ID: 57467364
Infectious Diseases, Chronic Disease - Host Site Description
Snohomish County Health Department

Assignment Location: Everett, US-WA
Snohomish County Health Department
Office of the Director

Primary Mentor: James Lewis, MD, MPH
Health Officer
Snohomish County Health Department

Secondary Mentor: Vivian Hawkins, PhD, MS
Epidemiology and Informatics Manager
Snohomish County Health Department

Work Environment
Hybrid

Assignment Description

The fellow will be mentored by Health Officer Dr. James Lewis and Epidemiology and Informatics Manager Dr. Vivian Hawkins as well as by Public Health Emergency Preparedness and Response Manager Gabby Hadley. James and Gabby reports to Health Department Director Dennis Worsham, and Vivian reports to James. As such, the fellow will be part of the Office of the Director, allowing the fellow a unique and valuable birds eye view into the leadership of the health department. The work done in the Office of the Director touches on every aspect of public health. Also reporting to the Office of the Director are the leads of Prevention and Environmental Health, as well as Policy, Finance, and Emergency Preparedness and Response. The fellow will have the opportunity to learn about these varied aspects of work. Dennis Worsham reports to the county executive, and the fellow will have the opportunity to attend Board of Health meetings, executive cabinet briefings and other high level policy events.

The fellow will become an integral part of the Epidemiology and Informatics team, attending team meetings, and working alongside the small but dedicated Epi staff here. We have a beautiful office in downtown Everett WA that has soaring ceilings and a greenhouse style roof. Most staff are primarily remote, coming into the office one to two days/week. The CSTE fellow will have the option to come into the office as often as they would like (up to daily) or may choose to come once or twice a week with the remaining time working remotely. The Epi team has two standing weekly meetings, and connects ad hoc on projects as needed.

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

The fellow will have access to statistical packages including R, STATA and SAS (various Epi team members use different statistical packages, and the fellow will have the option to learn a new package if desired in order to contribute to team projects). The fellow will receive a Tableau license, as the Epidemiology team is increasingly using Tableau to create data dashboards and maps. The fellow will have the same access to software and surveillance systems as every other member of the Epi team, including access to vital records data streams, the notifiable condition management system run by WA DOH, syndromic surveillance (ESSENCE) and the electronic medical records system used by clinics and staff in Snohomish, called Patagonia.

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Projects

Surveillance Activity Title: Chronic Disease Surveillance System Development in Snohomish County

Surveillance Activity Description:
At present and due to capacity issues, Snohomish County does not analyze nor report any surveillance data about the burden of common chronic diseases among our population (for example cancer, diabetes, heart disease, asthma). The fellow will perform a landscape analysis to understand what data sources about chronic disease exist in the state that we should gain access to and utilize in a future surveillance system (for example, death certificate data, BRFSS, youth surveys, cancer registry, hospitalization registry data, syndromic surveillance, all payer claims data). The fellow will work with epidemiologists at the state department of health and at neighboring local health jurisdiction, including Public Health Seattle & King County to understand what chronic disease surveillance looks like at the state and local levels (such as what data systems exist, what type of data reporting is done, the granularity of subpopulation data), and what best practices are already in place elsewhere. The fellow will then propose a plan to implement a chronic disease surveillance system in Snohomish.

Surveillance Activity Objectives:
The fellow will begin by meeting chronic disease epidemiologists at the state and neighboring LHJ levels (mentor Vivian Hawkins will facilitate these introductions, as she has such connections). The fellow will develop a report listing the types of surveillance data systems that Snohomish County could potentially gain access to, the types of data in each and uses thereof, and the granularity of data for subpopulation analyses. The fellow will develop a surveillance system development plan, highlighting what chronic disease surveillance systems are most useful when beginning to understand the burden of chronic disease in a community. If time allows, the fellow will begin to analyze data from existing surveillance systems and will create a preliminary report of the top causes of chronic disease related morbidity and mortality in the county

Surveillance Activity Impact:
At present Snohomish County does not utilize data regarding the prevalence of chronic disease, and so health officials here to not know the burden of chronic disease in the community, which subpopulations are most affected, and of course cannot implement interventions given lack of surveillance data. This lack of awareness of the burden of chronic disease in the county is due to understaffing, but is clearly something that absolutely must change given that chronic disease is a major cause of suffering and death in the US. The fellow will play a crucial role in ensuring that the backbone of a chronic disease surveillance system is laid. With an understanding of what chronic disease surveillance data exist, how other counties are using the data, and a roadmap to obtain and analyze those data here, we will have made major inroads into the next step: working to prevent chronic disease morbidity and mortality.

Surveillance System Evaluation Title: Evaluation of the Snohomish County Sexually Transmitted Infection (STI) Surveillance System and community impact of the recently reopened health department STI clinic

Surveillance System Evaluation Description:
In Snohomish County, STI disease investigators enter notifiable condition case data into a state system called PHIMS. We also store some STI case data in a Snohomish-county specific EMR system called Patagonia. Snohomish County is starting a STI direct services clinic (launch data Dec 1, 2023) that will offer testing and treatment for STIs located on the first floor of the health department building, with a possibility of expanding to mobile services.

