

# Campylobacteriosis

## Surveillance Protocol

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### **Provider Responsibilities**

1. Report all cases to your local health department within the timeframe indicated:  
Sporadic case of Campylobacteriosis- should be reported within 72 hours of diagnosis.  
  
Outbreaks of Campylobacteriosis- should be reported immediately (see definition of outbreaks in local health responsibilities section).

### **Laboratory Responsibilities**

1. Report all positive Campylobacter tests to the local health department in the patient's county of residence within 72 hours of result. Report the result by electronic messaging when possible, or send or fax a copy of the laboratory result to the local health department in the county of residence of the case patient.
2. If laboratory does not perform culture for Campylobacter species, submit specimen for confirmation testing to the West Virginia Office of Laboratory Services at 167 11<sup>th</sup> Avenue, South Charleston, WV 25303. If clinical laboratory has already performed culture, there is no need to submit. For forms and other information, visit [www.wvdhhr.org/labservices](http://www.wvdhhr.org/labservices).

*Note: Campylobacter organisms are very fragile. Isolates can be grown on conventional blood agar. For optimal recovery, grow in a microaerobic atmosphere containing approximately 5% O<sub>2</sub>, 10% CO<sub>2</sub>, and 85% N<sub>2</sub>.*

### **Local Health Department Responsibilities**

*For investigation of sporadic cases:*

Initial report must be filed within 72 hours of first notification

1. Complete the WVEDSS Campylobacteriosis Disease Reporting Form. Use of the WVEDSS Reporting Form will prompt a complete and appropriate investigation, to include:
  - Exposure to animals, including poultry, cattle, swine
  - Consumption of unpasteurized milk or untreated water
  - Identification of high-risk persons or symptomatic individuals for further investigation
  - Identification of specific behaviors that may be associated with *Campylobacter* infection

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2. Identify other cases, including probable cases (symptomatic persons who are epidemiologically linked to a culture-confirmed case), and investigate completely as above.
3. Enter case investigation and laboratory information into WVEDSS. Store paper files according to your local record retention policies. If the laboratory report was received directly into WVEDSS through electronic messaging, there is no need to forward a paper copy. If the laboratory report was entered into WVEDSS manually, mail or fax a copy of the laboratory report to DIDE
4. Institute appropriate control measures:

If the case works in or attends a day care facility:

- Interview the manager/operator and/or check attendee records to identify suspect cases that occurred within the past month.
- Provide educational information to the manager/operator and staff regarding proper food handling and hand washing, especially after changing diapers.
- Collect stool samples from all symptomatic staff members and children or attendees who have been ill in the previous month
- If there are any other confirmed or suspected cases, do an environmental inspection, and check on the possibility of contact with animals or ingestion of raw milk or untreated water.
- Instruct the manager/operator to notify the local health department if new cases of diarrhea occur. Call or visit once a week for two weeks to verify surveillance and if appropriate hygienic measures are being carried out.
- Exclude symptomatic individuals who are involved in direct care of infants.
- Exclude asymptomatic employees with questionable hygienic habits.
- Exclude symptomatic daycare attendees.

If the case is a food handler:

- Conduct an environmental assessment of the facility. Interview the manager/operator and check employee attendance records to identify suspect cases that occurred the previous month. Ask if there have been any complaints from any patrons during the past month.
- Collect stool samples from all symptomatic individuals who have been ill the previous month.
- Exclude symptomatic individuals who are involved in food handling. Exclude asymptomatic individuals with questionable hygienic habits. Asymptomatic food

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handlers with adequate hygienic habits do not need to be excluded but should be counseled on the importance of good hand washing, personal hygiene, and removing themselves from working and notifying their supervisor whenever they have diarrheal illness.

- Excluded food handlers should only return to work after two consecutive negative stool cultures are collected 24 hours apart. If antibiotics are given, the initial culture should be taken at least 48 hours after the last dose.

If the case works at a health care or residential care facility:

- Identify any abnormal incidence of diarrheal illness within the past month. If so, identify any common source outbreaks or sources of exposure
- Conduct an environmental assessment of the facility

*For investigation of a suspected outbreak:*

Outbreak is defined as greater than expected numbers of cases reported during a certain time frame –OR- 2 or more epidemiologically linked cases from 2 or more households

Foodborne disease outbreak is defined as two or more persons who experience a similar illness after ingestion of a common food. Please note exceptions: one case of botulism, *vibrio cholerae* or chemical poisoning constitutes an outbreak.

