

TIP SHEET for Shiga toxin-producing *E. coli* (STEC) Case Investigations

- **Disease:** *Escherichia coli* are a group of bacteria that normally live in the intestines of humans and animals. While some strains are harmless, Shiga toxin-producing *E. coli* produce toxins that cause diarrhea (sometimes bloody) and severe abdominal pain; some people may experience vomiting or low-grade fever. *E. coli* O157:H7 is a virulent STEC serotype that can cause hemolytic uremic syndrome (HUS), a serious complication of STEC infection that can lead to kidney failure and death.
- **Transmission & Incubation Period:** Individuals become ill when they swallow *E. coli* bacteria. This can occur through the ingestion of contaminated food or water, from contact with animals or their environments, or by contact with an ill person. STEC live in the gut of healthy cattle, as well as some other animals, and is shed in their feces. STEC can contaminate meat during slaughter, natural water bodies from nearby animals or runoff, or irrigation water used to water crops. Many foods have caused *E. coli* O157 outbreaks, including raw leafy vegetables, undercooked ground beef, and unpasteurized milk and juice. Outbreak investigations have also implicated petting zoos, drinking water, and ingestion of recreational water. Person-to-person transmission can occur in households and childcare centers. The incubation period for STEC is usually 3 to 4 days with a range of 1 to 10 days.

<p>① Notification</p>	<ul style="list-style-type: none"> • LBOHs have primary responsibility to investigate cases of STEC in their jurisdiction. New cases will flow into your “LBOH Notification for Routine Disease” workflow. • 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.
<p>② Get Prepared</p>	<ul style="list-style-type: none"> • 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. <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 child care programs, 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.
<p>③ Contact Ordering Provider</p>	<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.
<p>④ Contact Case</p>	<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 the recall of activities or restaurants they may have dined at, 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.

	<ul style="list-style-type: none"> ○ “Employed or attend a supervised care setting” should be used to document attendance or employment at a child care program, school, long term care facility, etc.. ○ Provide education on the disease and guidance on how to prevent further spread to their household members and close contacts. 	
<p>⑤</p> <p>Prevent Further Transmission</p>	<p>Food handlers</p>	<ul style="list-style-type: none"> • If individual meets the 105 CMR 300 definition of a food handler (see definition in “Get Prepared” above), 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, two negative stool specimens produced 48 hours after completion of any antimicrobial therapy. Implementing the Exclusion of Food Handlers with Reportable Conditions
	<p>Child Care</p>	<p>Exclusion:</p> <ul style="list-style-type: none"> • Most staff in child care programs are considered food handlers. Staff should be excluded following food handler criteria above. • MDPH advises following the American Academy of Pediatrics’ (AAPs’) recommendations for exclusion of children in child care programs: Children should be excluded until diarrhea (if any) has resolved and two negative stool specimens are produced 48 hours after completion of any antimicrobial therapy. <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.
	<p>Long-term care</p>	<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. 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.
<p>⑥</p> <p>Notify DPH as Needed</p>	<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) 983-6800 • Create 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 prepared outside the home with sufficient details available (name of establishment and location are required, date of purchase/consumption or best estimate should also be available); ○ Eating a high-risk food like uncooked leafy greens, ground beef, unpasteurized milk, or unpasteurized juice/cider. 	
<p>Other Notes</p>	<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 information 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. 	
<p>Additional Resources</p>	<ul style="list-style-type: none"> • May 2022 webinar: Introduction to Enteric Disease Case Investigations Slides, Recording • MDPH Division of Epidemiology: (617) 983-6800 	

