

PUBLIC HEALTH REFERENCE SHEET

Listeriosis



Name	<i>Listeria monocytogenes</i>
Reservoir & Transmission	Domestic and wild animals, fowl, humans Commonly foodborne transmission; can be acquired in utero
Incubation Period	2–3 weeks on average, up to 70 days
Common Symptoms	<p>Invasive listeriosis:</p> <ul style="list-style-type: none"> • Systemic illness: Manifests most commonly as bacteremia or central nervous system infection. Other manifestations can include pneumonia, peritonitis, endocarditis, and focal infections of joints and bones. • Maternal listeriosis: Generally classified as illness occurring in a pregnant woman or in an infant age ≤28 days. Listeriosis may result in miscarriage/pregnancy loss, pre-term labor, or neonatal infection, while causing minimal or no systemic symptoms in the mother. • Neonatal listeriosis: Commonly manifests as bacteremia, central nervous system infection, and pneumonia, and is associated with high fatality rates. Transmission of listeria from mother to baby transplacentally or during delivery is almost always the source of early-onset neonatal infections (diagnosed between birth and 6 days), and the most likely source of late-onset neonatal listeriosis (diagnosed between 7–28 days). <p>Non-invasive Listeria infections:</p> <ul style="list-style-type: none"> • Infection manifesting commonly as gastroenteritis with fever, urinary tract infection, or wound infection.
Gold Standard Diagnostic Test	<i>L. monocytogenes</i> identified by culture from specimens obtained from a normally sterile site (example: CSF, blood, joint fluid, pleural fluid, pericardial fluid, etc.)
Risk Groups	Pregnant women, immunocompromised, older adults, persons who take corticosteroids
Geographic Significance	Worldwide

What is listeriosis?

Listeriosis is a serious infection usually caused by eating food contaminated with the bacterium *Listeria monocytogenes*. Listeriosis may present as non-invasive or invasive illness. *Listeria monocytogenes* is a facultatively anaerobic, rod-shaped, gram-positive bacterium that can be readily isolated in standard bacterial culture of normally sterile body sites. It is widespread in the environment and can be isolated from soil, water, and decaying vegetation.

What is the occurrence of listeriosis?

The annual incidence of laboratory-confirmed listeriosis in the United States is about 0.24 cases per 100,000 population, based on active surveillance by The Foodborne Diseases Active Surveillance Network (FoodNet) <https://www.cdc.gov/foodnet/about.html>. Approximately 800 laboratory-confirmed cases are reported annually to CDC's National Notifiable Disease Surveillance System. However, many cases are not detected or reported. CDC estimates that listeria is the third leading cause of death from foodborne illness or food poisoning in the United States. An estimated 1,600 people get sick from listeria each year, and about 260 people die.

How is listeriosis transmitted?

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Listeriosis is usually acquired through foodborne transmission, except for fetal and neonatal infection, which is usually acquired in utero. A maternal source of listeriosis should be considered when a neonate is diagnosed with listeriosis within 28 days of birth. Cutaneous infections have been reported very rarely among veterinarians and farmers following direct animal contact, particularly involving livestock products of conception.

Who is at risk for listeriosis?

Listeria is most likely to sicken pregnant women and their newborns, adults aged 65 or older, and people with weakened immune systems. Other people can be infected with listeria, but they rarely become seriously ill.

What are the signs and symptoms of listeriosis?

The clinical features of listeriosis depend on the patient. In older adults and people with immunocompromising conditions, the most common clinical presentations are invasive infections, such as sepsis, meningitis, and meningoenzephalitis. People can also experience focal infections, including septic arthritis, osteomyelitis, prosthetic graft infections, and infections of sites inside the chest and abdomen or of the skin and eye. Less commonly, otherwise healthy young people may also develop invasive listeriosis.

