

National Outbreak Reporting System (NORS)

Guidance Document for NORS Users reporting foodborne, person-to-person, and animal contact

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- **Information regarding Freedom of Information Act (FOIA) of NORS data:** All comments (Investigation Methods, Traceback, Recall, and Eggs) will not be released if FOIA. No remarks (General, Animals and their environment, Location where food was prepared, and Location of exposure) will be released. Due to possible identification of individual cases, County (General Section), State Lab ID (Laboratory Section), and outbreaks with less than 10 illnesses will not be released. In addition, Reporting Agency (General Section) and Contributing Factors (Food Section) will not be released.

CDC Report ID: CDC-assigned identification

State Report ID: State-assigned identification

General Section

Primary Mode of Transmission: If there was more than one mode of transmission, select the mode of transmission that yielded the first cluster of illness that occurred during the outbreak. For outbreaks where an index case (i.e., food handler) contaminates the food resulting in several ill persons, the index case is not considered part of the first cluster of illness, and the primary mode of transmission for the outbreak would be considered foodborne.

- **Food** – If initial transmission of illness was associated with ingestion of a common, potentially contaminated food/beverage item. Complete the General, Laboratory, and related Food tabs. A foodborne disease outbreak is defined as an incident in which two or more persons experience a similar illness resulting from the ingestion of a common food (excluding botulism, marine toxins, and chemical-associated outbreaks).
- **Water** – If initial transmission of illness was associated with exposure via ingestion, inhalation, contact, or another route to treated or untreated recreational water, drinking water (including bottled water), water not intended for drinking or water of unknown intent. Complete the General, Water-General, and related Water tabs. A waterborne disease outbreak may be defined as two or more cases that are epidemiologically linked to a common water exposure. Confirmed or suspected etiologic agents may include bacteria, parasites, viruses, chemicals or fungi.

It may be difficult to determine whether some outbreaks should be reported through the foodborne or the waterborne sections. Use the following table to help you decide which type of report to enter

Source of Outbreak (Known or Suspected)	Reporting Guidelines for NORS
FOOD	<ul style="list-style-type: none"> ○ If contaminated food goes in your mouth and makes you sick – Foodborne ○ If food is produced or prepared using contaminated water and then the contaminated food is consumed – Foodborne
WATER	<ul style="list-style-type: none"> ○ If contaminated water goes in your mouth, you breathe it, or you contact it in another way and it makes you sick – Waterborne
ICE	<ul style="list-style-type: none"> ○ If ice is made with contaminated water – Waterborne ○ If ice is made with contaminated water and then added to a beverage (e.g. ice was made with contaminated water and only people who consume drinks containing ice became ill) – Waterborne ○ If ice is made with contaminated water and is used to cool a food product – Foodborne ○ If ice is already made and then becomes contaminated through handling – Foodborne ○ If it is unknown how the ice became contaminated – Foodborne
BEVERAGES PREPARED WITH WATER	<ul style="list-style-type: none"> ○ If the beverage is made with contaminated water – Waterborne ○ If the beverage is already made and then becomes contaminated through handling – Foodborne ○ If the flavoring (e.g., frozen orange juice concentrate) is contaminated – Foodborne ○ If it is unknown how the beverage became contaminated – Foodborne

DRINK MIX/SODA MACHINES	<ul style="list-style-type: none"> ○ If the water entering the machine is contaminated or if there is a problem with the internal plumbing of the machine resulting in contamination (e.g., cross-connections, backflow of carbonated water resulting in copper leaching) – Waterborne ○ If the drink is contaminated through handling after it is dispensed or contamination of the spout on the machine – Foodborne ○ If the flavoring is contaminated before it is put into the machine – Foodborne ○ If it is unknown how the beverage became contaminated – Foodborne
BOTTLED WATER	<ul style="list-style-type: none"> ○ If bottled water is contaminated anywhere in the chain from source water through production, storage, transportation, distribution, and point of use – Waterborne
FLAVORED DRINKS (note: flavoring does not include carbonation)	<ul style="list-style-type: none"> ○ If flavoring is added to bottled water and then it becomes contaminated or if the flavoring is contaminated – Foodborne ○ If the water is contaminated before the flavoring is added – Waterborne ○ If it is unknown how the flavored bottled water became contaminated – Foodborne

- **Animal contact** – If initial transmission of illness was associated with exposure (physical contact) to farm animals, reptiles, or other animals potentially infected with pathogens causing gastrointestinal illness in humans. Complete the General, Laboratory, and Animal Contact tabs.
- **Person to person** – If initial transmission of illness was associated with direct contact with an infected person. The index case should not be considered part of the initial cluster of illness. Complete the General, Laboratory, and Person-to-Person tabs.
- **Environmental contamination other than food/water** – If initial transmission of illness was associated with an environmental contaminant. Environmental contamination is similar to person-to-person transmission (e.g. if someone vomits in a public restroom and the following day people become sick after visiting the same restroom, although, the initial person is long gone). Complete the General and Laboratory tabs.
- **Indeterminate/Other/Unknown** – If the source of initial transmission of illness was not identified, other, or unknown. Complete the General and Laboratory tabs.

Investigation Methods (Please select all that apply):

- **Interviews only of ill persons** – Select if only ill persons were interviewed
- **Case-control study** – This is an observational study to evaluate the relationship between an exposure (e.g. eating contaminated food; swimming in contaminated water; having direct contact with a sick person) and a particular outcome (e.g. illness). There are two categories of study participants, people who have the outcome of interest (cases) and people who do not have the outcome of interest (controls). Select this method if both ill persons and non-ill persons who may have had common exposures were interviewed, and this investigation method was completed.
- **Cohort study** – This is an epidemiological study used to assess outcomes (e.g. the development of gastrointestinal illness) in a group/cohort of people. Study participants are observed over time or counted to determine how many people experience the outcome of interest, and when the outcome occurred. Members in a cohort are defined according to their exposure profile (e.g. an exposed group and an unexposed group). In outbreak investigations,

a cohort is frequently defined by membership in an organization (e.g., a boy scout troop attending a weeklong camp). Select this method if this investigation method was completed.

- **Food preparation review** – Select if a review of the preparation practices associated with the suspect food were conducted
- **Water system assessment: Drinking water** – Select if the environmental health investigation included an assessment of a drinking water system.
- **Water system assessment: Nonpotable water** – Select if the environmental health investigation included an assessment of a nonpotable water system was investigated (e.g. cooling tower, irrigation system)
- **Treated or untreated recreational water venue assessment** – Select if the environmental health investigation included an assessment of a treated or untreated recreational water source was investigated (e.g. swimming pool, lake, etc)
- **Investigation at factory/production/treatment plant** – Select if a factory, production, or treatment plant was investigated (e.g. poultry processing plant, water treatment facility, etc).
- **Investigation at original source (e.g., farm, water source, etc.)** – Select if the original source of implicated food or water vehicle was investigated (e.g. the poultry farm, lake, well, etc).
- **Food product or bottled water traceback** – Select if a traceback of the implicated food, beverage or bottled water was conducted.
- **Environment/food/water sample testing** – Select if samples were taken from the environment, food, or water for testing.
- **Other** – Select if investigated method is not listed above, and provide additional investigation methods in the comment section below

Comments: Please enter any additional information relevant to the investigation methods

Dates (mm/dd/yyyy): The following dates refer only to primary cases that resulted from the mode of transmission selected above.

Date first case became ill (required field) – Indicate date first case became ill

Date last case became ill – Indicate date last case became ill

Date first known exposure – Indicate date when first known exposure took place among cases

Date last known exposure – Indicate date last known exposure took place among cases

Date of report to CDC (other than this form) – Enter date of initial contact with CDC, if CDC was contacted prior completion of outbreak report (via telephone, e-mail, fax, etc)

Date of notification to State/Territory or Local/Tribal Health Authorities – Enter date that State/Territory or Local/Tribal Health Authorities first learned about the outbreak

Geographic location: The following section refers only to primary cases that resulted from the mode of transmission selected above

- **Reporting state (required field)** – Indicate state reporting outbreak
 - **Exposure occurred in multiple states** – Indicate if outbreak resulted from exposure that occurred in multiple states
 - **Multistate outbreak reporting for foodborne outbreaks** – A Multistate outbreak is defined as the occurrence of two or more cases of a similar illness resulting from exposure to a common source (e.g., product from manufacturer X), which occurred in **multiple states**. States involved in a multi-state outbreak will create **one** NORS-

foodborne outbreak report for their state, even if they only have 1 case in the multistate outbreak.

- Please note: PFGE matches of cases in more than one state or CDC followed clusters with no common exposure identified would not be classified as a multistate outbreak by CDC, but will be considered separate outbreaks and should be entered by each respective state.
- **Exposure occurred in a single state, but cases resided in multiple states** – Indicate if exposure occurred in a single state, and ill persons were residents of multiple states. For example, residents from New York, Pennsylvania, and Florida (multiple states) attended an event (convention) in New York (single state) and became ill from exposure at the event.
 - **Other states:** Select other states involved in outbreak
- **Reporting county** – Select county that reported outbreak
 - **Exposure occurred in multiple counties in reporting state** – Indicate if outbreak resulted from exposure that occurred in multiple counties
 - **Exposure occurred in a single county, but cases resided in multiple counties** – Indicate if exposure occurred in a single county, and ill persons were residents of multiple counties. For example, residents from Fulton, Clayton and Brevard (multiple counties of Georgia) attended an event in Fulton (single county) and became ill from an exposure at the event
 - **Other counties:** Select other counties involved in outbreak
- **City/Town/Place of exposure** – Enter city, town, or place of exposure. DO NOT include proprietary, private facility names, or addresses. Please leave such information for the General/Remarks; however, we do not encourage this practice. For example, if the Reporting State was Georgia, and Reporting County was Fulton, City/Town/Place of exposure might be one or more cities/towns incorporated into Fulton County, such as Alpharetta or Johns Creek.

General Section: Primary Cases

Number of Primary Cases: Only include data for primary cases in this section. For foodborne, waterborne, person-to-person, and animal contact outbreaks, primary cases and secondary cases in NORS differ by mode of transmission (e.g. in a foodborne outbreak that is followed by person-to-person transmission to household contacts, the household contacts are secondary cases). However, **person-to-person** outbreaks may also occur in which primary and secondary cases share the same mode of transmission (i.e. both result from person-to-person transmission), but have different exposure contexts. For example, a person-to-person outbreak in a nursing home may result in primary cases among residents and staff and additional cases in household contacts. Any household contacts who became ill from person-to-person transmission would be secondary cases.

Any cases that can be clearly defined as secondary cases using the definitions for NORS should be detailed in General Section: Secondary Cases. For outbreaks where multiple modes of transmission or exposures are suspected but cannot be separated from one another, classify all cases as primary cases. However, report suspected secondary transmission modes, exposure settings, and other details in General Section: Secondary Cases.

# Lab-confirmed cases		
# Probable cases		
Estimated total primary ill		
	# cases	Total # of cases for whom info is available
# Died		
# Hospitalized		
# Visited ER		
# Visited Health care provider (excluding ER visits)		

Lab-confirmed primary cases are defined as primary cases in which a specimen was collected, and a laboratory was able to confirm the pathogen(s) or agent(s) responsible for the case illness.

Probable primary cases are defined as primary cases that are epidemiologically linked to a confirmed case or setting, but do not have laboratory confirmation (e.g., a specimen was not collected or submitted to a laboratory).

Estimated total primary ill – Enter all lab-confirmed and probable primary cases using the outbreak-specific definition.

Additional note: # Lab-confirmed cases, # Probable cases, and # Estimated total primary ill fields are not intended to conflict with a state’s outbreak-specific case definition, but are rather intended to determine which outbreaks have included some laboratory confirmation and which have not regardless of the outbreak-specific case definition. The # Lab-confirmed cases and # Probable cases fields are not required. If the # Lab-confirmed cases versus # Probable cases fields are not easily determined using the outbreak-specific case definition, leave those fields blank and enter the outbreak-specific case count as the # Estimated total primary ill. The remainder of the Primary Cases section is based on the # Estimated total primary ill.

Example 1: In an outbreak of *Cryptosporidium*, the state's case definition for this outbreak is as follows: A confirmed case was defined as a person who swam in the community pool with an illness onset date on or after September 1, 2008. The State reported 10 cases that met this case definition. Of these 10 cases, 2 cases were lab-confirmed cryptosporidiosis:

Therefore, for NORS reporting purposes:
#Lab-confirmed primary cases: 2 cases
#Probable primary cases: 8 cases
#Estimated Total Ill: 10 cases

Example 2: In an outbreak of unknown etiology, 12 people reported becoming ill after consuming hamburgers at a banquet. Laboratory testing was inconclusive.

