

**ID: 87705572**

**Infectious Diseases, Substance Use/Mental Health - Host Site Description**

**Washtenaw County Health Department**

**Assignment Location:** Ypsilanti, US-MI  
Washtenaw County Health Department  
Health Department

**Primary Mentor:** Juan Luis Marquez, MD, MPH  
Medical Director  
Washtenaw County Health Department

**Secondary Mentor:** Ailen Velazquez, MD, MSc  
Epidemiology Manager  
Washtenaw County Health Department

**Work Environment**

Hybrid

**Assignment Description**

The Fellow will be jointly placed at the Washtenaw County Health Department (WCHD) and the Livingston County Health Department (LCHD), with an approximate 70 percent / 30 percent time split. At WCHD, the Fellow will be embedded within the epidemiology unit, while at LCHD the Fellow will work closely with the Lead Epidemiologist. In both departments, epidemiologists provide analytic and field support across multiple program areas, including communicable disease response, injury prevention, and community health assessment. Epidemiologists also participate in case investigations and play a key role in the oversight and coordination of outbreak investigations.

While a dual-site placement could present potential challenges related to coordination or competing priorities, the primary mentor, Dr. Juan Luis Marquez, provides medical oversight for epidemiology activities at both WCHD and LCHD and will offer centralized guidance to ensure clarity of expectations, alignment of work, and appropriate workload management for the Fellow.

Day-to-day activities will vary, reflecting the broad scope of responsibilities typical of small- to medium-sized local health departments. The Fellow can expect to engage in a mix of routine surveillance activities, data analysis, case investigation, outbreak response, and applied epidemiology projects. When emerging public health issues arise, such as foodborne outbreaks, the Fellow will have opportunities to participate in real-time response activities, while still maintaining protected time to complete planned projects and surveillance activities outlined in this application.

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

Basic software used by our epidemiologists includes Microsoft Excel, PowerPoint, and Word. Statistical software includes R and RStudio. Survey platforms include Alchemer and Microsoft Forms. Databases and surveillance systems used by the departments include the Michigan Disease Surveillance System (MDSS), the Michigan Syndromic Surveillance System (MSSS), the Michigan Care Improvement Registry (MCIR), which serves as Michigan's immunization registry, MiCelerity, the state's real-time drug poisoning surveillance system, and other systems as needed.

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## **Projects**

### **Surveillance Activity Title: Implementing School-Based Communicable Disease Surveillance**

#### *Surveillance Activity Description:*

K-12 schools and preschools are required to report aggregate summaries of gastrointestinal and respiratory illness to their local health department. While this reporting is mandated, WCHD has not historically used these data in a systematic way to inform internal public health action or to provide timely feedback to schools regarding potential outbreaks. The Fellow will assess current reporting requirements and practices and will design and implement an enhanced school-based communicable disease surveillance system to improve outbreak detection, situational awareness, and response.

#### *Surveillance Activity Objectives:*

##### **Objectives**

- Understand public health code requirements related to school-based communicable disease reporting
- Review best practices for school-based syndromic and communicable disease surveillance
- Design, update, and implement an improved surveillance system for school-reported illness data

##### **Deliverables**

- Presentation to communicable disease, epidemiology, and clinical staff summarizing school-based reporting requirements and surveillance best practices
- Written implementation plan for school-based communicable disease surveillance
- Operational school-based communicable disease surveillance system that utilizes and improves upon existing reporting system, including processes for data review and outbreak notification

#### *Surveillance Activity Impact:*

This surveillance system will allow WCHD to better understand both current and historical outbreak trends that affect children's health and school attendance. By improving this surveillance system, WCHD will be able to provide more timely notifications and targeted public health recommendations to schools, supporting earlier intervention and more effective outbreak control. Over time, this improved situational awareness will strengthen internal decision-making, reduce disease transmission in school settings, minimize disruptions to learning, and promote healthier school communities. The system will be designed to be sustainable and integrated into routine public health practice beyond the Fellowship period.

### **Surveillance System Evaluation Title: Evaluation of Surveillance Systems for Emerging Antibiotic-Resistant Organisms in Healthcare Facilities**

#### *Surveillance System Evaluation Description:*

In Michigan, certain antibiotic-resistant organisms are reportable to public health authorities. Two organisms of particular concern, Carbapenemase-Producing Organisms (CPO) and *Candida auris*, have increased in incidence in recent years. Although surveillance for these organisms is incorporated into the Michigan Disease Surveillance System (MDSS), several factors make these investigations uniquely complex. These organisms can persist on environmental surfaces, making control difficult and often requiring enhanced long term infection prevention measures beyond the standard recommendations for organisms simply transmitted from person to person. In addition, affected patients frequently receive care across multiple healthcare settings, requiring complex, multi-facility investigations.

Historically, much of this surveillance and response work has been led by the Michigan Department of Health and Human Services (MDHHS); however, changes in funding and program structure are shifting additional responsibilities to

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local health departments. Multiple regulatory and partner agencies are also involved in oversight of affected facilities, further adding to the complexity of surveillance and response activities. The overall goal of this project is for the Fellow to assist WCHD and LCHD in evaluating how the current surveillance system functions and identifying opportunities to strengthen surveillance processes and coordination.

