

# Campylobacteriosis

## Investigative Guidelines

May 2022

### 1. DISEASE REPORTING

#### 1.1 Purpose of Reporting and Surveillance

1. To identify outbreaks and potential sources or sites of ongoing transmission.
2. To assess the risk of the case transmitting infection to others, and to prevent such transmission. To identify whether the source of infection may be of major public health concern (e.g., a dairy farm, public water supply, or puppies from pet stores) and to stop transmission from such a source.
3. To educate people about how to reduce their risk of infection. When the source of infection appears to pose a risk to a limited group of individuals (e.g., a puppy with diarrhea or a private water supply), to inform those individuals how they can reduce their risk of exposure.
4. To identify other undiagnosed or unreported cases.
5. To better characterize the epidemiology of this infection.

#### 1.2 Laboratory and Physician Reporting Requirements

Laboratories and physicians are required to report cases to the local health department (LHD) within one working day of identification or diagnosis. Isolation of *Campylobacter* spp. from cultures are reportable, as are positive tests performed by culture independent diagnostic tests (CIDT) such as EIA or PCR. Isolates or clinical specimens may be sent to the Oregon State Public Health Laboratory (OSPHL) for identification. Clinical labs are not required to submit *Campylobacter* spp. isolates to OSPHL but may do so in support of public health surveillance. Clinical laboratories identifying *Campylobacter* spp. by a CIDT are not required to perform a reflex culture, nor to submit the specimen to OSPHL for reflex culture.

#### 1.3 Local Health Department Reporting and Follow-Up Responsibilities

1. Report all cases to the Oregon Health Authority (OHA) Acute and Communicable Disease Prevention (ACDP) Section as soon as possible, and no later than the end of the calendar week of initial physician or laboratory report, by creating a case in Orpheus. Be sure to include contact information (especially a phone number) and any available demographic information. A person with a prior positive specimen that has a new positive specimen reported more than 30 days after the previously reported infection should be entered as a new case in Orpheus.

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2. OHA ACDP routinely investigates cases for LHDs that have requested this assistance. LHDs that opt to conduct their own case investigations are required to interview confirmed and presumptive cases and enter a date in the “LHD Completion Date” box in Orpheus when investigation is complete.
3. When the number of cases is greater than expected, LHDs may conduct an outbreak investigation or opt to have OHA ACDP investigate. Please contact the OHA ACDP on-call epidemiologist if there is any question about whether the number of cases in any reporting interval exceeds the epidemic threshold according to historical baseline data. Follow-up investigation should begin within one working day of detection of a suspected outbreak (see §6).

## 2. THE DISEASE AND ITS EPIDEMIOLOGY

### 2.1 Etiologic Agent

*Campylobacter* species, Gram-negative bacteria. Ninety percent of human cases are attributed to *C. jejuni*; other species, such as *C. coli* and *C. upsaliensis*, can also infect people.

### 2.2 Description of Illness

Infection can cause a spectrum of disease, ranging from uncomplicated gastroenteritis to fulminant disease like that seen with severe ulcerative colitis. Typical symptoms include diarrhea (often bloody), abdominal pain, nausea, and vomiting. Many patients report prodromal symptoms of fever, malaise, headache, myalgias, or arthralgias. Symptoms usually persist for less than one week. Approximately one in 1,000 reported cases develop Guillain-Barré syndrome (GBS), an autoimmune-mediated neurologic disorder that is potentially life-threatening. Other (rare) post-infectious complications include reactive arthritis and irritable bowel syndrome. Invasive disease is uncommon, even in neonates. The organism may rarely cause extraintestinal infections such as bacteremia, meningitis, or other focal infections.

### 2.3 Epidemiology

Campylobacteriosis is the most common bacterial enteric infection reported in Oregon. Young children (< 5 years of age) have the highest incidence of illness, compared with other age groups. See 2019 Annual Report for additional detail: <https://tableau.dhsoha.state.or.us/#/site/OHA/views/2019AnnualReport/Campylobacteriosis?:iid=1>

### 2.4 Reservoirs

Animals — notably young cattle, poultry, dogs, and cats.

