NCLEX 2026 · HIGH-YIELD REVIEW

UTI in *Pregnancy*

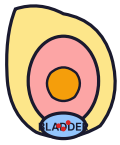
A clinical-judgment deep dive into urinary tract infections across the antepartum period — pathophysiology, priority nursing actions, safe pharmacology, and the test traps that catch nursing students.

- System: Maternal–Newborn / Renal
- Cognitive Level: Analysis
- Client Need: Physiological Adaptation

① OVERVIEW

What & Why It Matters

- A **UTI is a bacterial infection** of the urinary tract — most commonly caused by **E. coli (80–90%)** .
- Pregnancy changes (progesterone, ureteral dilation, urinary stasis, glycosuria) dramatically **increase UTI risk**.
- **Untreated UTI → pyelonephritis → preterm labor, low birth weight, sepsis, pregnancy loss.**



The anatomy shift

Growing uterus compresses the bladder & ureters → urinary stasis → bacteria multiply → infection ascends.

② PATHOPHYSIOLOGY

How It Happens

1. ↑ **Progesterone** → smooth muscle relaxation + ureteral dilation
2. **Urinary stasis** + incomplete bladder emptying (gravid uterus compresses bladder)
3. **Glycosuria** + alkaline urine = bacterial buffet for E. coli
4. Ascending infection: **urethra → bladder (cystitis) → ureters → kidneys (pyelonephritis)**
5. **Systemic response** → preterm contractions, sepsis, fetal compromise

③ SIGNS & SYMPTOMS

Lower UTI vs. Pyelonephritis 🚨

Cystitis (Lower UTI)

- **Dysuria** — burning with urination
- **Frequency** & urgency (beyond normal pregnancy)
- Suprapubic pain/pressure
- Cloudy, foul-smelling urine
- Hematuria (microscopic or gross)
- **Afebrile** or low-grade temp

Pyelonephritis (Upper UTI)

- **Fever > 101°F (38.3°C)**, chills, rigors
- **CVA tenderness** / flank pain (usually R-sided)
- Nausea, vomiting, malaise
- Tachycardia, tachypnea
- **Uterine contractions** / preterm labor
- Signs of sepsis: ↓BP, altered LOC, oliguria

⚠ ASYMPTOMATIC BACTERIURIA = STILL TREAT

MEDICAL EMERGENCY — HOSPITALIZE

④ PRIORITY NURSING INTERVENTIONS

ABCs → Safety → Fetus → Treat

🔍 Assess & Monitor

- **Vital signs** (fever, BP, HR) — watch for sepsis
- **Fetal heart rate** (FHR) — tachycardia = maternal fever/infection
- Monitor for **preterm contractions** & uterine tone
- Assess CVA tenderness & pain level
- Strict **I&O**; note color/odor of urine
- Monitor labs: CBC (↑WBC), urinalysis, C&S

💊 Implement & Intervene

- Obtain **clean-catch midstream** urine *before* antibiotics
- Administer **pregnancy-safe antibiotics** as ordered (PO or IV)
- Encourage **fluids 2–3 L/day** (unless contraindicated)
- Antipyretics: **acetaminophen** (NOT NSAIDs after 20 wks)
- Position on **left side** to ↑ uteroplacental perfusion
- Teach completion of FULL antibiotic course
- Schedule repeat urine culture post-treatment (test of cure)

⑤ PHARMACOLOGY

Safe vs. Avoid in Pregnancy

Cephalexin (Keflex)

1ST-GEN CEPHALOSPORIN · SAFE ALL TRIMESTERS

MOA	Inhibits bacterial cell wall synthesis
SE	GI upset, rash, C. diff
Nursing	Assess **PCN allergy** (cross-reactivity); take with food

Amoxicillin

PENICILLIN · SAFE ALL TRIMESTERS

MOA	Cell wall inhibitor
SE	Rash, diarrhea, anaphylaxis
Nursing	Confirm no PCN allergy; complete full course

Fosfomycin (Monurol)

SINGLE-DOSE · SAFE ALL TRIMESTERS

MOA	Blocks cell wall synthesis
SE	Diarrhea, headache, vaginitis
Nursing	Mix in 3–4 oz cold water on empty stomach

Nitrofurantoin (Macrobid)

URINARY ANTISEPTIC · CAUTION

Safe	2nd trimester
AVOID	**1st trimester** (limited data) & **≥ 36 wks / term** — causes **neonatal hemolytic anemia** (G6PD)
SE	Brown urine, pulmonary reaction, nausea
Nursing	Take with food; full glass of water

Sulfamethoxazole/Trimethoprim (Bactrim)

SULFONAMIDE · AVOID

AVOID	**1st trimester** — neural tube defects (folate antagonist); **3rd trimester** — kernicterus risk

Ciprofloxacin

FLUOROQUINOLONE · AVOID

AVOID	Cartilage & bone damage in fetus

Tetracycline / Doxycycline

TETRACYCLINE · AVOID

AVOID	Tooth discoloration & bone growth inhibition; maternal hepatotoxicity

⑥ NCLEX TEST TRAPS

⑧ MEMORY BOOSTERS

Don't Fall For These ⚠️

TRAP 1

Asymptomatic bacteriuria in pregnancy = TREAT. Unlike in non-pregnant adults, pregnant clients with bacteriuria (even without symptoms) *must* receive antibiotics — up to 30% progress to pyelonephritis.

TRAP 2

Nitrofurantoin ≠ always safe. AVOID at **term (≥ 36 wks)** and during labor → causes neonatal hemolytic anemia. Also avoid in G6PD deficiency.

TRAP 3

Flank pain + fever + contractions = pyelonephritis, *not* normal pregnancy back pain. Priority = assess for **preterm labor**.

TRAP 4

Collect urine C&S BEFORE the first antibiotic dose. Antibiotics skew culture results.

TRAP 5

Bactrim & Cipro are NOT UTI go-tos in pregnancy. If the test offers them — it's a distractor.

TRAP 6

Cranberry juice & hydration ≠ treatment. They're preventive/adjunct only. NEVER choose "increase fluids" over "administer antibiotics" when infection is confirmed.

Mnemonics That Stick

FUSS

Cystitis symptoms —
Frequency · **U**rgency · **S**uprapubic pain · **S**tinging (dysuria)

FACT

Pyelonephritis red flags —
Fever/chills · **A**ching flank (CVA) · **C**ontractions · **T**achycardia & N/V

"CAN-Fos"

Pregnancy-safe antibiotics —
Cephalexin · **A**moxicillin · **N**itrofurantoin (2nd tri only) · **Fos**fomycin

"STF — Stay Far"

AVOID in pregnancy —
Sulfa (Bactrim) · **T**etracycline/Doxy · **F**luoroquinolones (Cipro)

⑦ PATIENT EDUCATION

Teach to Prevent & Protect

- 💧 Drink **2–3 L** water daily
- 🚽 Void every 2–3 hours — **don't hold it**
- 🧻 Wipe **front to back** always
- ❤️ **Void after intercourse**
- 🩲 Cotton underwear — avoid tight pants
- 🚫 No bubble baths, douches, scented sprays
- 🍒 Unsweetened cranberry juice (adjunct only)
- 💊 Finish **ENTIRE** antibiotic course
- 🍇 Report **contractions, fever, flank pain**
- 🌿 Avoid caffeine & carbonated drinks
- 🔁 Return for **test-of-cure** urine culture
- 🧼 Good perineal hygiene daily

The 3 pillars

Hydrate · Medicate · Communicate. Teach clients that a missed antibiotic dose or ignored symptom can send them (and baby) to L&D.