Massachusetts Department of Public Health

Foodborne Illness Season is Here!

Foodborne Illness Complaints & Enteric Case Investigation Reminders

July 9, 2024

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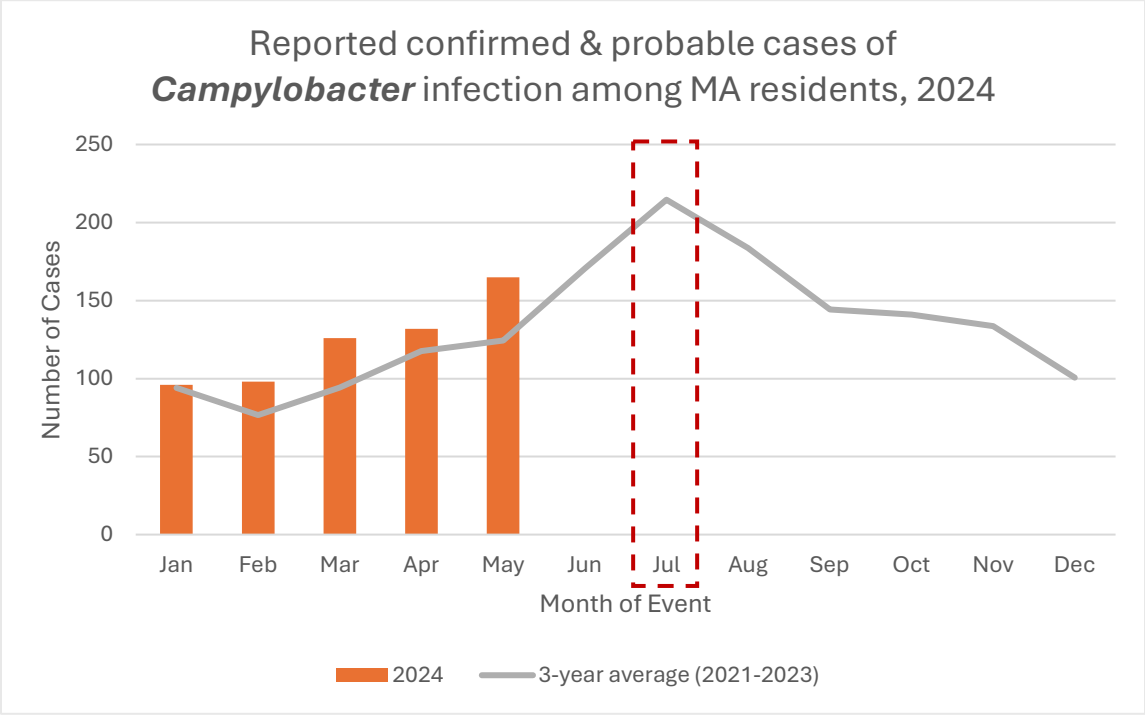
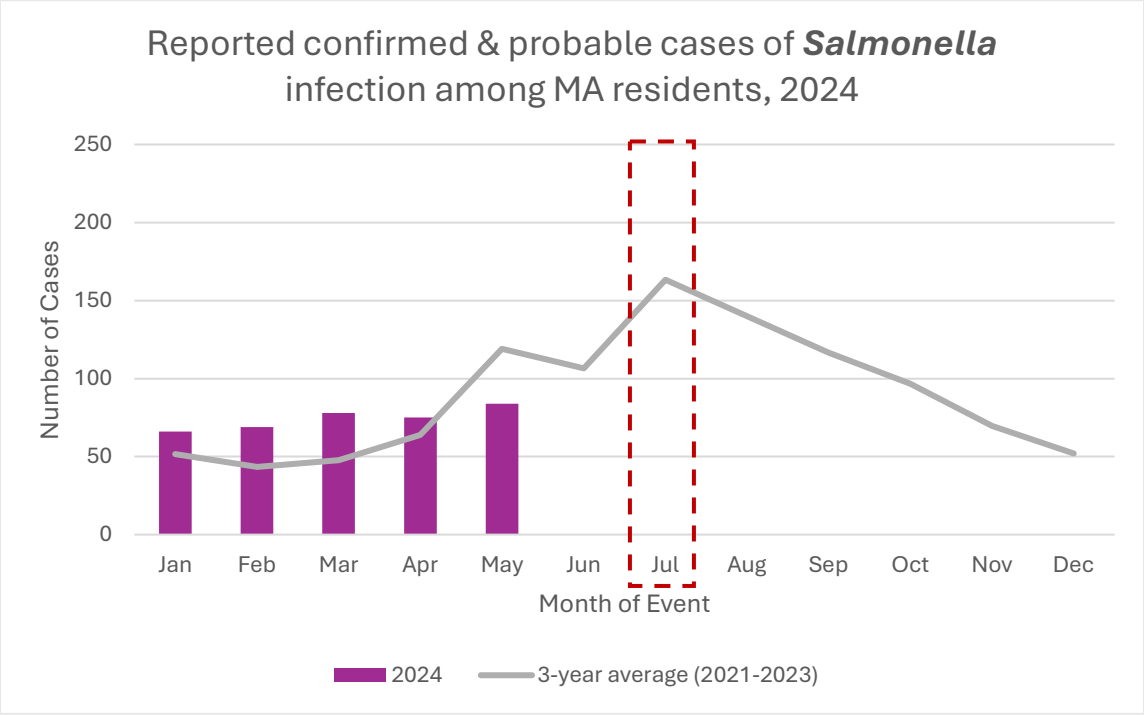
Food Protection Program

Overview

- Existing resources
- Enteric disease quick overview
- Foodborne illness complaint reporting
  - Reporting of diagnosed vs. undiagnosed complaints
  - Handling of foodborne illness complaints at MDPH
- Enteric disease frequently asked questions (FAQs)
- *Vibrio* environmental investigations
- Coming soon: *Cronobacter*

It’s the most wonderful time of the year!





Data source: Bureau of Infectious Disease and Laboratory Sciences. Data as of 6/10/24 and are subject to change.

Existing Resources

Existing and still relevant resources in MAVEN Help

Recorded webinar presentations

- **Enteric disease overview**
  - Introduction to Enteric (Gastrointestinal Illness) Disease Case Investigations (May 2022) Slides, Recording
  - Enteric Gastrointestinal Illness Investigations 2023 Season Refresher (June 2023) Slides, Recording
    - WGS Clusters
    - Introduction to disease-specific Tip Sheets
- **Disease-specific guidance/training**:
  - **Cyclospora** and **Vibrio** Case Investigations (June 2022) Slides, Recording
  - Overview and Updates to **Cryptosporidium** and **Shigella** Case Investigations (August 2022) Slides, Recording
- Noro-like Outbreaks in Non-Food Establishments: Key Steps for Local Health Investigators (November 2023) Slides, Recording *More applicable to the winter*

https://www.maven-help.maventrainingsite.com/

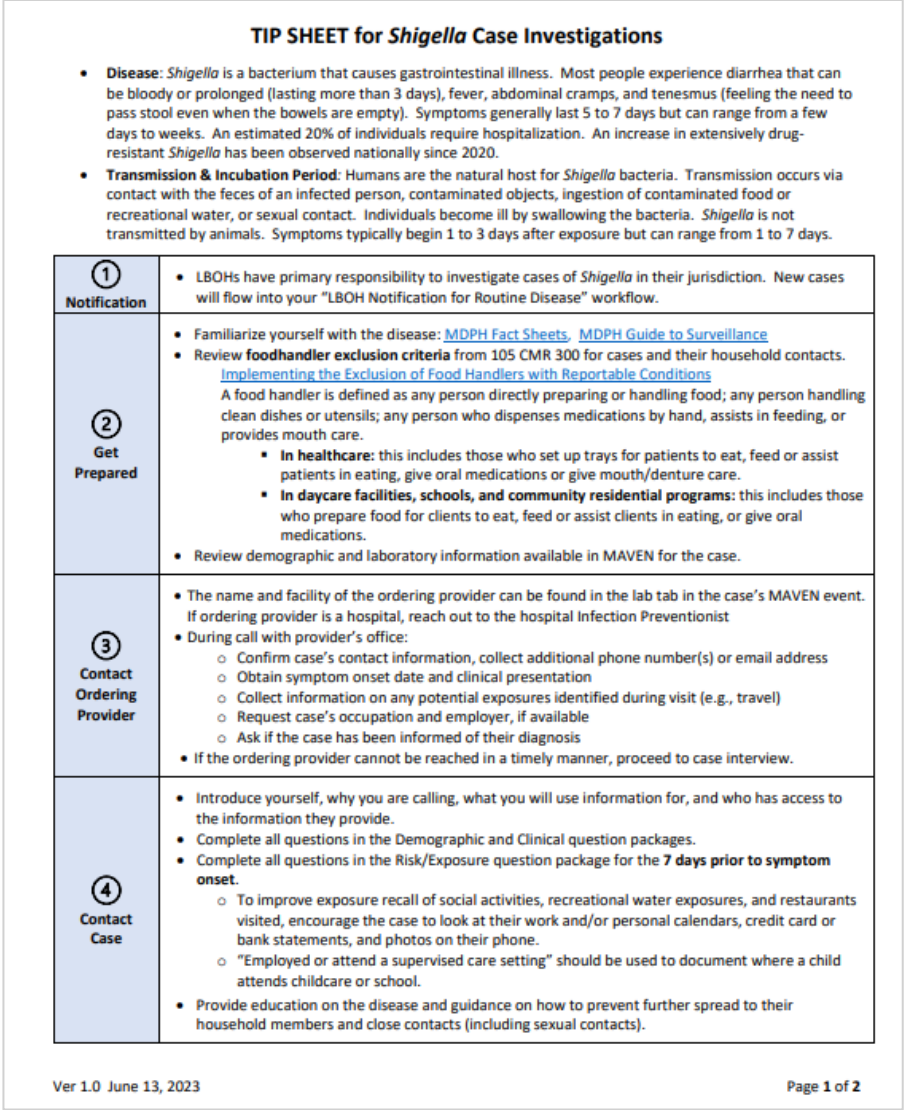
Existing and still relevant resources in MAVEN Help

Tip sheets

- Implementing the Exclusion of Food Handlers with Reportable Conditions
- Creating Foodborne Illness Complaint Events
- Disease-specific: Campylobacter, Giardia, Norovirus, Salmonella, Shigella

Other tools

- Interpreter services are still available to LBOHs through LanguageLine Solutions®
  - The phone number & access code for this service are as follows:
    - **DIAL: 866-874-3972**
    - **PROVIDE: 684959**



TIP SHEET for *Shigella* Case Investigations

- **Disease**: *Shigella* is a bacterium that causes gastrointestinal illness. Most people experience diarrhea that can be bloody or prolonged (lasting more than 3 days), fever, abdominal cramps, and tenesmus (feeling the need to pass stool even when the bowels are empty). Symptoms generally last 5 to 7 days but can range from a few days to weeks. An estimated 20% of individuals require hospitalization. An increase in extensively drug-resistant *Shigella* has been observed nationally since 2020.
- **Transmission & Incubation Period**: Humans are the natural host for *Shigella* bacteria. Transmission occurs via contact with the feces of an infected person, contaminated objects, ingestion of contaminated food or recreational water, or sexual contact. Individuals become ill by swallowing the bacteria. *Shigella* is not transmitted by animals. Symptoms typically begin 1 to 3 days after exposure but can range from 1 to 7 days.

