



PEDIATRIC DEHYDRATION & FLUID BALANCE

High-Yield NGN NCLEX Review · 2026 Test Plan · Quick Clinical Recall

NGN READY



Why Kids Dehydrate Faster Than Adults

Higher % body water — Infants ≈ 70–80% water vs. adult 60%

Faster metabolic rate — More fluid turnover daily

Greater BSA — More insensible fluid loss through skin

Immature kidneys — Can't concentrate urine well (< 2 yrs)



3 Types of Dehydration (by serum Na⁺)

ISOTONIC

Na⁺ 130–150

★ **Most common**
Equal H₂O & Na⁺ loss.
Shock risk ↑

HYPOTONIC

Na⁺ < 130

Na⁺ loss > H₂O.
Cells swell 🧠
Seizure risk

HYPERTONIC

Na⁺ > 150

H₂O loss > Na⁺.
Cells shrink.
Neuro signs 🧠

⚡ **Correct hypernatremia SLOWLY** — rapid correction → cerebral edema!



Severity Classification (% Weight Loss)

< 5%
MILD

Slight thirst
Normal VS
Moist mucosa
Normal UOP

5–10%
MODERATE

↑ HR, ↓ BP
Sunken eyes
Dry mucosa
↓ Tears, ↓ UOP
Cap refill 2–4 sec

> 10%
SEVERE 🚨

Tachycardia
Hypotension
Lethargy
Cap refill >4s
Anuria · Shock



Classic Assessment Findings — Head to Toe



Fontanelles

Sunken (ant. fontanelle) in infants < 18 mo



Eyes

Sunken · No tears when crying



Mucous Membranes

Dry, sticky, tacky lips/tongue



Skin Turgor

Tenting · Poor elasticity



Heart Rate

↑ Tachycardia (early sign!)



Blood Pressure

↓ Hypotension = LATE sign



Cap Refill

> 2 sec = abnormal



Urine Output

< 1 mL/kg/hr (infant)
< 0.5 mL/kg/hr (child)



RED FLAGS — CALL PROVIDER / RAPID RESPONSE NOW

Lethargy or altered LOC · No wet diaper > 6–8 hrs · Sunken fontanelle · Cap refill > 4 sec · Mottled/cool extremities · Tachycardia with hypotension · No tears when crying in infant · Weight loss > 10%



Weight = GOLD STANDARD

Daily weight is the **most accurate** indicator of fluid status in children.

1 kg lost = 1 L fluid lost

% loss = $\frac{(\text{pre-illness wt} - \text{current wt})}{\text{pre-illness wt}} \times 100$

Always weigh infants without a diaper, same scale, same time of day.



Maintenance Fluids — 4-2-1 Rule

Hourly IV maintenance rate (Holliday-Segar):

4

mL/kg/hr for first 10 kg

2

mL/kg/hr for next 10 kg (10–20)

1

mL/kg/hr for every kg > 20

💡 **Example:** 25 kg child → (4×10) + (2×10) + (1×5) = 65 mL/hr



Expected Lab Changes

BUN ↑

Hct ↑

USG > 1.030

Urine Na⁺ ↓

Serum osm ↑

K⁺ varies

HCO₃⁻ ↓ (met. acidosis)

Cap refill ↑

🚨 **Check K⁺ BEFORE giving IV fluids with potassium** — ensure kidneys work (voiding)!



Oral Rehydration Therapy (ORT)

First-line for mild–moderate dehydration. Use **Pedialyte**, not water, juice, broth, or sports drinks.

- 1 **Mild:** 50 mL/kg over 4 hrs + replace ongoing losses
- 2 **Moderate:** 100 mL/kg over 4 hrs
- 3 Give **5–10 mL every 5–10 min** via syringe/spoon
- 4 Continue breastfeeding / resume regular diet when tolerated
- 5 Reassess hydration + weight every 1–2 hrs

❌ **AVOID:** plain water, soda, apple juice, Gatorade, chicken broth, BRAT-only diet



Priority Nursing Actions (Severe)

- **A B-C first** — airway, breathing, circulation
- 📌 Establish IV access → **20 mL/kg NS or LR bolus** over 20 min (may repeat ×2)
- 📊 Monitor VS, LOC, & **strict I&O** every 15–30 min
- ⚖️ Weigh on admission & **daily** (same scale, same time)
- 🧪 Draw electrolytes, BUN/Cr, glucose, ABG **BEFORE** fluids if possible
- 📄 Goal UOP: **≥ 1 mL/kg/hr** (infant) / **≥ 0.5 mL/kg/hr** (child)
- 🚫 NPO only if vomiting / altered LOC; otherwise start ORT early
- 👥 Teach caregivers: signs of dehydration, ORT technique, when to return



NGN NCLEX TEST-TAKING PEARLS

♦ **Tachycardia** is the **EARLIEST** sign of dehydration in a child — hypotension is LATE and ominous. ♦ For **matrix/cloze** items: pick **weight** as most reliable fluid status indicator. ♦ **First action** in severe dehydration = **20 mL/kg isotonic bolus (NS or LR)**. ♦ Dextrose-containing fluids are **NOT** used for resuscitation boluses. ♦ **Prioritize** the infant with sunken fontanelle + no tears + lethargy over the toddler with mild symptoms. ♦ Always pair **ORT teaching** with follow-up parameters: wet diapers, alertness, tears.