

Environmental Health/Occupational Health

Assignment Description

The Fellow will be assigned to the Division of Occupational and Environmental Disease Control (DEODC) of the California Department of Public Health. This Division is the largest state-based program for the study and prevention of occupational and environmental health problems through environmental epidemiology, occupational health tracking and investigations, toxicology, childhood and adult lead poisoning prevention, asthma surveillance, chemical terrorism prevention, biomonitoring, and extensive laboratory capabilities. More information about the Division can be found at <http://www.cdph.ca.gov/programs/deodc>.

Our offices are located on the San Francisco Bay at the Department's Richmond Laboratory Campus, along with the Department's many public health laboratories (environmental, genetic, food and drug, viral, etc.). A culturally rich and diverse region, the San Francisco Bay area is home to the University of California campuses at Berkeley and San Francisco, and Stanford University, and is 70 miles from the state capital in Sacramento.

The Fellow will have the opportunity to work with two of the programs: the Occupational Health Branch (OHB) and Environmental Health Investigations Branch (EHIB). These two programs have a broad public health practice that encompasses investigations of outbreaks, surveillance, emergency response, data analysis, and working with interdisciplinary teams. Extensive information about these programs and their many projects can be found at <http://www.cdph.ca.gov/programs/ohb>, and at <http://www.ehib.org>.

Day-to-Day Activities

At the beginning, Fellows are invited to attend various project meetings to learn about the many on-going activities. Depending on project need and interest of the Fellow, they can be integrated into the effort. Most projects in the branches are multidisciplinary, and may involve epidemiology, toxicology, community participation, etc., so that staff typically works in teams. There are approximately 60 staff members within OHB, comprised of occupational medicine physicians, epidemiologists, health educators, industrial hygienists, and toxicologists. EHIB has approximately 70 staff members, including epidemiologists, physicians, toxicologists, environmental health specialists, health educators, geographic information specialists, and community relations specialists. Two former CSTE Applied Epi Fellows are also on staff as epidemiologists to help orient the new Fellow.

Working with their preceptors, Fellows map out a plan of activities to meet their needs and the needs of the programs for the two-year cycle. Usually during the first year, a topic for a major project emerges, and the second year is devoted mainly to that, involving data collection, statistical analysis, and report writing.

The Branches have extensive computer support, ranging from notebook computers for fieldwork to higher-level workstations, including GIS (Geographical Information Systems), and staff members experienced in the use of GIS software. We also have epidemiologists and data analysts proficient in the use of SAS, Stata, and R for complex statistical analysis of epidemiologic surveys, environmental monitoring data, census data, vital records, etc.

Throughout their tenure, Fellows attend regular staff meetings in both branches, learning about and understanding the administrative and political issues in a large state health department. In addition, there are frequent opportunities to attend presentations, seminars, brown bag lunches, etc., on various topics, both in the Division and elsewhere on the Richmond Laboratory Campus, where staff members and outside guest speakers present new work or emerging issues. Fellows are also encouraged to share their work by giving presentations and seminars.

Potential Projects

For over 25 years, OHB has focused on the prevention of workplace injuries and illnesses among high-risk occupations, including the Hispanic workforce and “vulnerable” populations such as garment, agricultural and custodial workers. OHB has access to a large (> 10 million records) electronic database of work-related injuries and illnesses that can be used for analytical and prevention studies, and has right-of-access to workplaces for on-site investigations.

A major focus of our work has been on toxics use reduction and collaboration with environmental agencies in anticipating technology changes that may increase toxic exposures to workers. We have been in the forefront of investigating neuropathy due to exposure to n-hexane among brake mechanics, bronchiolitis obliterans due to exposure to diacetyl among food flavorings workers, and deaths in enclosed spaces due to exposure to methylene chloride in paint strippers. In addition, we have collaborated extensively with infectious disease colleagues on the occupational issues pertaining to tuberculosis, influenza, coccidioidomycosis, and hantavirus.

Routine response and investigation of requests from employers, employees, health care professionals, or unions, as well as responding to emergency chemical and hazardous incidents, frequently lead to opportunities for health studies. Recent examples include diesel exhaust exposure among longshore workers; blood borne pathogen exposures among hazardous materials workers; coccidioidomycosis exposure in construction workers; chlorine gas releases at a metal recycling facility and at a hotel; and pesticide exposure to flight attendants. The CSTE Fellow will have an opportunity to take the epidemiology lead on OHB studies, present findings at public health meetings both locally and nationally, participate in investigations for emerging issues and emergency response, and to prepare manuscripts for scientific publication.

EHIB has a number of studies examining illness in relation to possible environmental sources, such as agricultural pesticide usage, toxic emissions from industrial sources, water contaminants, and traffic emissions.

One of the hallmarks of EHIB is its willingness to tackle environmental issues that fall between the cracks of regulatory agencies. Examples of these issues include toxic exposures from molds and fungi, consumption of contaminated sport-caught fish, exposure to electrical and magnetic fields (EMF), and effects of climate change and heat waves. Recent Fellows have examined EMF exposures from cell phones, demographic factors related to mortality in extreme heat events, and trends in deaths from smoke and fire in relation to the use of chemical flame retardants. EHIB epidemiologists are also active in the study design and data analysis of California's Environmental Contaminant Biomonitoring Program (<http://www.cdph.ca.gov/programs/Biomonitoring/>).

The Division-wide Emergency Preparedness Team is interested in having a Fellow "data-mine" 20 years of data on hazardous materials incidents in the state, and assist in evaluating a surveillance system for chemical spills.

Part of the work of both branches deals with response to disease outbreaks or exposure issues, so that while several emergent issues are likely to come up during the Fellowship period, specifics cannot be anticipated.

Preparedness Role

Staff members of OHB and EHIB participate in a Division-wide Emergency Preparedness Team (EPT) for emergency response and environmental preparedness, integrated with the Department's Emergency Preparedness Office. Among many tasks, the EPT mobilizes DEODC resources in the event of an occupational or environmental emergency, provides technical support to other agencies, conducts surveillance of chemical releases in California, and carries out investigations of hazardous materials releases. Previous CSTE Fellows have participated in drills, created databases and forms for emergency response, and conducted surveys of local capacity. The EPT has a number of potential projects for Fellows, including an evaluation of the chemical spill surveillance system and a geographic analysis of hazardous materials releases.

In a large diverse state like California, CSTE Fellows may be called in an emergency to serve in a variety of capacities. In the Department-wide response to the 2009 H1N1 influenza outbreak, our CSTE Fellow participated in several phases of California's effort. Our current CSTE Fellow took a major role in the response to the Fall 2012 hantavirus outbreak at Yosemite National Park, an investigation that received national attention.

Assignment Location: California Department of Health
Richmond, CA

Primary Mentor: Daniel Smith, MS, DrPH
Chief, Environmental Epidemiology Section

Secondary Mentor: Robert Harrison, MD, MPH
Chief, Occupational Health Surveillance and Evaluation Program