

CBC & Electrolytes — Normal Ranges

Lab	Normal Range	Critical Value
WBC	4.5–11.0 K/ μ L	<2.0 or >30 = report
RBC	M: 4.5–5.9 / F: 4.0–5.2	Trend with Hgb
Hgb	M: 13.5–17.5 / F: 12–15.5g	<7 or >20 g/dL
Hct	M: 41–53% / F: 36–46%	<21% or >65%
Platelets	150,000–400,000	<50,000 or >1M
Na ⁺	135–145 mEq/L	<120 or >160
K ⁺	3.5–5.0 mEq/L	<2.5 or >6.5
Ca ²⁺	8.5–10.5 mg/dL	<6.5 or >13
Mg ²⁺	1.5–2.5 mEq/L	<1.0 or >4.9

Renal, Coagulation & Glucose Labs

Lab	Normal Range	Critical Value
BUN	7–20 mg/dL	Trend with Cr
Creatinine	M: 0.7–1.3 / F: 0.5–1.1	Rapid rise = AKI
GFR	>60 mL/min/1.73m ²	<15 = kidney failure
PT	11–13.5 sec	Trend vs baseline
INR	0.8–1.1 (therapeutic: 2–3)	<1.5 or >5 report
aPTT	25–35 sec (heparin: 60–100)	<25 or >100
Glucose (fasting)	70–99 mg/dL	<50 or >500
HbA1c	<5.7% normal; <7% DM goal	Single value no crit
Lactate	0.5–2.0 mmol/L	>4 = severe sepsis

Hepatic, Cardiac Labs & Specimen Collection

Lab	Normal Range	Key Point
ALT	7–56 U/L	↑ = hepatocellular damage
AST	10–40 U/L	↑ = liver or muscle damage
Total bili	0.1–1.2 mg/dL	>2 = jaundice risk
Albumin	3.5–5.0 g/dL	<3.5 = malnutrition
Troponin I	<0.04 ng/mL	Any rise = MI concern
BNP	<100 pg/mL	>500 = severe HF
TSH	0.4–4.0 mIU/L	↑=hypothyroid ↓=hyper

Specimen Collection Key Points

- ✔ Blood cultures: 2 sets from 2 sites; before antibiotics ideally
- ✔ Urine culture: midstream clean-catch; process within 2h

Lab Values in Practice — What the RN Does

A patient's K⁺ returns at 2.8 mEq/L. They are on digoxin and furosemide

→ Critical — hold digoxin (hypoK⁺ potentiates toxicity); notify provider; anticipate KCl replacement; monitor EKG

A patient's INR is 5.8. They are on warfarin for atrial fibrillation

→ Supratherapeutic — hold warfarin; notify provider; assess for bleeding signs; Vitamin K may be ordered; recheck INR

A patient's troponin returns at 0.22 ng/mL (normal <0.04). They had mild chest pressure earlier

→ Elevated troponin = acute MI until proven otherwise — notify provider immediately; 12-lead EKG; serial troponins; prepare for intervention

A patient's lactate is 4.8 mmol/L. BP is 88/54 and HR is 126

→ Severe sepsis/septic shock — initiate sepsis protocol; fluid resuscitation; blood cultures before antibiotics; notify provider stat

A new nurse receives a critical glucose of 38 mg/dL from the lab. They write it in the chart to tell the provider at rounds

→ Wrong — critical values must be reported immediately; call provider now; administer dextrose if ordered; document notification

💡 Document: which lab was critical, what time you received it, who you notified, what time, and their response.

Quick-Fire Scenarios & NCLEX Tips

Q A patient's platelet count is 42,000. What activity restriction does the nurse implement?

→ Bleeding precautions — avoid IM injections; soft toothbrush; no razors; fall precautions; monitor for petechiae and bruising

Q A patient's BUN is 38 and creatinine is 2.4. What does this suggest?

→ Renal impairment — BUN:Cr ratio >20:1 suggests prerenal; adjust renally-cleared medications; notify provider; monitor I&O

Q A patient's HbA1c is 9.2%. What does the nurse understand about this?

→ Poor glycemic control over ~3 months — HbA1c reflects average glucose; 9.2% ≈ avg glucose ~220 mg/dL; intensify management

Q Which lab value most directly reflects liver synthetic function?

→ PT/INR and albumin — liver makes clotting factors; PT rises when liver fails; albumin falls in chronic liver disease

💡 NCLEX: Know critical values cold — K⁺<2.5, Na⁺<120, glucose<50, platelets<50K, INR>5, troponin any rise.