

Focus Area 8 Worksheet: Environmental Health Investigation

Focus Area 8: Environmental Health Investigation

To help you understand what is included in this Focus Area, review the following goals and keys to success.

GOALS FOR THE ENVIRONMENTAL HEALTH INVESTIGATION:

Agency/jurisdiction staff collect, analyze, and interpret information from the implicated facility or production site to determine the etiologic agent, mode of transmission and vehicle, source of contamination, contributing factors, environmental antecedents, and food supply chain.

KEYS TO SUCCESS FOR THE ENVIRONMENTAL HEALTH INVESTIGATION:

“Keys to success” are activities, relationships, and resources that are believed to be critical to achieving success in a Focus Area. Determining whether an agency/jurisdiction has a particular key to success in place is somewhat subjective. Metrics, such as measures of time (e.g., rapidly, timely, and quickly), have not been defined. Your Workgroup should provide its own definitions for these terms, as is appropriate for your agency/jurisdiction, and use its best judgment in deciding whether a particular key to success is fully or partially in place.

Staff skills and expertise

- Staff have expertise in food production processes, HACCP, and environmental health assessments.
- Staff have expertise in traceback and traceforward investigations (or have access to staff in other agencies with this expertise).
- Staff have good interviewing skills to solicit information from facility managers and food workers.

Investigation

- Agency/jurisdiction has a written protocol outlining the steps in the environmental health investigation of a foodborne disease outbreak. Staff have easy access to the protocol and are trained in its implementation.
- Staff undertake environmental health assessments at facilities or production sites implicated during a foodborne outbreak (not routine food establishment licensing inspections) and identify appropriate contributing factors and environmental antecedents.
- Staff undertake traceback and traceforward investigations (or have access to staff in other agencies that undertake these investigations).

Communication

- Staff communicate in a timely fashion and coordinate activities with epidemiology and laboratory staff.

Making changes

- Agency/jurisdiction conducts a debriefing among investigators following each outbreak response and refines outbreak response protocols based on lessons learned.
- Agency/jurisdiction has performance indicators related to the environmental health investigation and routinely evaluates its performance in this Focus Area.

List the persons participating in the discussion of this Focus Area and list their affiliations.

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1. DESCRIBE YOUR CURRENT ACTIVITIES AND PROCEDURES IN THIS FOCUS AREA.

Considering the keys to success on the previous page, describe your agency's/jurisdiction's current activities and procedures in this Focus Area. Refer to written protocols, if available, and materials related to ongoing efforts in capacity development or quality improvement (e.g., FDA Retail and Manufactured Food Regulatory Program Standards). As you list current activities and procedures related to this Focus Area, indicate those that might need work to improve your agency's/jurisdiction's response to foodborne disease outbreaks.

Activity/Procedure	Needs Improvement? ✓
	<input type="checkbox"/>
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2. PRIORITIZE CIFOR RECOMMENDATIONS TO ADDRESS NEEDED IMPROVEMENTS.

Having identified activities and procedures in need of improvement, review the CIFOR recommendations related to this Focus Area (listed below). Rate the priority for implementing each recommendation based on its likely impact on foodborne outbreak response at your agency/jurisdiction and available resources. Use a scale of 1 to 5 to rate each recommendation (1 = Low priority for implementation and 5 = High priority for implementation). If a recommendation is already in place in your agency/jurisdiction, check the appropriate box. If a recommendation is not relevant to your agency/jurisdiction, select N/A. **Refer to the hyperlinked section number following each recommendation to view the recommendation as it appears in the CIFOR Guidelines.**

