Come together: designing, implementing, and evaluating a multi-disciplinary advanced molecular detection workshop

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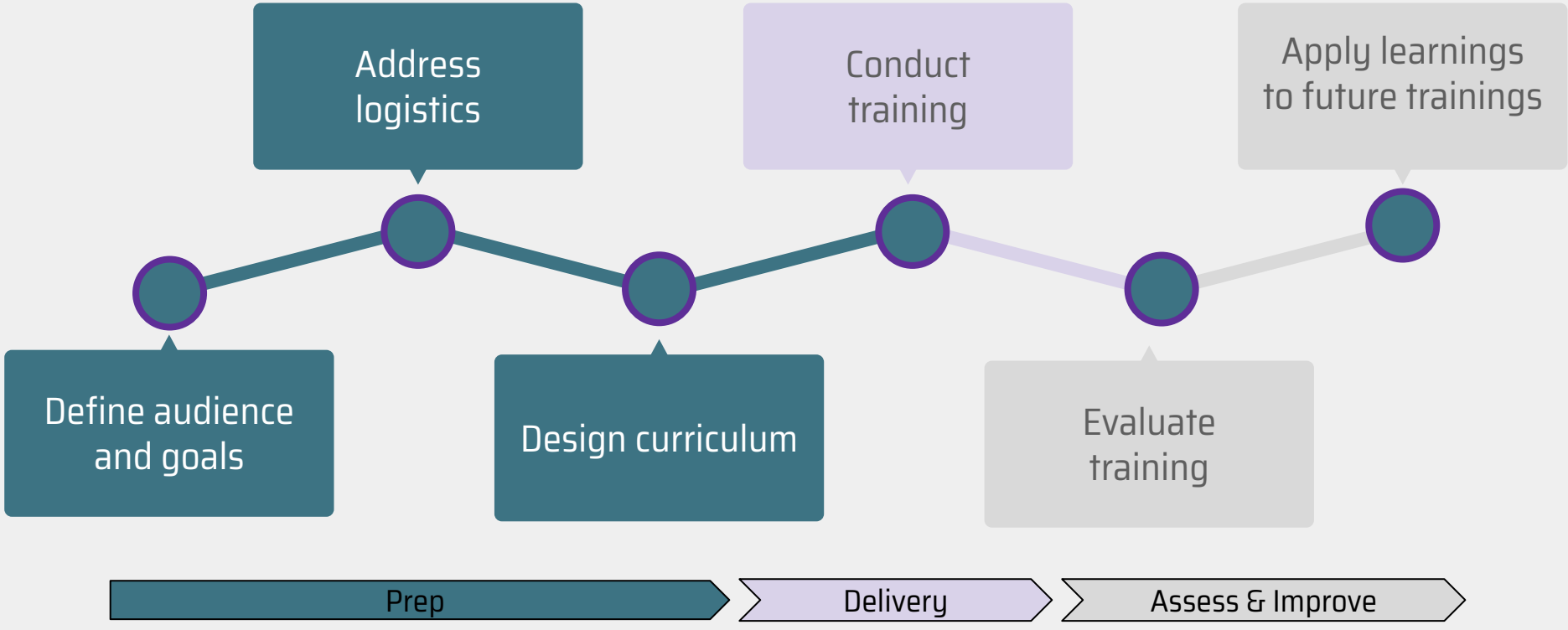
Centre for **Genomic Pathogen Surveillance**

Digital Epidemiology Services

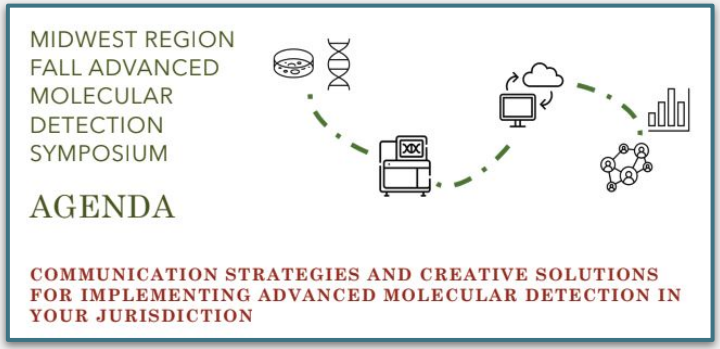
Training process



Define audience and goals

- **Audience:** Laboratorians, bioinformaticians, epidemiologists working in state and local public health departments, primarily in the midwest region