*Surveillance System Objectives:*

Objectives

- Evaluate the current surveillance processes for antibiotic-resistant organisms, with a focus on CPO and *Candida auris*
- Assess surveillance system needs and challenges from the perspective of key stakeholders involved in detection, reporting, and response
- Develop recommendations to improve surveillance processes and coordination for WCHD and LCHD

Deliverables

- Background presentation summarizing antibiotic-resistant organisms, with emphasis on CPO and *Candida auris*, for clinical and epidemiology teams
- Written evaluation of the current surveillance system using established CDC surveillance evaluation frameworks
- Written recommendations outlining strategies to improve surveillance system performance, including alignment with current best practices

*Surveillance System Impact:*

The emergence and spread of antibiotic-resistant organisms, particularly *Candida auris*, pose a significant risk to vulnerable healthcare populations. As surveillance responsibilities increasingly shift to local health departments, evaluating the current system will help WCHD and LCHD identify strengths, gaps, and opportunities for improvement. Strengthening surveillance processes and coordination across partners will support earlier detection, more effective response to transmission events, and ultimately help reduce the spread of these organisms within healthcare facilities.

**Major Project Title: Community Health Assessment: Opioid Use Disorder and Suicide**

*Major Project Description:*

During the Fellowship, the Fellow will have the opportunity to support two related Community Health Assessment (CHA) priority areas: opioid use disorder and mental health, specifically suicide prevention, for WCHD and LCHD respectively. These topics were identified as community health priorities in prior CHAs; however, the departments currently lack in-depth qualitative data from community stakeholders, including healthcare providers, service organizations, and community residents. The Fellow will assist in designing and implementing a mixed-methods assessment to better understand community needs, service gaps, and opportunities for intervention.

*Major Project Objectives:*

Objectives

- Develop a mixed-methods assessment framework addressing opioid use disorder and suicide prevention
- Implement quantitative and qualitative data collection activities
- Incorporate findings into the broader Community Health Assessment process

Deliverables

- Development of an online survey, if appropriate
- Development of focus group and key informant interview guides
- Analysis of survey, interview, and focus group data

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- Written report and presentation summarizing findings for the Community Health Assessment team

*Major Project Impact:*

The Community Health Assessment is both a public health accreditation requirement and a critical process for aligning health department priorities with community needs. Due to limited staffing and uncertain funding, the Fellow's work will provide valuable capacity to conduct deeper stakeholder engagement and qualitative assessment in these priority areas. Findings from this project will inform the Community Health Improvement Plan, support grant applications, and help guide the strategic allocation of opioid settlement funds and other resources to address emerging community needs.

**Additional Project #1 Title: Spatial Analysis of Legionellosis Infections**

**Project #1 Type: Surveillance Activity**

*Project #1 Description:*

Since 2020, approximately 20-30 cases of legionellosis have been reported annually across Washtenaw and Livingston Counties. While some investigations have identified potential associations with healthcare facilities or occupational exposures, the source of exposure for many cases remains unknown. The Fellow will work with mentors to access surveillance data from the Michigan Disease Surveillance System (MDSS) to assess temporal and spatial trends in legionellosis. In collaboration with faculty at the University of Michigan School of Public Health, the Fellow may also conduct enhanced spatial analyses to identify potential geographic clustering and environmental risk factors.

*Project #1 Objectives and Expected Deliverables:*

Objectives

- Characterize temporal trends in legionellosis incidence
- Identify potential spatial clusters and associated environmental features, such as buildings, industrial sites, or bodies of water
- When appropriate, provide recommendations to environmental health programs and partner agencies regarding potential risks

Deliverables

- Descriptive epidemiologic analysis of legionellosis cases using MDSS data
- Spatial analysis of legionellosis incidence and clustering
- Final report summarizing findings and, when applicable, recommendations based on identified risks

*Project #1 Impact:*

Legionellosis can be a severe illness, with case fatality rates reaching up to 25 percent in healthcare-associated cases. Identifying potential spatial associations and environmental risk factors can guide targeted environmental assessments and community level prevention efforts. In addition to informing current investigations, this project will establish a reproducible analytic framework that can be used to incorporate future cases and support ongoing detection of potential clusters, strengthening long-term surveillance and response capacity.

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

Emergency preparedness and response are priorities for both WCHD and LCHD. Following significant workforce turnover during and after the COVID-19 pandemic, both departments strengthened preparedness activities designed to familiarize staff with priority public health threats, clarify response roles, and reinforce disaster response procedures.

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These activities include monthly internal tabletop exercises and quarterly regional exercises that involve community partners such as healthcare systems, universities, and emergency management agencies.

The Fellow will complete the same Incident Command System (ICS) training required of department staff, including ICS 300 and 400 training when available. The Fellow will actively participate in monthly and quarterly preparedness exercises and emergency response activities as they arise. As the Fellow gains experience, they will be expected to lead at least one intra-departmental tabletop exercise per year and at least one multi-agency tabletop exercise during the Fellowship period.

Preparedness and response activities are expected to account for approximately 3-5 percent of the Fellow's time annually, with additional time allocated as needed during real-world response events.

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

Both WCHD and LCHD routinely conduct cluster and outbreak investigations, particularly given the presence of one of the largest universities in the United States within Washtenaw County. The Fellow will play an active role in these investigations and response activities. Responsibilities may include assisting with the development of data collection tools (such as surveys and case report forms), contributing to the development of standardized case definitions, supporting case investigation and data analysis, assisting with preparation of summary reports, and participating in post-response "hotwash" reviews to identify lessons learned and opportunities for improvement.

In addition, the Fellow will participate in regular communicable disease review meetings to strengthen applied epidemiology and outbreak response skills.

Cluster and outbreak investigation activities are expected to account for approximately 3-5 percent of the Fellow's time annually, with additional time allocated as needed during significant outbreak responses.