

NCLEX 2026 · FLUID & ELECTROLYTE BALANCE

Fluid Deficit *versus* Fluid Overload

A clinical-judgment compass for hypovolemia & hypervolemia

CORE CONTENT

PRIORITY SETTING

NCJMM READY

01 Definition & Overview

KNOW THE BASELINE



Fluid Volume Deficit

Hypovolemia · Dehydration

A loss of fluid from the extracellular space — either water alone (dehydration) or water plus electrolytes and blood (hypovolemia).

- Less fluid → less circulating volume
- Less perfusion → risk of hypovolemic shock
- Triggers: V/D, burns, hemorrhage, diuretics, DKA, fever, third-spacing, NPO status



Fluid Volume Excess

Hypervolemia · Fluid Overload

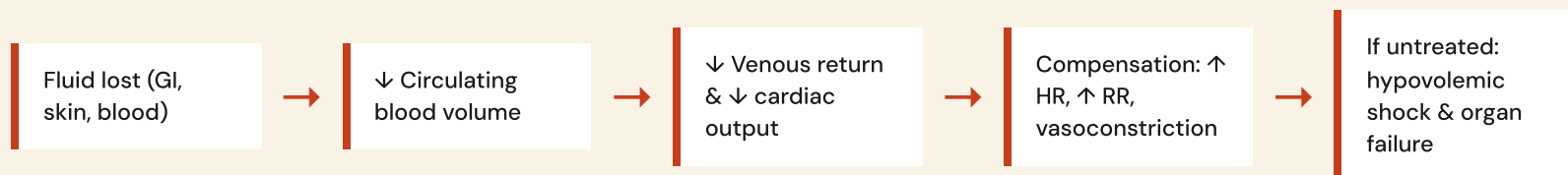
Excess fluid in the intravascular and interstitial spaces — the body is holding on to too much sodium and water.

- More volume → increased preload on the heart
- Fluid pushes into lungs and tissues → pulmonary edema
- Triggers: HF, renal failure, cirrhosis, SIADH, excess IV fluids, high sodium intake, corticosteroids

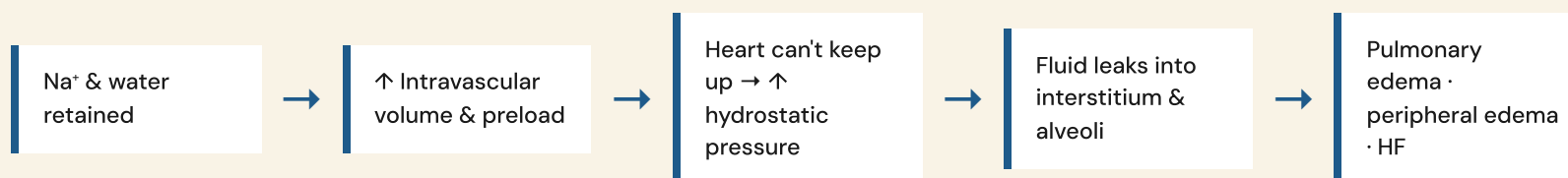
02 Pathophysiology Simplified

FOLLOW THE FLUID

▼ Deficit: Volume drops, perfusion fails



▲ Overload: Volume climbs, lungs drown



03 Signs & Symptoms

EARLY · LATE · RED FLAGS

System	Fluid Deficit	Fluid Overload
<i>Early / Mild</i>	Thirst, dry mucous membranes, decreased urine output (<30 mL/hr), dark concentrated urine, mild tachycardia, weight loss	Weight gain (earliest & most sensitive indicator — 1 kg = 1L), bounding pulse, mildly elevated BP, jugular vein distension (JVD)
<i>Vital Signs</i>	↓ BP (especially orthostatic), ↑ HR, weak thready	↑ BP, full bounding pulse, ↑ RR, SpO ₂ may drop, ↑

	pulse, ↑ RR, low-grade temp, flat neck veins, ↓ CVP	CVP , distended neck veins
<i>Skin & Integument</i>	Decreased skin turgor (tenting), dry skin, cool clammy if shock, sunken eyes, sunken fontanel (infants)	Pitting edema (feet, ankles, sacrum when supine), taut shiny skin, periorbital edema on waking, ascites
<i>Respiratory</i>	Increased RR (compensatory), clear lungs early; late → respiratory distress from shock	RED FLAG Crackles/rales , dyspnea, orthopnea, frothy pink-tinged sputum = pulmonary edema
<i>Neurological</i>	RED FLAG Restlessness → confusion → LOC changes; late sign of poor cerebral perfusion	Headache, confusion (dilutional hyponatremia), lethargy; seizures if severe hyponatremia
<i>Output</i>	Oliguria (<30 mL/hr), dark concentrated urine, high specific gravity	Polyuria if kidneys functioning; may be oliguric if renal cause; dilute low-specific-gravity urine

