Source Note: No personal study notes were provided for this topic. Content is drawn from standard references: Saunders Comprehensive NCLEX-RN Review, ATI RN Series, Lippincott Pharmacology, AAP Red Book, and CDC Parasite Guidelines.

NGN NCLEX 2026 · PEDIATRICS / INFECTIOUS DISEASE · PARASITIC INFECTIONS

Pinworms

Enterobius vermicularis | Most Common Helminth Infection in the US | Fecal-Oral Transmission

1 Definition & Overview

- **Enterobius vermicularis** — a small, white, thread-like roundworm (helminth) that infects the large intestine and cecum.
- **Most common** intestinal parasitic infection in the United States; predominantly affects **school-age children (5–10 yrs)** but all ages are susceptible.
- Transmission is via the **fecal-oral route**; highly contagious within households, daycare centers, and schools.
- Clinical concern: intense **nocturnal perianal pruritus** leading to sleep disruption and secondary infection.

School-Age Children | Fecal-Oral Route

2 Pathophysiology (Simplified)

Eggs ingested (fingers, food, surfaces) → Larvae hatch in small intestine →

Adults migrate to cecum & colon → Female migrates to perianal area at NIGHT →

Deposits 10,000+ eggs on perianal skin → Child scratches → eggs under fingernails → **Autoinfection / reinfection**

Key Cycle: Eggs mature in 4–6 hours. Survive on surfaces for up to 3 weeks. Autoinfection is the primary driver of persistence — entire household must be treated simultaneously.

3 Signs & Symptoms

CLASSIC / PRIMARY SYMPTOMS

- **Intense perianal pruritus** — hallmark sign; worst at night (nocturnal itching)
- **Perineal/vaginal itching** in girls (worm migrates to vaginal area)
- **Sleep disturbances** — insomnia, restlessness, irritability
- Child scratching perianal area, especially at night or early morning
- Worms may be visible in stool or on perianal skin — tiny, white, thread-like (~1 cm)

COMPLICATIONS / RED FLAGS

- **Secondary bacterial infection** of perianal skin from scratching
- **Vulvovaginitis** in girls — vaginal discharge, pain with urination
- **Enuresis** (bed-wetting) in some children
- **Abdominal pain** — rare; occurs with heavy worm burden
- **Appendicitis** — very rare; worm migration into appendix

NCLEX Alert: Many children are completely asymptomatic. Do not expect every child to have all symptoms — nocturnal pruritus alone is sufficient for clinical suspicion.

4 Priority Nursing Interventions (ABCs + Safety)

- 🔬 **Perform Scotch tape (cellophane) test:** Apply transparent tape to perianal area first thing in the morning — BEFORE the child bathes, wipes, or has a bowel movement. Press on glass slide. Eggs are visible under microscope.
- 📋 **Assess** for classic symptoms: perianal itching, disturbed sleep, irritability, visible worms in stool.
- 💊 **Administer anthelmintic medications** as ordered (see Pharmacology section below).
- 🏠 **Treat ALL household members simultaneously** — regardless of symptoms.
- 🛁 **Instruct morning shower/bath** (not evening) to remove eggs deposited overnight.
- 🧼 **Enforce strict hand hygiene** — especially after toileting and before meals. Scrub under fingernails with brush.
- 🛏️ **Change and wash all bedding, pajamas, underwear** in hot water (60°C+) on day of treatment.
- 🧹 **Clean/vacuum all surfaces** — floors, toilet seats, doorknobs; eggs survive on surfaces for up to 3 weeks.
- ✂️ **Keep child's fingernails short** to reduce egg retention under nails.
- 👕 **Wear tight-fitting underwear** at night to reduce perianal scratching and egg dispersal.

