



Campylobacteriosis

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Information for this chapter was adapted with permission from Alberta Health. For more information about campylobacteriosis see: [Alberta Public Health Disease Management Guidelines: Campylobacteriosis](#).

1. CASE DEFINITION

Confirmed Case

- Laboratory confirmation of infection with or without clinical illness*:
 - Isolation of *Campylobacter* species from an appropriate clinical specimen (e.g., stool and blood)

Probable Case

- Clinical illness* in a person who is epidemiologically linked to a confirmed case.

*Clinical illness is characterized by diarrhea, abdominal pain, malaise, fever, and nausea and/or vomiting.

2. DIAGNOSIS

- Diagnosis is made by culture of the organism from stool or blood
- Isolation of *Campylobacter jejuni* from food is difficult as the bacteria are usually present in low numbers
- For more information, refer to the [Alberta Provincial Laboratory Guide to Services](#)



3. REPORTING

Health Care Professionals

- Confirmed or probable (with epidemiology link) cases are to be reported to the Office of the Chief Public Health Officer (OCPHO) by telephone (867) 920-8646, fax (867) 873-0442, or email, within **24 hours AND**
- Within **24 hours** complete and fax:
 - [Food and Waterborne Illness Investigation Form](#) to the Environmental Health Office at (867)-669-7517 **AND**
 - NWT [Communicable Disease Reporting Form](#) to the OCPHO at (867) 873-0442
- **Immediately** report all outbreaks or suspect outbreaks by telephone to the OCPHO (867) 920-8646

Laboratories

- Report all positive results to the OCPHO by fax (867) 873-0442 within **24 hours**

4. OVERVIEW

Causative Agent

- Campylobacteriosis is an acute zoonotic bacterial infection that can cause both enteric and extraintestinal infections
- There are 21 species within the genus *Campylobacter*, but *Campylobacter jejuni* and *Campylobacter coli* mainly cause diarrhea in humans
- Enteric infections are most commonly associated with *C. jejuni* and extraintestinal infections with *Campylobacter fetus*
- *C. fetus* largely causes systemic illness in neonates and debilitated hosts
- Other *Campylobacter* species, including *C. upsaliensis*, *C. lari*, and *C. hyointestinalis* also cause enteric or extraintestinal illnesses
- *Campylobacter* bacteria can survive in milk, other foods or in water that is kept at 4° C for several weeks
- Pasteurization effectively destroys the bacteria as does appropriate chlorination used for water disinfection
- *Campylobacter* bacteria also remains viable after freezing

Clinical Presentation and Major Complications

For information regarding campylobacteriosis clinical presentation and major complications see: [Alberta Public Health Disease Management Guidelines: Campylobacteriosis](#).



Transmission

- The most common modes of transmitting *Campylobacter* bacteria include:
 - Ingesting contaminated food (particularly raw or undercooked poultry or meat)
 - Drinking unpasteurized milk or contaminated/untreated water
 - Having close contact with fecal material from infected animals, pets, or infected people
- It has been estimated that, in developed countries, 50–70% of sporadic *Campylobacter* infections are from consuming undercooked poultry
- Cross-contamination from cutting boards may cause infections especially when raw poultry is cut on them
- Although person-to-person transmission is uncommon, it may occur, and the risk is greatest during the acute phase of the illness
- Newborns of infected mothers have become infected
- The infective dose for *Campylobacter* is low (as few as 500 organisms)
- Strains acquired during travel may be resistant to several antibiotics
- The organism may also be carried by flies

Incubation Period

- 2-5 days, with a range of 1-10 days
- The incubation period may be inversely related to the infective dose.
- *Campylobacter* is communicable throughout the course of the infection typically lasting several days to several weeks.
- Persons not treated with antibiotics may excrete the organism for as long as 2-7 weeks.

Clinical Guidance

For patient-specific clinical management consult your local healthcare professional, paediatrician, infectious disease specialist or [Clinical Practice Guidelines](#).

