



# MICOM: Michigan Public Health Integrated Center for Outbreak Analytics and Modeling

Primary Institution(s):

University of Michigan (UM)

Michigan Department of Health & Human Services (MDHHS)

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**Center of Integration** - Test the utility of disease modeling tools in public health organizations, to see how public health decision makers benefit from the analyses.

## Overview

As an integrator site partnership between the University of Michigan (UM) and Michigan Department of Health and Human Services (MDHHS), our center is focused on integrating tools, analytics, and models into state and local public health operational workflows and decision-making. As part of our integration goals, we are expanding our relationships with our local and state public health partners, healthcare providers, and community groups, to build useful tools for public health practice.

## Our Network

As part of the network of networks within Insight Net, MICOM is built on relationships between multiple institutions and groups. The MICOM network includes:

- Michigan Department of Health & Human Services
- University of Michigan
- We work with all 45 local health departments across Michigan as part of our MI Lighthouse project, and have additional collaborations with: Washtenaw County Health Department, Livingston County Health Department, Lenawee County Health Department, and Genesee County Health Department
- Community groups, such as Detroit Lives are Valuable Every Day (DLIVE)

- University of Michigan Public Health Infection Prevention and Response Advisory Committee
- Michigan state government - we also have occasional advising, consulting, and collaboration with multiple state government agencies, the Governor's office, and legislators at the state and national level

## Highlights to Plan, Prepare, and Respond with Insight Net

- Build situational awareness and trust through active connections with health officials at all levels - university, community groups, local public health, and state public health.
- The trust we've built with our partners allows us to respond quickly and in a coordinated fashion, and we have active and broad DUAs in place with MDHHS that allow us to collaborate effectively and quickly.
- Regular needs assessments and qualitative interviews with LHD staff across the 45 Michigan local health departments to understand needs and gaps
- Examples of the modeling tools and analytic pipelines in development include:
  - Anomaly detection methods to flag unusual activity in case reporting data
  - Methods for evaluating patient level risk of latent TB activation
  - Network models for *C. auris* spread in healthcare facilities

## Highlights as Integrators

We have integrated a wide range of tools, analytics, and models into public health practice at the state and local level. A few examples include:

- **MI Lighthouse** - a private dashboard for local health departments to access and understand vaccine data at the individual, census tract, county, and state levels (including age and demographic breakdowns and comparison with other indices such as social vulnerability index). <http://mi-umbrella.org>
- **Wastewater monitoring** - our team runs wastewater monitoring for five sites in Southeast Michigan, and regularly adapts our monitoring based on local and state public health needs (e.g. we are currently adding measles and H5N1 monitoring, and have previously assisted with hepatitis A and Mpox response at the request of Washtenaw and Genesee counties). We are also developing wastewater-based metrics and forecasting models at both the local level and nationally. <https://um.wastewatermonitoring.dataepi.org/>
- **RSV prevention: infant eligibility for Nirsevimab** - needs assessments revealed a gap in healthcare providers' ability to determine eligibility of infants for RSV immunization (monoclonal antibody Nirsevimab) when birth parent health records were not

available. We developed a tool to enable providers to rapidly assess infant eligibility without needing outside records.

- **Firearms data analytics in Washtenaw County** - we are collaborating with the Washtenaw County Health Department (WCHD) to develop new analytics tools to understand and prevent firearms injuries and deaths across the county, particularly focused on gun lock distributions and violence prevention interventions for retaliatory shootings. This work most recently led to the development of a data and analytics workgroup formed between WCHD, UM, and the Washtenaw County Sheriff's Office.

## **Final Thoughts & Useful Links**

Our primary goal is to build tools that will directly benefit public health—both in emergencies, and in addressing ongoing infectious disease threats.

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