① Notification	• LBOHs have primary responsibility to investigate cases of *Shigella* in their jurisdiction. New cases will flow into your "LBOH Notification for Routine Disease" workflow.
② Get Prepared	• Familiarize yourself with the disease: MDPH Fact Sheets, MDPH Guide to Surveillance • Review **foodhandler exclusion criteria** from 105 CMR 300 for cases and their household contacts. Implementing the Exclusion of Food Handlers with Reportable Conditions A food handler is defined as any person directly preparing or handling food; any person handling clean dishes or utensils; any person who dispenses medications by hand, assists in feeding, or provides mouth care. ▪ **In healthcare:** this includes those who set up trays for patients to eat, feed or assist patients in eating, give oral medications or give mouth/denture care. ▪ **In daycare facilities, schools, and community residential programs:** this includes those who prepare food for clients to eat, feed or assist clients in eating, or give oral medications. • Review demographic and laboratory information available in MAVEN for the case.
③ Contact Ordering Provider	• The name and facility of the ordering provider can be found in the lab tab in the case's MAVEN event. If ordering provider is a hospital, reach out to the hospital Infection Preventionist • During call with provider's office: ○ Confirm case's contact information, collect additional phone number(s) or email address ○ Obtain symptom onset date and clinical presentation ○ Collect information on any potential exposures identified during visit (e.g., travel) ○ Request case's occupation and employer, if available ○ Ask if the case has been informed of their diagnosis • If the ordering provider cannot be reached in a timely manner, proceed to case interview.
④ Contact Case	• Introduce yourself, why you are calling, what you will use information for, and who has access to the information they provide. • Complete all questions in the Demographic and Clinical question packages. • Complete all questions in the Risk/Exposure question package for the **7 days prior to symptom onset**. ○ To improve exposure recall of social activities, recreational water exposures, and restaurants visited, encourage the case to look at their work and/or personal calendars, credit card or bank statements, and photos on their phone. ○ "Employed or attend a supervised care setting" should be used to document where a child attends childcare or school. • Provide education on the disease and guidance on how to prevent further spread to their household members and close contacts (including sexual contacts).

Ver 1.0 June 13, 2023 Page **1** of **2**

Training and resources on conducting interviews

General interview guidance

- Interviewing Skills for Public Health Investigators (video)
- Challenging Interview Scenario Video Series (video)
  - Topics: Distrust/Hesitancy, Off Track, Cannot Remember Exposures, Asking Sexual History Questions, Ill Family Members, Medical Questions, Using the Language Line, Outbreak Situation, Legal Action, Work Exclusion
  - Outbreak Response Training – Example Interviews (video)

Sexual history questions

- Enteric Disease Sexual History Interviewing Toolkit
- A Guide to Taking a Sexual History

More resources

- Check out “Products” on the Food Safety CoEs’ website: https://foodsafetycoe.org/

Integrated Food Safety Centers of Excellence

Enteric Disease Overview

…with a focus on transmission routes

Enteric illness

- Illness caused by bacteria, viruses, parasites, and toxins that usually enter the body through the mouth

- Onset of symptoms can range from minutes to weeks

- Commonly causes gastrointestinal illness symptoms including vomiting, diarrhea, nausea, abdominal cramps, or fever

- Causes an estimated 48 million illnesses (1 in 6 Americans!) and 3,000 deaths annually in the United States

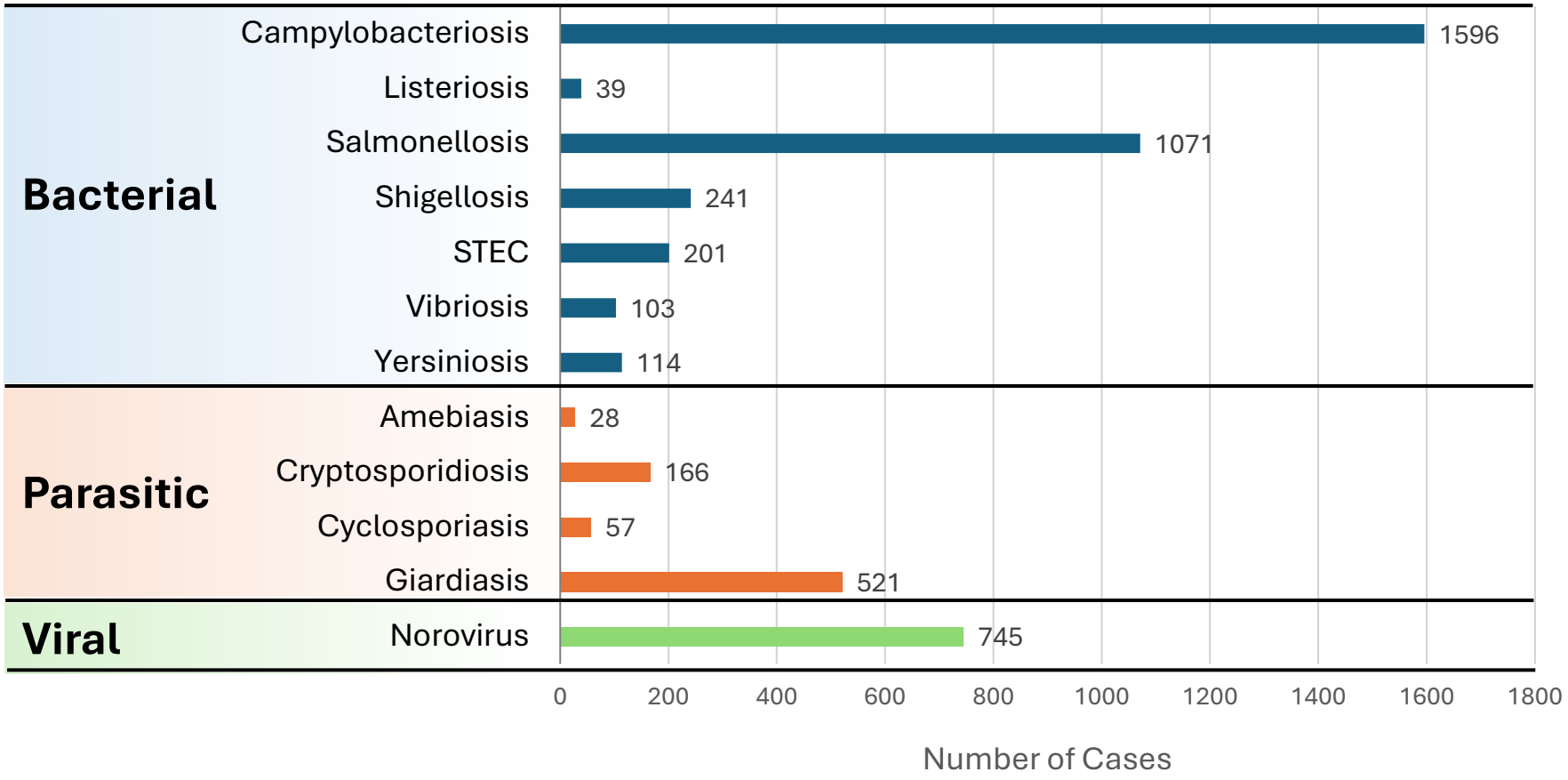
Reportable enteric diseases

Bacteria	Botulism Campylobacteriosis Listeriosis Shiga toxin-producing *E. coli* (STEC)	Salmonellosis Shigellosis Vibriosis Yersiniosis
Parasites	Amebiasis Cryptosporidiosis	Cyclosporiasis Giardiasis
Viruses	Norovirus Hepatitis A	
Toxins	Foodborne illness due to toxins (including mushroom toxins, ciguatera toxins, scombrotoxin, tetrodotoxin, paralytic shellfish toxin and amnesic shellfish toxin, staphylococcus enterotoxin and others)*	

*These are reportable by healthcare providers and often are not confirmed by laboratory testing.

105 CMR 300: Reportable diseases, surveillance, and isolation and quarantine requirements

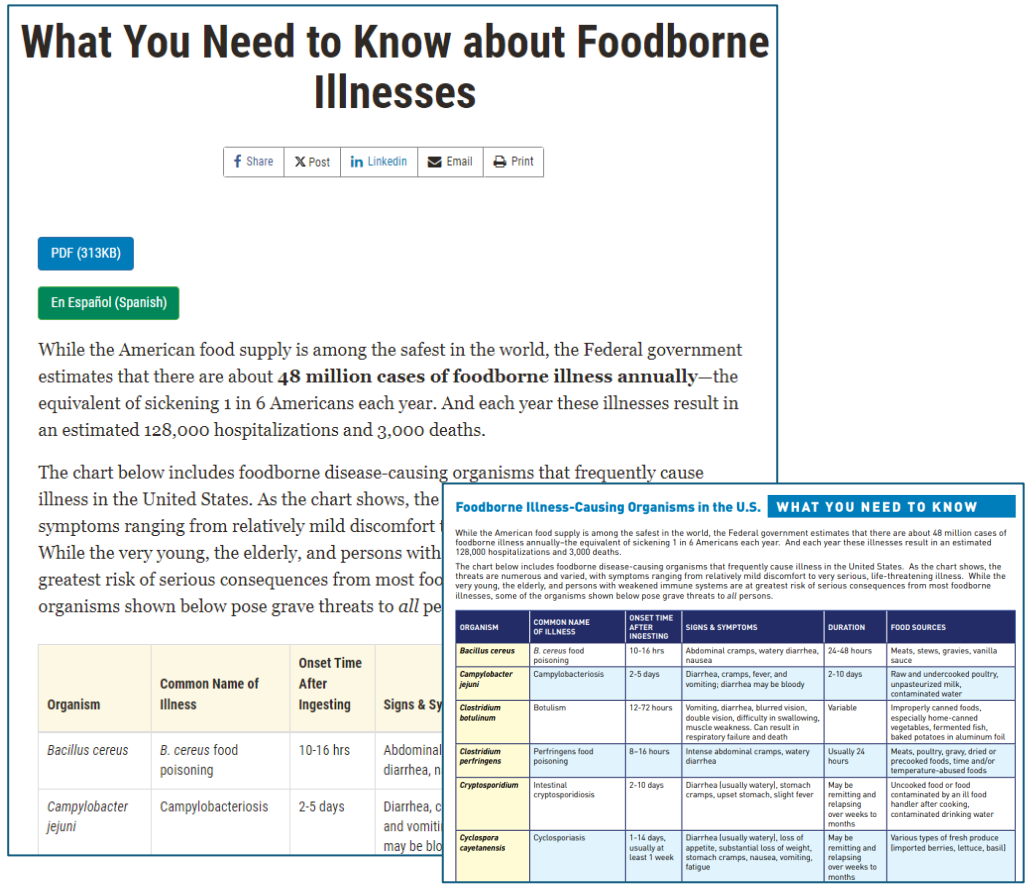
Average Number of Enteric Disease Cases Reported Annually in Massachusetts, 2021-2023



Data source: Bureau of Infectious Disease and Laboratory Sciences. Data as of 6/10/24 and are subject to change.
Confirmed and probable cases included for all diseases except STEC, which also includes suspect cases.

