



SCHOOL OF PUBLIC HEALTH

UNIVERSITY AT ALBANY
State University of New York

MPH INTERNSHIP EXAMPLES

BIOMEDICAL SCIENCES INTERNSHIPS

① *Investigating the Toxicity of Engineered Nanoparticles Internship*

Location: Nanobioscience Constellation, College of Nanoscale Science and Engineering (CNSE), University at Albany

Project Background and Goals:

The physiologic and health outcomes of exposure to engineered nanomaterials have not yet been well characterized or documented, nor have the details surrounding the toxicity of various nanoparticles. The specific physiochemical parameters (e.g. size, shape, surface characteristics, charge, functional groups, crystal structure, and solubility) that most strongly influence biological activities remain unknown. It is suspected that particle count, size, and surface area are among the most important determinants of toxicity. Inhalation of aerosolized nanoparticles (potential pulmonary toxicity and translocation of the nanoparticles to the brain and/or bloodstream) and nanoparticle penetration of skin (dermal translocation and biodistribution to other organs) are the primary routes of exposure creating concern in occupational settings. Numerous organizations including the National Institute for Occupational Safety and Health (NIOSH) currently recommend treating engineered nanoparticles “as if” they are hazardous. CNSE is currently developing multiple in vitro and in vivo toxicity studies to investigate the toxicity and potential health effects of exposure to engineered nanoparticles commonly found in semiconductor manufacturing. These projects include the investigation of the effects of exposure to nanoparticles on genes, cells, vasculature, and whole animal systems. The ongoing projects at CNSE focus on the in vitro studies (the PI’s for the in vivo studies are located at other institutions), specifically genotoxicology utilizing the comet assay and cellular toxicity studies. Understanding the hazard potential of nanoparticles used in the occupational setting is necessary to make informed risk management recommendations and formulate best practices to ensure worker health and safety.

Student’s Role in Project:

The student’s role in the project will be to assist the PIs, full time CNSE PhD students and post-docs in the nanobioscience constellation in developing methods for and conducting these lab-based experiments. Additionally, the student will conduct a comprehensive literature review and review the findings from ongoing exposure assessment studies at CNSE to inform this research. Using all available information, the student will work as part of an interdisciplinary team to develop methods and conduct the in-vitro experiments.

② *Pulse Field Gel Electrophoresis (PFGE) Cluster Investigations of E. coli in NYS*

Location: NYS Department of Health, Bureau of Communicable Disease Control, 6th Floor Corning Tower

Project Background and Goals:

In 1993, a large outbreak of foodborne illness caused by the bacterium *Escherichia coli* O157:H7 occurred in the western United States. In this outbreak, scientists at CDC performed DNA “fingerprinting” by pulsed-field gel electrophoresis (PFGE) and determined that the strain of *E. coli* O157:H7 found in patients had the same PFGE pattern as the strain found in hamburger patties served at a large chain of regional fast food restaurants. PFGE of *Salmonella*, Shiga-toxin producing *E. coli* (STEC), and *Listeria* (SSL) continues to be a critical tool for investigating clusters of disease. PFGE combined with epidemiologic evidence has resulted in the solving of many large outbreaks in NYS and across the United States. For example, the recent outbreak of *Listeria* associated with consumption of cantaloupes. NYS has a high volume of cases that are PFGE ‘matching’ and require follow-up beyond the routine enteric investigation conducted by local health departments. The goal of this project is to begin centralizing and standardizing SSL PFGE cluster investigations, including interviews, data collection, data entry, and analysis utilizing a team of students.

Student’s Role in Project:

A graduate level student would be responsible for assisting with the oversight and coordination of an interview process using hypothesis generating or outbreak specific questionnaires for all PFGE matching cases of SSL in NYS. The graduate student will assist with development of questionnaires, interviews, data entry, coordinating student interview schedules, and any additional responsibilities as needed. The graduate student will also assist with the analysis of project data using Access and SAS and be required to produce a final academic project (poster, presentation, or paper).

Questions?

