TASSELS AND TUMULT: THE GRADUATION GAFFE

SITUATION MANUAL

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INTRODUCTION

Purpose

To protect the health of the American public, we must ensure that food products are safe for consumption. Everyone involved in the food chain, from farmers to consumers, has a responsibility to keep the food supply safe.

This scenario centers on the retail sector, particularly highlighting the Environmental Health & Safety (EHS) procedures, inspection practices, laboratory testing strategies, and regulatory investigations that ensue following a consumer illness complaint.

This exercise underscores the critical importance of robust EHS protocols for retail establishments to ensure the safety and well-being of both consumers and employees. In the event of a reported illness, strategic inspection practices are implemented, in collaboration with epidemiological and laboratory information, to identify potential sources of contamination or hazards within the retail environment.

Laboratory testing strategies are employed to analyze both human and environmental samples and ascertain the presence of any harmful pathogens or contaminants. This step is important in identifying and then determining the root cause of the reported illness and implementing appropriate corrective measures to prevent further incidents.

The collaboration of regulators plays a pivotal role in ensuring compliance with industry standards and regulations, as well as facilitating transparency and accountability in addressing consumer health concerns. By focusing on these key functions and processes, the scenario highlights the proactive measures applied to the retail sector to uphold safety standards, mitigate risks, and safeguard public health in response to consumer illness complaints.

Participants

This scenario should include participants from state, local, territorial, and tribal regulatory agencies, local clinical and/or food laboratories, epidemiologists, and retail food inspectors. The scenario can be expanded to include representatives from retail and food service establishments, communications experts, and other stakeholders. The scenario can be adapted to span multiple jurisdictions or states.

Goal

This tabletop exercise provides participants with an overview of actions taken at the local, state, tribal, and territorial levels when a food-related incident occurs. It will focus on the role that key personnel play in containing the problem and protecting consumers. A large amount of information in this tabletop exercise will be generated from discussions among participants as they go through a hypothetical scenario. During the tabletop exercise, participants will assess plans, policies, and procedures and think about how they would realistically apply them in the event of an incident. This tabletop exercise will help

to facilitate discussion among various participating entities, such as state and local entities and the private sector within the state.

Exercise Objectives

After this tabletop exercise, participants will be able to:

- Discuss the sources and routes of contamination leading to the presence of pathogens in retail food service establishments.
- Assess the adequacy of control measures at retail food service establishments.
- Describe how an environmental assessment supports a foodborne illness outbreak investigation.
- Explain the role of clinical and food laboratories, including the importance of sample collection and chain of custody.
- Apply local, state, tribal, and federal regulations related to outbreak investigations and pathogen control in retail establishments.
- Utilize established investigation, reporting, and response procedures to manage the outbreak.
- Use a collaborative approach to efficiently deploy the responsibilities of each agency/discipline to implement proactive solutions during outbreak investigations.

Exercise Structure

This exercise is designed to be an interactive, facilitated tabletop exercise. Participants are encouraged to ask questions of each other and learn from one another. It has been designed by a group of subject matter and instructional design experts to provide participants with a real-life, plausible food safety scenario. While this scenario has been simplified to present the information effectively, the scenario itself and the discussion questions have been designed to encourage participant dialogue and bring to the surface topics that are critically important to react to such incidents. The exercise has also been developed to provide participants with an opportunity to explore important topics like interagency collaboration, jurisdictional issues, and risk communication. The information in this scenario supports *Standard 5: Foodborne Illness and Food Defense Preparedness and Response* of the Voluntary National Retail Food Regulatory Programs Standards and reflects the policies and procedures currently identified in this Standard as of January 2022. If there has been an update to the procedure in your jurisdiction, please be sure to make the group aware of the change and work with the facilitator to ensure that all participants understand the update.

This exercise was developed by the Association of Food and Drug Officials (AFDO). This exercise is a multimedia, facilitated tabletop exercise (TTX). Participants will respond to three modules:

Module 1	Module 2	Module 3
Identification of Potential Outbreak	Inspection and Sample Collection (Mock Investigation for Environmental Health Specialists	Conclusion

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Exercise Guidelines

As with any learning experience, this exercise must be conducted in a safe learning environment so that all participants can share and explore concepts with one another while discussing multiple solutions and options for a given issue. This exercise will operate under the following guidelines:

- This will be an open, low-stress, and non-public learning environment and is not intended to set precedents.
- Participants will listen to and respect the varying viewpoints of other participants.
- The scenario we will discuss is plausible, and the events occurred as presented. Suspend your disbelief, and feel free to discuss differing policies and procedures during the breakout discussion.
- Today's facilitator is not necessarily a subject matter expert, and participants are expected to provide the expertise needed to ensure that the discussion is accurate and thorough.
- We will apply our findings from today's activities to our jobs/functions and share key findings with colleagues.

Roles and Responsibilities

Lead Planner – The person who has overall responsibility for the tabletop exercise, including all pre- and post-exercise needs.

Participants – Respond to the scenario based on their first-hand, experiential knowledge; current plans and procedures of their entity, agency, or jurisdiction; and insights from training and experience.

Evaluator(s) – Records the highlights of the discussion at each breakout table. These people do not participate in the exercise but capture the essence of the dialog for use in the After-Action Report. They are chosen based on their expertise in the areas they are to observe.

Facilitator – Generally leads the exercise, provides situation updates, and moderates discussions. They also provide additional information and resolve questions as needed. Key officials may also assist with the facilitation of subject matter experts during the exercise.

Group Leader – A representative from each table (volunteered by the group) who will lead the group as it explores discussion questions and the breakout activities.

Group Recorder/Reporter – A representative from each table (volunteered by the group) who will ensure that the group discussions are kept on time, record the key themes discussed at the table, and be responsible for reporting out during the large group dialogue.

MODULE 1
IDENTIFICATION OF POTENTIAL OUTBREAK

June 8, Friday

On the afternoon of Friday, June 8, the local Health Department was alerted via email by a concerned parent regarding several illnesses allegedly associated with an evening graduation celebration hosted on June 6. According to the parent, many extended family members and friends fell ill following the event. Urging action, the concerned parent asked the public health authorities to intervene and begin an investigation.

The epidemiologist called the parent upon reading the email and gathered as much information as possible including who got sick, onset and duration of illness, illness symptoms, where they got sick, the name and number of the host, etc. At this point, the epidemiologist entered the complaint and details into the system and felt the information provided met the criteria to trigger an immediate investigation.

The local epidemiologist began interviews (coordinating the local investigation) and informed the local environmental health specialists in case an inspection was warranted.

