

Cover Sheet

DATE: September 13, 2011

SUBJECT: Listeriosis: 2 reported cases in MT

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406-444-0273
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Communicable Disease and Prevention
Bureau

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Categories of Health Alert Messages:

Health Alert: conveys the highest level of importance; warrants immediate action or attention.

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Health Update: provides updated information regarding an incident or situation; unlikely to require immediate action.

Please call DPHHS to update contact information at 444-0919 or 444-6906

Information Sheet

Date: September 13, 2011

Subject: Listeriosis: 2 reported cases in MT

Information:

Montana DPHHS was notified of 2 cases of listeriosis in Montana residents who reside in two different Montana counties, Gallatin and Yellowstone. Both cases are in elderly adults. Both cases were hospitalized. Onset dates for the 2 cases are: August 24 and September 6. Further testing is pending on both cases. Between 2006 and 2010, 0 to 1 cases per year of listeriosis have been reported in Montana.

There is a national outbreak investigation underway of a cluster of listeriosis cases. Most cases occurred in Colorado, however, cases in other states are being investigated for epidemiologic linkage to the cluster. It is not yet known if Montana cases are epidemiologically linked with this investigation. Colorado has reported that the cases in that state consumed cantaloupe. Current information on the investigation is available at: <http://www.cdc.gov/nczved/divisions/dfbmd/diseases/listeriosis/091211.html>

Actions:

- Immediately report all suspect and confirmed cases of listeriosis to your local County or Tribal Health Department.
- Clinical specimens or isolates should be sent to the Montana Public Health Laboratory for confirmatory testing and augmented testing, such as PFGE, for cases of public health importance. Call the MPHL at 800-821-7284 for questions about specimens.

For questions, contact the Health Department in your jurisdiction.

Food

BBB - *Listeria monocytogenes*

Bad Bug Book: Foodborne Pathogenic Microorganisms and Natural Toxins Handbook *Listeria monocytogenes*

1. Name of the Organism:

*Listeria monocytogenes*¹

This is a [Gram-positive bacterium](#)², motile by means of flagella. Some studies suggest that 1-10% of humans may be intestinal carriers of *L. monocytogenes*. It has been found in at least 37 mammalian species, both domestic and feral, as well as at least 17 species of birds and possibly some species of fish and shellfish. It can be isolated from soil, silage, and other environmental sources. *L. monocytogenes* is quite hardy and resists the deleterious effects of freezing, drying, and heat remarkably well for a bacterium that does not form spores. Most *L. monocytogenes* are pathogenic to some degree.

2. Name of Acute Disease:

Listeriosis is the name of the general group of disorders caused by *L. monocytogenes*.

3. Nature of Disease:

Listeriosis is clinically defined when the organism is isolated from blood, cerebrospinal fluid, or an otherwise normally sterile site (e.g. placenta, fetus).

The manifestations of listeriosis include septicemia, meningitis (or meningoencephalitis), encephalitis, and intrauterine or cervical infections in pregnant women, which may result in spontaneous abortion (2nd/3rd trimester) or stillbirth. The onset of the aforementioned disorders is usually preceded by influenza-like symptoms including persistent fever. It was reported that gastrointestinal symptoms such as nausea, vomiting, and diarrhea may precede more serious forms of listeriosis or may be the only symptoms expressed. Gastrointestinal symptoms were epidemiologically associated with use of [antacids](#)³ or [cimetidine](#).⁴ The onset time to serious forms of listeriosis is unknown but may range from a few days to three weeks. The onset time to gastrointestinal symptoms is unknown but is probably greater than 12 hours.

The infective dose of *L. monocytogenes* is unknown but is believed to vary with the strain and susceptibility of the victim. From cases contracted through raw or supposedly pasteurized milk, it is safe to assume that in susceptible persons, fewer than 1,000 total organisms may cause disease. *L. monocytogenes* may invade the gastrointestinal epithelium. Once the bacterium enters the host's [monocytes](#),⁵ macrophages, or polymorphonuclear [leukocytes](#),⁶ it is bloodborne (septicemic) and can grow. Its presence intracellularly in phagocytic cells also permits access to the brain and probably transplacental migration to the fetus in pregnant women. The pathogenesis of *L. monocytogenes* centers on its ability to survive and multiply in phagocytic host cells.

