



Enteric (Gastrointestinal Illness)

Disease Investigations

2023 Season Refresher

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Overview

- Refresher on enteric diseases
 - Five steps in enteric disease investigations
- Whole Genome Sequencing (WGS) clusters
- New and updated tools for investigators
- Disease-specific reminders
- MAVEN changes coming soon



Existing, and still relevant resources in MAVEN Help



Recorded webinar presentations

- Introduction to Enteric (Gastrointestinal Illness) Disease Case Investigations (May 2022) [Slides](#), [Recording](#)
- Cyclospora and Vibrio Case Investigations (June 2022) [Slides](#), [Recording](#)
- Overview and Updates to Cryptosporidium and Shigella Case Investigations (August 2022) [Slides](#), [Recording](#)

Tip sheets

- [Implementing the Exclusion of Food Handlers with Reportable Conditions](#)
- [Creating Foodborne Illness Complaint Events](#)

Other Tools

- Interpreter services are still available to LBOHs through LanguageLine Solutions®



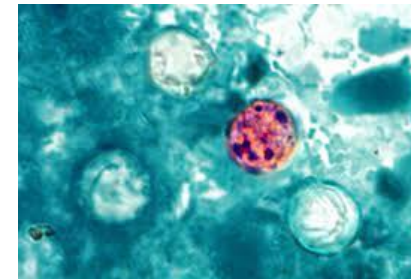
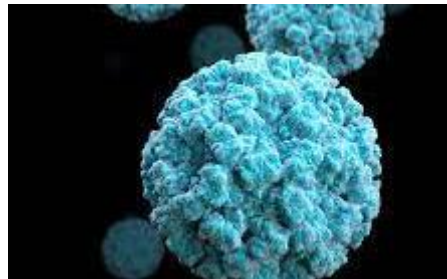
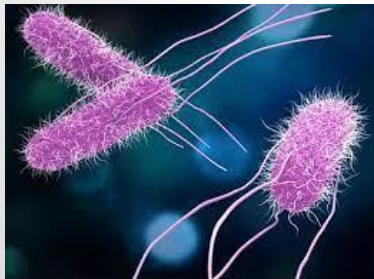
Enteric Disease Overview

- Enteric infections are caused by bacteria, viruses, parasites, and toxins that usually enter the body through the mouth and cause gastrointestinal illness
- Reportable enteric diseases that may require routine or **immediate** LBOH follow up:

Bacterial	
Botulism	Salmonellosis
Campylobacteriosis	Shigellosis
Listeriosis	Typhoid Fever
Shiga toxin-producing E.coli (STEC)	Vibriosis

Viral
Hepatitis A
Norovirus

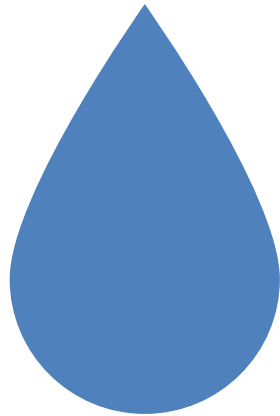
Parasitic
Amebiasis
Cryptosporidiosis
Cyclosporiasis
Giardiasis



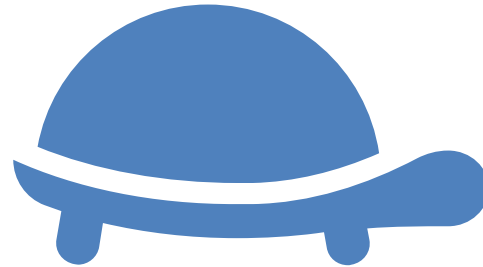
Modes of Transmission



Ingestion of
contaminated
food



Ingestion of
contaminated
water



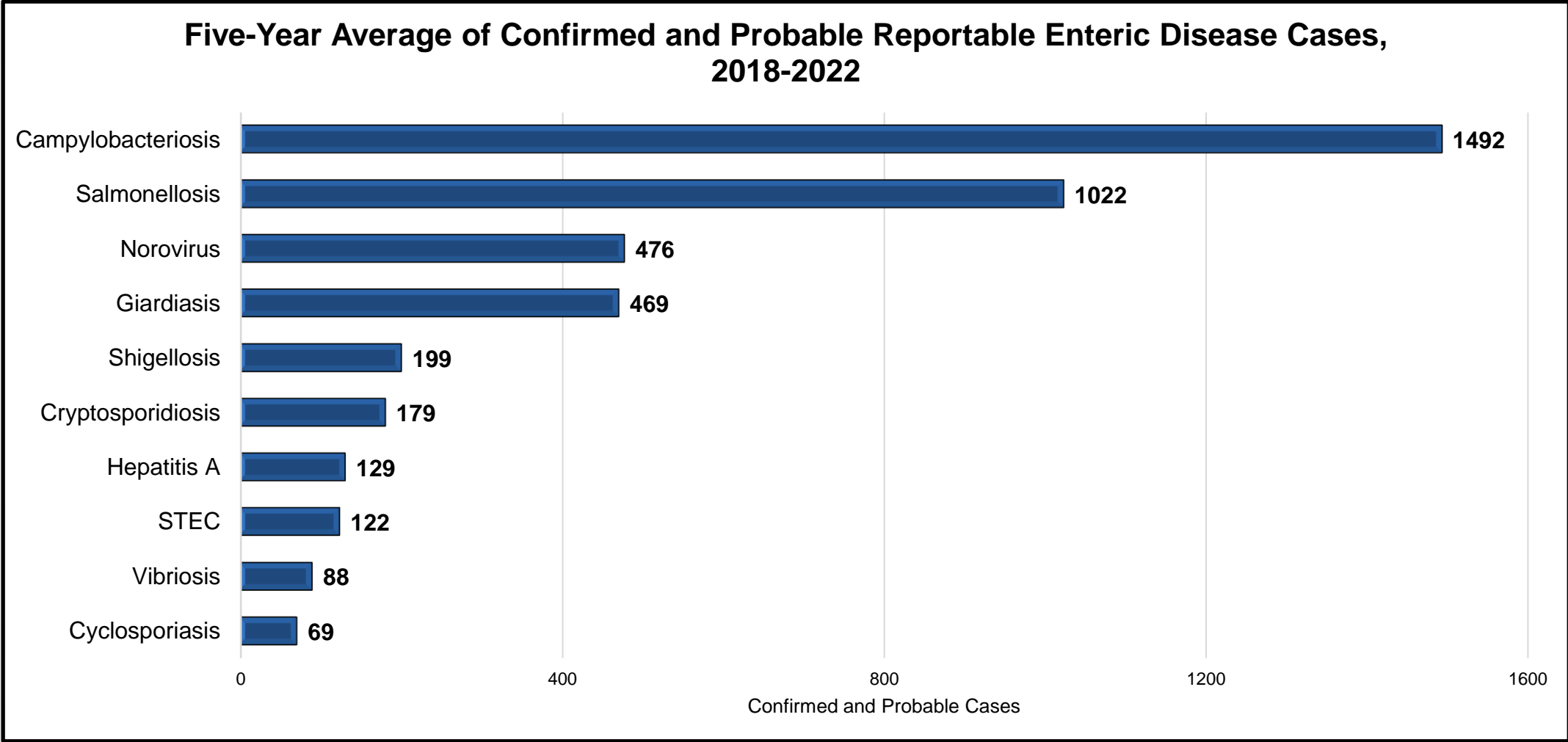
Contact with
animals or pets



Contact with an
infected person
(direct contact,
surfaces)



