

Special Considerations for Multijurisdictional Outbreaks

A multijurisdictional foodborne disease event requires the resources of more than one local, state, territorial, tribal, or federal public health or food-regulatory agency to detect, investigate, or control. A multijurisdictional investigation may involve a foodborne disease outbreak or the distribution or recall of a contaminated food product.

These guidelines are intended to help improve communication and coordination among agencies at all levels of government that are investigating multijurisdictional outbreaks. The guidelines are proposed to help agencies identify multijurisdictional outbreaks and increase the speed of investigation and control of outbreaks.

7.0. Introduction

Specifically the guidelines have the following objectives:

- A. Define when an outbreak is considered multijurisdictional,
- B. Establish a framework for rapidly assessing whether a given foodborne disease event affects multiple jurisdictions,
- C. Promote early and effective communication and coordination among agencies involved in multijurisdictional investigations,
- D. Detail specific actions that might be needed in a multijurisdictional outbreak,
- E. Provide guidance on managing the transition between the phases of an outbreak investigation during which leadership of the investigation changes, and
- F. Provide guidance on post-outbreak debriefing and dissemination of findings.

7.0.1. Scope

These guidelines are subject to two major limitations. First, foodborne disease outbreak investigation activities are subject to state law. Thus, these guidelines may need to be adapted to reflect the relationships between state and local agencies within a state. Second, they cannot cover all possibilities that might emerge during an outbreak investigation. However, the principles of communication and coordination established by these guidelines should help to quickly resolve problems.

For ease of reading, these guidelines focus on relationships among local, state, and federal levels. Although territories, tribal lands, and the District of Columbia represent independent administrative structures with unique legal standing, the general principles of multijurisdictional investigations articulated here should be useful for health officials in these areas as well.

7.1. Background

In the United States, local or state public health or food-regulatory agencies conduct most investigations of foodborne illness following routine policies and procedures. In many local agencies, sporadic cases of specific foodborne disease are investigated by communicable disease control or public health nursing programs. Consumer complaints about foodborne illness frequently are investigated by food-regulatory programs. However, outbreak investigations usually require coordination among these programs at the local level. Thus, effective communication and coordination generally are required for successful investigations of foodborne disease outbreaks.

In 2001, the National Food Safety System (NFSS) Project, Outbreak Coordination and Investigation Workgroup, published guidelines for improving coordination and communication

in multistate foodborne disease outbreak investigations. The NFSS multistate guidelines were developed specifically to address the challenges of coordinating large and complex investigations of foodborne disease outbreaks among multiple state and federal public health and food-regulatory agencies.

Since development of these guidelines, the terrorist attacks on September 11, 2001, raised concerns about the potential for intentional contamination of food at all levels of the food system, which would require interaction among agencies that previously had not worked together. In addition, large multistate case clusters and foodborne disease outbreaks have continued. For example, during 2002–2005, at least 6% of foodborne disease outbreaks reported to the CDC electronic Foodborne Outbreak Reporting System (eFORS) involved

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multistate or multicounty exposures or affected residents of multiple states or counties (Table 7.1). Furthermore, 40% of *E. coli* O157:H7 outbreaks and 25% of *Salmonella* or hepatitis A outbreaks were multijurisdictional, largely due to the use of PulseNet for surveillance of infection with *E. coli* O157:H7 and *Salmonella*. Thus, for these most important foodborne pathogens, the need for multijurisdictional coordination should be anticipated during the earliest stages of an investigation.

The Council to Improve Foodborne Outbreak Responses (CIFOR) was created in 2006 to help develop model programs and processes to facilitate the investigation and control of foodborne disease outbreaks. CIFOR determined that one priority would be to go beyond multistate outbreaks by also developing

guidelines for multijurisdictional outbreaks. Multijurisdictional guidelines apply to multiple states but also include localities within a state and outbreaks involving multiple agencies (Table 7.2).

Recent experiences with multijurisdictional investigations have pointed to two overriding concerns with communication and coordination of multijurisdictional investigations. The first is to establish criteria by which a local health agency can recognize that a foodborne disease outbreak under investigation is multijurisdictional and to facilitate rapid communication of that fact to all affected agencies. The second is to establish effective means of integrating local agencies into large, multistate investigations that are detected and coordinated on a national level.

