Listeria and HIV

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Food-borne illnesses are not new to people living in Canada. However, an outbreak of one particular germ —*Listeria*— linked to the consumption of tainted processed meat has recently occurred. *Listeria* is of particular concern because this bacterium can cause severe infection (listeriosis) in people with weakened immunity. At press time, no one with HIV has contracted this illness, though at least 54 people have developed listeriosis and 20 people died as a result of eating contaminated ready-to-eat meat.

Because *Listeria* is commonly found in the environment, it is likely that future outbreaks of listeriosis will occur. Indeed, a separate outbreak of *Listeria* recently occurred in Quebec as a result of contaminated cheese. So far, 31 people have developed listeriosis from this second outbreak, one of whom has died.

CATIE previously published *Listeria* risk-reduction tips provided by Health Canada at:


Now here is more background information about *Listeria* and listeriosis and HIV.

**Listeria everywhere**

*Listeria* is commonly found just about everywhere—in soil, water, animals, decaying plants. Very small amounts of these bacteria are found living harmlessly in the intestines of some people.

*Listeria* can grow at temperatures commonly found in refrigerators, between 4° and 10°C. The lower the temperature, the harder it is for *Listeria* to grow. Health Canada recommends that refrigerator temperature be kept around 4°C. Freezing food generally does not kill these bacteria. Steaming or boiling food is an effective way to kill *Listeria*.

**The first time in Canada**

Listeriosis was first conclusively linked to eating contaminated food because of an outbreak of this illness in Atlantic Canada in the early 1980s. Researchers zeroed in on pre-packaged coleslaw. Their investigation revealed that the cabbage used to make the coleslaw was likely contaminated due to exposure to sheep manure that contained *Listeria*. Because cabbages are often stored over winter, this prolonged storage allowed *Listeria* to multiply, reaching high levels that could easily cause disease.

Since that time, researchers have learnt much about *Listeria* and expanded the list of foods that could become contaminated with this germ, as follows:

- raw vegetables
- raw (unpasteurized) milk and cheese
- meat (fresh or frozen)

**Risky eating**

Researchers at the U.S. Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration
FDA reviewed many reports of Listeria outbreaks that have occurred in high-income countries. They assessed the different types of food linked to the outbreaks and their potential to be contaminated with Listeria. Health Canada’s recommendations for safer eating are identical.

Here are some foods that are at generally moderate-to-high risk for Listeria contamination:

- ready-to-eat meats, such as deli meat or cold cuts
- hot dogs, frankfurters and sausages that have not been thoroughly re-heated
- refrigerated pâté and meat spreads
- smoked seafood
- cooked, ready-to-eat shellfish
- soft and semi-soft cheeses, such as feta, Brie, Camembert and blue-veined cheese if made from unpasteurized milk

For more details about Health Canada’s tips on safer eating for people with weakened immunity, see the September 18, 2008 issue of CATIE News at:


Bear in mind that foods contaminated with Listeria do not necessarily smell as though they are spoiled.

**Symptoms**

Listeria bacteria can disease—listeriosis—and even life-threatening complications in people with weakened immunity. Unfortunately, the symptoms of listeriosis are very general and can develop any time between two and 70 days after eating contaminated food. Initial symptoms of infection may include the following:

- nausea
- vomiting
- diarrhea
- intestinal cramps
- fever

For the most part, healthy adults and children who eat Listeria-contaminated food will develop mild or moderate symptoms of listeriosis. However, people with weakened immune systems are at high risk for developing listeriosis and can develop additional complications, including the following:

- inflammation of the membranes surrounding the brain; a condition called meningitis. This can lead to blood clots, strokes, seizures and brain damage.
- inflammation of the brain; a condition called encephalitis. This can lead to severe headaches, drowsiness, fever, confusion and seizures.
- blood poisoning (sepsis) because of bacterial proteins and the immune system’s response to them. This can lead to less-than-normal blood pressure and clots clogging blood vessels. The fall in blood pressure and blood clots result in greatly reduced flow of blood to vital organs, which then become dysfunctional. Urine output falls. The body attempts to compensate for reduced blood flow by triggering rapid breathing and rapid heartbeats but this does not work. Sepsis can lead to death if left untreated.