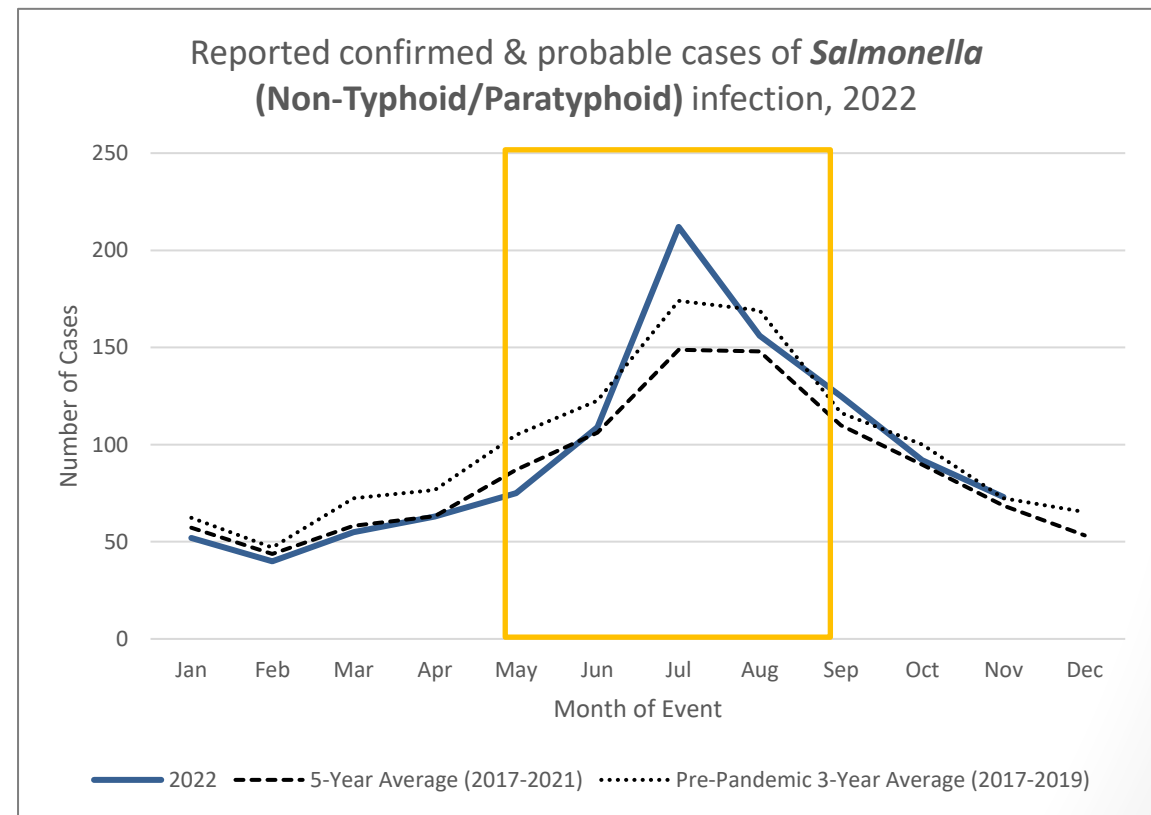
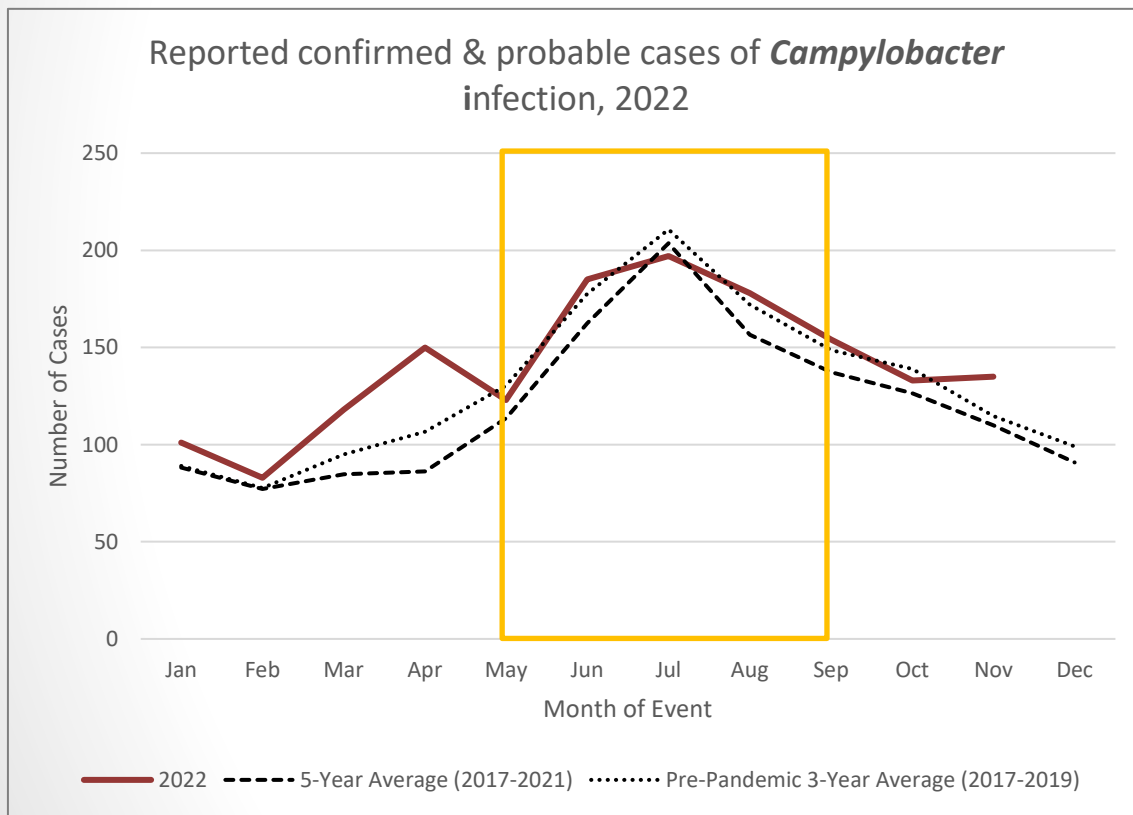
Enteric Disease in Massachusetts



All reportable enteric diseases with <50 cases were not included. Typhoid fever cases were included in the salmonellosis case count.
Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences. Data are current as of 3/27/2023 and may be subject to change.

