A silhouette of a person holding a magnifying glass

Description automatically generated

**Norovirus**

**Trainer Guide**

**Version 1.0**

**About this Guide**

This Trainer Guide provides a master reference document to help the Trainer to deliver Understanding the Root Cause of an Outbreak: Norovirus.

Have this guide printed and in front of you for all deliveries. It is imperative that the guide is printed in color in order to not miss important cues in the text.

**What you will find in the guide**

This Trainer Guide is a comprehensive package that contains all facilitation materials for the Training program, including:

* checklists of necessary materials and resources (slides, web page addresses, etc.)
* presentation scripts and key points
* instructions for managing time and discussions
* guidelines for the Producer to support the Trainer
* key indicators to help facilitate virtual delivery, when applicable

The sessions are designed to support participant’s interest, encourage activity, and leverage the use of technology during virtual delivery, with both the Trainer and one another. Chat and verbal feedback should be encouraged during virtual delivery. In preparation for each session, review the guide and enhance or adjust based on audience needs.

**Exercises / Activities**

It is advised that groups are not composed of more than 8 people during breakout exercises or activities. An “Answer Key” is provided to participants on slides and by the Trainer at the end of an exercise or activity. Answers are reviewed after each activity and an answer key is provided to participants at the end of the session

**NOTE**

The Workbook provided to participants is theirs to keep. Encourage participants to use their Workbook to take notes.

The following trainings are suggested PRIOR to attending the Learning Lab:

* **From Inspector to Investigator: Finding the Factors that Lead to Foodborne Outbreaks** [<https://www.youtube.com/watch?v=pWEywTiX3Sw>] *(An introduction to contributing factors.)*
* **EATS** training [<https://www.cdc.gov/nceh/ehs/elearn/eats/index.html>] *(A lengthy course that provides a good introduction to skills needed to investigate outbreaks of foodborne illness in restaurants. This course is commonly recommended for new investigators.)*
* The **Contributing Factor Definitions** [<https://www.cdc.gov/nceh/ehs/nears/cf-definitions.htm>] and **Environmental Antecedent** (*Field Guide to Identifying Root Causes*) [<https://www.cdc.gov/nceh/ehs/nears/docs/field-guide-to-identifying-root-causes-508.pdf>] resources mentioned in the Workbooks are publicly available. For instructor-led sessions, provide a printout of at least two (2) per group table (pod).
* QR Codes are included in the Contributing Factor Definitions and Environmental Antecedent resource materials.