Quick References

FDA What You Need to Know about Foodborne Illness



What You Need to Know about Foodborne Illnesses

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PDF (313KB)

En Español (Spanish)

While the American food supply is among the safest in the world, the Federal government estimates that there are about **48 million cases of foodborne illness annually**—the equivalent of sickening 1 in 6 Americans each year. And each year these illnesses result in an estimated 128,000 hospitalizations and 3,000 deaths.

The chart below includes foodborne disease-causing organisms that frequently cause illness in the United States. As the chart shows, the
symptoms ranging from relatively mild discomfort
While the very young, the elderly, and persons with
greatest risk of serious consequences from most foo
organisms shown below pose grave threats to *all* pe

Organism	Common Name of Illness	Onset Time After Ingesting	Signs & Sy
Bacillus cereus	*B. cereus* food poisoning	10-16 hrs	Abdominal diarrhea, n
Campylobacter jejuni	Campylobacteriosis	2-5 days	Diarrhea, c and vomiti may be blo

Foodborne Illness-Causing Organisms in the U.S. WHAT YOU NEED TO KNOW

While the American food supply is among the safest in the world, the Federal government estimates that there are about 48 million cases of foodborne illness annually--the equivalent of sickening 1 in 6 Americans each year. And each year these illnesses result in an estimated 128,000 hospitalizations and 3,000 deaths.

The chart below includes foodborne disease-causing organisms that frequently cause illness in the United States. As the chart shows, the threats are numerous and varied, with symptoms ranging from relatively mild discomfort to very serious, life-threatening illness. While the very young, the elderly, and persons with weakened immune systems are at greatest risk of serious consequences from most foodborne illnesses, some of the organisms shown below pose grave threats to *all* persons.

ORGANISM	COMMON NAME OF ILLNESS	ONSET TIME AFTER INGESTING	SIGNS & SYMPTOMS	DURATION	FOOD SOURCES
Bacillus cereus	*B. cereus* food poisoning	10-16 hrs	Abdominal cramps, watery diarrhea, nausea	24-48 hours	Meats, stews, gravies, vanilla sauce
Campylobacter jejuni	Campylobacteriosis	2-5 days	Diarrhea, cramps, fever, and vomiting; diarrhea may be bloody	2-10 days	Raw and undercooked poultry, unpasteurized milk, contaminated water
Clostridium botulinum	Botulism	12-72 hours	Vomiting, diarrhea, blurred vision, double vision, difficulty in swallowing, muscle weakness. Can result in respiratory failure and death	Variable	Improperly canned foods, especially home-canned vegetables, fermented fish, baked potatoes in aluminum foil
Clostridium perfringens	Perfringens food poisoning	8–16 hours	Intense abdominal cramps, watery diarrhea	Usually 24 hours	Meats, poultry, gravy, dried or precooked foods, time and/or temperature-abused foods
Cryptosporidium	Intestinal cryptosporidiosis	2-10 days	Diarrhea (usually watery), stomach cramps, upset stomach, slight fever	May be remitting and relapsing over weeks to months	Uncooked food or food contaminated by an ill food handler after cooking, contaminated drinking water
Cyclospora cayetanensis	Cyclosporiasis	1-14 days, usually at least 1 week	Diarrhea (usually watery), loss of appetite, substantial loss of weight, stomach cramps, nausea, vomiting, fatigue	May be remitting and relapsing over weeks to months	Various types of fresh produce (imported berries, lettuce, basil)

FoodSafety.gov Food Poisoning: Bacteria and Viruses

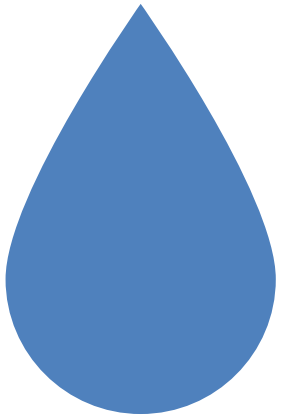
Salmonella

Download Table as PDF

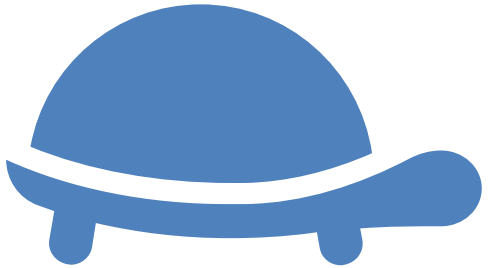
Sources	**Food:** A variety of foods have been linked to Salmonella, including vegetables, chicken, pork, fruits, nuts, eggs, beef and sprouts. **Animals and their environments:** Particularly reptiles (snakes, turtles, lizards), amphibians (frogs), birds (baby chicks) and pet food and treats.
Incubation period	6 hours to 6 days
Symptoms	Diarrhea, fever, stomach cramps, vomiting
Duration of illness	4 to 7 days
What to do	Drink plenty of fluids and get rest. If you cannot drink enough fluids to prevent dehydration or if your symptoms are severe, call your doctor. Antibiotics are recommended only for patients who have a serious illness (such as severe diarrhea, high fever, or bloodstream infection), or are more likely to develop a severe illness or complications (infants, adults over 65 years old, and people with weakened immune systems).
Prevention	• Avoid eating high-risk foods, including raw or lightly cooked eggs, undercooked ground beef or poultry, and unpasteurized (raw) milk. • Wash your hands after contact with animals, their food or treats, or their living environment.

Transmission

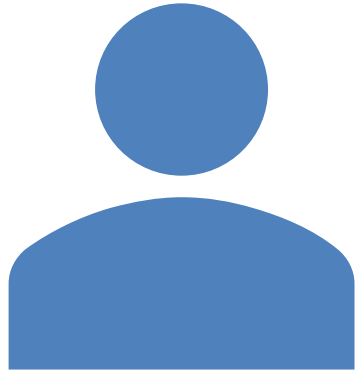
Ingestion of contaminated food



Ingestion of contaminated water



Contact with animals or pets



Contact with an infected person (direct contact, surfaces)

Transmission attribution by pathogen

Excerpt of **Table 4. Source attribution results for major transmission pathways, structured expert judgment, United States, 2017***

Pathogen name	Mean % (95% uncertainty interval)				
	Foodborne	Waterborne	Person-to-person	Animal contact	Environmental
Bacteria					
Campylobacter spp.	57 (30–80)	13 (1–31)	7 (0–23)	16 (3–35)	7 (0–30)
STEC O157	60 (40–77)	5 (1–13)	16 (4–33)	12 (3–25)	7 (1–17)
STEC non-O157	50 (26–75)	6 (0–17)	15 (2–34)	21 (2–46)	8 (0–24)
Salmonella enterica, nontyphoidal	66 (48–81)	6 (0–22)	7 (0–16)	11 (3–24)	9 (2–21)
Shigella spp.	8 (1–36)	4 (1–21)	81 (48–93)	Blocked	6 (0–26)
V. parahaemolyticus	74 (59–91)	24 (7–38)	0 (0–2)	0 (0–2)	1 (0 –5)
V. parahaemolyticus, non-AGI	8 (2–39)	90 (57–97)	0 (0–1)	0 (0–1)	2 (0–8)
Yersinia enterocolitica	77 (44–100)	9 (0–37)	3 (0–17)	4 (0–16)	8 (0–33)
Protozoa					
Cryptosporidium spp.	7 (0–25)	43 (17–73)	20 (2–49)	21 (4–48)	8 (0–34)
Cyclospora cayetanensis	83 (59–99)	6 (0–25)	3 (0–14)	1 (0–9)	7 (0–28)
Giardia spp.	10 (0–35)	44 (16–78)	27 (3–59)	10 (0–38)	8 (0–37)
Viruses					
Hepatitis A virus	42 (9–78)	8 (0–33)	41 (8–77)	Blocked	8 (0–34)
Norovirus	19 (6–37)	6 (0–25)	70 (46–88)	Blocked	5 (0–18)

**Blocked indicates pathways blocked by study administrators. AGI, acute gastrointestinal disease; STEC, Shiga toxin-producing Escherichia coli*

Salmonella

Takeaway: Not just foodborne

Action: Collect detailed information on animal contact

Shigella

Takeaway: Largely person-to-person transmission

Action: Ensure questions about sexual contact, supervised care settings, and large gatherings are completed

Beshearse E, Bruce BB, Nane GF, Cooke RM, Aspinall W, Hald T, et al. **Attribution of Illnesses Transmitted by Food and Water to Comprehensive Transmission Pathways Using Structured Expert Judgment, United States**. Emerg Infect Dis. 2021;27(1):182-195. https://doi.org/10.3201/eid2701.200316

