

TABLE OF REFERENCE INTERVALS

Specimen	Test	Conventional Units	Conversion Factor (multiply by)	SI Units
S	Albumin*	3.9-5.1 g/dL	10	39-51 g/L
B	Base excess (men)	-3.3 to +1.2 mmol/L	1	-3.3 to +1.2 mmol/L
B	Base excess (women)	-2.4 to +2.3 mmol/L	1	-2.4 to +2.3 mmol/L
P	Bicarbonate	21-29 mmol/L	1	21-29 mmol/L
S	Bilirubin, conjugated*	0.1-0.4 mg/dL	17.1	1.7-6.8 µmol/L
S	Bilirubin, total*	0.1-1.2 mg/dL	17.1	1.0-19.9 µmol/L
S/P	Calcium, total	9-10.4 mg/dL	0.25	2.24-2.6 mmol/L
B	CO2 content (venous)	22-26 mEq/L	1	22-26 mmol/L
S/P	Chloride*	98-107 mEq/L	1	98-107 mmol/L
S	Cholesterol (NCEP recommendation)	140-200 mg/dL	0.0259	3.6-5.2 mmol/L
S	Cortisol (a.m., total)*	5-23 µg/dL	27.6	138-635 nmol/L
S	Creatinine (Jaffe, men)*	0.9-1.3 mg/dL	88.4	80-115 µmol/L
S	Creatinine (Jaffe, women)*	0.6-1.1 mg/dL	88.4	53-97 µmol/L
S	Ferritin (men)*	39-715 ng/mL	1	39-715 µg/L
S	Ferritin (women)*	6-362 ng/mL	1	6-362 µg/L
P	Fibrinogen	200-400 mg/dL	0.01	2-4 g/L
S	Folate	9.5-39.0 ng/mL	2.265	21.5-88.4 nmol/L
S	Glucose, fasting*	74-100 mg/dL	0.0555	4.1-5.6 mmol/L
S	Haptoglobin*	30-200 mg/dL	0.01	0.3-2.0 g/L
B	Hematocrit (men)*	40.0-52.0 %	0.01	0.40-0.52 Vol fraction
B	Hematocrit (women)*	35.0-47.0 %	0.01	0.35-0.47 Vol fraction
B	Hemoglobin (men)*	14-18 g/dL	10	140-180 g/L
B	Hemoglobin (women)*	12-16 g/dL	10	120-160 g/L
S/P	Iron, total	20-168 µg/dL	0.179	3.5-30.0 µmol/L
S/P	Iron binding capacity	250-400 µg/dL	0.179	44.8-71.6 µmol/L
B	Lactate (at bed rest)	5-12 mg/dL	0.111	0.36-0.75 mmol/L
B	Lead	<25 µg/dL	0.048	<1.21 µmol/L
S	Magnesium (Atomic Absorption)	1.6-2.6 mg/dL	0.4114	0.66-1.07 mmol/L
B	MCH (RBC index)*	28.0-32.0 pg/cell	1	28.0-32.0 pg/cell
B	MCHC (RBC index)*	32.0-36.0 %	10	320-360 g/L
B	MCV (RBC index)*	83.0-95.0 fL	1	83.0-95.0 fL
S	Osmolality	280-295 mOsm/kg	1	280-295 mmol/kg
B	pCO <sub>2</sub> (arterial) (men)	35-48 mm Hg	0.133	4.7-6.4 kPa
B	pCO <sub>2</sub> (arterial) (women)	32-45 mm Hg	0.133	4.3-6.0 kPa
B	pH (arterial)*	7.35-7.45	1	7.35-7.45
S/P	Phosphate (as P)*	2.8-4.8 mg/dL	0.323	0.89-1.54 mmol/L
B	pO <sub>2</sub> (arterial)	83-108 mm Hg	0.133	11.0-14.4 kPa
B	Platelet count	150-450 10 <sup>3</sup> /mm <sup>3</sup>	1	150-450 10 <sup>9</sup> /L
S	Potassium	3.8-4.9 mEq/L	1	3.8-4.9 mmol/L
S	Protein, total (recumbent)	6.0-7.8 g/dL	10	60-78 g/L
B	RBC count (men)*	4.5-5.9 10 <sup>9</sup> /mm <sup>3</sup>	1	4.5-5.9 10 <sup>12</sup> /L
B	RBC count (women)*	4.5-5.1 10 <sup>9</sup> /mm <sup>3</sup>	1	4.5-5.1 10 <sup>12</sup> /L
S	Sodium	136-145 mEq/L	1	136-145 mmol/L
S	Thyroxine, free*	0.8-2.7 ng/dL	12.9	10.3-34.7 pmol/L
S	Thyroxine (T4), total (men)*	4.6-10.5 µg/dL	12.9	59-135 nmol/L
S	Thyroxine (T4), total (women)*	5.5-11 µg/dL	12.9	65-138 nmol/L
S	Triglyceride (NCEP recommendation)	10-150 mg/dL	0.0113	0.11-1.7 mmol/L
S	Urea nitrogen (BUN)*	8-24 mg/dL	0.357	2.8-8.6 mmol/L
S	Uric acid (men)*	3.7-7.7 mg/dL	0.059	0.22-0.46 mmol/L
S	Uric acid (women)*	2.5-6.2 mg/dL	0.059	0.15-0.37 mmol/L
S	Vitamin B12 (WHO Recommendation)	>201 pg/mL	0.733	>147 pmol/L
S	Vitamin D (25-OH)	10-65 ng/ml	2.50	25-162 nmol/L
B	WBC count	4-11 10 <sup>3</sup> /mm <sup>3</sup>	1	4-11 10 <sup>9</sup> /L
S	Zinc	80-120 µg/dL	0.153	12-18 µmol/L

Specimens: B, whole blood; P, plasma; S, serum. Reference intervals depend on test method and the demographics of the normal population used.

\*Adult intervals (18Y-60Y). Age specific ranges apply for pediatric and/or geriatric populations.

Source: Burtis CA, Bruns DE. Tietz *Fundamentals of Clinical Chemistry and Molecular Diagnostics*, 7th ed. St. Louis, MO; Elsevier; 2015 and Rifai, N, Horvath AR, Wittwer, CT. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, 7th ed. St. Louis, MO; Elsevier; 2018 McPherson RA, Pincus MR. *Henry's Clinical Diagnosis and Management by Laboratory Methods*. 22nd ed. Philadelphia, PA: Elsevier Saunders; 22nd ed; 2011. Revised 2021 by S.T. Campbell, PhD, DABCC, FAACC, Department of Pathology, Montefiore Medical Center, Bronx, NY.