

INFECTIOUS DISEASE · FOODBORNE



Listeria & Listeriosis

Gram-positive bacterial infection · High-risk in pregnancy, neonates, elderly, immunocompromised

DIANE'S NGN NCLEX 2026 VISUAL STUDY LIBRARY

 **Content sourcing:** Listeria was not included in your uploaded reference notes for this project. This infographic draws from standard NGN NCLEX 2026 references — Saunders Comprehensive Review, ATI Content Mastery, Lippincott's NCLEX-RN, and current CDC guidelines on listeriosis.

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Definition & Overview

- ▶ **Listeria monocytogenes** — a gram-positive, rod-shaped bacterium that causes **listeriosis**, a serious foodborne illness.
- ▶ **Unique characteristic:** One of the few pathogens that *grows at refrigerator temperatures* (~4°C / 40°F). Cold storage does NOT kill it.
- ▶ **Why it matters on NCLEX:** Listeria crosses the **placenta** (causing fetal loss, neonatal sepsis) and the **blood-brain barrier** (causing meningitis) — a reportable disease.
- ▶ **Incubation:** 1–70 days (typically 1–4 weeks) — much longer than other foodborne illnesses, making source identification challenging.

Highest-Risk Populations

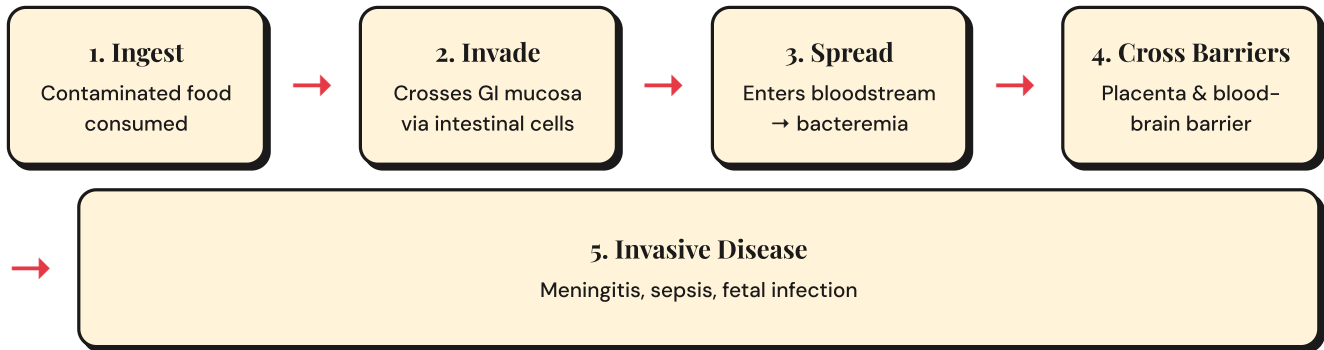
- ▶ Pregnant women (10–20× higher risk)
- ▶ Neonates & fetuses
- ▶ Adults ≥ 65 years
- ▶ Immunocompromised (HIV, chemo, transplant, steroids)

Top-Risk Foods

- ▶ Unpasteurized (raw) milk & soft cheeses (queso fresco, brie, feta, camembert)
- ▶ Deli meats & hot dogs (unless reheated to 165°F)
- ▶ Refrigerated smoked seafood, pâtés
- ▶ Raw sprouts, pre-cut melons, raw produce

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Pathophysiology (Simplified)



Key concept: Listeria is an *intracellular* pathogen — it hides inside host cells, which is why **cell-mediated immunity** matters. Patients with weakened T-cell function (HIV, transplant, chemo, pregnancy's natural immune shift) cannot clear it effectively.

