

# TABLE OF REFERENCE INTERVALS

Specimen	Test	Conventional Units	Conversion Factor (multiply by)	SI Units
S	Albumin*	3.5-5.2 g/dL	10	35-52 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/P	Bilirubin, conjugated*	0.0-0.2 mg/dL	17.1	0.0-3.4 µmol/L
S/P	Bilirubin, total*	0.0-2.0 mg/dL	17.1	0.0-34 µmol/L
S/P	Calcium, total	8.6-10.3 mg/dL	0.25	2.15-2.57 mmol/L
S/P	CO <sub>2</sub> content, venous	23-26 mmol/L	1	23-26 mmol/L
P	Chloride*	98-107 mEq/L	1	98-107 mmol/L
S/P	Cholesterol (NCEP recommendation)	140-200 mg/dL	0.0259	3.6-5.2 mmol/L
P	Cortisol (a.m.)*	5-23 µg/dL	27.6	138-635 nmol/L
S/P	Creatinine (Jaffe, men)*	0.9-1.3 mg/dL	88.4	80-115 µmol/L
S/P	Creatinine (Jaffe, women)*	0.6-1.1 mg/dL	88.4	53-97 µmol/L
S/P	Ferritin (men)*	20-250 ng/mL	1	20-250 µg/L
S/P	Ferritin (women)*	10-120 ng/mL	1	10-120 µg/L
P	Fibrinogen	200-400 mg/dL	0.01	2-4 g/L
S/P	Folate	2.6-12.2 ng/mL	2.265	6.0-28.0 nmol/L
S/P	Glucose, fasting*	74-100 mg/dL	0.0556	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	60-150 µg/dL	0.179	10.7-26.9 µmol/L
S/P	Iron binding capacity	250-400 µg/dL	0.179	44.8-71.6 µmol/L
B	Lactate (venous)	3-7 mg/dL	0.111	0.36-0.75 mmol/L
B	Lead	<5 µg/dL	0.048	<0.24 µmol/L
S/P	Lithium, therapeutic	0.5-1.2 mEq/L	1	0.5-1.2 mmol/L
S/P	Magnesium*	1.7-2.4 mEq/L	0.4114	0.70-0.99 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 %	0.01	0.32-0.36 concentration fract
B	MCV (RBC index)	83.0-95.0 fL	1	83.0-95.0 fL
S/P	Osmolality	270-295 mOsm/kg	1	270-295 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)*	7.31-7.42	1	7.31-7.42
S/P	Phosphate (as P)*	2.5-4.5 mg/dL	0.323	0.81-1.45 mmol/L
B	pO <sub>2</sub> (arterial)	5.7-30.5 mm Hg	0.133	0.8-4.0 kPa
B	Platelet count	150-450 10 <sup>3</sup> /mm <sup>3</sup>	1	150-450 10 <sup>9</sup> /L
P	Potassium (men)*	3.5-4.5 mEq/L	1	3.5-4.5 mmol/L
P	Potassium (women)*	3.4-4.4 mEq/L	1	3.4-4.4 mmol/L
S	Protein, total (recumbent)	6.0-7.8 g/dL	10	60-78 g/L
B	RBC count (men)*	4.6-6.2 10 <sup>6</sup> /mm <sup>3</sup>	1	4.6-6.2 10 <sup>12</sup> /L
B	RBC count (women)*	4.2-5.2 10 <sup>6</sup> /mm <sup>3</sup>	1	4.2-5.2 10 <sup>12</sup> /L
P	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 (T <sub>4</sub> ), total (men)*	4.6-10.5 µg/dL	12.9	59-135 nmol/L
S	Thyroxine (T <sub>4</sub> ), total (women)*	5.5-11 µg/dL	12.9	65-138 nmol/L
S/P	Triglyceride (NCEP recommendation)	10-150 mg/dL	0.0113	0.11-1.7 mmol/L
S/P	Urea nitrogen (BUN)*	6-20 mg/dL	0.357	2.1-7.1 mmol/L
S	Uric acid (men)*	4.4-7.6 mg/dL	0.059	0.26-0.45 mmol/L
S	Uric acid (women)*	2.3-6.6 mg/dL	0.059	0.13-0.39 mmol/L
S	Vitamin B <sub>12</sub>	206-678 pg/mL	0.733	151-497 pmol/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 McPherson RA, Pincus MR. *Henry's Clinical Diagnosis and Management by Laboratory Methods*. 22nd ed. Philadelphia, PA: Elsevier Saunders; 22nd ed; 2011. Revised 2017 by D.M. Haverstick, PhD, DABCC, Department of Pathology, University of Virginia, Charlottesville, VA.