

Blood Transfusion

Hematology & IV Therapy | NGN NCLEX 2026 Study Guide

Pre-Transfusion

Reaction Management

Priority Nursing

Safety Traps

Clinical Judgment

1 · DEFINITION & OVERVIEW

- Transfer of donor blood or blood components into a patient's bloodstream via IV
- Used to treat anemia, hemorrhage, clotting disorders, or surgical blood loss
- Type & crossmatch verifies compatibility between donor and recipient blood
- Requires compatibility verification to prevent life-threatening immune reactions

Key stats at a glance

2 nurses must verify

30 min max hang time

0.9% NS only compatible solution

4 hrs max infusion time

18 g IV catheter gauge

15 min nurse stays at bedside to start

2 · PATHOPHYSIOLOGY (SIMPLIFIED)

Incompatible blood → immune reaction cascade:



Why Dextrose IV + blood is dangerous:



Cold blood via central line → hypothermia or cardiac dysrhythmias — always warm first.

3 · SIGNS & SYMPTOMS OF REACTION

MILD — ALLERGIC

- Urticaria (hives)
- Flushing
- Itching / pruritus
- Anxiety

SEVERE 🚨 HEMOLYTIC

- Fever / chills
- Low back pain ★
- Wheezing
- Hypotension
- Tachycardia
- Tachypnea

🚨 NCLEX TRAP: Bradycardia & increased BP are NOT signs of reaction — eliminate these answer choices immediately!

Circulatory overload signs: crackles in lungs, distended neck veins, cough, dyspnea — treat by slowing rate or diuretic (do NOT stop transfusion)

● 4 · PRIORITY NURSING INTERVENTIONS

BEFORE TRANSFUSION

- 1 **Obtain** type & crossmatch — verifies donor/client blood compatibility
- 2 **Assess** baseline: temperature, VS, lung sounds
- 3 **Verify** with 2 nurses: blood label, client ID, expiration, blood type
- 4 **Hang within 30 min** of retrieval from blood bank to prevent contamination
- 5 **Prime tubing** with 0.9% Normal Saline — never dextrose

DURING TRANSFUSION

- 6 **Warm** blood for central line infusion (prevents hypothermia & dysrhythmias)
- 7 **Stay at bedside** for first 15 minutes — most reactions occur in first 50 mL
- 8 **Monitor VS:** before start → 15 min mark → every 30–60 min until done
- 9 **Complete within 4 hours** — beyond 4 hrs, take down and return to blood bank
- 10 **No medications** may be added to blood or piggybacked into blood line

IF REACTION SUSPECTED

- 1 **STOP the blood immediately** — #1 priority always
- 2 **Start 0.9% NS** with new tubing — keeps IV open for emergency drugs
- 3 **Notify** provider AND blood bank
- 4 **Collect** urine & blood samples → send to lab immediately
- 5 **Return** blood bag & tubing to blood bank for analysis

● 6 · NCLEX TEST TRAPS ⚠️

TRAP 1 · WRONG IV SOLUTION

Students pick LR or D5W — ONLY 0.9% NS is compatible. Dextrose hemolizes RBCs causing clumping and transfusion failure.

TRAP 2 · REACTION RESPONSE ORDER

Do NOT notify the provider first. Priority sequence: **STOP blood → START saline → THEN notify provider & blood bank.**

TRAP 3 · FALSE REACTION SIGNS

Bradycardia & increased BP are NCLEX distractors. Classic reaction signs: fever, low back pain, wheezing, hives, hypotension, tachycardia.

TRAP 4 · ONE-NURSE VERIFICATION

Always requires 2 nurses to verify blood products at the bedside before initiating — never just one nurse alone.

TRAP 5 · FORGETTING TO WARM FOR CENTRAL LINES

Blood infused through a central line **MUST** be warmed — cold infusion risks hypothermia and life-threatening cardiac dysrhythmias.

TRAP 6 · CIRCULATORY OVERLOAD VS. HEMOLYTIC REACTION

Circulatory overload → slow rate or give diuretic; do NOT stop. Hemolytic reaction → STOP transfusion completely. Don't mix these up.

● 7 · CLINICAL JUDGMENT (NCJMM)

Recognize cues

Fever, hives, low back pain, wheezing within minutes of transfusion starting

Analyze cues

Signs indicate hemolytic or allergic transfusion reaction from incompatible blood — kidneys at risk from free hemoglobin

Priority hypothesis

Transfusion reaction — hemolytic type most life-threatening

Take action

Stop blood → infuse 0.9% NS (new tubing) → notify provider & blood bank → collect urine & blood samples

Evaluate outcomes

Symptoms resolve, no further hemolysis, IV access maintained, labs sent, blood bag returned to bank

● 5 · PATIENT EDUCATION

- Report any unusual feelings immediately — fever, chills, back pain, itching, or difficulty breathing
- Explain why the nurse will take vital signs frequently during the transfusion
- Inform patient that the nurse will remain at the bedside for the first 15 minutes
- Educate about the verification process (two nurses checking the blood) as a safety step
- Reassure patient that blood is screened for infectious diseases before use

● 8 · MEMORY BOOSTERS

MNEMONIC: "2 STOP" REACTION PROTOCOL

2

nurses verify
blood

S

Stop the blood

T

Turn on NS

O

Obtain VS &
labs

P

Page the
provider

- **NS only** — "Normal Saline, Nothing Sugar" — dextrose destroys RBCs
- **Urticaria = hives** — "Urti-CARE-ia makes you itch"
- **Low back pain** = kidneys being attacked by free hemoglobin from lysed RBCs
- **Lab samples:** Urine (Hgb in urine = hemolysis confirmed) + Blood (re-crossmatch)
- **Central line** → always warm the blood first to protect the heart
- **4-Hour Rule:** blood still hanging at 4 hrs → take down, return to lab, no exceptions