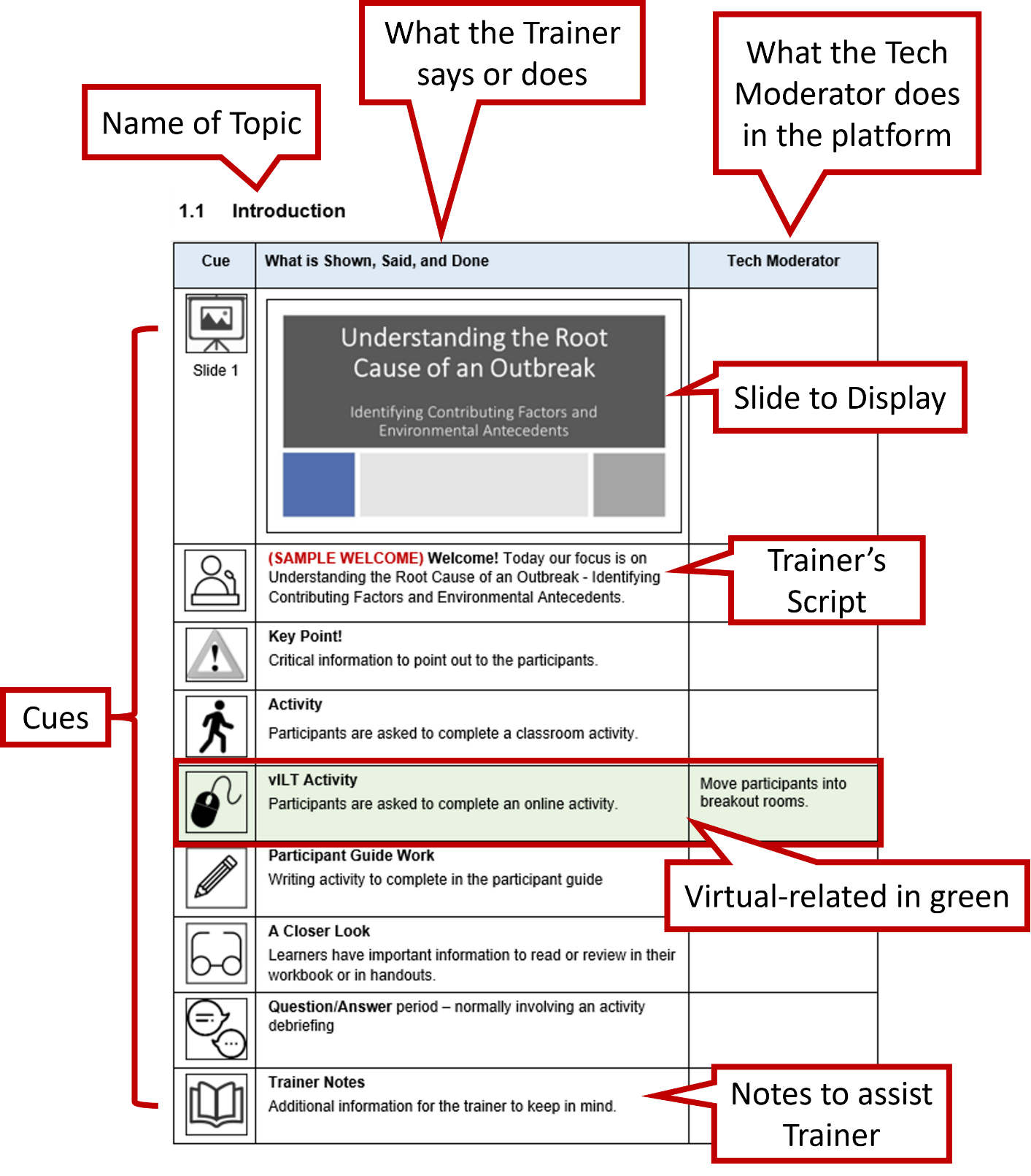
**What you will NOT find in the guide**

This guide assumes that the Trainer is familiar with the synchronous delivery platform/technology. This guide does not include technical directions for the use of such technology.

See the platform’s manual or guide for assistance with the technology.

**How the guide is laid out**

The page format is arranged to assist you in facilitating, in the following ways:



Getting Started

Using the Trainer Guide

|  |  |
| --- | --- |
| speaker icon | How is the text laid out in this Trainer Guide?  Every action in the training is described in this guide by a text block like this one, with a “cue” icon in the left-margin, a title line, followed by information. The icons are designed to help catch your eye and draw quick attention to what to do. In this example, the icon to the left is an indicator that the trainer will say something. The title line is a descriptive topic label followed by a script, instruction, or key points, to address with participants. A complete list of the visual cue icons used in this guide is provided below.  **Tech Moderator**  The tech moderator has a critical role in a virtual setting. The role of a Tech Moderator is to make sure that the platform and settings are correct for the course to function smoothly for both the instructor and the participants. They communicate instructions using simple language and ensure a smooth virtual experience. The Tech Moderator will review all the details with the training Trainer prior to the session to walk through the flow, activities, run a final tech check, and discuss any backup plans.  The Tech Moderator works collaboratively with the Trainer to assist attendees in joining the session, moderating break out rooms, and monitoring the chat area for technical questions. Additionally, the Tech Moderator may assist with ensuring documents are successfully uploaded to the chat area.  Instructions for the Tech Moderator are described in this guide under the Tech Moderator column.  Ideally, the Trainer will introduce the Tech Moderator in the beginning to make sure all participants know who to turn to for potential technology issues. |

Graphic Cues

|  |  |
| --- | --- |
| slide icon | Slide to be shown. |
| speaker icon | **Instructor speaks.** |
| **notes pages icon** | **Instructor Notes** |
| eyeglasses icon | **A Closer Look**  Learners have important information to read/review. |
| pencil icon | **Participant Guide Work**  Writing activity to complete in the participant guide |
| **alert icon** | **Key Point!**  Critical information to note |
| **conversation bubbles icon** | **Question/Answer** period – normally involving an activity debriefing |
|  | **Activity**  Participants are asked to complete an activity. |
|  | **Shaded areas apply to vILT delivery format** |
| document icon | **Resource or Quick Reference Guide (Give the Name)**  A Quick Reference Guide is available |

Table of Contents

[1 Environmental Assets 9](#_Toc174386676)

[1.1 Identifying Contributing Factors and Environmental Antecedents – Getting at the Root Cause of an Outbreak 9](#_Toc174386677)

[1.1.1 Introduction 9](#_Toc174386678)

[1.1.2 Outbreak Investigations 12](#_Toc174386679)

[1.1.3 Investigative Process 13](#_Toc174386680)

[1.1.4 Environmental Assessments 15](#_Toc174386681)

[1.1.5 Tabletop Exercise 1 19](#_Toc174386682)

[1.1.6 Investigative Process Overview 24](#_Toc174386683)

[1.1.7 Tabletop Exercise 2 27](#_Toc174386684)

[1.1.8 Investigative Process Overview 33](#_Toc174386685)

[1.1.9 Tabletop Exercise 3 34](#_Toc174386686)

[1.1.10 Take Home Points 38](#_Toc174386687)

[Appendix A Terminology 41](#_Toc174386688)

[Appendix B Resources 42](#_Toc174386689)

[Appendix C Level 2 Evaluation Questions 44](#_Toc174386690)

[Appendix D Questions to Facilitate Engagement 45](#_Toc174386691)

[Appendix E (SAMPLE) Worksheet for Sandbox Time 46](#_Toc174386692)

