

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS



PATHOGENS ARE MICROORGANISMS SOMETIMES FOUND IN YOUR FOOD THAT CAN MAKE YOU SICK. PROTECT YOURSELF: COOK, CLEAN, CHILL, SEPARATE.

10 LEAST WANTED

FOODBORNE PATHOGENS

WHAT ARE FOODBORNE PATHOGENS?

Pathogens are microorganisms sometimes found in your food that can make you sick. They include:

- bacteria such as *Campylobacter jejuni*, *Clostridium botulinum*, *E. coli* O157:H7, *Listeria monocytogenes*, *Salmonella*, *Shigella*, *Vibrio*
- viruses such as hepatitis A and norovirus
- parasites such as *Cyclospora*

You can't see, smell or taste pathogens, so you can't tell if they are in your food or not.

WHY ARE THERE PATHOGENS IN MY FOOD?

Pathogens can get into food and water in a number of ways. Food can become contaminated on the farm. For example, fruit and vegetables can become contaminated if they are washed or irrigated with water contaminated with animal feces or human sewage. Food can also become contaminated during processing, storage, transportation or preparation. Sometimes pathogens can be present in food and water naturally, without there being a human cause for contamination. For example, *Vibrio* bacteria, which is naturally present in sea water, can be found in oysters and other shellfish.

Some pathogens are more likely to be found in certain foods. For example, disease-causing strains of *E. coli* can be found in beef, whereas *Salmonella* is more often found in poultry and eggs. These pathogens are destroyed by cooking food to a safe internal temperature (refer to the chart on page 5).

You can spread pathogens or they can multiply if you do not follow safe food-handling practices. These include the four rules: cook, clean, chill and separate.

CAN PATHOGENS MAKE ME SICK?

Food or drink that has pathogens can cause foodborne illness, also known as "food poisoning." Some people can have foodborne illness with mild symptoms and not even know they have it. Although most people fully recover, some people may have more severe and possibly long-term or permanent consequences and they will need to visit a doctor. In some cases, foodborne illness can cause death.



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WHAT IS FOODBORNE ILLNESS?

Symptoms of foodborne illness can begin within hours or days after consuming contaminated food or drink. The time depends on the type and amount of pathogen you've consumed, and your general health. Many people experience nausea, vomiting and diarrhea.

WHAT SHOULD I DO IF I THINK I HAVE A FOODBORNE ILLNESS?

You should see a doctor as soon as possible if you think you have a foodborne illness and you are experiencing the following symptoms:

- fever above 38.5° Celsius
- blood in your stool
- vomiting so much that you cannot keep liquids down (which can lead to dehydration)
- dehydration (decrease in urination, dry mouth and throat, feeling dizzy when standing up)
- diarrhea that lasts more than three days

Also, it is always a good idea to get plenty of rest and stay hydrated by drinking lots of fluids.

HOW MANY PEOPLE EXPERIENCE FOODBORNE ILLNESS IN CANADA?

The Government of Canada estimates that there are about 11 million cases of foodborne illness in Canada every year. Many foodborne illnesses can be prevented by following these safe food-handling practices: cook, clean, chill and separate.

WHAT IS THE GOVERNMENT OF CANADA DOING ABOUT FOOD SAFETY?

The Government of Canada is committed to food safety. Health Canada sets the regulations and standards for the safety and nutritional quality of food sold in Canada. The Canadian Food Inspection Agency verifies that food sold in Canada meets Health Canada's requirements. It does this through inspection and enforcement activities. The Public Health Agency of Canada conducts national laboratory-based surveillance, coordinates national outbreak response, provides expertise to public health officials and builds capacity for responding to foodborne illness outbreaks.



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WHO'S AT RISK FOR FOODBORNE ILLNESS?

Everyone is potentially at risk for foodborne illness. However, some people are more likely to get a foodborne illness because of their age or underlying medical conditions. They may also be more likely to experience severe illness. These high-risk groups include young children, adults 60 years and older, pregnant women and people with weakened immune systems.