**Who is at risk?**

People at high risk of developing listeriosis include the following:

- pregnant women (and their fetus)
- babies less than one month old
- people 60 years or older
- people who have cancer, diabetes or kidney disease
- recipients of transplanted organs
- people who are HIV positive
**Who dies from Listeria?**

Researchers at the University of California at Los Angeles (UCLA) recently reviewed details on about 1,200 *Listeria*-related deaths in the U.S. that occurred between 1995 and 2005.

They found that the average age at the time of death was 68 years. The people who were 85 years or older were at greatest risk of death.

**What about HIV?**

Because the use of highly active antiretroviral therapy (HAART) can partially restore the immune systems of HIV positive people, the UCLA team also looked at deaths that occurred before and after 1996, the year HAART was introduced in many high-income countries.

The UCLA research team noted that before 1996 about 5% of *Listeria*-related deaths occurred in HIV positive people in the United States. After that year, about 3% of *Listeria*-related deaths occurred in people with HIV. Although this decrease was not statistically significant, the UCLA team suspects that *Listeria*-related deaths are now less common because of the widespread availability and use of HAART.

Still, listeriosis is uncommon in HIV-positive people in high-income countries but researchers are not sure exactly why this is the case. Indeed, none of the people affected by Canada’s recent *Listeria* outbreak have been HIV positive. One possible theory for this is that *Listeria* is controlled by cells of the immune system not seriously degraded by HIV. Another possibility is that antibiotics such as Bactrim/Septra (trimethoprim-sulfamethoxazole) commonly used by HIV positive people help kill *Listeria*.

In addition to the previous list of people at high risk of developing listeriosis, the UCLA team found additional risk groups, as follows:

- people with certain cancers, such as leukemia, lymphoma and liver cancer
- people with severe symptoms of cardiovascular disease, such as heart attacks and strokes
- people with pneumonia
- people with lupus

**What to do**

Because *Listeria* can cause severe complications in people with weakened immunity, the diagnosis and prompt treatment of this infection is vital.

The Public Health Agency of Canada (PHAC) recommends that doctors perform detailed investigations in immune-suppressed people who are suspected of having eaten *Listeria*-contaminated food. Here are PHAC’s suggestions:

- If diarrhea is the only symptom, sending a stool sample for laboratory testing for *Listeria* may be necessary.
- In cases where patients have fever, blood samples should be sent for lab testing. A diagnosis of listeriosis cannot be made simply on the basis of fever, as there are many causes of this symptom.
- Pregnant women with fever or signs of sepsis should be offered therapy with antibiotics, including ampicillin.

Note that PHAC encourages combination antibiotic therapy with ampicillin and gentamicin for people with sepsis caused by *Listeria*.

**Risk reduction—in general**

Here are some ways of reducing everyone’s risk for listeriosis by Dr. Robert Bortolussi, one of Canada’s experts on this topic:

- Thoroughly cook raw food from animal sources such as beef, pork and poultry.
- Wash raw vegetables thoroughly before eating.
- Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods.
- Avoid raw (unpasteurized) milk or foods made from unpasteurized milk.
- Wash hands, knives and cutting boards after handling uncooked foods
- Consume perishable and ready-to-eat foods as soon as possible.

**Risk reduction—for people at high-risk**

Here are some ways for people with HIV and other conditions that put them at high risk for listeriosis to reduce their chances of encountering *Listeria*:

- Do not eat hotdogs or ready-to-eat foods such as deli meats unless they are reheated until they are steaming hot.
- Do not eat soft cheeses (including feta, Brie and Camembert) or blue-veined cheeses unless they have labels that clearly state they are made from pasteurized milk.
- Do not eat refrigerated pâtés or meat spreads; canned or pasteurized pâtés and meat spreads may be eaten.
- Do not eat refrigerated smoked seafood unless it is contained in a cooked dish such as a casserole; canned or shelf-stable smoked seafood may be eaten.

For more information on *Listeria*, visit this helpful website:


Warnings and food-product recalls provided by Canada’s Food Inspection Agency may be found at:


**REFERENCES:**


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Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

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