Therefore, for NORS reporting purposes:
#Lab-confirmed primary cases: BLANK
#Probable primary cases: BLANK
#Estimated Total Ill: 12 cases

Cases (Primary cases only):

- # Died** – Number of deaths by primary mode of transmission that resulted from the outbreak. Please do not leave this field blank. If there were no deaths, please enter 0 and indicate the 'Total # of cases for whom information is available'.
- # Hospitalized** – Number of cases by primary mode of transmission that were hospitalized as a result of the outbreak
- # Visited ER** – Number of cases by primary mode of transmission that visited the Emergency Room as a result of the outbreak
- # Visited Health care provider (excluding ER visits)** – Number of cases that visited a healthcare provider as a result of the outbreak. Do not include those who visited the ER.

Total # of cases for whom information is available (Primary cases only):

- # Died** – Total number of primary cases for whom information is available regarding death
- # Hospitalized** – Total number of primary cases for whom information is available regarding hospitalization
- # Visited ER** – Total number of primary cases for whom information is available regarding emergency room visits
- # Visited Health care provider (excluding ER visits)** – Total number of primary cases for whom information is available regarding healthcare provider visits, excluding those who visited ER.

Sex – Enter the counts or the percent distribution of the sexes among the total number of primary cases for whom information is available

Approximate Percentage of Cases in Each Age Group – Enter the counts or the percent distribution for age among the total number of primary cases for whom information is available

Incubation period: The incubation period is the time between the implicated exposure and the clinical onset of illness for primary cases. For example, if cases ingested contaminated beef on April 30th and episodes of diarrhea started May 4th, the incubation period would be 5 days.

Indicate the shortest, median, and longest incubation period, and the total number of primary cases for whom information is available. If sufficient data is not available to calculate a particular range, leave that range blank. In addition, select the appropriate units (minutes, hours, or days).

If the incubation period is unknown, select “Unknown incubation period”.

Duration of illness (among those who have recovered): The duration of illness is the time between the onset of the first symptom to the end of final gastrointestinal symptoms. For example, a case had episodes of diarrhea that started on March 4th and vomiting that started on March 5th. The diarrhea ended on March 6th, but vomiting continued until March 7th, so the duration of illness would be 4 days (March 4th–7th).

Indicate the shortest, longest and median duration of illness, and the total number of primary cases for whom information is available among those who have recovered. If sufficient data is not available to calculate a particular range, leave that range blank. In addition, select the appropriate units (minutes, hours, or days).

If duration of illness is unknown, select “Unknown duration of illness”.

Symptoms, Signs and Outcomes: The following signs, symptoms and outcomes refer only to primary cases that resulted from the primary mode of transmission. Enter the number of cases (numerator) for whom specific symptom information is known. A new symptom may be added if it is not already in the list; however, it is very important to look carefully for the symptom before adding it and to spell any new symptoms correctly. New symptoms can be used by all NORS users almost immediately after they are added to the list. Each symptom has a unique ID number that users cannot see; duplicate symptoms or multiple variations of a word (e.g., headache, headache, or headaches) may make it difficult to use that symptom in future data analyses and might be confusing to other NORS users.

Additional note: If *Escherichia coli* enterohemorrhagic (e.g., *E. coli* O157:H7) is the implicated etiology, please enter available data for hemolytic uremic syndrome (HUS).

- If no cases were asked about HUS, enter zero for ‘# Cases with signs or symptoms’ and ‘Total number of cases for whom information was available’
- If the number of cases who were asked about HUS is unknown, leave ‘Total number of cases for whom information was available’ blank.
- For example, four cases of *E. coli* enterohemorrhagic were all asked if they had HUS. One case reported HUS and three said that did not know if they had HUS:
 - ‘# Cases with signs or symptoms’= 1 and ‘Total number of cases for whom information was available’= 4.

General Section: Secondary Cases

Secondary Cases: A secondary case is one in which the person was not directly exposed to the food, water, or person that was implicated in the initial outbreak but had another exposure that led to illness (most commonly, person-to-person contact with a primary case). For foodborne, waterborne, person-to-person, and animal contact outbreaks, primary cases and secondary cases in NORS differ by mode of transmission (e.g., in a foodborne outbreak that is followed by person-to-person transmission to household contacts, the household contacts are secondary cases). However, **person-to-person** outbreaks may also occur in which primary and secondary cases share the same mode of transmission (i.e., both result from person-to-person transmission) but have different exposure contexts. For example, a person-to-person outbreak in a nursing home may result in primary cases among residents and staff and additional cases in household contacts. Any household contacts who became ill from person-to-person transmission would be secondary cases.

Any cases that are ill via a clearly defined secondary mode of transmission or exposure context should be detailed in General Section: Secondary Cases. For outbreaks where multiple modes of transmission or exposures are suspected but cannot be separated from one another, classify all cases as primary cases. However, report suspected secondary transmission modes in General Section: Secondary Cases.

Secondary Mode of Transmission (Please select all that apply): This field refers only to secondary mode of transmission (if more than one mode of transmission, the secondary mode of transmission would yield the second cluster of illness in the outbreak)

- **Food** – If secondary transmission of illness was associated with ingestion of a common, potentially contaminated food/beverage item
- **Water** – If initial transmission of illness was associated with exposure via ingestion, inhalation, contact, or another route to treated or untreated recreational water, drinking water (including bottled water), water not intended for drinking or water of unknown intent. A waterborne disease outbreak may be defined as two or more cases that are epidemiologically linked to a common water exposure. Confirmed or suspected etiologic agents may include bacteria, parasites, viruses, chemicals or fungi.

It may be difficult to determine whether some outbreaks should be reported through the foodborne or the waterborne sections. Use the following table to help you decide which type of report to enter.

Source of Outbreak (Known or Suspected)	Reporting Guidelines for NORS
FOOD	<ul style="list-style-type: none"> ○ If contaminated food goes in your mouth and makes you sick – Foodborne ○ If food is produced or prepared using contaminated water and then the contaminated food is consumed – Foodborne
WATER	<ul style="list-style-type: none"> ○ If contaminated water goes in your mouth, you breathe it, or you contact it in another way and it makes you sick – Waterborne
ICE	<ul style="list-style-type: none"> ○ If ice is made with contaminated water – Waterborne ○ If ice is made with contaminated water and then added to a beverage (e.g. ice was made with contaminated water and only people who consume drinks containing ice became ill) – Waterborne ○ If ice is made with contaminated water and is used to cool a food product –

	<p>Foodborne</p> <ul style="list-style-type: none"> ○ If ice is already made and then becomes contaminated through handling – Foodborne ○ If it is unknown how the ice became contaminated – Foodborne
BEVERAGES PREPARED WITH WATER	<ul style="list-style-type: none"> ○ If the beverage is made with contaminated water – Waterborne ○ If the beverage is already made and then becomes contaminated through handling – Foodborne ○ If the flavoring (e.g., frozen orange juice concentrate) is contaminated – Foodborne ○ If it is unknown how the beverage became contaminated – Foodborne
DRINK MIX/SODA MACHINES	<ul style="list-style-type: none"> ○ If the water entering the machine is contaminated or if there is a problem with the internal plumbing of the machine resulting in contamination (e.g., cross-connections, backflow of carbonated water resulting in copper leaching) – Waterborne ○ If the drink is contaminated through handling after it is dispensed or contamination of the spout on the machine – Foodborne ○ If the flavoring is contaminated before it is put into the machine – Foodborne ○ If it is unknown how the beverage became contaminated – Foodborne
BOTTLED WATER	<ul style="list-style-type: none"> ○ If bottled water is contaminated anywhere in the chain from source water through production, storage, transportation, distribution, and point of use – Waterborne
FLAVORED DRINKS (note: flavoring does not include carbonation)	<ul style="list-style-type: none"> ○ If flavoring is added to bottled water and then it becomes contaminated or if the flavoring is contaminated – Foodborne ○ If the water is contaminated before the flavoring is added – Waterborne ○ If it is unknown how the flavored bottled water became contaminated – Foodborne

- **Animal contact** – If secondary transmission of illness was associated with exposure (physical contact) to farm animals, reptiles, or other animals potentially infected with pathogens causing gastrointestinal illness in humans
- **Person to person** – If secondary transmission of illness was associated with direct contact with an infected person. This index case should not be considered part of the initial cluster of illness. Secondary cases are those exposed directly to primary cases who became infected through the primary mode of transmission (e.g., outbreak of norovirus associated with a catered meal in which subsequent transmission occurred to family members of attendees that did not attend the catered meal).
- **Environmental contamination other than food/water** – If secondary transmission of illness was associated with an environmental contaminant. Environmental contamination is similar to person-to-person transmission (e.g. if someone vomits in a public restroom and the following day people become sick after visiting the same restroom, although, the initial person is long gone)
- **Indeterminate/Other/Unknown** – If the source of secondary transmission of illness was not identified, other, or unknown

Number of Secondary Cases: Only include secondary cases; Information on the primary cases should be completed in the General Section: Primary Cases).

# Lab-confirmed secondary cases	(A)
# Probable secondary cases	(B)
Total # of secondary cases	
Total # of cases (Primary + Secondary)	

Lab-confirmed secondary cases (A) are defined as cases in which a specimen was collected, and a laboratory was able to confirm the pathogen(s) or agent(s) responsible for the case of illness.

Probable secondary cases (B) are defined as cases that are suspected of being associated with the implicated pathogen(s) or agent(s), but do not have laboratory confirmation (e.g. a specimen was not collected or submitted to a laboratory)

Total # of secondary ill – Enter all lab-confirmed and probable secondary cases

Total # of cases (Primary + Secondary) – Enter the total number of primary and secondary cases. This field will auto-populate to include all primary and secondary cases.

EHS (Environmental Health Specialists) – This field is used to link outbreak investigation reports to environmental investigations. If an (EHS-Net) ID has been assigned, enter it in this field.

Traceback (of food and bottled water only, not public water): A traceback is conducted by local, state, and/or federal authorities to find out where the food or bottled water came from, as far back to its origin or source as possible. Indicate if a traceback was attempted, regardless of its success.

Source Name (if publicly available) – Enter where the contaminated food or bottled water came from. Examples would be the name of a grocery store, a specific farm or ranch, etc.

Source Type – Enter facility where food or bottled water came from. For example, a poultry farm, tomato-processing plant, bottled water factory, etc.

Location of source – Enter **State** (or if not in the United States, the area, province, or region), and **Country** from which the contaminated food or bottled water came.

Comments – Enter agency that conducted the traceback and any additional comment(s) pertaining to the information found in the traceback.

Recall – Indicate if any of foods or bottled water involved in the outbreak were recalled. An example of ‘Type of item recalled’ would be peanut butter. Information about the recall may be included in the ‘Comments’ (e.g. example brand, lot numbers for the recalled item).

Reporting Agency – This section auto-populates for each user to show the agency name, contact name, phone number, e-mail address, contact title and fax number associated with the user’s account

Remarks – Briefly describe important aspects of the outbreak not covered above. Please indicate if any adverse outcomes occurred in special populations (e.g., pregnant women, immunocompromised persons)

Attachments – Please attach any pertinent documents, such as agency reports on the outbreak, MMWR articles, and/or journal publications. The information in these documents can be particularly helpful to outbreak coordinators who were not involved in the outbreak. Additional documents may be attached as they become available.

Laboratory Section: (Only enter laboratory information for the primary mode of transmission)

Etiology known? – Select “Yes” if the etiology has been confirmed. Otherwise, select “No.”

If the etiology is unknown, were patient specimens collected? – For outbreaks of unknown/unconfirmed etiology, indicate whether patient specimens were collected.

If yes, how many specimens were collected? (provide numeric value)

For outbreaks of unknown/unconfirmed etiology where patient specimens were collected, indicate how many specimens were collected.

What were they tested for? (check all that apply)

For outbreaks of unknown/unconfirmed etiology where patient specimens were collected, indicate whether the specimens were tested for bacteria, chemicals/toxins, viruses, and/or parasites.

Etiology – Name the bacteria, virus, parasite, or toxin. If available, include the serotype and other characteristics such as phage type, virulence factors, and metabolic profile. Confirmation criteria available at http://www.cdc.gov/foodborneoutbreaks/guide_fd.htm or MMWR2000/Vol. 49/SS-1/App. B:

Genus – For each suspected and confirmed etiology, list the genus name; chemicals/toxins are listed in this category. Avoid the selection of “Other” or “Other etiology” in Genus field. Instead change to “Other bacterial”, “Other viral”, “Other parasitic”, or “Other chemical” and then specify the etiology in the Other Characteristics field.

