Leveraging Partnerships and Emerging Technologies for Virtual Outbreak Investigation Training

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PRESENTERS

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Learning Objectives

01 **Describe how to implement a collaborative approach for virtual outbreak investigation trainings for both practitioners and students**

02 **Discuss the use of Notion as an innovative tool for interactive public health training in a virtual space**

03 **Explain how a quality improvement focus to training evaluation enabled iterative, responsive improvements to training implementation**

Public Health Prepared (PHP) Overview

Workforce development and public health practice branch of the MCIDT Initiative

Our goals

- Advance the practical application of MCIDT research findings
- Engage the public health practice community to inform potential research initiatives
- Train, organize, and connect those working in infectious disease emergency preparedness and response in Michigan and the region

Training Development

Outbreak Investigation Training

- Sessions
  - Practitioners - Disease Detectives: Outbreak Investigation Quality Improvement
    - Dates offered: 9/15/22 and 10/11/22
    - #of participants: 30 total
    - Duration: 1.5 hour live session via Zoom

  - Students - Disease Detectives: Introduction to Outbreak Investigation
    - Date offered: 3/25/23
    - # of applicants: 81
    - # of participants: 28
    - Duration: 2 hour live session via zoom (ended a bit early)

What Informed Our Training?

- **Training Needs Assessment performed by PHP**
  - Respondents noted the need for outbreak investigation training
  - Led to the development of our practitioner sessions

- **Ongoing pandemics and preparedness for future ones**
  - We felt it was advantageous to offer this training for public health students
  - Created a space for students to work in interdisciplinary teams, learn from each other and our Subject Matter Experts (SMEs)

- **Adapted from the Centers for Disease Control and Prevention Training**
  - *Solve the Outbreak* module provided the groundwork for the Notion setup

Training Learning Objectives

Practitioner sessions (2) and student session (1)

- Describe a systematic approach to outbreak management

- Discuss the challenges that occur during outbreaks and outbreak investigations

- Identify strategies for communication and collaboration with site liaisons and key stakeholders

Intended Audience

Practitioner sessions

- Public health practitioners
- Epidemiologists
- Public Health Nurses / Nurses
- Sanitarians
- Public Health Officers
- Public Health Communications

Available upon completion:

- 1.5 Nursing Contact Hours
- 1.5 Contact hours of continuing education with the National Environmental Health Association
- 1.5 CPH Recertification Credits
- Certificate of Completion

Student session

- Public health students at the University of Michigan School of Public Health

Available upon completion:

- Certificate of Completion

Tatyana Ivanova, MD, MPH

Community Health and Public Health Preparedness Director
Monroe County Health Department

Kayleigh Blaney, DrPH, MPH

Formerly the Deputy Health Officer at Genesee County Health Department

Currently Senior Advisor NYU School of Global Health

- All Subject Matter Experts (SMEs) reviewed the Notion module quality improvement.

- Kayleigh presented a brief overview of outbreak investigations at the beginning of the each training.