Enteric Diseases are Seasonal

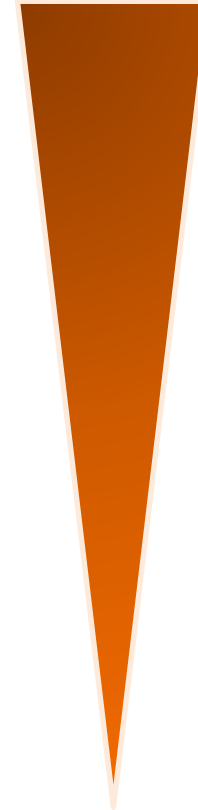
- ...and that season is now



Goals of Enteric Disease Case Interviews

- To identify case-patients and their household contacts who work in **high-risk settings** (e.g., food handlers, childcare workers, healthcare workers)
- To provide **prevention** information to case-patients to protect themselves and others from future infections
- To **collect exposure information** to support the identification of outbreaks and clusters
- To collect clinical information to understand illness **trends**

Immediate Goal



Big-picture Goal



Steps in an Enteric Disease Case Investigation

1. Notification
2. Get prepared
3. Contact ordering provider/facility
4. Interview the case
5. Prevent further transmission
6. Notify DPH and other LBOHs as needed



Document investigation steps and information collected in MAVEN question packages



1) Notification

- LBOHs have primary responsibility to investigate most cases of enteric disease
- New cases flow into your “LBOH Notification for Routine Disease” workflow
- DPH assistance is available for:
 - Immediate diseases
 - Cases included in a Whole Genome Sequencing (WGS) cluster



2) Get Prepared

- **Familiarize yourself with the disease**
 - Incubation period, symptoms, modes of transmission, high risk foods or exposures, prevention
 - [Guide to Surveillance](#)
 - [Fact Sheets](#)
 - Food handler exclusion requirements (for case & household contacts)
 - Resource: [Summary of 105 CMR 300](#), [Implementing the Exclusion of Food Handlers with Reportable Conditions](#)
 - Childcare, school, and congregate care exclusion recommendations can be found in Guide to Surveillance chapters
- **Review information available in MAVEN**
 - Demographics: Age, race, address, contact information
 - Lab: Specimen source, test type, ordering facility



3) Contact ordering provider

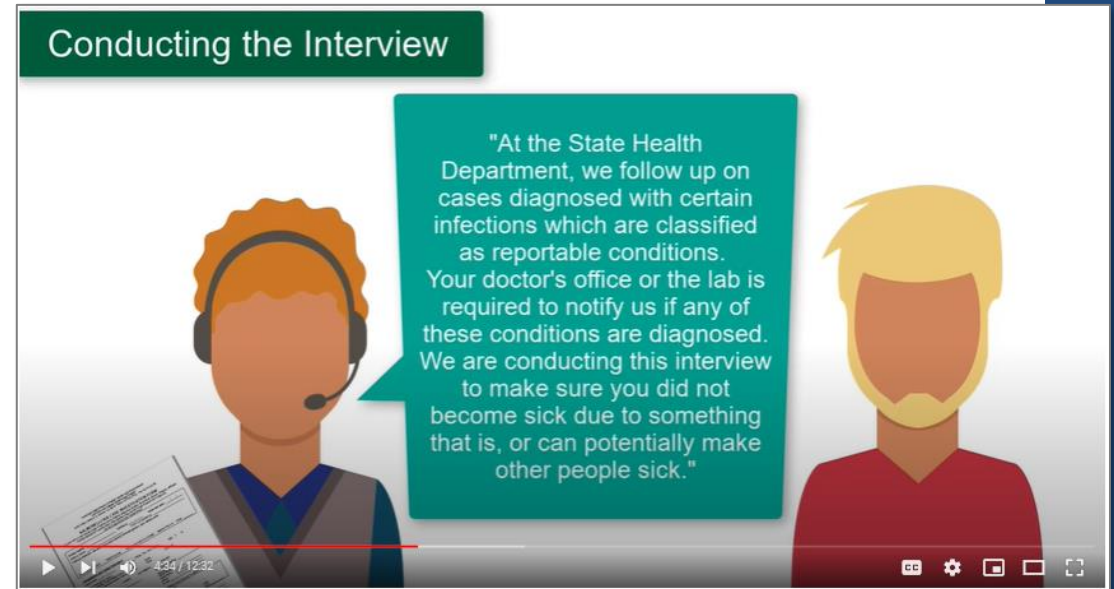
- Information can be obtained from an Infection Preventionist (if ordering provider is located at a hospital) or nurse at the ordering provider's office
- During conversation:
 - Confirm contact information, obtain additional phone number(s) or email address
 - Obtain symptom onset date, clinical presentation
 - Collect any available information on exposures during incubation period (e.g., travel)
 - Request case's occupation and employer
 - Ask if the case has been informed of their diagnosis
- Complete MAVEN question packages with information obtained



4) Interview case

- Introduce yourself and explain why you are calling, what information will be used for, and who has access to information shared
- Complete all question packages (Demographic, Clinical, Risk) with case
 - Exposure history time period of interest is cited at the top of the Risk QP in events
 - If a case is unable to recall food history, answer questions based on what they typically eat
- Document exposure information collected in relevant variables in QPs

[Interviewing Skills for Public Health Investigators](#)



What innovative ways have you used to reach cases?



At the MAPHN annual conference in May, we asked attendees for their input. Here are tips and tricks shared by fellow public health nurses.

Making Contact with the Case

- In Framingham we found that people were more likely to pick up the phone 8pm-11pm. In addition, the city customized our caller ID to “Framingham Nurse,” which helped.
- In Southboro we changed phone lines to say Southboro Health Department on caller ID when calling and found residents were more likely to pick up
- Letters of disease notices to patient by mail

Language Barriers

- Google docs translate: can translate letters/documents into language spoken
- [sayhi](#) app. Translation is free
- Use a language line/interpreter for ESL residents

Other

- Always lead conversation with empathy, “How are you feeling?”



4) Interview case

Pop Quiz: A public health nurse calls you today (6/13) about a specimen you submitted on 6/8 that tested positive for *Salmonella*. You report your symptoms began two days before that. What did you eat during the 7 days prior to illness?

Help to orient the case:

- Remind them the day of the week that their specimen was collected, any major holidays or notable weather during their incubation period

To help promote recall, ask the case to:

- Review their personal and/or work calendar for scheduled events, appointments that had them travel away from home, etc.
- Review credit card or bank statements online to look for where they may have purchased food (grocery stores, restaurants), places they may have gone (farms, events)
- Review their phone's photo album

2023 JUNE						
SUN	MON	TUE	WED	THU	FRI	SAT
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1
2	3	4	5	6	7	8



5) Prevent further transmission

The **MAVEN Risk QP** prompts you to ask about high-risk settings:

Supervised care settings include daycares, schools, long term care facilities, correctional facilities, etc. Complete the following question for any supervised care setting attendance or employment the case had during their incubation period or while symptomatic.	
Employed or attend a supervised care setting?	<input type="text"/>
Is contact of case employed or attending a supervised care setting?	<input type="text"/>
Foodhandler: a person directly preparing or handling food, including preparing trays of food, feeding other persons, administering oral medications, or giving mouth/denture care (see 105 CMR 300.000)	
Is case a foodhandler? ⓘ	<input type="text"/>
Is household or close contact of the case a foodhandler? ⓘ	<input type="text"/>



Supervised care

Daycares, schools, long term care, correctional facility, etc.



Food handlers



5) Prevent further transmission

Daycare/School Attendee

- Exclusion recommendations can be found in the “Daycare” and “School” sections of the [Guide to Surveillance](#)

Long Term Care Resident

- Resource: [Infection Prevention in Long Term Care: Gastrointestinal Disease](#)
 - Residents with gastrointestinal symptoms should be placed on standard plus contact precautions for the duration of their illness; those with a bacterial or parasitic infection should remain on precautions until a negative stool specimen is produced.

Evaluate if there is an outbreak: In addition to providing exclusion recommendations and precautions related to the individual, also reach out to the facility to find out if others (staff or attendees/residents) are experiencing similar illness.



5) Prevent further transmission

105 CMR 300 definition

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.

Examples of roles that are generally considered to have food handling duties

Always	Most of the time	Sometimes
Cook/food prep worker Bartender Waiter/waitress Childcare worker Dentist Dental hygienist Dishwasher	Food establishment manager Grocery store worker Food processing plant worker Host/hostess Paramedic/EMT Pharmacist	Physician Physician assistant Nurse Health aide

MAVEN Tip Sheet:
[Implementing the
Exclusion of Food
Handlers with
Reportable Conditions](#)



6) Notify DPH and other LBOHs as needed

- Report any **suspected outbreak** of illness within 24 hours to MDPH:
 - If case investigation indicates two or more people from different households became ill with similar symptoms after a common exposure, notify the Division of Epidemiology **(617) 983-6800**
 - Can also be reported as a MAVEN cluster or foodborne illness complaint event
- Create a **MAVEN Foodborne Illness (FBI) Complaint**
 - FBI complaint events are used to communicate high-risk exposures reported by diagnosed cases to those who permit or license implicated food establishments
 - Food Protection Program (FPP) reviews FBI complaints and forwards them to the appropriate jurisdiction
 - LBOHs are expected to notify inspectional services for establishments within their jurisdiction. The MAVEN FBI complaint event can be printed to share with inspectors who are not on MAVEN.



Foodborne Illness (FBI) Complaint Events in MAVEN

- Create a **MAVEN Foodborne Illness (FBI) Complaint** event if the case reports the following during their incubation period:
 - Eating a food away from home with sufficient details available (name of establishment, location, and date of purchase/consumption)
 - Eating a food consistent with the pathogen
 - Always create one for raw milk, unpasteurized juice/cider, or raw shellfish
 - Handling a locally produced pet food or pet treat
 - Is an infant that is primarily formula-fed

Guidance is available in MAVEN Help: [Creating Foodborne Illness Complaint Events](#)

- **Updates to the FBI Tip Sheet for 2023:**
 - Creating FBI complaint events for infants who are primarily formula fed
 - Reminder to obtain a 72-hour food history for undiagnosed complainants



When is it “too late” to investigate?

When is it “too late” to investigate?

- MDPH advises that enteric disease cases within 2 months of their event date should be investigated by reaching out to the case and ordering provider.

When is an investigation lost to follow up?

- It is recommended that at least three call attempts are made at different times of day before considering a case lost to follow up.
- If a case has not responded to outreach attempts, contact should be made with the ordering provider to collect:
 - Clinical presentation and symptom onset
 - Occupation and employer
 - Any available risk information

What would help improve your jurisdiction's enteric disease case investigations?



At the MAPHN annual conference in May, we asked attendees for their input. Here is feedback from fellow public health nurses.

Information sharing with clinicians

- Best way to establish HIPPA/ok-to-share with health department if we do not have access to fax machine
- Where are we on eCR and access to medical records within MAVEN?
- Public health EHR system and secure email would be fabulous to modernize things

Assist food handlers excluded from work

- Offer free stool testing for all individuals who are excluded from work due to food handling duties – help increase compliance and facilitate return to work. Burden to protect public health should not fall on individual.
- Financial assistance for food handlers missing work due to enteric disease

Communication

- Community education regarding infectious disease surveillance and case investigations and what to expect. It is difficult to have resources to do so by yourself.
- Now that “emergency over” – texting– how would you word that text?

Collection of exposure information by ordering providers

- Education/training to point-of-care sites on DPH exact policies and interviewing documentation in patient file, not just a small note that does not address DPH surveillance documentation
- Policy changes for MDs, NPs, and other healthcare providers: use some visit with interviewing so its not just a small note in patient file
- Policy change from primary care/medical side to take a more thorough history from patient when they first present with symptoms

Improved information on initial report in MAVEN

- Lack of information in MAVEN at times, i.e. phone number, physician information, if seen in ER who to call if patient sent home
- Put case's email into MAVEN!
- Offer option for cases to complete an online questionnaire for food interview questions – might help with recall and amount of information people share vs. phone interview