Table 7.1. Number of multistate exposure, multistate resident, multicounty exposure, and multicounty resident outbreaks, by etiology, 2002–2005

ETIOLOGY AND AGENT	NO. OUTBREAKS				
	TOTAL OUTBREAKS	MULTISTATE EXPOSURE	MULTISTATE RESIDENT	MULTICOUNTY EXPOSURE	MULTICOUNTY RESIDENT
Confirmed Etiology	1903	43	34	122	31
<i>Escherichia coli</i> O157:H7	75	11	1	17	1
<i>Salmonella</i>	448	24	10	65	14
<i>Clostridium perfringens</i>	90	0	1	1	2
<i>Staphylococcus aureus</i>	61	0	2	3	1
Hepatitis A	24	1	0	5	0
Norovirus	770	0	13	12	9
Other	391	4	6	18	3
Multiple	44	3*	1 [†]	1 [‡]	1 [§]
Suspected Etiology	1402	0	3	17	18
Unknown Etiology	1438	0	10	17	12
TOTAL	4743	43	47	156	61

* Three multistate exposure outbreaks involving multiple etiologies; 1 *Salmonella* outbreak caused by serotypes Anatum, Muenchen, Javiana, Thompson, and Typhimurium; another *Salmonella* outbreak caused by serotypes Saint Paul and Typhimurium; and a third *Salmonella* outbreak caused by serotypes Enteritidis, Kentucky, and Typhimurium.

[†]One multistate resident outbreak caused by *C. parvum* and *E. coli* O111.

[‡]One multicounty exposure *Salmonella* outbreak caused by serotypes Adelaide and Hadar.

[§]One multicounty resident *Salmonella* outbreak caused by serotypes Newport and Typhimurium.

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Table 7.2. Categories of multijurisdictional outbreaks

1. Outbreaks affecting multiple local health jurisdictions (e.g., city, county, town) within the same state
2. Outbreaks involving multiple states
3. Outbreaks involving multiple countries
4. Outbreaks affecting multiple distinct agencies (e.g., public health, food-regulatory, emergency management)
5. Outbreaks, regardless of jurisdiction, caused by highly pathogenic or unusual agent (e.g., <i>Clostridium botulinum</i>) that may require specialized laboratory testing, investigation procedures, or treatment
6. Outbreaks in which the suspected or implicated vehicle is a commercially distributed, processed, or ready-to-eat food contaminated before the point of service
7. Outbreaks involving large numbers of cases that may require additional resources to investigate
8. Outbreaks in which intentional contamination is suspected

7.2. Major Indicators of a Multijurisdictional Outbreak and Notification Steps

After recognizing a foodborne disease event requires multijurisdictional investigation, agencies that might need to participate in the investigation and agencies that might be otherwise affected by the event should be immediately notified (Table 7.2, Figure

7.1). Specific examples of these indicators and required notification steps are described below (Table 7.3). In some states, functions identified as occurring at the local level may be performed at the state level.

Table 7.3. Examples of major indicators and required notification steps

OUTBREAK DETECTION	MAJOR INDICATOR	NOTIFICATION STEPS
Local Level	Commercially distributed, processed, or ready-to-eat food contaminated before point of service suspected or implicated as outbreak vehicle.	Immediately notify state health department, relevant state food-regulatory agency, CDC, and FDA or USDA/FSIS (depending on product and on local and state reporting requirements).
	Fresh produce item contaminated before point of service is suspected or implicated as outbreak vehicle.	Immediately notify state health department, relevant state food-regulatory agency, CDC, and FDA, depending on state and local reporting requirements.
	Ground beef is implicated in an outbreak of <i>Escherichia coli</i> O157:H7 infections.	Immediately notify state health department, relevant state food-regulatory agency, CDC, and USDA/FSIS, depending on state and local reporting requirements.