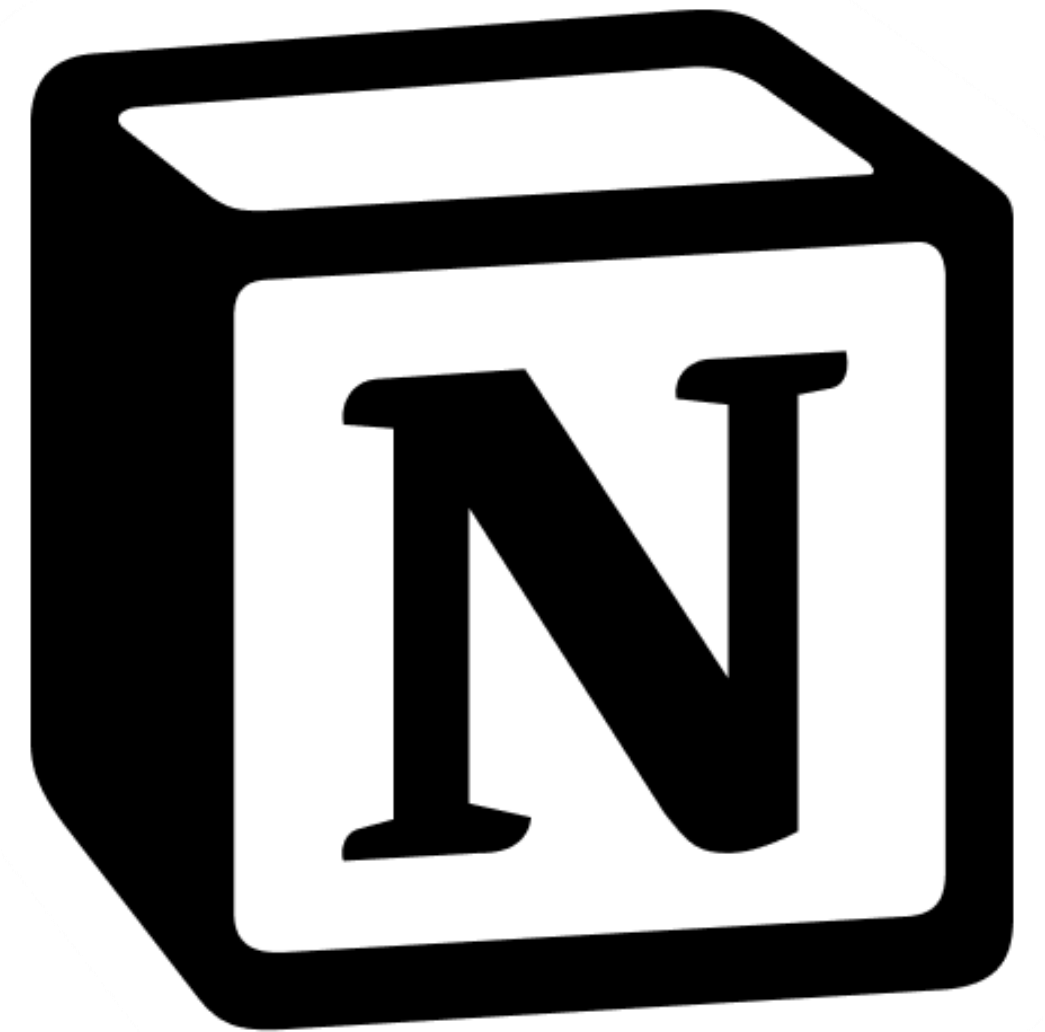- The SMEs facilitated the Zoom breakout sessions.

Planning Process

- For planning committee:
  - Shared planning doc (objectives, agenda, Notion branching, logistics, etc.)
  - Slides (overview, breakout instructions, final discussion questions)
  - Notion
  - Run-of-show / script doc
  - Instructions for, and testing of, Notion module
  - Breakout group assignments (for RVPHTC use)
  - (For student offering only) Application and scoring rubric