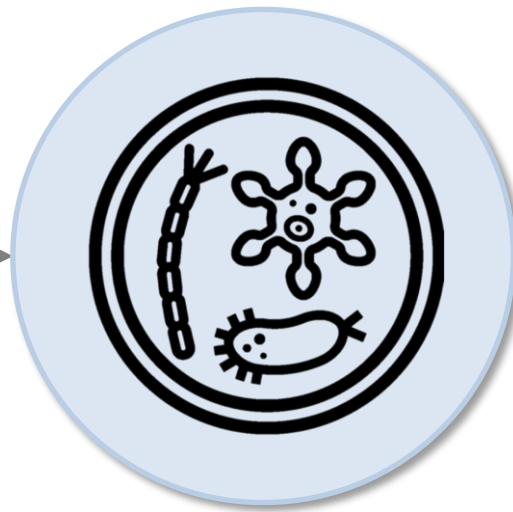


WHOLE GENOME SEQUENCING (WGS) CLUSTERS

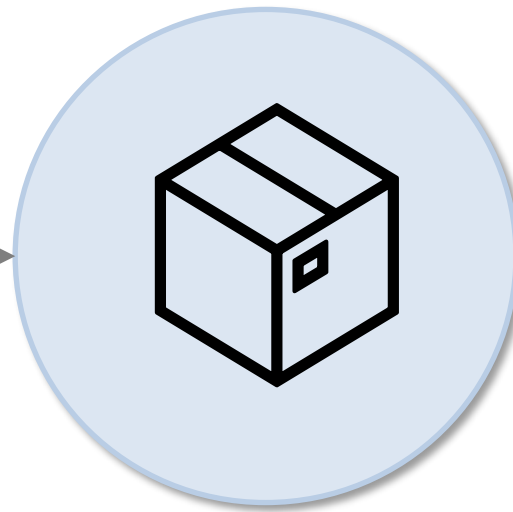
Submission of bacterial isolates to SPHL



Specimen submitted
for testing at a clinical
or commercial
laboratory

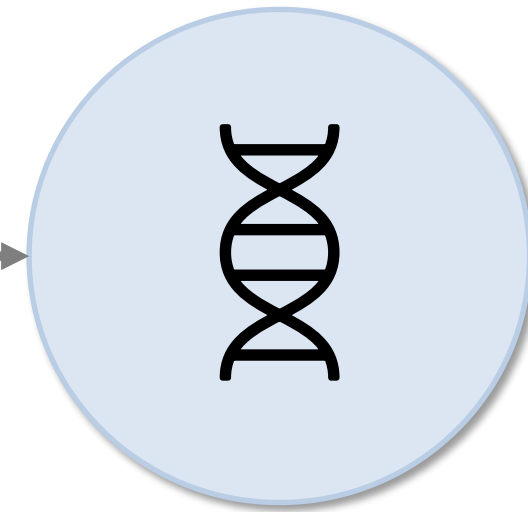


Bacterial organism
isolated



Bacterial isolate sent to
MA State Public Health
Lab (SPHL)

- Isolates required to be submitted per [105 CMR 300](#): *Campylobacter*, *Listeria*, *Salmonella*, Shiga-toxin producing *E. coli* (STEC), *Shigella*, *Vibrio*, *Yersinia*



Whole genome
sequencing is
performed*

- Isolates routinely sequenced: *Listeria*, *Salmonella*, STEC, *Shigella*, *Vibrio*
- Isolates sequenced upon request (usually when an epi-link is identified): *Campylobacter*, *Yersinia*

Whole Genome Sequencing (WGS)

- All organisms have a unique genetic code (genome) composed of nucleotide bases
- Sequencing is determining the order of the nucleotide bases
 - If you know the bases in an organism, you have identified its unique DNA fingerprint
- Sequences are analyzed by SPHL laboratorians and uploaded into a national database, PulseNet





WGS Cluster Investigations

- WGS cluster investigations are led by an MDPH epidemiologist and are considered something warranting immediate investigation.
- WGS clusters can be:
 - **Local:** genetically related cases reside only in MA
 - **Multi-state:** genetically related cases live in MA and outside of the state
- Role of MDPH epidemiologist:
 - Ensuring all cases have been interviewed with standard question packages in MAVEN
 - Reviewing demographic and exposure information across cases to develop a hypothesis about a common exposure
 - If a hypothesis is identified, work with others to investigate and test hypothesis (e.g., perform food/environmental testing, develop an analytic study)

Impact on LBOHs/Case Investigation

Could include:

- Expedited case interview
- Repeated case interviews
- Interview with more detailed questions
 - National Hypothesis Generating Questionnaire (NHGQ)
 - Focused Questionnaires
- Request for shopper purchase history information

