

LISTERIOSIS

Responsibilities:

Hospital: Report invasive disease by phone or mail, send isolate to State Hygienic Lab (SHL) - (319) 335-4500

Lab: Report invasive disease by IDSS, phone or mail, send isolate to SHL - (319) 335-4500

Physician: Report by IDSS, facsimile, mail, or phone

Local Public Health Agency (LPHA): Follow up required

Hospital Infection Preventionist: Follow up required

Iowa Department of Public Health

Disease Reporting Hotline: (800) 362-2736

Secure Fax: (515) 281-5698

1) THE DISEASE AND ITS EPIDEMIOLOGY

A. Agent

Listeriosis is caused by the bacterium *Listeria monocytogenes*.

B. Clinical Description

Listeriosis is typically manifested as meningoen­cephalitis or bacteremia in newborns and adults. It may cause fever and spontaneous abortion in pregnant women. Symptoms of meningoen­cephalitis include fever, headache, stiff neck, nausea and vomiting. The onset may be sudden or, in the elderly and in those who are immunocompromised, it may be more gradual. Delirium and coma may occur. Newborns, the elderly, immunocompromised persons, and pregnant women are most at risk for severe symptoms. Infections in healthy persons may be asymptomatic or only amount to a mild flu-like illness. Papular lesions on hands and arms may occur from direct contact with infectious material. The case-fatality rate in infected newborn infants is about 30% and approaches 50% when onset occurs in the first 4 days of life.

C. Reservoirs

Principal reservoir for *L. monocytogenes* is in soil, forage, water, mud and silage. Other reservoirs include mammals, fowl and people. Soft cheeses may support the growth of *Listeria* during ripening and have caused outbreaks. Unlike most other foodborne pathogens, *Listeria* can multiply at refrigerator temperatures.

D. Modes of Transmission

Listeriosis may be acquired by the fetus in utero or during passage through the birth canal. Listeriosis can also be transmitted through ingestion of contaminated foods, especially pasteurized soft cheeses and ready-to-eat foods.

E. Incubation Period

Variable; outbreak cases have occurred 3 - 70 days following a single exposure to an implicated product. Median incubation is estimated to be 3 weeks.

F. Period of Communicability or Infectious Period

Although *Listeria* may be shed for several months in the stool of infected persons, person-to-person transmission is rare. Following delivery, mothers of infected newborns may shed *Listeria* for 7 - 10 days in vaginal secretions or urine.

G. Epidemiology

Listeria is widely distributed in nature. Most cases of human listeriosis are believed to occur sporadically, but foodborne and healthcare associated outbreaks have been documented. Foods associated with infection include unpasteurized milk, soft cheeses, processed meats and contaminated vegetables. Newborns, the elderly, immunocompromised persons and pregnant women are at greater risk of infection. CDC estimates that approximately 1600 illnesses and 260 deaths due to listeriosis occur annually in the United States. About 30% of diagnosed cases occur within the first 3 weeks of life.

H. Bioterrorism Potential

None.

2) DISEASE REPORTING AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

To track the occurrence of listeriosis so that sources of major public health concern (*e.g.*, food sources) may be identified and control measures initiated.

B. Laboratory and Healthcare Provider Reporting Requirements

Iowa Administrative Code 641-1.3(139) stipulates that the laboratory and the healthcare provider must report. The preferred method of reporting is by utilizing the Iowa Disease Surveillance System (IDSS). However, if IDSS is not available to your facility, the reporting number for the Center for Acute Disease Epidemiology (CADE) is (800) 362-2736; fax number (515) 281-5698. The mailing address is:

IDPH, CADE
Lucas State Office Building, 5th Floor
321 E. 12th St.
Des Moines, IA 50319-0075

Postage-paid disease reporting forms are available free of charge from the IDPH clearinghouse. Call (319) 398-5133 or visit the website:

healthclearhouse.drugfreeinfo.org/cart.php?target=category&category_id=295 to request a supply.

C. Local Public Health Agency Follow-Up Responsibilities Case Investigation

- a. It is the LPHA or the local infection preventionist's responsibility to complete a *Listeriosis* case investigation by interviewing the case and others who may be able to provide pertinent information. Much of the information required can be obtained from the case's healthcare provider or the medical record.
- b. Use the following guidelines to assist you in completing the investigation:
 - 1) Record the demographic information, occupation (if applicable), date reported, date investigation started and date of diagnosis.
 - 2) Record the clinical information.
 - 3) Indicate the type of infection caused by *Listeria monocytogenes*.
 - 4) Indicate the type of specimen from which *Listeria* was isolated, the type of lab test used, and date the first positive culture was obtained. If other lab tests were used diagnostically (*e.g.*, bacterial antigen screen) please indicate the type of test(s) used and date(s) tested.
 - 5) If the case was diagnosed while pregnant or within 2 weeks of delivery, indicate outcome of pregnancy and associated dates.**
 - 6) If it is suspected that the case became infected through food and part of an outbreak, refer to IDPH *Foodborne Manual*.