🧯 **Repeat Dose: A second dose of medication is given 2 weeks later to kill newly hatched worms (eggs not killed by most drugs).**

5 Pharmacology — Anthelmintic Agents

Drug Name / Class	Mechanism	Dosing Note	Key Side Effects	Nursing Considerations
Mebendazole Benzimidazole anthelmintic — 1st line	Inhibits glucose uptake and microtubule formation in the worm → worm starvation and death	Single 100 mg dose; repeat in **2 weeks**	GI upset, diarrhea, abdominal cramping (usually mild)	⚠️ **NOT for children under 2 years** or pregnant women (Cat C). Can be chewed or swallowed.
Albendazole Benzimidazole anthelmintic — 1st line	Inhibits microtubule synthesis → disrupts worm cellular structure and glucose absorption	Single 400 mg dose; repeat in **2 weeks**	GI upset, elevated LFTs with prolonged use	⚠️ **Contraindicated in pregnancy**. Monitor liver enzymes with prolonged therapy. Give with a meal to improve absorption.
Pyrantel Pamoate Depolarizing neuromuscular blocker — OTC option	Causes spastic paralysis of the worm → worm is expelled in stool	11 mg/kg (max 1 g) single dose; repeat in **2 weeks**	Nausea, vomiting, diarrhea, headache	✅ Available OTC (Pin-X). Safe for children ≥2 yrs. Can be given with or without food. **Suspension** available for small children.

🧯 **CRITICAL PHARM NOTE: These drugs kill adult worms — NOT eggs. This is why the 2-week repeat dose is essential to kill worms that hatched after the first treatment. Environmental decontamination must accompany drug therapy for cure.**

6 NCLEX Test Traps ⚠️

✗ WRONG	✓ RIGHT
Perform the Scotch tape test after the child's morning bath.	Perform the test FIRST thing in the morning BEFORE bathing, wiping, or bowel movement — when eggs are most concentrated on perianal skin.
✗ WRONG	✓ RIGHT

Only treat the symptomatic child.	Treat ALL household members simultaneously — even those who appear asymptomatic — to break the reinfection cycle.
✗ WRONG One dose of anthelmintic is curative.	✓ RIGHT TWO doses are required: one now, and one repeat dose in 2 weeks — because drugs kill adult worms but NOT eggs.
✗ WRONG Pinworm infection always causes obvious GI symptoms.	✓ RIGHT Many infected children are ASYMPTOMATIC. The classic clue is nocturnal perianal itching and disturbed sleep — especially in school-age children.
✗ WRONG A stool culture/ova-and-parasite test is the best diagnostic method for pinworms.	✓ RIGHT The Scotch tape (cellophane tape) test is the gold standard for pinworm diagnosis — pinworm eggs are rarely found in stool samples.
✗ WRONG Mebendazole is safe for all ages including infants and pregnant women.	✓ RIGHT Mebendazole is NOT recommended for children under 2 years or pregnant women. Use Pyrantel Pamoate (OTC) for younger/pregnant patients when treatment is essential — consult provider.

7 Patient & Family Education

- 🧼 **Handwashing is the #1 prevention:** Wash hands vigorously with soap and water after every bathroom visit and before all meals. Scrub under fingernails daily with a nail brush.
- ✂️ **Keep fingernails trimmed short** — eggs collect under long nails and easily transfer to the mouth.
- 🛁 **Shower every morning** (not bath) to wash away eggs deposited overnight around the perianal area. Bathing in the evening can spread eggs in bath water.
- 👕 **Wear snug-fitting underwear** to bed to limit scratching and reduce spread of eggs to bedding.
- 🛏️ **Wash all bedding, pajamas, and towels** in hot water on the day treatment begins — and again in 2 weeks with the repeat dose.
- 🏠 **All household members take medication** on the same day — this is not optional. Even asymptomatic members carry or transmit eggs.
- 📅 **Second dose in exactly 2 weeks** — mark the calendar before leaving the office. Missing the second dose is the most common reason for treatment failure.
- 🧹 **Vacuum and clean all high-touch surfaces:** toilet seats, door handles, countertops, toys. Eggs survive up to 3 weeks on surfaces.
- 🚫 **Do not shake bedding** — this disperses eggs into the air where they can be inhaled or swallowed.
- 📢 **Notify the school or daycare** so other families can be informed and tested if needed.