# Environmental Assets

## Identifying Contributing Factors and Environmental Antecedents – Getting at the Root Cause of an Outbreak

### Introduction

| **Cue** | **What is Shown, Said, and Done** | **Tech Moderator** |
| --- | --- | --- |
|  | **vILT Start-up.** | Start the platform virtual meeting.  Set the Host and Co-hosts.  Mute attendees on entry.  Ensure attendees can’t unmute.  Make sure no one else can present.  Check audio & video with presenter(s).  Introduce yourself and your role.  Share contact information for any possible technical matters  Display the slides.  Pass the lead to the lead Trainer. |
|  | **Activity – Practice Use of Chat and Reaction Features**  Participants are asked to test their use of the chat area by posting their location. | Monitor the chat area for potential questions or technical issues. |
| **alert icon** | **Key Point!**  The trainer takes the lead over sharing and advancing slides.  Review any logistical housekeeping matters, such as:   * breaks * messages (phone, text, emergencies, etc.) * introduce/review training Resources |  |
| document icon | **Resource**  Resources to be referenced during the training:   * Workbook * IAFP Key A * CIFOR Agent List * Contributing Factors: [NEARS Contributing Factor Definitions | EHS | CDC](https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.cdc.gov%2Fnceh%2Fehs%2Fnears%2Fcf-definitions.htm&data=05%7C01%7Cnicole.hedeen%40state.mn.us%7Ce06e2568272d45b1eef908daa2202dba%7Ceb14b04624c445198f26b89c2159828c%7C0%7C0%7C638000556492839284%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=MBuPOIpF1pXiI3NvY3L%2F8lvA94dyPpOfpzUgRRhBIZs%3D&reserved=0) * Environmental Antecedent Field Guide | * Be prepared to post documents in chat or email them directly to participants who may be missing a resource. |
| slide icon  Slide 1 |  | * Pass the lead to the lead Trainer. |
| **speaker icon** | **Welcome!** Today our focus is on Identifying Contributing Factors and Environmental Antecedents – Getting to the Root Cause of an Outbreak – Norovirus. |  |
| slide icon  Slide 2 |  |  |
| **speaker icon** | This powerpoint and the resources we’ll go over has been a collaboration between the CDC and state and local jurisdictions who are part of the Environmental Health Specialists Network, also known as EHS-Net. EHS-Net is a collaborative forum of environmental health specialists that researches restaurant food safety policies and practices. You can see the current EHS-Net sites on the map on the screen. |  |
| slide icon  Slide 3 |  |  |
| **speaker icon** | Let’s review why we are here and what to expect.  Throughout this training you will:   * Identify **and utilize** resources **and tools** to aid in **conducting an** outbreak investigation. * **Gain skills and abilities to** use evidence **and findings** from an environmental assessment to identify **outbreak** contributing factor(s). * **Practice** asking the “5 whys” to understand why **those** contributing factors occurred. * **Employ critical thinking to** identify appropriate environmental antecedents. * Describe best control measures to prevent future outbreaks.   We’ll use scenarios and give you opportunities to complete exercises to reinforce steps. And finally, we’ll review together the processes and give you plenty of opportunity to offer contributions about your experiences. |  |
| **alert icon** | Incorporate the 5 Whys – say aloud. |  |
| slide icon  Slide 4 |  |  |
| **speaker icon** | Here is our plan for today. We’re going to be walking you through some investigation principles and newly developed resources. We will then use them to work through an outbreak scenario that is based on real life events. You’ll also work together in a group through 3 exercises. |  |
| eyeglasses icon | A Closer Look  You are encouraged to closely review your Participant Guide as you will use it as a workbook that you will be taking with you. Review any handouts you are given as well. |  |

### Outbreak Investigations

|  |  |  |
| --- | --- | --- |
| **Cue** | **What is Shown, Said, and Done** | **Tech Moderator** |
| slide icon  Slide 5 |  |  |
| speaker icon | Of course, as you know, outbreaks involve an agent, the environment, and a host. ​  And their investigations require collaboration from epidemiology, laboratory, and environmental health. ​  Today we’re focusing on guidance for the environmental health specialist to gather data on the environment which allowed the agent to infect the host. When we understand why this happened, we can work on prevention for the future. |  |
| reading eyeglass icon |  |  |

### Investigative Process

|  |  |  |  |
| --- | --- | --- | --- |
| **Cue** | | **What is Shown, Said, and Done** | **Tech Moderator** |
| slide icon  Slide 6 | |  |  |
| speaker icon | | This is a great visual of how we work through several layers to get to the root cause of the outbreak and ultimately work to prevent it from happening again.  The **What** is typically the agent, which comes from the Lab or Epi. Then, the environmental health specialist works to understand how it happened, and what underlying scenarios were in place allowing it to happen.  Let’s pair this with an example. |  |
| **slide icon**Slide 7 |  | |  |
| speaker icon | Let’s go through a classic outbreak scenario.  Maybe the **WHAT** is *Salmonella* in the salad. I think the general public thinks this is where the investigation stops-great, you found it, the end. But we really want to dive in deeper. So, with further investigation we find that maybe the bowl used to marinate the raw chicken wasn’t cleaned and sanitized properly before being used again to dress the salad. That’s our contributing factor.  Again, some people might think that this would be the end of the investigation. But we want to dive deeper again.  **WHY** was this even possible when we know that’s dangerous? Maybe they have new staff coming in all the time without proper training.  Those are our environmental antecedents.  Now we have a clearer idea of what’s going on in this kitchen and what control measures to push for to prevent it from happening again. | |  |