	Already in place	Priority for Implementation or Improvement					N/A
		LOW				HIGH	
Staff skills and expertise							
Ensure the environmental health investigator on the outbreak response team has a good understanding of foodborne agents, factors necessary to cause illness, and food vehicles (e.g., chemical and physical characteristics that might facilitate or inhibit growth; methods of production, processing, preparation). (5.2.4.1)	<input type="checkbox"/>	1	2	3	4	5	N/A
Provide continuing education to environmental health investigators to maintain and improve skills within their specialty. (3.2.3)	<input type="checkbox"/>	1	2	3	4	5	N/A
Train the environmental health investigator in the agency's/jurisdiction's outbreak response protocols and the environmental health investigator's team role. (3.2.3)	<input type="checkbox"/>	1	2	3	4	5	N/A
Assemble a reference library with information about foodborne diseases, enteric illnesses, and control measures. When possible, include electronic resources that can be accessed during field investigations. (3.2.3.3)	<input type="checkbox"/>	1	2	3	4	5	N/A
Assemble a list of resource persons who have expertise in specific disease agents and environmental health investigation methodologies. (3.2.3.3)	<input type="checkbox"/>	1	2	3	4	5	N/A
Exercise outbreak response team members together to ensure team members understand and can perform their roles according to agency-specific protocols and legal authorities and understand the roles and responsibilities of other team members. (3.2.3.4)	<input type="checkbox"/>	1	2	3	4	5	N/A
Ensure that all outbreak response team members regularly participate in outbreak investigation and control efforts, even if it means working with another jurisdiction because the team's home jurisdiction does not have many outbreaks. (3.2.3.4)	<input type="checkbox"/>	1	2	3	4	5	N/A
If investigations are infrequent, centralize processes that require substantial experience for proficiency (e.g., regulatory tracebacks). (4.2.10.1)	<input type="checkbox"/>	1	2	3	4	5	N/A

Additional ideas:

	Already in place	Priority for Implementation or Improvement					
		LOW			HIGH		
Outbreak Investigation							
Prepare a written protocol outlining the steps in the environmental health investigation of a foodborne disease outbreak. (3.2.2.3)	<input type="checkbox"/>	1	2	3	4	5	N/A
Use epidemiologic information to initiate and guide the environmental health investigation of a foodborne disease outbreak. (5.2.4.1.5)	<input type="checkbox"/>	1	2	3	4	5	N/A
Have appropriate equipment (3.3.2.3) and supplies (3.3.2.4) ready for use by the environmental health investigator when needed.	<input type="checkbox"/>	1	2	3	4	5	N/A
<i>Data collection</i>							
Use standardized forms to collect environmental health information to provide comparable data for investigations that might involve multiple establishments. (5.1.2.5)	<input type="checkbox"/>	1	2	3	4	5	N/A
Develop templates for forms before an outbreak occurs. (See http://www.cdc.gov/nceh/ehs/EHSNet/ for examples). (5.1.2.5)	<input type="checkbox"/>	1	2	3	4	5	N/A
Determine how confidential information will be stored and whether and how it can be shared with others in the outbreak response team. (3.6.2)	<input type="checkbox"/>	1	2	3	4	5	N/A
Be familiar with and follow state and federal laws and practices that protect confidential information from disclosure. (5.1.2.6)	<input type="checkbox"/>	1	2	3	4	5	N/A

Additional ideas:

Identify the etiologic agent (if unknown)

Interview management from the implicated facility to determine if it has noticed ill employees or circumstances that could be the cause of a foodborne illness. (Table 5.1)	<input type="checkbox"/>	1	2	3	4	5	N/A
Interview food workers to determine whether they have been ill and the clinical characteristics of their illness. (Table 5.1)	<input type="checkbox"/>	1	2	3	4	5	N/A
Obtain stool samples from ill or all food workers to establish an etiology through laboratory testing. (Table 5.1)	<input type="checkbox"/>	1	2	3	4	5	N/A
Obtain and store samples of suspect food items and ingredients. Test when food has been implicated by epidemiologic or environmental health investigations. (Table 5.1)	<input type="checkbox"/>	1	2	3	4	5	N/A
Determine whether the setting or suspect food item suggest a likely pathogen. (Table 5.1) (2.3.3.2.2)	<input type="checkbox"/>	1	2	3	4	5	N/A

Additional ideas:

	Already in place	Priority for Implementation or Improvement					
		LOW			HIGH		
Outbreak Investigation (cont'd)							
<i>Identify persons at risk</i>							
For establishment-related outbreaks, obtain a list of reservations, credit card receipts, receipts for take-out orders, or guest lists for events to identify exposed persons and additional cases. When possible, obtain information electronically. (Table 5.1)	<input type="checkbox"/>	1	2	3	4	5	N/A
Review foodborne illness notifications/complaints to identify undiagnosed cases that could be linked to the outbreak. (Table 5.2)	<input type="checkbox"/>	1	2	3	4	5	N/A
Contact restaurants, grocery stores, or other points of final service visited by multiple cases to identify employee illnesses or foodborne illness complaints from patrons. (Table 5.2)	<input type="checkbox"/>	1	2	3	4	5	N/A

Additional ideas:

Identify mode of transmission, vehicle, and source of contamination

Contact restaurants, grocery stores, and other locations identified by multiple cases to verify food choices and identify ingredients and distributors and/or source(s) for ingredients and foods of interest. (Table 5.2)	<input type="checkbox"/>	1	2	3	4	5	N/A
Conduct informational tracebacks to determine whether a suspected food vehicle from multiple cases had a distribution or other point in common. Convergence of multiple cases along a distribution pathway might identify the likely source of contamination. (5.2.4.1.6) (Table 5.2)	<input type="checkbox"/>	1	2	3	4	5	N/A
Conduct a formal regulatory traceback of the implicated food item or ingredient. (Table 5.2)	<input type="checkbox"/>	1	2	3	4	5	N/A

Conduct an environmental health assessment of the likely source of contamination:

- Obtain a menu from the event or establishment.
- Interview food workers to determine their food-preparation responsibilities and practices before the outbreak exposure.
- Reconstruct the food flow for the implicated meal or food item.
- Evaluate the food flow for the implicated meal or food item to identify a contamination event.
- Identify contributing factors and environmental antecedents.
- Obtain samples of implicated food or ingredients.
- Obtain environmental samples from food contact surfaces or potential environmental reservoirs. ([5.2.4.1.5](#)) ([Table 5.1](#)) ([Table 5.2](#))

Additional ideas:

	Already in place	Priority for Implementation or Improvement					N/A
		LOW	HIGH				
Communication							
Guide staff on responding to and communicating with upset food-service workers and managers. (3.6.2.5)	<input type="checkbox"/>	1	2	3	4	5	N/A
Determine when and how to share outbreak information with the person or organization in charge of the facility implicated in an outbreak. (3.5.2)	<input type="checkbox"/>	1	2	3	4	5	N/A
Ensure that the environmental health investigator knows the other members of the outbreak response team before an outbreak occurs. (3.6.2.2)	<input type="checkbox"/>	1	2	3	4	5	N/A
Establish and use routine procedures for communicating with outbreak response team members and their organizational units (epidemiology, environmental health, the laboratory) before an outbreak occurs. (3.6.2.2)	<input type="checkbox"/>	1	2	3	4	5	N/A
Maintain close communication and coordination with other members of the outbreak response team during an investigation. (5.1.2.3) (5.2.5)	<input type="checkbox"/>	1	2	3	4	5	N/A
Communicate actions taken and new outbreak information to all members of the outbreak response team in a timely manner. (6.4.1) (5.2.5)	<input type="checkbox"/>	1	2	3	4	5	N/A
Participate in daily meetings with the outbreak response team to update the entire team. Make sure suspicious new exposures are adequately considered by all team members. (5.2.5)	<input type="checkbox"/>	1	2	3	4	5	N/A

Additional ideas:

Making changes

Participate in a debriefing following each outbreak investigation with all members of the outbreak response team to identify lessons learned and compare notes on ultimate findings. Identify factors that compromised the investigation and clarify changes to procedures, resources, training, and agency structure to optimize future investigations. (6.6) (3.2.3) (5.2.8)	<input type="checkbox"/>	1	2	3	4	5	N/A
Summarize investigation findings, conclusions, and recommendations in a written report, consistent with the size and complexity of the investigation, including lessons learned and action items for follow-up and quality improvement. (3.7.2) (5.2.9) (6.7)	<input type="checkbox"/>	1	2	3	4	5	N/A

Additional ideas:

