Environmental Health, Occupational Health

California Department of Public Health, Center for Healthy Communities

Richmond, California

Assignment Description

The Fellow will be assigned to Environmental Health Investigations Branch (EHIB) and the Occupational Health Branch (OHB) in the Center for Healthy Communities of the California Department of Public Health (CDPH). These are the largest state-based programs for the study and prevention of occupational and environmental health problems with extensive epidemiology, toxicology, prevention, surveillance, emergency preparedness, biomonitoring, and laboratory capabilities. These two programs have a broad public health practice that encompasses investigations of outbreaks, surveillance, emergency response, analysis of big datasets, and working with interdisciplinary teams.

Day-to-Day Activities

Both EHIB and OHB will directly involve the Fellow hands on with project teams that are working on public health research, epidemiological surveillance and case-based investigations:

- Perform environmental and occupational epidemiological studies utilizing existing data sets;
- Respond to case-based outbreaks of injury and disease in the environment and workplace, including development of survey methods and tools, field visits, and data collection and analysis;
- Provide expert consultation and advice about environmental and occupational health issues to local county health officers, public health professionals, health care providers, employers and workers;
- Collaborate with community, employer and worker organization partners to develop and disseminate information about scientific findings, and translate public health information for prevention and intervention efforts;
- Participate in technical and scientific meetings with OHB, EHIB and other CDPH Centers and Programs to gain experience in State public health goals and operations; and
- Attend local, State and National meetings to refine public speaking and presentation skills

Potential Projects

Surveillance Activity  Work-Related Lead Poisoning

Review and analyze a 25-year dataset on elevated blood lead levels among California workers.

In January 2020, OHB is required to report to CalOSHA all work-related blood lead cases of > 20 ug/dl. In the Fall of 2020, CalOSHA will be required to promulgate a new workplace lead standard (the first in over 4 decades) that will significantly reduce the allowable airborne lead, require employers to test for blood lead in exposed workers, and require workers to be removed with a blood lead level of < 30 ug/dl. The Fellow will have an opportunity to analyze the largest data set on workplace lead poisoning and
prospectively evaluate the impact of this new standard. This will assist other States and Federal agencies who are considering similar action to lower workplace exposure to blood lead.

**Surveillance Evaluation**  **California Acute Work-Related Hospitalizations**

Collect and analyze severe traumatic workplace hospitalizations.

Over 600,000 injuries and illness occur at work annually in California and are reported by employers through the California workers’ compensation claims system. Over the past 3 years, we have developed specific criteria to identify, extract and code approximately 2,000 acute work-related hospitalizations each year (more than 4 times the number of work-related fatalities). CDPH routinely collects and analyzes data from hospital discharge data based on payor source (workers compensation) and receives monthly data from CalOSHA for all employers who have reported an employee with a hospitalization. The fellow will conduct an evaluation project that would help determine the utility of routine surveillance of these disabling injuries. This can lead to improvement in our surveillance system will make data more relevant and accessible to stakeholders, enabling them to target interventions to specific groups, make the case for vital public health funding, and advocate for effective programs and policies.

**Major Project  Population Effects of Large Wildfires**

Association between large wildfire exposure and reproductive outcomes.

An area of active study within EHIB is to characterize the burden of large wildfires on public health. EHIB staff have analyzed modeled per day wildfire smoke concentrations, using a combination of data from air monitors and satellite images, and its effects on respiratory, cardiovascular, and other health outcomes in vulnerable populations and their impacts to the health care system in outpatient visits, emergency and urgent care visits, and hospitalizations. Future analysis for the fellow includes expanding the outcomes of interest to reproductive outcomes, including fertility, birth outcomes (e.g. term-low birth weight and preterm birth), and pregnancy complications such as gestational hypertension and pre-eclampsia.

**Additional Project  Conduct an Occupational or Environmental Outbreak Investigation**

Our current epidemiology trainees are working on the e-cigarette or vaping product use-associated lung injury investigation. Past CSTE Fellows investigated work-related hantavirus exposures at Yosemite National Park, novel H1N1 illness among health care workers, cluster of birth defect cases in Kettleman City, CA, and pancreatic cancer cluster in Oroville area.

**Additional Project  Brain Cancer Trends Report**

A recent national study found increasing nonmalignant brain tumor incidence among teenagers/young adults and that brain cancer is the most common cancer-related cause of death among young adults (15-39 years old). Using data from the California Cancer Registry, investigate whether brain and parotid gland tumor (PGT) rates have increased in the general population of California over the last two decades, especially among teenagers/young adults. This analysis updates a previous one, so the Fellow has existing case selection criteria and programming from which to start the new analysis.
Preparedness Role

The interdisciplinary Emergency Preparedness (EP) Team, led by Jason Wilken, PhD, MPH (EIS 2012), directs the overall emergency planning and preparedness efforts for the Center for Healthy Communities and enhances our response capacity by mobilizing occupational, environmental, and laboratory expertise. The EP Team works with local, state, federal, and tribal agencies to identify and reduce risks from chemical and hazardous material incidents, which affect the health of Californians. The EP Team also conducts surveillance of chemical and hazardous material incidents, conducts public health follow-up of select acute events, and evaluates the quality of the response to those events.

Projects for a CSTE Fellow include: chemical and hazardous material release incidents surveillance program evaluation, identification of geographic areas of high hazardous material incidents, education material development for populations vulnerable to potential hazardous facilities threats, field investigations using disaster epidemiology tools such as Community Assessment for Public Health Emergency Response (CASPER) or Assessment of Chemical Exposures (see: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6435a4.htm), pilot an Emergency Responder Health Monitoring and Surveillance project with a local jurisdiction in California.

Additional Activities

Environmental Epidemiology Monthly Journal Club: co-organization with other fellows, facilitation of meetings, and selection of articles.

Mentors

Primary  Robert Harrison MD, MPH
          Chief, Occupational Health Surveillance and Evaluation Program

Secondary  Martin Kharrazi PhD, MPH
          Chief, Environmental Epidemiology Section