Species – For each suspected and confirmed etiology, list the species name.

Serotype – For each suspected and confirmed etiology, list the serotype, if known. Provide serotype for all *Escherichia coli*, Enterohemorrhagic (STEC) and Salmonella enterica outbreaks.

Confirmed – Check this box only if the etiology listed is the confirmed etiology for the outbreak.

Other characteristics – List any other pertinent characteristics of the outbreak etiology. For example, serotype information, which may not be captured elsewhere or PFGE pattern breakdown amongst cases.

Detected in – Indicate whether the etiology listed was detected in: 1) patient specimen, 2) food specimen, 3) environmental specimen, and/or 4) food worker specimen. Multiple selections are permitted. Select ‘detected in’ for both suspected and confirmed etiology outbreaks.

Lab-confirmed cases – Indicate how many primary cases were due to the listed etiologies that were also confirmed by laboratory testing.

Additional Note: For most etiologic agents, CDC considers an outbreak to have a confirmed etiology if there are two or more lab-confirmed cases. However, in botulism, marine toxins, and other chemical outbreaks, the definition of a confirmed etiology is not as strict. Since botulism, marine toxins, and other chemical outbreaks have such distinct clinical symptoms, a physician's diagnosis is often sufficient and laboratory confirmation is not necessary. Therefore, for such outbreaks, CDC would consider it a confirmed etiology outbreak if there is at least 1 probable case (based on clinical symptoms). For such outbreaks, indicate ‘Yes, Confirmed outbreak etiology’; however, those cases should be included in the Etiology: #Lab-confirmed or Primary Cases: # Lab-confirmed cases, unless a laboratory confirmed the etiologic agent. Please visit

http://www.cdc.gov/foodborneoutbreaks/guide_fd.htm for additional confirmation criteria for botulism, marine toxins and other chemical outbreaks.

Waterborne disease outbreak reports have a separate tab for reporting etiology – additional guidance on confirmed vs. unconfirmed etiologies is included under the NORS-Water Clinical Specimens tab.

Isolates – For bacterial pathogens, provide a representative for each distinct pattern; provide lab ID for all specimens submitted for viral sequencing:

State Lab ID – State assigned laboratory identification for your state

PulseNet outbreak code – Indicate the PulseNet outbreak cluster code. This field is very important for distinguishing outbreak-associated cases from other sporadic cases and for outbreaks involving more than one state

CDC PulseNet pattern designation for enzyme 1 – Indicate the PulseNet pattern for the first enzyme

CDC PulseNet pattern designation for enzyme 2 – Indicate the PulseNet pattern for the second enzyme

Other molecular designation – Indicate any other molecular information related to this outbreak

For information related to PulseNet, please visit the following webpage:

<http://www.cdc.gov/pulsenet/index.htm>

Person to Person: (Only complete this section if ‘Person-to-person’ was identified as the primary mode of transmission)

Major setting of exposure (choose one): Indicate the setting of exposure for the person-to-person outbreak. If there was more than one setting of exposure, indicate the major setting of exposure that yielded the first cluster of illness in the outbreak.

Camp – Indicate if exposure occurred in a day camp or overnight camp designed to provide simple group accommodations and organized recreation or instruction for school-age children, such as a Boy or Girl Scout camp, Bible camp, tennis camp, summer camp, etc.

Child daycare – Indicate if exposure occurred in a facility designed to care for children during the day when not in school. This also includes daycare based in a residential home.

Community-wide – Indicate if exposure was community-wide, such as people throughout the community were exposed and/or fallen ill, and if the first cluster of illness was not clearly based in one particular setting within the community. For community-wide exposures, consider all exposed and ill persons as residents.

Hospital – Indicate if exposure occurred in a hospital.

Hotel – Indicate if exposure occurred at an establishment that provides lodging and offers services, such as meeting rooms for conferences/conventions, common areas for guests, etc. Motels, rented cabins, hostels, etc should be considered a hotel when indicating the setting of exposure. Use this setting of exposure for person-to-person transmission outbreaks occurring at conferences and conventions.

Nursing home – Indicate if exposure occurred in a facility designed to provide long-term medical care permanently for the elderly or the disabled. Other long-term care facilities (e.g., assisted living facilities) should be considered a nursing home when indicating the setting of exposure.

Prison or detention facility – Indicate if exposure occurred in a prison, jail, juvenile detention center, or similar detention facility.

Private setting (residential home) – Indicate if exposure occurred in a private residence.

Religious facility – Indicate if exposure occurred in a religious facility such as a church, temple, or other facility designed to house religious meetings.

Restaurant – Indicate if exposure occurred in any establishment designed to provide meals for paying customers.

School – Indicate if exposure occurred in a school setting, such as a college, kindergarten, grade school, or summer school.

Ship – Indicate if exposure occurred on any commercial ship where passengers stay at least one night, such as a cruise ship.

Workplace – Indicate if exposure occurred in a workplace other than setting of exposures listed above, such as an office building. Consider all persons exposed and/or ill as residents/guests.

Other – Indicate if the exposure occurred in a setting not listed above; if so, please provide a short description of the major setting of exposure in the Remarks section of the General Section.

Attack rates for major settings of exposure: For the major setting of exposure, estimate the total number of persons likely exposed in that setting and the total number of persons ill for each of the below groups. Such groups include, the total number of persons on a ship, the number of residents in a nursing home, or if the outbreak occurred in a single ward or section of the major setting of exposure, the total number of residents in that section.

Residents, guests, passengers, patients, etc. – Persons who do not work in the major setting, such as children attending daycare, residents of a nursing home, guests of a hotel, prison inmates, students at a school, etc.

Staff, crew, etc. – Persons who work in the major setting, such as camp counselors, prison guards, daycare employees, hotel staff, etc.

Other settings of exposure (choose all that apply): If more than one setting of exposure, indicate all settings where exposure occurred. Refer to “Major setting of exposure” for setting descriptions.

Animals and their environment: (Only complete this section if ‘Animal Contact’ was identified as the primary mode of transmission)

Setting of exposure – Indicate the place or setting where cases were exposed. Choose from the settings provided, which includes private home, petting zoo, fair, etc.

Type of animal – Indicate type of animal exposure the outbreak was related. Choose from the list of animals provided, which includes both juvenile and adult animals, such as lamb and sheep, baby chick and chicken.

Remarks – Briefly describe important aspects of the animal exposure not covered above.

Food-specific data (Only complete this section if 'Food' was identified as the primary mode of transmission)

Food vehicle undetermined – Indicate if a food vehicle was not identified for the outbreak

Total # of cases exposed to implicated food – Enter the number of primary cases exposed to implicated food

Food

Name of food – Excluding any method of preparation, indicate a single implicated food in Column 1. If greater than 1 implicated food, enter the other implicated foods in Columns 2 and 3. There are several ways to enter foods and ingredients associated with an outbreak and the contaminated ingredient. Examples below.

Ingredient(s) – For the implicated food suspected or investigated, indicate ingredient(s) in Column 1 for the implicated food reported in Column 1. Please note that this is not a required field. Only enter the main ingredients that were suspected or identified as the contaminated source of the outbreak. If the implicated food contained many ingredients and it was unclear which ingredient might have been the source of contamination, then enter all main ingredients suspected. However, if contaminated ingredient(s) were identified, enter only those contaminated ingredients and indicate so in the Contaminated ingredient field.

Contaminated ingredients – Among the ingredients previously listed in the Ingredient field (as it corresponds to the Name of the Food), indicate the contaminated ingredient(s) in the appropriate column. Multiple contaminated ingredients can be entered for the corresponding implicated food and ingredient.

- 1) Example 1: Implicated food was coleslaw, and contaminated source ingredient was cabbage.
 - a. In Column 1, enter 'coleslaw' as Name of Food, and 'cabbage' as Ingredient and Contaminated Ingredient. OR
 - b. In Column 1, enter 'cabbage' as Name of Food, and leave Ingredient and Contaminated Ingredient blank.
- 2) Example 2: Implicated food was beef lasagna, and ground beef was identified as the contaminated source.
 - a. In Column 1, report 'ground beef' as Name of Food and leave Ingredients and Contaminated Ingredient fields 'blank.' OR
 - b. In Column 1, report 'lasagna, beef' as Name of Food, and 'ground beef' as Ingredient and Contaminated Ingredient.
- 3) Example 3: Cases consumed vegetarian pizza and French fries, but the contaminated source ingredient was roma tomato (via pizza).
 - a. In Column 1, report 'tomatoes, roma' as Name of Food and leave Ingredient and Contaminated Ingredient fields blank. OR

- b. In Column 1, enter 'pizza, vegetable' as Name of Food and 'tomatoes, roma' in the Ingredient and Contaminated Ingredient fields. Given that French fries were not identified as the source of contamination, French fries can be omitted from the report.
- 4) Example 4: Implicated foods were potato salad and fruit salad, and the source of contamination was not identified.
- a. In Column 1, report 'potato salad' as Name of Food
 - i. Leave Ingredients and Contaminated Ingredient fields 'blank' OR
 - ii. Enter investigated (main) ingredients, such as 'potato'
 - b. In Column 2, report 'fruit salad' as Name of Food
 - i. Leave Ingredients and Contaminated Ingredient fields 'blank' OR
 - ii. Enter investigated (main) ingredients, such as 'melon'

Reason(s) suspected – For the implicated food, indicate the reason suspected. Choose the reason suspected from the list in the appendix; multiple selections are permitted. This variable is required for each implicated food provided. If this field remains blank, the user will not receive a system error; however, this is a NORS-Foodborne data cleaning issue and the reporting site administrator will be responsible for addressing those data issues later.

1 – Statistical evidence from epidemiological investigation

2 – Laboratory evidence (e.g., confirmation of agent in food). Confirmation criteria available at http://www.cdc.gov/foodborneoutbreaks/guide_fd.htm or MMWR2000/Vol. 49/SS-1/App. B

3 – Compelling supportive information

4 – Other data (e.g., same phage type found on farm that supplied eggs)

5 – Specific evidence lacking but prior experience makes it likely source

Method of processing (Prior to point-of-service) – For the lowest level of food responsible for the outbreak (either contaminated ingredient or single ingredient implicated food), indicate the method of processing. The method of processing intends to capture any modifications to the contaminated source food before it arrives at the final point of use location. Choose the method of processing from the list in the appendix; multiple selections are permitted. If the lowest level of contamination is unknown, please leave this field blank.

Example1: Implicated food was chef salad, and contaminated ingredient was Swiss cheese

- a. In Column 1, report 'chef salad' as Name of Food, enter 'Swiss cheese, pasteurized' in Ingredient and Contaminated Ingredient fields, and enter '1 – pasteurized' as method of processing. OR
- b. In Column 2, report 'Swiss cheese, pasteurized' as Name of Food, leave Ingredient and Contaminated Ingredient fields blank, and enter '1 – pasteurized' as method of processing

*Note, as the contaminated source ingredient was known, Swiss cheese should be the only ingredient and contaminated ingredient reported or the only implicated food with no ingredient or contaminated ingredients reported.

Example2: Implicated food was potato salad, and contaminated ingredient was unknown

- a. In Column 1, report 'potato salad' as Name of Food, leave Ingredient and Contaminated Ingredient fields blank, and do not select a method of processing.

Example3: Implicated food was chicken quesadilla, but contaminated ingredients were chicken and tortilla.

- a. In Column 1, report 'quesadilla, chicken' as Name of Food, enter 'chicken' in Ingredient and Contaminated Ingredient fields, and enter appropriate method of processing for the chicken. Then in Column 2, report 'tortilla, unspecified' as Name of Food, leave Ingredient and Contaminated Ingredient fields blank, and enter appropriate method of processing for the tortilla. *Note tortilla is not listed as an ingredient. OR
- b. In Column 1, report 'chicken' as Name of Food, leave Ingredient and Contaminated Ingredient fields blank, and enter appropriate method of processing for the chicken. Then in Column 2, report 'tortilla, unspecified' as Name of Food, leave Ingredient and Contaminated Ingredient fields blank, and enter appropriate method of processing for the tortilla. processing

1 – Pasteurized: A food preservation process whereby fluid milk and others foods are heat-treated for a specified time and temperature to destroy all disease causing microorganisms and to reduce the total number of bacteria. These products should be labeled as having been pasteurized. (e.g., fluid milk and milk products, juice, pasteurized egg-product, in-shell pasteurized eggs, etc)

2 – Unpasteurized: Product that commonly is pasteurized for safety that has not gone through the pasteurization process. The product is not labeled as having been pasteurized. (e.g., fluid milk, cheese, juice, etc)

3 – Shredded or diced: Produce that has been manually or mechanically shredded or diced at a processor and is received at the point of use without the need for further preparation except possible washing prior to service. This can also include shredded or diced cheese or meat that arrives at the point of service already shredded or diced.