5. PUBLIC HEALTH MEASURES

Key Investigations

- Confirm the diagnosis
- Obtain a history of illness including the date of onset, signs, and symptoms
- Identify any underlying medical conditions that may increase host susceptibility



- Determine the possible source of infection taking into consideration the incubation period, reservoir, and mode of transmission
- Assessment may include:
 - Obtaining a detailed food history including recent consumption of potentially contaminated food (especially poultry, beef, pork), contaminated water, or unpasteurized milk
 - Assessing for possible cross contamination (e.g., cutting boards)
 - Assessing for exposure to domestic or wild animals or fowl including identifying recent illness in pets or acquisition of a puppy, kitten, etc. into the household
 - Determining occupational exposure (e.g., animal or meat handling)
 - Identifying history of high-risk sexual practices especially contact with feces
 - Identifying history of recent travel
 - Assessing for history of residing in areas with poor sanitation including improper water treatment and sewage disposal either in Canada, or abroad
- Obtain implicated food samples, if possible
- Assess for history of similar symptoms in other members of the household
- Identify contacts that may have had significant risk of direct or indirect exposure to the feces of the case
- Contacts include:
 - Persons living in the household
 - Children and childcare workers in a day care/day home, and individuals exposed to the same source (if it is identified)

Management of Cases

- Provide information about disease transmission and the appropriate infection prevention and control measures that should be implemented to minimize the possibility of transmission including:
 - Strict hand hygiene especially after using the washroom, changing diapers and before preparing/handling and serving food
- For hospitalized children or adults unable to maintain appropriate hygiene habits or who have incontinence that cannot be contained, additional precautions (i.e., contact precautions) should be implemented, otherwise, standard precautions are adequate
- Consultation with facility Infection Control staff is appropriate
- Advise the case about proper food handling practices and to refrain from preparing food for others while ill
- Infection with *Campylobacter* confers lasting immunity to that strain
 - In developing countries, most of the population will develop immunity in the first two years of life
- Exclusion should be considered for symptomatic persons who are:



- **Food handlers** whose work involves:
 - Touching unwrapped food to be consumed raw or without further cooking and/or handles equipment or utensils that touch such food
 - Generally, food handlers who do not touch food, equipment or utensils in this way are not considered to pose a transmission risk. However, circumstances for each case should be assessed on an individual basis
 - **Healthcare, childcare, or other staff** that:
 - Has contact through serving food to highly susceptible persons
 - Provides direct patient care and are involved in the care of young children, elderly, or dependent persons
 - **A child attending a childcare facility** or similar facilities who is diapered or unable to implement good standards of personal hygiene
 - **Any individual** (older child or adult) who is unable to implement good standards of personal hygiene (e.g., those with disabilities/challenges that may impact ability to perform good hand hygiene) and is involved in an activity that may promote disease transmission
- Exclusion should last until 48 hours after appropriate antibiotic treatment has been completed and stools have returned to normal or the CPHO (or designate) is satisfied that the case is no longer infectious
 - The case must be symptom free for 48 hours after stopping any antidiarrheal medication (if taken):
 - Lifting of exclusions is NOT conditional upon submission of stool specimens (Specimens may still be submitted on a case-by-case basis in consultation with the CPHO or designate) to demonstrate clearance of the organism
 - If possible, consideration may be given to temporary redeployment away from activities that involve increased risk of transmission
 - Symptomatic cases who are not food handlers, healthcare or childcare staff, a child attending childcare, or any individual who is unable to implement good standards of personal hygiene are not usually excluded
 - However, all cases of gastroenteritis or enteritis should be regarded as potentially infectious and should remain home from work, school, or daycare until 48 hours after diarrhea has stopped
 - Asymptomatic cases of any occupation or situation are generally not excluded unless otherwise recommended by the CPHO (or designate)