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Signs & Symptoms

Non-Invasive (Mild / Early)

- ▶ Fever & chills
- ▶ Muscle aches (myalgia)
- ▶ Nausea, vomiting, diarrhea
- ▶ Headache, fatigue
- ▶ Often resembles "flu" or gastroenteritis

Invasive (Severe / Late)

- ▶ **Meningitis:** stiff neck, photophobia, confusion
- ▶ Loss of balance, convulsions/seizures
- ▶ Altered LOC, severe headache
- ▶ Septicemia (hypotension, tachycardia)
- ▶ Encephalitis (rare but dangerous)

In Pregnancy

- ▶ Mild flu-like illness in mother (deceptively mild)
- ▶ Fever may be the ONLY sign
- ▶ Miscarriage, stillbirth, preterm labor
- ▶ Neonatal sepsis or meningitis

In Neonates

- ▶ **Early-onset** (< 7 days): sepsis, respiratory distress, pneumonia
- ▶ **Late-onset** (7 days – several weeks): meningitis
- ▶ Granulomatosis infantiseptica (severe form)

🚩 **RED FLAG:** A pregnant woman with fever + flu-like symptoms must be evaluated for listeriosis — even mild illness in the mother can be devastating to the fetus.

🚩 **RED FLAG:** Neurologic signs (stiff neck, confusion, seizures) in any high-risk patient suggest invasive listeriosis with meningitis.

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Priority Nursing Interventions (ABC Framework)

A — Airway

- ▶ Assess for altered LOC compromising airway protection
- ▶ Position for airway patency if seizing
- ▶ Suction if vomiting + decreased consciousness

B — Breathing

- ▶ Monitor RR, SpO₂, lung sounds
- ▶ Watch for sepsis-related tachypnea
- ▶ Administer O₂ as ordered

C — Circulation

- ▶ Monitor BP, HR, capillary refill, perfusion
- ▶ Initiate IV access (2 large-bore)
- ▶ Fluid resuscitation per sepsis protocol

Additional Priority Actions

- ▶ **Obtain blood cultures BEFORE antibiotics** — listeria is identified via blood culture (CSF culture if meningitis suspected).
- ▶ **Initiate IV ampicillin** (drug of choice) ± gentamicin synergy per HCP order — do NOT delay.
- ▶ **Monitor temperature** q2–4h; administer antipyretics as ordered.
- ▶ **Implement Standard Precautions** — listeria is foodborne, NOT person-to-person transmitted in healthcare settings.
- ▶ **For pregnant patients:** continuous fetal monitoring, assess for preterm labor, prepare for possible delivery.
- ▶ **Strict I&O** — monitor for sepsis-related AKI and fluid status.
- ▶ **Neuro checks q1–2h** if invasive disease suspected (GCS, pupils, focal deficits).
- ▶ **Report to public health department** — listeriosis is a *nationally notifiable disease*.
- ▶ Identify and document recent food history (last 70 days) to assist outbreak investigation.

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Pharmacology

DRUG / CLASS	MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Ampicillin (Penicillin / DRUG OF CHOICE)	Bactericidal — inhibits bacterial cell wall synthesis	Rash, diarrhea, anaphylaxis (PCN allergy), C. diff with prolonged use	Assess PCN allergy FIRST. Give IV for invasive disease. Monitor renal function. Typical course 2–6 weeks for meningitis.
Gentamicin (Aminoglycoside — added for synergy)	Inhibits bacterial protein synthesis; potentiates ampicillin	Nephrotoxicity, ototoxicity, neuromuscular weakness	Monitor peak/trough levels, BUN/creatinine, hearing. AVOID in pregnancy unless benefit outweighs risk.
TMP-SMX (Bactrim) (Sulfonamide)	Inhibits bacterial folate synthesis — alternative for PCN-allergic	Rash (incl. SJS), photosensitivity, hyperkalemia, crystalluria	Give with full glass of water. Push fluids. AVOID in 3rd-trimester pregnancy & neonates (kernicterus risk).
Cephalosporins (e.g., ceftriaxone)	✗ INTRINSICALLY INEFFECTIVE — Listeria has natural resistance	—	NEVER monotherapy for listeria. Common NCLEX trap — if patient on empiric ceftriaxone for meningitis, ampicillin MUST be added if listeria suspected.

