Lab Values to Know

Normal ranges in US units, therapeutic drug levels, and acting on a critical result

RN Basics
rnbasics.com · checked Oct 2026

BLOOD COUNTS AND CLOTTING

Study summary, not a bedside tool. Labs vary: use the printed range, the trend and your protocols.

TEST	NORMAL	EXAM CLUE
WBC	4,500–11,000/mm³	ANC under 500: neutropenic precautions
Hgb	M 14–18; F 12–16 g/dL	Falls with bleeding; trend it
Hct	M 42–50%; F 37–47%	Moves with Hgb
Platelets	150,000–400,000/mm³	Under 20,000: spontaneous bleeding risk
PT / INR	11–13.5 s / 0.8–1.1	Warfarin monitoring
aPTT	25–35 s	Heparin: 1.5–2 × control (many texts 1.5–2.5) or anti-Xa

Valve type and clot risk can change targets.

WARFARIN INDICATION	TARGET INR
VTE, AF, bileaflet mechanical aortic valve	2.0–3.0 (goal 2.5)
Mechanical mitral or caged-ball valve	2.5–3.5 (goal 3.0)

EXAM TIP Warfarin: INR, antidote vitamin K. Heparin: aPTT or anti-Xa, antidote protamine.

SAFETY HIT: platelets fall over 50% (usually day 5–14) or below 100,000, or a new clot forms. Stop all heparin, flushes too; no LMWH; notify the provider; no warfarin until platelets recover.

CHEMISTRY PANEL

TEST	NORMAL	EXAM CLUE
Sodium	135–145 mEq/L	Low/high: confusion, seizures
Potassium	3.5–5.0 mEq/L	Low/high: arrhythmias; ECG
Chloride	98–107 mEq/L	Low with vomiting
HCO_3^- (CO_2)	23–29 mEq/L	Low: metabolic acidosis
BUN	6–20 mg/dL	Up: AKI, dehydration, GI bleed
Creatinine	0.6–1.3 mg/dL	Up: AKI; renal dosing (F lower)
Glucose (fast)	70–99 mg/dL	Under 70: low; 126+: diabetes
Calcium	8.8–10.3 mg/dL	Correct for low albumin
Magnesium	1.7–2.2 mg/dL	Low Mg keeps K low
Phosphorus	2.8–4.5 mg/dL	High in CKD, with low Ca
Albumin	3.4–5.4 g/dL	Low: edema, malnutrition

Low albumin lowers total Ca and raises free phenytoin. Many books use Ca 9.0–10.5, Mg 1.3–2.1 mEq/L: use the range the item prints.

DIABETES, LIPIDS, LIVER, HEART

TEST	NORMAL	EXAM CLUE
A1C	Under 5.7%	6.5%+: diabetes; goal often <7%
Cholesterol	Under 200 mg/dL	Fast 9–12 h only if ordered
LDL	Under 100 mg/dL	"Bad" cholesterol
HDL	60+ mg/dL best	Low: under 40 (men), 50 (women)
Triglycerides	Under 150 mg/dL	Very high: pancreatitis risk
ALT / AST	ALT 4–36; AST 8–33 U/L	Up: liver injury (acetaminophen)
BNP	Under 100 pg/mL	Higher: HF likelier, worse
Troponin	≤ lab's 99th percentile	Rise/fall above 99th + ischemia = MI

A1C 5.7–6.4%: prediabetes; it reflects about 3 months, skewed by anemia, kidney failure and transfusion. Troponin up without ischemia is injury, not MI. hs-troponin is serial (often 0 and 1–2 h); STEMI does not wait for it.

ABG NORMALS

The ABG Interpretation one-pager gives the steps.

VALUE	NORMAL
pH	7.35–7.45
$PaCO_2$	35–45 mm Hg
HCO_3^-	22–26 mEq/L
PaO_2	80–100 mm Hg (room air; some labs 75–100)
SaO_2	95–100%

THERAPEUTIC DRUG LEVELS

Draw digoxin just before a dose or 6+ h after; lithium 12 h after the last dose.

DRUG	RANGE	TOXICITY CLUES
Digoxin	0.5–2.0 ng/mL; heart failure often 0.5–0.9	Nausea, yellow-green vision, bradycardia, arrhythmias
Lithium	0.8–1.2 mEq/L acute; 0.8–1.0 maintenance	Toxic 1.5+. Early: vomiting, diarrhea, weakness, poor coordination. Later: ataxia, slurred speech, confusion, seizures
Phenytoin	10–20 mcg/mL (free 1–2)	Nystagmus near 20, ataxia near 30, lethargy over 40
Vancomycin	AUC 400–600 mg·h/L (MIC 1) for serious MRSA	Kidney injury: rising creatinine, low urine output

SAFETY Digoxin: apical pulse for 1 full minute; hold and report below the ordered limit (often 60). Low K, low Mg or high Ca raise toxicity risk, even below 2 ng/mL.

SAFETY Lithium rises with dehydration, low sodium intake, fever, diuretics, NSAIDs, ACE inhibitors or ARBs; toxicity can occur within range.

EXAM TIP Older items use vancomycin troughs of 15–20; the 2020 guideline prefers AUC dosing (less kidney injury).

CRITICAL RESULT: NURSE ACTIONS

1. Assess now: vital signs, symptoms, ECG if K or digoxin.
2. Check range and trend; question an odd result (hemolyzed K, drawn above an IV).
3. Act per protocol: hold the related drug, start precautions, monitor.
4. Notify the provider (SBAR); read back phoned results.
5. Document value, time, who was told, orders and response.
6. LPN/LVN: collect data and report to the RN or provider.

SAFETY ECG changes with high K: act now; do not wait for a redraw.

EXAM TIP Priority: pick the value that threatens ABCs or bleeding now (K 6.2 beats Hgb 10.1 after surgery).

Sources (49) are listed with links at rnbasics.com/sheets/lab-values.html. For education and exam preparation only. Not medical advice; follow current guidelines and your institution's protocols. RN Basics is an independent study aid not affiliated with any certifying body.