7.2. Major Indicators of a Multijurisdictional Outbreak and Notification Steps

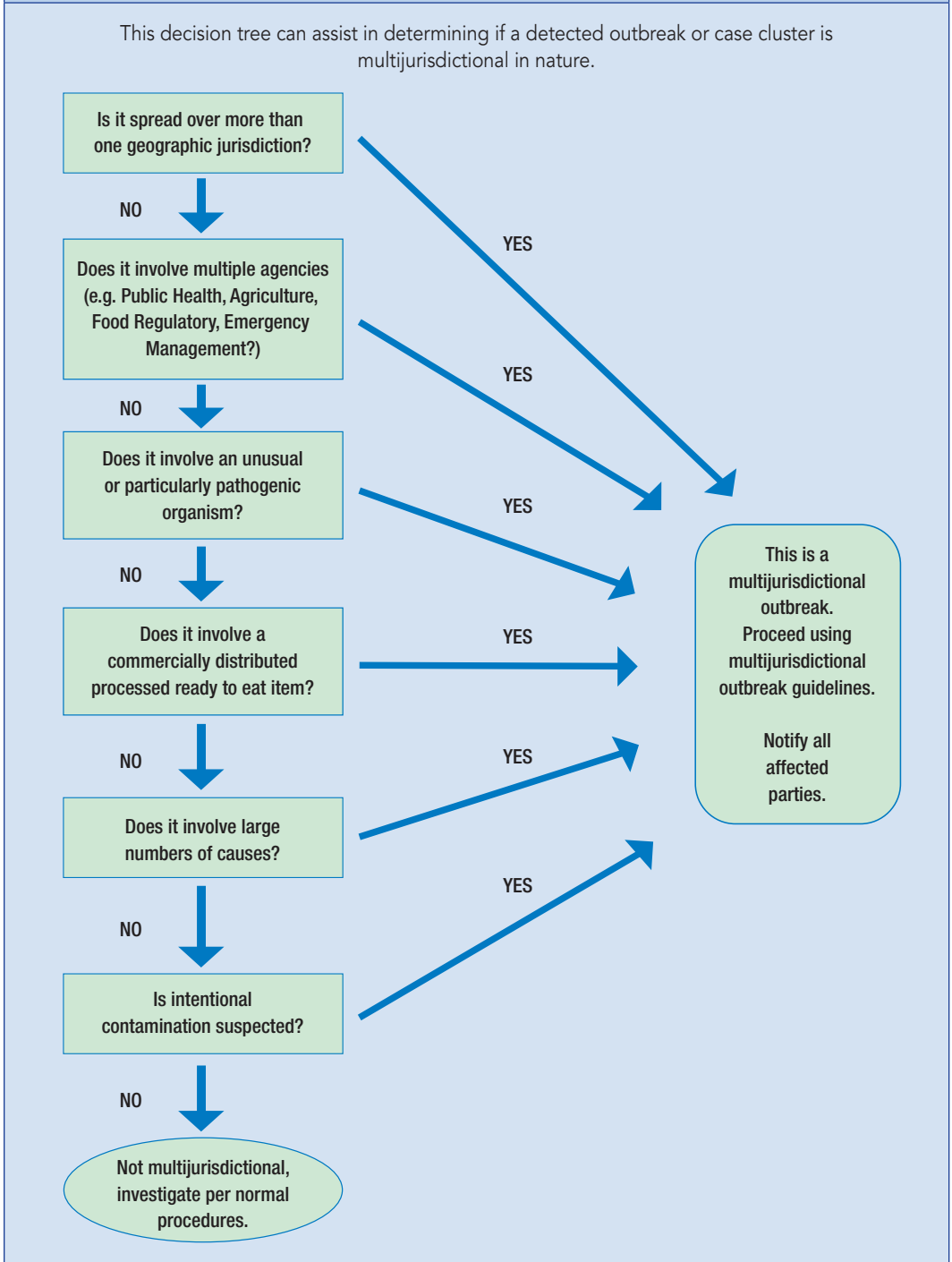
Table 7.3. Examples of major indicators and required notification steps
Continued