4 – Pre-packaged: Packaged at the processor level and received at the point of use in a sealed bag or container (e.g., bagged lettuce or other produce).

5 – Irradiation: A controlled exposure of food to gamma rays from a radioactive source or to ionizing radiation to accomplish the equivalent of pasteurization. It may be labeled with a "radura" symbol or otherwise labeled to indicate that it was irradiated.

6 – Pre-washed: The pre-washed food product when received at the point of use is considered a washed product (majority will be labeled as 'pre-washed) and may or may not specify on its label whether subsequent washing prior to use is necessary.

7 – Frozen: Process of freezing food to temperatures zero degrees Fahrenheit or below for the preservation of food and/or to provide protection against foodborne pathogens such as parasites. The product arrives at the final point of use location already frozen. For example, if the product arrived at the restaurant fresh then the restaurant later froze the product, the 'method of processing' would not be 'frozen.'

8 – Canned: The product arrived at the point of use in a can. Please indicate 'home-canned' or 'commercially-canned' in the General Section: Remarks

9 – Acid treatment: The product arrived at the point of use having been made with an acid ingredient that would lower the pH for preservation and/or pathogen control. (e.g., commercial potato salad with vinegar)

10 – Pressure treated: The product arrived at the point of use labeled it had been pressure treated. This process destroys bacterial pathogens of concern. (e.g., oysters, juice, etc)

11 – Other or Unknown: Method of processing was not identified above or method of processing is unknown. Please provide additional information in the General/Remarks

Method of preparation (At point-of-service: Retail: restaurant, grocery store)¹ – For the implicated food, indicate the method of preparation. The method of preparation intends to capture any modifications to the implicated food after it arrives at the final point of use location, which will often be a retail establishment such as a restaurant or grocery store. In other words, how was the implicated food handled before it was served? Choose only one method of preparation from the list in the appendix; multiple selections are NOT permitted. Please note that the provided examples are to be used as guides; allow the possibility that different establishments may practice different methods of preparation for the same food.

1 – Prepared in the home: Food that is prepared in a private home and not in a regulated retail food establishment, such as a restaurant or grocery store that is regulated by a food regulatory authority. For example, game that was slaughtered, skinned, and/or butchered in a private home.

2 – Ready to eat food- No manual preparation, No cook step: Food preparation with no cook step wherein ready-to-eat food is received, stored, held and served. For example, manufacturer pre-sliced cheese, pre-packaged deli meats; whole raw fruits; pre-shucked raw oysters

3 – Ready to eat food – Manual preparation, No cook step: Food preparation with no cook step wherein ready-to-eat food is received, stored, prepared, held and served. For example, cut fresh fruits and vegetables, chicken salad made on-site from canned chicken.

4 – Cook and Serve Foods – Immediate service: Food preparation for same day service that involves a kill-step (cooked) wherein food is received, stored, prepared, cooked, and served. For example, food that is not cooled to order and served immediately after preparation, such as soft-cooked eggs and hamburgers.

5 – Cook and hot hold prior to service: Food preparation for same day service wherein food is received, stored, prepared, cooked, held and served. For example, hot dogs, fried chicken, soups, hot vegetables, and mashed potatoes.

6 – Advance preparation – Cook, cool, serve: Complex food preparation wherein food is received, stored, prepared, cooked, and cooled during an extended period of time (several hours or a day or more) prior to service. For example, sliced roast beef from a whole cooked roast.

7– Advance preparation – Cook, cool, reheat, serve: Complex food preparation wherein food is received, stored, prepared, cooked, and cooled several hours or a day or more in advance of service, then reheated immediately prior to service. For example, lasagna, casseroles, soups, gravies, sauces, and chili.

8 – Advance preparation – Cook, cool, reheat, hot hold, serve: Complex food preparation wherein food is received, stored, prepared, cooked, and cooled several hours or a day or more in advance of service, then reheated and held hot prior to service. For example, chili and refried beans.

9 – Advance preparation- Cook-chill and Reduced Oxygen Packaging (ROP): Complex food preparation wherein food is processed on-site in a retail food establishment so that it goes through a packaging procedure that results in a reduced level of oxygen in a sealed package. For example, sauces, gravies; cheeses packaged under ROP. ROP is an inclusive term and can include other packaging processes such as cook-chill and sous-vide. Cook-chill is a process that uses a plastic bag filled with hot cooked food from which air is expelled and which is

closed with a plastic or metal crimp. Sous-vide is a specialized process of ROP for partially cooked ingredients alone or combined with raw foods that require refrigeration or frozen storage until the package is thoroughly heated immediately before service.

10 – Other or Unknown: - Method of preparation is not identified above or method of preparation is unknown. Please provide additional information in the General/Remarks

¹Descriptions adapted from the FDA document entitled, *Managing Food Safety: A Manual for the Voluntary Use of HACCP Principles for Operators of Food Service and Retail Establishments*, April 2006.

Level of preparation – For the implicated food, indicate level of preparation. Select one level of preparation from the list in the appendix. If the implicated food had multiple levels of preparation, reenter the food name and select the other level of preparation.

1 – Foods eaten raw with minimal or no processing. (e.g., washing, cooling).

2 – Foods eaten raw with some processing. (e.g., no cooking, fresh cut and/or packaged raw).

3 – Foods eaten heat processed. (e.g., cooked: a microbiological kill step was involved in processing).

Contaminated food imported to US? – Indicate if the implicated food was imported into the US. If the contaminated food was imported, indicate the name of the country if known. *No*, if the contaminated food was not imported into the US.

Was product both produced under domestic regulatory oversight and sold? –

Indicate if the food product was produced under domestic regulatory oversight and sold under domestic regulatory oversight. Domestic regulatory oversight includes commercial products that are regulated by the FDA or locally produced food products for distribution regulated by local and state health authorities. Indicate *Yes*, if the food product was produced and sold under domestic regulatory oversight. For example, a loaf of bread produced and sold by a licensed local bakery, commercially canned foods, etc. Indicate *No*, if the food product was not produced under domestic regulatory oversight and/or not sold under domestic regulatory oversight; for example, homemade cheese (produced in personal home – no local/state oversight) sold in grocery stores or food establishments (this practice is illegal). Indicate *Unknown*, if whether the food product was produced under domestic regulatory oversight is unknown or whether the food product was sold under domestic regulatory oversight is unknown.

Location where food was prepared (check all that apply): Indicate the location where the implicated food(s) were prepared. If there was a specific food item confirmed as the contaminated source, indicate only the location where that food item was prepared. Multiple selections are allowed. Briefly describe important aspects in the Prepared/Remarks' below. The examples provided should be used as guides; it is nearly impossible to provide examples that would be applicable for every outbreak scenario. With that in mind, please use your best judgment when indicating the 'location where food was prepared' and feel free to contact your NORS-Foodborne Regional Manager if additional guidance is needed.

Restaurant: 'Fast-food' (drive up service or pay at counter) – Indicate if food was prepared at a fast food restaurant. We understand that this is a broad category, but consider fast-food restaurants any restaurant where patrons are not served by a server at a table and patrons are responsible for their own food tray, such as at McDonald's, Subway, etc.

Restaurant: Sit-down dining – Indicate if food was prepared at a sit down dining restaurant. We understand that this is a broad category, but consider a sit-down dining restaurant any restaurant where restaurant staff directs patrons to their seat and the restaurant staff is responsible for clearing the tables, such as at buffet restaurants, Red Lobster, Chili's, etc. Many traditional sit-down restaurants now offer patrons an opportunity to have their food prepared to-go, identify such 'location where food was prepared' as a sit-down dining restaurant.

Restaurant: Other or unknown type – Indicate if food prepared at a restaurant, but the type of restaurant was not a 'fast-food' or sit-down dining restaurant or if unknown. It would be difficult to classify all restaurants; the examples above should be used as a guide. If you encounter a restaurant that does not fit into either 'fast-food' or 'sit-down' categorizations (a possible hybrid of the two), select this option and provide additional details in the Prepared/Remarks section below. For example, mall food court or stand-alone deli (based on establishment).

Private home – Indicate if food prepared at a private home.

Banquet Facility (food prepared and served on-site) – Indicate if food prepared and served on site. A banquet facility is typically a building/section of a building, equipped with an on-site kitchen/cooking facility, capable of serving individuals at an on-site dining area. For example, if a group of patrons dine in a sit-down restaurant's banquet room, indicate 'location where food was prepared' as 'restaurant: sit-down dining' and 'location where food was eaten' as 'banquet facility.'

Caterer (food prepared off-site from where served) – Indicate if food prepared off-site at a different location from where it was eaten. Event caterers typically prepare food off-site and deliver/set-up prepared food at another location.

Fair, festival, other temp or mobile services – Indicate if food prepared at a fair, festival or other temporary or mobile food service

Grocery store – Indicate if food prepared at grocery store, for example deli department or seafood department of a grocery store.

Workplace, not cafeteria – Indicate if food prepared at a workplace, but **not** at a work cafeteria. For example, a worker uses the workplace kitchenette (stove, toaster, etc) to prepare lunch.

Workplace cafeteria – Indicate if food prepared at a workplace cafeteria. Typically, the workplace cafeteria will be a separate cooking facility where cafeteria staff will prepare and serve food; the cafeteria should contain a dining area.

Nursing home, assisted living facility, home care – Indicate if food prepared at a nursing home, assisted living facility, or home care

Hospital – Indicate if food prepared at a hospital

Child day care center – Indicate if food prepared at a child day care center

School – Indicate if food prepared at a school (kindergarten through college)

Prison, jail – Indicate if food prepared at a jail or prison

Church, temple, religious location – Indicate if food prepared at a church, temple or other religious location

Camp – Indicate if food prepared at a camp. A camp may include any designated place used for overnight stay outdoors, including but not limited to summer camps for youth with formal kitchen, a day camp that serves food, a commercial firm that hosts trips such as rafting or horse back riding, family vacations where a fire pit or small burners are used to prepare food, etc.

Picnic – Indicate if food prepared at a picnic. A picnic is typically a meal prepared outdoors with no overnight stay, such as food prepared during a company picnic/cookout or a couple prepares small sandwiches outdoors.

Other (*describe in Prepared/Remarks*) – If food was prepared at a location that cannot be described from the above choices, please indicate ‘Other’ and explain in the Remarks below.

Unknown – If information on location where food was prepared is not known, please indicate unknown

Remarks – Indicate any other information related to the location where prepared, and if ‘Other’ location where food prepared was indicated, please describe here.

Location of exposure (where food was eaten) (check all that apply): Indicate the location where the implicated food(s) were eaten. Multiple selections are allowed. Briefly describe important aspects in the Eaten/Remarks below. The examples provided should be used as guides; it would be nearly impossible to provide examples that would be applicable for every outbreak scenario. With that in mind, please use your best judgment when indicating the ‘where food was eaten’ and feel free to contact your NORS-foodborne Regional Manager if additional guidance is needed.

Restaurant: ‘Fast-food’ (drive up service or pay at counter) – Indicate if food was eaten at a fast food restaurant. We understand that this is a broad category, but consider fast-food restaurants any restaurant where the customers are not served by a server at a table and the customers are responsible for clearing their own food tray, such as McDonald’s, Subway, etc.

Restaurant: Sit-down dining – Indicate if food was prepared at a sit down dining restaurant. We understand that this is a broad category, but consider a sit-down dining restaurant any restaurant where restaurant staff directs patrons to their seat and the staff is responsible for clearing the tables, such as at buffet restaurants, Red Lobster, Chili’s, etc. Many traditional sit-down restaurants now offer patrons an opportunity to have their food prepared to-go so the patron may eat his/her food outside of the restaurant; in that case, indicate the appropriate location ‘where food was eaten,’ but it should not be ‘restaurant: sit-down dining.’

Restaurant: Other or unknown type – Indicate if food eaten at a restaurant, but the type of restaurant was not a ‘fast-food’ or sit-down dining restaurant or if unknown. It would be difficult to classify all restaurants; the examples above should be used as a guide. If you encounter a restaurant that does not fit into either ‘fast-food’ or ‘sit-down’ categorizations (a possible hybrid of the two), select this option and provide additional details in the Eaten/Remarks section below. For example, mall food court or deli (based on establishment).

Private home – Indicate if food eaten at a private home.