8 Memory Boosters & Mnemonics

"SCRATCHES" — Pinworm Essentials

S **Scotch tape test** — diagnostic gold standard (morning, before bath)

C **Children** 5–10 most affected; school-age peak

Drug Quick-Pick

- **"M-A-P"** = **M**ebendazole, **A**lbendazole, **P**yrantel pamoate — the 3

R **Repeat dose** in 2 weeks (eggs survive 1st treatment)

A **All household members** treated at the same time

T **Thread-like white worms** visible perianally at night

C **Contaminated hands → mouth** — fecal-oral cycle

H **Hot water wash** — bedding, pajamas on treatment day

E **Evening pruritus** — nocturnal itching is the hallmark

S **Shower in the AM** (not bath, not evening)

approved agents

- **"PIN-X" = Pyrantel** — the only OTC option (safe for families without Rx access)
- **Both benzimidazoles (M + A)** = avoid in pregnancy & under age 2

🧠 Pattern Recognition Tips

- **Night itch + school-age child** = pinworms until proven otherwise on NCLEX
- **Girls with vaginal itching + no other signs** = consider pinworm migration
- **Whole family treating at once** = pinworm (vs. other infections treated individually)
- **Tape test ≠ stool O&P** — worms rarely shed eggs into stool

★ Full 6-Step NCJMM Clinical Judgment Scenario

NGN 2026 Test Plan · Pediatrics · Parasitic Infection

CLINICAL VIGNETTE	A mother brings her 7-year-old daughter to the pediatric clinic reporting that the child has been waking up at night for the past 3 weeks crying and scratching her "bottom." The mother has noticed the child is irritable, tired during the day, and recently started bed-wetting again. The child eats well and has no fever. Physical exam reveals perianal excoriation. Weight and vital signs are within normal limits.
STEP 1 Recognize Cues	**Relevant cues:** Nocturnal perianal pruritus (3 weeks), perianal excoriation, new-onset enuresis, daytime irritability and fatigue, school-age child (7 years old). *No fever, no diarrhea, no abdominal pain* — consistent with pinworm pattern.
STEP 2 Analyze Cues	Nocturnal pruritus + perianal excoriation in a school-age child = classic **Enterobius vermicularis** presentation. Female worm deposits eggs perianally at night → pruritus → scratching → autoinfection cycle. Secondary enuresis and behavioral changes caused by chronic sleep disruption. Risk factors: age, likely school exposure.
STEP 3 Prioritize Hypotheses	**Most likely:** Pinworm (Enterobius vermicularis) infestation. **Rule out:** Contact dermatitis (no chemical exposure history), threadworm (Strongyloides — rare in US), vaginal yeast infection (no discharge reported), sexual abuse (always considered with perianal findings — flagged but lower priority given classic pattern). **NCLEX Priority:** Confirm diagnosis with tape test, then treat.
STEP 4 Generate Solutions	**Diagnostic:** Perform Scotch tape test tomorrow morning at home before child bathes — send slide to lab. **Treatment (anticipate order):** Mebendazole 100 mg x1 dose OR Pyrantel pamoate 11 mg/kg x1 dose — with repeat in 2 weeks for entire household. **Environmental:** Hot-water wash of all bedding/clothing; vacuum surfaces; strict hand hygiene reinforcement.
STEP 5 Take Action	1. **Teach mother how to perform the Scotch tape test** — first thing tomorrow morning, before bathing or bowel movement. Press tape to perianal skin x3 seconds, apply to glass slide in zip-lock bag, bring to clinic. 2. **Administer/dispense anthelmintic** as ordered. Instruct that ALL household members take the medication today. 3. **Mark calendar** for repeat dose in exactly 2 weeks. 4. **Provide written education** on hygiene, laundering, surface cleaning, nail trimming, and morning showering. 5. **Reassure parents** — pinworm is common, not a sign of poor hygiene, and is completely treatable.

STEP 6 Evaluate Outcomes	**Expected outcomes at 2-week follow-up:** Resolution of nocturnal pruritus and perianal scratching; improved sleep quality; resolution of enuresis; negative repeat tape test. Entire household treated. Environmental decontamination completed. **If not resolved:** Reassess for treatment compliance, re-exposure at school, or consider resistance — consult with provider for alternative agent.