




# Hands-on Workshop: Using R for Epidemiologic Analysis

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# Presentation

30 minutes

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- R Uses
- R Examples
- MICOM
  - MICOM & WCHD
- MI-Support

# Workshop

1 hour, 30 minutes

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# So R? It's pretty cool?

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- What we'll see today can be done at different levels, with different tools
- Excel, python, and more can all be leveraged depending on the project/preferences
- R has a good user interface, is free, and has a lot of capabilities, which is why we use it, and recommend it

# Uses of R - The list goes on and on and on and on

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- Usually think of R for statistical analyses and maybe plots?
- But can be as complicated / or not as you want
  - Dashboards / Websites
  - Reproducible Analyses
  - Data processing checks and pipelines
  - Reproducible Reports
  - Book and paper publishing
- Some things you may have seen online:

<https://skylab.cdph.ca.gov/ODdash/?tab=Home>

## California Overdose Surveillance Dashboard

Help using this Dashboard

Home

California Dashboard

County Dashboards

Advanced Views

Data Definitions

Technical Notes

Data Publications

Using the Dashboard

Resources

### California Quick Stats

7,847

Deaths Related to Any Opioid Overdose, 2023

7,137

Deaths Related to Fentanyl Overdose, 2023

22,474

ED Visits Related to Any Opioid Overdose, 2023

13,475,779

Prescriptions for Opioids, 2023

## Welcome to the California Overdose Surveillance Dashboard

This Dashboard provides data on state and local level drug-related overdose outcomes for California, including deaths, emergency department visits, and hospitalizations, as well as opioid and select other drug prescription data.

### Data Available

### DASHBOARD UPDATES

05/19/2025

**NEW DATA! Preliminary Third Quarter 2024 Death Data**

Preliminary third quarter (July-September) 2024 mortality trend data from CHSI (Center for Health Statistics and Informatics) are now available on the dashboard. These data are only available for viewing in the Time Trend box and are not displayed on other boxes or quick stats because full-year 2024 data are not yet available.


05/19/2025

**UPDATED - Preliminary First and Second Quarter 2024 Death Data**

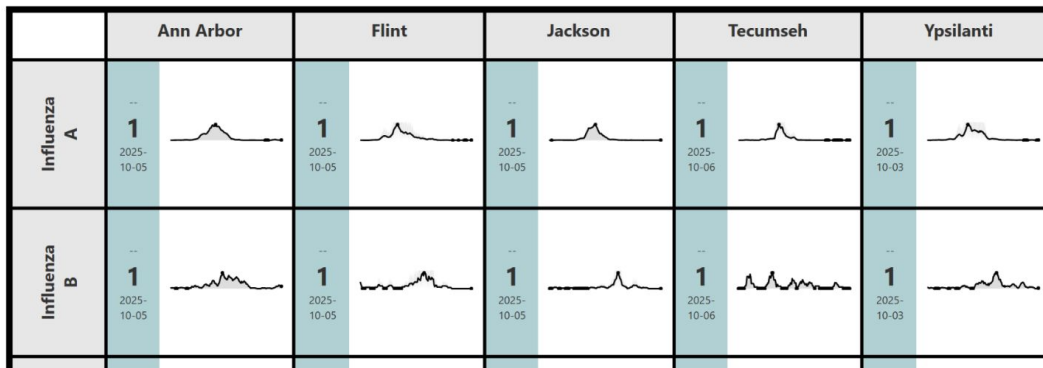
Preliminary first (January-March) and

# <https://um.wastewatermonitoring.dataepi.org/>

There is a new feature available, under the 'Additional Views' tab called 'Wastewater Sampling Site Viewer'. This feature allows you to view and download information regarding various points of interest that fall within a wastewater catchment area.

The Wigginton-Eisenberg Laboratory works to provide wastewater testing data on multiple pathogens across south-east Michigan. The grid below provides an at-a-glance vision of the current state of wastewater levels. For more detailed information including graphs of this data over time, please visit each organism under the Pathogens tab. For more information about this system, you can click on the information icons (  ) throughout this dashboard or visit the About Page tab.