Banquet Facility (food prepared and served on-site) – Indicate if food was eaten at a location where food is prepared and served on site. A banquet facility is typically a building/section of a building, equipped with an on-site kitchen/cooking facility, capable of serving individuals at an on-site dining area. For example, a group of people dines in a restaurant’s banquet room, indicate ‘location where food was eaten’ as ‘banquet facility’ and indicate ‘location where food was prepared’ as ‘restaurant: sit-down dining.’

Caterer (food prepared off-site from where served) – Indicate if food was eaten at caterer’s business establishment. This may not be a common exposure in an outbreak, but indicate ‘where food eaten’ as ‘caterer’ if the food was actually eaten at a caterer’s business establishment, such as at a food sampling event.

Fair, festival, other temp or mobile services – Indicate if food eaten at a fair, festival or other temporary or mobile food service

Grocery store – Indicate if food was eaten at grocery store.

Workplace, not cafeteria – Indicate if food eaten at a workplace, but **not** at a work cafeteria. For example, a worker may eat lunch at his or her desk.

Workplace cafeteria – Indicate if food eaten at a workplace cafeteria. Typically, the workplace cafeteria will be a separate cooking facility where cafeteria staff will prepare and serve food; the cafeteria should contain some sort of dining area.

Nursing home, assisted living facility, home care – Indicate if food eaten at a nursing home, assisted living facility, or home care

Hospital – Indicate if food eaten at a hospital

Child day care center – Indicate if food eaten at a child day care center

School – Indicate if food eaten at a school (kindergarten through college)

Prison, jail – Indicate if food eaten at a jail or prison

Church, temple, religious location – Indicate if food eaten at a church, temple or other religious location

Camp – Indicate if food eaten at a camp. A camp may include any designated place used for overnight stay outdoors, including but not limited to summer camps for youth, a day camp that serves food or a commercial firm that hosts trips such as rafting or horseback riding, outdoor family vacations, etc.

Picnic – Indicate if food eaten at a picnic. A picnic is typically a meal prepared and eaten outdoors with no overnight stay, such as food eaten at a company picnic/cookout.

Other (*describe in Prepared/Remarks*) – If food was eaten at a location that cannot be described from the above choices, please indicate ‘Other’ and explain in the Remarks below.

Unknown – If information on location where food was eaten is not known, please indicate unknown

Remarks – Indicate any other information related to the location where eaten, and if ‘Other’ location where food eaten was indicated, please describe here.

The confirmed or suspected point of contamination (check one): Indicate if confirmed or suspected point of contamination occurred ‘Before preparation’ **or** at ‘Preparation.’ For example, if a multi-state outbreak was linked by PFGE to samples obtained from a processing plant, one might conclude that the contamination occurred ‘before preparation.’ Often, it will be difficult to make this delineation without a traceback, but please indicate based on your investigation whether you would conclude that contamination occurred before preparation or at preparation.

If the confirmed or suspected point of contamination occurred ‘before preparation,’ indicate if it occurred at ‘Pre-Harvest,’ ‘Processing,’ or ‘Unknown.’ Further evidence might permit determining whether the point of contamination occurred at ‘pre-harvest’ (FDA traceback to farm fields) or ‘processing’ (FDA traceback to leaking roof at plant).

Reason suspected (check all that apply) – Indicate the reason why the confirmed or suspected point of contamination was assumed. Such examples include environmental evidence, (e.g., soil sample collected contaminated lettuce field), epidemiologic evidence (e.g., implicated food identified through a case-control study), laboratory evidence (e.g., laboratory confirmation obtained from food specimen or patient specimen), or that prior experience makes this a likely source of contamination.

Was food worker implicated as the source of contamination? – Indicate if food worker was implicated.

If *Yes*, indicate type of evidence that implicated the food worker, laboratory and/or epidemiologic evidence, or that prior experience makes this a likely source of contamination.

School Questions (Complete this section only if school is checked in either sections “Location where food was prepared” or “Location of exposure (where food eaten)”)

1. Did the outbreak involve a single or multiple schools?

Indicate if a single or multiple schools were involved in the outbreak. If multiple schools were involved in the outbreak, enter the number of schools.

2. School characteristics (for all involved students in all involved schools):

- a. Total approximate enrollment** – Indicate the approximate number of students enrolled in the school. Indicate if the number of students is unknown.
- b. Grade level(s)** – Indicate the grade level of the students in the outbreak; if more than one grade level applies, indicate all grade levels that apply.
 - **Preschool** – An educational institution for children too young to attend elementary school
 - **Grade school (grades K-12)** – Formal school for children from kindergarten to grade 12. Indicate all grades affected.
 - **College/university/technical school** – Formal educational institution for students after high school age
 - **Unknown or Undetermined** – Indicate unknown or undetermined, if the grade level of the involved students are unknown or could not be determined
- c. Primary funding of involved schools**
 - **Public** – All tuition is funded through the state or county
 - **Private** – Parents of students cover all tuition.
 - **Unknown** – Funding for school is unknown

3. Describe the preparation of the implicated item: (*check all that apply*) – Indicate how the implicated food item was prepared.

- **Heat and serve (item mostly prepared or cooked off-site, reheated on-site)** – Food has been prepared and cooked offsite but is heated and served on site
- **Served a-la-carte** – The food was not part of a USDA reimbursable meal
- **Serve only (preheated or served cold)** – Food is received hot at the school, held hot and served hot or received cold at the school, held cold and served cold
- **Cooked on site using primary ingredients** – Food is cooked on site
- **Provided by a food service management company** – Food is provided by a food service company
- **Provided by a fast-food vendor** – Food provided by a fast-food vendor
- **Provided by a pre-plate company** – Food that is already prepared and plated and usually just requires heating
- **Part of a club or fundraising event** – Food that is served at a club or fundraiser event
- **Made in the classroom** – Food that is prepared in a classroom
- **Brought by a student/teacher/parent** – Food that is brought into school by a student, teacher or parent
- **Other (*describe in General/Remarks*)** – If implicated item was prepared by a method that cannot be described from the above choices, please indicate ‘Other’ and describe in General Section/Remarks.

- o **Unknown or Undetermined** – Indicate if the preparation of the implicated item is unknown or cannot be determined

4. How many times has the state, county or local health department inspected this school cafeteria or kitchen in the 12 months before the outbreak?

Indicate how many times the school cafeteria or kitchen has been inspected in the last 12 months by state, county, or local health departments. If the school cafeteria or kitchen was not inspected, indicate ‘Not inspected’ or if the inspection status unknown or undetermined. If multiple schools are involved, please answer according to the most affected school.

5. Does the school have a HACCP (Hazard Analysis and Critical Control Point) plan in place for the school feeding program? – Indicate whether the school involved in the outbreak has a HACCP plan in place for the school feeding program. If multiple schools are involved, please answer according to the most affected school.

6. Was implicated food item provided to the school through the National School Lunch/Breakfast Program? – Indicate whether the implicated item was served as part of the National School Lunch/Breakfast Program, and used commodities purchased and distributed by USDA for use in schools

If Yes, was the implicated food item donated/purchased by:

If the school participates in the National School Lunch/Breakfast Program, indicate the source of the implicated food items: ‘USDA through the Commodity Distribution Program,’ ‘The state/school authority,’ ‘Other (provide name in General Section/Remarks),’ or ‘Unknown or Undetermined’. Multiple selections are not permitted.

Ground Beef (Complete this section only if ‘ground beef’ was indicated as the source of contamination)

- 1. What percentage of ill persons (for whom information is available) ate ground beef raw or undercooked?** – Enter the percentage of ill persons who ate raw or undercooked ground beef. Base the percentage reported on whom information is available.
- 2. Was ground beef case-ready?** Indicate whether the ground beef was case ready. Case-ready ground beef is meat that comes from a manufacturer packaged for sale that is not altered or repackaged by the retailer.
- 3. Was the beef ground or reground by the retailer?** Indicate if the beef was ground or reground by the retailer. That is, the retailer altered the beef from the manufacturer by grinding or regrinding.

If Yes, was anything added to the beef during grinding? Indicate if any thing, such as shop trim or any product to alter the fat content, was added to the beef during grinding.

Additional Salmonella Questions (Complete this section for Salmonella outbreaks only)

- 1. Phage type(s) of patient isolates** – Enter the phage types of patient isolates, and if RDNC (Reacts, Does Not Conform), include the number.

Eggs (Complete this section only if ‘egg’ was indicated as the source of contamination)

- 1. Were eggs (Check all that apply) – Indicate if the eggs were** ‘in shell, unpasteurized,’ ‘in shell, pasteurized,’ ‘packaged liquid or dry,’ ‘stored with inadequate refrigeration during or after sale,’ ‘consumed raw,’ ‘consumed undercooked,’ or ‘pooled’
- 2. Was SE found on the farm?** – Indicate if *Salmonella* enteritis was identified at the farm where the eggs originated.

Comment – Provide any additional information related to eggs and this outbreak, such as eggs and patients’ isolates matched by phage type

NORS Guidance for Contributing Factors (CF)

CONTRIBUTING FACTORS

Introduction

Contributing factors (CFs) are defined as the food safety practices and behaviors which most likely contributed to a foodborne illness outbreak. A CF should be identified only if the investigator has strong evidence that it actually occurred in this outbreak; just because a factor has been cited in similar outbreaks in the past does not mean it was involved in this outbreak.

Please select any and all CFs that are causally associated with the outbreak.

After consideration of all epidemiological, laboratory, and environmental assessment information available, if contributing factors for this outbreak could not be determined, then at the top of the contributing factors section, the box “Contributing Factors Unknown” should be checked. If this box is checked, then the remainder of the contributing factors section should be left completely blank.

Classification

CFs are classified into 3 categories (contamination, proliferation/amplification, and survival factors):

Contamination Factors

- Factors that introduce or otherwise permit contamination.
- Contamination factors relate to how the etiologic agent got onto or into the food vehicle.
- There are 15 contamination factors, numbered C1 – C15.
- C-N/A is utilized if contamination factors were not related to the type of etiologic agent involved in the outbreak. C-N/A should rarely, if ever, be cited.
- If no contamination factors were identified, then leave all contamination factors blank. Then, please explain why contamination factors could not be identified in the “Remarks” section at the end of this report.

Proliferation/Amplification Factors

- Factors that allow proliferation or growth of etiologic agents.
- Citation of proliferation/amplification factors is only applicable when bacterial agents are involved.
- Proliferation factors relate to how bacterial agents were able to increase in numbers and/or produce toxic products prior to the vehicle being ingested.
- There are 12 proliferation/amplification factors, numbered P1 – P12.

- P-N/A is utilized if proliferation/amplification factors are not related to the type of etiologic agent involved in the outbreak. For example, proliferation/amplification factors would not be cited in a viral outbreak.
- If no proliferation/amplification factors were identified, then leave all proliferation/amplification factors blank. Then, please explain why proliferation/amplification factors could not be identified in the “Remarks” section at the end of this report.

Survival Factors

- Factors that allow survival or fail to inactivate the contaminant.
- Citation of survival factors is only applicable when microbial agents are involved.
- Survival factors refer to processes or steps that should have eliminated or reduced the microbial agent but did not because of one of these factors.
- There are 5 survival factors, numbered S1 – S5.
- S-N/A is utilized if survival factors were not related to the type of etiologic agent involved in the outbreak. For example, survival factors would not be cited in a scombroid toxin outbreak.
- If no survival factors were identified, then leave all survival factors blank. Then, please explain why survival factors could not be identified in the “Remarks” section at the end of this report.