### Environmental Assessments

| **Cue** | **What is Shown, Said, and Done** | | | **Tech Moderator** |
| --- | --- | --- | --- | --- |
| slide icon  Slide 8 |  | | |  |
| speaker icon | The environmental health specialists’ main tool for figuring out **HOW** and **WHY** (the contributing factor and environmental antecedent) is the environmental assessment. An environmental assessment is a structured investigation the environmental health specialist performs.  Environmental Assessments (EAs) are different from routine inspections because they are targeted; go in with a specific idea as to what may have caused the outbreak and are looking for information to confirm or disprove that hypothesis.  EAs can include but are not limited to:   1. Staff interviews 2. Observing food prep and cooking 3. Reviewing relevant records, such as cooling logs, inventory receipts, etc. 4. Taking food samples or swabbing surfaces in the kitchen   For more information on environmental assessments and what they entail, check out NEARS. | | |  |
| slide icon  Slide 9 |  | | |  |
| speaker icon | The focus of the observation will vary depending on what information is known when you go in.  For example, if you have an agent or pathogen identified but no known food, then you’ll focus on the risk factors for that pathogen.  Expanding on this example, if you know it’s *Listeria*, you’ll look at long term refrigeration practices and expiration dates. But if it’s clostridium, you’ll look at cooling practices.  Other times, you may know the food item but not the agent, in which case you’ll work through a food flow of that item, starting from when it enters the facility to when it is served to the customer. | | |  |
| slide icon  Slide 10 |  | | |  |
| speaker icon | When interviewing, things to keep in mind   1. What was going on during the time of exposure when the individuals got sick? Were there any major events? Who was working? Were there any menu or process changes? 2. Keep the hypothesis in mind – if the question isn’t going to give us information we need; skip it! 3. Discuss employee health – were any employees out sick around that time? How about in the days before or after? Was anyone sick at work? 4. Empower the managers – they know their restaurant the best. Ask them what they think might have happened. | | |  |
| slide icon  Slide 11 |  | | |  |
| speaker icon | A major resource for getting your investigation program running is the Guidelines for Foodborne Disease Outbreak Response (CIFOR).  CIFOR also created the Outbreaks of Undetermined Etiology (OUE) Agent List which organizes outlines pathogens symptoms, incubation periods, and the notable exposures to focus on. This is great for helping you develop your hypothesis and focus before you go into the restaurant on your environmental assessment. | | |  |
| document icon | **Resource:**  CIFOR agent list: <http://cifor.us/uploads/resources/CIFOR-OUE-Agent-List_FINAL.pdf> | | |  |
|  | **vILT** | | | * Drop the CIFOR Outbreaks of Undetermined Etiologies Agent List and/or the link into Chat. |
| slide icon  Slide 12 | |  | * Continue monitoring the chat area for potential questions or technical issues. * Zoom in on the details of the table if the trainer requests. | |
| speaker icon | | Here’s another free resource available to you for determining your focus when you conduct your environmental assessment. It’s the Identifying Contributing Factors (IAFP). Your epi or lab team may identify the agent or pathogen. Then you can look it up on the IAFP Key D to understand the key risk factors  We’re focusing on the retail environment {press button}, but it could be used for earlier stages in the food process.  {press button} The top left has the key {press button} for a food category {press button} and a specific food item.  Example of *Salmonella* in salad – we can see that we should be focusing on inadequate refrigeration, cross-contamination, improper cleaning of equipment, and holding temperatures. |  | |
| document icon | | **Resource:**  IAFP Keys: <https://www.foodprotection.org/upl/downloads/publications/other/free-procedures-keys.pdf> | * Drop the CIFOR Outbreaks of Undetermined Etiologies Agent List and/or the link into Chat. | |

### Tabletop Exercise 1

| **Cue** | | **What is Shown, Said, and Done** | | **Tech Moderator** |
| --- | --- | --- | --- | --- |
| slide icon  Slide 13 | |  | |  |
| speaker icon | | **Introduce Tabletop Exercise 1 Activity**   * Find your workbook and open it up to the first page which should provide information on the outbreak. * This notebook is yours to take, so please write in it and take notes if you’d like. * As we mentioned at the beginning, we’ll be walking through one outbreak scenario, and we’ll have three exercises to complete. | |  |
| reading eyeglass icon | | **A Closer Look**   * Find your Workbook and open it to the first page which should provide information on the outbreak. * This Workbook is yours to take, so please write in it and take notes if you would like to. | |  |
| slide icon  Slide 14 | |  | |  |
| speaker icon | | When we break, you’ll review the outbreak information on page 2 of your workbook.  You’ll then use the CIFOR and IAFP resources, which we just went over, to think about how the outbreak may have happened. The keys are on page 3 of your workbook.  Then, you’ll answer the questions on page 4 about what information you still need to collect.  Please work with your group for about 10 minutes then we’ll discuss as a group. | |  |
| **alert icon** | **Key Point**  Break participants into groups. **Remember** – Try to limit the group size to no more than eight (8).   * It is highly recommended to use ONE scenario per learning lab. * Ensure the questions remain displayed for each group to see. * Invite group members to introduce themselves and begin reading the information in the Workbook. * Groups should work together to answer questions in Exercise 1. | | |  |
| **A computer mouse with a cord  Description automatically generated** | | **vILT** | | * Place participants into breakout rooms. |
| slide icon  Slide 15 | |  | | * Be prepared to unmute participants as they report their findings. |
| speaker icon | | As we re-group, let’s share what you discovered. | |  |
| **conversation bubbles icon** | | **DEBRIEF**  Before showing the Exercise 1 Answer Key:   * Invite group to briefly share their results with the entire class. * Facilitate a brief discussion after all groups have shared.   Be prepared to provide clarity if necessary. | | * Continue to monitor the Chat and be prepared to unmute participants if they have input. |
| slide icon  Slide 16 | |  | |  |
| speaker icon | | First, let’s review the information we have:  **Outbreak Identification:** Health department hotline received a complaint of illness in a group of three who had eaten at a restaurant. The three cases lived in two separate households and shared no other meals or events in common in the week prior to illness. All three cases experienced diarrhea, and two experienced vomiting. Upon receiving this complaint, environmental health was contacted, and an investigation was initiated.  **Epi Findings:** Cases were identified through interviews with restaurant patrons identified through credit card receipts. A case-control study was conducted. Cases were defined as a patron who developed vomiting and/or diarrhea (>3 loose stools in a 24-hour period) after eating food from the restaurant. Interviews were conducted with 48 patrons. Five cases (including the three from the initial complaint group) were identified. All five cases reported diarrhea and abdominal cramps, three (60%) reported vomiting, and one (20%) reported fever. The median incubation period was 27 hours (range, 21 to 83 hours). The median duration of illness was 15 hours (range, 4 to 84 hours). One of the cases submitted a stool specimen which was positive for Norovirus GII.  Consumption of pretzels, wontons, and sweet potato tots were associated with illness. | | Trainer(s) / Tech Moderator should:   * Bounce from breakout room to breakout room. * Cover any housekeeping or instructions for breakout rooms. * Unmute groups so they can discuss * Announce a two-minute warning. * At the end of the breakout session: * Return participants to the main room. * Pass the lead back to the Trainer. |
| slide icon  Slide 17 | |  | | **Optional:** Re-drop the link to the IAFP Keys into Chat. |
| speaker icon | |  | |  |
| slide icon  Slide 18 | |  |  | |
| speaker icon | | Let’s discuss exercise 1.  **Workbook 2: Noro**  **Observations**   * Preparation of implicated foods: Look for evidence of bare hand contact with ready-to-eat foods. * Hand hygiene behaviors: Observe if food workers wash hands at proper times and if behavior could lead to contamination of food or food contact surfaces. * Other poor food safety practices   **Record Review**   * Employee illness logs * Employee health policy * Training around employee health policies * Credit card receipts (case finding): from patrons who dined at the restaurant on June 19th   **Interview**   * Illness history. Ask food workers if they experienced vomiting and/or diarrhea and worked while symptomatic/infectious. * Barriers to staying home while sick. Ask food workers why they might decide to work while sick. * Cleaning and sanitation practices. Ask about cleaning and sanitation practices of high touch surfaces |  | |
| **alert icon** | | **Key Point!**  The list above is not exhaustive of all possible answers. Some participants may have additional observations, record reviews, and interview questions.  There could be many different implicated foods. Encourage investigators to not have tunnel vision. | |  |
| **conversation bubbles icon** | | **Question/Answer**  Invite group to share the outcomes of their respective group’s findings regarding Observations, Record Review, and Interview. | |  |
|  | | **vILT** | | * Unmute participants for this Question/Answer period. * Monitor the chat area. |