The local epidemiologist called the party's host and requested the guest list of partygoers (contact information), and also information on the food served and consumed. Luckily, the host had a contact list for all guests in attendance and could provide emails, phone numbers, and names to the local epidemiologist. The information provided about the food that was served helped the epidemiologist generate a hypothesis-generating questionnaire to be used electronically or by phone on the items reportedly available at the party. The local epidemiologist prepared the questionnaire to go out before the weekend to all people who attended the event and also started calling individuals less likely to respond to electronic correspondence.

NOTE: About Hypothesis-Generating Interviews

> **As described by CDC at http://www.cdc.gov/outbreaknet/investigations/sources.html, "Once the mode of transmission is determined, detailed questions follow. When exposure to a food is suspected, the investigators next must consider the large number of foods that may be the source (also called the 'vehicle' of infection). The number of different food items is vast, so the investigation needs to narrow the list to the foods that the ill people ate before they got sick, and then further narrow it to the specific foods that many of the ill people remember eating. Health officials interview persons who are ill to find out where and what they ate in the days or weeks before they got sick. These interviews are called 'hypothesis-generating interviews.' These interviews ask about what and where the ill people ate in the period before they got sick, their shopping habits, travel history, and other relevant information.**
>
> **"The period they ask about depends on the pathogen's incubation period – the time it takes to get sick after eating the contaminated food. This varies for different pathogens. Which foods they ask about depends on what investigators already know about the exposure.**

"If the exposure occurred at a restaurant, hotel, or catered event, interviews will focus on the menu items prepared, served, or sold there. If there is no obvious place of exposure, investigators may use a standard questionnaire, also known as a 'shotgun' or 'trawling' questionnaire. By comparing the lists from person to person, epidemiologists can further narrow the list to those foods that many people remember eating in common.

"The 'loss to follow-up' is a challenge in gathering information from people involved in a public health investigation. The epidemiologist will use judgment to use phone interviews or electronic outbreak questionnaires – the information obtained will be the same to aid in the investigation. For example, electronic questionnaires might have a higher completion rate by younger demographics like high schoolers or college students, versus the elderly, or non-technological individuals. Sick and case-control data on the food exposures helps to identify common exposures of the sick individuals."

(End note)

Interviews or "Electronic Outbreak Questionnaires" were sent to all people, including people who did not report any illness, as they represent case controls.

Since the local environmental health specialist will likely perform an investigation over the weekend, potentially Saturday, June 9, information obtained from the interviews or questionnaires was passed along to the local environmental health specialist to help assist the investigation. Although the epidemiologist was not able to perform a thorough analysis of the data, the epidemiologist worked to identify trends and develop hypotheses (based on data obtained from illness symptoms, illness onset, foods consumed by sick individuals, etc.) to help focus the effort of the local environmental health specialist.

Based on the dialogue with the host, and other sick and healthy partygoers, the local epidemiologist gleaned crucial details. It emerged that most entrees were sourced from a local grocery store (picked up around 1 p.m.), with dessert – cake and cookies – procured directly after from a nearby bakery. Fried chicken was then picked up from Brad's Stateline Chicken Restaurant. All items were transported in the party host's personal vehicle, and the entire trip took approximately one hour. There was no temperature control other than the air conditioning in the car. Once home, the cake was stored in the refrigerator since it had custard filling and it was a hot day. The grocery store food items and fried chicken from Brad's Stateline Chicken Restaurant were placed on the kitchen table so the host could get ready for the party. No food for the party was co-mingled – all foods stayed in their original containers. The festivities started at 5 p.m. and extended into the late hours, with the last partygoer departing at 11 p.m. The host noted that most partygoers consumed food between 6 and 8 p.m. Throughout this duration, the food was left unattended on the kitchen counter. The cake was taken out of the refrigerator around 8:30 p.m., to wish the graduating seniors the best of luck as they headed off to college or new adventures. The host reported the son's displeasure with the cake since the bakery owner's son is the pitcher of the rival baseball team, which recently lost the district championship as a result of the home run hit by the son of the host: the graduate.

Listed below are the culinary items purchased from each location:

- Grocery store: sliced watermelon, fruit salad, leafy greens salad accompanied by bottled ranch dressing, roast beef sandwiches, deli-prepared potato salad, and pretzels
- Brad's Stateline Chicken Restaurant: fried chicken
- Bakery: vanilla graduation cake with custard filling, and chocolate chip cookies
- Results from the interviews and "Electronic Outbreak Questionnaires" soliciting comprehensive information on their illnesses, dietary history, etc., began to come into the local epidemiologist. Phone messages were left for follow-up to individuals not answering their phones. Requests for stool samples were made, with varying degrees of participation.

Since there was only one local epidemiologist in the office, the state epidemiologist was called to assist with the collection of information due to the potentially large scope of the outbreak; there were reportedly more than 50 people at this graduation celebration. Late into Friday night, the epidemiologists had spoken to or received questionnaires from 13 sick partygoers and 8 healthy partygoers. Information on sick individuals and sick/healthy food exposure is listed below in the tables.

13 Sick People	8 Healthy People
• Watermelon (7) • Salad (7) • Dressing (6) • Chicken (5) • Roast beef (12) • Potato salad (6) • Pretzels (2) • Fruit (4) • Cake (9) • Cookies (6)	• Watermelon (5) • Salad (6) • Dressing (6) • Chicken (6) • Roast beef (4) • Potato salad (4) • Pretzels (1) • Fruit (4) • Cake (7) • Cookies (4)

The sick individual data revealed that 8 males and 5 females, from 4 to 56 years old, exhibited symptoms. The distress manifested swiftly, with symptoms emerging from the early hours of June 7. Briefly, consistent complaints across all cases included debilitating diarrhea accompanied by severe stomach pain and cramping, as well as waves of nausea. A subset of individuals also experienced bouts of vomiting, yet fever was absent among all affected parties. Most bouts of illness resolved within 24 to 30 hours, except in three cases (young and two elderly persons). Details are listed below for each of the sick individuals.