Incubation period & transmission in MAVEN events

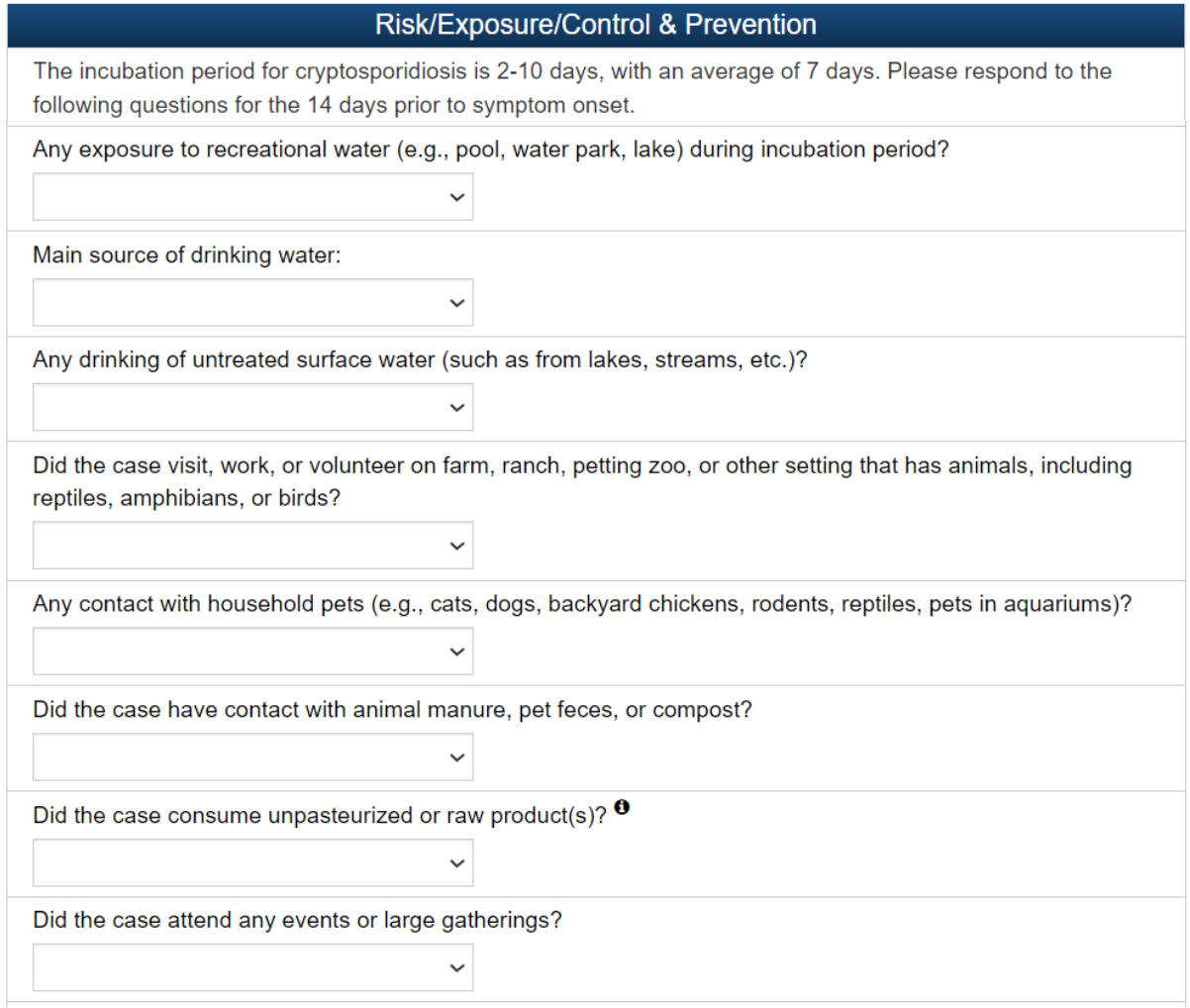
Example of risk history questions routinely asked in Cryptosporidium MAVEN events

Incubation period and time period of interest is cited at the top of the question package

Risk questions focus on waterborne, animal contact, and person-to-person transmission

Transmission attribution estimates from Table 4 (prior slide):

- Foodborne: 7%
- Waterborne: **43%**
- Person-to-person: **20%**
- Animal contact: **21%**
- Environmental: 8%



Foodborne Illness (FBI) Complaint Reporting

Regulations and the Massachusetts Virtual Epidemiologic Network (MAVEN)

How we learn about foodborne illnesses

Reports of diagnosed infection	An individual with lab-confirmed *Salmonella* infection is reported to MAVEN, the local public health nurse interviews the case and identifies one or more suspect food exposures.
Undiagnosed reports from the public	An individual calls the local board of health or MDPH to report that they developed diarrhea and vomiting after eating a meal at a restaurant. They have not sought medical attention and don't plan to.
Reports from the community members*	A school nurse reports 20 elementary school students began vomiting an hour after eating school lunch.

*Community members: health care providers, schools, daycares, hospitals, institutions, camps

Diagnosed vs. undiagnosed foodborne illness

Diagnosed

- Individual sought medical attention, submitted a clinical specimen (e.g., stool sample), and testing identified a foodborne pathogen
- Positive lab result was reported to public health

Undiagnosed

- Individual has not sought medical attention and/or has not had a foodborne pathogen detected in a clinical specimen

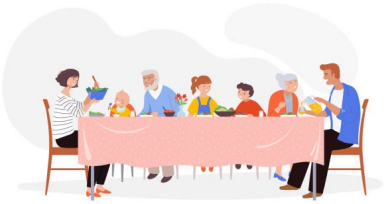
MAVEN event types used for foodborne illness

Disease Events

- Event **created automatically** via electronic laboratory reporting
- Created for a single individual who tested positive for a reportable condition
- Used by LBOH PHNs to conduct case investigation and document demographic, clinical, exposure, and control information

Foodborne Illness Complaint Events

- Event **created manually** by a MAVEN user
- Created for diagnosed or undiagnosed individuals with gastrointestinal illness symptoms and ≥1 suspect food exposures
- Used to communicate food exposures between individuals conducting case interviews (e.g., PHNs) and those who permit or license implicated food establishments (e.g., inspectors)



Regulations associated with reporting of foodborne illness

105 CMR 300: Reportable diseases, surveillance, and isolation and quarantine requirements

105 CMR 300.131 Illness believed to be due to food consumption

Any illness believed to be caused by the consumption of food must be reported to the LBOH by:

- Healthcare providers
- Those in supervisory positions at a school, day care, hospital, institution, clinic, medical practice, laboratory, labor or other camp

Reporting shall occur **immediately** by telephone, fax, or other electronic means to the LBOH in the community where the facility is located or MDPH directly

- If MDPH is notified, it shall notify the LBOH within 24 hours

Regulations associated with reporting suspected or confirmed foodborne illness outbreaks

105 CMR 300.134 Illness Believed to Be Part of a Suspected or Confirmed Cluster or Outbreak

Knowledge of the occurrence of any suspected or confirmed cluster or outbreak of illness must be reported to the LBOH by:

- Healthcare providers
- Those in supervisory positions at a school, day care, hospital, institution, clinic, medical practice, laboratory, labor or other camp, employers.

Reporting shall occur **immediately** by telephone, fax, or other electronic means to the LBOH in the community where the facility is located or MDPH directly

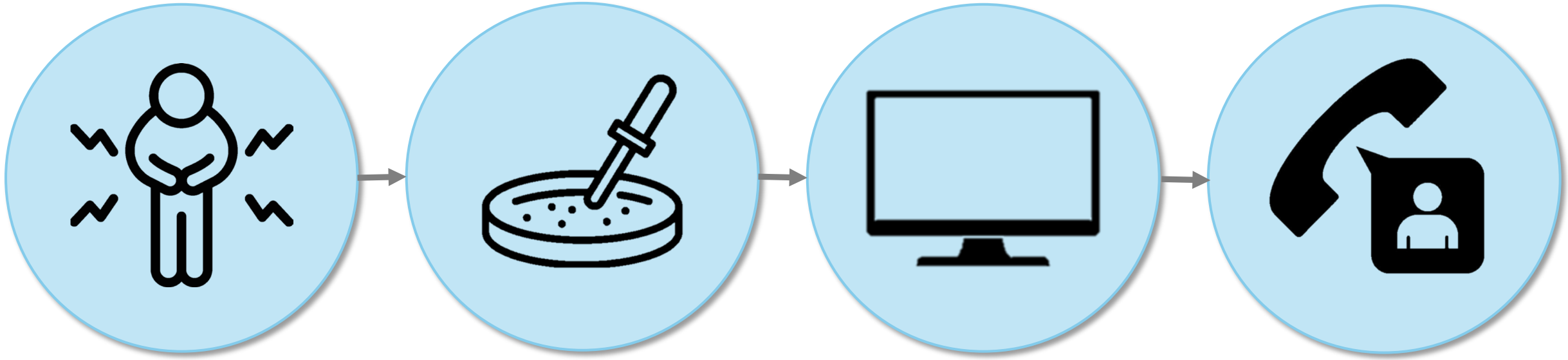
- If MDPH is notified, it shall notify the LBOH within 24 hours

LBOHs should report any suspected outbreak of illness within 24 hours to MDPH:

- Call the **Division of Epidemiology (617) 983-6800** or **Food Protection Program 617-983-6712**

  Can also be reported as a MAVEN foodborne illness complaint event

Reporting to Public Health



Individual becomes sick

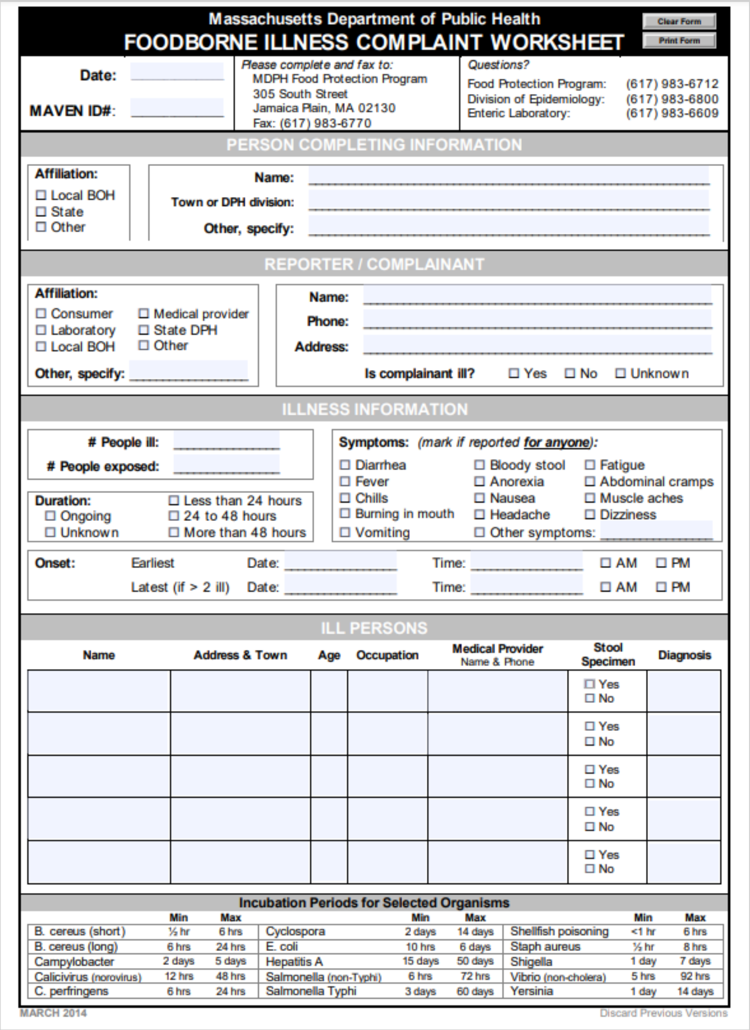
Specimen submitted for testing at a clinical or commercial laboratory

Positive laboratory result is reported to MAVEN, Massachusetts' case management system

Local public health nurse conducts case investigation

MAVEN = Massachusetts Virtual Epidemiologic Network

MAVEN foodborne illness complaint event is based on paper-based report form



Massachusetts Department of Public Health
FOODBORNE ILLNESS COMPLAINT WORKSHEET
Clear Form
Print Form

Date:
MAVEN ID#:

Please complete and fax to:
MDPH Food Protection Program
305 South Street
Jamaica Plain, MA 02130
Fax: (617) 983-6770

Questions?
Food Protection Program: (617) 983-6712
Division of Epidemiology: (617) 983-6800
Enteric Laboratory: (617) 983-6609

PERSON COMPLETING INFORMATION

Affiliation: ☐ Local BOH ☐ State ☐ Other
Name:
Town or DPH division:
Other, specify:

REPORTER / COMPLAINANT

Affiliation: ☐ Consumer ☐ Laboratory ☐ Local BOH ☐ Medical provider ☐ State DPH ☐ Other
Other, specify:
Name:
Phone:
Address:
Is complainant ill? ☐ Yes ☐ No ☐ Unknown

ILLNESS INFORMATION

People ill:
People exposed:

Duration: ☐ Ongoing ☐ Unknown ☐ Less than 24 hours ☐ 24 to 48 hours ☐ More than 48 hours

Symptoms: (*mark if reported **for anyone***):
☐ Diarrhea ☐ Fever ☐ Chills ☐ Burning in mouth ☐ Vomiting
☐ Bloody stool ☐ Anorexia ☐ Nausea ☐ Headache ☐ Other symptoms:
☐ Fatigue ☐ Abdominal cramps ☐ Muscle aches ☐ Dizziness

Onset: Earliest Date: Time: ☐ AM ☐ PM
Latest (if > 2 ill) Date: Time: ☐ AM ☐ PM

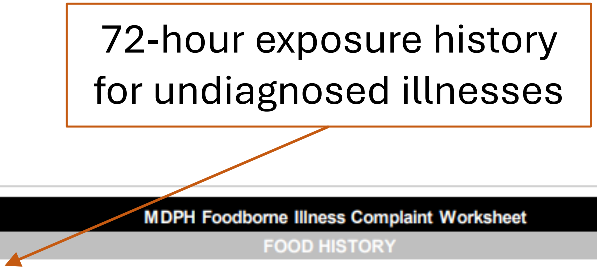
ILL PERSONS

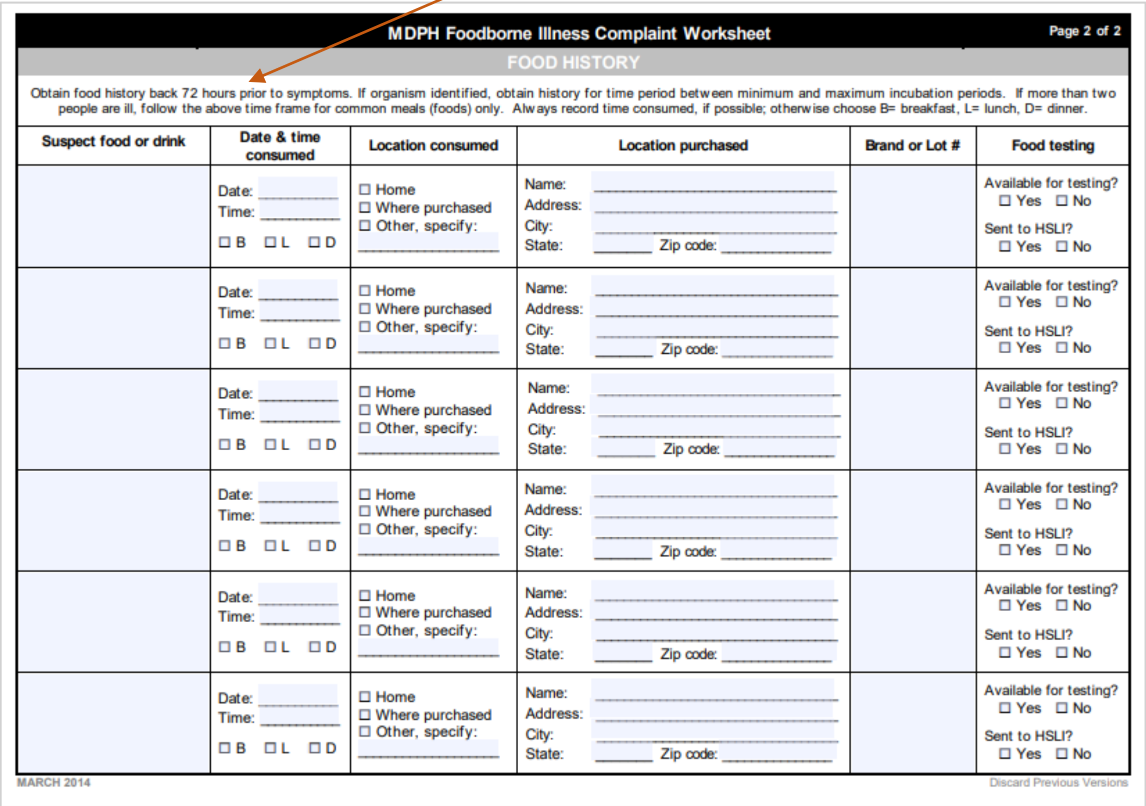
Name	Address & Town	Age	Occupation	Medical Provider Name & Phone	Stool Specimen	Diagnosis
					☐ Yes ☐ No	
					☐ Yes ☐ No	
					☐ Yes ☐ No	
					☐ Yes ☐ No	
					☐ Yes ☐ No	

Incubation Periods for Selected Organisms

	Min	Max		Min	Max		Min	Max
B. cereus (short)	½ hr	6 hrs	Cyclospora	2 days	14 days	Shellfish poisoning	<1 hr	6 hrs
B. cereus (long)	6 hrs	24 hrs	E. coli	10 hrs	6 days	Staph aureus	½ hr	8 hrs
Campylobacter	2 days	5 days	Hepatitis A	15 days	50 days	Shigella	1 day	7 days
Calicivirus (norovirus)	12 hrs	48 hrs	Salmonella (non-Typhi)	6 hrs	72 hrs	Vibrio (non-cholera)	5 hrs	92 hrs
C. perfringens	6 hrs	24 hrs	Salmonella Typhi	3 days	60 days	Yersinia	1 day	14 days

MARCH 2014
Discard Previous Versions





MDPH Foodborne Illness Complaint Worksheet
Page 2 of 2

FOOD HISTORY

Obtain food history back 72 hours prior to symptoms. If organism identified, obtain history for time period between minimum and maximum incubation periods. If more than two people are ill, follow the above time frame for common meals (foods) only. Always record time consumed, if possible; otherwise choose B= breakfast, L= lunch, D= dinner.

Suspect food or drink	Date & time consumed	Location consumed	Location purchased	Brand or Lot #	Food testing
	Date: Time: ☐ B ☐ L ☐ D	☐ Home ☐ Where purchased ☐ Other, specify:	Name: Address: City: State: Zip code:		Available for testing? ☐ Yes ☐ No Sent to HSLI? ☐ Yes ☐ No
	Date: Time: ☐ B ☐ L ☐ D	☐ Home ☐ Where purchased ☐ Other, specify:	Name: Address: City: State: Zip code:		Available for testing? ☐ Yes ☐ No Sent to HSLI? ☐ Yes ☐ No
	Date: Time: ☐ B ☐ L ☐ D	☐ Home ☐ Where purchased ☐ Other, specify:	Name: Address: City: State: Zip code:		Available for testing? ☐ Yes ☐ No Sent to HSLI? ☐ Yes ☐ No
	Date: Time: ☐ B ☐ L ☐ D	☐ Home ☐ Where purchased ☐ Other, specify:	Name: Address: City: State: Zip code:		Available for testing? ☐ Yes ☐ No Sent to HSLI? ☐ Yes ☐ No
	Date: Time: ☐ B ☐ L ☐ D	☐ Home ☐ Where purchased ☐ Other, specify:	Name: Address: City: State: Zip code:		Available for testing? ☐ Yes ☐ No Sent to HSLI? ☐ Yes ☐ No
	Date: Time: ☐ B ☐ L ☐ D	☐ Home ☐ Where purchased ☐ Other, specify:	Name: Address: City: State: Zip code:		Available for testing? ☐ Yes ☐ No Sent to HSLI? ☐ Yes ☐ No

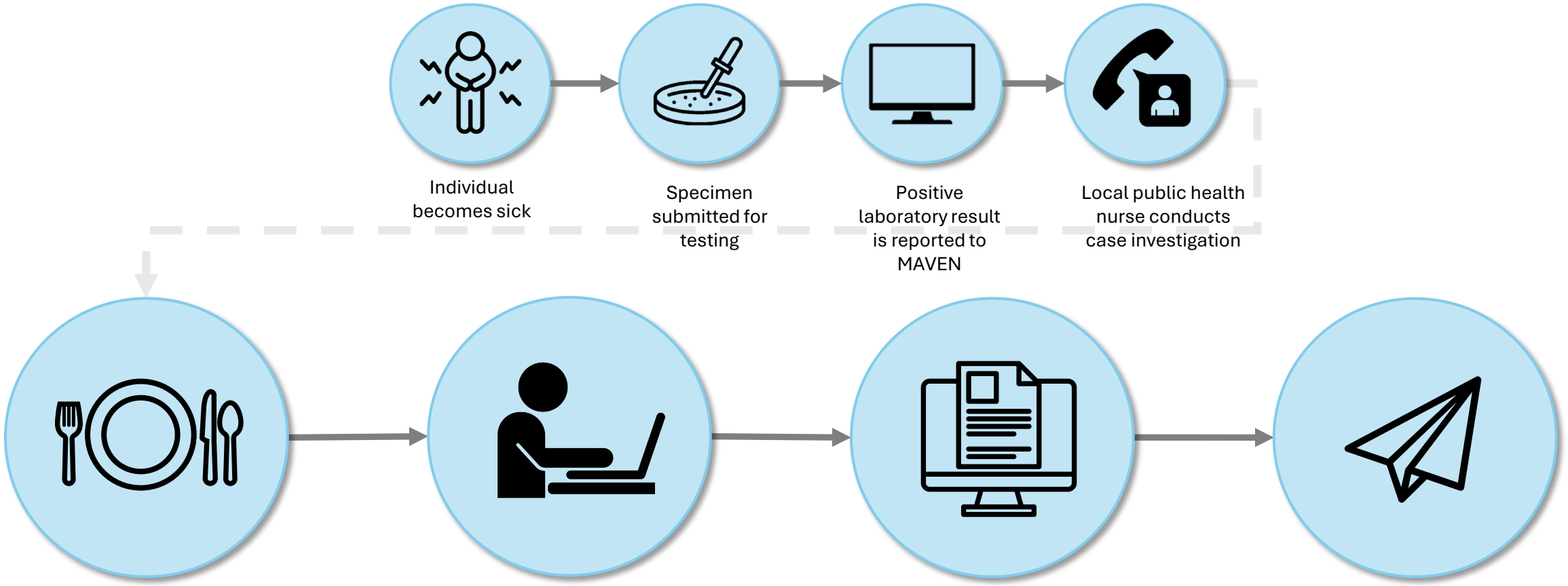
MARCH 2014
Discard Previous Versions

https://www.mass.gov/doc/foodborne-illness-complaint-worksheet-for-regulatory-agencies-only/download

Reporting of Diagnosed vs. Undiagnosed FBI Complaints

- FBI Complaint events are:
  - Used to communicate food exposures between individuals conducting case interviews (e.g., PHNs) and those who permit or license implicated food establishments. (e.g., Inspectors)
  - Used to monitor trends in illness across Massachusetts and for outbreak detection.
  - Reviewed by MDPH's Food Protection Program (FPP) and forwarded to the appropriate jurisdiction (in-state or out-of-state) when warranted.

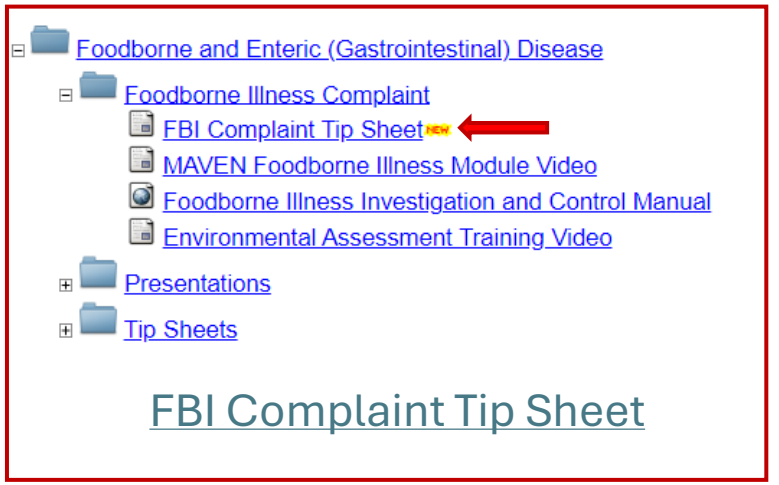
Reporting to Public Health



Reporting of Diagnosed vs. Undiagnosed FBI Complaints

When to Create an FBI Complaint

- ✓ When an undiagnosed individual reports gastrointestinal illness after one or more foodborne exposures
- ✓ When an individual with diagnosed infection reports:
  - ✓ Eating a food away from home during their incubation period and sufficient details are available (name of establishment, location, and date of purchase/consumption)
  - ✓ Eating a food consistent with the pathogen at home during their incubation period, even if the food was improperly prepared at home, and sufficient details are available (name of purchase location, address, and date of purchase)
  - ✓ Handling a locally produced pet food or pet treat during their incubation period
  - ✓ Is an infant that is primarily formula fed
- ✗ Do not create an FBI Complaint event for complaints that did not result in gastrointestinal illness symptoms (e.g., food quality complaint, allergic reactions). Please contact FPP at 617-983-6712 with these reports



Common Foodborne Illness Complaint Errors

- Only ONE FBI event needs to be created per person or per party
  - If the number of ill persons is >1, all ill individuals should be listed in QP2
- Creating an FBI before collecting all information
  - Make sure the complaint is valid before creating the event
- Number of people ill and exposed refers to the common food exposures
- FBI events do not need to be tasked to FPP
- An entire meal should be listed in the “suspect food or drink” field

Enteric Disease Frequently Asked Questions (FAQs)

FAQs

Q: Do I need to ask all the risk history questions if the case's specimen source is urine?

A: Yes

- A urinary tract infection (UTI) can follow gastrointestinal (GI) infection (symptomatic or asymptomatic), or urine could become contaminated (with feces) during specimen collection
- Symptom onset date should be documented as when GI symptoms began, if present
- If the case reports no GI symptoms, use UTI symptom onset date
  - Ask about exposures during the 10 days prior to onset of UTI symptoms

Jacobs Slifka KM, Blackstock A, Nguyen V, Schwensohn C, Gieraltowski L, Mahon BE. **Estimating the Incubation Period of Salmonella Urinary Tract Infections Using Foodborne Outbreak Data.** Foodborne Pathog Dis. 2020 Oct;17(10):628-630. doi: 10.1089/fpd.2019.2787. Epub 2020 Jul 28. PMID: 32735492.

FAQs

Q: Do I need to ask all the exposure history questions if the specimen source is hip aspirate?

A: Yes

- Ideally, still try to collect an exposure history
- For most reportable enteric pathogens, isolation or detection from any clinical specimen is reportable and warrants investigation
- Invasive infections (e.g., bacteremia, meningitis, osteomyelitis, septic arthritis) most commonly occur in people who are very young or old, or have a weakened immune system
- If gastrointestinal symptoms are reported, use their onset date

FAQs

Q: A case tested positive for an enteric pathogen at a clinical/commercial laboratory but tested negative at the State Public Health Laboratory (SPHL). Does it still need to be investigated? Is it still a case?

Specimen Source	Test	Result	Lab
Stool	Campylobacter species Ag: ACnc: Pt: XXX: Ord	Positive	Quest Diagnostics - 200 For...
Stool	Campylobacter sp identified: PrId: Pt: xxx: Nom: Organism specific culture	Negative	William A Hinton State Labo...

A: Yes

- SPHL testing does not cancel out a clinical/commercial lab's test results
- Isolates are submitted to SPHL so that whole genome sequencing (WGS) can be performed, not to validate the testing already performed
- There could be several reasons for discordant results, including the sensitivity and specificity of test methods and/or a bacterial isolate not surviving transport to SPHL

FAQs

Q: Does a foodhandler with *Salmonella* (or other enteric bacteria) in their urine need to produce a negative urine or stool specimen to return to work?

A: Stool

- Stool is specified in the 105 CMR 300 regulations and aligns with fecal-oral transmission of enteric pathogens

Disease	Minimum Period of Isolation of Patient	Minimum Period of Quarantine of Contacts
Salmonellosis a) Not including typhoid fever	After diarrhea has resolved, food handlers may only return to food handling duties after producing one negative stool specimen. If a case was treated with an antimicrobial, the stool specimen shall not be collected until at least 48 hours after cessation of therapy. In outbreak circumstances, two negative stool specimens produced at least 24 hours apart will be required prior to returning to food handling duties.	Contacts with diarrhea, who are food handlers, shall be considered the same as a case and handled in the same fashion. In outbreak circumstances, asymptomatic contacts who are food handlers shall be required to produce two negative stool specimens produced at least 24 hours apart prior to returning to food handling duties. Otherwise, no restrictions.

FAQs

Q: If a foodhandler needs to be excluded from work, who does it? The LBOH where they live or the LBOH where they work?

A: LBOHs should coordinate foodhandler clearance together

LBOH where case lives

- Obtains information about case's occupation and employer
- Identifies if individual meets the 105 CMR 300 definition of a foodhandler (reviews job duties as needed)
- Notifies LBOH where case works that they are a foodhandler, shares MAVEN event(s) as needed

LBOH where case works

- Communicates with case's workplace about exclusion and when they can return to work
- 105 CMR 590: The regulatory authority shall release a food employee from restriction or exclusion
- Ensures 105 CMR 300 criteria are met to return to work

LBOHs should work together to coordinate

- Communicating with case about need for negative specimen(s)
- Receiving documentation/evidence of negative test result(s)
- Notifying case and employer when return-to-work criteria have been met

These are suggestions and not rules.

FAQs

Q: If a foodhandler needs to be excluded from work, who does it? The LBOH where they live or the LBOH where they work?

A: LBOHs should coordinate foodhandler clearance together

Share with us! Put your response in the Q&A:

How have you coordinated foodhandler exclusion and clearance to return to work with other jurisdictions? What has worked well, and what hasn't?

LBOHs should work together to coordinate

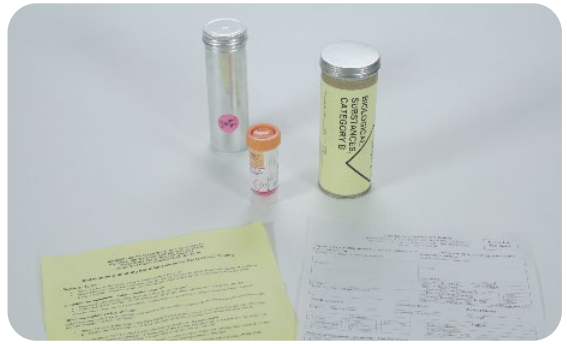
- Communicating with case about need for negative specimen(s)
- Receiving documentation/evidence of negative test result(s)
- Notifying case and employer return-to-work criteria have been met

These are suggestions and not rules.

Feedback Received During Webinar

- It is important to clearly define the two LBOHs' roles
  - Some towns are steadfast in how this should be done
- It can be confusing for the case and their employer if one is talking to one LBOH (where the case lives) and the other is talking to another (where the case works); they don't understand why they are talking to different LBOHs

FAQs



Q: Can MDPH perform stool testing for a foodhandler who needs to produce negative stool specimen(s) to return to work?

A: Generally, no

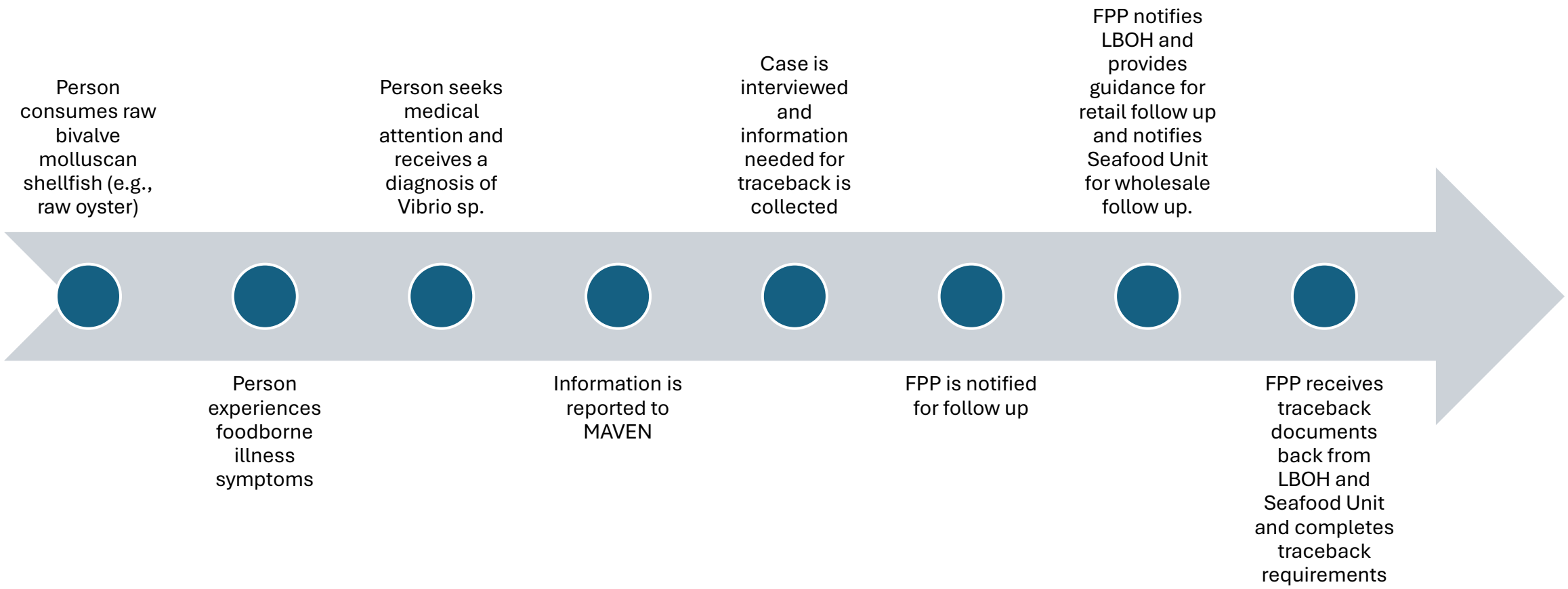
- The MDPH State Public Health Laboratory (SPHL) performs stool testing during enteric disease outbreaks
- Foodhandlers should seek clearance testing through their routine medical provider
- Testing may be available at SPHL for uninsured foodhandlers
  - Call the Division of Epidemiology (617) 983-6800 for these situations. Testing needs to be approved by SPHL.

Vibrio Investigations and Environmental Follow Up

Why Case Interviews are Important

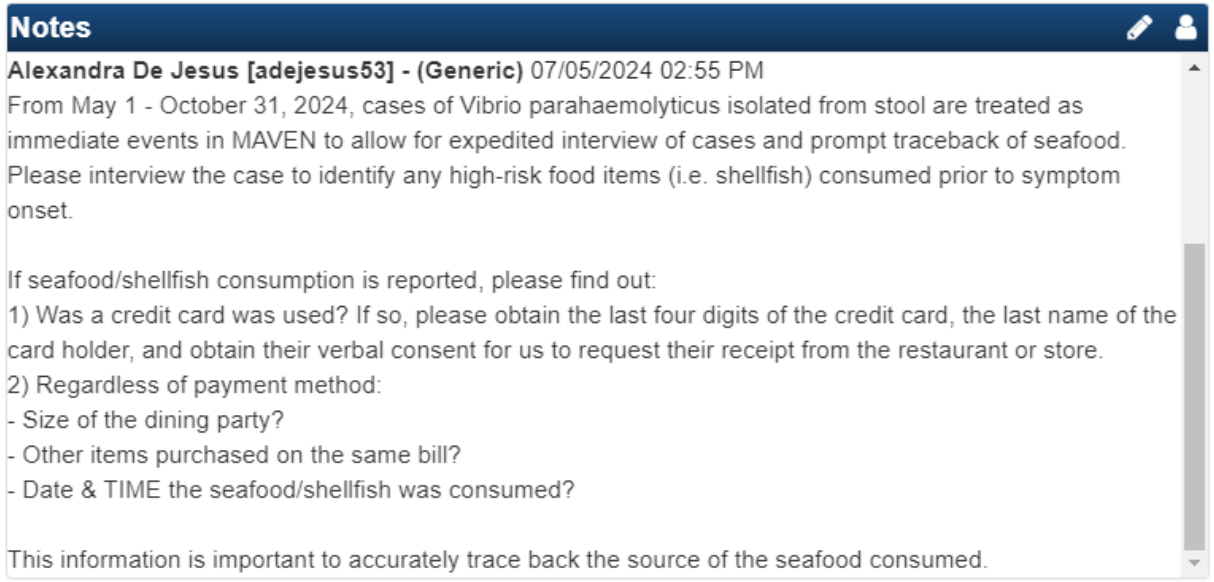
Abbreviated Investigation Timeline

*For cases of Vibrio species detected in stool



LBOH's Role

- Conducting interviews with reported cases.
- Collecting all information needed for traceback.
  - DPH Epi will put a note in the event outlining needed information.
- Creating a foodborne illness complaint event when needed.



Review presentation in MAVEN Help titled "*Cyclospora* and *Vibrio* Case Investigations" for additional information. Slides, Recording

Food Protection Program's (FPP) Role

- Upon notification of a *Vibrio* case in need of traceback, FPP reviews information and requests interviewer to collect any missing information.
- FPP informs the LBOH for follow up (where the case ate) and provides contact info for the assigned FPP inspector or FPP Food Safety Trainers to receive guidance remotely if needed.
- Provide deidentified case information to LBOH investigators and outline turn around time for record collection.

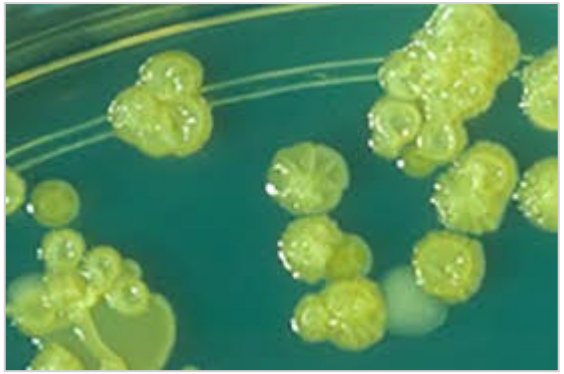
Why Is Collecting This Information Critical?

- Outbreak monitoring.
- Vibrio investigations are prioritized for follow up by FPP.
  - Information needs to be collected as soon as possible by interviewers.
- Information gathered through interviews is used by investigators to narrow down the oysters consumed by a case.
  - The goal is to identify the exact oysters consumed.
- FPP needs to identify harvest areas as quickly as possible.
- If multiple illnesses are associated with a single growing area, we work with the Division of Marine Fisheries (DMF) to determine if the situation meets criteria for a growing area closure.

Coming soon: *Cronobacter*

Cronobacter

- *Cronobacter* species are an opportunistic bacteria linked to illnesses and outbreaks of life-threatening necrotizing enterocolitis, meningitis, and sepsis in neonates, infants, and other susceptible populations
- Most common in infants < 2 months old, often cause death
- Infants born prematurely or with weakened immune systems are at increased risk of illness
- Illness usually starts with fever and poor feeding, excessive crying, or very low energy. Some may have seizures



Cronobacter epidemiology

- *Cronobacter* can survive in desiccated material like powdered infant formula, as well as hospital and home environments for long periods of time
  - Powdered infant formula has been linked to nearly all *Cronobacter* infections for which a source was found

HEALTH

Stop using these baby formulas, the FDA says, after 4 infants are hospitalized

FEBRUARY 18, 2022 · 3:32 PM ET

By Rina Torchinsky

Similac powdered baby formula with an expiration date on or after April 1, 2022, and a code with first two digits of 22 through 37 and containing K8, SH or Z2 are part of a voluntary recall by its manufacturer, Abbott Nutrition.