### Investigative Process Overview

|  |  |  |  |
| --- | --- | --- | --- |
| slide icon  Slide 19 | |  |  |
| speaker icon | | Back to our example, let’s continue with looking at the how and why, the contributing factors and environmental antecedents. |  |
| slide icon  Slide 20 | |  |  |
| speaker icon | | So, contributing factors are the how did this happen part of the outbreak. They are the preventable causes.  Contributing factors are split into 3 categories:   1. **Contamination --** ways the pathogen entered the food item 2. **Proliferation** **--** ways the pathogen was allowed to grow in the food 3. **Survival --** ways the pathogen survived the kill step   Here are some examples of contributing factors in each category. These all come from a list produced by the CDC. | * Consider dropping the CDC website link or the QR code into the chat area. |
| **notes pages icon** | |  |  |
| slide icon  Slide 21 | |  |  |
| speaker icon | | You have the contributing factor list on your tables and will use it during the activity.  They can also be found on the CDC website and there is a QR code to the link on the back of your workbook. |  |
| slide icon  Slide 22 | |  |  |
| speaker icon | | Next up are the environmental antecedents, or root causes. These are the underlying issues that allowed a contributing factor to happen.  Each contributing factor will have at least one environmental antecedent precluding it. They fall into 5 categories:   1. people 2. processes 3. equipment 4. food 5. economics   One tool to get at the environmental antecedents is to use the 5 why’s- asking why 5 times until you get to the root cause. |  |
| slide icon  Slide 23 |  | |  |
| speaker icon | So, here we have a draft resource available that walks you through what to consider when selecting an environmental antecedent. You can see that many clues lie in the observation and staff interviews where we used the 5 whys.  The environmental antecedent resource can be found in a smaller and larger size on the CDC website. This medium sized document that we’ll use for the activity can also be found on the QR code on the back of your workbook. | |  |
| **alert icon** | | **Key Point!**  The environmental Antecedent resource can be found in smaller and larger sizes (smaller size is an infographic and larger size is a training resource) on the CDC website. This medium-sized document (a guide) that we’ll use for the activity can be found on the QR code on the back of your workbook. |  |

