ID: 72054794
Infectious Diseases - Host Site Description
Public Health - Seattle & King County

Assignment Location: Seattle, US-WA
                              Public Health - Seattle & King County
                              Communicable Disease Epidemiology & Immunization Section

Primary Mentor: Ellyn Marder, DrPH, MPH
                              Epidemiology Team Manager
                              Public Heath - Seattle & King County

Secondary Mentor: Vance Kawakami, DVM, MPH, DACVPM
                              Public Health Veterinarian
                              Public Health - Seattle & King County

Work Environment
Hybrid

Assignment Description

The Fellow will work as a member of PHSKC's Communicable Disease Epidemiology and Immunization Section (CD-Imms). The Fellow will collaborate on projects with each branch within CD-Imms (Analytics & Informatics, Investigations, and Immunizations), which is supported by mentors representing each of these branches. The Fellow will be immersed in the daily disease control and prevention activities of the section with opportunities to gain significant experience in case and outbreak investigations, including field investigations of healthcare associated outbreaks (e.g., drug-resistant organism outbreaks, infection control lapses, drug diversion, etc.), foodborne outbreaks, and zoonotic diseases; surveillance, including syndromic, lab-based reporting, and monitoring and improving data systems; bio-emergency preparedness; vaccine distribution and immunization program work; media requests and communication skills; preparing technical documents for the public and health care professionals; and interacting with and providing presentation to partners. Publication of projects is strongly encouraged and supported.

During the initial months, the fellow can expect to participate in onboarding, training on data systems and procedures, and meetings with key staff to understand section workflows and routine operations. The section is committed to incorporating equity and social justice principles in all aspects of its work, consistent with the County's ESJ Strategic Plan. The Fellow will be encouraged to participate in ESJ training opportunities and then incorporate these principles into practice. The Section will aim to provide the Fellow with a broad range of experience and growth opportunities, tailored to their interests and skillsets.

Day-to-day, the Fellow will collaborate with mentors and colleagues as well as work independently on routine surveillance, case and outbreak investigations, data system maintenance, program management and implementation, and epidemiologic analyses. The Fellow will meet weekly with the primary, secondary, and tertiary mentors focusing on training opportunities, professional development, identifying projects of interest, and subject matter expertise.

Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow

The Fellow will have access to the following databases, surveillance systems, and data sets:
- Local communicable disease database for notifiable conditions and outbreak reports (SQL-server database)
- Washington State Disease Reporting System
- Washington State Electronic Lab Reporting System (WELRS)
- Local REDCap databases developed to support COVID-19 investigations and responses

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- Washington State Immunization Information System
- Syndromic surveillance database
- Collective Medical Technology
- Perinatal Hepatitis B database
- Medicaid claims data
- Washington State hospital discharge data
- Washington State vital statistics data
- CDC NREVSS influenza testing data

Software:
- SAS (if needed)
- R
- SaTScan
- Tableau
- REDCap
- ArcGIS
- Microsoft SQL Server Management Studio
- Microsooft SQL Server Reporting Services

Projects

Surveillance Activity Title: Communicable Disease Case and Outbreak Investigations

Surveillance Activity Description:
The fellow will be trained on conducting communicable disease case and outbreak investigations, including enteric and foodborne illness, vaccine-preventable diseases, zoonotic and emerging infections, and healthcare-associated infections. The fellow will routinely participate in the Section's daily huddles and update reports.

Surveillance Activity Objectives:
The fellow would be expected to learn communication techniques, investigations guidance specific to diseases, data collection methods, data entry protocols, and cluster/outbreak identification techniques. The fellow would be expected to conduct outbreak surveillance summaries and communicate epidemiologic trends to internal audiences.

Surveillance Activity Impact:
Timely and thorough disease investigations enable PHSKC to identify and respond to emerging communicable diseases.

Surveillance System Evaluation Title: Evaluation of foodborne illness complaint surveillance

Surveillance System Evaluation Description:
In 2024, Washington State DOH launched an online reporting tool for foodborne illness complaints. This supplements PHSKC's previous foodborne illness complain surveillance system which was based on telephone calls. In this evaluation, the Fellow will review complaints received through both mechanisms to evaluate key characteristics, including representativeness, timeliness, and utility. An equity lens should also be used in this evaluation to identify opportunities and barriers for utilization across communities.

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Surveillance System Objectives:
The goals of this evaluation are to 1) describe representativeness, timeliness, and utility of our foodborne illness complaint surveillance system in comparison with case surveillance, and 2) identify opportunities and barriers for utilization across communities to make recommendations for translation resources and outreach.

Surveillance System Impact:
By evaluating and improving foodborne illness complaint surveillance, we can work efficiently across data systems to monitor trends in foodborne illness to identify and investigation clusters and outbreak within our communities.

Major Project Title: Incidence and severity of enteric illnesses among populations with diverse diets

Major Project Description:
King County is home to a diverse population with many diets represented, which may include known risk factors for enteric illnesses such as undercooked or uncooked meat. We would like to explore the incidence and severity of enteric illnesses among populations with diverse diets in order to better target interventions to prevent severe illnesses, especially among vulnerable populations such as young kids. Enteric illnesses are often under counted in surveillance, especially among families where multiple individuals experience symptoms but only one person seeks laboratory testing. This undercounting may be more prevalent in certain communities where multi-family housing or shared meals are more common. This analysis should account for this underreporting in order to accurately estimate true incidence and severity of enteric illnesses in specific populations.