Infants and young children:

Infants (zero to one year old) have an underdeveloped immune system. This makes them more vulnerable to harmful bacteria, which can result in foodborne illness. Young children (one to five years old) may be more susceptible to foodborne illness and may take longer to recover. Also, infants and young children may suffer from other complications from foodborne illness, such as kidney failure.

A bottle-fed infant may be at a higher risk for severe infection from foodborne illness. For example, bacteria can grow in a bottle of warm formula that has been left at room temperature for more than one hour, or breast milk that has been left at room temperature for more than four hours. Always wash your hands and always clean and disinfect your baby's bottle before use.

Adults 60+:

As you age, it becomes harder for your immune system to ward off harmful foodborne pathogens. While most people affected by foodborne illness can recover completely, as you age, you are more likely to experience complications and some longer-term health effects, such as kidney failure and anaemia, from foodborne illness. If you have chronic diseases, such as diabetes and kidney disease, it can be even more difficult for you to fight off infections.

Pregnant women:

If you are pregnant, foodborne illness can cause serious health problems for you and your unborn baby. During pregnancy, both you and your baby are at an increased risk for foodborne illness and, in particular, dehydration. This is because all the changes taking place in your body during pregnancy, including a weakening of your immune system, make it more difficult to fight off infections.

Sometimes, a pregnant woman may experience only mild symptoms of foodborne illness. Nevertheless, certain dangerous pathogens, in particular *Listeria*, can cross the placenta. This can increase the chance of your unborn baby becoming infected. In addition, your unborn baby's immune system is not developed enough to fight off harmful foodborne pathogens.

People with weakened immune systems:

Some illnesses and chronic medical conditions, as well as treatments for certain illnesses, can affect your immune system. This can make it difficult for you to fight off harmful foodborne pathogens. If you have a weakened immune system, you may experience more severe symptoms of foodborne illness and it may take longer for you to recover from an illness.

Some examples of conditions that can affect your immune system are:

- alcoholism
- cancer (especially for people receiving chemotherapy)
- diabetes
- HIV/AIDS
- organ transplantation



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HOW CAN I PREVENT FOODBORNE ILLNESS AT HOME?

Follow these safe food-handling practices to reduce the likelihood of you and your family getting sick from foodborne illness.

CLEAN

- Wash your hands for at least 20 seconds with soap and warm water, before and after handling food.
- Thoroughly clean, rinse and sanitize countertops, cutting boards, utensils and dishes after each use by using hot soapy water or a bleach sanitizer. Do this after preparing each food item and before preparing the next food.
- Wash raw fruits and vegetables with clean, running water before you prepare and eat them. Use a brush to scrub produce that has firm or rough surfaces, such as cantaloupes, carrots, oranges, and potatoes.

WHY? If you don't keep your hands, food, work surfaces and utensils clean, harmful pathogens can easily spread.

CHILL

- Keep cold food cold at or below 4°C (40°F).
- Thaw food in the refrigerator, where the food will stay at a safe, constant temperature of 4°C (40°F) or below.
- Do not keep food in the danger zone for longer than two hours. Foods that need to be refrigerated or frozen should be stored immediately.

WHY? Bacteria can grow in the danger zone between 4°C and 60°C (40°F to 140°F).

SEPARATE

- Use one cutting board for raw meat, poultry and seafood. Use a different cutting board for food that is ready-to-eat or cooked.
- Keep raw food away from other food while shopping, and while storing, preparing and serving foods.
- Place raw meat, poultry and seafood in containers on the bottom shelf of the refrigerator. This will prevent raw juices from dripping onto other food or touching other food.

WHY? Raw food and their juices can contain harmful bacteria. These bacteria can be transferred from raw food to cooked food.

COOK

- Keep hot foods at or above 60°C (140°F).
- Use a digital food thermometer to check that cooked food has reached a safe internal temperature (refer to the chart on page 5).

WHY? In most cases, heat will kill harmful pathogens. Cooking food to the right internal temperature can get rid of these pathogens.