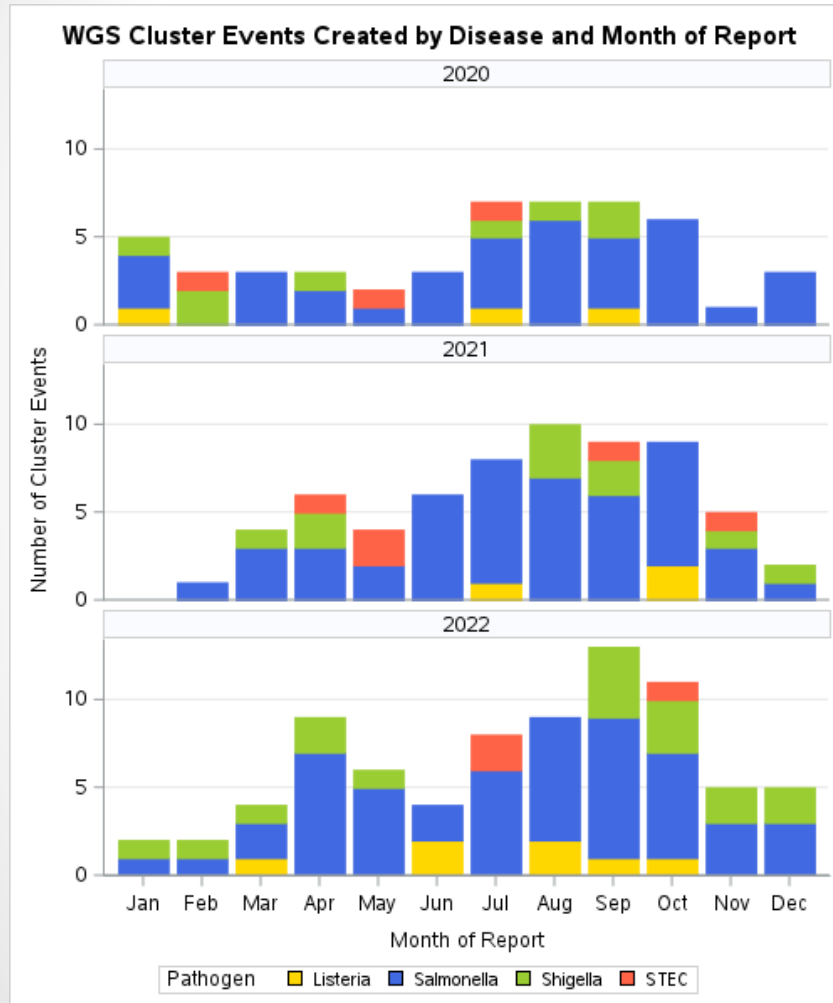


HYPOTHESIS GENERATING QUESTIONNAIRE FOR [ENTER PATHOGEN]		Form approved OMB No. 0920-0997 Expires 02/29/2020
PULSENET CLUSTER CODE: [ENTER CLUSTER CODE]		
Section 1: INTERVIEWER & PATIENT INFORMATION (Questions 1-10 to be completed by interviewer prior to questionnaire administration)		
1. PulseNet ID #:	2. State/Local/Other ID #:	
3. Date of interview:	(if unknown, enter 99/99/9999)	
4. Interviewer information Name:	Agency or Organization:	
5. Before this interview, how many times has the case been interviewed about their illness by a local, state, or federal public health representative? <input type="checkbox"/> None <input type="checkbox"/> Once <input type="checkbox"/> Twice <input type="checkbox"/> Other (specify # times):		
6. Language interview conducted in <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> Other (specify):		
7. Respondent was: <input type="checkbox"/> Self <input type="checkbox"/> Parent <input type="checkbox"/> Spouse <input type="checkbox"/> Other (specify):		
8. State and county of residence? State County		
9. Birth month and year: (if unknown, enter 99/9999)		
10. Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Unknown		
Section 2: CLINICAL INFORMATION: Now I have a few questions about your (your child's) illness.		
1. What date did you first feel sick? (if unknown, enter 99/99/9999)		
2. How many days total were you sick? days (enter 999 if unknown) or <input type="checkbox"/> Still sick		
Yes	Maybe	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Have any diarrhea (defined as at least 3 loose stools in 24 hours) <input type="checkbox"/> Refused		
a. What day did it start (if unknown, enter 99/99/9999)		
b. What day did it end (if unknown, enter 99/99/9999)		
4. Have any close contact with anyone with diarrhea or vomiting?		
a. When did this person first become ill <input type="checkbox"/> less than 24 hours before you <input type="checkbox"/> ≥ 24 hours before you <input type="checkbox"/> Unknown		
Section 3: TRAVEL: Next I have a couple of questions about any travel you (your child) might have done, either as part of your work or for pleasure.		
Yes	Maybe	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Did you spend all, or some, of the 7 days before you were ill outside of your home state?		
a. List all US states where you might have purchased or eaten foods. This would include foods eaten at airports, bus or train stations.		
i. List states: ii. Dates of travel:		
iii. List hotels/resorts stayed in during travel:		
<input type="checkbox"/> Did not travel outside state of residence		
<input type="checkbox"/> Did not purchase or eat food outside state of residence		
b. List all countries outside the United States where you might have purchased or eaten foods. This would include foods eaten at airports, bus or train stations.		
i. List countries: ii. Dates of travel:		
iii. List hotels/resorts stayed in during travel:		
<input type="checkbox"/> Did not travel outside of United States		
<input type="checkbox"/> Did not purchase or eat food outside United States		
Section 3 Comments. Please fill in any comments/notes from this section in the space provided below:		
<ul style="list-style-type: none"> • If the case spent the entire 7 days before illness onset outside the US, please be sure countries and travel dates are noted and skip to the end of the interview (page 11). • If the case spent only part of the 7 days before illness onset outside the US, please complete the remainder of the interview collecting only foods purchased or eaten in the US. 		

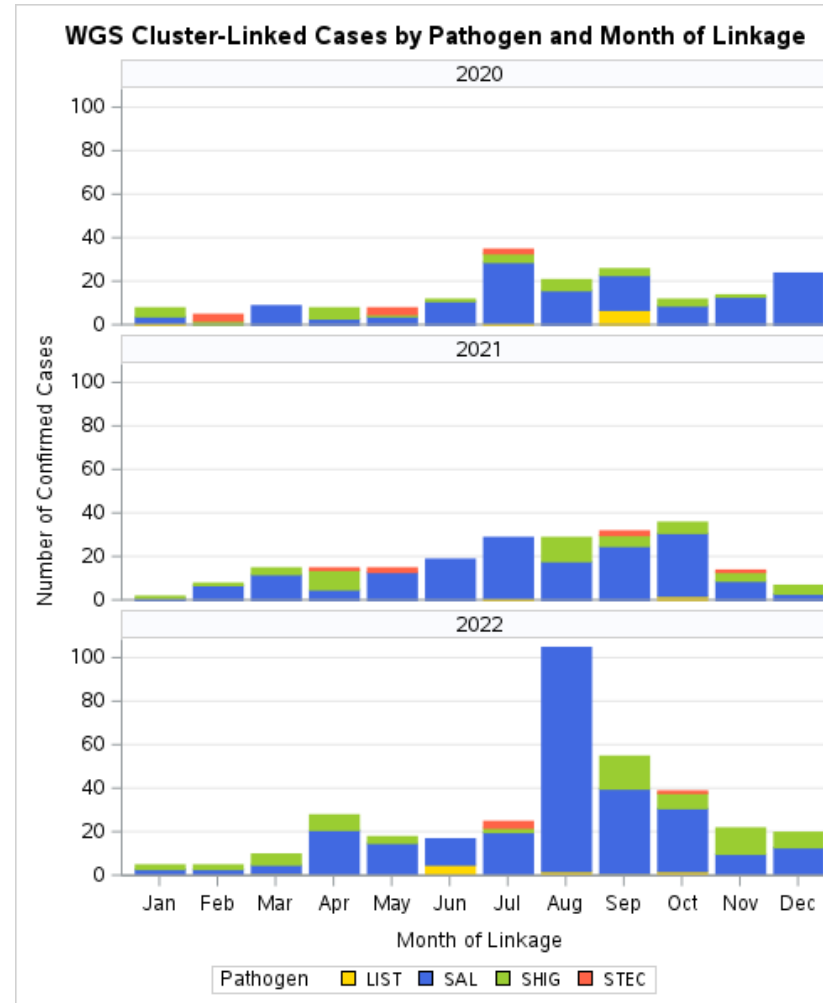


WGS Clusters in Massachusetts

Clusters



Cases



Key Points

- We investigate ~70 WGS clusters annually
- Over half of all WGS clusters investigated are *Salmonella*
- Approximately 20% of all confirmed *Salmonella* cases are included in a WGS cluster annually



Impact of reporting lag in WGS clusters

Week	Day	
1	1	Contaminated food eaten
	3	Symptoms begin
	5	Symptoms persist. Medical attention is sought, and clinical testing pursued
	6	Laboratory tests clinical sample
2	9	Clinical lab reports cause of illness
3	9-16	Bacterial isolate submitted to SPHL
4	16-21	SPHL performs WGS
	21	Isolate's WGS compared with others in MA
	22	WGS is shared with CDC via PulseNet
	23	CDC reviews WGS, determines if related to national isolates

Local WGS cluster detected

Multi-state WGS cluster detected

Bottom line: Complete collection of MAVEN Risk Question Package variables when a case is first reported helps with early outbreak detection and prevents further delays in identifying a common exposure once included in a WGS cluster.