OUTBREAK DETECTION	MAJOR INDICATOR	NOTIFICATION STEPS
Local Level	Molecular subtype characteristics of etiologic agent matches the pattern of an agent independently associated with other foodborne disease outbreaks.	Immediately notify state health department, relevant state food-regulatory agency, CDC, and FDA or USDA/FSIS, depending on product and state and local reporting requirements.
	Intentional contamination of food item is suspected or implicated.	Immediately notify state health department, relevant state food-regulatory agency, CDC, and FDA or USDA/FSIS (depending on product), local law enforcement, and FBI.
	Illnesses are associated with multiple restaurants or food-service establishments, especially when those establishments are part of the same chain.	Immediately notify state health department, relevant state food-regulatory agency, and CDC, depending on local and state reporting requirements.
State Level	Increase of sporadic infections with common subtype characteristics identified across multiple jurisdictions.	Immediately notify affected local agencies, CDC, and state and federal food-regulatory agencies.
	Multiple common-source outbreaks linked by common agent, food, or water.	Immediately notify affected local agencies, CDC, and relevant state and federal food-regulatory agencies.
	Microbiologic food testing by state food-regulatory agency prompts recall.	Immediately notify affected state and local public health agencies, CDC, relevant federal food-regulatory agencies.
	Illnesses are associated with multiple restaurants or food-service establishments, especially when those establishments are part of the same chain.	Immediately notify relevant state food-regulatory agency and CDC, depending on product and local and state reporting requirements.
Federal Level	Increase of sporadic infections with common subtype characteristics identified across multiple states.	Immediately notify affected state and local public health agencies, federal food-regulatory agencies.
	Multiple common-source outbreaks linked by common agent, food, or water.	Immediately notify affected state and local public health agencies, CDC, relevant state and federal food-regulatory agencies.
	Microbiologic food testing by, or reported to, FDA or USDA/FSIS prompts recall.	Immediately notify affected state and local public health agencies, CDC, relevant state and federal food-regulatory agencies.

Abbreviations: CDC = Centers for Disease Control and Prevention; FDA = Food and Drug Administration; USDA/FSIS = U.S. Department of Agriculture's Food Safety and Inspection Service; FBI = Federal Bureau of Investigation.

7.2. Major Indicators of a Multijurisdictional Outbreak and Notification Steps

Figure 7.1. Multi-jurisdictional Outbreak Decision Tree for Primary Agency Investigating Foodborne Illnesses



7.3. Coordination of Multijurisdictional Investigations

After notification of affected agencies, coordinating the multijurisdictional investigation may require establishment of a coordinating office to collect, organize, and disseminate collective data from the investigation. Depending on the scope and nature of the multijurisdictional event, the coordinating office may be located at a local or state health or food-regulatory agency or at CDC, FDA, or USDA/FSIS.

Several principles guide the decision about where to locate the coordinating office for a given multijurisdictional investigation. The primary goal is to avoid interagency conflict about coordination that might distract from prompt conduct of the investigation.

- **Outbreaks are most efficiently investigated as close to the source as possible.** In general, investigations should be coordinated at the level at which the outbreak originally was detected and investigated. This is likely to be where most relevant investigation materials will reside, which can facilitate organization and analysis of the data. An outbreak involving several local health agencies might best be coordinated by a lead local agency. Similarly, investigation of a multistate outbreak with most cases in one or a few adjacent states might best be coordinated by a lead state agency. Investigations of outbreaks of more widely dispersed sporadic cases might best be coordinated by CDC.
- **The coordinating office must have sufficient resources, expertise, and legal authority to collect, organize, and disseminate data from the investigation.** Many local agencies might not have sufficient resources to effectively coordinate a multijurisdictional investigation, or state rules might assign jurisdiction over multicounty investigations to the state health department. In these situations, the coordinating office should be located at the

state level. In multistate investigations, the coordinating office should be located at CDC if no individual state is prepared to do so. In multistate investigations led by an individual state, CDC should support the investigation in coordination with the lead agency.