- Listeriosis during pregnancy is typically a relatively mild “flu-like” illness. Some pregnant women with listeria infection have no symptoms. Although severe disease in the mother is rare, infection during pregnancy can result in miscarriage, stillbirth, preterm labor, and sepsis or meningitis in the neonate.
 - Some neonates with listeriosis develop granulomatosis infantiseptica, a severe disorder involving the internal organs and skin.
 - Neonatal listeriosis is classified as early (within 6 days of birth) or late onset (7–28 days after birth).
 - Early-onset neonatal listeriosis is usually acquired through transplacental transmission.
 - The sources of late-onset listeriosis are less clear; they may involve exposure during delivery or nosocomial exposure.
- People with normal immune systems rarely develop invasive infection. However, they may experience a self-limited acute febrile gastroenteritis following high-dose listeria exposure. Because listeria cannot be detected by routine stool culture, febrile gastroenteritis from listeria infection is rarely diagnosed outside of outbreak settings.

What are potential complications of listeriosis?

CDC estimates that listeriosis is the third leading cause of death from foodborne illness with about 260 deaths per year. Nearly everyone with listeriosis is hospitalized. The case-fatality rate is about 20%. Nearly one-quarter of pregnancy-associated cases result in fetal loss or death of the newborn.

How is listeriosis diagnosed?

Listeriosis is suspected when *L. monocytogenes* is identified by culture from a non-sterile clinical specimen (e.g., stool, urine, wound); probable when identified by a method other than culture (e.g., EIA, PCR) obtained from a normally sterile site (e.g., cerebral spinal fluid, blood, joint fluid, pleural fluid, pericardial fluid), and confirmed when identified by culture from specimens obtained from a normally sterile site.

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How is listeriosis treated?

Listeriosis is treated with intravenous penicillin or ampicillin alone or together with an aminoglycoside. For penicillin allergic patients, trimethoprim-sulfamethoxazole or erythromycin is preferred. There is little scientific evidence available to inform decisions regarding management of people at elevated risk of invasive listeriosis who have been exposed to *L. monocytogenes* and who are either asymptomatic or have mild symptoms that could be consistent with early listeria infection. CDC lists a framework for assessment and medical treatment of high-risk people (pregnant women, older adults, and people with weakened immune systems) who may have been exposed to *L. monocytogenes* by eating contaminated foods at <https://www.cdc.gov/listeria/technical.html#patient-mgmt>.

How can listeriosis be prevented?

- *Listeria monocytogenes* is a hardy organism that can withstand a wide range of conditions including freezing, drying, heat, and relatively high levels of acid, salinity, and alcohol. Unlike most foodborne pathogens, this organism can grow at standard refrigerator temperature (40°F), which makes it a particular problem in ready-to-eat foods that are not cooked before eating. If a facility has *L. monocytogenes*, the germs can spread to food that touches contaminated equipment or surfaces. Listeria can also spread from contaminated food to surfaces. It can even grow on foods kept in the refrigerator. The good news is that listeria is easily killed by heating food to a high enough temperature.
- People at high risk for listeria infection and those who prepare food for them should know which foods are more likely to be contaminated with listeria and choose safer food options. Those foods include soft cheeses, such as queso fresco and brie; meats, cheeses, and salads from the deli; deli meats; cold cuts; hot dogs and fermented or dry sausages; cold-smoked fish; sprouts; melons; and unpasteurized milk products or milk.
- As a healthcare professional, ensure to stay up-to-date on foodborne outbreaks and food recalls. Educate people to visit FoodSafety.gov for the latest information on preventing foodborne illnesses.

What are some public health considerations?

- When reporting listeriosis infections in the Disease Reporting System internet (DRSi) document source of infection, if known.
- Miscarriage/pregnancy loss is considered a maternal outcome and should be reported as a single case in the mother. Cases in neonates and mothers should be reported separately when each meets the case definition. A case in a neonate should be reported if liveborn.

References:

Defense Health Agency. 2022. *Armed Forces Reportable Medical Events: Guidelines and Case Definitions*.

<https://www.health.mil/Reference-Center/Publications/2022/11/01/Armed-Forces-Reportable-Medical-Events-Guidelines>

Heymann, David L. ed. 2022. *Control of Communicable Diseases Manual*. 21st Edition. Washington, DC: APHA Press.

"Listeria," Centers for Disease Control and Prevention (CDC), last reviewed November 20, 2023. <https://www.cdc.gov/listeria/index.html>

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