

Source No personal study notes were provided for this topic. Content is drawn from standard references: Saunders Comprehensive
Note: 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



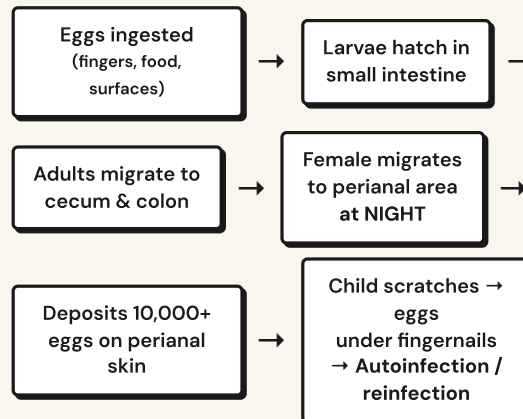
1 Definition & Overview

- ▶ **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** **fecal-oral route**; highly contagious within households, daycare centers, and schools.
- ▶ **Clinical concern:** **nocturnal perianal pruritus** leading to sleep disruption and secondary infection.

👶 School-Age Children

➕ Fecal-Oral Route

2 Pathophysiology (Simplified)



🚨 **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**

Perform the Scotch tape test after the child's morning bath.

✓ **RIGHT**

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" = — 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

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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.

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Sources: Saunders NCLEX-RN, ATI RN Series, Lippincott Pharmacology, AAP Red Book, CDC Parasite Guidelines

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