- For participants:
  - Worksheet with agenda, note-taking space, discussion questions
  - (For students only) Outbreak roles description doc
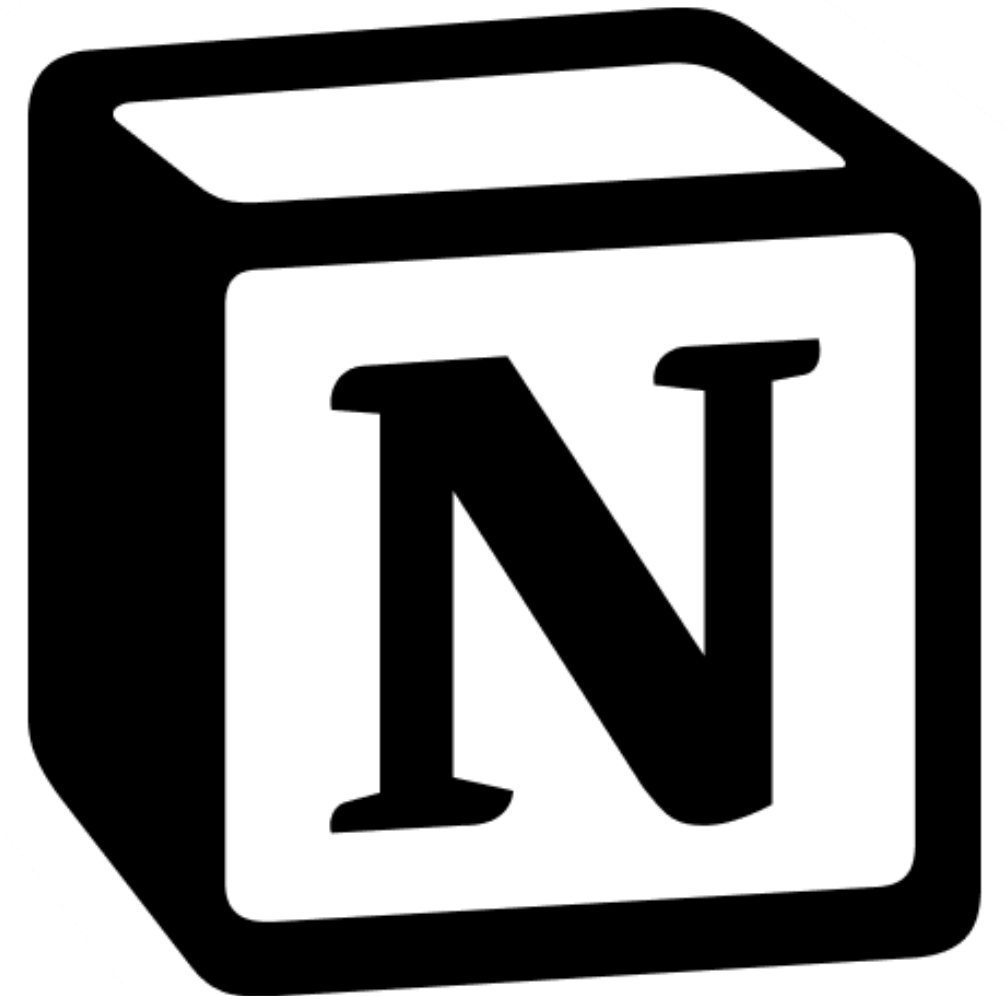
Notion Walkthrough

What is Notion?

- Task and project management application
- Multiple people can access at once
- Allows for note taking
- Manages data and generates graphs, tables, etc.
- Crates static files like PDFs

PHP

Other Use Cases for Notion

- Wiki pages for health communications
  - Dashboards, data visualization, and resource hub

- Collaborative software for remote training teams

Practitioner Sessions

- **Scenario:** The Michigan State Pediatric conference was held on January 12-15, 2022. Dozens of people got sick at the conference, complaining of fatigue, nausea, abdominal pain, loss of appetite, low-grade fever, and dark urine. The conference coordinator called the state health department to report that several participants are sick and 2 have been hospitalized.

- **Pathogen:** Hepatitis A

Student Session

- **Scenario:** 204 students have shown up at the university health service with gastrointestinal symptoms, and 35 have been admitted to the university hospital.

- **Pathogen:** E. Coli

Notion Time

TinyURL:

https://tinyurl.com/mr55k2cb

Questions?

- Any questions about the Notion walk-through?