Laboratory Findings — Deficit

"Dry & High" — hemoconcentration

↑ Hematocrit

↑ BUN

↑ Serum Na⁺ (if dehydration)

↑ Serum osmolality

↑ Urine spec. grav. (>1.030)

↑ Urine osmolality

Laboratory Findings — Overload

"Wet & Low" — hemodilution

↓ Hematocrit

↓ BUN

↓ Serum Na⁺ (dilutional)

↓ Serum osmolality

↓ Urine spec. grav. (<1.010)

↓ Urine osmolality

04 Priority Nursing Interventions

ABCS · SAFETY · PRIORITIZATION

Deficit → Restore Volume

ABC · Circulation

Overload → Remove Volume

ABC · Airway

- 1 **Assess airway & circulation first.** Vital signs q15 min if unstable — watch for orthostatic drops.
- 2 **Priority Administer IV isotonic fluids** (0.9% NS or LR) as ordered — rapid-rate boluses for hypovolemic shock.
- 3 **Position supine with legs elevated** (modified Trendelenburg) to promote venous return in shock.
- 4 **Strict I&O & daily weights** — same time, same scale, same clothing. Target urine output ≥ 30 mL/hr.
- 5 **Encourage oral fluids** if patient is alert and able to swallow.
- 6 **Implement fall precautions.** Orthostatic hypotension = high fall risk. Change positions slowly.
- 7 **Monitor labs:** Hct, BUN, electrolytes, serum & urine osmolality.
- 8 **Reassess continuously** for fluid overload as you replace volume (especially in older adults and HF patients).

- 1 **Priority Position in HIGH Fowler's.** ABC priority — maximize lung expansion & ease dyspnea.
- 2 **Administer O₂** per orders; monitor SpO₂, auscultate lungs for crackles q2–4 h.
- 3 **Priority Administer loop diuretics** (furosemide) as ordered. Monitor for K⁺ loss.
- 4 **Restrict fluids & sodium** per order. Remove salty foods from tray.
- 5 **Strict I&O & daily weights** — same time/scale/clothes. Report weight gain >2 lb/day or 5 lb/week.
- 6 **Monitor labs:** Na⁺, K⁺ (↓ with loop diuretics), BUN, Hct.
- 7 **Elevate edematous extremities** when sitting. Perform skin assessments & reposition q2 h — edematous skin breaks down fast.
- 8 **Slow or stop IV fluids** if not ordered otherwise; notify HCP.

05 Pharmacology

KEY AGENTS & CONSIDERATIONS

Isotonic IV Fluids

0.9% NS · LACTATED RINGER'S

Mechanism: Stays in the intravascular space → expands circulating volume.

Furosemide (Lasix)

LOOP DIURETIC

Mechanism: Blocks Na⁺ & Cl⁻ reabsorption in the loop of Henle → rapid diuresis.

Used for: Deficit, hemorrhage, surgical fluid loss, shock.

Watch: Fluid overload in HF, renal, or older adults. LR is contraindicated in liver disease & hyperkalemia.

Used for: Overload, pulmonary edema, HF.

Watch: **Hypokalemia**, hypotension, ototoxicity (push IV slowly), dehydration. Monitor K^+ & daily weights.

Spironolactone

K^+ -SPARING DIURETIC · ALDACTONE

Mechanism: Blocks aldosterone $\rightarrow$ Na^+ & water excretion, K^+ retention.

Used for: Overload with risk of hypokalemia; HF; cirrhosis with ascites.

Watch: **Hyperkalemia**, gynecomastia. Avoid salt substitutes (contain KCl). Give with food.

HCTZ (Hydrochlorothiazide)

THIAZIDE DIURETIC

Mechanism: Blocks Na^+ reabsorption in the distal tubule $\rightarrow$ mild diuresis.

Used for: Mild overload, HTN.

Watch: Hypokalemia, hyponatremia, hyperglycemia, hyperuricemia (gout), photosensitivity.

06 NCLEX Test Traps

WHERE POINTS GET LOST

THE TRAP

Choosing intake/output as the "best" indicator of fluid status.



THE TRUTH

DAILY WEIGHT

is the most sensitive, reliable indicator. 1 kg = 1 L of fluid. Weigh at the same time, scale, and clothing.

THE TRAP



THE TRUTH

Overload with respiratory distress = **HIGH FOWLER'S FIRST**.

Putting a dyspneic overloaded patient in Trendelenburg or flat position.

This is always an ABC/airway priority.

THE TRAP

Confusing the direction of lab values between the two conditions.



THE TRUTH

Deficit =
HCT & BUN ↑
(hemoconcentration). Overload =
HCT & BUN ↓
(hemodilution).

THE TRAP

Assuming hypotension always = deficit and hypertension always = overload.



THE TRUTH

Look at the whole picture: skin turgor, neck veins, lung sounds, and weight. Late shock can cause BP to drop in overload too.

THE TRAP

Giving furosemide without checking potassium or hearing a new IV order first.