### 2.5 Sources and Routes of Transmission

Fecal-oral. Most transmission is probably foodborne, reflecting inadequate cooking or mishandling of contaminated foodstuffs. Commonly recognized sources and routes of transmission include:

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1. Unpasteurized (raw) milk
2. Handling or eating undercooked or raw meat, particularly poultry
3. Contaminated and inadequately treated drinking water
4. Contact with animals (especially puppies and kittens with diarrhea)

### 2.6 Incubation Period

Typically, 2–5 days; can range from 1-10 days.

### 2.7 Period of Communicability

The organism is shed in the feces for a few days to several weeks, but direct person-to-person transmission is surprisingly uncommon, probably reflecting a high infectious dose. However, contact with infected infants poses a particular risk. A chronic carrier state is unlikely. Most patients treated with macrolides (e.g., erythromycin and azithromycin) stop shedding after 72 hours of treatment. Antimicrobials do not prolong the period of shedding, unlike with salmonellosis.

### 2.8 Treatment

Fluid and electrolyte replacement may be indicated. Children with dysentery due to *C. jejuni* benefit from early treatment (within 3 days of onset) with azithromycin. Treatment with azithromycin or ciprofloxacin may benefit adults experiencing high fever, bloody diarrhea, or more than eight stools per day. Fluoroquinolone resistance is high in many countries; accordingly, azithromycin should be considered first-line therapy when there is a history of international travel preceding infection.

## 3. CASE DEFINITIONS, DIAGNOSIS AND LABORATORY SERVICES

### 3.1 Confirmed Case Definition

Anyone with *Campylobacter* spp. cultured from a clinical specimen.

### 3.2 Presumptive Case Definition

A person from whom a culture-independent diagnostic test (e.g., EIA or PCR) detects *Campylobacter* and who:

1. has no reflex culture performed
2. has pending culture results
3. has negative culture results

OR

A person with compatible illness (e.g., diarrhea, abdominal pain, nausea, or vomiting) who is epidemiologically linked to a case that meets the presumptive or confirmed laboratory criteria for diagnosis.

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### 3.4 Services Available at the Oregon State Public Health Laboratory (OSPHL)

OSPHL provides identification of *Campylobacter* spp. Whole genome sequencing of all *Campylobacter* spp. isolates is performed for surveillance purposes (e.g., to identify disease clusters). For *Campylobacter* spp. that OSPHL is not able to speciate, the isolate will be sent to CDC, or analysis of the whole genome sequencing data will be requested.

Specimens positive for *Campylobacter* by CIDT may be submitted to OSPHL for *Campylobacter* culture. This is usually by request of the FoodNet team when a common source may be suspected.

For outbreak investigations, the BioFire Multiplex Gastrointestinal PCR Panel and stool culture are available on approval by an OHA ACDP epidemiologist.

For stool culture or BioFire PCR testing, submit fresh stool in Cary Blair transport media. For isolate identification, submit a pure culture of the organism on media that will support growth in a sealed CO<sub>2</sub> transport bag. See the OSPHL Test Menu for complete submission criteria ([www.healthoregon.org/labtests](http://www.healthoregon.org/labtests)).

Samples for *Campylobacter* identification or *Campylobacter* culture must be accompanied by a completed OSPHL General Microbiology Test Request Form. Samples for BioFire testing must be accompanied by a completed OSPHL Virology/Immunology Test Request Form. Both forms are available at [www.bitly.com/phl-forms](http://www.bitly.com/phl-forms).

## 4. ROUTINE CASE INVESTIGATION

Some LHDs conduct their own case investigations and others have arranged to have investigations routinely conducted by OHA ACDP. Please notify OHA ACDP if your agency would like to request assistance with case investigations on a routine basis. LHDs that routinely conduct their own investigations but need assistance with a specific case should leave a note in Orpheus for the state disease epidemiologist (name can be found by clicking on “Manage this Case”).