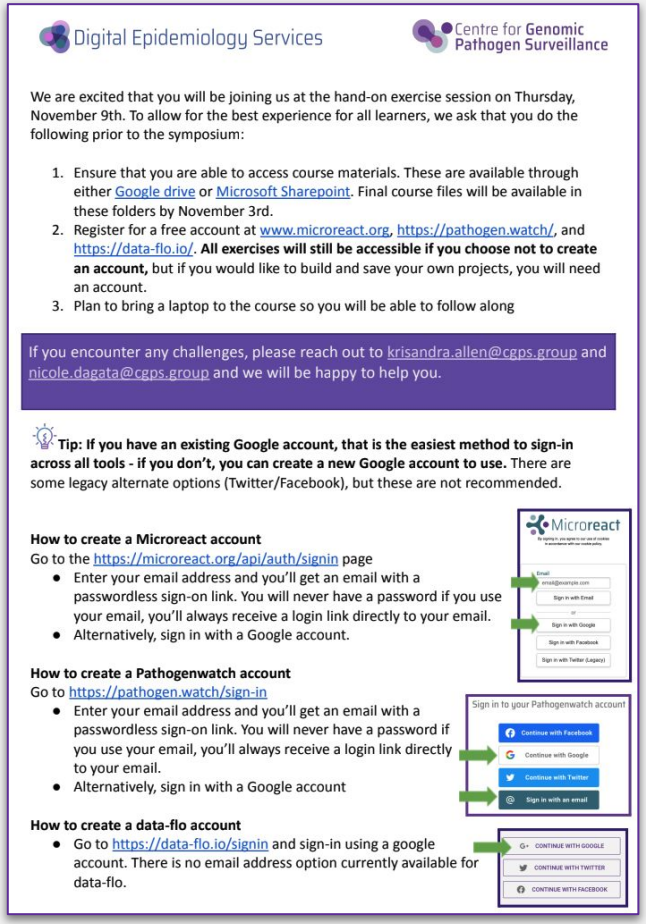
- **Goal:** Conduct an exercise-based training to complement the learning from the first day of the AMD symposium



https://www.cdc.gov/advanced-molecular-detection/php/investments/maps.html

Plan the Logistics

- **Technical:** Room setup, projectors/ screens, internet, power plugs, laptop adaptors
- **People:** Getting the right mix of people in groups
- **Course materials:** Mix of electronic and paper
- **Communications:** Pre-workshop communication with registered attendees to encourage technical checks and reminder to bring laptops



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We are excited that you will be joining us at the hand-on exercise session on Thursday, November 9th. To allow for the best experience for all learners, we ask that you do the following prior to the symposium:

1. Ensure that you are able to access course materials. These are available through either Google drive or Microsoft Sharepoint. Final course files will be available in these folders by November 3rd.
2. Register for a free account at www.microreact.org, https://pathogen.watch/, and https://data-flo.io/. **All exercises will still be accessible if you choose not to create an account,** but if you would like to build and save your own projects, you will need an account.
3. Plan to bring a laptop to the course so you will be able to follow along

If you encounter any challenges, please reach out to krisandra.allen@cgps.group and nicole.dagata@cgps.group and we will be happy to help you.

Tip: If you have an existing Google account, that is the easiest method to sign-in across all tools - if you don't, you can create a new Google account to use. There are some legacy alternate options (Twitter/Facebook), but these are not recommended.

How to create a Microreact account

Go to the https://microreact.org/api/auth/signin page

- Enter your email address and you'll get an email with a passwordless sign-on link. You will never have a password if you use your email, you'll always receive a login link directly to your email.
- Alternatively, sign in with a Google account.

