

Complete blood count

Component	Normal	Meaning
WBC	4,500—11,000 /mm ³	↑ infection • ↓ leukopenia, infection risk
Hemoglobin	12—16 g/dL (F) • 14—18 (M)	↓ anemia or bleeding
Hematocrit	37—47% (F) • 42—52% (M)	Mirrors hemoglobin
Platelets	150,000—400,000 /mm ³	↓ bleeding risk • ↑ clotting risk

Basic metabolic panel

Analyte	Normal	Significance
Sodium	135—145 mEq/L	↓ overload or Na loss • ↑ dehydration
Potassium	3.5—5.0 mEq/L	Either direction → dysrhythmias
Calcium	8.5—10.5 mg/dL	↓ paresthesias, tetany, cramps
Magnesium	1.5—2.5 mEq/L	↓ ↑reflexes, seizures • ↑ ↓reflexes
BUN	10—20 mg/dL	↑ renal dysfunction or dehydration
Creatinine	0.6—1.3 mg/dL	↑ impaired kidney function
Glucose (fasting)	70—99 mg/dL	—
CO ₂ (bicarbonate)	22—28 mEq/L	Acid-base, paired with ABG

Liver and coagulation

- ✓ **AST/ALT** 10—40 IU/L • **total bilirubin** 0.1—1.2 mg/dL • **albumin** 3.5—5.0 g/dL • **ammonia** 15—45 mcg/dL (↑ in hepatic encephalopathy)
- ✓ **PT** 11—13 sec • **INR** 0.8—1.1 normal, **2.0—3.0 therapeutic** on warfarin • **aPTT** 25—45 sec

Arterial blood gases

Value	Normal
pH	7.35—7.45
PaCO ₂	35—45 mmHg
HCO ₃ ⁻	22—26 mEq/L
PaO ₂	80—100 mmHg
SaO ₂	>95%

- ✓ **pH = acid/base** • **PaCO₂ = respiratory** • **HCO₃⁻ = metabolic** • **SaO₂ = oxygenation**
- ✓ **↓pH + ↑PaCO₂** = respiratory acidosis (COPD exacerbation, sedative overdose)
- ✓ **↓pH + ↓HCO₃⁻** = metabolic acidosis (DKA, renal failure)
- ✓ **↑pH + ↓PaCO₂** = respiratory alkalosis (anxiety, hyperventilation)
- ✓ **↑pH + ↑HCO₃⁻** = metabolic alkalosis (prolonged vomiting, diuretics, NG suction)