### Tabletop Exercise 2

|  |  |  |
| --- | --- | --- |
| slide icon  Slide 24 |  |  |
| speaker icon | Let’s go back to the workbook and we’ll start exercise 2. |  |
| pencil icon | **Participant Guide Work**   * Page 6 of your Workbook contains questions for you to answer. Be sure to use your Workbook to take notes. |  |
| slide icon  Slide 25 |  |  |
| speaker icon | When we break, you’ll review the environmental findings on page 5. You’ll then think about some follow-up questions you would ask the manager and/or food worker  Answer the questions on page 6 about follow-up questions and potential categories for contributing factors and environmental antecedents. You won’t identify them yet, but just determine which categories may be applicable to the outbreak.  Please work with your group for about 10 minutes then we’ll discuss as a group. The questions you need to answer on page 6 will also be on the screen. |  |
|  | **vILT** | * Ensure workbook questions appear in each breakout group.   Trainer(s) / Tech Moderator should:   * Bounce from breakout room to breakout room. * Cover any housekeeping or instructions for breakout rooms. * Unmute groups so they can discuss. * Announce a two-minute warning. * End breakout session.   At the end of the breakout session:   * Return participants to the main room. * Pass the lead back to the Trainer. |
| slide icon  Slide 26 |  |  |
| speaker icon | Let’s take a minute for each group to report back what you discovered. |  |
| **conversation bubbles icon** | **DEBRIEF**  Before showing the Exercise 2A Answer Key:   * Invite group to briefly share their results with the entire class. * Facilitate a brief discussion after all groups have shared.   Be prepared to provide clarity if necessary. | * Continue to monitor the Chat and be prepared to unmute participants if they have input. |
| **conversation bubbles icon** |  |  |
| slide icon  Slide 27 |  |  |
| speaker icon | **Environmental Findings:**   * Inspectors visited the restaurant to conduct an environmental assessment (interview employees regarding recent illness his-tory, review preparation practices, and collect credit card receipts for patrons who dined at the restaurant on date of exposure. (THINK: Why did food items such as pretzels, wontons, and tater tots make patrons sick?) * During the environmental assessment interviews were conducted with 37 restaurant employees. One employee, who worked as a server, host, and food runner, reported recent gastrointestinal illness. The employee reported an illness onset date of prior to the day she worked and recovered two days later. Her job duties included cutting fruit, scooping ice for drinks, and garnishing drinks with fruit. (THINK: Why did employees work while ill?) * When The facility’s illness log did not indicate any illness. (THINK: Why were the restaurant's illness policies not being followed?) * Inspectors observed bare-hand contact when servers cut fruit, garnished drinks, and put toppings on desserts. (THINK: Why were staff handling ready-to-eat foods with their bare hands?) |  |
| slide icon  Slide 28 |  |  |
| **notes pages icon** | *Note to presenter: guide the discussion based on the answers and encourage additional questions.*  For exercise 2, there are many follow-up questions you could ask for each outbreak, we’ll review a few of them, with their response on the next slide.  **Norovirus:**  **Why might pretzels, wontons, and tater tots make patrons sick?**  **A:** These foods are ready-to-eat items (they don’t require additional cooking or kill step). If a sick worker handled/served these items, they could have contaminated them.  **Why did employee work while ill?**  **A:** The worker did not know that she should report all vomiting and/or diarrhea regardless of reason. Additionally, employee felt responsible to work her shift even though she didn’t feel well.  **Why did the restaurant not log employee illnesses?**  **A:** The manager was not following the employee health policy. This policy states that employees must report when they feel sick and exclude workers that are sick (i.e. Workers experiencing vomiting and diarrhea). In addition, when a worker reports out for work due to sickness, the policy states this should be logged on the form.  **Why were the restaurant's illness policies not being followed?**  **A:** Management did not train workers and enforce these policies as they did not view these as important and prioritized staffing restaurants. There is a lack of food safety culture/attitude towards safety in this restaurant.  **Why did food workers use bare hands on ready-to-eat foods like cut fruit, garnished drinks and toppings for desserts?**  **A:** Not enough oversight by management to ensure employees aren’t working while ill or handling RTE food with bare hands.  **Other questions:**  Why was establishment understaffed?  Why don’t employees use gloves or other means to handle ready-to-eat foods? | Continue monitoring the chat area for potential questions and responses, or technical issues throughout this review period.  Unmute groups if they have questions or answers during this time. |
| slide icon  Slide 29 |  |  |
| speaker icon | Q: Why are employee illnesses not tracked in a log?  A: We never use the information from the log so we didn’t think it was necessary. We don’t ask a lot of questions when the staff calls out from work because we need to get to work finding a replacement.  Q: Why were the restaurant’s illness policies not being followed?  A: Policies are great but do any restaurants really follow them? They’re pretty lengthy and our restaurant runs just fine without us knowing the policies word for word.  Q: Why was the establishment understaffed?  A: It’s the time of year most people take summer vacations. The manager always thinks we can work understaffed because we somehow always get it done. But when we are understaffed, we need to cut corners just to get the meals out.  Q: Why don’t employees use gloves to handle ready-to-eat foods?  A: It’s just another step in our already long food preparation processes. The manager never says anything and they aren’t important anyways. We wash our hands when we come into work. |  |
| slide icon  Slide 30 |  |  |
| speaker icon | Let’s focus in on one of the questions (assuming this was mentioned during group discussion): Why did the employee work while ill?  Multiple things could be happening here.   1. The restaurant was understaffed, possibly because many people take vacation during this time. Then we ask why. It’s possible it’s because management does not see the need to have a fully staffed restaurant everyday. In the previous slide, we learned that the managers think the food workers will just ‘make it work’. 2. The employee did not want to leave co-workers understaffed. Then we ask why? From the previous slide, we learned that the restaurant doesn’t really use illness logs and they don’t follow illness policies. It seems like management doesn’t have much oversight on the restaurant operations. |  |
| slide icon  Slide 31 |  |  |
| speaker icon | Let’s move on to part B of exercise 2  You’ll answer the questions on page 7 about contributing factors and environmental antecedents.  Please work with your group for about 10 minutes then we’ll discuss as a group. The questions you need to answer on page 7 will also be on the screen.  Remember, if there are not enough handouts of the contributing factors list and environmental antecedent resource, there are QR codes on the back of your workbook that will pull up the resources. |  |
| slide icon  Slide 32 |  |  |
| speaker icon | * What contributing factor(s) do you suspect? * What environmental antecedent(s) do you suspect? Choose the top 3 |  |
| **conversation bubbles icon** | **DEBRIEF**  Before showing the Exercise 2B Answer Key:   * Invite group to briefly share their results with the entire class. * Facilitate a brief discussion after all groups have shared.   Be prepared to provide clarity if necessary. | * Continue to monitor the Chat and be prepared to unmute participants if they have input. |
| slide icon  Slide 33 |  |  |
| speaker icon | **Contributing Factors:**  C9: Bare-hand contact by a food worker who is suspected to be infectious (e.g., with ready-to-eat-food)  -A food worker suspected to be infectious uses his or her bare hands to touch or prepare foods that are not subsequently cooked.  **Environmental Antecedents**  Lack of a food safety culture/ attitude towards food safety  -Employee was working while ill and didn’t know that she should report all vomiting and/or diarrhea regardless of reason. Management did not train workers and enforce these policies as they did not view these as important and prioritized staffing restaurant.  Lack of oversight of employees  -Not enough oversight by management to ensure employees aren’t working while ill or handling RTE food with bare hands.  Low or insufficient staffing  -Due to low staffing, employee felt responsible to work her shift even though she didn’t feel well. |  |

