of your comfort zone. Take advantage of every chance and opportunity given to you even if it means working long and crazy hours; it’s more than worth it.

Models of all commercial airplanes currently produced by Boeing at the Customer Experience Center. Photo credit: Samantha Howe

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Tribal Indoor Air Quality

Practicum Highlights

- Researched and inscribed several Tribal indoor air quality success stories from across the nation.
- Participated in the Northwest Tribal Asthma Project Team and helped create documents for their efforts.
- Contributed in an intern panel to inform the Office of Air and Radiation on Tribal consultation and environmental justice issues.
- Contributed in professional master class training webinars on indoor air quality in schools and researched ways to reach Tribal audiences.

Future Advice for Students

- Internship experiences go by incredibly fast. Soak in everything you can at your site and look for mentors within your work colleagues. Reach out to individuals who share similar passions as you and soak in every piece of information and advice you can.

Public Health Significance

My internship experience at the EPA aligns closely with many Essential Public Health Services, particularly with “Inform, education, and empower people about health issues,” and “Develop policies and plans that support individual and community efforts.” Through my success stories, I have been able to create an avenue for Tribal communities to inform and education their peers about the serious health issues surrounding indoor air quality and how to leverage government resources. Similarly, I have been able to help develop policies and plans through the Northwest Tribal Asthma Project Team, while creating and editing documents for their initial program planning. This working group is starting in Washington State, and hopes to spread an in-home reimbursable asthma care program to all Tribal communities across the nation. Finally, through the school health webinars and intern panel for the Office of Air and Radiation, I was able to inform and education environmental health leaders across the EPA and various organizations about the needs of the Tribes to have a healthy indoor air environment.

Tribal Indoor Air Quality: How Can We Help?

By: Brittany McConville

The public health topic I worked on this summer was with Tribal communities and their indoor air quality issues including radon, mold, pests, dust, wood burning stoves, and carbon monoxide. These present several problems in adults and children including asthma, lung cancer, and even death amongst others. The approach that the Environmental Protection Agency took with me this summer was to participate in many indoor air quality groups’ conference calls and helping where I can, while also working on several tribal success stories to document on the EPA website. This is a way for other Tribes to see the incredible IAQ programs around the nation while highlighting different government grants and resources they can pull to complete their own programs. My final project was two success stories and a working document on how Tribes can leverage social impact bonds. My main finding is that there are many avenues to leverage resources but there isn’t a good way to disseminate this information. Our nation is in need of driven public health professionals who are passionate about eradicating indoor air quality issues in Tribal nations.
Sustainable Solutions to Metal Air Pollution

**Practicum Highlights**

- This practicum was a Community-Based Participatory Research (CBPR) project, which is a type of public health research that actively involves and directly benefits the people/community being studied.

- Acquired experience in community exposure assessment in underserved/low income neighborhoods.

**Lessons Learned [OR]
Advice for Future Practicum Students**

- Because multiple stakeholders are involved in CBPR research, be sure to make communication your first priority so that future delays and other unforeseen issues can be avoided. Also, patience is paramount in CBPR!

**Metal Air Pollution in Disadvantaged Houston Neighborhoods**

**By: Rupa Mehta**

Metal Recycling is a growing industry in Houston with over 170 facilities currently in operation. However, due to no zoning laws, these facilities are often found operating in low income communities of color. While preliminary data suggests possible environmental health risks, there was no data regarding the health risks of emissions from these facilities. Therefore, in order to fill this significant gap in knowledge, the City of Houston’s Bureau of Pollution Control and Prevention in collaboration with UTSPH, Rice University and Air Alliance Houston have been conducting extensive air monitoring of metals in particulate matter in communities surrounding four metal recycling facilities in Houston. After one year of sampling, the data we obtain will inform a risk assessment that will in turn be used to develop a sustainable action plan to reduce emissions and probable health risks.

**Public Health Significance**

This practicum is related to the Essential Services of Public Health because our project seeks to measure health risks to identify and solve community health problems, diagnose and investigate health problems and hazards in the community, and inform, educate and empower people about health issues. We accomplished this through the air monitoring and sampling campaign we are currently undertaking, as it characterizes total suspended particles (TSP), coarse and fine particles, as well as the metallic composition of particulate matter in communities close to metal recyclers. The data obtained will then be used to assess the residential inhalation health risk associated with emissions from these facilities. Finally, with shared leadership among all stakeholders, a multilevel evidence and behavioral science theory-based sustainable action plan will be developed and implemented which will translate and disseminate findings from our risk assessment to reduce metal PM emissions from metal recycling facilities. Evaluation of the effectiveness of this plan one year after its implementation will further another key aspect of the Essential Services of Public Health.