How to Identify Contributing Factors in an Outbreak

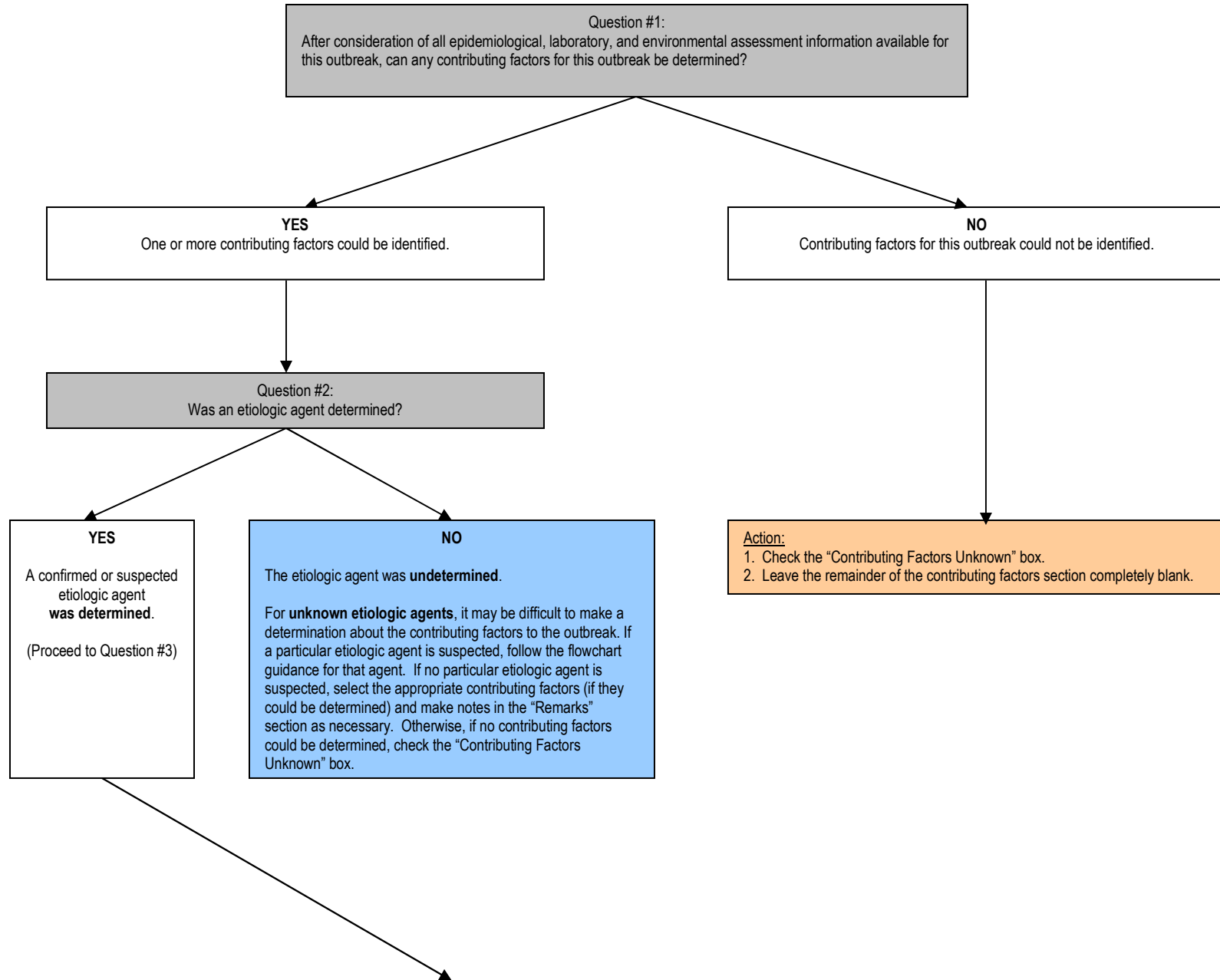
In a food borne outbreak, an environmental assessment is a systematic process designed to gather as much information as possible to describe the environmental circumstances prior to the exposure(s) that caused a foodborne outbreak. From this evaluation process, factors that most likely contributed to the outbreak may be identified. Each environmental assessment will be unique to a specific outbreak. It should include some or all of the following:

- a) A visit to the location where suspected food vehicles are grown, harvested, processed, prepared and/or served;
- b) A review of the physical facilities and the equipment used;
- c) Interviews with those involved in the harvest, processing, handling and/or preparation of the implicated foods;
- d) A review of the menus in food-service establishments such as restaurants, delis, quick service restaurants, or institutional food service facilities including schools, nursing homes, and hospitals;
- e) Development of a food flow for implicated foods that includes notes on preparation policies and practices, points of possible contamination and individuals involved, and/or;
- f) Reenactment of the preparation of foods involved in the outbreak.

Note:

- Identification of contributing factors should be based on an environmental assessment of the outbreak, *not results of routine environmental inspections*. For example, during an outbreak investigation, improper cooling may be observed. This risky practice may or may not be relevant to the outbreak. Contributing factors cited should fit within the context of epidemiological and laboratory findings for the outbreak wherever possible.
- Reporting of contributing factors should not be limited to outbreaks associated with food-service establishments such as restaurants. They can be reported when associated with other outbreak locations as well.

Contributing Factors Flowchart for Foodborne Disease Outbreaks



Question #3:
What type of etiologic agent (confirmed or suspected) was involved in the outbreak?

Bacterial

Viral or parasitic

Non-infectious or chemical etiologic agent

Question #4A:
Were **contamination factors** applicable to the outbreak? (They almost always should be for bacterial pathogens.)

Question #4B:
Were **proliferation / amplification factors** applicable to the outbreak? (They typically should be for bacterial pathogens.)

Question #4C:
Were **survival factors** applicable to the outbreak?

Question #4A:
Were **contamination factors** applicable to the outbreak? (They almost always should be for viral or parasitic pathogens.)

Question #4B – NONE.
Proliferation / amplification factors are not applicable for viral or parasitic pathogens.

Question #4C:
Were **survival factors** applicable to the outbreak?

Question #4A:
Were **contamination factors** applicable to the outbreak? (They almost always should be for non-infectious/chemical agents.)

Question #4B – NONE.
Proliferation / amplification factors are not applicable for non-infectious/chemical agents.

Question #4C – NONE.
Survival factors are not applicable for non-infectious/chemical agents.

YES

NO
Action:
Select "C-N/A"

YES

NO
Action:
Select "P-N/A"

YES

NO
Action:
Select "S-N/A"

YES

NO
Action:
Select "C-N/A"

Action:
Select "P-N/A"

YES

NO
Action:
Select "S-N/A"

YES

NO
Action:
Select "C-N/A"

NO
Action:
Select "P-N/A"

NO
Action:
Select "S-N/A"

Question #5A:
Could **contamination factors** be determined?

Question #5B:
Could **proliferation / amplification factors** be determined?

Question #5C:
Could **survival factors** be determined?

Question #5A:
Could **contamination factors** be determined?

Question #5C:
Could **survival factors** be determined?

Question #5A:
Could **contamination factors** be determined?

YES
Action:
Select all relevant contamination factors: C1 – C15.

YES
Action:
Select all relevant proliferation / amplification factors: P1 – P12.

YES
Action:
Select all relevant survival factors: S1 – S5.

YES
Action:
Select all relevant contamination factors: C1 – C15.

YES
Action:
Select all relevant survival factors: S1 – S5.

YES
Action:
Select all relevant contamination factors: C1 – C15.

NO
Action:
1. Do NOT select any contamination factors.
2. Make a note in the "Remarks" section that contamination factors could not be determined by the investigation.

NO
Action:
1. Do NOT select any proliferation / amplification factors.
2. Make a note in the "Remarks" section that proliferation / amplification factors could not be determined by the investigation.

NO
Action:
1. Do NOT select any survival factors.
2. Make a note in the "Remarks" section that survival factors could not be determined by the investigation.

NO
Action:
1. Do NOT select any contamination factors.
2. Make a note in the "Remarks" section that contamination factors could not be determined by the investigation.

NO
Action:
1. Do NOT select any survival factors.
2. Make a note in the "Remarks" section that survival factors could not be determined by the investigation.

NO
Action:
1. Do NOT select any contamination factors.
2. Make a note in the "Remarks" section that contamination factors could not be determined by the investigation.

For an outbreak with confirmed/suspected bacterial etiology:
 IF...
 Contamination factors are applicable but could not be determined,
AND
 Proliferation/amplification factors are applicable but could not be determined,
AND
 Survival factors are applicable but could not be determined...
 THEN...

Action:
 Check the "Contributing Factors Unknown" box.











For an outbreak with confirmed/suspected viral or parasitic etiology:
 IF...
 Contamination factors are applicable but could not be determined,
AND
 Survival factors are applicable but could not be determined...
 THEN....

Action:
 Check the "Contributing Factors Unknown" box.

For an outbreak with confirmed/suspected non-infectious agent or chemical etiology:
 IF....
 Contamination factors are applicable but could not be determined,
 THEN....

Action:
 Check the "Contributing Factors Unknown" box.

Legend for Flowchart

	Guiding questions for flowchart		Contamination Factors
	Contributing Factors Unknown		Contamination Factors – Not Applicable
	Etiologic Agent Undetermined/Unknown		Proliferation/Amplification Factors
	Double Arrow – Guiding questions #4A, #4B, and #4C must all be answered for each type of etiologic agent.		Proliferation/Amplification Factors – Not Applicable
			Survival Factors
			Survival Factors – Not Applicable

Contributing Factors Unknown

Code	Factor	Description
CF Unknown	Contributing Factors Unknown	<p>Title CF Unknown – Contributing Factors Unknown</p> <p>Definition/Explanation After consideration of all epidemiological, laboratory, and environmental assessment information available, if contributing factors for this outbreak could not be determined, then at the top of the contributing factors section, the box “Contributing Factors Unknown” should be checked. If this box is checked, then the remainder of the contributing factors section should be left completely blank.</p>

Contamination Factors

Factors that introduce or otherwise permit contamination; contamination factors relate to how the etiologic agent got onto or into the food vehicle.

Code	Factor	Description
C1	Toxic substance part of tissue	<p>Title C1 – Toxic substance part of the tissue</p> <p>Definition/Explanation A natural toxin found in a plant or animal, or in some parts of a plant, animal, or fungus; -OR- A chemical agent of biologic origin that occurs naturally in the vehicle or bioaccumulates in the vehicle prior to or soon after harvest.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Mushroom poisoning due to consumption of toxic mushrooms. • Ciguatera fish poisoning due to consumption of tropical marine finfish which have bio accumulated naturally-occurring ciguatera toxins through their diet. • Scombroid fish poisoning due to consumption of fish containing elevated levels of histamine should be cited as C1. However, if there is environmental or traceback evidence of temperature abuse, then please also identify P4 or P5 (as appropriate) in addition to C1. <p>Notable Exceptions None.</p>

Code	Factor	Description
C2	Poisonous substance intentionally / deliberately added	<p><u>Title</u> C2 – Poisonous substance intentionally/deliberately added</p> <p><u>Definition/Explanation</u> A poisonous substance intentionally/deliberately added to a food in quantities sufficient to cause serious illness. Poisons added because of sabotage, mischievous acts, and attempts to cause panic or to blackmail a company fall into this category.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • Cyanide or phenolphthalein deliberately added to food to cause illness. • Methomyl pesticide intentionally added to food to cause illness. <p><u>Notable Exceptions</u> None.</p>
C3	Poisonous substance accidentally / inadvertently added	<p><u>Title</u> C3 – Poisonous substance accidentally/ inadvertently added</p> <p><u>Definition/Explanation</u> A poisonous substance or chemical agent was accidentally/inadvertently added to the vehicle. This addition typically occurs at the time of preparation or packaging of the vehicle.</p> <p>Misreading labels, resulting in either mistaking poisonous substances for foods or incorporating them into food mixtures, would also fall into this category.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • Sanitizer or cleaning compound accidentally added to food. <p><u>Notable Exceptions</u> None.</p>

Code	Factor	Description
C4	Addition of excessive quantities of ingredients that are toxic in large amounts	<p>Title C4 – Addition of excessive quantities of ingredients that are toxic in large amounts</p> <p>Definition/Explanation An approved ingredient in a food can be accidentally added in excessive quantities so as to make the food unacceptable for consumption.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Niacin poisoning in bread. • Too great an amount of nitrites in cured meat. • Too great an amount of ginger powder in gingersnaps. <p>Notable Exceptions None.</p>
Code	Factor	Description
C5	Toxic container	<p>Title C5 – Toxic container</p> <p>Definition/Explanation The container that held or conveyed the implicated food is made of toxic substances. The toxic substance either migrates into the food or leaches into solution by contact with highly acid foods.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Galvanized containers with acid food • A toxic metal (e.g. zinc coated) container used to store highly acid foods <p>Notable Exceptions For this contributing factor, there may be confusion between foodborne outbreaks and waterborne outbreaks. If the outbreak is waterborne, then the contributing factors should be listed in the waterborne section, not in this foodborne section. In general, waterborne disease includes contamination occurring in the source water or in the treatment or distribution of water to the end consumer. For example, in drink mix/soda machines, if the water enters a contaminated machine or if there is a problem with the internal plumbing of the machine resulting in contamination (e.g., cross-connections, backflow of carbonated water resulting in copper leaching) – it's waterborne and should not be entered in the foodborne section. For ice, if ice is made with contaminated water – it's waterborne and should not be entered in the foodborne section. However, if ice is already made and then it becomes contaminated because it was stored in a toxic container – it's a foodborne outbreak and it would be appropriate to list C5 as a contributing factor.</p>

