



Microorganism

- **Listeria monocytogenes**, a Gram-positive bacillus
- *L. monocytogenes* can multiply at temperatures **between 0°C and 45°C**, allowing it to proliferate in refrigerated food.

Transmission

- Contamination occurs mainly through ingestion of contaminated food
- Vertical transmission during pregnancy is possible
- There is no human-to-human transmission

Risk factors

Listeria infections can affect anyone but are more common in individuals with risk factors.

Risk factors for listeriosis	
<ul style="list-style-type: none"> • Pregnancy • Age > 65 years • Immunosuppression • Cancers and blood malignancies 	<ul style="list-style-type: none"> • Immunosuppressive treatment • Kidney failure • Liver failure • Diabetes

Clinical presentation

Invasive forms	Bacteremic	<ul style="list-style-type: none"> • Incubation period: Often short, typically 2 days (range: 1 to 12 days) • Symptoms: Presents as a flu-like syndrome with fever +/- diarrhea. • Complications: Can progress to neurological damage or affect other organs (e.g., liver, bone, heart)
	Neurological	<ul style="list-style-type: none"> • Incubation period: Can be longer, typically 9 days (range: 1 to 14 days) • Symptoms: Most commonly presents as meningoencephalitis with brain stem involvement (rhombencephalitis) or, less frequently, isolated meningitis • Sequelae are common
	Maternal -fetal	<ul style="list-style-type: none"> • Incubation period: can be prolonged, up to 4 weeks (range: 2 to 10 weeks) • <u>Maternal symptoms</u>: <ul style="list-style-type: none"> - Flu-like syndrome or isolated fever, which may be associated with uterine contractions and lead to premature delivery. - Infection of the fetus can result in fetal death in utero or neonatal infection (see below) • <u>Neonatal symptoms</u>: <ul style="list-style-type: none"> - In utero contamination: Early-onset symptoms with prominent septic features at birth or within the first days of life (before 7 days). - Contamination during childbirth: Absence of symptoms in the first days of life, with neuro-meningeal involvement becoming more frequent after 7 days



Non-invasive	Digestive	<ul style="list-style-type: none"> Typically affects immunocompetent individuals Incubation period: Short, usually 1 day (range: 6 hours to 4 days) Symptoms: Presents as gastroenteritis <i>Listeria</i> is not routinely tested for in gastroenteritis cases, the diagnosis is often overlooked

Diagnosis

• Methods

Blood cultures	<ul style="list-style-type: none"> <i>Listeria</i> grows in standard blood culture bottles No need to extend the incubation period beyond routine duration
Cerebrospinal fluid (CSF)	<ul style="list-style-type: none"> Indicated in cases of suspected neurological involvement Used for culture and, if available, specific or syndromic PCR testing
Maternal and/or fetal	<ul style="list-style-type: none"> Mother: examination and culture of the placenta Newborn: Multiple sample types may be collected, including CSF, blood cultures, nasal, pharyngeal, conjunctival secretions, meconium, and gastric fluid
Serology	<ul style="list-style-type: none"> Not useful for the diagnosis of listeriosis
Stool culture	<ul style="list-style-type: none"> Not useful for the diagnosis of listeriosis

• Strategy

	Blood culture	CSF	Placenta	Newborn sample collection
Maternal-fetal	X		X	X
Neuro-meningeal	X	X		
Bacteremic	X			
Digestive				

Treatment

- It is based on a synergistic dual therapy with **amoxicillin** and **gentamicin** as first-line agents
- An **obstetric consultation** is mandatory for pregnant women

Gastrointestinal	<ul style="list-style-type: none"> No codified treatment
Bacteremia	<ul style="list-style-type: none"> Amoxicillin 100 mg/kg/day → 14 days Gentamicin 5 mg/kg/day → up to 14 days
Neurological form	<ul style="list-style-type: none"> Amoxicillin 200 mg/kg/day → 21 days Gentamicin 5 mg/kg/day → 5 days
Maternal-fetal	<ul style="list-style-type: none"> Amoxicillin 100 mg/kg/day → 14 to 21 days Gentamicin 5 mg/kg/day → 3 to 5 days
Neonatal	<ul style="list-style-type: none"> Amoxicillin 200 mg/kg/day Gentamicin: 3 to 5 mg/kg/day
If allergic to penicillins	<ul style="list-style-type: none"> Seek specialist advice for alternative treatments Cotrimoxazole* (800/160) x 3/day → 14 to 21 days Gentamicin 5 mg/kg/day → 3 to 5 days If the above regimen is not feasible, consider meropenem combined with vancomycin

* Contraindicated in the first trimester of pregnancy

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Prevention

- Listeriosis is a **notifiable disease**
- Prevention is based on **hygiene and dietary** measures

Avoid high-risk foods

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| <ul style="list-style-type: none"> • Unpasteurized milk and products made from raw milk, including cheese rinds • Cold cuts and deli meats • Raw or undercooked meat • Raw or undercooked eggs • Preparations made with raw eggs or unpasteurized dairy | <ul style="list-style-type: none"> • Raw shellfish (e.g., oysters) • Pre-cooked, peeled crustaceans sold chilled • Raw fish (e.g., sushi, tarama, tilapia) • Smoked fish (e.g., salmon, trout), • Raw sprouted seeds |
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Food storage and preservation

- Clean and disinfect the refrigerator regularly, especially after spills
- Maintain refrigerator temperature at +4°C or lower; store high-risk foods in the coldest area
- Store raw and cooked foods separately to prevent cross-contamination
- Always follow product storage instructions and observe use-by dates

Meal preparation hygiene

- Wash fruits, vegetables, and fresh herbs thoroughly under running water
- Wash hands thoroughly after handling raw food
- Clean and disinfect kitchen surfaces and utensils after contact with raw products
- Cook all animal-derived foods (meat, poultry, fish, eggs) thoroughly
- Remove the rind from all cheeses before consumption
- Reheat leftovers and cooked dishes thoroughly before eating
- Always adhere to storage instructions and recommended consumption timelines

For collective catering and in the food industry

- Follow microbiological safety standards as outlined in Regulation (EC) No. 2073/2005, amended by Regulation (EC) No. 1441/2007
- Refer to foodborne biological hazard data sheets *Listeria monocytogenes*
- Comply with Good Hygiene Practices (GHP) and Hazard Analysis and Critical Control Points (HACCP) principles
- Implement environmental monitoring programs for potential contamination
- Ensure strict maintenance of the cold chain throughout production and distribution
- Establish procedures for effective cleaning, disinfection, and drying of equipment
- Apply validated inactivation treatments where required
- Exercise heightened vigilance for foods intended for vulnerable populations