Table of Sick Individuals' Details from the Graduation Party Event (n=13)

Patient Number #	Sex	Age	Disease Onset	Disease Duration	Brief Description, Including Symptoms* and Reported Food Exposures
1	M	70	June 7, 3 p.m.	Ongoing	Symptoms include diarrhea, stomach pain and cramping, nausea Reports consumption of salad, dressing, chicken, roast beef, cake
2	F	52	June 7, 4:30 a.m.	June 8, 3 p.m.	Symptoms include diarrhea, stomach cramping, mild vomiting Reports consumption of salad, chicken, roast beef, potato salad, cake
3	F	47	June 7, 3 a.m.	June 8, 1 p.m.	Symptoms include severe diarrhea, stomach pain, nausea Reports consumption of watermelon, roast beef, potato salad, fruit, cake
4	M	50	June 7, 6 a.m.	June 8, 4 p.m.	Symptoms include watery diarrhea, severe stomach pain and cramping, nausea Reports consumption of salad, dressing, roast beef, potato salad, pretzel, cake, cookies
5	M	19	June 7, 5 a.m.	June 8, 2:30 p.m.	Symptoms include severe diarrhea, stomach cramping, nausea Reports consumption of watermelon, salad, dressing, roast beef, potato salad, cookies
6	M	4	June 7, 1:30 p.m.	Ongoing	Symptoms include severe diarrhea, stomach pain and cramping Reports consumption of watermelon, chicken, roast beef, fruit, cookies
7	F	18	June 7, 12 p.m.	June 8, 5:30 p.m.	Symptoms include diarrhea, stomach pain and cramping, nausea Reports consumption of watermelon, fruit, roast beef, cake, cookies

Patient Number #	Sex	Age	Disease Onset	Disease Duration	Brief Description, Including Symptoms* and Reported Food Exposures
8	F	17	June 7, 8 a.m.	June 8, 8 a.m.	Symptoms include watery diarrhea, stomach pain, nausea, vomited twice Reports consumption of salad, dressing, roast beef, potato salad, cake
9	M	68	June 7, 1 p.m.	Ongoing	Symptoms include diarrhea, stomach pain and cramping Reports consumption of watermelon, roast beef, potato salad, cake
10	M	18	June 7, 10 a.m.	June 8, 7 a.m.	Symptoms include diarrhea, stomach pain and cramping, nausea, some vomiting Reports consumption of salad, dressing, chicken, roast beef, cookies
11	F	49	June 7, 11 a.m.	June 8, 1:00 p.m.	Symptoms include diarrhea, nausea Reports consumption of salad, dressing, fruit
12	M	56	June 7, 7 a.m.	June 8, 11 a.m.	Symptoms include severe diarrhea, stomach pain, nausea Reports consumption of watermelon, roast beef, chicken, cake
13	M	43	June 7, 6 a.m.	June 8, 9 a.m.	Symptoms include watery diarrhea, stomach pain, severe nausea, but no vomiting Reports consumption of watermelon, roast beef, pretzels, cake, cookies

*Appendix contains the "*Epidemiology of Foodborne Diseases*" document, which is a reference of foodborne pathogens including incubation period, communicability, associated foods/transmission, signs and symptoms, etc.

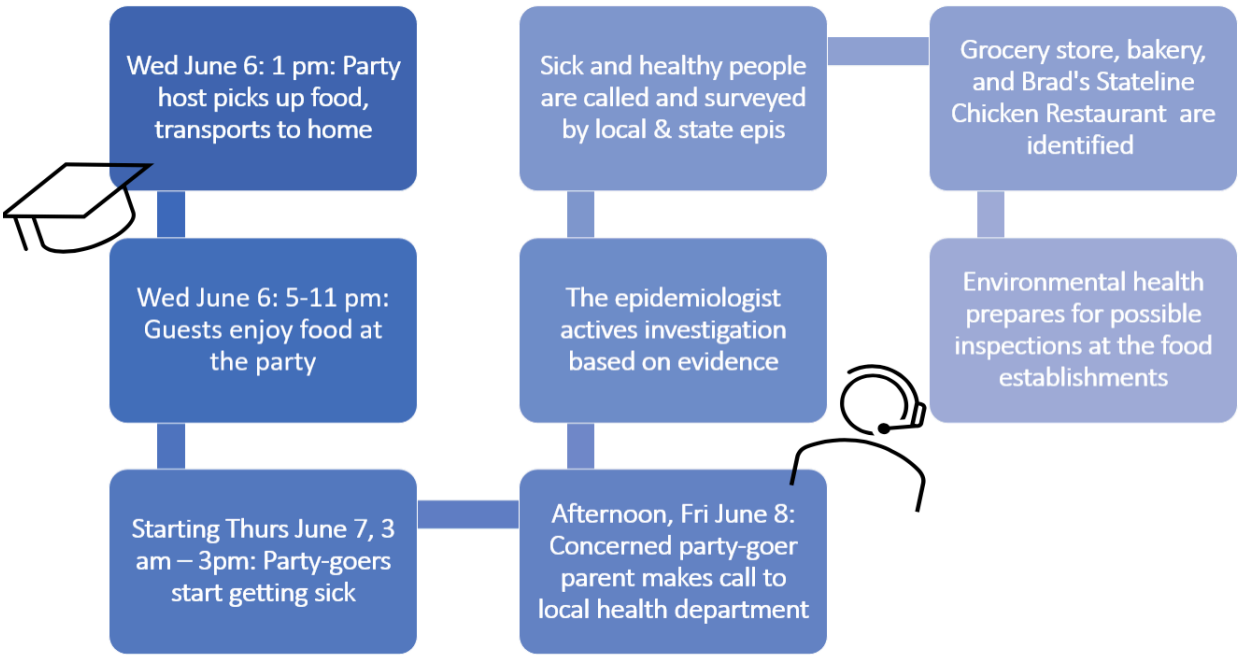
It was also determined that one (1) household had leftover roast beef (frozen), fried chicken (frozen), pretzels (room temperature), ranch dressing (refrigerator), and potato salad (refrigerator). The local epidemiologist passed the information along to the local environmental health specialists about the leftover food from the party. She also shared details about what foods were consumed by sick individuals to inform the collection of the leftover foods from the party and assist with investigation preparedness.

The local environmental health specialist called the bakery, grocery store, and Brad's Stateline Chicken Restaurant to alert them of the potential outbreak. The local environmental health specialist made plans to visit the grocery store, and possibly the bakery and restaurant, the next day. The local environmental health specialist contacted the state laboratory to discuss the possible testing of food samples, both the leftovers from the home and possibly from the establishments. Given that it was already Friday afternoon, this included a discussion of logistics and timing related to sample shipment and processing.

Since details on the sick patients are not shared beyond the epi team, the local epidemiologist planned to coordinate the collection or drop-off of stool specimens. The local epidemiologist began coordinating with the state laboratory, sick individuals, couriers, etc. and made plans to drop *Para-Pak* stool collection kits off to the sick individuals willing to contribute specimens.