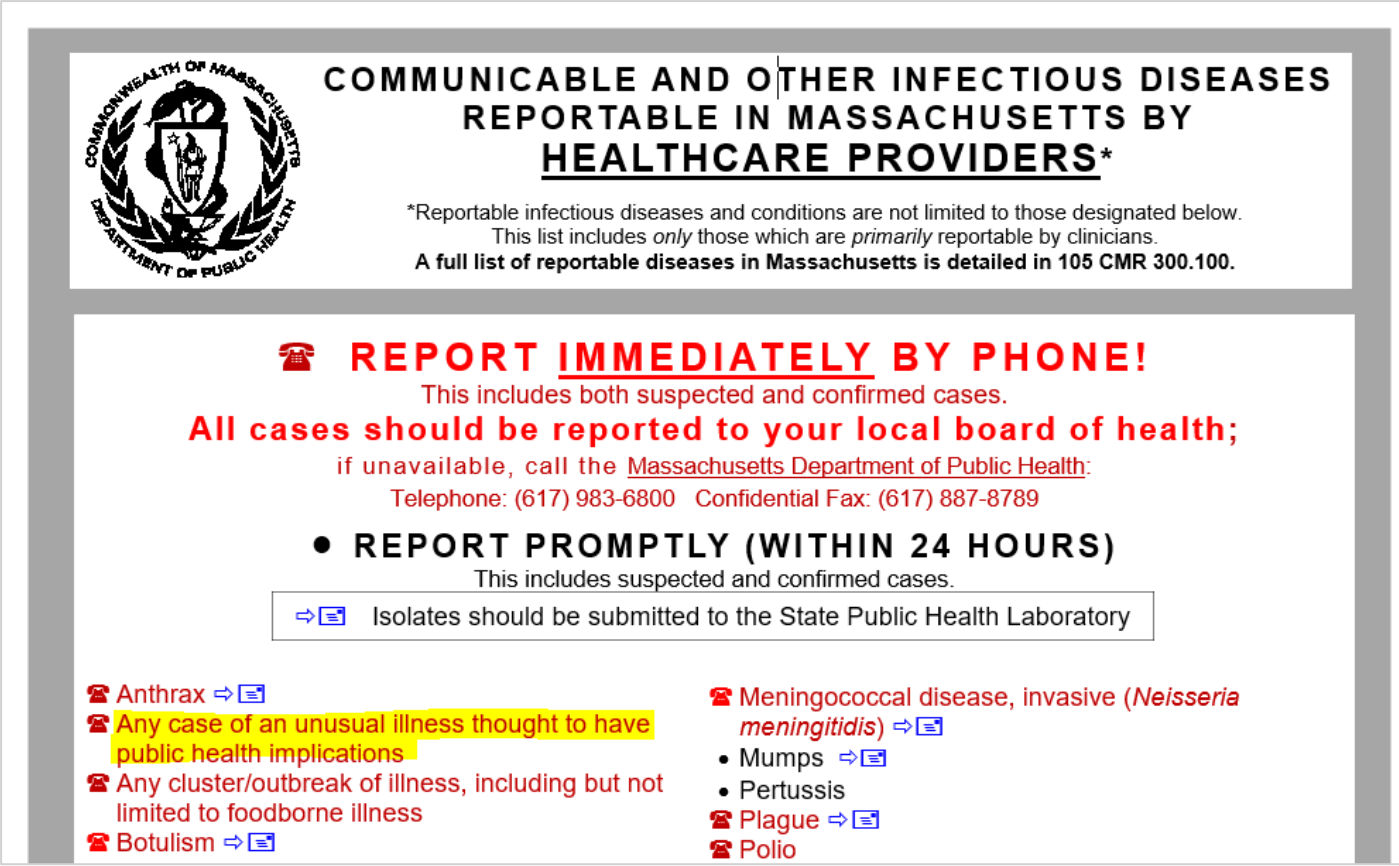
Bing Guan/Reuters

NPR

Nationally notifiable

- Invasive *Cronobacter* infections among infants <12 months of age was added to the list of nationally notifiable conditions in 2024
  - MDPH is working on updating our reporting regulations for health care providers and laboratories (105 CMR 300)
- The number of annual cases in the United States is unknown
  - CDC receives 2-4 reports of severe Cronobacter infections in infants annually, but only two states required reporting prior to 2024
  - Incidence of invasive *Cronobacter* infections in infants in the US is estimated to be 0.49 cases per 100,000 infants, or 9-20 cases annually

Reporting of *Cronobacter* currently



COMMUNICABLE AND OTHER INFECTIOUS DISEASES REPORTABLE IN MASSACHUSETTS BY **HEALTHCARE PROVIDERS***

*Reportable infectious diseases and conditions are not limited to those designated below. This list includes *only* those which are *primarily* reportable by clinicians.
A full list of reportable diseases in Massachusetts is detailed in 105 CMR 300.100.

☎ REPORT IMMEDIATELY BY PHONE!

This includes both suspected and confirmed cases.

All cases should be reported to your local board of health;

if unavailable, call the Massachusetts Department of Public Health:

Telephone: (617) 983-6800 Confidential Fax: (617) 887-8789

• REPORT PROMPTLY (WITHIN 24 HOURS)

This includes suspected and confirmed cases.

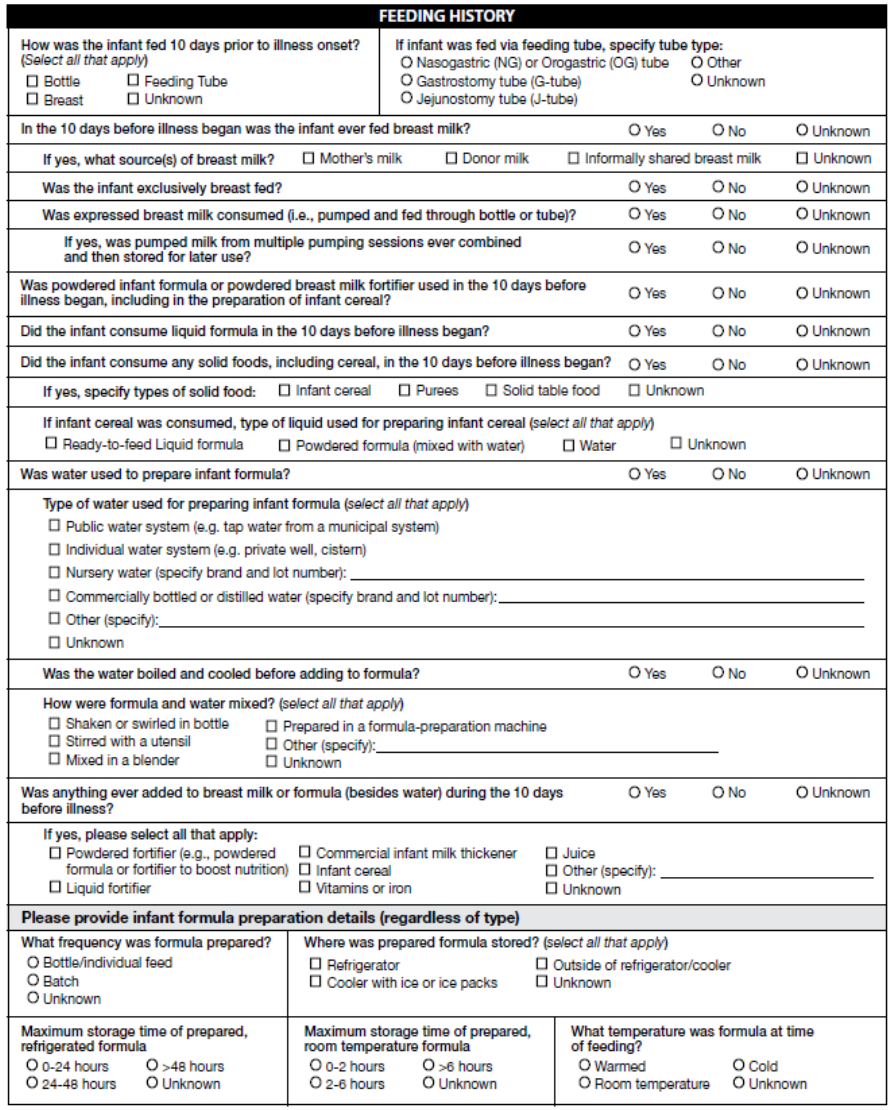
⇨ Isolates should be submitted to the State Public Health Laboratory

- ☎ Anthrax ⇨
- ☎ Any case of an unusual illness thought to have public health implications
- ☎ Any cluster/outbreak of illness, including but not limited to foodborne illness
- ☎ Botulism ⇨
- ☎ Meningococcal disease, invasive (*Neisseria meningitidis*) ⇨
- Mumps ⇨
- Pertussis
- ☎ Plague ⇨
- ☎ Polio

- While it has not been added to 105 CMR 300 yet, we would expect to be notified by healthcare providers as a case of unusual illness thought to have public health implications
- A *Cronobacter* product code (event) was added in the MAVEN J release in June 2024 (we're ready!)
- Notify MDPH Division of Epidemiology immediately if a suspect case is reported to you (617) 983-6800

Cronobacter case investigations

- Cases will be documented in MAVEN using a new "Cronobacter" disease event
- An MDPH epidemiologist will be assigned to suspect cases, who will:
  - Work with LBOH to complete MAVEN question packages and an additional CDC Case Report Form (5 pages)
  - Ensure clinical isolates are submitted to the State Public Health Lab
  - Work with the Food Protection Program and SPHL to coordinate the submission of food or environmental samples, as needed



FEEDING HISTORY

How was the infant fed 10 days prior to illness onset? (*Select all that apply*)
☐ Bottle ☐ Feeding Tube
☐ Breast ☐ Unknown

If infant was fed via feeding tube, specify tube type:
○ Nasogastric (NG) or Orogastric (OG) tube ○ Other
○ Gastrostomy tube (G-tube) ○ Unknown
○ Jejunostomy tube (J-tube)

In the 10 days before illness began was the infant ever fed breast milk? ○ Yes ○ No ○ Unknown

If yes, what source(s) of breast milk? ☐ Mother's milk ☐ Donor milk ☐ Informally shared breast milk ☐ Unknown

Was the infant exclusively breast fed? ○ Yes ○ No ○ Unknown

Was expressed breast milk consumed (i.e., pumped and fed through bottle or tube)? ○ Yes ○ No ○ Unknown

If yes, was pumped milk from multiple pumping sessions ever combined and then stored for later use? ○ Yes ○ No ○ Unknown

Was powdered infant formula or powdered breast milk fortifier used in the 10 days before illness began, including in the preparation of infant cereal? ○ Yes ○ No ○ Unknown

Did the infant consume liquid formula in the 10 days before illness began? ○ Yes ○ No ○ Unknown

Did the infant consume any solid foods, including cereal, in the 10 days before illness began? ○ Yes ○ No ○ Unknown

If yes, specify types of solid food: ☐ Infant cereal ☐ Purees ☐ Solid table food ☐ Unknown

If infant cereal was consumed, type of liquid used for preparing infant cereal (*select all that apply*)
☐ Ready-to-feed Liquid formula ☐ Powdered formula (mixed with water) ☐ Water ☐ Unknown

Was water used to prepare infant formula? ○ Yes ○ No ○ Unknown

Type of water used for preparing infant formula (*select all that apply*)
☐ Public water system (e.g. tap water from a municipal system)
☐ Individual water system (e.g. private well, cistern)
☐ Nursery water (specify brand and lot number): _____
☐ Commercially bottled or distilled water (specify brand and lot number): _____
☐ Other (specify): _____
☐ Unknown

Was the water boiled and cooled before adding to formula? ○ Yes ○ No ○ Unknown

How were formula and water mixed? (*select all that apply*)
☐ Shaken or swirled in bottle ☐ Prepared in a formula-preparation machine
☐ Stirred with a utensil ☐ Other (specify): _____
☐ Mixed in a blender ☐ Unknown

Was anything ever added to breast milk or formula (besides water) during the 10 days before illness? ○ Yes ○ No ○ Unknown

If yes, please select all that apply:
☐ Powdered fortifier (e.g., powdered formula or fortifier to boost nutrition) ☐ Commercial infant milk thickener ☐ Juice
☐ Liquid fortifier ☐ Infant cereal ☐ Other (specify): _____
☐ Vitamins or iron ☐ Unknown

Please provide infant formula preparation details (regardless of type)

What frequency was formula prepared?
○ Bottle/individual feed
○ Batch
○ Unknown

Where was prepared formula stored? (*select all that apply*)
☐ Refrigerator ☐ Outside of refrigerator/cooler
☐ Cooler with ice or ice packs ☐ Unknown

Maximum storage time of prepared, refrigerated formula
○ 0-24 hours ○ >48 hours
○ 24-48 hours ○ Unknown

Maximum storage time of prepared, room temperature formula
○ 0-2 hours ○ >6 hours
○ 2-6 hours ○ Unknown

What temperature was formula at time of feeding?
○ Warmed ○ Cold
○ Room temperature ○ Unknown

Q&A