

Nursing Lab Values

Nursing lab values are critical in assessing a patient's health status, aiding in diagnosis, monitoring disease progression, and evaluating treatment effectiveness. This cheat sheet provides a concise reference for commonly used lab values and their clinical significance.

Complete blood count (CBC)		
Lab value	Normal range	Significance
Red blood cells (RBC)	4.2-6.1 million cells/mcL	Indicates oxygen-carrying capacity
White blood cells (WBC)	4,500-11,000 cells/mcL	Reflects immune response
Hemoglobin	Women: 12.0-15.5 g/dL	Detects anemia or blood loss
	Men: 13.5-17.5 g/dL	
Hematocrit	Women: 37%-47%	Proportion of red blood cells
	Men: 42%-52%	
Platelets	150,000-450,000/mcL	Indicates clotting ability
Basic metabolic panel (BMP)		
Lab value	Normal range	Significance
Glucose	70-100 mg/dL	Monitors blood sugar levels
Sodium (Na)	135-145 mEq/L	Regulates fluid balance and nerve function
Potassium (K)	3.5-5.2 mEq/L	Essential for cardiac and muscular function
Calcium (Ca)	8.5-10.2 mg/dL	Critical for bone health and neuromuscular
Blood urea nitrogen (BUN)	7-20 mg/dL	Reflects kidney function
Creatinine	0.6-1.2 mg/dL	Indicates kidney efficiency
Comprehensive metabolic panel (CMP)		
Lab value	Normal range	Significance
Alkaline phosphatase (ALP)	44-147 IU/L	Indicates liver or bone disorders
Aspartate aminotransferase (AST)	8-33 U/L	Reflects liver or heart health
Alanine transaminase (ALT)	4-36 U/L	Suggests liver health

Comprehensive metabolic panel (CMP)		
Lab value	Normal range	Significance
Bilirubin	0.1-1.2 mg/dL	Detects liver or bile duct issues
Total protein	6.0-8.3 g/dL	Measures overall health and liver function
Albumin	3.4-5.4 g/dL	Indicates liver or kidney health
Arterial blood gas (ABG)		
Lab value	Normal range	Significance
Potential of hydrogen (pH)	7.35-7.45	Reflects acid-base balance
Partial pressure of oxygen (PaO2)	75-100 mmHg	Measures oxygen levels in blood
Partial pressure of carbon dioxide (PaCO2)	35-45 mmHg	Indicates CO2 removal efficiency
Bicarbonate (HCO3)	22-26 mEq/L	Shows bicarbonate buffer levels
O2 saturation	94%-100%	Reflects oxygen-carrying hemoglobin
Lipid panel		
Lab value	Normal range	Significance
Total cholesterol	< 200 mg/dL	Monitors cardiovascular health
Low-density lipoprotein (LDL) or bad cholesterol	< 100 mg/dL	Risk for artery blockage
High-density lipoprotein (HDL) cholesterol or good cholesterol	40-60 mg/dL	Helps remove excess cholesterol
Triglycerides	< 150 mg/dL	Measures fat in blood
Liver function tests (LFTs)		
Lab value	Normal range	Significance
Alanine aminotransferase (ALT)	7-56 U/L	Liver enzyme indicating liver health
AST (Aspartate Aminotransferase)	10-40 U/L	Elevated in liver or heart damage
Bilirubin	0.1-1.2 mg/dL	Reflects liver function and bile flow

Hemoglobin A1C		
Lab value	Normal range	Significance
Normal	< 5.7%	Reflects average blood sugar over 3 months
Prediabetes	5.7%-6.4%	Higher diabetes risk
Diabetes	≥ 6.5%	Indicates diabetes diagnosis
Drug therapeutic levels		
Lab value	Normal range	Significance
Digoxin	0.5-2 ng/mL	Heart rate control
Lithium	0.5-1.2 mmol/L	Bipolar disorder management
Phenytoin	10-20 mcg/mL	Seizure control
Valproic acid	50-100 mcg/mL	Epilepsy treatment
Coagulation studies		
Lab value	Normal range	Significance
Prothrombin time (PT)	11-13.5 seconds	Measures clotting speed
International normalized ratio (INR)	0.8-1.1	Standardized clotting measure
Clinical applications		
<ul style="list-style-type: none"> • Diagnose: Identify health conditions based on lab deviations. • Monitor: Track changes in lab values to evaluate disease progression. • Evaluate: Use results to assess treatment outcomes and adjust care plans. • Educate: Help patients understand their lab results and related health implications 		
Common abbreviations in lab reporting		
Abbreviation	Definition	
CBC	Complete blood count	
BMP	Basic metabolic panel	
ALT	Alanine aminotransferase	
AST	Aspartate aminotransferase	
BUN	Blood urea nitrogen	
INR	International normalized ratio	

Additional notes

Tips for effective use

- **Be proficient:** Familiarize yourself with standard ranges and their clinical implications.
- **Stay organized:** Use consistent formats to quickly identify key information.
- **Collaborate:** Share insights with the healthcare team to optimize care.

References:

Centers for Disease Control and Prevention. (2024). *Testing for diabetes and prediabetes: A1C*. <https://www.cdc.gov/diabetes/diabetes-testing/prediabetes-a1c-test.html>

Cleveland Clinic. (2022, May 10). *Low potassium levels (hypokalemia)*. <https://my.clevelandclinic.org/health/diseases/17740-low-potassium-levels-in-your-blood-hypokalemia>

Ernstmeier, K., & Christman, E. (Eds.). (2023). *Table 11.2a, [normal ranges of ABG values]*. National Institutes of Health; Chippewa Valley Technical College. https://www.ncbi.nlm.nih.gov/books/NBK596733/table/ch11oxytherapy.T.normal_ranges_of_abg_va/?report=objectonly

Fung, A. W. S., Shulman, K. I., Danijela Konforte, Vandenberghe, H., Stemp, J., Yuan, V. R., Yip, P. M., & Fu, L. (2023). *Age-Stratified lithium therapeutic ranges for older adults with bipolar disorder – from awareness to an action plan*. *EJIFCC*, 34(2), 153. <https://pmc.ncbi.nlm.nih.gov/articles/PMC10349314/>

Gaines, K. (2024, December 17). *Lab values nursing students need to know for the NCLEX*. [Nurse.org](https://nurse.org/education/lab-values-nclex/). <https://nurse.org/education/lab-values-nclex/>

Mount Sinai Health System. (2024). *Blood sugar test - blood information*. <https://www.mountsinai.org/health-library/tests/blood-sugar-test-blood>

National Kidney Foundation. (2023, November 1). *Hyponatremia (low sodium level in the blood)*. <https://www.kidney.org/kidney-topics/hyponatremia-low-sodium-level-blood>

Shikdar, S., & Bhattacharya, P. T. (2023, May 1). *International normalized ratio (INR)*. National Institutes of Health; StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK507707/>

UCLA Health. (n.d.). *Normal calcium levels - endocrine surgery*. <https://www.uclahealth.org/medical-services/surgery/endocrine-surgery/patient-resources/patient-education/normal-calcium-levels>

Yang, R., & Moosavi, L. (2019, October 19). *Prothrombin time*. National Library of Medicine; StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK544269/>