How to create a Pathogenwatch account

Go to https://pathogen.watch/sign-in

- Enter your email address and you'll get an email with a passwordless sign-on link. You will never have a password if you use your email, you'll always receive a login link directly to your email.
- Alternatively, sign in with a Google account

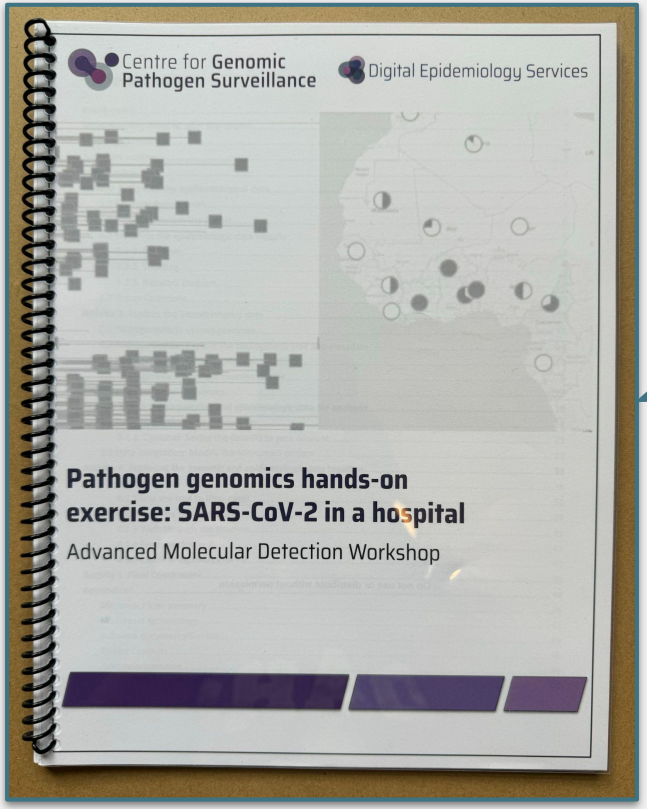
How to create a data-flo account

- Go to https://data-flo.io/signin and sign-in using a google account. There is no email address option currently available for data-flo.

Design Training - Session Plan

Module Title	Pathogen genomics hands-on exercise
Facilitators	Krisandra Allen, Nicole Dagata
Length of session	180 min (3h 0min)
Module summary	This module aims to demonstrate the value of using pathogen genomics data for an outbreak investigation. The example presented in this module is based on an outbreak of SARS-COV-2 in an Irish hospital.
Learning outcomes	At the end of this module participants will be able to: 1. Be able to draw conclusions based on epidemiologic information in an outbreak investigation 2. Understand different ways that genomic data can be summarized and presented 3. Describe an outbreak incorporating both genomic and epidemiological data sources 4. Reflect on the data integration and visualization process and its importance for decision making
Training room layout	Tables will be moved so that learners can be in groups of 4-6. Groups will contain learners from both lab/bioinformatics and epi backgrounds.
Materials needed for activity participation	Internet access Laptop Sharepoint or Google drive with links to all training materials Printed workshop handbook