For SARS-CoV-2 only, there are extra trend designations. Decline indicates that detection values are decreasing, Growth indicates that detection values are increasing, and Plateau indicates that detection values are remaining the same. For more information regarding this method, please visit the About Page.



1

In bottom third of values  
seen previously

2

In middle third of values  
seen previously

3

In top third of values  
seen previously

# <https://www.epirhandbook.com/en/>

Need help learning R? Enroll in Applied Epi's [intro R course](#), try our [free R tutorials](#), post in our [Community Q&A forum](#), or ask about our [R Help Desk service](#).



The Epidemiologist R Handbook



Welcome

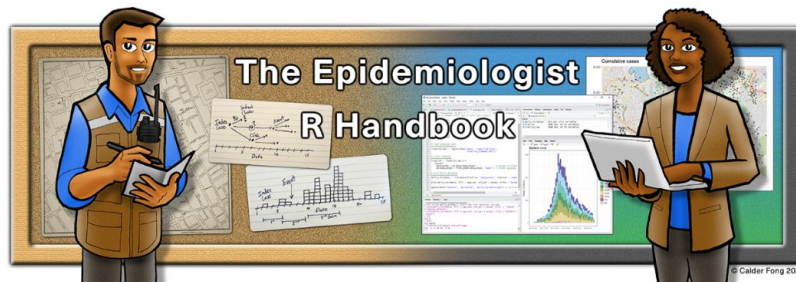
About this book 

- 1 Editorial and technical notes
- 2 Download handbook and data

## The Epidemiologist R Handbook

LAST UPDATED  
Sep 18, 2024

### Welcome



**R for applied epidemiology and public health**

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# MICOM = Integrator Center

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Part of InsightNet, funded through CDC's Center for Forecasting & Analytics

Partnership between the University of Michigan and Michigan Department of Health and Human Services (MDHHS)

Work to develop modeling tools and data analytic pipelines

Integrated into MDHHS operational workflows and decision-making

Build tools that will benefit directly public health—both in emergencies, and in addressing current, critical infectious disease threats

# MICOM & WCHD - The Beginning

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- Exploratory conversation
- Technical Assistance
- R Workshops
- Academic Health Department
- Closer ties through meetings, project discussions, collaboration on grants (e.g. CVI), workgroups with other LHDs



**In the last year, we've  
launched MI-Support!**

# What is MI-Support?

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- MI-Support team provides support/staffing to complete requested data analysis/modeling projects from local and tribal health departments across the state of Michigan
- Goals of the program:
  - Provide support and capacity building in response to urgent and/or under supported modeling and analytics needs for LHDs
  - Increased preparedness for public health emergencies
  - Enhanced capacity for analytics and modeling

# How does MI-Support work?

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- ➡ Health department identifies a project that they may not have the staffing/resources to complete
- ➡ Member of the health department reaches out to MI-Support via Google Form or email, providing details about the project they are looking to complete
- ➡ Request enters queue for review by MI-Support team
- ➡ MI-Support deploys team to assist with the requested project

Level of support can range from providing consulting or support to LHD staff working on a project up to fully completing the project in-house, depending on LHD needs/preferences

# Projects So Far:

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- R Workshops: 11; Various topics
- Automated Internal STI Reports
- Tool for Risk Evaluation and Communication Regarding Measles
- Code to Dashboard Process Documentation and Evaluation Assistance
- Dashboard and Enhanced Analytics for Firearm Injuries
- Streamlining Communicable Disease & TB Reporting for Bi-weekly Interdisciplinary Teams
- Vaccination Geo-spatial Analysis

# Taking advantage —

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Active call for projects!

Have project ideas for your work or your team(s)?

Email us at [micom-misupport@umich.edu](mailto:micom-misupport@umich.edu) or fill out our [google form](#)!

Talk to Juan, Marisa, Jack, or Jules today-Wednesday

# Workshop

1 hour, 30 minutes

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- Loading in data (and checking it!)
- Working with data with a goal in mind
- Making a graph
- Making a table
- Swapping from a script to a report

# Presentation

30 minutes

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