

Campylobacteriosis rev Apr 2017

BASIC EPIDEMIOLOGY

Infectious Agent

Campylobacter species, a Gram-negative bacilli. Most cases are caused by *C. jejuni* and fewer by *C. coli*.

Transmission

Transmission is fecal-oral, through the ingestion of contaminated food or water, or through direct contact with animals. Person-to-person transmission is uncommon. Commonly recognized vehicles or mechanisms include:

- Handling or eating undercooked/raw poultry or meat.
- Unpasteurized (raw) milk or dairy products.
- Contaminated and inadequately treated drinking water.
- Contact with animals, especially young animals with diarrhea.
- Contact with poultry.

Incubation Period

Usually 2 to 5 days (ranges 1-10 days).

Communicability

Infected persons not treated with antibiotics may excrete organism for 2 to 7 weeks, but this shedding is of little epidemiological importance, as person-to-person transmission is uncommon.

Clinical Illness

Illness is characterized by diarrhea, abdominal pain, malaise, and fever. The diarrhea may be bloody and can be accompanied by nausea and vomiting. Symptoms usually persist less than one week. Post-infectious complications may include reactive arthritis, Guillain-Barre Syndrome, and irritable bowel syndrome.

DEFINITIONS

Clinical Case Definition

An illness of variable severity commonly manifested by diarrhea, abdominal pain, nausea and sometimes vomiting. The organism may also rarely cause extra-intestinal infections such as bacteremia, meningitis or other focal infections.

Laboratory Confirmation

- Isolation of *Campylobacter* spp. in a clinical specimen.

Case Classifications

- **Confirmed:** A case that is laboratory confirmed
- **Probable:**
 - A case with *Campylobacter* spp. detected in a clinical specimen using a culture independent diagnostic test (CIDT), **OR**
 - A clinically compatible case that is epidemiologically linked to a case that meets the probable or confirmed laboratory criteria for diagnosis

Note: The use of CIDs as stand-alone tests for the direct detection of *Campylobacter* in stool is increasing. Data regarding their performance indicate variability in the sensitivity, specificity, and positive predictive value of these assays depending on the manufacturer (CDC unpublished data). It is therefore useful to collect information on the laboratory conducting the testing using the laboratory's unique CLIA number, and when possible, type and manufacturer of the CID used to diagnose each case. Culture confirmation of CID-positive specimens is ideal, but not practical to achieve in most jurisdictions.

Note: A case should not be counted as a new case if laboratory results were reported within 30 days of a previously reported infection in the same individual, unless additional information is available indicating a separate infection, e.g., different species

SURVEILLANCE AND CASE INVESTIGATION

Case Investigation

It is recommended that local and regional health departments investigate all reported cases of campylobacteriosis to identify potential sources of infection. Sporadic cases of campylobacteriosis do not require an investigation form be sent to DSHS EAIDB unless they are identified as part of a multi-jurisdictional cluster or outbreak. Any case associated with a cluster or outbreak should be interviewed.

Case Investigation Checklist

- ☐ Confirm laboratory results meet the case definition.
- ☐ Review medical records or speak to an infection preventionist or healthcare provider to verify case definition, identify possible risk factors and describe course of illness.
- ☐ If time and resources allow or the case is part of an outbreak or cluster, interview the case to identify potential sources of infection. Ask about possible exposures 1–10 days before onset, including:
 - Contacts or household members with a similar illness. Obtain the name, phone number or address, and clinical information of the ill person.
 - Source(s) of drinking water and source of any water consumed either purposefully or accidentally during work or sports activity, such as lake or stream.
 - Consumption of unpasteurized (raw) milk or dairy products. Identify type of raw milk (cow, goat or “other”), brand and/or sources, and dates(s) of purchase and consumption.
 - Handling or consumption of raw or undercooked poultry or meat.
 - Meals from restaurants or other food services. Obtain name and location of the facility, and date of the meal.
 - Contact with animals or poultry. Ask whether animal has recently experienced diarrhea.
 - Note: If the case is not available or is a child, conduct the interview with a surrogate who would have the most reliable information on the case, such as a parent or guardian.
- ☐ Provide education to the case or his/her surrogate about food and pet safety, and effective hand washing. See Prevention and Control Measures.
- ☐ Identify whether there is a public health concern: persons should not work as food handlers, child-care or health care workers, or attend child-care as long as they have diarrhea. See Exclusions.
- ☐ All confirmed and probable case investigations must be entered and submitted for notification in the NEDSS Base System (NBS). Please refer to the *NBS Data Entry Guidelines* for disease specific entry rules.