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MPH INTERNSHIP EXAMPLES

ENVIRONMENTAL HEALTH INTERNSHIPS

① *Applying Science, Law and Policy to Protect Public Health and the Environment*

Location: NYS Office of the Attorney General, Environmental Protection Bureau

Project Description:

The NYSOAG scientists and their interns work on many issues of concern related to the office's legal activities. These include preparing in-depth scientific research on large scale issues (hydrofracking, energy generation, pesticide regulation, children's health, for example), as well as particular topics pertaining to legal cases (such as chemicals and contaminants related to EPA regulations, state regulations and lawsuits). Generally, an intern is assigned several on-going projects depending on the needs of the office. These may include work on risk assessment, exposure assessment, data analysis and management, policy recommendations, and assisting scientific and legal staff at the Environmental Protection Bureau. Topics may include pesticides, indoor air contamination, industrial emissions, water contamination, food-borne illnesses, endocrine disruptors, and carcinogens. Projects may include issues related to consumer safety issues, women's and children's health, environmental justice, as well as mapping and GIS. The interns work closely with office scientists, legal interns, and office attorneys with experience in environmental issues.

Student's Role in Project:

The student and the mentor will discuss various projects available and determine which best suits the student's and office needs. Interns are expected to work independently and be responsible for accuracy and detailed referencing. Often the complex nature of the assignment(s) necessitate synthesizing technical materials to draw conclusions, to determine possible next steps, and/or to develop policy. The mentor will provide guidance to help the interns complete their assignments. Care to detail and communication skills are required. This internship provides a unique opportunity to work closely with top notch legal and scientific staff in the Environmental Protection Bureau.

② *Chemical Residues in Drinking Water: Analysis and Summary of 6 years of Surveillance Data Internship*

Location: NY State Department of Agriculture and Markets, Food Laboratory (State Office Campus)

Project Background and Goals:

The Food Laboratory Division tests approximately 22,000 food, beverage, water and animal feed samples each year for chemical and biological hazards, nutritional parameters and economic parameters. The internship project entails taking a lead role in analyzing a large dataset on chemical residue contamination in drinking water. The data comes from a 6 year surveillance program of drinking water processed from surface water. The chemical residues include pesticide residues, human and veterinary use pharmaceutical products, and personal care products. A primary goal is to summarize the data and publish the results of the surveillance study.

Student's Role in Project:

The student will take a lead role in summarizing chemical residue contamination data and identify key findings as a basis for a publication. The data comes from a 6 year multistate/multi-site surveillance program where drinking water was collected monthly for one year/site and tested pre and post treatment for several pesticide residues, human and veterinary use pharmaceuticals and personal care products.

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MPH INTERNSHIP EXAMPLES

EPIDEMIOLOGY INTERNSHIPS

① *Healthcare-Associated Invasive Group A Streptococcal Infections Internship*

Location: New York State Department of Health, Bureau of Healthcare Associated Infections

Project Background and Goals:

When an invasive group A streptococcal (GAS) infection, such as a bloodstream infection, occurs in a hospitalized patient or a resident of a nursing home, the NYS Department of Health, Bureau of Healthcare Associated Infections, opens an investigation to determine the source of the infection and to prevent additional cases. Currently, national guidelines exist only for investigation of post-partum and post-surgical cases. However, most cases of healthcare-associated invasive GAS in New York State are not post-partum or post-surgical cases. This project involves a retrospective review of healthcare-associated invasive GAS cases in New York State. The object is to define the magnitude of the problem and describe the characteristics of these infections (proportion of cases that are part of a cluster, proportion that are post-partum or post-surgical, proportion for which a source can be determined, sites from which the organism is cultured from healthcare workers in contact with the patient, etc.). The goal is to develop a better understanding of these cases in order to determine how comprehensive of an investigation is warranted in different situations. New York State internal guidance documents may be revised based on the results of this project.

Student's Role in Project:

After reviewing the relevant literature, the student will refine and finalize the project design with the assistance of the mentor and other Bureau personnel. The student will then review case files to gather the necessary data about GAS infections, analyze the data, and summarize the results. The student may assist with the development of a supplemental form to prospectively collect information found to be important in past investigations, based on the results of the project. The student may also participate in revision of New York State internal guidance documents, as time allows and depending on the findings.

② *Role of the Ill Food Worker in NYS Internship*

Location: New York State Department of Health Center for Environmental Health, Bureau of Community Environmental Health and Food Protection (BCEHFP)

Project Background and Goals:

The purpose of this internship is to assist the Bureau of Community Environmental Health and Food Protection in analyzing data regarding foodborne outbreaks to determine the possible predictors and contributing factors to those outbreaks. NYS is part of the Centers for Disease Control and Prevention's Environmental Health Specialist Network (EHS-Net) which includes eight other States. One project BCEHFP is working on is describing the role food worker health in addition to bare hand contact has played in foodborne outbreaks in New York State. In 1992, the law to prohibit bare hand contact with ready to eat foods was instituted. This project entails the analysis of foodborne outbreak data to describe the role of the ill food worker from 1980-2010 and analyze foodborne outbreak data before 1992 and after 1992 to determine if introduction of the no bare hand contact law had an effect on the cause or contributing factors identified during foodborne outbreak investigations.