1. Obtain case histories for preliminary reports as in sporadic cases above. Focus on possible common source exposures.
2. Verify the diagnosis
3. Gather a 72 hour food history and history of commonly associated exposures for 2 weeks prior to onset of illness
4. Contact DIDE and notify of suspected outbreak.
5. Consult outbreak investigation protocol for complete instructions on investigation of an outbreak. (<http://www.dhhr.wv.gov/oeps/disease/ob/Pages/default.aspx>)

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### **State Health Department Responsibilities**

1. Prompt and complete reporting of Campylobacteriosis cases to the Centers for Disease Control through WVEDSS
2. Provide technical expertise and consultation regarding surveillance, investigation, control measures and prevention of Campylobacteriosis
3. Summarize surveillance data for cases of Campylobacteriosis on an annual basis

### **Disease Control Objectives**

Reduce the incidence of secondary cases of Campylobacteriosis by:

- Appropriate investigation of outbreaks and clusters to identify and remove any common source of disease.
- Identification and exclusion of cases and probable cases (symptomatic epi-linked contacts) from high-risk settings such as daycare and food preparation.
- Identify cases which might be a source of infection for other persons (e.g. a diapered child, daycare attendee or foodhandler) and prevent further transmission.
- Identify transmission sources of public health concern (e.g. restaurant or a contaminated public water supply) and stop transmission from such sources

### **Disease Prevention Objectives**

Reduce the incidence of Campylobacteriosis by:

- Education of the general public about proper food handling, including thorough cooking of poultry and pork, maintaining foods at the proper temperatures, and avoidance of cross-contamination, especially of food preparation surfaces.
- Education of the public about handwashing before eating, after handling raw meat, after contact with animals, and after use of the toilet.
- Education of the public to avoid unsafe foods such as unpasteurized milk and untreated water supplies.
- Education of poultry and animal farm owners/operators about changing boots and clothing and implementing thorough cleaning and disinfection to prevent spread through the farm.

### **Surveillance Objectives**

- Determine the incidence of Campylobacteriosis in West Virginia.
- Identify demographic characteristics of persons with Campylobacteriosis.
- Identify behavioral risk factors associated with Campylobacteriosis.

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### **Public Health Significance**

*Campylobacter jejuni* and *Campylobacter coli* are an important cause of diarrheal illness in all parts of the world and in all age groups, causing 5-14% of diarrhea worldwide. They are an important cause of travelers' diarrhea. In developed countries, children under the age of five and young adults have the highest incidence of illness. In developing countries, illness is confined largely to children under the age of two, especially infants. Common-source outbreaks are rare but have occurred, most often associated with foods. Outbreaks have been associated with consumption of undercooked poultry, unpasteurized milk, and non-chlorinated water. Ill foodhandlers have been implicated in a few outbreaks. Most cases are sporadic.

### **Clinical Description**

Symptoms of Campylobacteriosis vary from mild gastrointestinal distress that resolves within 24 hours to a fulminating or relapsing colitis. The clinical signs may include watery or sticky diarrhea, fever, nausea, vomiting, abdominal pain, headache and muscle pain. The feces may contain visible or occult blood. The acute symptoms usually diminish in 2 to 3 days, and recovery typically occurs spontaneously in a week to 10 days. Complications are uncommon; however, a typhoid-like syndrome, reactive arthritis or septicemia may occur. Rare complications include febrile convulsions, meningitis, and Guillain-Barre syndrome. Some cases mimic acute appendicitis. Many infections are asymptomatic.

### **Etiologic Agent**

*Campylobacter jejuni*, and less commonly *Campylobacter coli*, are the usual causes of *Campylobacter* diarrhea in humans. A variety of 20 or more biotypes and serotypes occur, identification of which can be useful in epidemiological investigations. *Campylobacter* organisms are small, curved, gram negative bacilli which require selective media, and reduced oxygen tension to grow.

