Chronic Diseases, Substance Abuse

Baltimore City Health Department, Office of Chronic Disease Prevention
Baltimore, Maryland

Assignment Description

The Fellow will be placed in the Baltimore City Health Department (BCHD) Office of Chronic Disease Prevention (OCDP). His/her work will primarily focus on OCDP chronic disease epidemiology needs for data analyses to inform program and policy decision-making, fulfillment of data requests, analyses and planning for monitoring and evaluation, and drafting reports, summaries, etc. The Fellow will also work on evaluation of Baltimore City Non-Fatal Opioid Overdose Surveillance System and will be assigned to detail the Acute Communicable Disease team for a period of time to learn about outbreak investigations and the like. In addition, the Fellow will participate in BCHD emergency preparedness and response activities. The Primary and Secondary Mentors for the Fellow will be Dr. Darcy Phelan-Emrick (Chief Epidemiologist) and Mr. Jonathan Gross (Epidemiologist), respectively.

OCDP focuses on the prevention of cardiovascular disease, cancer, asthma, childhood lead poisoning, and on improved tobacco control and access to healthy foods for Baltimore City residents. Its responsibilities include: outreach and home visits/interventions for families with children who have elevated blood lead levels (5-9 micrograms/dL), enforcement of the city lead laws, maintenance of lead violation data, home visits/interventions for referred families with childhood asthma, education of tobacco retailers, enforcement activities for tobacco sales to minors, collaboration with federally qualified health centers on cardiovascular health, and work to improve access to healthy foods through the Baltimarket Initiative, including the Virtual Supermarket Program that delivers groceries to pick-up locations in the city food deserts.

Day-to-Day Activities

- Analyze confidential data (vital statistics data, emergency department and inpatient hospitalization discharge data, Maryland Cancer Registry data, etc.)
- Draft summaries of analysis findings and text for reports
- Review and fulfill data requests for BCHD staff, media, press, Mayor's Office
- Meet with BCHD staff and partners to understand data and evaluation needs
- Write evaluation plans for funding applications
- Identify public/open datasets for potential analysis
- Read articles/news to stay up-to-date with developments in chronic disease epidemiology
- Complete work to make progress on activities and projects described in this application
Potential Projects

**Surveillance Activity**

**Chronic Disease Surveillance Dashboard**

The Fellow will create an interactive online dashboard to summarize surveillance of Baltimore City chronic diseases and associated risk factors by demographics and geography. The dashboard will be used by BCHD staff and leadership in assessment, policy development, and evaluation. This effort will involve calculating crude and age-adjusted estimates over time for mortality by various chronic diseases at the city and neighborhood levels using vital statistics data. The Fellow will analyze data from the Maryland Cancer Registry to characterize cancer incidence by cancer site at the city and neighborhood levels over time. Data from the Maryland Health Services Cost Review Commission will be analyzed at the city and ZIP code levels to describe the burden of emergency department visits and inpatient hospitalizations for chronic diseases in Baltimore City over time. For data only available at the city level (e.g., Maryland Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Surveillance System (YRBS)), the Fellow will download, analyze, and summarize trends over time by demographic factors. When available for Baltimore City or its metropolitan area, US Chronic Disease Indicators will be calculated as well. For comparison purposes, data for the state of Maryland and the US overall will be included. The Fellow will explore the possibility of including chronic disease-related ESSENCE data in the dashboard and chronic disease data from Maryland health information exchange. The Fellow will work with BCHD Chief Informatics Officer to visualize the data in an interactive online dashboard via Instant Atlas (https://goo.gl/5pJBAM) or a similar dashboard tool.

**Evaluation of Baltimore City Non-Fatal Opioid Overdose Surveillance System**

The Fellow will create an interactive online dashboard to summarize surveillance of Baltimore City chronic diseases and associated risk factors by demographics and geography. The dashboard will be used by BCHD staff and leadership in assessment, policy development, and evaluation. This effort will involve calculating crude and age-adjusted estimates over time for mortality by various chronic diseases at the city and neighborhood levels using vital statistics data. The Fellow will analyze data from the Maryland Cancer Registry to characterize cancer incidence by cancer site at the city and neighborhood levels over time. Data from the Maryland Health Services Cost Review Commission will be analyzed at the city and ZIP code levels to describe the burden of emergency department visits and inpatient hospitalizations for chronic diseases in Baltimore City over time. For data only available at the city level (e.g., Maryland Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Surveillance System (YRBS)), the Fellow will download, analyze, and summarize trends over time by demographic factors. When available for Baltimore City or its metropolitan area, US Chronic Disease Indicators will be calculated as well. For comparison purposes, data for the state of Maryland and the US overall will be included. The Fellow will explore the possibility of including chronic disease-related ESSENCE data in the dashboard and chronic disease data from Maryland health information exchange. The Fellow will work with BCHD Chief Informatics Officer to visualize the data in an interactive online dashboard via Instant Atlas (https://goo.gl/5pJBAM) or a similar dashboard tool.
Major Project  
**Chronic Diseases and Associated Risk Factors in Baltimore City 2014 Community Health Survey**