4. Diagnosis of Human Illness:

Listeriosis can only be positively diagnosed by culturing the organism from blood, cerebrospinal fluid, or stool (although the latter is difficult and of limited value).

5. Associated Foods:

L. monocytogenes has been associated with such foods as raw milk, supposedly pasteurized fluid milk, cheeses (particularly soft-ripened varieties), ice cream, raw vegetables, fermented raw-meat sausages, raw and cooked poultry, raw meats (all types), and raw and smoked fish. Its ability to grow at temperatures as low as 3°C permits multiplication in refrigerated foods.

6. Frequency of the Disease:

The 1987 incidence data prospectively collected by CDC suggests that there are at least 1600 cases of listeriosis with 415 deaths per year in the U.S. The vast majority of cases are sporadic, making epidemiological links to food very difficult.

7. Complications:

Most healthy persons probably show no symptoms. The "complications" are the usual clinical expressions of the disease.

When listeric meningitis occurs, the overall mortality may be as high as 70%; from septicemia 50%, from perinatal/neonatal infections greater than 80%. In infections during pregnancy, the mother usually survives. Successful treatment with parenteral [penicillin](#)⁷ or [ampicillin](#)⁸ has been reported. [Trimethoprim-sulfamethoxazole](#)⁹ has been shown effective in patients allergic to penicillin.

8. Target Populations:

The main target populations for listeriosis are:

- pregnant women/fetus - perinatal and neonatal infections;
- persons immunocompromised by corticosteroids, anticancer drugs, graft suppression therapy, [AIDS](#);¹⁰
- cancer patients - leukemic patients particularly;
- less frequently reported - diabetic, cirrhotic, asthmatic, and [ulcerative colitis](#)¹¹ patients;

- the elderly;
- normal people--some reports suggest that normal, healthy people are at risk, although antacids or cimetidine may predispose. A listeriosis outbreak in Switzerland involving cheese suggested that healthy uncompromised individuals could develop the disease, particularly if the foodstuff was heavily contaminated with the organism.

9. Food Analysis:

The methods for analysis of food are complex and time consuming. The present FDA method, revised in September, 1990, requires 24 and 48 hours of enrichment, followed by a variety of other tests. Total time to identification is from 5 to 7 days, but the announcement of specific nonradiolabeled DNA probes should soon allow a simpler and faster confirmation of suspect isolates.

Recombinant DNA technology may even permit 2-3 day positive analysis in the future. Currently, FDA is collaborating in adapting its methodology to quantitate very low numbers of the organisms in foods.

10. Selected Outbreaks:

For more information on recent outbreaks see the [Morbidity and Mortality Weekly Reports](#)¹² from CDC.

11. Education:

The [FDA health alert for Hispanic pregnant women](#)¹³ concerns the risk of listeriosis from soft cheeses. The CDC provides similar information [in Spanish](#).¹⁴

FSIS also has updated consumer information on [Listeria monocytogenes](#)¹⁵.

The CDC produces an information brochure on preventing [Listeriosis](#)¹⁶.

12. Other Resources:

A [Loci index for genome Listeria monocytogenes](#)¹⁷ is available from GenBank.

Links on this page:

1. </Food/FoodSafety/FoodborneIllness/FoodborneIllnessFoodbornePathogensNaturalToxins/BadBugBook/ucm074156.htm?Listeria>
2. </Food/FoodSafety/FoodborneIllness/FoodborneIllnessFoodbornePathogensNaturalToxins/BadBugBook/ucm074156.htm?Gram-Positive=Bacteria>
3. </Food/FoodSafety/FoodborneIllness/FoodborneIllnessFoodbornePathogensNaturalToxins/BadBugBook/ucm074156.htm?Antacids>
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11. </Food/FoodSafety/FoodborneIllness/FoodborneIllnessFoodbornePathogensNaturalToxins/BadBugBook/ucm074156.htm?colitis=ulcerative>
12. <http://www.cdc.gov/search.do?action=search&direction=desc&queryText=listeria&sort=date&subset=mmwr>
13. </Food/ResourcesForYou/HealthEducators/ucm062993.htm>
14. http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g_span.htm
15. http://www.fsis.usda.gov/fact_sheets/listeria_monocytogenes/index.asp
16. http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm
17. <http://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?name=Listeria%20monocytogenes>