**Photo**

One of the metal recycling facilities where we conducted a field survey for future air monitoring and sampling.

*Photo Courtesy: Rupa Mehta*
Workplace Emergency Preparedness

Update of Emergency Information and Personnel Coverage
By: Taiwo Ojewole

In the summer of 2015, I interned with Occupational Safety and Fire Prevention at the UTHSC. I worked specifically on updating the emergency binders, mapping of area safety liaison coverage, and updating specific emergency evacuation plans of multiple buildings across campus. The final products of my practicum were up-to-date emergency binders with locations of stand pipes and other emergency equipment and up-to-date maps of current area safety liaison coverage with building-specific evacuation plans across campus.

Public Health Significance

My practicum experience was most closely related to developing plans to support community health efforts, evaluation of effectiveness of services and research for new solutions to health problems and inform, educate and empower. Using available data, I assisted in developing ASL building-specific exit plans. While mapping ASL locations, I was able to evaluate the effectiveness of the current ASL coverage in specific buildings across campus. I also researched and assisted in developing plans to achieve better ASL coverage to comply with stated regulations. The emergency evacuation plan will educate and empower people on how to respond during an emergency.

Occupational Safety and Fire Prevention, a unit in Environmental Health Services, is engaged in the recognition, evaluation and control of physical hazards through safety audits, fire protection, and hazard monitoring. OSFP also works to ensure that the campus is in compliance with fire and life safety regulations.

Special events during your practicum

- Weekly continuing education meetings with other safety departments
- Attending a safety meeting with health and safety experts at Shell.

Lessons Learned

- Safety requires teamwork and is everyone’s responsibility
- Being prepared for emergencies saves lives and property

Safety First Sign - Safety is Everybody’s Job

http://www.thecuresafety.com/SAFETY_FIRST_Sign_Safety_Is_Everybody_s_Job_p/sf174pb.htm

Summer 2015 • Taiwo Ojewole • Occupational Safety and Fire Prevention, UTHSC-H • Emergency Response Optimization
Safety in Research Laboratories

Practicum Highlights

- Identification, Assessment, Control and Evaluation are key components of successful workplace safety programs.
- Risk communication can be done using novel and creative technologies. The picture below is a door sign generated by the software developed by Matthew Wylie, J.D.

Words of wisdom...

- Give the best you have, commit, use every opportunity to learn and enjoy.
- “Safety is something that happens between your ears, not something you hold in your hands.”
  Jeff Cooper, B.S.

Hazard Identification and Evaluation in Research Laboratories

By: María Paola Rodriguez

Almost every workplace has varying number of hazards and research labs are no exception. One of the main challenges of the Office of Environmental Safety (OES) at Baylor College of Medicine (BCM) is to identify and evaluate different hazards in research laboratories, including biological agents, hazardous chemicals, and sources of radiation. This summer (2015), I had the good fortune of joining the OES team and participating in their annual comprehensive health and safety inspections.

These inspections are designed to help create a safer and healthier work environment and foster better job practices and behaviors. My main duties included: collection of hazardous chemical information, use of their versatile and top-notch software to generate informative door signs. I also conducted lab safety inspections looking for potential hazards. Our findings were reported to Principal Investigators and their personnel in order to improve workplace conditions.

Public Health Significance

The laboratory environment can be a hazardous place to work. However, the promulgation of OSHA Laboratory Standard (29CFR.1910.1450) has helped the development of a safety culture in academic and industrial laboratories. This culture has its roots in the education of personnel, risk communication and hazard identification and control.

All OES personnel at BCM monitor the handling of chemicals, train lab personnel in safe practices and promote careful behavior, which are tasks closely linked to the Public Health essential services of: educate, inform and empower people. Additionally, they are obligated to enforce laws and regulations that protect the environment, as well as, the health and safety of personnel.
Community Air Sampling

Practicum Highlights

- Setting up, measuring and data extraction for ambient particulate matter using BGI-PQ200 and High volume sampler in disadvantaged communities in Houston.
- Planning sampling: community visits and analysis of Texas Commission on Environmental Quality (TCEQ) metrological data.

Challenges Faced

- Community based participatory project has its innate limitations of communicating and articulating scientific phenomenon and terminologies to lay-men.
- Dependency of multiple factors including meteorological predictions, technical incompatibilities, logistics etc., causes disruption in the timeline for the project.