Prevention and Control Measures

- Routine hand washing with soap and warm water especially:
 - Before preparing, handling or eating any food
 - After going to the bathroom
 - After changing a diaper
 - After caring for someone with diarrhea
 - After handling raw food especially poultry
 - After any contact with animals or their living areas
- Avoid consumption of raw or undercooked poultry and meat. Cook all poultry products thoroughly. Make sure that the meat is cooked throughout (no longer pink) and any juices run clear. All poultry should be cooked to reach a minimum internal temperature of 165 °F.
- Prevent cross contamination in the kitchen by using separate cutting boards for foods of animal origin and other foods and carefully cleaning all cutting boards, countertops, and utensils with soap and hot water after preparing raw food of animal origin.
- Avoid consumption of unpasteurized (raw) milk or dairy products.
- Avoid drinking or swallowing untreated surface water. Untreated water should be boiled or otherwise disinfected before consumption.
- Exercise care when handling or cleaning up after pets with diarrhea. Wash hands afterwards.

Exclusions

School/child-care: No exclusions are specified for campylobacteriosis but the standard exclusion for diarrhea or fever applies:

- Children with diarrhea should be excluded from school/child-care until they are free from diarrhea for 24 hours without the use of diarrhea suppressing medications.
- Children with a fever from any infection should be excluded from school/child-care for at least 24 hours after fever has subsided without the use of fever suppressing medications.

Food Employee: No exclusions are specified for campylobacteriosis but the standard exclusion for vomiting or diarrhea applies:

- Food employees are to be excluded if symptomatic with vomiting or diarrhea until:
 - Asymptomatic for at least 24 hours without the use of diarrhea suppressing medications, OR
 - Medical documentation is provided stating that symptoms are from a noninfectious condition.

Please see Guide to Excluding and Restricting Food Employees in Appendix A.

MANAGING SPECIAL SITUATIONS

Outbreaks

If an outbreak is suspected, notify the appropriate regional DSHS office or DSHS EAIDB at **(800) 252-8239 or (512) 776-7676**.

The local/regional health department should:

- Interview all cases suspected as being part of the outbreak or cluster.
- Request medical records for any case in your jurisdiction that died, was too ill to be interviewed, or for whom there are no appropriate surrogates to interview.
- Prepare a line list of cases in your jurisdiction. Minimal information needed for the line list might include patient name or other identifier, DSHS or laboratory specimen identification number, specimen source, date of specimen collection, date of birth, county of residence, date of onset (if known), symptoms, underlying conditions, treatments and outcome of case, and risky foods eaten, foods eaten leading up to illness, or other risky exposures, such as animal contact and travel, reported by the case or surrogate.

Line list example:

ID	Name	Age	Sex	Ethnicity	Onset	Symptoms	Food	Animal	Notes
1	NT	34	F	W/N	2/4/16	Bl. D, F	Chicken, eggs	Dog	Dog food
2	PR	2	M	U/U	1/30/16	V,D,F	Chicken, spinach	None	Brother ill

- If the outbreak was reported in association with an apparent common local event (e.g., party, conference, rodeo), a restaurant/caterer/home, or other possible local exposure (e.g., pet store, camp), contact hospitals in your jurisdiction to alert them to the possibility of additional campylobacteriosis cases.
- Isolates can be submitted to the DSHS laboratory for culture confirmation and/or PFGE for *C. jejuni*. See Laboratory Procedures.
- Work with any implicated facilities to ensure staff, students, residents, and volunteers receive hand hygiene education, and review hygiene and sanitary practices currently in place including:
 - Policies on and adherence to hand hygiene
 - Storage and preparation of food
 - Procedures for changing diapers and toilet training
 - Procedures for environmental cleaning
- Recommend that anyone displaying symptoms seeks medical attention from a healthcare provider.
- Restrict individuals from handling food, engaging in child-care, healthcare work, or attending child-care, as long as they are symptomatic. See Exclusions in Case Investigation section.
- Enter outbreak into NORS at the conclusion of the outbreak investigation. See Reporting and Data Entry Requirements section.

Note:

- If a food item or food establishment is implicated, the lead epidemiologist for foodborne diseases will notify the DSHS Division of Regulatory Services about the outbreak and the possibility of a common contaminated food source for the cases.
- Decisions about testing implicated food items can be made after consultation with an EAIDB foodborne epidemiologist and the DSHS Laboratory. The general policy is to test only food samples implicated in suspected outbreaks, not in single cases.

REPORTING AND DATA ENTRY REQUIREMENTS.

Provider, School, Child-Care Facility, and General Public Reporting Requirements

Confirmed, probable and clinically suspected cases are required to be reported **within 1 week** to the local or regional health department or the Texas Department of State Health Services (DSHS), Emerging and Acute Infectious Disease Branch (EAIDB) at **(800) 252-8239 or (512) 776-7676**.