Student's Role in Project:

The graduate students will have several responsibilities in working with the Bureau of Community Environmental Health and Food Protection including, but not limited to: conducting a literature review regarding ill food workers and foodborne outbreaks; assisting in the collection, cleaning, and analysis of data on foodborne outbreaks. The student will also be responsible for analyzing the foodborne outbreak data from 1980-2010, and determine if bare hand contact prohibition implemented in 1992 had an effect on the cause and contributing factors identified in foodborne outbreaks. The student will identify the role the ill food worker had in regards to foodborne outbreaks in New York State. The student will also assist in the analyzing of data during foodborne outbreak investigations to help identify the vehicle of the outbreak.

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MPH INTERNSHIP EXAMPLES

HEALTH POLICY & MANAGEMENT INTERNSHIPS

① *Designing and implementing a Social Network Plan for Greene County*

Location: Greene County Public Health, Catskill, NY

Project Background and Goals:

Outreach for public health departments has always been met with logistical challenges. Local health departments often need to convey numerous messages to the populations they serve, targeting many different audiences. The rise of social media in today's culture presents a great opportunity for us to better disseminate information to the appropriate audience. Many reputable public health organizations have developed social media pages (Facebook pages, Twitter accounts) in an effort to improve outreach and public health education efforts. However, social media has also been linked to a decrease in employee productivity when access is allowed during work hours. Therefore, many municipalities and businesses severely restrict or disallow the use of social media. This limitation hinders our ability to target certain groups of people. The general feasibility of a social media website to be utilized by the Greene County Public Health has yet to be determined. Our goal is to assess the practicality of creating a social media program/page representing the department. Through popular social media websites such as Facebook and Twitter, we would be able to deliver real-time information specifically tailored to our audience, regarding upcoming clinics, family planning services, early intervention services, general public health information, and special events/announcements.

Student's Role in Project:

The student's role would include compiling cost benefit data concerning social media from other healthcare organizations and businesses that currently use social media tools. Also, the student would be expected to research best practices for developing social media pages. Additionally, the student would research and develop policies that address the controlled access to the sites during business hours by staff, work with sub-departments to develop the type of information they wish to disseminate, and develop a mechanism for regular updates. The intern would also develop the initial layout of each site, while working with IT & administrative staff to ensure that proper controls are in place.

② *MVP Healthcare: Managing and Planning for Implementation of 2012 Strategic Action Plan Internship*

Location: MVP Health Care, Schenectady, NY

Project Background and Goals:

In 2006, the Price Chopper/Price Chopper Corporation contracted with MVP Health Care to develop, implement, and coordinate a Wellness Program for their employees. The Wellness Program targets a variety of health and wellness concerns including but not limited to: diet and nutrition, obesity, exercise, cardiac health, diabetes, smoking cessation, stress, prevention and low back pain. The first year of the program implementation process was restricted to the Main Offices and Distribution Center (program population size of ~1,800 employees). In 2007-2008, the program expanded to 10 pilot stores (additional 2,400 employees). In 2009, the program is expanded to 60 stores (additional 10,000 employees) and in early 2010 it expanded to all 120 stores (total program population size of 25,000 employees). This internship would give the student exposure to a wide variety of population health management and wellness interventions, program implementation, communication development and community need indices. The intern would primarily be responsible for assisting the mentor in overseeing a thorough implementation of strategic action plans via compilation and management of work plans as well as operationalization of action plans. The internship will also entail a lot of research and development of topic-specific (i.e. stress management, tobacco cessation, etc.) communication campaigns. Program communication campaigns consist of timelines and communication content, both which need to be well thought out, analyzed for readability and consistent with the program work plan. The intern would be tasked with researching Community Need Indices across the Price Chopper service area and would be responsible for focusing on the areas most in need and providing additional program support to those areas. The student will also get significant exposure to the business aspects of population health management programs and relationships between health care insurance companies and employer groups. Finally, the student would assist the mentor in developing reports as needed, facilitating portions of Committee meetings, and compiling proposal (s) to implement corporate policy changes to ensure more consistency with a "well-workplace".