- **Outbreak investigations progress through phases of activity, and leadership of the investigation should reflect the focus of the investigation at the time.** Typically, epidemiologic efforts to characterize the outbreak by person, place, and time dominate the early stages of an outbreak investigation. Efforts to identify the mode of transmission and food vehicle begin to incorporate environmental health specialists and food regulators. Determining contributing factors, conducting regulatory tracebacks, and implementing control measures move the investigation into the food-regulatory realm. Transition of leadership within the outbreak control team should be planned in advance by consensus and communicated to the entire team. These phases of activity can be elaborated as follows:
 - **Investigation of human illness outbreaks should be coordinated within public health agencies.** In addition to public health agencies' greater expertise and experience in conducting these investigations, rules governing the reporting and collection of information about human patients require that authorized public health agencies maintain and protect that information. Although deidentified information may be shared across agencies, the redaction process may reduce the value of the information available for analysis.
 - **Investigations of food contamination events should be coordinated within food-regulatory agencies.** In addition to food-regulatory agencies' greater expertise and experience with these investigations, rules governing the collection of

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product manufacturing and distribution information may dictate that authorized food-regulatory agencies not share that information with outbreak investigators in other agencies. If that information is important to the investigation, outbreak investigators should consider collecting that information directly, even if doing so results in some duplication of effort.

- **Sharing of information between public health and food-regulatory agencies is critical to the effectiveness of multijurisdictional investigations.** The need to share information frequently challenges the legal authority of each party. However, rapid and open information sharing can greatly enhance the efficiency and effectiveness of multijurisdictional investigations. For example, public health agencies need access to detailed product source and distribution data to conduct epidemiologic investigations and evaluate potential public health interventions. Similarly, food-regulatory agencies need detailed case information and preliminary results of epidemiologic investigations to guide environmental assessments and tracebacks. Because these activities build on each other, establishing information-sharing protocols during the earliest stages of the investigation is critical. State, local, and federal public health officials should ensure that their agencies have the legal authorities needed to share information and that their professional staff understand those authorities. Because federal agencies, by law, are prevented from sharing certain data, state and local public health officials may need to work directly with the establishment implicated in the outbreak to obtain those data.
 - **When an incident involves an agricultural commodity and the bulk of the commodity is produced in a limited number of states, those state agricultural agencies should be informed of the outbreak and its progress.**
- They too will be receiving inquiries about the safety of their produce/product and have a legitimate interest and role to play in determining potential sources of the vehicle, as well as preparing for potential environmental assessments to determine possible points of contamination, take appropriate samples etc. Communication with those states, even where no cases occur in those states, is essential.
- **Identifying the source of a multi-jurisdictional outbreak represents a collaborative process among local, state, and federal agencies and industry.** Individual food companies and trade associations should be engaged early on to help with the investigation. Industry collaborators may be able to provide important information about food product identities, formulations and distribution patterns that can improve hypothesis generation and assist in traceback efforts to aid hypothesis testing. Early engagement of industry also can facilitate control measures by allowing affected industries opportunity to implement product withdrawal or recall procedures in an orderly way.
 - **Releasing public information about the outbreak should be coordinated with the lead investigating agency, when feasible.** Although the public and news media are not aware of most outbreak investigations, the results of investigations are public information. In addition, responding to media attention is important to address public concerns about the outbreak. Although individual agencies participating in the investigation may be obligated to respond to media inquiries, a coordinated communications plan can help provide a consistent message about the progress of the investigation or the source of the outbreak. Coordinating communications with the media is particularly important when media attention is needed for public action to avoid

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exposure to a specific contamination source, such as a recalled food product.

- **Most health departments have incident command systems (ICS) that guide outbreak responses within the public health agencies. Historically multijurisdictional foodborne disease outbreak investigations have not required formal activation of ICS.** ICS are structures that provide for internal communications within a government system among primary event responders, public information officers, and security and safety officers and for external liaison with various organizations. In concept, the ICS structures provide for communication and coordination among agencies involved with responding to a multijurisdictional outbreak of foodborne disease. However, even though the principles of multijurisdictional investigations might be similar to ICS responses, in many states and local jurisdictions, ICS are formal structures controlled by public safety officials with no other jurisdiction for food-safety or outbreak control. In these situations, activating ICS might initiate actions that distract from the prompt conduct of the investigation. Agencies involved in foodborne disease outbreak investigation and response should decide in advance whether and how to apply an ICS, and, if applicable, incorporate the

ICS structure into their response planning. Such planning should be coordinated with all other agencies that may be drawn into the investigation and response over time. Most foodborne disease outbreak investigations do not require formal activation of ICS, but may benefit from application of ICS principles and methods. **However, if someone who claims to have tampered with food contacts an agency, or in any outbreak in which intentional contamination is suspected, notification of law enforcement officials and assessment of the credibility of the threat are essential.** If the threat is credible, the outbreak will move into a law enforcement realm with activation of the ICS.