THE TRUTH

Check K⁺ BEFORE loop diuretics —
K⁺ < 3.5 MEQ/L
is dangerous. Push IV slowly (max 20 mg/min) to prevent ototoxicity.

THE TRAP

Believing thirst is a reliable early cue in older adults.



THE TRUTH

Older adults have a
BLUNTED THIRST RESPONSE
. Look for confusion, dry oral mucosa, and orthostatic changes instead.

THE TRAP

Pushing oral fluids on an overloaded patient because "hydration is good."



THE TRUTH

Fluid & sodium

RESTRICTION

is the rule in overload. Ice chips, hard candy, and oral care manage thirst.

THE TRAP

Checking skin turgor on the back of the hand in older adults.



THE TRUTH

Older skin already tents due to decreased elasticity.

Check turgor over the

STERNUM OR FOREHEAD

instead.

07 NCJMM Clinical Judgment

THINK LIKE THE NCLEX

★ CLINICAL SCENARIO

A 78-year-old admitted with HF is on 0.9% NS at 125 mL/hr. Four hours in: BP 162/94, HR 108, RR 26, SpO₂ 89% on 2 L NC. Bibasilar crackles. Weight up 1.4 kg from this morning. Pink-tinged frothy sputum.

STEP 1 · RECOGNIZE CUES

What stands out?

Weight gain 1.4 kg in hours, crackles, frothy pink sputum, SpO₂ 89%, tachycardia, elevated BP — classic **fluid overload / pulmonary edema**.

STEP 2 · ANALYZE CUES

What's happening?

The heart cannot handle the IV rate; hydrostatic pressure is pushing fluid into the alveoli. Without intervention → respiratory failure.

STEP 3 · PRIORITIZE HYPOTHESES

What's most urgent?

Airway & breathing. SpO₂ 89% with pulmonary edema is the priority problem. Everything else waits.

STEP 4 · GENERATE SOLUTIONS

What are the options?

High Fowler's position, increase O₂, slow or stop IV fluids, notify HCP, anticipate loop diuretic (furosemide IV push), apply cardiac monitor.

STEP 5 · TAKE ACTION

In what order?

1 ▶ High Fowler's · 2 ▶ Increase O₂ · 3 ▶ Slow IV to KVO · 4 ▶ Call HCP · 5 ▶ Administer furosemide when ordered · 6 ▶ Monitor K⁺.

STEP 6 · EVALUATE OUTCOMES

Did it work?

SpO₂ rising, RR decreasing, crackles clearing, urine output ≥30 mL/hr, weight trending down, no new hypokalemia — goals met.

08 Patient & Family Education

TEACH TO PREVENT RETURN TRIPS

Weigh Daily — Same Everything

Same time (morning, after voiding, before breakfast), same scale, same clothing. Call the provider for a gain of >2 lb in a day or 5 lb in a week.

Know Your Numbers

Know your fluid and sodium limits. Read food labels — less than 2 g sodium/day for most HF or renal patients.

Drink Smart in the Heat

Sip fluids throughout the day in hot weather or with fever, vomiting, or diarrhea. Do not wait until thirsty — especially older adults.

Diuretic Dosing

Take diuretics in the morning to avoid nighttime bathroom trips. Change positions slowly to prevent dizziness and falls.

Skin & Foot Check

When to Call 911

Inspect feet and ankles daily for swelling. Elevate legs when sitting. Avoid tight socks. Moisturize — don't massage edematous skin.

Severe shortness of breath, inability to lie flat, pink frothy sputum, chest pain, fainting, or confusion. These are emergencies — do not wait.

Potassium Awareness

Loop diuretics lower K⁺ — eat bananas, oranges, potatoes, spinach. K⁺-sparing diuretics raise K⁺ — avoid salt substitutes & extra bananas.

Keep Follow-Ups

Routine labs (K⁺, BUN, creatinine) & BP checks catch problems early. Bring a list of all medications — including OTC & supplements — to each visit.

09 Memory Boosters

LOCK IT IN

Fluid Deficit → "DRY"

DRY

- D** **Decreased** BP, turgor, urine output, weight
- R** **Rapid** & weak pulse, rapid RR, restlessness
- Y** **Yellow-dark** urine (↑ specific gravity > 1.030)

Fluid Overload → "WET"

WET

- W** **Weight** gain, wheezes/crackles, distended neck veins
- E** **Edema** (pitting, periorbital, sacral), elevated BP
- T** **Taut** skin, tachypnea, trouble breathing (orthopnea)

QUICK PATTERN — DEFICIT

If the patient is *dry, low, fast, and dark*, they're in deficit. Give fluids, lay them low, and raise those feet.

QUICK PATTERN — OVERLOAD

If the patient is *wet, heavy, bounding, and breathless*, they're in overload. Sit them up, give oxygen, and diurese.

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Fluid & Electrolyte Balance · Infographic Series