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INTERNAL COOKING TEMPERATURES

You can't tell by looking. Use a digital food thermometer to be sure!

FOOD	TEMPERATURE
Beef, veal and lamb (pieces and whole cuts) <ul style="list-style-type: none"> • Medium-rare • Medium • Well done 	63°C (145°F) 71°C (160°F) 77°C (170°F)
Pork (pieces and whole cuts)	71°C (160°F)
Poultry (for example, chicken, turkey, duck) <ul style="list-style-type: none"> • Pieces • Whole 	74°C (165°F) 85°C (185°F)
Ground meat and meat mixtures (for example, burgers, sausages, meatballs, meatloaf, casseroles) <ul style="list-style-type: none"> • Beef, veal, lamb and pork • Poultry 	71°C (160°F) 74°C (165°F)
Egg dishes	74°C (165°F)
Others (for example, hot dogs, stuffing, leftovers)	74°C (165°F)

Where can I get more information?

For more information on food safety, please visit the following websites:
 The Government of Canada Food Safety web portal: www.foodsafety.gc.ca
 The Canadian Food Inspection Agency: www.inspection.gc.ca
 Health Canada: www.hc-sc.gc.ca
 The Public Health Agency of Canada: www.phac-aspc.gc.ca
 The Canadian Partnership for Consumer Food Safety Education's Be Food Safe program: www.befoodsafe.ca



Scan this code from your smart phone to sign up for food recalls and allergy alerts.

1 800 O-Canada (1-800-622-6232) TTY: 1-800-926-9105

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CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

CAMPYLOBACTER JEJUNI



SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p>Diarrhea (often bloody or watery)</p> <p>Abdominal pain</p> <p>Fever</p> <p>Nausea</p> <p>Vomiting</p>	<p>Symptoms usually</p> <ul style="list-style-type: none"> • start within 2 to 5 days (but can happen up to a month after eating or drinking food containing the bacteria) • last up to 10 days 	<p>By eating or drinking food or beverages contaminated with <i>Campylobacter jejuni</i></p> <p>By hands that were not washed properly after petting infected cats, dogs, or farm animals</p> <p>Through cross-contamination when preparing food</p> <p>Direct person-to-person contact, including the physical care (diapering) of people carrying the virus</p>	<p>Long-term consequences are rare.</p> <p>Some people may get</p> <ul style="list-style-type: none"> • sudden gall bladder inflammation (can feel like a sharp abdominal pain) • Guillain-Barré syndrome (an auto-immune disorder affecting the nervous system) • meningitis (inflammation of the brain and spinal cord) • Reiter's syndrome (a condition that develops in response to an infection in another part of the body and can lead to chronic arthritis) • chronic colitis (inflammation of the colon) 	<p>Raw eggs</p> <p>Raw milk and raw milk dairy products</p> <p>Raw or undercooked meat such as poultry, beef, pork, lamb</p> <p>Raw vegetables</p> <p>Shellfish</p> <p>Untreated drinking water</p>	<p>Cook food to a safe internal temperature.</p> <p>Drink and eat pasteurized milk and milk products.</p> <p>Use a digital food thermometer to check the internal temperature of your food. Refer to the chart on page 5.</p> <p>Keep hot food hot at or above 60°C (140°F).</p> <p>Keep cooked food separate from raw food. Use one set of utensils for raw food and another for cooked food.</p> <p>Buy shellfish from reputable suppliers.</p> <p>Drink water from a safe supply (treated or boiled water).</p>