- **The agency coordinating the investigation should conduct an after-action review.** The coordinating agency should review the conduct of the investigation with collaborating agencies, summarize the effectiveness of communication and coordination among jurisdictions, and identify specific gaps or problems that arose during the investigation. Industry representatives should also be included to share lessons learned.
- **All multijurisdictional outbreak investigations should be reported as such to eFORS.**

7.4. Outbreak Detection and Investigation by Level

The following sections are organized by the level at which an outbreak is recognized and the actions that should follow that recognition.

7.4.1. Outbreak Detection and Investigation at the Local Level

7.4.1.1. Detect outbreak

Outbreaks are detected at the local level by one of the following means:

- Consumer complaint identifies group exposure with multiple illnesses.
- Multiple consumer complaints received about the same source.
- Health-care provider reports group exposure with multiple illnesses.
- Investigation of sporadic case identifies group exposure with multiple illnesses.
- Investigation of sporadic case cluster identifies common source.

7.4. Outbreak Detection and Investigation by Level

7.4.1.2. *Ensure notification*

With initiation of an outbreak investigation, a local agency should **ensure notification of the following agencies**, and provide subsequent updates as appropriate in accordance with state procedures:

- Affected and surrounding county and city health departments (epidemiology, environmental health, public health laboratory).
- State health department (epidemiology, environmental health, laboratory).

7.4.1.3. *Provide coordination*

During the investigation, a local agency needs to **coordinate** the epidemiology, environmental health, regulatory, and laboratory components of the investigation.

When findings indicate that multiple jurisdictions might be involved, additional communication and coordination are needed:

- Referrals and requests for assistance in **incidents of local significance**.

Incident: Local agency identifies a likely foodborne disease outbreak in another jurisdiction.

Action: **Ensure notification** of the affected jurisdiction immediately.

Incident: Common-source outbreak identified in one jurisdiction has cases among persons who reside in two or more local jurisdictions.

Action: **Request assistance** to contact and interview cases in other jurisdictions.

These investigations are handled in accordance with **routine policies and procedures** under **local agency leadership** unless otherwise specified by state procedures. The level of state involvement depends on local or state protocols.

- Referrals and requests for assistance in incidents representing a **transition from local to state significance**.

Incident: Common-source outbreak identified in one jurisdiction, investigation implicates processed food or fresh produce item, contaminated before the point of service, in absence of other contributing factors.

Action: **Ensure notification** of appropriate food-regulatory agencies of probable contaminated food vehicle; **trace back** source to the point where contamination most likely occurred; or determine whether responsibility for the investigation needs to be transferred to a state or federal agency.

Action: **Ensure notification** of other jurisdictions that might be investigating similar related events of results of outbreak investigations regarding agent and vehicle.

Action: **Subtype agent; upload patterns** to PulseNet.

Incident: Common-source outbreak identified in one jurisdiction, linked to outbreaks identified in other local jurisdictions, by common agent, food, or water.

Action: **Ensure notification** of appropriate food-regulatory agencies and other jurisdictions as described above.

Action: **Subtype agents** associated with outbreaks; **upload patterns** to PulseNet.

Action: **Establish coordinating office** (or individual) for the investigations to **collect, organize, and disseminate** all the data.

Incident: Cluster(s) of sporadic infections with common subtype characteristics identified in one local jurisdiction.

Action: **Upload patterns** to PulseNet.

Action: **Interview cases** and, once hypotheses are generated, controls using standardized questionnaire to obtain detailed food and environmental exposure histories, including product brand and retail source.

7.4. Outbreak Detection and Investigation by Level

Action: Ensure notification of appropriate food-regulatory agencies of investigation and potential need to initiate investigations to elaborate and test hypotheses.