Code	Factor	Description
C6	Contaminated raw product – food was intended to be consumed after a kill step	<p>Title C6 – Contaminated raw product – food was intended to be consumed after a kill step</p> <p>Definition/Explanation The vehicle or a component of the vehicle contained the agent when it arrived at the point of final preparation or service. This contributing factor applies to foods intended to be consumed after undergoing a kill step (such as cooking to the required temperature) but this food processing step was insufficient to lower the levels of the pathogen below an infectious dose.</p> <p><i>Note:</i> Lab confirmation or a formal traceback can support or confirm the identification of this contributing factor (i.e. a traceback identifies a flock, herd, or farm as the source of the pathogen). If a lab results are available or if a traceback was conducted, please complete the lab confirmation and/or the traceback sections (as appropriate) in this outbreak’s NORS report.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • A hamburger was ordered well-done or medium-well, but it was subsequently undercooked. • When it arrived at final preparation, raw chicken was contaminated with <i>Salmonella</i>, which was then <u>unintentionally</u> undercooked. <p>Notable Exceptions None.</p>
Code	Factor	Description
C7	Contaminated raw product – food was intended to be consumed raw or undercooked / under-processed	<p>Title C7 – Contaminated raw product – food was intended to be consumed raw or undercooked/under-processed</p> <p>Definition/Explanation Contaminated products are ingested raw without being first subjected to a cooking step or another form of a kill step sufficient to kill any pathogens present. This contributing factor applies to foods intended to be consumed raw, as well as foods intended to be consumed after mild heating, or another process which does not ensure pathogen destruction.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • A hamburger or steak ordered to be prepared “rare” • Raw milk • Raw oysters or other shellfish • Raw produce • Unpasteurized cider or juices • Certain dishes where raw or rare beef is consumed

		<ul style="list-style-type: none"> • Foods that are intentionally not fully-cooked such as hollandaise sauce containing raw egg yolk or sunny-side-up eggs where the yolk was not denatured. • Ceviche (citrus-marinated seafood appetizer which is intentionally served without prior heating) • Prosciutto (aged, dry-cured, spiced Italian ham which is served uncooked) • Salted cod (dry-salted cod fish which is served uncooked) or cold-smoked salmon <p><u>Notable Exceptions</u> None.</p>
Code	Factor	Description
C8	Foods originating from sources shown to be contaminated or polluted (such as a growing field or harvest area)	<p><u>Title</u> C8 – Foods originating from sources shown to be contaminated or polluted (such as a growing field or harvest area)</p> <p><u>Definition/Explanation</u> Foods that originated from sources shown to be contaminated or polluted (such as a growing field or harvest area).</p> <p><i>Note:</i> Formal traceback may support or confirm the identification of this contributing factor. This factor would typically be cited along with another contamination factor, such as C6 or C7.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • Shellfish from sewage-polluted waters or closed beds • Crops watered by contaminated irrigation water • Produce grown in contaminated soil <p><u>Notable Exceptions</u> None.</p>
Code	Factor	Description
C9	Cross-contamination of ingredients (cross-contamination does not include ill food workers)	<p><u>Title</u> C9 – Cross-contamination of ingredients (cross-contamination does not include ill food workers)</p> <p><u>Definition/Explanation</u> The pathogen was transferred to the vehicle by contact with contaminated worker hands, equipment, or utensils; drippage or spillage. If worker hands were the mode of contamination, the worker was not infected with or a carrier of the pathogen.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • Contaminated raw poultry was prepared on a cutting board, and later, a ready-to-eat food was cross-contaminated because it was prepared on this same cutting board without intervening cleaning.

		<ul style="list-style-type: none"> • A worker’s hands became contaminated by raw foods, and subsequently, a ready-to-eat food was cross-contaminated because the worker’s hands touched this ready-to-eat food without intervening hand-washing. • Cloths, sponges, and other cleaning aids are used to clean equipment that processed contaminated raw foods. Before next use, these cleaning items were not disinfected; instead, these cleaning items are used to wipe surfaces that come in contact with foods that are not subsequently heated. • Contaminated raw foods touch or fluids from them drip onto foods that are not subsequently cooked. <p><u>Notable Exceptions</u> This contributing factor only applies to foods that are cross-contaminated by other ingredients. If food contamination was the direct result of the storage environment, then it should be cited in C14 (storage in contaminated environment).</p>
Code	Factor	Description
C10	<i>Bare-hand contact by a food handler / worker / preparer who is suspected to be infectious</i>	<p><u>Title</u> C10 – <i>Bare-hand</i> contact by a food handler/worker/preparer who is suspected to be infectious</p> <p><u>Definition/Explanation</u> A food worker, who is suspected to be infectious, uses his/her <i>bare</i> hands to touch/prepare foods that are not subsequently cooked.</p> <p>The term “infectious” is an all-inclusive term used to describe all persons who are colonized by, infected with, a carrier of, or ill due to a pathogen.</p> <p>Potential reasons to suspect that a food worker is “infectious”: a) The food worker recently displays or admits a combination of foodborne disease symptoms (such as diarrhea, vomiting, nausea, fever, etc) that may be similar to symptoms identified in those who are ill in the outbreak investigation; b) If a food worker’s household member exhibits similar symptoms directly preceding the outbreak; c) The food worker tested positive for a foodborne pathogen; d) Other epidemiologically- or environmentally-linked reasons.</p> <p><i>Note:</i> C10 should only be cited if there is evidence of bare-hand contact of an implicated food item. If there is no evidence of bare-hand contact or it is unknown whether the food worker was wearing gloves or not, then cite C12 instead.</p> <p>If there is evidence for both bare-hand contact and gloved-hand contact with the implicated food item, both C10 and C11 should be cited.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • This is a typical situation that precedes outbreaks caused by norovirus or staphylococcal enterotoxins. <p><u>Notable Exceptions</u> None.</p>

Code	Factor	Description
C11	Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious	<p>Title C11 – <i>Glove-hand</i> contact by a food handler/worker/preparer who is suspected to be infectious</p> <p>Definition/Explanation A food worker, who is suspected to be infectious, uses his/her <i>gloved</i>-hands to touch/prepare foods that are not subsequently cooked.</p> <p>The term “infectious” is an all-inclusive term used to describe all persons who are colonized by, infected with, a carrier of, or ill due to a pathogen.</p> <p>Potential reasons to suspect that a food worker is “infectious”: a) The food worker recently displays or admits a combination of foodborne disease symptoms (such as diarrhea, vomiting, nausea, fever, etc) that may be similar to symptoms identified in those who are ill in the outbreak investigation; b) If a food worker’s household member exhibits similar symptoms directly preceding the outbreak; c) The food worker tested positive for a foodborne pathogen; d) Other epidemiologically- or environmentally-linked reasons.</p> <p><i>Note:</i> C11 should only be cited if there is evidence of glove-hand contact of an implicated food item. If there is no evidence of glove-hand contact or it is unknown whether the food worker was wearing gloves or not, then cite C12 instead.</p> <p>If there is evidence for both bare-hand contact and gloved-hand contact with the implicated food item, both C10 and C11 should be cited.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • This is a typical situation that precedes outbreaks caused by norovirus or staphylococcal enterotoxins. <p>Notable Exceptions None.</p>
Code	Factor	Description
C12	Other mode of contamination (excluding cross-contamination) by a food handler / worker / preparer who is suspected to be infectious	<p>Title C12 – Other mode of contamination (excluding cross-contamination) by a food handler/worker/preparer who is suspected to be infectious</p> <p>Definition/Explanation A food worker, who is suspected to be infectious, contaminates the food by another mode of contamination other than bare-hand contact or glove-hand contact, or epidemiological/ environmental investigation determines that an infectious food worker contaminates food with his/her hands but the investigation is unable to determine whether or not the food worker was wearing gloves during food preparation. This contaminated food is subsequently not cooked.</p>

		<p>The term “infectious” is an all-inclusive term used to describe all persons who are colonized by, infected with, a carrier of, or ill due to a pathogen.</p> <p>Potential reasons to suspect that a food worker is “infectious”: a) The food worker recently displays or admits a combination of foodborne disease symptoms (such as diarrhea, vomiting, nausea, fever, etc) that may be similar to symptoms identified in those who are ill in the outbreak investigation; b) If a food worker’s household member exhibits similar symptoms directly preceding the outbreak; c) The food worker tested positive for a foodborne pathogen; d) Other epidemiologically- or environmentally-linked reasons.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • Epidemiological or environmental investigation determines that an infectious food worker contaminates food with his/her hands but is unable to determine whether or not actual bare-hand contact or glove-hand contact contaminated the food. • In norovirus outbreaks, an ill food worker’s aerosolized vomitus contaminates ready-to-eat food. <p><u>Notable Exceptions</u></p> <p>None.</p>
Code	Factor	Description
C13	<p>Foods contaminated by non-food handler / worker / preparer who is suspected to be infectious</p>	<p><u>Title</u> C13 – Foods contaminated by non-food handler/worker/preparer who is suspected to be infectious</p> <p><u>Definition/Explanation</u> A person other than a food handler/worker/preparer who is suspected to be infectious, contaminates ready-to-eat foods that are later consumed by other persons, resulting in spread of the illness.</p> <p>A “non-food handler/worker/preparer” is considered to be any person who is not directly involved in the handling or preparation of the food prior to service.</p> <p>The term “infectious” is an all-inclusive term used to describe all persons who are colonized by, infected with, a carrier of, or ill due to a pathogen.</p> <p>Potential reasons to suspect that a non-food worker is “infectious”: a) The non-food worker recently displays or admits a combination of foodborne disease symptoms (such as diarrhea, vomiting, nausea, fever, etc) that may be similar to symptoms identified in those who are ill in the outbreak investigation; b) If a non-food worker’s household member exhibits similar symptoms directly preceding the outbreak; c) The non-food worker tested positive for a foodborne pathogen; d) Other epidemiologically- or environmentally-linked reasons.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • This is a typical situation when an ill person attends an event and contaminates ready-to eat-foods in a buffet

		<p>line by handling food prior to someone else consuming it. The original ill person is identified as a source of the pathogen.</p> <ul style="list-style-type: none"> • Pizza is prepared by a healthy food worker and arrives pathogen-free. A mother (a non-food worker) rearranges pizza slices onto plates before serving the slices to a group of children at a birthday party (regardless of whether it is taking place as a private party where the pizza has been ordered in or if the party is taking place in a restaurant). These children subsequently develop foodborne illness and the mother is identified as a source of the pathogen. <p><u>Notable Exceptions</u> None.</p>
Code	Factor	Description
C14	Storage in contaminated environment	<p><u>Title</u> C14 – Storage in contaminated environment</p> <p><u>Definition/Explanation</u> Storage in a contaminated environment (such as a store room or refrigerator) leads to contamination of the food vehicle or an ingredient in the vehicle.</p> <p>This usually involves storage of dry foods in an environment where contamination is likely from overhead drippage, flooding, airborne contamination, access of insects or rodents, and other situations conducive to contamination.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • A leaky roof permits condensation to seep into a walk-in refrigerator and contaminate food stored in it. <p><u>Notable Exceptions</u> This contributing factor only applies to stored foods contaminated directly by environmental sources in the storage environment, not cross-contamination by other ingredients.</p>

Code	Factor	Description
C15	Other source of contamination	<p>Title C15 – Other source of contamination</p> <p>Definition/Explanation A form of contamination that does not fit into the above categories; the factor should be specified in the “Remarks” section at the end of the report.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Food in an uncovered bowl contaminated by flies • Food that is being washed/soaked in a food preparation sink is contaminated by sewage backflow from the sink’s pipes <p>Notable Exceptions None.</p>
Code	Factor	Description
C-N/A	Contamination Factors - Not Applicable	<p>Title C-N/A – Contamination Factors - Not Applicable</p> <p>Definition/Explanation C-N/A is utilized if contamination factors were not related to the type of etiologic agent involved in the outbreak. C-N/A would rarely, if ever, be cited.</p> <p>If no contamination factors were identified, then leave all contamination factors blank. Then, please explain why contamination factors could not be identified in the “Remarks” section at the end of this report.</p>

Proliferation/Amplification Factors (*bacterial outbreaks only*)

Factors that allow proliferation of the etiologic agents; proliferation factors relate to how bacterial agents were able to increase in numbers and/or produce toxic products prior to the vehicle being ingested.