The Fellow will analyze data from Baltimore City Community Health Survey to characterize chronic diseases and associated risk factors among residents. This cross-sectional study was conducted by telephone in fall 2014 among 1,722 adults, and data were collected on a wide variety of topics. Thus far, BCHD has only released a summary report on the overall survey findings (https://goo.gl/SxYmG1). Based on the results of his/her analysis, the Fellow will prepare a report for posting online, presentation slides for use by BCHD staff and leadership, and infographics. The Fellow will also explore the possibility of conducting additional analyses for submission to a peer-reviewed journal. He/she will post the analytic dataset and codebook to Baltimore City online open data portal.

Additional Project  
**The Epidemiology of Lead Poisoning in Baltimore City**

The Fellow will analyze individual-level data of cases of elevated blood lead levels to describe the epidemiology of lead poisoning among Baltimore City children. This will involve downloading the data from Stellar (the lead poisoning database used by BCHD), cleaning the data, and, if necessary, creating a codebook. The Fellow will run descriptive statistics on cases separately for 5-9 micrograms/dL and 10+ micrograms/dL. The Fellow will conduct time trend analysis and explore forecasting of future trends of lead poisoning in Baltimore City. He/she will also map the cases and conduct geospatial analyses. The Fellow will use the data to investigate occurrences of repeat positive testing among children and addresses separately. The Director of the Lead Program will request additional analyses to inform the work of program and field staff. The Fellow will also learn about BCHD outreach to affected families, as well as the numerous data requests/legal subpoenas received regarding lead poisoning.

Additional Project  
**Temporary Detail with Office of Acute Communicable Disease**

Given that the Fellow will focus the majority of his/her time on chronic diseases, a temporary detail with BCHD Office of Acute Communicable Disease (ACD) will be arranged so the Fellow will have the experience of participating in outbreak investigations. The ACD team includes four epidemiologists - one of whom serves as the Director. The Fellow will join the ACD team as they progress start-to-finish through the steps of at least one outbreak investigation. The Fellow will write a field investigation report and receive feedback on the report from the ACD team. The team will also expose the Fellow to NEDSS (National Electronic Disease Surveillance System) and other tools and resources used during their daily operations. As a FYI, counts for selected notifiable conditions for Baltimore City are available at https://goo.gl/EY0aj2.

Preparedness Role

The Fellow will participate as an entry-level epidemiologist in BCHD's emergency preparedness and response activities. He/she will be assigned a role in BCHD incident command system (ICS), and will complete the necessary in-person and online trainings within 6 months of on-boarding. The Fellow will become familiar with the epidemiology components of BCHD emergency response plans, and he/she will participate in tabletop exercises, drills, related activities, and, if necessary, actual emergency responses.
If the Fellow workload allows, the BCHD Office of Public Health Preparedness and Response and the Acute Communicable Disease team are interested in the Fellow analyzing Zika virus testing data collected by BCHD during the 2016 mosquito season. The goal of the project would be to identify ways to improve community education regarding Zika. The data analysis would help determine groups that are most likely to make a Zika testing request, and how BCHD can better communicate with clinicians regarding Zika. Data points to analyze would include: requests for Zika testing, demographics, type of healthcare provider, and geographic location. The Fellow would prepare a report summarizing the information learned through the analysis for the BCHD Zika Internal Workgroup. Information learned through the data analysis would help BCHD prepare and make modifications for future Zika response.

**Additional Activities**

Data analysis of Baltimore City Zika testing (as mentioned in the Emergency Preparedness section); falls-related injury surveillance using data from Maryland health information exchange; ESSENCE query development; submission of data requests to government and partner agencies.

**Mentors**

**Primary**

Darcy Phelan-Emrick,  
Chief Epidemiologist

**Secondary**

Jonathan Gross, MPH, CPH, Certificate in GIS  
Epidemiologist