

ID: 85704241

**Infectious Diseases, Maternal and Child Health - Host Site Description
Michigan Department of Health and Human Services**

Assignment Location: Lansing, US-MI
Michigan Department of Health and Human Services
Immunization Division

Primary Mentor: Ryan Malosh, MPH, PhD
Director of Division of Immunization
Michigan Department of Health and Human Services

Secondary Mentor: Pauline Stedman, MPH
Respiratory Virus Unit Manager
Michigan Department of Health and Human Services

Work Environment

Hybrid

Assignment Description

This Fellow will be placed in the Respiratory Virus Unit in the Division of Immunization. This individual will work closely with the 6 other full-time staff in the unit along with the 2 part-time interns and collaborate on projects. This will include attending weekly unit meetings, division/section meetings, project specific meetings, and setting up 1:1 meetings with both primary and secondary mentors. This Fellow's responsibilities will focus on respiratory virus-related illnesses, and therefore most collaboration will happen within the unit. However, there will be opportunities for the fellow to work with others in the Division of Immunization, including Immunization Registry and Vaccine Preventable Disease Epidemiologists that conduct surveillance and data analysis in the same program area.

There are also opportunities to work with epidemiologists within the Bureau of Infectious Disease Prevention (BIDP) and learn directly from subject matter experts.

The mentors will oversee the training, research, and field activities of the Fellow, ensure that the Fellow is familiar with the processes and responsibilities of the unit, section, and division. The mentors will also encourage the overall professional development of the Fellow.

While this host site application includes a major project suggestion, once the Fellow is acquainted with the activities of the Respiratory Virus Unit, they may choose to develop an alternate project based on their interests as well as the current activities and needs of the unit or the Division of Immunization. In addition to a major project, MDHHS will support the candidate's completion of the required activities related to this CSTE Fellowship, including a surveillance system evaluation. Previous fellows have completed their required activities well ahead of schedule. The CSTE Fellow will have the opportunity to support acute outbreak investigations requiring immediate public health response, under the guidance of the lead epidemiologist. This may include working first-hand with the CDC, federal, state, and local regulatory partners on local and multi-state investigations. The Fellow will learn how to communicate effectively about health risk and utilize those skills to develop and disseminate messages for a variety of audiences.

Fellow's Anticipated Day-to-Day Activities:

- Assist in surveillance, outbreak investigations, data analysis and reporting, and development of outreach materials and communications for respiratory virus and other vaccine preventable diseases in Michigan. There will be a primary focus on respiratory virus-related activities.

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- Participate in regularly scheduled meetings within the Respiratory Virus Unit, VPD Epidemiology Section, and Bureau of Infectious Disease Prevention.
- Participate in existing state-level working groups and discussions on topics of respiratory virus and vaccine preventable diseases.
- Attend local, state, and national level meetings on topics including public health, epidemiology, infectious disease, and maternal and child health.
- Assist with field investigations and outreach MDHHS may undertake to better understand the epidemiology and prevention of respiratory and vaccine preventable disease surveillance in Michigan.
- Develop the knowledge and skills necessary to field calls and questions from the public and other stakeholders on respiratory virus and vaccine preventable disease topics.

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

Databases the Fellow will have access to include our in-house disease surveillance system, Michigan Disease Surveillance System (MDSS); our vaccine registry, Michigan Care Improvement Registry (MCIR); our state specific syndromic system, Michigan Syndromic Surveillance System (MSSS); and access to Vital Records mortality data, as needed.

Software that will be available to the Fellow include SAS license, R/RStudio, ArcGIS, Microsoft Office, and any other software that is necessary to complete tasks.

The Fellow will have access to the necessary surveillance systems to complete tasks and projects, including The National Respiratory and Enteric Virus Surveillance System (NREVSS), Respiratory Virus Hospitalization Surveillance Network (RESP-NET), National Healthcare Safety Network (NHSN), and other systems, as necessary.

BIDP has many staff who have expertise in SAS and other statistical software who can assist the Fellow as needed. Lately, much of the data analysis is being done in R, which is free, and training and support is available both from programmatic staff and a voluntary R user group within MDHHS that meets monthly.

Projects

Surveillance Activity Title: Wastewater Surveillance of Respiratory Viruses

Surveillance Activity Description:

This activity will include examining wastewater surveillance for respiratory viruses (influenza, COVID-19, and RSV). Data from multiple sites throughout the state will be gathered and temporal trends in detection of respiratory viruses will be analyzed. The Fellow will develop a method to determine seasonality of respiratory virus detection in wastewater and compare that seasonality to surveillance from clinical testing. The primary goal of the project will be to gain a better understanding of the current wastewater surveillance activity for respiratory viruses in Michigan, including how MDHHS can use these data to project activity and patterns, and plan interventions throughout the state.