Major Project Objectives:
The objective is to determine how incidence and severity of enteric illnesses different among populations with diverse diets and how that might differ from baseline estimates. The fellow may develop an abstract, manuscript, and/or presentation based on this work.

Major Project Impact:
This project may provide opportunities to better focus on epidemiologic and environmental health interventions to prevent severe illness, especially among vulnerable populations such as young kids.

Additional Project #1 Title: Childhood under-immunization and associated population characteristics
Project #1 Type: Surveillance Activity

Project #1 Description:
Conduct a geospatial analysis in King County to identify spatial clusters of childhood under-immunization and associated Census tract-level characteristics (e.g., poverty, education, race, ethnicity, language) using WAIIS data and American Community Survey data. Evaluate infant and childhood vaccines including those required for WA State K-12 school entry (DTap/Tdap, Hepatitis B, MMWR, polio, varicella). Assess HPV vaccine in adolescents if feasible.

Project #1 Objectives and Expected Deliverables:
A final presentation, summary report, reusable code, and a Tableau dashboard that supplements the current childhood immunizations dashboard.

Project #1 Impact:
Identifying population characteristics associated with childhood under-immunization will allow the Immunization Program to focus our education, outreach, and mobile vaccination efforts on those communities who are most impacted by vaccine-preventable disease. This targeted universalism approach will allow us to tailor our outreach strategies to specific communities and decrease vaccine-preventable diseases throughout King County.

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Additional Project #2 Title: Equity Impact Assessment of Rabies Vaccine Requirement
Project #2 Type: Major Project

Project #2 Description:
A proposed modification to King County Code would require mandatory rabies vaccination for dogs and cats and reporting vaccination to a registry within 30 days of vaccination. Potentially, this modification would include a licensing fee payable by the owner of the dog or cat. The fellow would perform an equity analysis to determine the impact of this modification, including potential licensing fees, on underserved communities across King County.

Project #2 Objectives and Expected Deliverables:
The objectives are to assess impact of the proposed modifications on underserved communities across King County. The expected deliverable is a report and presentation to share findings with program leadership and external partners to inform discussions of this proposed change.

Project #2 Impact:
The findings from this assessment will inform recommendations for mandatory reporting of rabies vaccination and licensing to ensure policies are equitable and fair.

Additional Project #3 Title: Implementation of Automated Cluster Detection Methods
Project #3 Type: Major Project

Project #3 Description:
Automated cluster detection is a valuable tool allowing for early detection of potential outbreaks with minimal resources. For this project, the fellow will review available data sources (e.g., laboratory-based case reports, healthcare encounter syndromic data) and automated cluster detection methods (e.g., SaTScan, CUSUM charts, aberration detection) to implement automated cluster detection for at least one reportable communicable disease to aid our investigation work.

Project #3 Objectives and Expected Deliverables:
The objective is to implement an automated cluster detection process, including scripts and workflows, for timely detection of potential outbreaks. The fellow will develop the analytic tools, scripts, and workflows to process data, identify clusters, and validate results. They may develop an abstract, manuscript, and/or presentation based on this work.

Project #3 Impact:
This project will allow for early detection of potential outbreaks to increase timeliness of public heath response, reduce manual review to detect clusters, and identify outbreak that may otherwise be undetected.

Please Describe the Fellow's Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)

The Fellow will participate in preparedness and response efforts as part of their routine work in CD-Imms. CD-Imms is responsible for monitoring and responding to communicable disease events as well as biological emergencies and non-communicable disease related acute conditions that require investigation and coordination of healthcare system responses (e.g., carbon monoxide poisoning, illness after natural disaster, biological terrorism, severe weather events). Over the past few years, the section has responded to measles, avian influenza, hepatitis A, and COVID-19. CD-Imms works closely with Public Health's Preparedness Section to respond to and manage these events. The fellow will participate in Incident Command System and National Incident Management System trainings. The Fellow will also have

the opportunity to plan for how to coordinate shelter surveillance in the event of an emergency, including developing web-based data collection instruments in REDCap and creating accompanying dashboards in Tableau to support disaster surveillance and response. The Fellow will have opportunities to collaborate with the Emergency Medical Services Division in response to smoke, cold, and heat related events. Time allocation will vary depending on activation of command center; the fellow should expect a minimum of 4-10 hours per month related to preparedness planning.

Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)

A core component of the fellowship will include participating in cluster and outbreak investigations. There will be numerous opportunities to participate in field investigations such as foodborne illness/enteric disease outbreak investigations, healthcare associated infections/drug diversion events, zoonotic disease and vaccine preventable disease investigations. Work will include leading developing and administering surveys; interviewing patients; reviewing medical records; analyzing data; and drafting and revising health advisories for the public and healthcare providers; disseminating results through various forums and to various audiences. The fellow should anticipate dedicated 10-20 hours per week on cluster and outbreak investigation activities.