Outbreak Exposures Identified via WGS or PFGE Cluster Investigations

	<i>Listeria</i>	<i>Salmonella</i>	Shiga toxin-producing <i>E. coli</i>	<i>Shigella</i>
MULTI-STATE	Ice cream Cantaloupe Frozen vegetables Packaged salads Enoki mushrooms Bean sprouts	Peanut butter Onions Cucumbers Frozen shredded coconut Ground turkey Wood ear mushrooms Papaya Frozen raw tuna Kratom Backyard poultry Small turtles	Ground beef Baby spinach Cake mix Romaine lettuce Flour SoyNut Butter Prepackaged cookie dough	Gay & bisexual men People experiencing homelessness
LOCAL	Retail delis	Restaurants Dehydrated dog treats Live bird markets	Restaurants Ground beef Recreational water	Childcare facilities Elementary schools Recreational water

Transmission
Foodborne
Waterborne
Animal contact
Person-to-person

PFGE = Pulsed-field gel electrophoresis. PFGE was used for “DNA fingerprinting” prior to the transition to WGS in 2019.



TOOLS FOR INVESTIGATORS



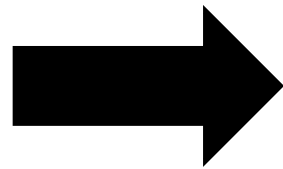
MAVEN Wizards

- A wizard is a virtual question package that pulls a subset of questions from multiple other MAVEN question packages.
- Over the past year, we considered creating wizards for enteric disease investigations.
 - Ultimately, they were determined not to be the best option for enteric disease investigations because asking a subset of risk questions would not provide a complete picture of the source of an infection.
 - Reminder: all of these questions are needed to detect and investigate outbreaks!
- However, in the MAVEN release anticipated in July 2023, unnecessary/repetitive questions will be dropped from question packages.

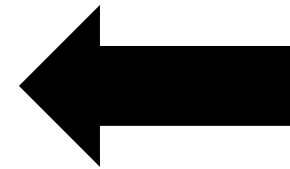
Disease-specific TIP SHEETS

- Can't remember the difference between *Shigella* and *Salmonella*?
- Has it been a while since you investigated a case of *Vibrio*?
- Are you responsible for investigating 20 different diseases and could use a quick reference to remember which is which?

NEW!
NEW!
NEW!



Disease-specific TIP
SHEETS in MAVEN Help



Campylobacter
Salmonella
Norovirus
Giardia
Shigella



TIP SHEET for *Salmonella* (Non-Typhoid/Paratyphoid) Case Investigations

- Disease: *Salmonella* is a bacterium that most commonly causes gastrointestinal illness. Most people experience diarrhea, fever, and abdominal cramps that last 4 to 7 days. An estimated 27% of individuals require hospitalization.
- Transmission & Incubation Period: *Salmonella* bacteria can be transmitted from birds, mammals, reptiles, and amphibians. Individuals become ill by swallowing the bacteria. This can occur by consumption of contaminated food, or when hands are not washed properly after contact with infected animals, contaminated pet food or treats, or an individual with *Salmonella* infection. Symptoms begin 6 hours to 6 days after exposure.

① Notification	<ul style="list-style-type: none">• LBOHs have primary responsibility to investigate cases of <i>Salmonella</i> in their jurisdiction. New cases will flow into your "LBOH Notification for Routine Disease" workflow.<ul style="list-style-type: none">◦ MDPH case interview assistance may be available if a case is included in a whole genome sequencing (WGS) cluster or believed to be part of an outbreak.
② Get Prepared	<ul style="list-style-type: none">• Familiarize yourself with the disease: MDPH Fact Sheets, MDPH Guide to Surveillance• Review food handler 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.<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">• 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:<ul style="list-style-type: none">◦ 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	<ul style="list-style-type: none">• 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.<ul style="list-style-type: none">◦ To improve exposure recall, encourage the case to look at their work and/or personal calendars, credit card or bank statements, and photos on their phone.◦ If a case cannot recall what they ate, ask case to answer questions based on what they typically eat.• Provide education on the disease and guidance on how to prevent further spread to their household members and close contacts.

← Quick disease and transmission refresher

← How you get notified

← Resources to help you get prepared

← List of items to ask when you reach out to the ordering provider

← Which question packages to complete with some reminders



Reminders for handling high-risk settings to prevent further transmission



When you should notify DPH



Recommendations regarding call attempts to case, information to collect if they cannot be reached



Additional resources



5 Prevent Further Transmission	Food handlers	<ul style="list-style-type: none">If individual meets the 105 CMR 300 definition of a food handler (see definition in “(2) Get Prepared”), they must be excluded from food handling duties until meeting clearance criteria:<ul style="list-style-type: none">In non-outbreak circumstances: after diarrhea has resolved, one negative stool specimen produced 48 hours after completion of any antimicrobial therapy.Implementing the Exclusion of Food Handlers with Reportable Conditions
	Childcare	<p>Exclusion:</p> <ul style="list-style-type: none">Most staff in childcare settings are considered food handlers. Staff should be excluded following food handler criteria above.Children should be excluded until diarrhea has resolved, and in accordance with childcare facility’s illness policy. <p>Identify if there is an outbreak at the facility:</p> <ul style="list-style-type: none">Contact the facility (or the local health department where the facility is located, if outside your jurisdiction) to find out if others are experiencing similar illness.
	Long-term care	<p>Exclusion & precautions:</p> <ul style="list-style-type: none">Staff who meet the definition of a food handler should be excluded following food handler criteria above.Residents should be placed on standard plus contact precautions for the duration of their illness and remain on precautions until a negative stool specimen is produced. Infection Prevention in Long Term Care: Gastrointestinal Illness <p>Identify if there is an outbreak at the facility:</p> <ul style="list-style-type: none">Contact the facility (or the local health department where the facility is located, if outside your jurisdiction) to find out if others are experiencing similar illness.
6 Notify DPH as Needed		<ul style="list-style-type: none">Suspected outbreaks are reportable to MDPH within 24 hours. If case investigation indicates that two or more people from different households became ill with similar symptoms after a common exposure, notify the Division of Epidemiology: (617) 983-6800Create a MAVEN foodborne illness complaint if the case reports any of the following during their incubation period:<ul style="list-style-type: none">Eating food away from home with sufficient details available (name of establishment, location, and date of purchase/consumption at a minimum; ideally also item(s) consumed);Eating a food consistent with the pathogen, especially high-risk foods like raw milk, unpasteurized juice/cider, or raw shellfish;Handling a locally produced pet food or pet treat; orIs an infant that is primarily formula fed.
Other Notes		<ul style="list-style-type: none">It is recommended that three call attempts are made at different times of day to reach a case for interview. Consider texting or emailing a case requesting a call back if they are not responsive.<ul style="list-style-type: none">If a case cannot be reached, collect the following from the ordering provider before closing out the case: symptom onset and clinical presentation, occupation and employer, and any exposure information available in the medical notes.Completion of all exposure questions in the MAVEN Risk Question Package is essential for detecting outbreaks and preventing further transmission. Many exposure questions for this disease will appear as child questions based upon specific answers in earlier questions.
Additional Resources		<ul style="list-style-type: none">May 2022 webinar: Introduction to Enteric (Gastrointestinal Illness) Disease Case Investigations Slides, RecordingMDPH Division of Epidemiology: (617) 983-6800



