

**ID: 60507805**

**Infectious Diseases, Infectious Diseases - HAI - Host Site Description  
Mississippi State Department of Health**

**Assignment Location:** Jackson, US-MS  
Mississippi State Department of Health  
Epidemiology Program

**Primary Mentor:** Kathryn Taylor, MD  
Interim State Epidemiologist  
Mississippi State Department of Health

**Secondary Mentor:** Theresa Kittle, MPH  
Epidemiology Program Director  
Mississippi State Department of Health

**Work Environment**

Hybrid

**Assignment Description**

The fellow would be assigned to the MSDH Epidemiology Program under our Epidemiology Program Director, with epidemiology and fellowship supervision provided by the Interim State Epidemiologist (Kathryn Taylor) and the Epidemiology Program Director (Theresa Kittle).

In addition to work on the projects and activities outlined in this application, the fellow would be integrated into the Epidemiology Program to work on ad hoc outbreaks and other situations of public health significance with a primary focus of infectious disease related events. Day to day activities could include working with Epidemiology office members to gather information for reportable disease cases or facilities, create charts or graphs on request by the Interim State Epidemiologist, and participation in intraoffice, agency, or national calls relevant to infectious disease epidemiology.

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

While working with the MSDH Office of Epidemiology, the fellow will have access to the current surveillance system used for diseases reportable to the Office of Epidemiology (Epi-Tracks) and the surveillance system used for the COVID-19 response in MS (NBS). MSDH is in the final stages of procuring a new integrated disease system which will be implemented over the next 1-2 years. The fellow would participate in implementation and learn the new system from "the ground up." In addition, the fellow would be provided access to work with data visualization software such as PowerBI and Tableau. SAS and R are additional applications used by epidemiologists in the MSDH Office of Epidemiology, and these may be provided as needed. Fellows would also be provided MSDH email accounts and access to the Microsoft Office Suite.

**Projects**

**Surveillance Activity Title: Evaluation and enhancement of enteric surveillance to identify areas of concern and decrease disease burden in MS**

*Surveillance Activity Description:*

Fellow will review current surveillance and reporting of enteric diseases in MS to identify potential areas for improvement.

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This will include review of surveillance and reporting activities around enteric diseases in neighboring states, states with similar disease burden, and states with similarly organized departments of health. Using this information, the fellow will propose and develop improved protocols and procedures to improve surveillance in MS.

Similarly, the fellow will propose and develop improved methods for data reporting, analysis, and display of information about enteric diseases on the website. This information will be used to improve case investigation, cluster/outbreak identification, and mitigation strategies around enteric diseases in MS.

*Surveillance Activity Objectives:*

- Review current surveillance of enteric diseases in MS
  - Current case and outbreak-based surveillance
  - WGS and other lab-based surveillance
  - Syndromic surveillance
- Review current surveillance of enteric diseases in other targeted states
  - Current case and outbreak-based surveillance
  - WGS and other lab-based surveillance
  - Syndromic surveillance
- Identify potential gaps or areas for improvement in surveillance and reporting in MS
- Propose new targets or mechanisms for surveillance and develop protocols for implementation
- Demonstrate the enhanced surveillance utilizing data analytics and data visualization methods appropriate for internal review and public display
- Identify areas to target for enhanced public health intervention and education based on analysis of new data

*Surveillance Activity Impact:*

This project will provide MSDH with more robust information regarding the burden of enteric diseases in MS. Timely evaluation of this information will allow for more targeted investigation of enteric disease clusters or outbreaks which will ultimately lead to more impactful public health action to prevent additional disease burden. The project could lead to identification of regional distribution of certain enteric diseases which could be used to educate MS healthcare providers about the most common enteric diseases in their area.

**Surveillance System Evaluation Title: Analysis of Data Completeness for Selected Reportable Diseases**

*Surveillance System Evaluation Description:*

The fellow will work with the Epidemiology program to determine a subset of reportable diseases to review and analyze for data completeness. Ideally this work will be done on the integrated disease surveillance system that will be implemented over the next 1-2 years. The fellow will review and compare completeness data for reportable diseases by looking at data reported via ELR, eCR, provider portal, manual data entry, and case investigations.

*Surveillance System Objectives:*

- Assess all sources of data for selected reportable disease reports in the surveillance system
- Review data from the selected reportable diseases for completeness
- Conduct analysis to determine most effective reporting mechanisms to inform updates to the requirements around disease reporting

*Surveillance System Impact:*

Data quality is essential to the Epidemiology Program to guide case and outbreak investigations and public health messaging and regulations. The quality of data in public health disease reporting varies greatly across diseases and data sources. With this project, the fellow will assist with identifying gaps and weak spots in data gathering and reporting.

