

Infectious Diseases, Injury

Multnomah County Health Department, Public Health, Community Epidemiology Services

Portland, Oregon

Assignment Description

This Fellow is assigned to the Multnomah County Health Department's (MCHD) Community Epidemiology Services (CES) and Communicable Disease Services (CDS) programs within the Public Health Division. Epidemiologists in CES and the division work with or within the core public health programs in the Department. Through this assignment, our CSTE Fellow can pursue diverse opportunities over the course of his or her fellowship. We ground the position in Communicable Disease work to assure the chance to participate in the fast-paced setting of disease and outbreak investigations. From this base, the fellow may choose special projects in different areas, either staying within CD or exploring injury epidemiology or other subspecialties.

Our goal is to train our fellows as an integral member of the team of epidemiologists and public health professionals who work on the frontlines of public health. Opportunities to collect, analyze, and interpret public health data in ways that directly affect disease control and prevention programs, and are used to advise public health policy are abound. We have access to a broad range of data sources, ranging from communicable disease surveillance and vital statistics to electronic health records and medical examiner data. We also work with partners to assess information from programs as diverse as refugee health, ambulance transports, and syringe exchanges. Options exist to design and implement epidemiologic studies of one's own design.

This fellowship assignment emphasizes a population-level public health perspective for health promotion and harm reduction in our community. Specific benefits to the Fellow include development in the following competency areas: advanced applied epidemiologic research methods and techniques; strong biostatistical skills; evaluation and research design; quantitative survey methodology; communication skills; scientific writing; expert knowledge of public administration principles, best practices, and procedures appropriate to departmental scientific and technical research/evaluation practices; principles and practices of effective leadership; knowledge of scientific and technical management principles and practices for project management, strategic planning, facilitative leadership, data visualization, and other functions; and knowledge of federal, state, and local laws, and regulations related to public health practice. The Fellow in this assignment may lead public health surveillance assessments, investigations, and applied public health research; and support the planning and implementation of public health services and response. We encourage the sharing and learning and information through professional networks – for example, through attending meetings and conferences, and submitting to peer-reviewed journals.

Day-to-Day Activities

MCHD will involve the Fellow in day-to-day activities and research projects that provide "hands on" applied epidemiology experience. Functional responsibilities include:

- Performing epidemiologic studies and developing public health surveillance systems.
- Participating in or leading the response to public health events like foodborne outbreaks or occurrences of novel disease conditions.
- Providing consultation to county leaders and staff on scientific, analytic, and technical aspects of epidemiologic investigations and public health surveillance.
- Working with program managers and community partners to develop health interventions, policies, or programs based on epidemiologic findings.
- Working with partners across the Health Department to define meaningful health and well-being outcomes, and measurable outcomes for Oregon's statewide Public Health Modernization work.
- Writing material for internal reports, public information, and peer-reviewed journals.
- Participating in internal and external meetings as needed to involve project stakeholders and to learn how public health systems operate.

We also support our fellows in responding to national opportunities that arise through CSTE and CDC requests.

Potential Projects

Surveillance Mortality in Persons 18-64 Years Old Activity

Approximately 1,500-1,600 people age 18-64 die each year in Multnomah County -- almost one-in-three deaths. We have high-level information on cause of death from the annual Oregon State mortality reports, and need improved local tracking to better understand mortality in the context of behaviors and risks in our community. For example, statewide for persons under 64 years old, the leading causes of Years of Potential Life Lost (YPLL) range from unintentional injuries and neoplasms to diabetes and infectious disease conditions like viral hepatitis. However, in order to move away from siloed responses, we need to better track the impact of these deaths as patterns of mortality and risk in the community. One step toward this end is to improve the regularity of local reporting as well as the tools used for reporting. For example, routinely providing maps of leading causes of YPLL, we could see which geographic communities are most affected. This project will include analyzing death certificate data (available on county servers); developing an easily-accessible routine reporting mechanism for leading causes of death and YPLL in this population; and identifying additional surveillance needs and resources. Examples of the last mentioned area of work could include working on improved morbidity and mortality surveillance for subsets of high-mortality conditions, like viral hepatitis and related liver disease, or opiates (see additional projects below).

Surveillance Hepatitis C Surveillance Evaluation

Hepatitis C reporting is a relatively high-volume reporting system, averaging about 150 case reports each month. However, based on work using the Electronic Health Record (EHR data) from our 70,000 client FQHC, we believe there are still reporting gaps. To evaluate our Hepatitis C surveillance system, the fellow will draw on our mature Hepatitis C registry and clinical data warehouse to assess potential gaps in reporting. This work will include further developing complex case detection algorithms applied to electronic health information, and scoping out the real-world implications for timeliness of reporting.

Major Project Screening and Treatment for Latent Tuberculosis Among People Experiencing Homelessness

Multnomah County has conducted screening in dorm-sheltered homeless populations for over 20 years. We have rich data on this program for at least 10 of those years, including annual screening and LTBI treatment information for individuals over time. Most assessments of TB prevention in homeless populations rely on cross-sectional data. We have a relatively unusual opportunity to assess screening and treatment outcomes using longitudinal data. We feel this is an important analysis to conduct, as anecdotally we know that it can take several rounds of screening and counseling to engage homeless clients in LTBI treatment. This project would involve linking available data from our TB Database and our clinical data warehouse; developing and applying case definitions for TB status;

and using the subsequent cohort to assess any number of TB prevention program outcomes (to be defined as part of the project). As part of this project, the Fellow will collaborate with Community Health Workers and nurses who conduct the shelter screening; and present findings to both epidemiology- and policy-oriented audiences.

**Surveillance Risk and Protective Factors in Firearm Injury
Activity**

Using multiple data sources (Medical examiner, trauma registry, death certificate, emergency department visit, AMR, etc.), examine the risk and protective factors, including geographic and community factors of firearm injury. This project includes database construction, analysis, and development of recommendations to influence policy. In considering firearm injuries from a social justice lens, explore the possibility of adding death due to legal interventions as notifiable conditions.

**Surveillance Opiate Surveillance
Activity**

Oregon is one of the nation's leaders in heroin use and in nonmedical use of prescription opioids. This project gives the CSTE Fellow an opportunity to think creatively and analytically by using multiple data sources (e.g. Medical Examiner, Ambulance, Prescription Drug Monitoring, Emergency Visit, Treatment, Syringe Exchange, Poison Center, and Vital Statistics data) to create Multnomah County's Opiate Surveillance System. The Fellow will have an opportunity to work with the Oregon Public Health Division and Multnomah County epidemiologists to develop and validate queries in our syndromic surveillance system, ESSENCE, to capture and assess opiate related emergency visits. The Fellow will also be given the opportunity to work with leadership, other Portland metro counties, and our Health Officer to make recommendations on how these data can be used in our programs, policies and education efforts.

Preparedness Role

The Fellow will have the opportunity to participate in emergency preparedness and response activities and to attend Incident Command training. The Fellow may be called upon to represent the Multnomah County Health Department at the local, state, and national level in matters affecting epidemiologic activities --including multi-agency public health emergency preparedness planning and response.