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

CLOSTRIDIUM BOTULINUM



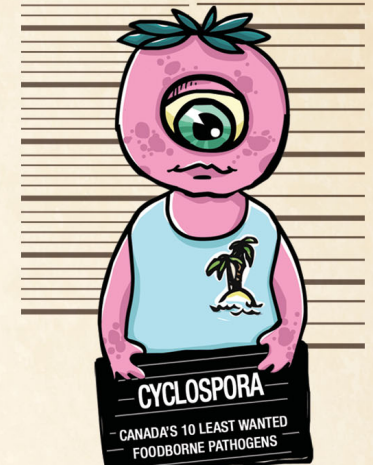
SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p>Nausea</p> <p>Diarrhea</p> <p>Fatigue</p> <p>Weakness and dizziness</p> <p>Blurred vision</p> <p>Dry mouth</p> <p>Difficulty speaking and swallowing</p> <p>Descending paralysis of the arms, legs, trunk, and breathing muscles (starts in arms and moves down)</p>	<p>Symptoms usually</p> <ul style="list-style-type: none"> • start within 12 to 36 hours after eating or drinking food containing the bacteria • last from 2 hours to 14 days 	<p><i>Clostridium botulinum</i> is a bacteria that can form toxins.</p> <p>By eating or drinking food or beverages contaminated with <i>Clostridium botulinum</i> toxin</p> <p>Through home-canned food that is</p> <ul style="list-style-type: none"> • processed improperly • low-acid 	<p>Illness is rare in Canada, but it can be severe.</p> <p>Most people can recover if diagnosed and treated promptly. Treatment includes early doses of antitoxin and intensive respiratory care.</p> <p>Recovery can take several weeks to months. In some cases, it can take years and you may never fully recover.</p> <p>Severe botulism can lead to</p> <ul style="list-style-type: none"> • a need for intensive medical and nursing care • paralysis and respiratory failure, which can require a person to have ventilator assistance to breathe <p>If not diagnosed and treated, death from respiratory failure can happen within 3 to 10 days.</p>	<p>Home-canned low-acid food that has been processed improperly, such as asparagus, beets, corn, garlic, green beans, mushrooms, peppers, chicken and chicken livers, ham, liver pâté, sausage</p> <p>Smoked, salted and fermented fish</p> <p>Fermented marine mammal meat, for example whale, walrus, seal</p> <p>Baked potatoes stored in aluminium foil</p> <p>Honey: Although honey may naturally contain <i>Clostridium botulinum</i>, the bacteria can't grow or produce toxins in the honey, but it could grow and produce toxins in a baby's body, and this can cause infant botulism</p> <p>Low-acid juice, such as carrot juice</p> <p>Improperly-cured meat products</p>	<p>Follow instructions and up-to-date canning recipes and use up-to-date equipment when canning low-acid food at home.</p> <p>Don't use aluminium foil to wrap potatoes or other vegetables for baking unless the vegetables will be cooked and eaten right away or unwrapped and refrigerated right away once they're cooked.</p> <p>Don't feed honey (even pasteurised honey) to children under one year old.</p> <p>Keep all low-acid juices, such as carrot juice and other products labelled "keep refrigerated," refrigerated.</p> <p>Never eat food from dented, bulging or leaking home or commercially-canned food.</p>

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

CYCLOSPORA

PARASITE



SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p>Diarrhea (watery)</p> <p>Loss of appetite, weight loss</p> <p>Stomach cramps</p> <p>Abdominal bloating, increased gas</p> <p>Nausea</p> <p>Fatigue</p>	<p>Symptoms usually</p> <ul style="list-style-type: none"> • start within one week after eating or drinking food containing the parasite • last from a few days to 7 weeks <p>Symptoms may seem to go away and then return one or more times (relapse).</p>	<p>By eating or drinking food or beverages contaminated with <i>Cyclospora</i> from or while travelling to developing countries where foodborne illness from <i>Cyclospora</i> is common</p> <p>Food and drinks can become contaminated</p> <ul style="list-style-type: none"> • during cultivation, harvest or packaging • through contact with infected food handlers during packaging and transportation • through contaminated irrigation or tap water 	<p><i>Cyclospora</i> infection responds quickly to proper antibiotic treatment and is not considered to be life-threatening in healthy people.</p> <p>There are rarely long-term consequences in healthy people.</p>	<p>Imported fruits and vegetables, including fresh basil and raspberries, that are</p> <ul style="list-style-type: none"> • consumed raw or lightly cooked, and • from countries where <i>Cyclospora</i> is common. 	<p>Fresh fruit and vegetables should be washed thoroughly before they are eaten, although this practice may not fully eliminate the risk of illness.</p>