Management of Contacts

- Contacts include:
 - Persons living in the same household as the case
 - Children and childcare workers in a day care/day home, and individuals exposed to the same source (if it is identified)
- Contacts should be instructed about disease transmission, appropriate personal hygiene, routine practices, and contact precautions



- Provide information about disease transmission and appropriate infection prevention and control measures
- Stress the measures that need to be taken to minimize possible transmission including strict hand hygiene, especially after using the washroom, changing diapers, and before eating and preparing/handling foods
- Refer symptomatic contacts to their physician for assessment
- Exclusion should be considered for symptomatic contacts who are food handlers whose work involves:
 - Touching unwrapped food to be consumed raw or without further cooking and/or handles equipment or utensils that touch such food:
 - Generally, food handlers who do not touch food, equipment or utensils in this way are not considered to pose a transmission risk however, circumstances for each case should be assessed on an individual basis
 - Healthcare, childcare, or other staff who:
 - Has contact through serving food to highly susceptible persons
 - Provides direct patient care and are involved in the care of young children, elderly, or dependent persons
 - A child attending a childcare facility or similar facilities who:
 - Is diapered or unable to implement good standards of personal hygiene
 - Any individual (older child or adult) who:
 - Is unable to implement good standards of personal hygiene (e.g., those with disabilities/challenges that may impact ability to perform good hand hygiene) and is involved in an activity that may promote disease transmission
- Exclusion is not required for:
 - Symptomatic contacts in situations or occupations not listed above
 - Asymptomatic contacts
 - Asymptomatic contacts should be encouraged to self-monitor for gastrointestinal symptoms, maintain good hand hygiene and food handling practices, and seek medical attention if symptoms develop

Prevention

- Provide public education about personal hygiene, especially the sanitary disposal of feces and careful hand washing after defecation and sexual contact, and before preparing or eating food
- Educate food handlers about proper food and equipment handling and hygiene, especially in avoiding cross contamination from raw meat products, and thorough hand washing
- Educate about the risk of sexual practices that permit fecal-oral contact
- Educate about condom use for safer sex



- Adherence to the regulations outlined in the [Food establishment safety regulations of the NWT Public Health Act](#)
- Test private water supplies for presence of bacterial contamination, if suspected.
- Educate the public about good personal hygiene and safe food handling practices, such as:
 - Exercising good hand hygiene to prevent cross-contamination with other foods after handling raw poultry
 - Washing cutting boards, counter tops and utensils with soap and water after contact with raw poultry (and other foods of animal origin)
 - Cooking meats thoroughly
 - Washing hands after contact with farm animals, pets, animal feces, and animal environments, especially where the animals/pets are ill with diarrhea
 - Avoid drinking unpasteurized (raw) milk and foods made from unpasteurized milk, and accessing and drinking safe water supplies

6. PUBLIC & HEALTH PROFESSIONAL EDUCATION

For more information about campylobacteriosis:

- The Government of Canada: Canada/[Campylobacteriosis \(Campylobacter\)](#)
- Centers for Disease Control and Prevention: CDC/[Campylobacter \(Campylobacteriosis\)](#)
- World Health Organization: WHO/[Campylobacter](#)

7. EPIDEMIOLOGY

- The rates for campylobacteriosis infection in Canada have been gradually decreasing since 2000 with a slight upward trend in 2009-2012
- With rate ranges from 40.66 per 100,000 in the year 2000 to 27.23 per 100,000 in the year 2019
- For more information on the epidemiology of campylobacteriosis in the Northwest Territories (NWT) see: [Epidemiological Summary of Communicable Diseases HSS Professionals](#)



8. REFERENCES

Information for this chapter was adapted with permission from Alberta Health's Public Health Disease Management Guidelines. For more information about campylobacteriosis see: [Alberta Public Health Disease Management Guidelines: Campylobacteriosis](#).

Additional resources used for this chapter include:

1. Public Health Agency of Canada. Notifiable Disease On-Line: Campylobacter: <https://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/charts.php?c=yl>