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This will provide a framework for addressing changes to the reportable disease list around provider and laboratory reporting requirements, eCR reporting, and disease class (or level of concern). In addition, the timing of this project around the implementation of the integrated disease surveillance platform will allow for the new system to have an improved quality assurance for data being input into the system.

**Major Project Title: Development of Public Data Dashboard for Communicable Diseases**

*Major Project Description:*

The fellow will work with the Epidemiology Program as well as the other Communicable Disease Programs (Tuberculosis, STD/HIV, and Immunizations) to develop a data dashboard for displaying communicable disease data. Working with the epidemiology staff in these programs, the fellow will formulate a plan and roadmap towards the goal of a publicly viewable data dashboard of communicable disease data on the MSDH website. This will include working to determine appropriate software, which diseases to be included, means of displaying data, timeframes to be displayed, etc. As a part of the work towards the data dashboard, the fellow may also work on smaller static disease reports to be posted monthly. These reports will allow for the communicable disease team to determine the best way to present the data for public consumption.

*Major Project Objectives:*

- Meet with Office of Communicable Disease epidemiologists to begin planning
- Review options for dashboard software, assessing the pros and cons of each
- Provide recommendation for initial diseases to be included to Epidemiology Program Director and State Epidemiologist
- Upon approval of disease list, develop a draft monthly reportable disease report
- Work with the chosen data visualization software to explore options for displaying data publicly and provide options for review
- Create a final draft version of a data dashboard for public consumption

*Major Project Impact:*

MSDH does not currently have an interactive data dashboard for communicable disease data. This activity will lead towards the implementation of a data dashboard able to display communicable disease data in a user friendly way for the general public. In addition, this project will allow more broad discussion and education across communicable disease programs and facilitate innovation in data analytics and display.

**Additional Project #1 Title: Candida auris Screening, Surveillance, and Outbreak Monitoring**

**Project #1 Type: Surveillance Activity**

*Project #1 Description:*

The fellow will work with the HAI staff within the Epidemiology Program to review current guidance for *C. auris* screening around clinical and colonized cases of *C. auris*. Using historical data, CDC guidance, and infection prevention protocols, the HAI staff and AEF fellow will assess the current protocols for screening and develop more robust guidance for screening and surveillance based on case type, facility type, patient characteristics, admission dates and timing and other relevant factors.

*Project #1 Objectives and Expected Deliverables:*

- Review current and historical data around *C. auris* cases and screening in Mississippi
- Identify areas for improvement in screening
- Determine mechanisms for tracking cases and screening activities in facilities
- Assist with development of updated guidance around *C. auris* in healthcare facilities

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*Project #1 Impact:*

Mississippi identified its first local transmission of *Candida auris* in late 2022 and had an outbreak associated with an LTAC in early 2023. Since then, the HAI staff has continued to track cases, direct screening efforts, and provide guidance to facilities. This project will assist the HAI team in proactively developing guidance and protocols for case detection and screening to hopefully decrease the overall transmission of *C. auris* in MS.

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

The fellow will assist with collaboration with the MSDH Office of Emergency Preparedness and Response (OEPR) to provide program updates, situational awareness, and guidance from the Epidemiology Program around surveillance activities as needed. In the event of an emergency response, the fellow would participate along with Epidemiology Program staff in providing any necessary assistance to the MSDH Office of Emergency Preparedness and Response. Activities could include direct assistance in response, participation in ICS structure, ad hoc data analysis to inform next steps, or analysis of syndromic surveillance to determine impacts of an event on disease burden. Time allocation: 5% (dependent on response needs)

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

The fellow will assist with enhancing efforts to identify, investigate, and respond to clusters and outbreaks (e.g., influenza, COVID-19, norovirus) in congregate and other settings.

Activities include:

- Assist with the evaluation of current outbreak detection and identify surveillance needs
- Assist in design of investigation and evaluate the timeliness of and impact of outbreak response efforts.
- Review current outbreak response protocols to determine gaps, additional field personnel needed to investigate outbreaks

Time allocation: 5%

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

Individual COVID-19 cases are no longer reportable in Mississippi, so COVID-19 activities would be around long term care facility outbreaks or other clusters of concern. This time allocation would be incorporated into the time referenced for Cluster and Outbreak investigations.

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

All programs activities at MSDH incorporate health equity whenever possible. Many of the projects and activities described in this application will have data outcomes allowing for improved identification of disparities and subsequent public health action to address those disparities.