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

E. COLI 0157:H7

BACTERIA



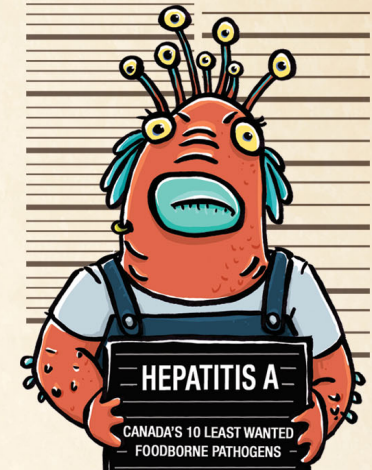
SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p>Severe stomach cramps</p> <p>Diarrhea (often bloody)</p> <p>Vomiting</p> <p>Nausea</p> <p>Headache</p> <p>Little or no fever</p>	<p>Symptoms usually</p> <ul style="list-style-type: none"> • start within 3 to 4 days but can occur up to 10 days later • last from 5 to 10 days 	<p>By eating or drinking</p> <ul style="list-style-type: none"> • food or beverages contaminated with <i>E. coli</i> 0157:H7 • unpasteurized (raw) milk and (raw) milk products • untreated water <p>Through contact with:</p> <ul style="list-style-type: none"> • cattle or other farm animals • the feces of infected people <p>Through cross-contamination between raw meat and other food when you are preparing food</p> <p>A person or animal can carry the bacteria without showing symptoms of illness, and can spread it to foods, surfaces or other people.</p>	<p>Up to 15 percent of children infected, and a much smaller proportion of adults, develop Hemolytic Uremic Syndrome (HUS). This is a type of kidney failure and blood disorder.</p> <p>Most people with HUS recover within a few weeks, but some suffer permanent kidney and other organ damage and complications, or may die.</p>	<p>Beef, raw and undercooked, ground and whole cuts</p> <p>Unpasteurized apple juice or cider</p> <p>Unpasteurized (raw) milk and (raw) milk products, such as raw milk cheese</p> <p>Untreated drinking water</p> <p>Contaminated raw fruit and vegetables that are not cooked (including alfalfa and bean sprouts)</p>	<p>Cook food to a safe internal temperature.</p> <p>Use a digital food thermometer to check the internal temperature of your food. Refer to the chart on page 5.</p> <p>Eat and drink only pasteurized apple juice, cider, milk and milk products.</p> <p>Wash your hands thoroughly before preparing or eating food.</p> <p>Wash your hands after contact with animals or their environments (at farms, petting zoos, and fairs).</p> <p>Drink water from a safe supply (treated or boiled water).</p> <p>Keep raw food away from other food while shopping, and while storing, preparing and serving foods.</p>

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

HEPATITIS A

VIRUS



SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p>Fever</p> <p>Loss of appetite</p> <p>Stomach cramps</p> <p>Jaundice appears several days after the start of symptoms</p> <p>Children often do not show symptoms of the disease</p>	<p>Symptoms usually start within 2 to 7 weeks after exposure to the virus.</p> <p>Symptoms are usually mild and last 1 to 2 weeks.</p> <p>Severe cases can last several months.</p>	<p>By eating or drinking food or beverages contaminated with hepatitis A through</p> <ul style="list-style-type: none"> • a contaminated food handler • hands that were not washed properly after using the washroom • contaminated water during harvest, manufacturing, etc. <p>Direct person-to-person contact, including the physical care (diapering) of people carrying the virus</p> <p>A person may carry the virus without showing symptoms, but they can spread it to other people, food and surfaces.</p>	<p>10 to 15 percent of people who do not show symptoms can still carry the disease for up to 6 months.</p> <p>Hepatitis A does not become chronic. If you are immune to it (if you are protected against infection because you got vaccinated or because your body already has a resistance to the virus), this will last your entire life.</p> <p>It is rare for healthy adults to die from this virus.</p>	<p>Contaminated water</p> <p>Raw or undercooked shellfish</p> <p>Fresh fruit and vegetables</p>	<p>Wash your hands after using the washroom and changing diapers, and before preparing or eating food.</p> <p>Speak with your doctor about getting a hepatitis A vaccination before travelling.</p> <p>When travelling</p> <ul style="list-style-type: none"> • drink water from a safe supply (commercially bottled carbonated water or boiled water) • avoid ice cubes in drinks • eat only freshly cooked food • avoid non-peelable raw fruit or vegetables unless well-washed. <p>If you think that you have been exposed to the virus, see your doctor immediately. Vaccination can prevent the onset of symptoms if given within 2 weeks of exposure.</p>