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NCLEX Test Traps ⚠️

❌ WRONG THINKING

"Refrigerated food is safe — cold kills bacteria."

✅ RIGHT THINKING

Listeria GROWS at 4°C / 40°F. Refrigeration does NOT kill it. Heat ($\geq 165^\circ\text{F}$ / 74°C) is what destroys it.

❌ WRONG THINKING

"Cephalosporins cover gram-positive meningitis pathogens, so ceftriaxone alone is enough."

✅ RIGHT THINKING

Listeria is intrinsically resistant to cephalosporins.

AMPICILLIN MUST BE ADDED

for empiric meningitis in neonates, elderly, & immunocompromised.

❌ WRONG THINKING

"Mild flu-like symptoms in a pregnant client can be managed with rest and fluids at home."

✅ RIGHT THINKING

Pregnant client + fever + recent high-risk food → evaluate immediately. The mother may be only mildly ill while the fetus is in serious danger.

❌ WRONG THINKING

"Listeria spreads from patient to patient — use contact precautions."

✅ RIGHT THINKING

Listeria is

FOODBORNE

, not person-to-person in healthcare. Use

STANDARD PRECAUTIONS

. (Vertical mother-to-fetus is the exception.)

❌ WRONG THINKING

"Give antibiotics first; cultures can be drawn later when results come back."

✅ RIGHT THINKING

BLOOD CULTURES BEFORE ANTIBIOTICS

— antibiotics distort cultures. The exception: do NOT delay antibiotics if the patient is critically septic.

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Patient & Family Education

 FOODS TO AVOID (especially if pregnant / high-risk)

- ▶ Unpasteurized (raw) milk & raw-milk cheeses
- ▶ Soft cheeses: queso fresco, brie, camembert, feta, blue, panela (unless made from pasteurized milk)
- ▶ Deli meats & hot dogs — unless heated to STEAMING (165°F)
- ▶ Refrigerated pâtés & meat spreads
- ▶ Refrigerated smoked seafood (lox, smoked salmon) unless cooked
- ▶ Raw sprouts (alfalfa, mung, clover)
- ▶ Pre-cut melons left at room temp > 2 hours

 SAFE FOOD HANDLING

- ▶ Wash hands, utensils, and surfaces frequently
- ▶ Wash all raw fruits & vegetables under running water — even if peeling
- ▶ Cook meats to safe internal temperature (use thermometer)
- ▶ Reheat leftovers & deli meats to **165°F (74°C)**
- ▶ Refrigerate at ≤ 40°F (4°C); freezer ≤ 0°F
- ▶ Clean refrigerator regularly (Listeria can colonize drip pans)
- ▶ Separate raw meats from ready-to-eat foods
- ▶ Eat refrigerated leftovers within 3–4 days

 **Teach pregnant patients: any fever or flu-like symptoms after eating high-risk foods = call OB provider immediately. Do not wait it out.**

8 Memory Boosters & Mnemonics

"LISTERIA" — Risk & Recognition

- | | |
|---|--|
| L Lunch meats & deli meats (avoid unless heated) | I Immunocompromised at high risk |
| S Soft cheeses (queso fresco, brie, feta) | T Temperature — grows in cold (4°C!) |
| E Elderly (≥ 65) at risk | R Refrigerated smoked seafood, raw milk |
| I Infants & In-utero (pregnancy) | A Ampicillin is the answer |

The "Four S" High-Risk Foods

- ▶ Soft cheeses (unpasteurized)
- ▶ Sprouts (raw)
- ▶ Smoked seafood (refrigerated)
- ▶ Sliced deli meats (unheated)

"AMP it UP for Listeria"

- ▶ **AMP**icillin = drug of choice
- ▶ Add gent for **synergy** in severe disease
- ▶ NO **cephs** — they don't work
- ▶ Bactrim = backup for PCN allergy

