

# LISTERIA MONOCYTOGENES

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The views expressed do not necessarily reflect the official policies of the Department of Health & Human Services.

## BIOLOGY

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**Organism:** *Listeria monocytogenes* is a non-spore forming bacteria that moves by use of flagella.

**Conditions for Survival:** *L. monocytogenes* is very hardy and can survive and grow at temperatures below 1°F and up to 113°F. It is salt tolerant and thrives in cool, moist conditions. It outcompetes other organisms that can't grow in cool, wet conditions.

**Important Reservoirs:** *L. monocytogenes* is very prevalent in the environment. Important reservoirs are ruminants (cows, goat, sheep, deer), the soil, improperly fermented silage, decaying vegetation, and in cold, wet, difficult-to-clean areas.

## ILLNESS

**Onset:** Illness can begin from 3 days - 3 weeks after ingestion. Some can begin as soon as a few hours after consumption.

**Symptoms:** Diarrhea, fever, fatigue in most healthy people.

**Duration:** Varies from several days to several weeks for healthy people.

**Complications:** Invasive listeriosis can cause septicemia, meningitis, encephalitis, or intrauterine or cervical infections in pregnant people, which may result in miscarriage or stillbirth.

**Special Risks:** Elderly people and people with compromised immune systems are at elevated risk of invasive listeriosis. Pregnant mothers, fetuses, and newborns are at particular risk of miscarriage or infant death if exposed to *L. monocytogenes* during pregnancy.

**Hospitalizations:** Can be over 94% for confirmed illnesses.

**Mortality Rate:** Can be as high as 40% during outbreaks.

## FOODS

**Common foods associated with outbreaks:**

Raw dairy products, **cantaloupes & melons, cut celery, sprouts, vegetables**, meat, poultry, fish, hot dogs, and cooked, ready-to-eat products.

**~1,600**  
CASES / YEAR



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**Areas of Concern:** *Listeria monocytogenes* is widely present in on-farm environments. Because it thrives in cool, wet conditions where other organisms can't compete, we are most concerned about *Listeria monocytogenes* risks related to **facilities, cooler storage, HVAC equipment, floor drains, and equipment that may be difficult to clean.**

*L. monocytogenes* has been found in cooler evaporator pans, in floor drains, along baseboards in apple storage, in areas of floors where standing water pools, on equipment repurposed from rarely-consumed-raw crops. It is difficult to eradicate once established.

**2011 *Listeria monocytogenes* Outbreak in Cantaloupe:** 28 states, 147 cases, 33 deaths, 1 miscarriage. Median age was 77 years old.

**Traceback:** The multi-state outbreak of listeriosis was traced through retail chains to the broker back to a single farm in Colorado. The farm had been 3rd party audited for food safety but made significant changes to the post-harvest process after the audit. Some deficiencies were not noted by the auditor.

**Findings:** There were no positive tests in the field operations, including on cantaloupe in the field. Cooler evaporators were draining directly to the floors and created pooling water in the facility. Drains were hard to reach and clean. The farm had bought a piece of equipment from a potato farm to clean melons. No sanitizer was used in the spray bar water. The facility didn't test negative for *L. monocytogenes* until after pieces of equipment that couldn't be cleaned were removed and the line re-cleaned.

- **Plumb evaporators & cooling equipment equipment.**
- **Prevent standing water.**
- **Ensure equipment design & construction allows for proper cleaning.**
- **Clean regularly with detergents, not just water, to ensure adequate sanitation.**
- **Keep produce from contacting ground/floor wherever possible.**

**FDA investigation report:** <http://bit.ly/3bodXEb>

**US House of Representatives Committee report:** <https://bit.ly/3byuDZE>

**FDA Bad Bug Book profiling pathogens:** <https://bit.ly/2XuhEAI>