It is crucial that we have accurate data about the clients served by the Snohomish direct services, such as how many clients have received direct clinical care, what care was received, demographic factors of cases (such as MSM, drug use status, homelessness, race, ethnicity, language, insurance status and more).

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The fellow will undertake an evaluation of the Snohomish STI surveillance system, to identify completeness of key variables (in both the state and local data systems), consistency of data in the state vs local data systems, and proposed improvements to data processes STI case interviews as well as data capture for client patient services to ensure that we are capturing accurate data. The fellow will help evaluate the community impact of the newly reopened STI clinic.

Surveillance System Objectives:
The first objective is to understand what STI data are key and must be complete (such as data essential for proper treatment of a case, and demographic data so that we know if direct client services are reaching the intended populations). This will literature reviews, collaboration with state and local colleagues also working in STI service, and key informant interviews with the Snohomish clinic nurse, Health Officer, and disease investigation staff. Next, the fellow will ascertain the completeness/missingness of these key variables in both the state (PHIMS) and local (Patagonia) systems. The fellow will then identify data process improvements that could be implemented, such as moving key questions to the beginning of a case interview, providing training to disease investigations staff about the rationale for asking some of the key questions (to boost compliance) and preparation of regular reports about data completeness (to check progress and make adjustments).

Surveillance System Impact:
This project will allow us to know if the STI services we are rendering are reaching the desired populations. STI direct services are starting in Snohomish County, with the goal of reaching underserved and high risk populations who don't have easy access to other care. The first step is to assess how complete are data are, make improvements to data collection methods to boost completeness, then evaluate data completeness iteratively to make adjustments to processes, with the goal of having robust data about the populations we are currently serving, where gaps exist, and to then develop implementation strategies to ensure that we are meeting our goal of reaching vulnerable populations.

Major Project Title: Missed and Late Tuberculosis (TB) Diagnoses, Snohomish County and Washington State

Major Project Description:
In the early months and years of the COVID-19 pandemic, there have been some reports of missed and late TB diagnoses, including patients who died. The full scope of the problem of missed and late TB diagnosis in Snohomish County and Washington State has not been described. The fellow will undertake a project to identify the extent of missed and late TB diagnoses, reasons for such missed and late diagnoses, and strategies that may be implemented to ensure that possible TB cases are identified and treated in a timely fashion.

Major Project Objectives:
The objective is to identify the burden of missed and late TB diagnoses in Snohomish County and Washington state (the latter done in collaboration with other local health jurisdictions and the state), the subpopulations most impacted by missed and late diagnosis (such as racial/ethnic groups and people speaking certain languages), the burden of TB spread related to missed and late diagnoses (such as contacts who were not aware of their exposure given the lack of a case diagnosis), as well as the reasons for the missed and late diagnoses (such as lack of provider education about the symptoms of TB and when to test for TB, lack of healthcare seeking behavior on the part of cases, delays in contact tracing and other modifiable factors).

The fellow will work with the Health Officer, Snohomish TB team and state and local partners to develop and implement a case ascertainment strategy to identify missed and late TB diagnoses among living and fatal cases. The fellow will also develop and implement methods to understand why TB diagnoses were late or missed (such as key informant interviews with healthcare providers to understand knowledge and practices relating to TB testing).

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Finally, the fellow will suggest and work to implement interventions to reduce the issue of late or missed TB diagnosis, such as working with local clinics to add EMR flags reminding providers of the symptoms of TB and suggesting educational campaigns to reach those who are at greatest risk of TB.

Major Project Impact:
The impact of this project will be to reduce the possibility of people suffering and even dying of undiagnosed and untreated TB, as well as reduce the risk of spread of TB in our community.

Additional Project #1 Title: Equitable Resource Allocation through Geospatial Analysis in Disaster Preparedness and Response
Project #1 Type: Major Project

Project #1 Description:
Disasters disproportionately impact those with access and functional needs. Understanding these disparities and proactively addressing them is crucial for effective emergency management and public health response. Geospatial analysis offers a powerful tool to help us identify areas and populations most at risk before and during disasters, and more equitably allocate resources and targeted interventions.

Project #1 Objectives and Expected Deliverables:
The fellow will utilize geospatial analysis techniques to identify populations with access and functional needs and assess their susceptibility to various types of disasters. This analysis will consider factors such as proximity to healthcare facilities, transportation infrastructure, socioeconomic status, and other relevant indicators.

By overlaying these datasets, the fellow will create a comprehensive understanding of where and how different populations are likely to be impacted by disasters. The fellow will then develop a proposed resource allocation model for the Public Health Emergency Preparedness and Response program. This model may include strategies for pre-positioning medical supplies, establishing temporary healthcare facilities, coordinating transportation assistance, and other measures tailored to the identified needs of at-risk communities. If time allows, the fellow may also provide recommendations around the implementation of the resource allocation model, including strategies for collaboration, monitoring, and evaluation.