Code	Factor	Description
P1	Food preparation practices that support proliferation of pathogens (<i>during food preparation</i>)	<p>Title P1 – Food preparation practices that support proliferation of pathogens (<i>during food preparation</i>)</p> <p>Definition/Explanation During food preparation, one or more improper procedures occurred (such as improper or inadequate thawing) that allowed pathogenic bacteria and/or molds to multiply and generate to populations sufficient to cause illness or to elaborate toxins if toxigenic.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Improper thawing (such as allowing frozen food to thaw at room temperature or leaving frozen foods in standing water for prolonged periods) allows pathogens on the surface of the food to multiply and generate • Prolonged preparation time (such as prolonging preparation time by preparing too many foods at the same time) allows pathogens to multiply and generate <p>Notable Exceptions None.</p>
P2	No attempt was made to control the temperature of implicated food or the length of time food was out of temperature control (<i>during food service or display of food</i>)	<p>Title P2 – No attempt was made to control the temperature of implicated food or the length of time food was out of temperature control (<i>during food service or display of food</i>)</p> <p>Definition/Explanation During food service or display of food, there was no attempt made to control the temperature of the implicated food or no attempt was made to regulate the length of time food was out of temperature control.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Leaving foods out at ambient temperature for a prolonged time at a church supper • No time or temperature control on a buffet line <p>Notable Exceptions None.</p>

Code	Factor	Description
P3	Improper adherence of approved plan to use Time as a Public Health Control	<p>Title P3 – Improper adherence of approved plan to use Time as a Public Health Control</p> <p>Definition/Explanation Food was out of temperature control for more than the time allowed under an agreed-upon and pre-approved plan by a regulatory agency to use Time as a Public Health Control.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Foods are placed on a buffet table that is not capable of maintaining proper hot or cold temperatures. The establishment has a plan approved by a regulatory agency to use Time as a Public Health Control. The plan allows foods to be displayed for service on the buffet line at ambient temperature, and discarded after 4 hours. However, the food is held on the buffet table for longer than 4 hours (either inadvertently or intentionally). • A facility negotiates a plan to use Time as a Public Health Control with a regulatory agency; however, the facility improperly adheres to the plan because some of the dishes that the facility serves is traditionally held and served at room temperature longer than the time allowed in the approved plan. <p>Notable Exceptions None.</p>
P4	Improper cold holding due to malfunctioning refrigeration equipment	<p>Title P4 – Improper cold holding due to malfunctioning refrigeration equipment</p> <p>Definition/Explanation Malfunctioning refrigeration equipment (such as refrigerators that are improperly maintained or adjusted) causes foods to be held at an improper cold holding temperature.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Walk-in cooler malfunction causing elevated temperatures of food • The reach-in (or walk-in) refrigerator unit temperature is not monitored and stays consistently higher than 41 °F (or 45 °F) causing elevated temperatures of food • A broken or torn door gasket causes air leakage in a reach-in refrigerator and subsequently food remains above 41 °F (or 45 °F). <p>Notable Exceptions None.</p>

Code	Factor	Description
P5	Improper cold holding due to an improper procedure or protocol	<p>Title P5 – Improper cold holding due to an improper procedure or protocol</p> <p>Definition/Explanation Improper cold holding temperature occurs due to an improper procedure or protocol (such as an overloaded refrigerator or inadequately iced salad bar).</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Potentially hazard foods (PHF) such as tuna/egg salad are stacked above the top levels of the cold holding wells in a deli sandwich cold holding unit <p>Notable Exceptions None.</p>
P6	Improper hot holding due to malfunctioning equipment	<p>Title P6 – Improper hot holding due to malfunctioning equipment</p> <p>Definition/Explanation Equipment that is meant to be used for hot-holding malfunctions and causes foods to be held at an improper hot holding temperature.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • A steam table is improperly maintained or adjusted and causes food to be held at improper hot holding temperatures. <p>Notable Exceptions None.</p>
P7	Improper hot holding due to improper procedure or protocol	<p>Title P7– Improper hot holding due to improper procedure or protocol</p> <p>Definition/Explanation Improper hot holding temperature occurs due to an improper procedure or protocol.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • An inadequate number of Sterno cans are used for holding foods hot in chafing dishes • Exhausted Sterno cans are not replaced under chafing dishes which hold hot foods • Steam table was not turned on

		<p><u>Notable Exceptions</u> None.</p>
Code	Factor	Description
P8	Improper/slow cooling	<p><u>Title</u> P8 – Improper/slow cooling</p> <p><u>Definition/Explanation</u> Foods are refrigerated in large quantities or stored in devices where the temperature is poorly controlled allowing pathogens to multiply.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • Foods are refrigerated in large quantities (i.e. in large masses or as large volumes of foods in containers), which does not allow proper cooling • Foods are stored in containers with tight-fitting lids, pans are stacked on top of others, or crowded storage in a refrigerator, all of which leads to inadequate air circulation and thus improper/slow cooling • Improperly cooling foods includes any procedures outside of these parameters: Cooling foods from 135°F to 70°F within 2 hours and cooling that food from 70°F to 41°F within the next 4 hours. <p><u>Notable Exceptions</u> None.</p>
Code	Factor	Description
P9	Prolonged cold storage	<p><u>Title</u> P9 – Prolonged cold storage</p> <p><u>Definition/Explanation</u> This situation is a concern for psychrotrophic pathogenic bacteria (e.g. <i>Listeria monocytogenes</i>, <i>Clostridium botulinum</i> type E, <i>Yersinia enterocolitica</i>, <i>Aeromonas hydrophila</i>) that multiply over sufficient time at ordinary refrigerator temperatures and generate to populations sufficient to cause illness or elaborate toxins if toxigenic (e.g. <i>C. botulinum</i>).</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • Holding foods (that have been prepared in a food-service establishment) in cold storage for more than 7 days • Holding open containers of commercially prepared foods for several weeks <p><u>Notable Exceptions</u> None.</p>

Code	Factor	Description
P10	Inadequate modified atmosphere packaging	<p>Title P10 – Inadequate modified atmosphere packaging</p> <p>Definition/Explanation Food was stored in a container which provided an anaerobic environment. These factors create conditions conducive to growth of anaerobic or facultative bacteria in foods held in hermetically sealed cans or in packages in which vacuums have been pulled or gases added. All anaerobic bacteria must have a low oxygen reduction potential to initiate growth, but this factor is restricted only to foods that are put into the sealed package or container.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Vacuum-packed fish • Salad in gas-flushed bag <p>Notable Exceptions None.</p>
Code	Factor	Description
P11	Inadequate processing (acidification, water activity, fermentation)	<p>Title P11 – Inadequate processing (acidification, water activity, fermentation)</p> <p>Definition/Explanation There are certain non-temperature-dependent processes (such as acidification, water activity, fermentation) that are designed to prevent proliferation of pathogens. However, if these processes are inadequate, pathogens will multiply and generate to populations sufficient to cause illness.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Insufficient acidification (low concentration of acidic ingredients) in home canned foods • Insufficiently low water activity (low concentration of salt) in smoked/salted fish • Inadequate fermentation (starter culture failure or improper fermentation conditions) in processed meat or processed cheese <p>Notable Exceptions None.</p>

Code	Factor	Description
P12	Other situations that promoted or allowed microbial growth or toxic production	<p>Title P12 – Other situations that promoted or allowed microbial growth or toxic production</p> <p>Definition/Explanation A factor that promotes growth, proliferation, amplification, or concentration of etiologic agents but that does not fit into any of the other defined categories; the factor should be specified in the “Remarks” section at the end of the report.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • A box of tomatoes was unknowingly contaminated by <i>Salmonella</i> prior to its arrival at a restaurant. Soon after the delivery, some of the tomatoes were served to customers but these customers did not become ill. However, some of the other tomatoes from the box were not served soon after delivery – instead, these intact tomatoes were allowed to ripen at room temperature for several days, which allowed the <i>Salmonella</i> to amplify. Customers who ate these room-ripened tomatoes became ill. Although allowing intact tomatoes to ripen at room temperature is not a Food Code violation, this process likely led to bacterial proliferation. <p>Notable Exceptions None.</p>
Code	Factor	Description
P-N/A	Proliferation/Amplification Factors - Not Applicable	<p>Title P-N/A – Proliferation/Amplification Factors - Not Applicable</p> <p>Definition/Explanation P-N/A is utilized if proliferation/amplification factors are not related to the type of etiologic agent involved in the outbreak. For example, proliferation/amplification factors would not be cited in a viral outbreak.</p> <p>If no proliferation/amplification factors were identified, then leave all proliferation/amplification factors blank. Then, please explain why proliferation/amplification factors could not be identified in the “Remarks” section at the end of this report.</p>

Survival Factors (*microbial outbreaks only*)

Factors that allow survival or fail to inactivate the contaminant; survival factors refer to processes or steps that should have eliminated or reduced the microbial agent but did not because of one of these factors.

Code	Factor	Description
S1	Insufficient time and/or temperature during cooking/heat processing	<p><u>Title</u> S1 – Insufficient time and/or temperature control during initial cooking/heat processing</p> <p><u>Definition/Explanation</u> The time/temperature exposure during initial heat processing or cooking was inadequate to kill the pathogens. This does not include inactivation of preformed heat-stable toxins. In reference to cooking, but not retorting, it refers to the destruction of vegetative forms of bacteria, viruses, and parasites, but not bacterial spores. If the food under investigation was retorted, then spore-forming bacteria would be included.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • Insufficient time and/or temperature control for roasted meats/poultry, canned foods, pasteurization <p><u>Notable Exceptions</u> Citation of S1 does not include inactivation of preformed heat-stable toxins or destruction of bacterial spores during cooking.</p>
S2	Insufficient time and/or temperature during reheating	<p><u>Title</u> S2 – Insufficient time and/or temperature during reheating</p> <p><u>Definition/Explanation</u> The time/temperature exposure during reheating or heat processing of a previously cooked food (which has often been cooled, frequently, overnight) was inadequate to kill the pathogens. This does not include inactivation of preformed heat-stable toxins.</p> <p><u>Common Examples</u></p> <ul style="list-style-type: none"> • Reheating of sauces or roasts to a temperature insufficient to reduce the level of contamination to below an infectious dose. <p><u>Notable Exceptions</u> Citation of S2 does not include inactivation of preformed heat-stable toxins.</p>

Code	Factor	Description
S3	Insufficient time and/or temperature control during freezing	<p>Title S3 – Insufficient time and/or temperature control during freezing</p> <p>Definition/Explanation In order to ensure the destruction of certain parasites, some foods such as fish may be frozen before raw service. This factor is cited when there was insufficient time and/or temperature control during freezing.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Pacific red snapper is the implicated food in an outbreak of <i>Anisakis</i> infection. The snapper was not frozen before service in raw sushi or the investigation revealed that the time and temperature required to kill parasites (-31 °F for 15 hours or 4 °F for 7 days) was not utilized. <p>Notable Exceptions Freezing is currently utilized for parasite destruction in fish served raw. In the future if it is determined that freezing can be used for pathogen destruction in other situations, then this factor would be cited if established procedures are not implemented or implemented incorrectly.</p> <p>Some species of tuna are not susceptible to harboring parasites of concern and thus freezing is not necessary. Care should be taken in determining if freezing would have been an appropriate pathogen destruction process for the fish in question before this factor is cited.</p>
Code	Factor	Description
S4	Insufficient or improper use of chemical processes designed for pathogen destruction	<p>Title S4 – Insufficient or improper use of chemical processes designed for pathogen destruction</p> <p>Definition/Explanation There are certain chemical processes (such as acidification, salting, and cold smoking) that are designed to prevent survival of pathogens. However, if these processes are insufficient or improperly used, pathogens will survive.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Inadequate acidification (such as insufficient quantity or concentration of acid) of canned tomatoes results in pathogen survival • Inadequate cold smoking of meat (such as insufficient time of contact of the smoke with the meat) results in pathogen survival <p>Notable Exceptions None.</p>

Code	Factor	Description
S5	Other process failures that permit pathogen survival	<p>Title S5 – Other process failures that permit pathogen survival</p> <p>Definition/Explanation A form of survival that does not fit into the above categories; the factor should be specified in the “Remarks” section at the end of the report.</p> <p>Common Examples</p> <ul style="list-style-type: none"> • Failures of other processes (such as subjecting foods to irradiation, high pressure, drying conditions) that permits pathogens to survive. <p>Notable Exceptions None.</p>
S-N/A	Survival Factors - Not Applicable	<p>Title S-N/A – Survival Factors - Not Applicable</p> <p>Definition/Explanation S-N/A is utilized if survival factors were not related to the type of etiologic agent involved in the outbreak. For example, survival factors would not be cited in a scombroid toxin outbreak.</p> <p>If no survival factors were identified, then leave all survival factors blank. Then, please explain why proliferation/amplification factors could not be identified in the “Remarks” section at the end of this report.</p>