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

LISTERIA MONOCYTOGENES



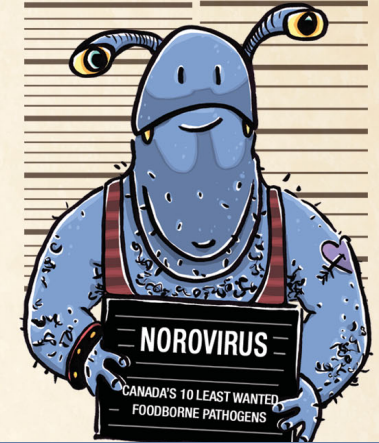
SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p>Persistent fever</p> <p>Muscle aches</p> <p>Constipation</p> <p>Nausea (sometimes)</p> <p>Vomiting (sometimes)</p> <p>If infection spreads to the nervous system:</p> <p>Headache</p> <p>Stiff neck</p> <p>Confusion</p> <p>Loss of balance</p>	<p>Symptoms usually start within 3 to 70 days after exposure to the bacteria.</p> <p>How long the illness lasts can vary depending on the severity of illness.</p>	<p>By eating or drinking food or beverages contaminated with <i>Listeria monocytogenes</i></p> <p>Through cross-contamination during food preparation in the kitchen or in the processing plant</p>	<p>The disease mainly affects adults 60 years and older, pregnant women, newborns, and people with weakened immune systems.</p> <p>Pregnant women infected with this bacteria can experience a mild, flu-like illness however infections during pregnancy can lead to miscarriage, stillbirth, premature delivery, or infection of the newborn baby.</p> <p>Infection with <i>Listeria</i> may be followed by meningitis encephalitis (an infection of the brain or its surrounding tissues) and/or septicaemia (bloodstream infection), either of which can cause death.</p>	<p>Deli meats (cold cuts or “ready-to-eat” meat)</p> <p>Hot dogs</p> <p>Raw cheeses from unpasteurized milk, including soft and semi-soft cheese, such as Brie, Camembert and blue-veined cheese</p> <p>Raw food, such as uncooked or undercooked meats</p> <p>Refrigerated pâtés and meat spreads</p> <p>Refrigerated smoked seafood</p>	<p>Use a digital food thermometer to check the internal temperature of your food. Refer to the chart on page 5.</p> <p>Wash your hands after handling meat products.</p> <p>Adults 60 years and older, pregnant women, and people with weakened immune systems should avoid food commonly associated with <i>Listeria</i>, including hot dogs, deli meats and unpasteurized dairy products. If you still choose to eat this food, follow these safe food handling practices:</p> <p>Cook high-risk food, including unpasteurized dairy products, deli meat, hot dogs, meat and poultry, to a safe internal temperature. Refer to the chart on page 5.</p> <p>Avoid spreading fluid from hot dog and deli meat packages onto other food, cutting boards, utensils, dishes and food preparation surfaces.</p> <p>Eat only pasteurized cheese, including hard cheese, such as Colby, Cheddar, Swiss and Parmesan Cheese.</p>