As it is was a weekend, the local epidemiologist coordinated with the local hospital to use their courier service to ship samples to the state laboratory for processing. The state laboratory made arrangements for its laboratory team to process any samples over the weekend.

Developments



Task

Use your allotted time to consider the developments and questions assigned to your group for this module.

1. Identify a group leader and group recorder/reporter at your table.

2. Identify any additional requirements, critical issues, decisions, and questions you think should be addressed at this time.

3. Unanswered questions should be recorded for discussion with the entire group.

4. Review appendices, especially Appendix B – Epidemiology of Foodborne Disease, if helpful.

5. Add to your Personal Learning Index, as appropriate.

Questions for Participant Groups

EHS - State/Local/Tribal/Territorial Environmental Health Specialists (including those responsible for inspecting retail and foodservice establishments)

Spend at least 10 minutes of the allotted time developing questions/topics/areas of focus for an onsite inspection, which you will perform in the next module.

1. In a food-related human health emergency, what is the role and responsibility of your agency? Are there processes and procedures for you to execute that role?

1. How do you communicate within and outside of the organization about an outbreak or signal, such as an increase in reports of illnesses?

2. How would you coordinate with the epidemiologist(s) to share information and begin to plan the next steps?

3. What would you be doing in the early stages of this scenario, when there are reports of illness but no implicated food?

4. What etiological agents are consistent within the reported illnesses?

5. Which food(s) is suspected of contributing to illness?

6. How might the food(s) have become adulterated? Have you considered this as unintentional or intentional adulteration?

7. Why did the EHS prioritize visiting the grocery store instead of the bakery or chicken restaurant? Do you agree? In your area, would the same agency inspect all? If not, how would the decision on where to visit be coordinated?

8. When are joint (multiagency) inspections performed? How are they coordinated?

9. How do you communicate with the lab before collecting samples from the store or the home (e.g., lab requirements of food matrix or keeping products in their original state – frozen, refrigerated)? How do you ensure staff will be available to receive samples, especially on a weekend?

10. Would an environmental assessment be warranted? What role would it play in the investigation?

11. How would you prepare for an onsite inspection? Should it be a routine inspection or an environmental assessment?

12. What supplies do you need to collect samples from the store or the home (e.g., cooler)?

LL - Local and State Clinical and/or Food Laboratories

1. How and when would you expect to be notified about this potential outbreak?

2. What information would you need to understand the expectations of your team?

3. How do you communicate within and outside of the organization about an outbreak or signal such as an increase in reports of illnesses?

4. When illnesses are reported on a Friday, how does the timing impact your time frame for action? What is the justification process or rationale in your organization to authorize weekend work during a public health emergency?

5. How do you coordinate with the local public health authorities to ensure samples are collected and tested within an appropriate time frame with it being a weekend in this scenario?

6. How (and from whom) are you made aware of what agents to test stool or food for? What etiological agents are consistent within the reported illnesses?

LPH - Local Public Health / Epidemiologist

1. Within your organization, when and how would you be made aware of a potential outbreak among your constituent population?

2. What are your processes and procedures for evaluating the trigger information you receive and allocating resources to investigate or follow up?

3. Would your policies have resulted in an investigation based on the information in this module?

4. How do you communicate within and outside of the organization about an outbreak or signal such as an increase in reports of illnesses?

5. At what point would you engage the state epidemiologist, or ask for support from other epidemiologists in the region?

6. What etiological agents are consistent within the reported illnesses?

7. What are the suspected food(s) contributing to illness?

8. What types of information should be collected to help identify a potential food vehicle?

9. Who interviews the family to understand transportation and storage times and conditions?

10. How is an interview handled if a guest is not local (in a different jurisdiction)?

11. How would you define a case in the investigation?
12. What information do you need to collect to identify persons at risk?
13. How can persons at risk be contacted to determine if there might be additional illnesses?
14. How would you select the laboratory for sample testing?
15. How would you collect, store, and transport the stool samples?
16. What is your working hypothesis at this time?

SRA - State Regulatory Agency

1. In a food-related human health emergency, what is the role and responsibility of your agency? Are there processes and procedures for you to execute that role?
2. Based on current procedures and the current investigation, would your agency have already been alerted to this situation? If yes, what is the mechanism for this? If not, what other factors would be needed to escalate this to the state level?
3. How do you communicate within and outside of your organization about an outbreak or signal such as an increase in reports of illnesses?
4. What kind of support or resources can you make available to local health departments (if applicable)?
5. What etiological agents are consistent within the reported illnesses?
6. What are the suspected food(s) contributing to illness?
7. Have you considered this as unintentional or intentional adulteration?
8. How might the food(s) become adulterated?
9. Who interviews the family to understand transportation and storage times and conditions?
10. How would you define a case in the investigation?
11. What information do you need to collect to identify persons at risk?
12. How can persons at risk be contacted to determine if there might be additional illnesses?

IND- Retail Food Industry

1. How do you handle consumer complaints?
2. How are corporate food safety policies and procedures communicated to individual stores?

3. How are employees trained regarding safe food handling practices?

4. If the local health department receives a complaint of illness associated with your store, how and when do you expect to be contacted?

MODULE 2
INSPECTION AND SAMPLE COLLECTION

June 9, Saturday

Morning

First thing in the morning, the environmental health specialists coordinate the collection of leftovers from the household that hosted the party. The host still had leftover pretzels (partial bag), ranch dressing (open; refrigerated), deli potato salad (refrigerated), roast beef (frozen), and fried chicken (frozen).

The local epidemiologist began dropping off *Para-Pak* kits to sick individuals who volunteered to submit stool specimens. Sick individuals were told to follow kit instructions: This included refrigerating fecal specimens upon collection and dropping them off at the local hospital for transport to the state laboratory for testing by courier (as the local hospital makes deliveries to the state laboratory daily).

Afternoon

The environmental health specialist reviewed the previous inspection reports for the bakery, chicken restaurant, and grocery store.

A summary is provided:

Results of Inspection (Grocery)	Results of Inspection (bakery)	Results of Inspection (Brad's Stateline Chicken Restaurant):
During the last inspection conducted 10 months ago, the grocery store revealed a series of what were categorized as "minor" deficiencies. These included instances of non-compliance with expiration dates upon stocking food items, the presence of dented cans conspicuously lining the shelves, two uncalibrated temperature probes, and notably, a refrigerated display case was found to be operating at a temperature of 46°F., exceeding the Food Code requirements.	During the most recent assessment carried out four months earlier, the bakery came under scrutiny, with a notable "major" observation regarding the insufficient temperature of the handwashing sink's water and lack of soap at one employee sink.	During the most recent inspection conducted 11 months ago, there were no notable observations.

