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

A partnership to improve public health

- MICOM is a CDC-funded center built on a partnership between the University of Michigan and the Michigan Department of Health and Human Services.
- MICOM provides analytic, modeling, and communication tools for data-driven decision-making and infectious disease response and prevention.
- MICOM supports local, state and federal partners, including health departments, schools, and community groups by providing critical data, modeling, and communication tools for strategic planning and emergency response.
- MICOM is one of 13 members of the CDC Insight Network across the US.

What we do

Providing insight that is relevant to your community

MICOM creates tools to provide hyper-local information and models to make local, state, and national data relevant to individual communities.

Improving access to real-time information

MICOM assists local, state and community partners in modernizing their data systems to support emergency response, as well as developing dashboards, analytics, and modeling tools for both internal and public use.
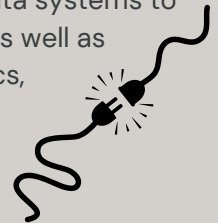
Understanding new threats using novel data

MICOM rapidly develops analytics for novel data and provide critical information on emerging pathogens (e.g. validating monitoring for emerging pathogens in wastewater).

Operational support for emergency response

MICOM provides trained staff, subject matter experts, and analytic support to state and local jurisdictions in emergencies (including COVID-19, influenza, and hepatitis A at federal, state and local levels.

www.micom-insight.net | micom-info@umich.edu

Marisa Eisenberg & Emily Martin
Department of Epidemiology, School of Public Health, University of Michigan, Ann Arbor

Joseph Coyle
Bureau of Infectious Disease Prevention, Michigan Department of Health and Human Services

SCHOOL OF PUBLIC HEALTH UNIVERSITY OF MICHIGAN

MDHHS Michigan Department of Health & Human Services

Public health analytics and modeling in practice

Measles outbreak response tools and analytics

MICOM is working with local health departments across southeast Michigan to develop data analytics, models, and tools to improve measles outbreak response. These tools include rapid access to individual-level vaccination data, predictive models, and risk stratification analytics tools.

2-dose MMR coverage for 4-6 year olds in Michigan (as of Dec 2024). Open circles indicate exposure sites in the last year, and closed circles indicate counties with a current case (March 2025).
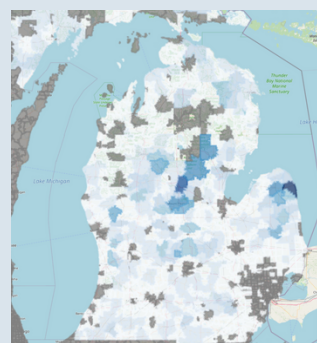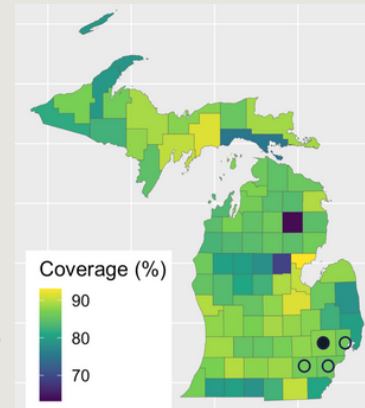
## Avian influenza preparedness

We have developed a wide range of analytics tools and predictive models for avian influenza/H5N1. More recently, we have begun a qualitative study of H5N1 and other emerging respiratory illness risk among dairy, poultry, and other farmworkers in Michigan, helping to inform H5N1 and avian influenza response in Michigan (and beyond).

Counts of dairy and cattle farms in Michigan's lower peninsula.

Local respiratory illness forecasting

MICOM is developing forecasting models to predict local patterns and trends in respiratory illnesses, including COVID-19, influenza, and RSV. These models are intended to assist with resource allocation and reduce hospital strain.

3-week ahead influenza hospitalization forecasts for southeast Michigan (blue lines and shaded regions) compared with data.
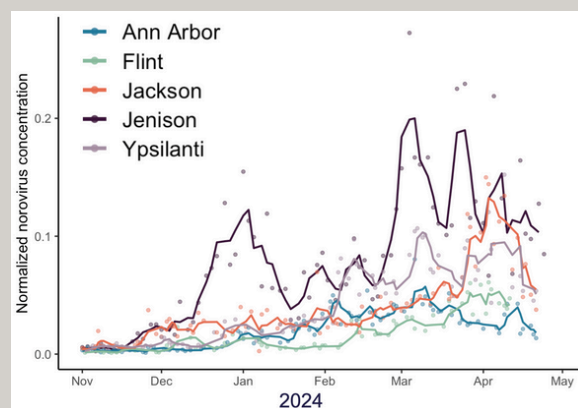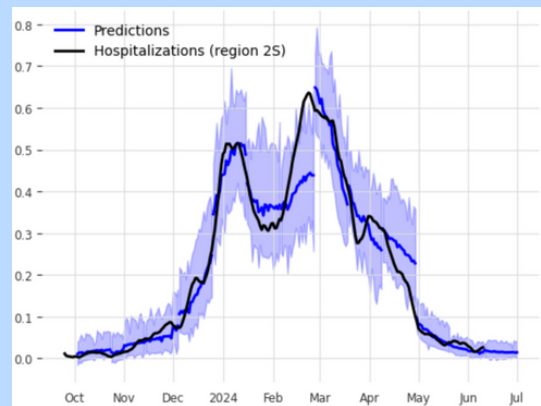
Tracking pathogens in wastewater

The MICOM wastewater lab monitors a range of pathogens in wastewater from five Southeast Michigan communities, and develops wastewater dashboards and analytics to inform local public health decision making and right-sizing of the wastewater monitoring network.

Norovirus wastewater levels from several Michigan communities.