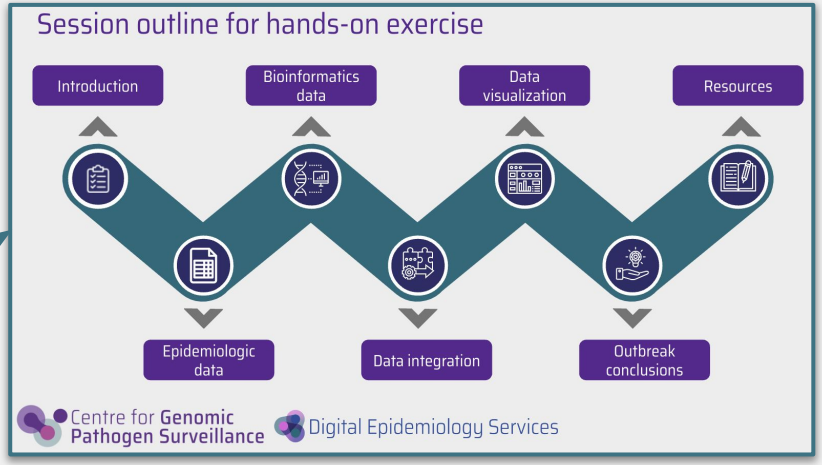
Design Training - Materials

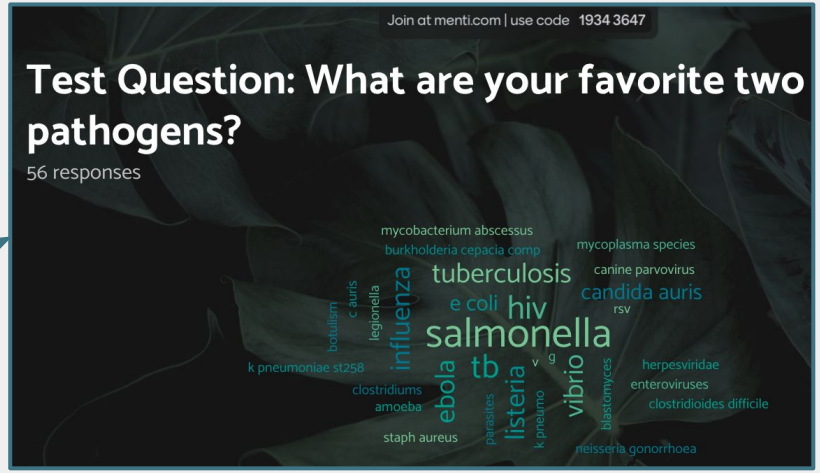


Slide deck for introduction and instructions

Handbook for each learner

Mentimeter for interactive questions





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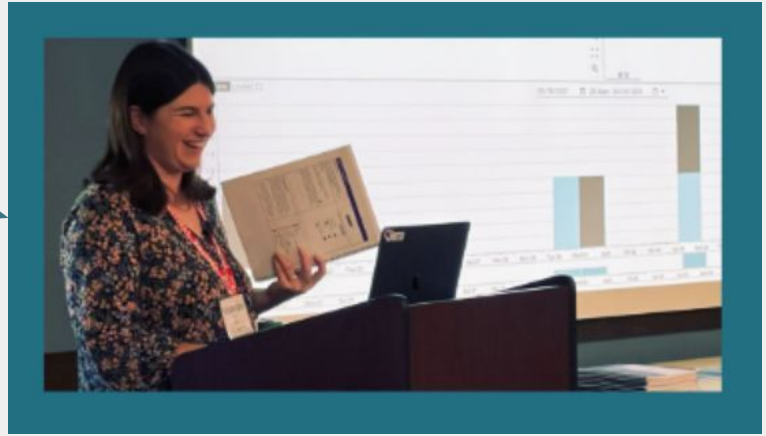
Training day

- The fun part!
- Thorough planning makes training day easier and smoother

Me laughing at my own jokes



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Evaluate Training - learner feedback

Method: Mentimeter questions at the end of the training

Responses: 14 respondents

Results: Overall, response was positive with 100% reporting that the training met (12) or somewhat met (2) their expectations. Themes drawn from the open-ended feedback questions were:

- Enjoyment of the cross-disciplinary and discussion-based aspects of the exercise
- Overall feedback that the training was well-designed and helpful
- Interest in having learners be able to bring their own dataset or address how they would use these techniques in their everyday work

Limitations: Less than half the attendees responded. Mentimeter questions throughout the session were answered in groups, so people not answering for their group may not have taken the time to join the mentimeter afterwards. Also lunch appeared, and it smelled really good.

Learnings to apply to future trainings

- **Format:** Overall the format of bringing together multiple disciplines and working through a real-live scenario was successful and well-received by attendees
- **Instructors:** For a training of that length (3 hours) having multiple up-front instructors would be helpful
- **Materials:** Physical handbooks make working on an exercise easier than switching back and forth between tabs, learners appreciated the take-home handbooks.
- **Technical:** Very few technical issues - pre-communication and thorough documentation was really valuable in making things run smoothly
- **Collaboration:** Communication across teams was instrumental in making sure the exercise fit with the overall goals and themes of the larger symposium
- **Personalize:** Emphasize next steps, how can learners take those lessons back and apply them to their daily work

Co-authors and acknowledgements

Co-authors

Michigan Department of Health and Human Services

- Arianna Miles-Jay, PhD, MPH
- Heather Blankenship, PhD

Centre for Genomic Pathogen Surveillance/Digital Epidemiology Services

- Nicole Dagata, MS
- Monica Abrudan, PhD

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