At this point, the EHS inspects the grocery store and shares the findings with colleagues.

Note: At this point, the EHS table should use the questions/ topics/ focus areas developed during their discussion of Module 1 and conduct a mock inspection. A facilitator or evaluator will play the role of the store manager and will answer questions that may provide insight into possible contributors to the outbreak. This interview should be observed by all participants so that all groups have the same information for the duration of the exercise.

June 11, Monday

An article in the local newspaper this morning highlighted a reduced turnout at the annual town celebration honoring local graduates on Saturday. The article noted a rumor that many graduates had partied too much and were not feeling well, perhaps owing to winning the district baseball championship over their local rival. The article also mentioned this was one of the hottest weeks on record and suggested the weather may have played a role in decreased crowds.

Subsequently, three (3) additional individuals contacted the local public health authorities to report similar illness symptoms within their families. One noted that they went to an urgent care facility Thursday night (June 7) and had already submitted stool samples for analysis.

The epidemiologist also saw that the state health department has forwarded four (4) reports collected as part of the state's new "R U Sick" initiative, aimed at identifying potential outbreaks early on. The online form allows the public to enter information about symptoms, dates of illness onset, and foods eaten (including locations) in the days before the illness. It appeared that one of the entries was from someone who had contacted the local public health department on Friday. Of the other three, it appeared that none of the new cases reported attending the same event as the original cases. The epidemiologist scheduled interviews with the newly identified three sick individuals to gather information and ask for stool specimens. All three reported attending a different party on Wednesday, and one noted that the food was from the local grocery store – the same grocery store that was visited by the local environmental health specialists. None of the three sick individuals reported any items from Brad's Stateline Chicken Restaurant or from the bakery, instead reporting homemade cakes, cookies, and ice cream sundaes as desserts.

By late morning, the local epidemiologist calculated the odds ratios from each of the foods for the sick individuals and case controls (healthy individuals) for the completed interviews and submitted questionnaires. At this point, the information from the new cases (from R U Sick) was not included.

Roast beef had the highest OR (12.0), P=0.048.

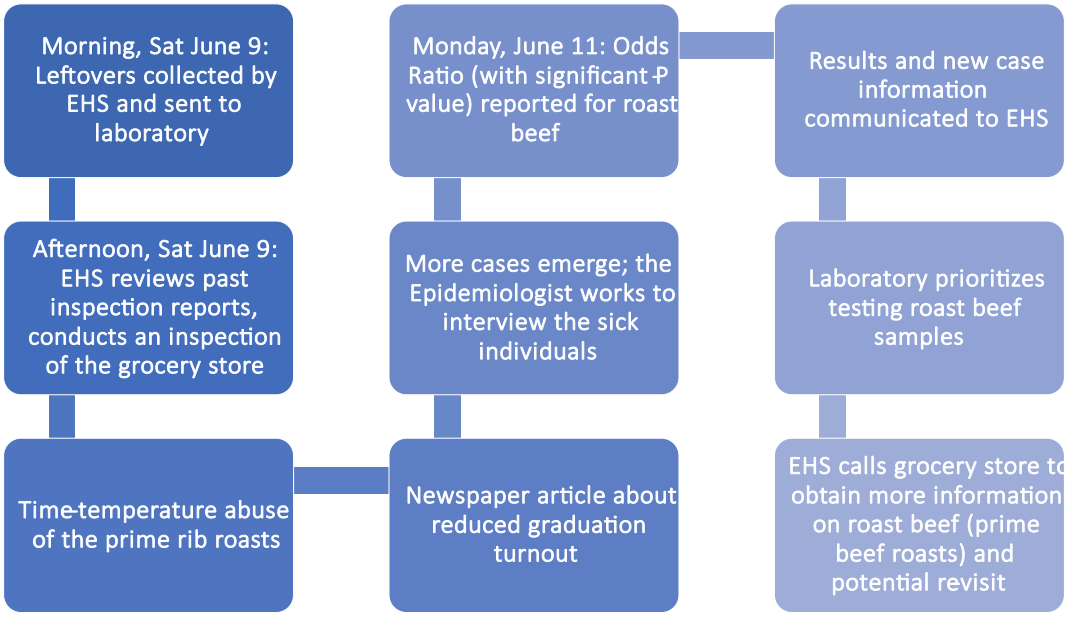
Data on Roast Beef from Questionnaires (data from R U Sick NOT included)		
	Sick individuals	Healthy individuals
Roast beef	12	4
No roast beef	1	4
Total	13	8

The local epidemiologist noted that of the three R U Sick entries, two people reported eating roast beef sandwiches at the parties. Data is input into the case file.

The local epidemiologist informed the local environmental health specialist of the odds ratio for roast beef and other findings related to the data analyses and new case interviews. Based on these results, the local environmental health specialist called the grocery store to obtain more information about roast beef, including ingredient lists of other foods that may contain roast beef as an ingredient. It was also decided that the local environmental health specialist would return to the store to discuss control measures and learning opportunities. Before the local environmental health specialist left for the grocery store, they phoned the state laboratory to alert them to test the roast beef samples from the grocery store.

Developments

Summary of Timeline



Task

Use your allotted time to consider the developments and questions assigned to your group for this module.

- Identify a group leader and group recorder/reporter at your table.
- Identify any additional requirements, critical issues, decisions, and questions you think should be addressed at this time.

- Unanswered questions should be recorded for discussion with the entire group.
- Add to your Personal Learning Inventory, as appropriate.

Questions for Participant Groups

EHS - State/Local/Tribal/Territorial Environmental Health Specialists (Including those responsible for inspecting retail and foodservice establishments)

1. How is an investigation of a retail and food service establishment coordinated?
    a. Is there a difference if this is a single location versus part of a larger chain?
2. Do you have access to previous inspection information for retail and food service establishments? How far back in time does this go?
3. How can you de-escalate situations during a complaint-related interview?
4. How does your interview help with reconstructing the events?
    a. What are your next steps in the investigation?
    b. How can you coach the store to effectively address confidentiality concerns related to sharing information about customer complaints?
5. What short-term and long-term control measures should be enforced as a result of the finding?
6. Consider your sampling strategy (food versus environmental).
    a. What food samples have you selected to test from the host home?
    b. What food samples are collected from the retail food establishment?
    c. How do you select which foods to sample?
    d. How much of the sample(s) will you need to collect?
7. How are the laboratory logistics managed?
    a. Who picks up food samples?
    b. What is the chain of custody for your selected samples?
    c. How are you going to preserve the sample en route to the lab?
    d. What are the logistics for sample delivery?
    e. Does temperature control need to be maintained? How is this managed?
    f. How will the lab receive the samples?
8. How do you determine which laboratory can test your samples?
    a. How do you communicate with your selected laboratory on weekends and holidays? If food or environmental samples could not be tested promptly, how would this influence your approach?

b. At this point, would you have the lab test the samples, or hold them pending further investigation?
c. How does the lab know what to test the samples for?
d. Does the lab have the capacity to test the food product(s) you have selected?
e. How do you coordinate testing between state and local labs?
f. How would you coordinate testing if some illnesses were across state lines?