HEALTH POLICY & MANAGEMENT INTERNSHIPS

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Student's Role in Project:

An intern dedicated to the Price Chopper Wellness Program and Population Health Team would gain a great amount of experience by working on the following projects: work plan compilation/management; topic-specific research/communication campaign development; Community Need Index research and follow up program assistance; and proposal/report compilation as needed. The student will be expected to serve as liaison with key contacts at Price Chopper and with internal departments at MVP to complete these projects. The student will also be expected to present at corporate Wellness Committee meetings and other meetings on a regular basis to provide various teams with program progress updates.

The intern must be able to travel (drive) as required to the various Price Chopper retail stores and satellite locations, although travel is limited. He/she should be extremely motivated, an independent worker and possess a professional appearance and attitude at all times. The student must be able to work well independently but also as a key team member. The intern must also set high performance goals for him/herself and work hard to compile high quality deliverables. He/she must ensure adherence with confidentiality and HIPAA regulations when dealing with protected health information and any other information related to Price Chopper employees.

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MPH INTERNSHIP EXAMPLES

SOCIAL BEHAVIOR & COMMUNITY HEALTH INTERNSHIPS

- ① ***Qualitative Analysis of Local WIC Agency Enhanced Breastfeeding Peer Counselor Programs Internship***
Location: NYS Department of Health, Division of Nutrition, Bureau of Supplemental Foods, WIC Program

Project Background and Goals:

The mission of the WIC Program is to improve the nutritional and health status of eligible participants through the provision of nutritious foods, nutrition education, breastfeeding support and linking health and human services. Over 517,000 low-income women, infants and children participate each month. The program is administered through 94 contracts with community organizations statewide. Some of the core services provided at WIC local agencies include breastfeeding promotion and support, promoting healthy lifestyles, nutrition assessment and participant centered nutrition education. This project will involve qualitative analysis of local agency data in relationship to these core services. Once the qualitative analysis is completed the information will be used internally for quality assurance. Results from this analysis will assist WIC program staff in strategic planning to improve or maintain quality services for WIC eligible participants.

Student's Role in Project:

The student will support the mission of the WIC Program by assisting with qualitative analysis of local agency data from the WIC MIS system and agency reports; identification of trends, patterns, and potential areas for improvement as well as provide recommendations for improvements in the reporting and analysis of data.

- ② ***The Upstate New York Infant Development Screening Project (Upstate KIDS)***

Location: Upstate KIDS: Upstate NY Infant Development Screening Program University at Albany, School of Public Health

Project Background and Goals:

The Upstate KIDS Program is a longitudinal epidemiological research study in collaboration with the University at Albany, the New York State Department of Health, and the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). The Upstate KIDS Program Office is located at the School of Public Health at the SUNY Albany East Campus. No additional travel will be required for this internship. The Upstate KIDS program is a statewide (except for New York City) infant health survey. The project hopes to enroll approximately 6,000 families whose children were born in New York State from 2008 through 2010. Children and families will be followed for three years through questionnaires and the use of screening tools. The survey will allow us to determine risk factors (things that contribute to growth and developmental delays); protective factors, (things that lower the chances of growth and developmental delays); neutral factors (things that neither raise nor lower risk of growth and developmental delays). The information gathered will bring us closer to understanding the causes of growth and/or developmental delays. For this aspect of the project, the Upstate KIDS Program will implement a matched exposure cohort design by: Identifying all infants who were born in New York State (exclusive of New York City) by two to three months of age whose records indicate that they were conceived following infertility treatment.; recruiting to retain a total of 1,500 families whose children were conceived with infertility treatment (exposed) and 4,500 regionally-matched families whose children were not conceived with infertility treatment (unexposed); and administering an initial and then annual maternal and infant questionnaire and having parents complete the Ages & Stages Questionnaire developmental screen at 4, 8, 12, 18, 24, 30, 36 months of chronologic or gestation-corrected age and the Modified Checklist for Autism in Toddlers at 18 and 24 months and referring the children who do not pass the screen to the New York State Early Intervention Program and the Committee on Preschool Special Education (CPSE) through the participant's school district. Maternal Depression screening is also performed.

Student's Role in the Project/Project Goals:

The goals of this project are to determine whether infertility treatments, such as ovulation-stimulating medications and various assisted reproductive technologies (ART), adversely affect the growth, motor, cognitive, and social development of children from birth through age three years; to identify other environmental risk or protective factors relative to infant growth and development; and to test the American Academy of Pediatrics (AAP) developmental surveillance and screening algorithm using the Ages & Stages Questionnaire® (ASQ) and the Modified Checklist for Autism in Toddlers (M-CHAT).

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