Welcome in!

MI-Support

MI-Support Hands-On Workshop

Using R for Data Analysis in Public Health

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MI-Support

Session plan

Presentation (30 minutes)

- Uses of R

- Examples of R "in the wild"

- MICOM & MI-Support

    - MI-Support & OCHD

Workshop (1 hour, 30 minutes)

So R? It's pretty cool?

- 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

- Usually think of R for statistical analyses and maybe plots?

- But can be as complicated / or not as you want

  - Dashboards / websites

  - Reproducible analyses and reports

  - Data processing checks and pipelines

  - Book and paper publishing

Useful for data management, too!

Standard procedures can be developed and shared within and across teams.

- Data operations

  - Deduplicating records

  - "Fuzzy matching" for place names, demographic categories

  - Supressing identifiable data

- Data communication

  - Standard themes for on-brand visualizations

Example: Dashboard

California Overdose Surveillance Dashboard

Example: UM wastewater monitoring

U-M Wastewater Monitoring Dashboard

Resources for learning R

- The Epidemiologist R Handbook

- R for Data Science
    - Written by Hadley Wickham, the lead author of the `tidyverse`

Resources for finding help

- Google!

- LLMs, yeah! (With caveats)

    - DO NOT EVER copypaste data into these tools

    - Also, keep in mind, it can send you down a rabbit hole, or into a trap!

        ○ Geocoding – it'll tell you how to do it… but maybe that's bad!

MICOM = Integrator Center

- Part of Insight Net, 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

> ⓘ **Insight Net is *for* local health departments!**
>
> Purpose: Build tools that will benefit public health—both in emergencies, and in addressing current, critical infectious disease threats.

A bit over a year ago, we launched MI-Support!

MI-Support

What is MI-Support?

MI-Support is for **building LHD capacity**.

- Data analysis or modeling project support

- Technical workshops (👋)

- Urgent outbreak response

- Internships for public health students

How does MI-Support work?

1. Health department identifies a project that they may not have the staffing/resources to complete

2. 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

3. Request enters queue for review by MI-Support team

4. MI-Support deploys team to assist with the requested project

Level of support can range from consulting or support for LHD staff up to fully completing a project in-house, depending on LHD-partner preferences.

Projects so far

- R Workshops: ~~11~~ *14* on various topics

- Automated Reports for STIs and gastrointestinal conditions

- Interactive tool for risk evaluation and communication about measles in schools

- Dashboards and enhanced analytics for firearm injuries, Legionnaires' surveillance

- Streamlining communicable disease & TB reporting for bi-weekly interdisciplinary teams

- Vaccination geo-spatial analysis

Spotlight on OCHD

- Developing a dashboard for Legionnaires' Disease surveillance
  - Melissa Ann Williams-Bowman
- Mapping vaccine coverage and VFC sites in R
  - Brionna Powell
- Writing documentation for the Health of Oakland County dashboard series
  - Kaylia Johnson
- Analyzing trends in accidental drowning deaths with R Shiny
  - Carrie Hribar

A huge shoutout to Lauren Fink!

Taking advantage

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

- Email: micom-misupport@umich.edu

- MI-Support's website, where you'll find a link to our project submission form

- Talk to Marisa, Jack, Kate, or Stephanie today

Funding acknowledgement

Workshop

MI-Support

Setup

1. Copy resources from MICOM Hub's workshop page:

   - https://micom-hub.org/r_workshops.html

2. Open RStudio, then open a new R script file.

💡 **Opening a new file in RStudio**

- Context menus (at the top of your screen): File > New File > R Script
- Keyboard shortcut (on Windows): `Ctrl` + `Shift` + `N`

Thank you!

We'll continue this in the worksheet.

```
1   # intro_R_workshop_20260313.R
2   #
3   # This script file contains the code I wrote during MI-Support's Intro to R
4   # workshop at Oakland County Health Division on Friday, March 13, 2026.
5   # For help on this stuff later, I can use MI-Support's R Office Hours link:
6   # https://calendly.com/jackjacobs-misupport/30min
7   #
8   # Author: {your name here} ({your@email.here})
```