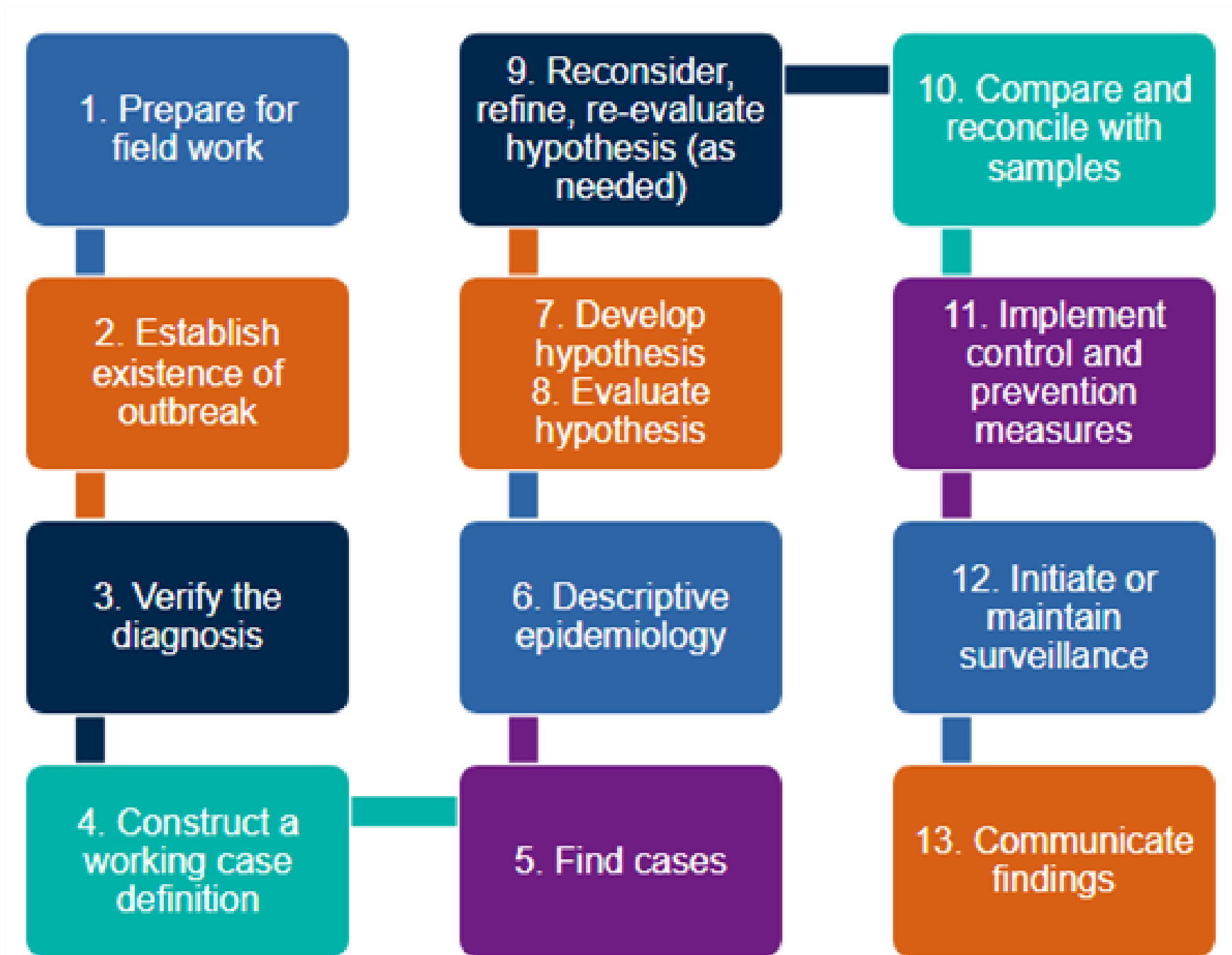# Training in Action

Live Sessions

Outbreak investigation overview

- Definition
- Why investigate outbreaks
- Who's involved (local, state, federal)
- What are the steps involved* →
  - *Steps often occur out of order, with some steps occurring at the same time.