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

NOROVIRUS

VIRUS



SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p>Diarrhea</p> <p>Vomiting (Children may experience more vomiting than adults)</p> <p>Nausea</p> <p>Stomach cramps</p> <p>Headache</p> <p>Low-grade fever</p> <p>Muscle aches</p> <p>Sudden onset of symptoms</p>	<p>Symptoms usually</p> <ul style="list-style-type: none"> • start within 1 to 2 days after exposure • last 24 to 48 hours <p>Most people recover completely from the illness within 72 hours.</p>	<p>By eating or drinking food or beverages contaminated with norovirus</p> <p>Through cross-contamination when you are preparing food</p> <p>By touching surfaces or objects contaminated with norovirus, and then placing your hand in your mouth</p> <p>By caring for or having direct contact with a person infected with norovirus</p> <p>Norovirus is usually in the feces or vomit of people who are infected with the virus.</p>	<p>Severe illness or hospitalization is very rare in healthy adults.</p> <p>Infection can cause severe vomiting and diarrhea, which could lead to dehydration. This is more likely in the very young, adults 60 years and older and those with weakened immune systems.</p>	<p>Contaminated or untreated drinking water</p> <p>Shellfish, especially raw or improperly steamed clams and oysters that were harvested from contaminated waters</p>	<p>Wash your hands after using the washroom and changing diapers, and before preparing or eating food.</p> <p>Avoid raw shellfish. Cook it thoroughly before eating it, especially clams and oysters.</p> <p>Wash raw vegetables thoroughly before eating.</p> <p>Make sure to thoroughly clean any vomit and/or feces with soapy water and disinfect with a bleach solution immediately after illness.</p> <p>Immediately remove and wash clothing or linens that may be contaminated with the virus.</p>

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

SALMONELLA



SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p>Fever</p> <p>Chills</p> <p>Headache (with a sudden onset)</p> <p>Stomach cramps</p> <p>Diarrhea</p> <p>Nausea</p> <p>Vomiting (sometimes)</p>	<p>Symptoms usually</p> <ul style="list-style-type: none"> • start within 6 to 72 hours after eating or drinking food containing the bacteria • last 4 to 7 days <p>Sometimes symptoms last up to 8 weeks.</p>	<p>By eating or drinking food or beverages contaminated with <i>Salmonella</i></p> <p>Through cross-contamination between raw meat and other food when you are preparing food</p> <p>From hands that were not washed properly after using the washroom and before handling food</p> <p>From hands that were not washed properly after petting infected animals (such as cats, reptiles, turtles and birds) whose bodies could be covered in feces that are carrying an infection</p> <p>From hands that were not washed properly after handling, animal feces, pets, pet turtles, pet rodents, pet food, pet toys and pet treats</p>	<p>Most people recover without treatment. However, in some people, symptoms can be severe and can cause dehydration, which may lead to hospitalization.</p> <p>In the case of severe illness, complications such as abscesses (a sore that is infected and filled with pus) and pneumonia can occur. Complications can sometimes cause death unless treated with the appropriate antibiotics. The young, adults 60 years and older and those with weakened immune systems are more likely to have severe illness.</p> <p>Some people may get</p> <ul style="list-style-type: none"> • Reiter's syndrome (a condition that develops in response to an infection in another part of the body. It can last for months or years and may lead to chronic arthritis). • colitis (inflammation of the colon). 	<p>Raw or undercooked meat, poultry, eggs and milk</p> <p>Unpasteurized dairy products, such as raw milk and raw cheese, and cream-filled desserts and toppings</p> <p>Raw fruit and vegetables (especially sprouts and cantaloupes) and their juices</p> <p>Homemade products such as salad dressings, hollandaise sauce, mayonnaise, ice cream, cookie dough, tiramisu, and frostings</p>	<p>Cook food, including meat, poultry and eggs, to a safe internal temperature.</p> <p>Use a digital food thermometer to check the internal temperature of your food. Refer to the chart on page 5.</p> <p>Consume only pasteurized juice, cider, milk and milk products.</p> <p>Wash fresh fruit and vegetables thoroughly.</p> <p>Keep cooked food separate from raw food during storage and preparation.</p> <p>Wash your hands thoroughly after contact with animal feces, pets, pet turtles, pet rodents, pet food, pet toys and pet treats.</p>