Action: Ensure notification of other jurisdictions likely to have additional cases, and **distribute** summary data about cases, descriptive epidemiology, investigation protocols, and standardized questionnaires to jurisdictions.

Action: Establish coordinating office (or individual) for investigation to **collect, organize, and disseminate** collective data.

These investigations **require information sharing and coordination** among multiple local agencies under **local agency leadership** unless otherwise specified by state procedures. The state receives information and provides consultation. Emergency management systems are not activated.

7.4.2. Outbreak Detection and Investigation at the State Level

7.4.2.1. Detect outbreak

Outbreaks typically are detected at the state level by one of the following means:

- Common-source outbreaks in multiple local jurisdictions, or multiple states linked by common agent, food, or water.
- Cluster(s) of sporadic infections with common subtype characteristics identified across multiple local jurisdictions.
- Statewide increase identified of sporadic infections with common subtype characteristics.
- Information or alert from another public health agency, food-regulatory agency, or another country.

7.4.2.2. Ensure notification

With initiation of an outbreak investigation, the state public health agency should **ensure**

notification of the following agencies and provide subsequent updates as appropriate:

- All local health departments likely to be affected by the outbreak or involved in the investigation.
- The state food-regulatory agency.
- Other state health departments (e.g., regional counterparts, or potentially nationally through Epi-X, PulseNet, or similar networks).
- CDC (Outbreak Response and Surveillance Team).
- Federal regulatory agency offices (e.g., USDA/FSIS, FDA, Environmental Protection Agency [EPA]), depending on the nature and status of the investigation.

Agency media personnel should also be engaged as early as possible, to assist with messaging and to ensure consistency of message among agencies.

7.4.2.3. Provide coordination

During the course of the investigation, a state agency needs to **coordinate** among the epidemiology, environmental health, and laboratory components of the investigation at the state level and **ensure that state** epidemiology, environmental health, and laboratory **programs are communicating and coordinating** activities with counterparts at both the local and federal levels.

- Referrals and requests for assistance in **incidents of state significance**.

Incident: Case clusters in multiple local jurisdictions or statewide increase of sporadic infections with common subtype characteristics identified.

Action: Upload patterns to PulseNet.

Action: Ensure notification of all local jurisdictions; **distribute** summary data about cases, descriptive epidemiology, investigation protocols, and standardized questionnaires.

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Action: Request that local agencies **interview cases and controls** as soon as possible using standardized questionnaire to obtain detailed food-exposure histories, including product brand and retail source.

Assess the availability and willingness of local agency staff to conduct timely interviews. **Provide support** needed to ensure **timely conduct of interviews**. As investigations heat up, priorities will need to be adjusted. Evening and weekend work commonly is required. Interviews should not be delegated to agencies or individuals unable to make the investigation a top priority.

Action: Ensure notification of appropriate food-regulatory agencies of the investigation and the potential need to initiate investigations to elaborate and test hypotheses.

Action: Establish coordinating office (or individual) for investigations to **collect, organize, and disseminate** collective data.

Incident: Common-source outbreaks in multiple jurisdictions or multiple states linked by common agent, food, or water. When a particular exposure is epidemiologically implicated or strongly suspected:

Action: Ensure notification of all local jurisdictions, all states, and federal agencies of results of outbreak investigations about agent and vehicle.

Action: Ensure notification of appropriate food-regulatory agencies of the probable contaminated food vehicle in commercial distribution; **trace back** source to the point where contamination most likely occurred; or determine whether responsibility for action needs to be transferred to a federal agency.

Action: Subtype agents associated with outbreaks; **upload patterns** to PulseNet.

Action: Establish the coordinating office (or individual) for investigations to **collect,**

organize, and disseminate collective data. In cooperative investigations, make raw data readily available in a common format to interested participants from all participating agencies.

The resources of one or more local jurisdictions cannot adequately respond to these events following routine procedures. These investigations **require active participation** from multiple local agencies, typically under **state agency leadership**. The state provides response coordination, consultation, and information sharing. On the basis of established procedures, emergency management systems may be activated at the local level or possibly state level. Federal agencies are notified and involved depending on product type and distribution.