Surveillance Activity Objectives:

- 1) Compare seasonality of respiratory virus detection across multiple surveillance systems.
- 2) Assess whether respiratory virus detections in wastewater can help determine timing of interventions (e.g. RSV vaccine and monoclonal antibody administration) to reduce the burden of illness in Michigan. The project deliverables will include a report summarizing the comparative analysis of these surveillance systems and a recommendation for timing of vaccine administration.

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Surveillance Activity Impact:

CDC currently advises use of RSV immunizing agents during the RSV season. In the 48 contiguous states that is typically assumed to be Oct 1 - April 30. Using wastewater surveillance to detect RSV seasonality could improve the timing of this administration window, ensuring that immunizing agents are administered in a timely manner to reduce burden of illness and improve cost effectiveness. Additionally, the examination of seasonality of other respiratory viruses can be used to plan communications with providers, public health partners, and the public to prepare for respiratory virus season.

Surveillance System Evaluation Title: Surveillance and Analysis of The National Respiratory and Enteric Virus Surveillance System (NREVSS) Data

Surveillance System Evaluation Description:

NREVSS is a national surveillance system to which Michigan has access, but we want to use this data more regularly to assess when there is abnormal circulation of respiratory illness that is not due to influenza, RSV, or COVID-19. We have not had capacity in the past to dive deeper into this dataset to help us inform our communication to the public regarding what they can anticipate during the respiratory season. We've only been able to focus on influenza, RSV, and COVID-19.

Surveillance System Objectives:

- 1) To routinely export NREVSS data into a data visualization that is easily interpretable for public health leadership in Michigan.
- 2) Create an indicator to identify whether a given increase in respiratory illness in Michigan is due to a vaccine preventable disease (COVID-19, influenza, RSV) or non-vaccine preventable disease (e.g. Adenovirus, Human metapneumo virus).
- 3) To tie communications around these patterns to public health agencies, clinicians, and the public.

Surveillance System Impact:

This analysis will allow MDHHS to improve communication about the risks of respiratory illness to key partners and to develop data driven interventions to reduce the spread and burden of disease. It will also set the stage for a better understanding of seasonal patterns of respiratory illness to allow proactive planning for outbreak response.

Major Project Title: MICOM and Wayne State Phoenix Collaboration with Fine-scale Geographic Assessments

Major Project Description:

The Fellow will collaborate with partners at leading academic institutions to analyze disease occurrence, socio-demographics and, where relevant, vaccine uptake at the census-tract level to understand how pockets of susceptibility are associated with transmission of respiratory viruses.

Major Project Objectives:

- 1) Use disease surveillance systems to map census-tract level incidence of disease and characteristics potentially associated with an increased incidence.
- 2) Create a data visualization of underlying community characteristics associated with risk of respiratory illness.
- 3) Disseminate findings to community partners to check assumptions, and plan interventions.

Major Project Impact:

This project will lead to a better understanding of the community-level factors that are associated with disease risk. Identifying and understanding these characteristics is the first step towards working with the community to meaningfully identify opportunities to prevent disease that are accessible and acceptable to community members, laying the groundwork for community-specific public health interventions that can reduce the burden of disease.

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Additional Project #1 Title: Collaboration with MDHHS Bureau of Laboratories (BOL) and Other MI Labs

Project #1 Type: Other

Project #1 Description:

The Fellow will work with MDHHS BOL and other third-party labs throughout the state to target certain areas of the state for specimen submission to ensure we have comprehensive lab data throughout the entire state of Michigan. Additionally, establish organized and routine communication with laboratories around the state to help maintain MDHHS BOL's new temperature requirements for sending specimens.

Project #1 Objectives and Expected Deliverables:

- 1) Create a report of specimen submission coverage across the state to identify and target labs in areas for outreach.
- 2) Encourage routine submission of respiratory (especially influenza) specimens.

Project #1 Impact:

This project will help improve virologic surveillance in Michigan for more accurate representation of predominating influenza strains across different regions of the state.

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

The Fellow would be involved in any response efforts regarding a new or novel COVID-19 or influenza strain, if the situation arises during their two years with MDHHS. There is also an opportunity for the Fellow to collaborate with those at MDHHS who have been working diligently on the ongoing highly pathogenic avian influenza (HPAI) outbreak. As vaccine coverage continues to decline statewide, there may also be opportunities to contribute to the response to outbreaks of vaccine preventable disease (e.g. measles). These efforts may include but are not limited to 1) reviewing local health jurisdiction response plans, 2) providing technical assistance for case finding/contract tracing, 3) providing analytic capacity to local health jurisdictions to better understand risk of disease, 4) planning communications to impacted communities.

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

The Fellow would help evaluate our current process for capturing COVID-19 and influenza clusters and outbreaks throughout the state of Michigan. Additionally, there is an opportunity for them to assess if there are gaps between what local health departments (LHDs) send to us regarding clusters and outbreaks and what we identify and provide to LHDs through a weekly geospatial cluster analysis for COVID-19 and influenza.