- Emphasis on step 13

1. Prepare for field work

2. Establish existence of outbreak

3. Verify the diagnosis

4. Construct a working case definition

5. Find cases

6. Descriptive epidemiology

7. Develop hypothesis
8. Evaluate hypothesis

9. Reconsider, refine, re-evaluate hypothesis (as needed)

10. Compare and reconcile with samples

11. Implement control and prevention measures

12. Initiate or maintain surveillance

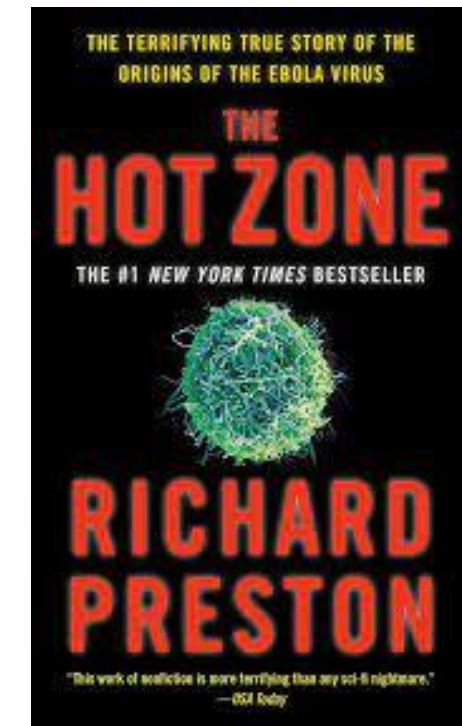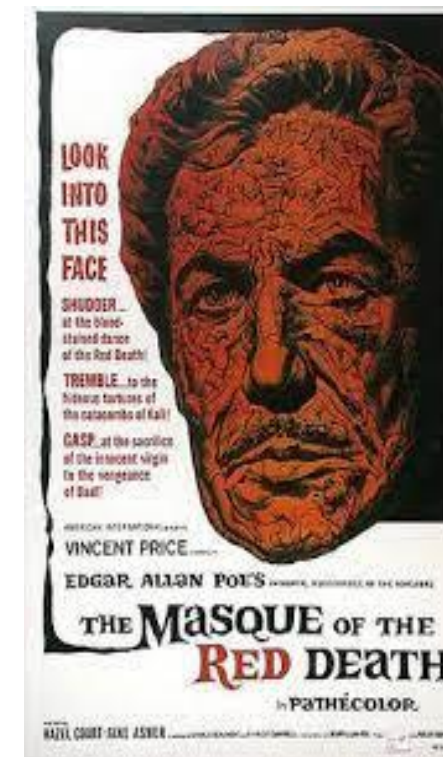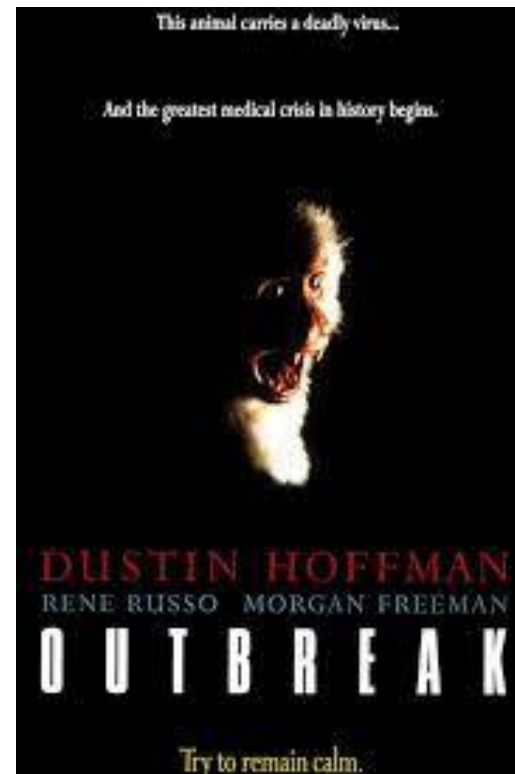13. Communicate findings

Breakout Sessions

Experience in Breakout Sessions

Facilitating working through the case

- 3 breakout rooms, with an average of 6 people

- Each room had a facilitator

- Introductions

- Get volunteers to note-take and report

- Ice-breaker question

Facilitating working through the case

- Took a little time to get people to open up and respond

Practitioners
- Once it started, the floodgates of communication were open
- Great discussions

Students
- Took a little time to get them to respond
- Epidemiology or communication centered students responded the most

Practitioners

- Know the chain of command and processes
- Bring their knowledge and experiences related to previous outbreaks
- Get bored quickly if it's too easy

Students

- Interested in things that aren't listed
- Eager and bold with their actions
- Bring a curiosity and newness to the event

Both are interested in the future actions that need to be taken

Experience in Final Summary / Large Group Discussion

Discussion

- Report out from the breakout groups
- Continuation from questions in breakout sessions
- Group discussion questions:

    1. In regards to the final clue, what would be your next steps given your specific role?

    2. Who would you need to talk to and what information needs to be communicated?

    3. What are some lessons learned from this investigation?

    4. What strategies/skills/tools do you plan on using in your role if were involved in an outbreak investigation?

Facilitator Experience in Large Group Summary Discussion

Practitioners
- Reported out and proceeded to have a great discussion about the exercise

Students
- Reported out only what they discussed in their breakout room
- Facilitators gave more commentary

Participant Evaluation Feedback

Evaluation Feedback

Student Session (N=27)

- **Were learning objectives met?** (4-point scale)
  - On average, participants felt objectives were met (at least 3.0 out of 4.0).