Multistate outbreaks, and outbreaks associated with regionally or nationally distributed food products involve a **transition from state to national significance**. These outbreaks may require regional or national resources. Although they **require active participation** from multiple local agencies and state **response coordination, consultation, and information sharing**, they also may require **federal agency leadership**, depending on the capabilities and willingness of the states involved. In a small number of events, emergency management systems may be activated at local and state levels and possibly at federal level.

7.4.3. Outbreak Detection and Investigation at the Federal Level

7.4.3.1. Detect outbreak

Outbreaks are detected at the federal level by one of the following means:

- Common-source outbreaks in multiple states linked by common agent, food, or water.
- Cluster(s) of sporadic infections with common subtype characteristics identified in multiple states.

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- Regional or national increase of sporadic infections with common subtype characteristics identified.

7.4.3.2. Ensure notification

When an outbreak investigation begins, the CDC OutbreakNet Team should **ensure notification of** and provide subsequent updates as appropriate to

- State and local health departments (e.g., Epi-X, the Foodborne Outbreak Listserve, PulseNet).
- Federal regulatory agency offices (USDA/FSIS, FDA, EPA).

7.4.3.3. Provide coordination

During the investigation, federal agencies need to **coordinate** the epidemiology, environmental health, and laboratory components of the investigation at the federal level and **ensure that federal** epidemiology, environmental health and laboratory **programs are communicating and coordinating** activities with their counterparts at both the state and local levels.

- Referrals and requests for assistance in **incidents of national significance**.

Incident: Common-source outbreaks in multiple states linked by common agent, food, or water

Action: Ensure notification of all state and local jurisdictions, as appropriate, of results of outbreak investigations regarding agent and vehicle.

Action: Ensure notification of appropriate food-regulatory agencies of likely contaminated food vehicle in commercial distribution; **trace back** source to the point where contamination most likely occurred.

Action: Subtype agents associated with outbreaks; **upload patterns** to PulseNet.

Action: Establish coordinating office (or individual) for investigations to **collect,**

organize, and disseminate collective data.

Incident: Case clusters in multiple states or regional or national increase of sporadic infections with common subtype characteristics identified.

Action: Ensure notification of all states and local jurisdictions, as appropriate; **distribute** summary data about cases, descriptive epidemiology, investigation protocols, and standardized questionnaires.

Action: Request that local or state agencies **interview cases and controls** as soon as possible using standardized questionnaire to obtain detailed food-exposure histories, including product brand and retail source. **Assess** the availability and willingness of local or state agency staff to conduct interviews in a timely manner. **Provide support** needed to ensure that **timely conduct of interviews**.

Action: Ensure notification of appropriate food-regulatory agencies of the investigation and the potential need to initiate establishment investigations to elaborate and test hypotheses.

Action: Establish coordinating office (or individual) for investigations to **collect, organize, and disseminate** collective data.

These outbreaks require activation of local, state, regional, and national resources to contain disease and protect human health. They **require active participation** from multiple local agencies, state **response coordination, consultation and information sharing,** and **federal agency leadership**. Emergency management systems may be activated at local, state, and federal levels.

7.5. Multijurisdictional Outbreak Investigations After-Action Reports and Reporting to eFORS

The organizations involved should hold a conference call 1–3 months after the initial investigation ends to review lessons learned and to update participants on findings, conclusions, and actions taken. Consider including consumer groups in this conference call or hosting a conference call specifically for consumer groups, to help them understand what happened and what's being done to prevent recurrence. Also consider including industry representatives to help disseminate lessons learned from the investigation.

The lead agency(ies) coordinating the investigation should prepare an after-action report after the conference call. The report should summarize the effectiveness of communication and coordination among jurisdictions and identify specific gaps or

problems that arose during the investigation. All participating agencies should have the opportunity to review and comment on the report before it is more widely distributed. The lead agency(ies) should review after-action reports periodically to determine whether common problems in investigation or response are occurring over time. This can help with an agency's quality improvement efforts.

All multijurisdictional investigations should be reported by individual states to eFORS. The multijurisdictional nature of the investigation should be indicated by completion of appropriate data fields in the eFORS report form. Individual state reports will be consolidated by the CDC as part of a multistate outbreak report.