Campylobacteriosis

1. DISEASE REPORTING

A. Purpose of Reporting and Surveillance

1. To identify whether the source of infection may be of major public health concern, for example, a commercial raw milk dairy or public water supply, and to stop transmission from such a source.
2. When the source of infection appears to pose a risk to only a few individuals (for example, a puppy with diarrhea or a private water supply), to inform those individuals how they can reduce their risk of exposure.
3. To identify outbreaks and other undiagnosed cases.

B. Laboratory And Physician Reporting Requirements

Laboratories and physicians are required to report within one working day of identification / diagnosis.

C. Local Health Department Reporting and Follow-Up Responsibilities

1. Report all confirmed and presumptive (but *not* suspect) cases to the OHS (see definitions below) by the end of the calendar week of initial physician / lab report. Use the standard case report form *(at http://www.dhs.state.or.us/publichealth/odpe/guidln/forms/index.cfm)*.
2. Case investigation is optional, *unless* circumstances suggest that an outbreak may be occurring, or when the number of cases in any reporting interval exceeds the epidemic threshold. (The OHD can help you establish this baseline from historical data.) Under those circumstances, begin follow-up investigation within one working day. Use the campylobacteriosis case investigation form. Send a copy of the completed form to the OHS within seven days of initial report.
3. As indicated, complete CDC summary forms (available from OHS) for waterborne or foodborne disease outbreaks when investigation is completed.

2. THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic Agent

Campylobacter jejuni, a Gram-negative bacterium. There are hundreds of serotypes, which may be of importance in outbreak investigations.

B. Description of Illness

Infection can cause a spectrum of disease ranging from uncomplicated gastroenteritis to fulminant disease similar to 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 less than one week. Invasive disease is uncommon, even in neonates.

C. Reservoirs

Animals: notably cattle, poultry, and dogs.

D. Modes of Transmission

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

1. unpasteurized (raw) milk;
2. handling or eating undercooked / raw poultry or meat;
3. contaminated and inadequately treated drinking water;
4. contact with animals, especially puppies with diarrhea;
5. contact with poultry.

Person-to-person transmission is rare, probably reflecting a high infectious dose.

E. Incubation Period

1-10 days; usually 2-5 days.

F. 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 (with the possible exception of contact with infected infants). A chronic carrier state is unlikely. Most patients treated with erythromycin stop shedding after 72 hours of treatment. Antimicrobials do not prolong the period of shedding (cf. salmonellosis).

G. 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 erythromycin. Treatment with erythromycin or ciprofloxacin may benefit persons experiencing high fever, bloody diarrhea, or more than eight stools per day.

3. CASE DEFINITIONS, DIAGNOSIS, AND LABORATORY SERVICES

A. Confirmed Case Definition

Persons from whom *Campylobacter* is cultured (generally from stool).

B. Presumptive Case Definition

Persons with compatible illness who are epidemiologically linked to a confirmed case, or in whose bloody fecal smears are demonstrated the presence of Gram-negative "gull-winged" shaped rods.

C. Suspect Case (*not* reportable to OHS)

Anyone with an undiagnosed compatible illness.

D. Services Available at the Center for Public Health Laboratories

The OSPHL provides isolate identification and stool culturing for *Campylobacter* species. For isolate identification, submit a pure isolate of the organism on media that will support growth. A slant is preferred. A swab with stool on it, completely submerged in a Cary-Blair tube, is required for stool culturing. Both specimens may be sent without a cold pack. All specimens must be properly packaged in double containers with absorbent material around them. Use the Bacteriology / Parasitology form (#75).

Food or other specimens implicated from outbreak investigations can be cultured as well; coordinate specimen collection with the OSPPHL. Bacterial isolates can be subtyped by a number of serological and molecular techniques at research labs (e.g., CDC). Subytping may be considered under special circumstances.

4. ROUTINE CASE INVESTIGATION

Individual case investigations are indicated only if the number of reported cases exceeds "normal," or if other circumstances suggest an outbreak (see §6). Under such circumstances, interview the case and others who may be able to provide pertinent information.

A. Identify Source of Infection

Ask about possible exposures 2-5 days before onset, including:

1. name, diagnosis, and phone number or address of any acquaintance or household member with a diarrheal illness. Anyone meeting the presumptive case definition should be reported and investigated in the same manner as a stool-confirmed case. It is not always necessary to get stool cultures on such individuals, however, unless the index case's source of infection appears to be a commercial raw milk dairy or public water supply (see §6.)
2. source(s) of drinking water, including at home and work, as well as water from streams or lakes (either consumed purposefully or accidentally during work or sports activity) and incidental sources (for example, communities visited during a vacation). Water used only after boiling need not be included. If a public water supply is implicated, see §6;.
3. consumption of unpasteurized milk. If so, identify the brand and / or source. If a commercial raw milk dairy is implicated, see §6. (How long has the case been a raw milk drinker?);
4. handling or eating raw / 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. contact with pets, poultry, or other animals (have any of them recently experienced diarrhea?);
8. travel outside the United States (determine dates and group traveled with);
9. contact with diapered children with diarrhea.

B. Identify Potentially Exposed Persons

1. Contacts - Not important except for persons who have changed diapers of infected children.
2. Other ill persons - Cultures to confirm the diagnosis in epi-linked contacts is not warranted unless a commercial raw milk dairy or public water supply is a likely source of infection.

C. Environmental Evaluation

None, unless a commercial raw milk dairy or public water supply is implicated. See §6.

5. CONTROLLING FURTHER SPREAD

A. Education

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

1. wash hands after handling pets, fowl, other animals, raw meat and poultry, and always before food preparation;
2. avoid drinking or swallowing untreated surface water. Water should be brought to a boil or treated with disinfectants;
3. eschew unpasteurized milk;
4. avoid eating raw or undercooked poultry and meat;
5. avoid cross-contamination of utensils or foods that will be served without further cooking;
6. wash hands after using defecating or changing diapers.

B. Isolation and Work or Day Care Restrictions

Standard precautions are sufficient to protect employees and other patients. Cases should not work as food handlers, day care workers, or health care workers or attend school as long as they have diarrhea. It is not necessary to obtain negative stool cultures before returning to work as long as diarrhea has resolved and the individual is otherwise well.

C. Follow up of Cases

Routine follow-up cultures are not indicated.

D. Protection of Contacts

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

E. Environmental measures

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

6. MANAGING SPECIAL SITUATIONS

A. Possible Foodborne Outbreaks

C. jejuni is a frequent cause of foodborne disease. Consult with the Communicable Disease Section if you suspect a common-source outbreak.

B. Commercial Dairy or Community Water Source Implicated

Consult with the Communicable Disease Section if a case reports drinking raw milk from a commercial dairy, and has no other identifiable source of infection, or when investigation suggests that community drinking water system is a possible source of infection