### **Reservoir**

While the most common source of infection is poultry, *Campylobacter* is commonly found in the intestines of healthy wild and domestic animals including cattle, sheep, swine, goats, dogs, cats, rodents, and fowl. Symptoms occur more often in younger animals, but asymptomatic carriage in animals is common. Thus, there is a huge natural reservoir for *Campylobacter*, which is the ultimate source of infection in humans. During slaughter, meat may become contaminated with the contents of the animal's intestines. Contamination of unpasteurized milk or untreated surface water may also occur easily.

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### **Mode of Transmission**

*Campylobacter* is transmitted through the fecal-oral route. Infection often results from consumption of undercooked chicken and poultry, contaminated food and water, or raw milk. It can also be contracted through direct contact with infected pets (especially puppies and kittens), farm animals, or infected infants. Person-to-person transmission is unusual, and infected food handlers have rarely been implicated as a source of infection. Food items can be cross contaminated from raw poultry, especially from common cutting boards that have not been adequately cleaned and disinfected. Person-to-person transmission is uncommon.

### **Incubation Period**

Usually 2 to 5 days (range of 1 to 10 days), depending upon the dose ingested.

### **Infectious Period**

*Campylobacter* is communicable throughout the course of infection, usually from several days to several weeks. Individuals not treated with antibiotics may excrete organisms for as long as two to seven weeks. This temporary carrier state is probably important only in infants and those who are incontinent as humans rarely become chronic carriers.

### **Outbreak Recognition**

Outbreak recognition and investigation requires timely and complete epidemiological investigation (risk factors, food history, history of exposure to animals, etc.) paired with timely and complete laboratory investigation. Common source outbreaks have occurred, most often associated with foods, especially undercooked chicken, unpasteurized milk, and non-chlorinated water. Outbreaks have rarely been associated with infected food handlers.

### **Case Definition**

#### **Clinical Description**

A diarrheal illness of variable severity

#### **Laboratory Criteria for Diagnosis**

*Suspect:* Detection of *Campylobacter* spp. in a clinical specimen using non-culture based laboratory methods.

*Confirmed:* Isolation of *Campylobacter* spp. in a clinical specimen

#### **Case Classification**

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*Suspected:* A case that meets the suspect laboratory criteria for diagnosis

*Probable:* A clinically compatible case that is epidemiologically linked to a confirmed case of Campylobacteriosis.

*Confirmed:* A case that meets the confirmed laboratory criteria for diagnosis

### Comment(s)

The use of culture independent methods as standalone tests for the direct detection of Campylobacter in stool appears to be increasing. Data available about the performance characteristics of these assays indicates there is variability in the sensitivity, specificity and positive predictive value of these assays depending on the test (enzyme immunoassay (EIA) test format -lateral flow or –microplate) and manufacturer. It is therefore useful to collect information on which type of EIA test and manufacturer are used to diagnose a case. Culture confirmation of culture independent (e.g., EIA) test positive specimens is ideal.

### **Preventive Interventions**

- Wash hands well after using the toilet, cleaning the toilet, after changing diapers, and after handling soiled towels or linens.
- Avoid consuming unpasteurized milk and untreated surface water.
- Wash hands well before, during, and after fixing food.
- Thoroughly cook all poultry products, making sure the meat is cooked throughout, to an internal temperature of 165 degrees measured with a food thermometer.
- After preparing raw meat, thoroughly wash and rinse all utensils, bowls, counters, and hands.
- Use separate cutting boards for raw meats and other foods.
- Never return cooked meat to the same plate used for raw meat.
- Marinade or barbeque sauce used on raw meat should not be used on cooked meat.
- Wash hands with soap after contact with pets and pet feces.

### **Treatment**

No treatment is generally indicated for *Campylobacter* infection except for rehydration and electrolyte replacement. Treatment with azithromycin and erythromycin can shorten the duration of illness and excretion of organisms. Antibiotic treatment is only recommended for those with severe disease or at risk for severe disease, and should be given early in the

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course of infection. Resistance to fluoroquinolones is increasing among *Campylobacter* species so antibiotic susceptibility profiles are important when treatment is indicated.

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### **Surveillance Indicators**

- Proportion of investigations with complete demographic information.
- Proportion of investigations with complete information on risk exposures.
- Proportion of confirmed cases with known campylobacteriosis.

### **References**

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