Pattern Recognition Tips

- ▶ Pregnant + fever + soft cheese exposure → think listeria
- ▶ Neonate with sepsis or meningitis < 1 month old → listeria is in the top 3 (with GBS & E. coli)
- ▶ Elderly + altered LOC + recent deli meat → think listeria meningitis
- ▶ Question mentions "grows in refrigerator" → listeria (or Yersinia)

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NCJMM Clinical Judgment Scenario

Case: A 32-year-old G2P1 client at 28 weeks gestation presents to L&D triage reporting fever 101.5°F, chills, muscle aches, and headache for the past 3 days. She mentions she attended a baby shower 2 weeks ago and ate "a lot of queso fresco and cold-cut sandwiches." She denies abdominal pain, vaginal bleeding, or rupture of membranes.

Vital signs: BP 108/64 · HR 108 · RR 22 · T 101.8°F · SpO₂ 97% · FHR baseline 170 bpm with minimal variability.

Labs: WBC 18.2 (↑), bands present. Blood cultures pending. Urinalysis negative for infection.

1 Recognize Cues

- ▶ **Relevant cues:** Pregnancy at 28 wks, fever > 100.4°F × 3 days, myalgia, headache, recent ingestion of high-risk foods (soft cheese + deli meats), tachycardia in mother, fetal tachycardia (170), minimal FHR variability, leukocytosis with bands.
- ▶ **Irrelevant cues:** Normal SpO₂, negative UA, no rupture of membranes.

2 Analyze Cues

- ▶ Fever + flu-like illness + high-risk food exposure in pregnancy = highly suggestive of **listeriosis**.
- ▶ Fetal tachycardia & minimal variability = signs of fetal distress / intrauterine infection.
- ▶ Maternal leukocytosis with bandemia = active bacterial infection.
- ▶ Differential: influenza, UTI/pyelo, chorioamnionitis — but exposure history points to Listeria.

3 Prioritize Hypotheses

- ▶ **#1 priority:** Maternal listeriosis with possible intrauterine infection (threat to fetus).
- ▶ **#2:** Maternal sepsis (early).
- ▶ **#3:** Preterm labor secondary to infection.

4 Generate Solutions

- ▶ Obtain blood cultures × 2 BEFORE antibiotics.
- ▶ Initiate IV ampicillin (drug of choice in pregnancy — safe).
- ▶ Continuous external fetal monitoring.
- ▶ Establish IV access; begin IV fluids.
- ▶ Notify OB provider & MFM (maternal-fetal medicine).
- ▶ Prepare for possible preterm delivery (betamethasone for fetal lung maturity if indicated).
- ▶ Report case to public health.

5 Take Action

- ▶ Place 2 large-bore IVs; draw blood cultures, CBC, CMP, type & screen.
- ▶ Administer IV ampicillin per order — first dose ASAP after cultures.
- ▶ Apply continuous fetal & tocodynamometer monitoring.
- ▶ Administer acetaminophen for maternal fever per order.
- ▶ Position client in left lateral tilt to improve uteroplacental perfusion.
- ▶ Document recent food history; report to local health department.
- ▶ Provide emotional support — communicate clearly with client & family.

6 Evaluate Outcomes

- ▶ **Maternal improvement:** Temperature trending down, HR < 100, WBC trending down, hemodynamically stable.
- ▶ **Fetal improvement:** FHR baseline 110–160, moderate variability returns, no late decelerations.
- ▶ **Cultures:** Confirm *Listeria monocytogenes*; antibiotic regimen adjusted (continue ampicillin, consider gent if severe).
- ▶ **Outcome goal:** Pregnancy continues to term OR safe preterm delivery with neonatal antibiotic prophylaxis.
- ▶ **Reassess if no improvement:** Escalate to ICU-level monitoring, consider broadening antibiotics, evaluate for emergent delivery.