DISEASE-SPECIFIC REMINDERS



Cyclospora & *Vibrio*: Seasonal switch from routine to immediate

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
				<i>Cyclospora</i>							
				<i>Vibrio parahaemolyticus</i> in stool							

As an immediate disease:

- Expectation to conduct case investigation within 1 business day of report
- Prioritize over routine investigations
- An MDPH epidemiologist will also be assigned to the case to ensure prompt case investigation and assist with follow-up as needed



Why the seasonal switch?

Goal: To quickly conduct case interview and obtain an accurate food history.

This allows for identification of common exposures among cases, and prevention of additional illness.

Cyclospora

- No routine whole genome sequencing to identify cases likely to have a shared exposure.
- Foods or restaurants commonly reported across cases are investigated.
- Implicated foods are recalled and removed from the food supply.

Vibrio parahaemolyticus (Vp)

- Bacteria naturally increase in coastal water during the summer.
- Shellfish exposures reported by cases are shared with the MDPH Food Protection Program for prompt traceback.
- Commonly implicated harvest areas may have a voluntary or regulatory closure to prevent further illnesses.

For a more in-depth review:

Cyclospora and Vibrio Case Investigations (June 2022) [Slides](#), [Recording](#)

New Risk Questions in Crypto and Shigella Events



- In October 2022, MAVEN Risk Question Packages were updated for these events to align with the diseases' modes of transmission: waterborne, animal contact, person-to-person
- Updates made collect sufficient details to allow for further follow up to be conducted



For a more in-depth review:

Overview and Updates to Cryptosporidium and Shigella Case Investigation (August 2022) [Slides](#), [Recording](#)

COMING SOON



Early July MAVEN H Release

ENTERIC DISEASE MAVEN UPDATES

Clinical QP: Symptoms list

- Excessive list of symptoms reduced
 - Goal: keep symptoms most common with each disease's presentation
 - Additional symptoms reported the case or their clinician can be documented in "Other symptoms (specify)"

Example:

Norovirus

Kept	Dropped
Abdominal cramps	Abdominal pain
Diarrhea	Anorexia
Fever	Bloating
Headache	Bloody stool
Nausea	Fatigue
Vomiting	Joint aches/pains
Other symptoms (specify)	Malaise
	Muscle aches/pains
	Stool with mucus
	Weight loss



Clinical QP: Medications, Clinician

Treatment and Medication	
Within 1 month prior to illness, list any antibiotics the patient took	
Prior to illness did the patient take medications?	
✖	Yes
✖	Medication:
✖	State Lab Accession Number:

Hospitalization/Clinician/PCP Information	
Was case hospitalized?	
Outcome:	
Clinician Lookup	
Nurse Practitioner Lookup	
✖	Clinician name:
✖	Clinician name (specify):
✖	Patient record/chart #:
✖	Was lab testing done?

Update: Unnecessary and repetitive questions removed.



Risk QP: Supervised care setting

Supervised care settings include daycares, schools, long term care facilities, correctional facilities, etc. Complete the following question for any supervised care setting attendance or employment the case had during their incubation period or while symptomatic.

⬆ Employed or attend a supervised care setting?

Yes ▼

+ Add New

Supervised care type: ▼

Supervised care name:

Supervised care location:

Supervised care telephone #:

Are any of the staff/children at supervised care setting ill with similar symptoms? ▼

1) Prompt added across enteric disease events

2) Supervised care type list expanded

Update: Prompt and drop-down updated to improve completion and collection of information.

Risk QP: Animal Exposures

Any animal contact?

Yes ▼

Please specify:

1 Any contact with household pets (e.g., cats, dogs, backyard chickens, rodent, reptiles, pets in aquariums)?

2 Did the case visit, work, or volunteer on a farm, ranch, petting zoo, or other setting that has animals, including reptiles, amphibians, or birds?

Select animal type(s) at location, regardless of direct contact:

- | | | |
|------------------------------------|---------------------------------|----------------------------------|
| <input type="checkbox"/> Amphibian | <input type="checkbox"/> Dog | <input type="checkbox"/> Reptile |
| <input type="checkbox"/> Bird | <input type="checkbox"/> Goat | <input type="checkbox"/> Sheep |
| <input type="checkbox"/> Cat | <input type="checkbox"/> Horse | <input type="checkbox"/> Turkey |
| <input type="checkbox"/> Chicken | <input type="checkbox"/> Pig | <input type="checkbox"/> Other |
| <input type="checkbox"/> Cow | <input type="checkbox"/> Rodent | <input type="checkbox"/> Unknown |

Update: Existing question broken into two to prompt recall and improve collection of this information

Risk QP: Pet food

Handle pet food, pet treats, or chews (e.g. pig ears, rawhide chews)?
<div>Yes</div>
Specify type of pet food:
<div></div>



Exposure to pet food, pet treats, or chews (e.g. pig ears, rawhide chews)? Please include all pet foods and treats directly handled by the case, as well as those fed to household pets that were not directly handled.

Update: Rephrased to improve data collection based on risk.



Contact Us!

- **Division of Epidemiology**

617-983-6800

- Call with questions related to:
 - Reportable disease investigations
 - Definition of a food handler in any setting
 - Infection control recommendations for high-risk settings
- Notify Epi Program about:
 - Potential clusters or outbreaks (any setting), diagnosed or undiagnosed

- **Food Protection Program**

617-983-6712

- Call with questions related to:
 - Definition of a food handler in food settings
 - Working with a food establishment to restrict a food handler
 - Inspections
- Notify FPP about:
 - Food safety complaints
 - Potential clusters or outbreaks (food establishment), diagnosed or undiagnosed



Q&A