- Do you agree or disagree with statements below? (5-point scale)
  - **Effectiveness of presenters/moderator**
    - On average, participants agreed they were effective (at least 3.7 out of 5.0).
  - **4 common metrics (asked in all trainings):**

Metric	Avg
My understanding of the subject matter has improved as a result of having participated in this training.	4.4
I have identified actions I will take to apply information I learned from this training in my work.	4.4
The information was presented in a way I could clearly understand.	4.6
I was satisfied with this training overall.	4.3

PHP

Evaluation Feedback

Student Session (N=27)

- Open ended questions:
  - **Please provide comments on the delivery of the training, usefulness of the material, or any webinar-related feedback**
    - *The delivery of the training was thorough yet succinct. It lent space for various perspectives in conversations surrounding the simulated context. There was a fostering of both individual and group-derived critical thinking in understanding the severity, source, and response to the simulated outbreak.*
  - **What additional trainings would you like to see offered in the future?**
    - *Specific communication strategies/language to use when both between the involved parties for outbreak investigation and when communicating to the public.*
    - *Practicing role-based interaction amongst participants would be helpful. Maybe another scripted scenario after the initial case is discussed might help us do a "drill" that drives home some of the key points*
  - **How did you hear about this training?**
    - Most heard via a PHP email (19/27)

Evaluation Feedback

Practitioner Sessions (N=27)

- **Were learning objectives met?** (4-point scale)
  - On average, participants felt objectives were met (at least 3.0 out of 4.0).

- Do you agree or disagree with statements below? (5-point scale)
  - **Effectiveness of presenters/moderator**
    - On average, participants agreed they were effective (at least 4.3 out of 5.0).
  - **4 common metrics (asked in all trainings):**

Metric	Avg
My understanding of the subject matter has improved as a result of having participated in this training.	4.2
I have identified actions I will take to apply information I learned from this training in my work.	4.2
The information was presented in a way I could clearly understand.	4.7
I was satisfied with this training overall.	4.5

Practitioner Sessions (N=27)

- Open ended questions:
  - **Please provide comments on the delivery of the training, usefulness of the material, or any webinar-related feedback**
    - *This was a good training! I was utilizing it as a way to keep my investigation skills fresh because although outbreak investigation is part of my job, we don't have too many outbreaks in my jurisdiction. This program has a lot of good info that gave me ideas of how I can continue to train my sanitarians and CD nurses.*
  - **What additional trainings would you like to see offered in the future?**
    - *I do believe that a longer course would be beneficial, perhaps with some more common "traps" to illustrate things that we need to watch out for when conducting investigations.*
    - *Opportunities for relationship building in this type of setting are incredibly valuable during a real outbreak.*
    - *I would like to see more in depth investigation training with real-world cases presented by the investigators that ran them, perhaps targeted to a more experienced audience.*
  - **How did you hear about this training?**
    - Most heard via a PHP email (12/27)

Takeaways and Lessons Learned

Utilizing Notion

Takeaways

- Great technology to bring people together and learn
- Accessible and applicable from local to state to national to international

Lessons Learned

- Notion can be easily used for other department needs:
  - Emergency preparedness exercises
  - Departmental trainings
  - Orientations

Quality Improvement

- **Incremental improvements per participant evaluation feedback**
  - Corrected pathogen-specific details (e.g., incubation period, symptom onset)
  - Updated graphs dates and other readability issues
  - Choosing relevant pathogen for audience (e.g., E.coli outbreak in university cafeteria)

Future Training Plans

Practitioners

- Developing self-paced training
- Training will aim to provide a framework for more systematic outbreak investigation preparation and implementation
- Partners include a Medical Director and Emergency Preparedness Coordinator from local health departments

Students

- Expanding virtual training to public health students throughout the state
- Facilitators include emergency preparedness professionals and sanitarians from local health departments

Q&A

PUBLIC HEALTH PREPARED

A Program of the Michigan Center for Infectious Disease Threats & Pandemic Preparedness

THANK YOU!