### Investigative Process Overview

| **Cue** | **What is Shown, Said, and Done** | | **Tech Moderator** | |
| --- | --- | --- | --- | --- |
| slide icon  Slide 34 | |  | |  |
| speaker icon | | We’ve identified the how and why {press button} and now need to Focus on preventing future outbreaks | |  |
| slide icon  Slide 35 | |  | |  |
| speaker icon | | We know **WHY** it happened; now how do we prevent it from happening again? This list has a few examples of things to consider. Some are short term; some are long term. Some are enacted by the facility itself and others by the health department. | |  |

### Tabletop Exercise 3

|  |  |  |
| --- | --- | --- |
| slide icon  Slide 36 |  |  |
| speaker icon | Let’s go back to the workbook and we’ll start exercise 3 where we will identify some control measures. |  |
| slide icon  Slide 37 |  |  |
| speaker icon | You’ll use the control measures lists, to think about short- and long-term corrective actions.  Then, you’ll answer the questions on page 9 about what information you still need to collect.  Please work with your group for about 10 minutes then we’ll discuss as a group. |  |
| pencil icon | **Participant Guide Work**  The questions you need to answer on page 7 of your workbook. |  |
| **A computer mouse with a cord  Description automatically generated** | **vILT** | Place participants into group to answer Exercise 3 questions.  Ensure workbook questions appear in each breakout group.    Trainer(s) / Tech Moderator should:   * Bounce from breakout room to breakout room. * Cover any housekeeping or instructions for breakout rooms. * Unmute groups so they can discuss. * Announce a two-minute warning. * End breakout session.     At the end of the breakout session:   * Return participants to the main room. * Pass the lead back to the Trainer. |
| **conversation bubbles icon** | **DEBRIEF**  Before showing the Exercise 3 Answer Key:   * Invite group to briefly share their results with the entire class. * Facilitate a brief discussion after all groups have shared.   Be prepared to provide clarity if necessary. | * Continue to monitor the Chat and be prepared to unmute participants if they have input. |
| slide icon  Slide 38 |  |  |
| speaker icon | What might be some short-term and long-term corrective actions you would put in place to ensure this wouldn’t happen again? |  |
| slide icon  Slide 39 |  |  |
| speaker icon | Short-term:   * Implementation of employee screening to ensure no employees worked while ill. * Instruct the restaurant to clean and sanitize with a product effective against Norovirus. * Provide education on the importance of hand-hygiene and not touching ready-to-eat foods with bare hands to stop the spread of Norovirus, and encourage reporting of all symptoms of vomiting and diarrhea to management regardless of the reason.   Long-term:   * Hold multiple trainings year on proper hand-hygiene and how to minimize bare-hand contact. * Create an employee contract that lists out all of the symptoms they should report and other illness reporting expectations and has food workers sign and review on an annual basis. * Instill strong food safety culture and ensure employees are not punished if call out sick. Management influences food safety attitudes, perceptions, and opinions. Ensure management provides oversight and reinforces food safety practices with training (focus on the public health reasoning) and reminders. |  |
| slide icon  Slide 40 |  |  |
| speaker icon | Community Level:  -Findings from outbreaks can reduce future foodborne illness outbreaks by providing corrective actions to outbreak establishments  -Your investigations can help influence policy. For example, New York City used findings from their environmental assessments to support a policy for mandatory paid sick leave in all establishments within their jurisdiction.  National Level:  -Data from environmental assessments were used to inform CIFOR’s outbreak response guidelines and the revision of Epi-Ready, a foodborne illness response training.  -These data can also provide evidence for policies, such as support for new food code provisions. They can also inform practice at food establishments. We have great example on the next slide. |  |
| slide icon  Slide 41 |  |  |
| speaker icon | **Food Code:**  Data from outbreaks helps influence changes to The Food Code. One study showed that states that adopted key provisions from the Food Code had lower rates of foodborne Norovirus outbreaks.  **Kitchen Manager Certification Infographic:**  Outbreak data also influences infographics and guides used in retail food establishments. The infographic on the right is available on the CDC website and describes the importance of kitchen manager certification. | Drop the website link into the Chat.  [**https://www.cdc.gov/restaurant-food-safety/site.html**](https://www.cdc.gov/restaurant-food-safety/site.html) |