9. How does the availability of leftovers in the home and products at retail impact your investigation? What if no foods were available for testing? Would this change your approach to the investigation?

10. How are the results of the grocery visit communicated to other agency partners?

11. Upon learning that the odds ratio suggests roast beef, would you revisit the grocery store to collect additional samples or ask additional questions?

12. If roast beef is the suspect item, who is responsible for determining where else the roast beef might have been served/identifying other consumers? Is there proactive outreach to these individuals?

13. In this scenario, the store received customer complaints, and the contact information was shared. What do you do with this information? Do you follow up with those customers, or share that information with others? What if the store did not or would not share contact information for consumers?

14. What information would you share publicly at this time? Does the newspaper article influence your actions?

LL- Local and State Clinical and/or Food Laboratories

1. How do you handle collection of samples and the receiving of samples?

2. As the lab may be handling an increased workload with some possibly related cases, how are the priorities assigned? How do you factor in the efficiencies of batching with the public health need to identify the causative agent or organism as quickly as possible?

3. Do you have a resource list of other laboratories in your area and their capabilities for surge capacity?

4. If you are a public facility, do you have partner organizations who can assist with surge capacity? Is the FERN laboratory network a resource for surge capacity? If so, how do you engage with that resource?

5. If sick individuals go to urgent care, or their primary care doctor, and send stool samples to a private lab, how do you work to obtain those results? How is this communicated?

6. If some ill people visit their medical provider and samples are processed through a private lab, are there formal relationships between public and private labs?

7. How does the public lab determine which agents to test stool or food samples for?

8. How do you determine what methods/media to use for the tests?

9. How long does it typically take for the lab to receive presumptive and confirmatory results?

    a. Are presumptive results shared with other agencies or only confirmatory results?

10. Does the lab have capabilities for additional subtyping (pulse field gel electrophoresis, WGS, etc.)? Is this necessary for this outbreak?

11. Who pays for the analysis of stool or food samples?

12. How do you coordinate with other labs or CDC if beyond state lines?

LPH - Local Public Health / Epidemiologist

1. Does your state or municipality have a public reporting system similar to the fictitious R U Sick? If so, where is this information initially sent, and how is it communicated for follow-up at the local level?

2. Who follows up with the three new contacts from the newspaper article, and the online form?

3. Do you need to collect stool samples from them?

4. How are you communicating and coordinating with the laboratory and EHS to evaluate the appropriate agents/analytes to test for? How long does the information take to get back to Epi?

5. When you are aware of an outbreak situation, what system(s) do you have to communicate with the clinical community in your jurisdiction to raise awareness of the situation and increase the speed of the response?

6. What system(s) do you have to communicate with the clinical community outside your jurisdiction to raise awareness of the situation and increase the speed of response?

7. What information would you share publicly at this time? Does the newspaper article influence your actions?

8. If beef is the suspect item, who is responsible for determining where else the roast beef might have been served/identifying other consumers? Is there proactive outreach to these individuals?

SRA- State Regulatory Agency

1. Does your state or municipality have a public reporting system similar to the fictitious R U Sick? If so, where is this information initially sent, and how is it communicated for follow-up at the local level?

2. If illnesses span different jurisdictions, how does this influence your role in the investigation?

3. How is an investigation of a retail and food service establishment coordinated if illnesses are within the same municipality as the establishments, versus in different locations?

4. If roast beef is the suspect item, who is responsible for determining where else the roast beef might have been served/identifying other consumers? Is there proactive outreach to these individuals?

5. What information would you share publicly at this time? Does the newspaper article influence your actions?

6. Who would draft and sign off on any communication?

IND- Retail Food Industry

1. How are employees prepared to interact with a regulator in the event of a consumer complaint?

2. If there are multiple complaints regarding similar products in a close time frame, what actions are taken?

3. Under what circumstances are complaints received at the store level escalated to the corporate level?

4. How are employees trained regarding proper time-temperature heating, cooling, and reheating requirements?

5. What immediate and long-term actions would be taken following the regulatory visit?

6. Would the store contact or otherwise attempt to notify other customers who could have been affected?

APPENDIX A
RESOURCES

AFDO Root Cause Analysis for Retail Food Safety
https://www.afdo.org/training/#upcoming

AFDO Environmental Sampling: A Tool for Solving Outbreaks at the Retail Food Level
https://www.afdo.org/training/#upcoming

CIFOR CDC landing page
https://www.cdc.gov/ncezid/dfwed/food-safety-office/cifor.html

CIFOR main page
http://www.cifor.us

EpiReady
https://www.neha.org/epi-ready

FDA Model Food Code
https://www.fda.gov/food/fda-food-code/food-code-2022

Food Emergency Response Network (FERN)
http://www.fernlab.org

FoodSHIELD
http://www.foodshield.org

Integrated Food Safety Centers of Excellence (Food Safety CoEs)
https://www.cdc.gov/foodsafety/centers/index.html

International Food Protection Training Institute (IFPTI)
http://www.ifpti.org

NEARS CDC landing page
https://www.cdc.gov/restaurant-food-safety/php/investigations/nears.html?CDC_AAref_Val=https://www.cdc.gov/nceh/ehs/nears/index.htm

Products developed by CoEs
https://foodsafetycoe.org/

RRT Best Practices Manual
https://cifor.us/downloads/clearinghouse/2017-RRT-Best-Practices-Manual_FINAL_191216_082235.pdf