Project #1 Impact:
At current, emergency preparedness and response work in Snohomish County minimally utilizes data to drive decisions. This project will work to address that, while helping to improve equity in emergency response work by targeting resources to areas and populations most in need. This work will also help to enhance community resilience and contribute to the health and well-being of all community members, especially those with access and functional needs.

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

The fellow will have the opportunity to work closely with the Public Health Emergency Preparedness and Response (PHEPR) Program, which is also situated in the Office of the Director. The PHEPR program is responsible for preparing for and responding to emergencies that impact the health of Snohomish County residents. Moving forward, the PHEPR program aims to focus on improving the efficiency and effectiveness of public health emergency responses by leveraging epidemiological principles.

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The fellow could partake in the following preparedness and response related projects:
- Medical Reserve Corps Program Evaluation/Assessment:
- Background: The Medical Reserve Corps (MRC) is a national network of more than 300,000 volunteers organized locally to improve the health and safety of their communities. The PHEPR program runs the Snohomish County MRC, and under the supervision of the Health Officer, activates them to augment their capabilities during public health emergencies.
- Project Overview: The fellow will characterize the Snohomish County Medical Reserve Corps by defining notable strengths and gaps in our units' skills and trainings. They will use their findings to develop a training and exercise plan to ensure our unit has the skills and trainings needed to keep Snohomish County residents safe and healthy. If time permits, they will examine the ways that MRC units integrate with public health departments across the country. Using their findings they will provide recommendations on how the Snohomish County MRC could be better leveraged by the Snohomish County Health Department.
- Data Analytics for Prediction & Early Warning:
- Background: Predictive modeling can be a powerful tool to predict the severity and impact that emergencies may have on public health. It offers response officials useful insights that they can use as they prepare for and respond to the impacts of these emergencies.
- Project Overview: The fellow will perform an analysis to learn what data sources should be included in their model (health data, environmental health data, SES data, past emergency response data, etc.). Then using the best predictive modeling technique, they will build and validate their model. If time permits, they will provide a training for emergency responders on the potential uses, interpretations, and limitations of their predictive model.
- Geospatial Analysis for Resource Allocation:
- Background: Disasters disproportionately impact those with access and functional needs. Creating resources that identify where these disproportionate impacts are most likely to occur, before and during disasters, can help emergency managers more equitably address the needs of those at highest risk of negative health impacts during disasters.
- Project Overview: Using geospatial analysis, the fellow will identify populations with access and functional needs and determine how they will most likely be impacted by different disasters (ex: lack of access to healthcare facilities, food insecurity, etc.). If time permits, they will develop a proposed resource allocation model that PHEPR can use to more equitably guide resource distribution during emergencies that impact public health.

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

The fellow will be closely connected with cluster and outbreak investigation work and will have the opportunity to participate in field work and outbreak identification and investigation. As an example, given that we are a population of ~860,000, Snohomish County regularly has cases that are part of state and national foodborne illness related outbreaks. In the course of the fellow's assignment here, we will ensure that the fellow is involved in several outbreak investigations. Specific opportunities will of course vary based on notifiable condition reporting and outbreaks. In general, the fellow will be expected to assist with investigations of multi-drug resistant organisms (MDROs) and outbreak investigations in long term care facilities (such as norovirus and influenza).

Please Describe the Fellow's Anticipated Role in the COVID-19 Response – Include Activities and Time Allocation

Snohomish County does publish a regular COVID report, and does have a Tableau dashboard spotlighting respiratory virus activity. The fellow will have the opportunity to learn about and participate in updating these reports if so interested.

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The fellow will also work closely with Health Officer Dr James Lewis to learn about the process health officer orders and recommendations relating to COVID, such as recent work setting thresholds at which masking in healthcare facilities is recommended. The fellow will also have the opportunity to work with infection preventionists and others providing guidance to long term care facilities, schools and businesses regarding identifying, reporting and responding to COVID outbreaks.

Please Describe Opportunities for Fellows to Work in Health Equity as well as Incorporating Diversity, Equity, and Inclusion into their Work

Health equity is a core value at Snohomish County. As we expand our Epidemiology and Informatics team there will be a focus on increasing access to local data to better understand demographics including race/ethnicity as well as income and social determinates of health data to work to better characterize and ultimately respond to health inequity in our community. The fellow will play a key role in helping us identify, analyze and report out on data that will help us understand and then act to remediate health disparities in our county. Health equity is an underpinning of all of our work, from seeking to evaluate STI services to ensuring that emergency preparedness work is focused on communities with the greatest health needs.

Our health department is also focused on diversity and inclusion. We are in the process of hiring a Health Equity Policy analyst and there will be opportunities for the fellow to work with this staff member on projects.