- c. After gathering the information, the preferred method of reporting is by entering the data into the Iowa Disease Surveillance System (IDSS), or faxing the case report form to CADE's secure fax at (515) 281-5698, or by mailing the IDSS case investigation form to:

IDPH, CADE
Lucas State Office Building, 5th Floor
321 East 12th Street
Des Moines, Iowa 50319

- d. If several attempts have been to obtain case information, but have been unsuccessful (*e.g.*, the case or healthcare provider does not return your calls or respond to a letter, or the case refuses to divulge information or is too ill to be interviewed), enter as much information as possible. Enter into the Notes section any reason why it could not be filled out completely. If using IDSS, select the appropriate reason under the Event tab in the Event Exception field.
- e. Institution of disease control measures is an integral part of case investigation. It is the LPHA responsibility to understand, and, if necessary, institute the control guidelines listed below in Section 3), Controlling Further Spread.

3) CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements

None.

B. Protection of Contacts of a Case

Discard any suspect foods.

C. Managing Special Situations

Reported Incidence Is Higher than Usual/Outbreak Suspected

If the number of reported cases of listeriosis in the LPHA's jurisdiction is higher than usual, or if an outbreak is suspected, consult with an epidemiologist at CADE at (800) 362-2736. Investigate to determine the source of infection and mode of transmission. A common vehicle, such as food, should be sought and applicable preventive or control measures should be instituted. CADE can help determine a course of action to prevent further cases and can perform surveillance for cases across county lines and therefore be difficult to identify at a local level.

Note: Refer to IDPH's **Foodborne Manual** for comprehensive information on investigating foodborne illness complaints and outbreaks.

Multi-State Clusters

The Centers for Disease Control and Prevention (CDC) is working to identify and analyze multi-state clusters of *listeriosis*. Cases that may be part of such clusters will require additional follow-up and data collection from the local public health agency. CADE will provide directions on follow-up activities for such situations on a case-by-case basis.

D. Preventive Measures

Environmental Measures

Implicated food items must be removed from the environment. A decision about testing implicated food items can be made in consultation with CADE. CADE can help coordinate pickup and testing of food samples. If a commercial product is suspected, CADE will coordinate follow-up with relevant outside agencies.

Note: Refer to Iowa's Foodborne Illness Outbreak Investigation Manual for comprehensive information in investigating foodborne illness complaints and outbreak.

Personal Preventive Measures/Education

General recommendations:

- Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.
- Wash raw vegetables thoroughly before eating.
- Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods.
- Avoid unpasteurized (raw) 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.

Recommendations for persons at high risk, such as pregnant women and persons with weakened immune systems, in addition to the recommendations listed above:

- Do not eat hot dogs, luncheon meats, or deli meats, unless they are reheated until steaming hot.
- Avoid getting fluid from hot dog packages on other foods, utensils, and food preparation surfaces, and wash hands after handling hot dogs, luncheon meats, and deli meats.
- Do not eat soft cheeses such as feta, Brie, and Camembert, blue-veined cheeses, or Mexican-style cheeses such as queso blanco, queso fresco, and Panela, unless they have labels that clearly state they are made from pasteurized milk.
- Do not eat refrigerated pâtés or meat spreads. Canned or shelf-stable 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. Refrigerated smoked seafood, such as salmon, trout, whitefish, cod, tuna or mackerel, is most often labeled as "nova-style," "lox," "kippered," "smoked," or "jerky." The fish is found in the refrigerator section or sold at deli counters of grocery stores and delicatessens. Canned or shelf-stable smoked seafood may be eaten.

4) ADDITIONAL INFORMATION

The Council of State and Territorial Epidemiologists (CSTE) surveillance case definitions for Listeriosis can be found at: www.cdc.gov/osels/ph_surveillance/nndss/phs/infdis.htm#top

CSTE case definitions should not affect the investigation or reporting of a case that fulfills the criteria in this chapter. (CSTE case definitions are used by the state health department and the CDC to maintain uniform standards for national reporting.)

References

- American Academy of Pediatrics. *2003 Red Book: Report of the Committee on Infectious Diseases, 26th Edition*. Illinois, Academy of Pediatrics, 2003.
- CDC Website. Listeriosis: www.cdc.gov/listeria/index.html
- Heymann, D.L., ed. *Control of Communicable Diseases Manual, 20th Edition*. Washington, DC, American Public Health Association, 2015.
- Iowa Administrative Code (641) Chapter 1 Notification & Surveillance of Reportable Communicable & Infectious Diseases, Poisonings & Conditions.

Additional Resources

Iowa Division of Inspections and Appeals, Food Inspections

www.profoodsafety.org/

State Hygienic Laboratory at the University of Iowa www.shl.uiowa.edu