APPENDIX B
EPIDEMIOLOGY OF FOODBORNE DISEASES

Epidemiology of Foodborne Diseases

PATHOGEN	INCUBATION PERIOD / COMMUNICABILITY	ASSOCIATED FOODS/ TRANSMISSION	SIGNS AND SYMPTOMS
Bacillus cereus (preformed enterotoxin)	0.5-6 hours. Not communicable person-to-person.	Food kept at room temperature after cooking, commonly fried rice.	Sudden onset of severe nausea and vomiting, abdominal cramps. Fever is rare. Usually lasts <24 hours.
Campylobacter	Usually 2-5 days, with a range of 1-10 days. Communicable through the course of infection (usually several days to several weeks); person-to-person transmission appears to be uncommon.	Ingestion of undercooked chicken and pork, contaminated food and water, or unpasteurized milk.	Diarrhea, abdominal pain, fever, malaise, and vomiting; diarrhea may be bloody. Less common: typhoid-like syndrome, febrile convulsions, meningeal syndrome. May mimic acute appendicitis or irritable bowel syndrome.
Clostridium perfringens (toxin)	6-24 hours, usually 10-12 hours. Not communicable person-to-person.	Ingestion of food that has been contaminated by soil or feces and then held under conditions that permit multiplication of organisms. Specific foods may include meat, poultry, gravy, and dried or precooked foods.	Sudden onset of abdominal cramps followed by diarrhea and usually nausea; fever and vomiting are usually absent. Mild disease of short duration (1 day or less).
Cryptosporidium	Incubation not precisely known; 1-12 days is the likely range, with an average of about 7 days. Communicable from onset of illness to several weeks after symptoms resolve.	Person-to-person and fecal-oral transmission. Contaminated food or water. Outbreaks have been associated with childcare centers, swimming pools, and lakes, and also unpasteurized beverages (apple cider) contaminated with animal manure.	Diarrhea, which may be profuse and watery, cramping abdominal pain. General malaise, fever, anorexia, nausea, and vomiting occur less often. Symptoms often wax and wane. Asymptomatic infections are common.

Norovirus (Norwalk virus)	Usually 24-48 hours with a range of 10-50 hours. Communicable during the acute stage of the disease and up to 48 hours after the diarrhea stops.	Person-to-person and fecal-oral transmission. Ingestion of ready-to-eat foods, such as salads, sandwiches, ice, cookies, and fruit that are handled by infected persons; poorly cooked shellfish. May spread through the air when an infected person vomits nearby.	Nausea, vomiting, and large volume of watery diarrhea, malaise, headache, myalgia, and low-grade fever. GI symptoms usually last 1-2 days.
***Salmonella* spp.**	6-72 hours, average 12-36 hours. Communicability is usually several days to several weeks, throughout the infection. Note: Antibiotic therapy may prolong excretion.	Contaminated eggs, poultry, beef, unpasteurized milk or juice, cheese, contaminated raw fruits and vegetables (alfalfa sprouts, melons, etc.). Contact with infected animals.	Diarrhea, fever, abdominal cramps, vomiting. Can cause extra-intestinal infections in 2% of cases (septic arthritis, endocarditis, pericarditis, etc.
***Shigella* spp**	12-96 hours, average 1-3 days. Up to one week with *Shigella dysenteriae*. Communicable during acute infection and up to 4 weeks after onset of illness.	Usually, person-to-person spread, fecal-oral transmission. Food or water contaminated with fecal material. Ready-to-eat foods touched by infected food handlers.	Abdominal cramps, fever, and diarrhea. Stools may contain blood and mucus. Children may have convulsions.
Staphylococcus aureus (preformed enterotoxin)	30 minutes to 8 hours, average 2-4 hours. Not communicable person-to-person.	Foods that come in contact with the hands of infected food handlers, either without subsequent cooking or with inadequate heating or refrigeration, such as pastries, custards, salad dressing, sandwiches, poultry, sliced meat, and meat products.	Abrupt and sometimes violent onset of severe nausea, abdominal cramps, vomiting, and prostration, often accompanied by diarrhea. Sometimes with subnormal temperature and low blood pressure.

APPENDIX C
ACRONYMS USED

Acronym	Organization
AFDO	Association of Food and Drug Officials
CDC	Centers for Disease Control and Prevention
EHS	Environmental health specialist
FDA	Food and Drug Administration
FERN	Federal Emergency Response Network
PFGE	Pulsed field gel electrophoresis
TTX	Tabletop exercise
WGS	Whole genome sequencing

APPENDIX D
PERSONAL LEARNING INVENTORY

This is your Personal Learning Inventory (PLI). Use it throughout the day to record your notes, questions, and discoveries. Not only is the PLI a convenient place to capture the significant events of today's tabletop exercise, but it can also be highly useful later for documenting your experience and reviewing the key points. The PLI is your personal document and will not be collected by the facilitator or evaluators. This is your personal journal.

Participant Name		**Tabletop Exercise**	
Date		**Facilitator**	

1. What are the most important things you learned today?

1. What are some key follow-up items that you will undertake based on your participation in today's tabletop exercise?

2. What are some new resources that you learned about that will help you in your daily activities?

APPENDIX E
AAR/IP

Information and data collection for the evaluation of discussion-based exercises come from the information that evaluators record as the exercise takes place. Typically, the evaluator (not to be confused with the group spokesperson or the group recorder) records for each breakout group certain specific information as the discussion is taking place. The kinds of information that evaluators should record include issues identified, how decisions are made, roles and responsibilities (of participating entities), coordination/cooperation issues, and recommendations made by the breakout group.

For the analysis phase of the exercise, evaluators should, as a group, try to address the following facets of the exercise:

- How well would personnel from the exercising jurisdiction and other participating entities have been able to perform the necessary or critical tasks?
- What decisions were required, and who should have made them?
- Were additional resources required? If so, how should they have been sourced?
- Would existing plans/protocols/policies enable the full performance of critical or necessary tasks? Were participants familiar with those documents?
- How well did personnel from various entities and jurisdictions coordinate and cooperate to accomplish necessary tasks? Are there agreements in place (among entities, agencies, and/or jurisdictions) to support the cooperative accomplishment of necessary tasks?
- What lessons were learned from the exercise?
- What changes/improvements are recommended?

MODULE 3
CONCLUSION

During the Week

Enterotoxin was detected in the stool specimens from the first reported cases (collected on Saturday, June 9). Detection of enterotoxin in stool samples is used to quickly test for *C. perfringens*. The urgent care-collected stool sample also tested positive for enterotoxin.

June 15, Friday

Stool specimens from R U Sick cases (later cases), and roast beef samples from the home (leftovers from the party host's home) and grocery store (collected Saturday, June 9, during the inspection) were confirmed positive for *C. perfringens* by culture. All other leftover food samples from the party host's home tested negative (chicken, potato salad, etc.).