Local and Regional Reporting and Follow-up Responsibilities

Local and regional health departments should:

- Enter the case into NBS and submit an NBS notification on all **confirmed and probable** cases.
 - Please refer to the *NBS Data Entry Guidelines* for disease-specific entry rules.
 - A case should not be counted as a new case if laboratory results were reported within 30 days of a previously reported infection in the same individual, unless additional information is available indicating a separate infection, e.g., different species. A notification can be sent as soon as the case criteria have been met. Additional information from the investigation may be entered upon completing the investigation.
- If investigation forms are requested, they may be faxed to 512-776-7616 or emailed securely to an EAIDB foodborne epidemiologist.

When an outbreak is investigated, local and regional health departments should:

- Report outbreaks within 24 hours of identification to the regional DSHS office or to EAIDB at **512-776-7676**
- Enter outbreak information into the **National Outbreak Reporting System (NORS)** at the conclusion of the outbreak investigation.
 - For NORS reporting, the definition of an outbreak is two or more cases of similar illness associated with a common exposure.
 - The following should be reported to NORS:
 - Foodborne disease, waterborne disease, and enteric illness outbreaks with person-to-person, animal contact, environmental contact, or an indeterminate route of transmission.
 - Outbreaks as indicated above with patients in the same household.
 - Enter outbreaks into NORS online reporting system at <https://wwwn.cdc.gov/nors/login.aspx>
 - Forms, training materials, and other resources are available at <http://www.cdc.gov/nors/>
- To request a NORS account, please email FoodborneTexas@dshs.state.tx.us
 - Please put in Subject Line: NORS User Account Request
 - Information needed from requestor: name, email address, and agency name
 - After an account has been created a reply email will be sent with a username, password, and instructions for logging in.

LABORATORY PROCEDURES

CLINICAL SPECIMENS:

Testing for campylobacteriosis is widely available from most private laboratories. Isolates or specimens from submitters are accepted with prior approval by the DSHS laboratory for culture confirmation and/or PFGE for *C. jejuni*. Contact an EAIDB foodborne epidemiologist to discuss further.

In an outbreak or other special situation, the DSHS Laboratory can culture raw stool or stool in transport medium (e.g., Cary-Blair media) for *Campylobacter* species. Contact an EAIDB foodborne epidemiologist prior to submitting raw stool or stool in transport medium for culture.

Specimen Collection

- Submit pure cultures on an agar slant at ambient temperature or 2-8°C (*ice pack*) as soon as possible to ensure viability.
- For raw stool or stool in transport medium, please refer to table below:

Specimen type	Transport time to lab from time of collection	Transport temperature
Raw stool	≤24 hours	4°C (ice pack)
Raw stool	>24 hours	Freeze immediately at ≤-70°C. Ship on dry ice.
Stool in transport solution/medium	Time of collection to ≤3 days	Room temp or 4°C (ice pack)
Stool in transport solution/medium	>3 days	Freeze immediately at ≤-70°C. Ship on dry ice.
All	*The above transport times are optimal for recovery of pathogenic organisms. In the interest of public health, specimens will be accepted up to 30 days from date of collection.	*The above transport temperatures are optimal for the recovery of pathogenic organisms. In the interest of public health, specimens will be accepted at non-optimal temperature transport.

* Note: Pathogen recovery rates decrease over time. For best results, submit ASAP.

Submission Form

- Use DSHS Laboratory G-2B form for specimen submission.
- Make sure the patient's name, date of birth and/or other identifier match exactly what is written on the transport tubes and on the G-2B form.
- Fill in the date of collection and select the appropriate test.
- If submitting as part of an outbreak investigation, check “Outbreak association” and write in name of outbreak.
- Payor source:
 - Check “IDEAS” to avoid bill for submitter

Specimen Shipping

- Ship specimens to:

Laboratory Services Section, MC-1947
 Texas Department of State Health Services
 Attn. Walter Douglass (512) 776-7569
 1100 West 49th Street
 Austin, TX 78756-3199

Causes for Rejection:

- Missing or discrepant information on form/specimen.
- Transport media was expired.
- Specimen not in correct transport medium.

FOOD SAMPLES AND ENVIRONMENTAL SWABS:

Testing of food and environmental swabs for *Campylobacter* spp. is available at the DSHS laboratory. Decisions about testing implicated food items can be made after consultation with an EAIDB foodborne epidemiologist and the DSHS Laboratory.

General policy

- The DSHS lab will only test food samples or environmental swabs from facilities implicated in a suspected outbreak (not associated with single cases).
- In outbreaks, the DSHS lab will not test food samples or environmental swabs unless a pathogen has been identified in a clinical specimen.
- Food samples or environmental swabs must be **collected by a registered sanitarian**

For further questions, please contact an EAIDB foodborne epidemiologist to discuss further.

UPDATES

April 2017

- Updated statement regarding how often to count a case, only counting a case once per 30 days, in the Definitions and Reporting and Data Entry Requirements section.
- Updated table regarding the submission of raw stool or stool in transport medium in the Laboratory Procedures section.