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

SHIGELLA



SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p>Fever</p> <p>Nausea</p> <p>Vomiting</p> <p>Abdominal pains</p> <p>Stomach cramps</p> <p>Diarrhea (often bloody)</p>	<p>Symptoms usually</p> <ul style="list-style-type: none"> • start within 1 to 3 days after eating or drinking food containing the bacteria (but can happen up to 7 days later) • last between 5 and 7 days 	<p>From hands that were not washed properly after using the washroom and before handling food</p> <p>Through person-to-person contact from hands that were not washed properly after using the washroom</p> <p>From flies that breed in contaminated feces, which then contaminate food</p> <p>From water and vegetables contaminated from sewage run-off</p>	<p>People with diarrhea usually recover completely, although it may be several weeks to months before bowel habits are normal.</p> <p>Complications can include septicaemia (bloodstream infection) and infection of other areas of the body.</p> <p>A small number of people who are infected with <i>Shigella flexneri</i> may develop Reiter's syndrome (a condition that develops in response to an infection in another part of the body), which can last for months or years. It can lead to chronic arthritis.</p>	<p>Raw oysters and other shellfish harvested from contaminated waters</p> <p>Vegetables harvested from fields contaminated with sewage</p> <p>Salads, including chicken, fruit, lettuce, macaroni, pasta, potato, shrimp, tuna, turkey, and vegetable</p> <p>Water contaminated with sewage</p>	<p>Buy shellfish from reputable suppliers.</p> <p>Cook shellfish thoroughly before eating, especially oysters.</p> <p>When travelling, in particular in the developing world do the following.</p> <ul style="list-style-type: none"> • Drink water from a safe source (treated or boiled water). • Eat only cooked hot food. • Eat only fruit that can be peeled.

CANADA'S 10 LEAST WANTED FOODBORNE PATHOGENS

PATHOGEN:

VIBRIO



SYMPTOMS	START OF SYMPTOMS / HOW LONG THEY LAST	HOW YOU CAN GET SICK	POTENTIAL HEALTH IMPACTS	FOOD COMMONLY ASSOCIATED	HOW TO PROTECT YOURSELF
<p><i>V. parahaemolyticus</i> Diarrhea (watery)</p> <p>Stomach cramps</p> <p>Nausea</p> <p>Vomiting</p> <p>Fever</p> <p>Headache</p> <p><i>V. cholerae</i> Diarrhea (watery)</p> <p>Leg cramps</p> <p>Vomiting</p> <p>Low blood pressure</p>	<p><i>V. parahaemolyticus</i> Symptoms usually</p> <ul style="list-style-type: none"> • start within 12 to 24 hours • last up to 3 days <p><i>V. cholerae</i> Symptoms usually</p> <ul style="list-style-type: none"> • start within 1 to 3 days • last up to 7 days 	<p><i>V. parahaemolyticus</i> By eating raw or undercooked shellfish, especially oysters</p> <p>Through contact with the feces of a sick person</p> <p><i>V. cholerae</i> By eating or drinking contaminated food or beverage while travelling to developing countries, where foodborne illness from <i>V. cholerae</i> is common</p>	<p><i>V. parahaemolyticus</i> Severe illness is rare and occurs more commonly in people with weakened immune systems.</p> <p><i>V. cholerae</i> Rapid loss of body fluids can lead to dehydration and shock. Without treatment, death can occur within hours.</p>	<p>Raw, undercooked or contaminated shellfish, especially oysters</p> <p>Contaminated drinking water</p>	<p>Cook shellfish thoroughly before eating, especially oysters.</p> <p>Always keep raw and cooked shellfish separated.</p> <p>Keep cooked food separate from raw food during storage and preparation.</p> <p>When travelling, in particular in the developing world</p> <ul style="list-style-type: none"> • drink water from a safe source (treated or boiled water) • eat only cooked hot food