The environmental health specialist concluded that the outbreak was caused by roast beef cooked before the event; it was improperly heated, held, cooled, and reheated for a duration that allowed the pathogen to grow. Roast beef prepared by this store was also served to other customers at a different party, also resulting in illness (patient samples tested positive for *C. perfringens*).

It should also be noted that the host of the original party left the roast beef out on the table without any temperature control before the party guests arrived (estimated 1:30 to 5 p.m.) and then during the party (5 to 11 p.m.), which may have contributed to the *C. perfringens* reaching higher numbers (i.e., consumers' temperature-abused product resulted in more illnesses).

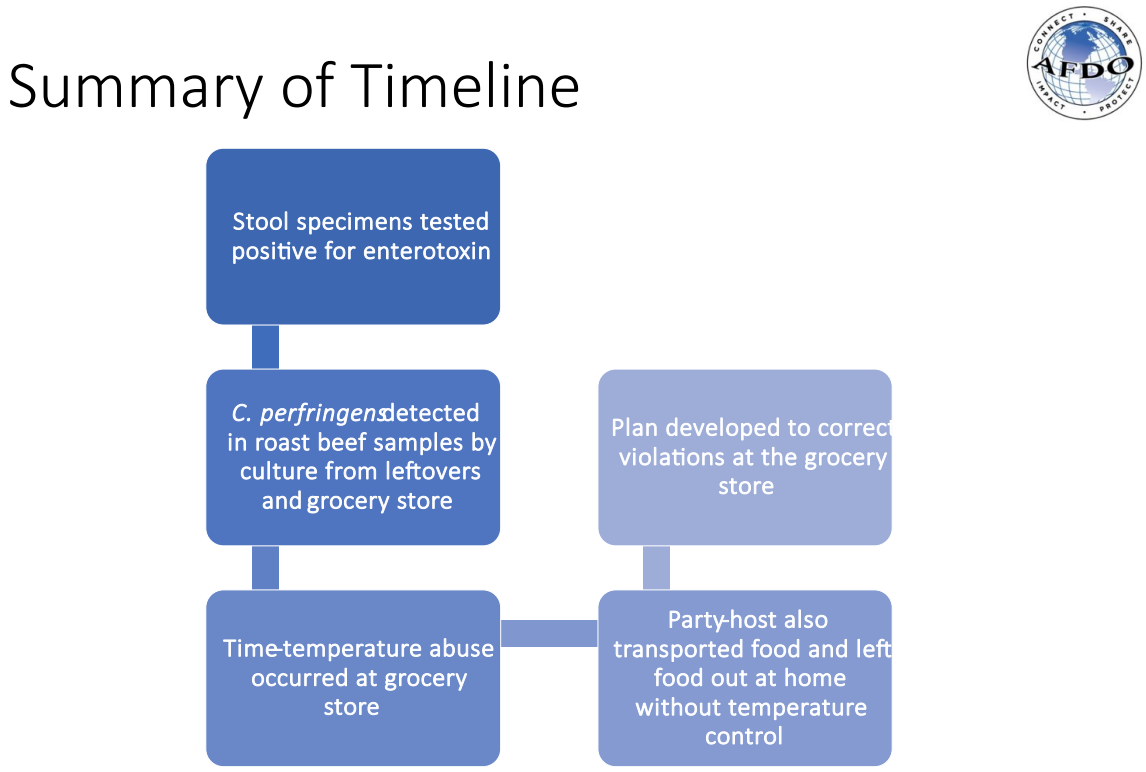
Other factors that contributed to the outbreak:

- The deli manager, who was in the habit of taking temperatures, retired three months before the outbreak.
- The new deli manager took food safety training but was not in the habit of taking temperatures.
- There is high staff turnover and many new staff members due to high school student absenteeism (graduation events) and the return of college students. Food safety training may have been inadequate.
- The temperature probe on one of the Alto Sham ovens was malfunctioning, and the use of the probes was discontinued some time ago.

The EHS followed up with the grocery store about what went wrong (improper temperatures, not recording temperatures while cooking, cooling, and reheating). Training that can be provided to avoid errors in the future was also discussed. The store's risk control plan includes taking and recording

temperatures for cooking, cooling, and reheating; reviewing by a certified food protection manager (CFPM) daily; and sending to the health department weekly.

Developments



Task

Use your allotted time to consider the developments and questions assigned to your group for this module.

1. Break into new groups, ideally with a representative of each stakeholder group at the table.
2. Identify a group leader and group recorder/reporter at your table.
3. Identify any additional requirements, critical issues, decisions, and questions you think should be addressed at this time.
4. Unanswered questions should be recorded for discussion with the entire group.
5. Add to the Personal Learning Inventory, as appropriate.

Questions for Participant Groups

1. What went right, and what can you improve at each stage of the outbreak investigation?
2. Are there any gaps or inconsistencies in current protocols or procedures that became evident during this exercise?
3. How can communication and coordination between laboratories, public health agencies, regulatory bodies, and affected businesses be improved to expedite outbreak response?
4. How can technology and data-sharing platforms be leveraged to streamline outbreak investigations and information exchange?
5. How can training and capacity-building efforts be enhanced to better prepare personnel for responding to complex and widespread foodborne outbreaks?
6. How will your organization evaluate and improve its protocols, policies, and procedures based on this exercise?
7. What were the successes and areas for improvement identified at each stage of the outbreak investigation?
8. What tools and resources are utilized to stay informed about food safety events locally, regionally, and nationally?
9. The stool samples and food samples test positive for the same pathogen. Is this enough evidence to show causality? Would additional typing (e.g., PFGE, WGS, etc.) need to be done? What kind of subtyping is sufficient? What if the causative organism was *Salmonella,* not *C. perfringens?* Would your answer change?
10. If the food samples (beef) had not tested positive, or if food samples were not available for testing, but the stool samples showed *C. perfringens,* would this have changed your conclusions regarding the cause of the outbreak? How would this impact the investigation?
11. Is this organism considered reportable? How are the laboratory findings shared with other regulatory and public health partners?
12. What prevention steps and follow-up would occur at the grocery store?
13. Is there any public communication during or after the investigation? If so, how is this coordinated between agencies and the implicated store?
14. Who determines when the outbreak investigation is concluded?
15. Who determines when the investigation is closed?
16. Is there communication back to affected individuals or stakeholders?

17. Would the test results be shared with the grocery store?

18. How do different types of evidence, such as positive pathogen tests, affect causality determination and investigation direction?

19. What are the key takeaways for managing outbreaks spanning multiple jurisdictions?

9/1/24