Community Based Participatory Project to find Sustainable solutions to metal air pollution in disadvantage neighborhoods

By: Parinita Sah

The summer of 2015 brought with it an opportunity for me to work in collaboration with City of Houston, Rice University and UT-SPH. The project aimed at finding sustainable solutions for metal air pollution in Houston. It is a five years long project, and air sampling in summer 2015 herald’s the upcoming research.

Final product was the collection of air pollutants in four residential neighborhoods at metal recycling sites.

Public Health Significance

Several metal particles at ambient air at high levels could pose a carcinogenic human health effect. Metal recyclers generate particulate matter air pollution, which is associated with morbidity and mortality. Community air pollution due to the presence of scrape metal recycling sites in the neighborhood was of utmost concern. Among the 10 Essential Public Health Services, my practicum focuses on monitoring, diagnosis and investigation. Finally, informing, educating and empowering people about health issues due to metal air pollution.

Who: Disadvantaged neighborhoods in Houston near metal recycling sites.
What: Community air sampling, data management and cleaning, filling of chain of custody forms, planning for sampling using TCEQ metrological data and community visit’s, communication with stakeholders.
When: Summer 2015
Where: Metal recycling sites in Houston.
Why: To measure and analyze metal air pollutants in the ambient air.
How: Using BGI-PQ200 and High quality High volume samplers.

The Bureau of Pollution Control and Prevention (BPCP) of the City of Houston have an extraordinary task of maintaining balance between the region’s economic growth and environmental safety. It addressed the scrap metal air pollution by investigating suspected hazardous air quality. Next is monitoring of community ambient air environment throughout Houston at metal recycling sites and mobile air monitoring. The samples are then analyzed and risk assessment is executed. Finally, reviewing and commenting on permitting, rule-making, and legislative state and federal actions advocating for best and reasonable public health protection.
Industrial Hygiene

Occupational Health at Johnson Space Center and Ellington Field

By: Matthew Spolarich

My practicum was centered on Industrial Hygiene operations at a major government facility (Johnson Space Center (JSC) including Ellington Field). I was integrated with the Occupational Health/Industrial Hygiene branch of the JSC that is responsible for employee and contractor occupational health in addition to responding to daily occupational health concerns or situations. My duties included noise dosimetry studies for mechanics responsible for the T-38 airframe (pictured left), conducting air sampling for asbestos, and performing multiple Indoor Air Quality (IAQ) investigations in response to employee concerns. I also conducted reviews of proposed scientific operations on the facility for occupational health concerns that included radiation and laser safety requirements. The practicum was a balance between scheduled sampling of workspaces and workplace health inspections and active response to worker concerns regarding their occupational health.

Public Health Significance

1) Monitor health status to identify and solve community health problems: Conducted sampling for noise and air quality in a variety of working environments.
2) Inform, educate, and empower people about health issues: Brief workers on job hazards and personal protective equipment.
3) Develop policies and plans that support individual and community health efforts: Use results of sampling to update or create new working standards to protect workers.

Special events/duties/highlights during your practicum

• Conducted Noise Dosimetry for T-38 mechanics that only occurs every 4-5 years.
• Participated in Indoor Air Quality investigation affecting multiple workers in a single building.

Advice for Future Practicum Students

The closer you align either your current position or your intended job upon graduation with your practicum, the more you will draw from the experience and be able to apply immediately in your job.

Matthew Spolarich, Johnson Space Center, Industrial Hygiene, Summer 2015
This summer, I was fortunate to work with the Environmental Health and Safety group at Johns Hopkins University Applied Physics University (JHUAPL) in Laurel, Maryland. A research and development laboratory, JHUAPL is constantly in the process of creating new technology and materials for the general public and governmental clients. Because of this, the employees are exposed to various hazards that cover a multitude of areas such as radiation, biohazard, chemical dangers, and others. As an industrial hygienist (IH) in training, I was able to learn not only IH practices but other health and safety techniques to encompass all the hazards at JHUAPL.

My duties included:

• Performing personal and area air sampling
• Inspecting buildings and Biosafety Level 2 labs, and the hazardous waste storage area
• Carrying out indoor air quality investigations
• Conducting respiratory fit tests
• Recertifying over 100 chemical hoods

Advice for Future Practicum Students

Put yourself out there. Get to know your coworkers and others not in your field. They have experience that you can draw from and incorporate into your own line of work. Most importantly, ask questions! Now is the time for learning, and there’s no other time where you can ask questions without feeling you should have already known the answer.
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/