### Take Home Points

|  |  |  |
| --- | --- | --- |
| slide icon  Slide 42 |  |  |
| speaker icon | We have a few take home points to summarize what we reviewed today. |  |
| slide icon  Slide 43 |  |  |
| speaker icon | First, environmental antecedents are key to identifying root causes. Understanding root causes can help inform the outbreak establishment on corrective actions to avoid a similar outbreak again. |  |
| slide icon  Slide 44 |  |  |
| speaker icon | Second, there are many resources available to help identify environmental antecedents and assist with trainings. |  |
| slide icon  Slide 45 |  |  |
| speaker icon | Lastly, report your outbreak data to NEARS to contribute to the advancement of outbreak science.  For more information on the program, please reach out to nears@cdc.gov. |  |
| document icon | **Resources:**  NEARS webpage: <https://www.cdc.gov/restaurant-food-safety/php/investigations/nears.html> | Drop link into the Chat. |
| slide icon  Slide 46 |  |  |
| speaker icon | Thank you for your participation today. |  |

1. Terminology

The following is a list of terms or acronyms with their respective definitions.

|  |  |
| --- | --- |
| Term | Definition |
| IAFP | International Association for Food Protection |
| CDC | Centers for Disease Control and Prevention |
| CIFOR | Council to Improve Foodborne Outbreak Response |
| EHS-Net | Environmental Health Specialists Network |
| NEARS | National Environmental Assessment Reporting System. An online tool from the CDC used by jurisdictions across the United States to track environmental assessments that are conducted as a result of foodborne illness investigations. |
| STEC | Shiga toxin-producing Escherichia coli. The term used to refer to a group of *E. coli* bacteria that produce powerful toxins, which can cause severe illness. |

1. Resources

The following is a list of resources used throughout this training.

|  |  |  |
| --- | --- | --- |
| Resource | Description/Link | |
| IAFP and CIFOR | | |
| IAFP Keys | <https://www.foodprotection.org/upl/downloads/publications/other/free-procedures-keys.pdf> | |
| CIFOR Guidelines for Foodborne Disease Outbreak Response | <https://cifor.us/downloads/clearinghouse/CIFOR-Guidelines-Complete-third-Ed.-FINAL.pdf> | |
| CIFOR Outbreaks of Undetermined Etiology Agent List | <http://cifor.us/uploads/resources/CIFOR-OUE-Agent-List_FINAL.pdf> | |
| **Contributing Factors and Environmental Antecedents** | | |
| Contributing Factor Definitions | [NEARS Contributing Factor Definitions | EHS | CDC](https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.cdc.gov%2Fnceh%2Fehs%2Fnears%2Fcf-definitions.htm&data=05%7C01%7Cnicole.hedeen%40state.mn.us%7Ce06e2568272d45b1eef908daa2202dba%7Ceb14b04624c445198f26b89c2159828c%7C0%7C0%7C638000556492839284%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=MBuPOIpF1pXiI3NvY3L%2F8lvA94dyPpOfpzUgRRhBIZs%3D&reserved=0) | |
| Environmental Antecedent Webpage with Resources QR Code |  | |
| Environmental Antecedent Field Guide | <https://www.cdc.gov/nceh/ehs/nears/docs/field-guide-to-identifying-root-causes-508.pdf> | |
| **Additional Resources** | | |
| NEARS Web Page | | [National Environmental Assessment Reporting System (NEARS) Home | EHS | CDC](https://www.cdc.gov/nceh/ehs/nears/index.htm) |
| NEARS Web Page QR Code | |  |
| Contributing Factor Video QR Code | |  |
| Contributing Factor Video | | <https://www.youtube.com/watch?v=pWEywTiX3Sw> |

**Resources (Cont’d).**

|  |  |
| --- | --- |
| Water Quality and Health Council | <https://waterandhealth.org/resources/posters/#food-safety> |
| Workbook 1 |  |

1. Level 2 Evaluation Questions

On a scale of 1 to 5, how would you rate your confidence level for each of the following statements? (*1 – Very poor to 5 – Excellent*)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Before Training:  *When faced with an outbreak, I felt confident in:* | | | | |  | After Training  *When faced with an outbreak, I will feel confident in:* | | | | |
| 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  | 1. Identifying resources to aid in an outbreak investigation. |  |  |  |  |  |
|  |  |  |  |  | 1. Using evidence from an environmental assessment to identify contributing factor(s). |  |  |  |  |  |
|  |  |  |  |  | 1. Asking the “5 whys” to understand why contributing factors occurred. |  |  |  |  |  |
|  |  |  |  |  | 1. Identifying appropriate environmental antecedents. |  |  |  |  |  |
|  |  |  |  |  | 1. Describing best control measures to prevent future outbreaks. |  |  |  |  |  |

1. Questions to Facilitate Engagement
2. Under what circumstances would it be appropriate to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?
3. If there were conflicting information, how would you resolve these differences?
4. What does IAFP say about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?
5. If you thought the information was incorrect, how would you address it?
6. What factors add to the complexity of an outbreak?
7. Do you see a pattern?
8. What evidence did you find to support your conclusion(s)?
9. What did you learn during this scenario that you can apply to your next investigation?
10. (SAMPLE) Worksheet for Sandbox Time
11. Scenario 1: Name

*Description of scenario 1.* Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

* 1. Question?
  2. Question?
  3. Question?
  4. Question?
  5. Question?
  6. Question?

1. Scenario 2: Name

*Description of scenario 2.* Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

* 1. Question?
     1. If no, why?
     2. If yes, why?
  2. Question?
  3. Question?
  4. Question?