### 4.1 Identify Source of Infection

Obtain demographic (e.g., race, ethnicity, and occupation) and clinical data (e.g., onset date, symptoms, and whether hospitalized overnight; note that ER visit alone does not count as hospitalization). The investigation focuses on exposures in the 1 to 7 days before onset. Information such as the following should be obtained:

1. Name, diagnosis, telephone number, and address of any acquaintance or household member with a similar illness. Any identified individuals that meet the presumptive case definition should be reported and investigated in the same manner as a confirmed case. Stool testing is not necessary for the identified individuals unless the index case’s source of infection appears to be a dairy farm or public water supply (see §6).

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2. Exposures to well water or wild water (e.g., water from streams or lakes) that was consumed purposefully or accidentally during work or sports activity. Water used only after boiling need not be included. If a public water supply is implicated, see §6.
3. Whether case consumed raw (unpasteurized) milk. If so, identify the brand or source. If a dairy farm is implicated, see §6. How long has the case been a raw milk drinker?
4. Whether case handled or ate raw or undercooked meat or poultry.
5. Name, date, and location of any restaurant meals.
6. Date, location, and sponsor of any public gathering where food was consumed.
7. Whether case had contact with pets, poultry, or other animals. If so, have any of these animals recently experienced diarrhea?
8. Travel history (within Oregon, within the U.S., or outside the U.S.), including travel dates.
9. Whether case had contact with diapered or incontinent individuals.

### 4.2 Identify Potentially Exposed Persons

1. Contacts: This is particularly important for persons who have changed diapers of infected children.
2. Other ill persons: Laboratory testing of epi-linked presumptive cases is not warranted unless a dairy farm or public water supply is a likely source of infection (see §6).

### 4.3 Environmental Evaluation

None, unless a dairy farm or public water supply is implicated (see §6).

## 5. CONTROLLING FURTHER SPREAD

### 5.1 Education

If a suspected source of infection is identified and it has the potential for transmitting infection to a defined population, advise those at risk on measures to avoid exposure. For example:

1. Wash hands after handling any animals, raw meat and poultry, and ALWAYS before food preparation
2. Avoid drinking or swallowing untreated surface water (if necessary, water should be brought to a boil or chemically treated before drinking)
3. Eschew raw (unpasteurized) milk
4. Avoid eating raw or undercooked poultry and meat
5. Avoid cross-contamination of utensils or food that will be served without further cooking
6. Wash hands after defecating or changing diapers

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### 5.2 Isolation and Day Care, School or Work Restrictions

Standard precautions are sufficient to prevent transmission. Cases with diarrhea should not work as food handlers, day care workers, or health care workers or attend day care or school until they are asymptomatic. It is not necessary to obtain negative follow-up stool testing before returning to work or day care or school if diarrhea has resolved, and the person is otherwise well.

### 5.3 Case Follow-up

Routine follow-up stool testing not indicated.

### 5.4 Protection of Contacts

None needed, except emphasis on hand washing after changing diapers of infected children.

### 5.5 Environmental Measures

If indicated, give advice on improving drinking water supply and proper cooking and food handling practices to prevent infection.

## 6. MANAGING SPECIAL SITUATIONS <sup>4</sup>

### 6.1 Possible Foodborne Outbreaks

*C. jejuni* is a frequent cause of foodborne disease. Consult with OHA ACDP if you suspect a common-source outbreak.

### 6.2 Dairy Farm or Community Water Source Implicated

Consult with OHA ACDP if a case reports drinking raw milk from a dairy farm and has no other identifiable source of infection, or when investigation suggests that community drinking water system is a possible source of infection.

## UPDATE LOG

May 2022 – Updated to align with 2014 CSTE position statement; Treatment guidelines updated; Laboratory Services updated by OSPHL; various other edits (Trevejo, Morey, Hatch, Monroe, DeBess)

December 2015 – Services available at the OSPHL updated. (Kathleen Rees)

November 2015 – Transferred Investigative Guideline into new template. (Leslie Byster)

August 2015 – LHD responsibilities and case definitions updated. (Kathleen Rees)

July 2012 – Case definition for suspect case updated. (Beleshatchew Shiferaw)