

Normal Laboratory Values



HEMATOLOGY

Red Blood Cells

RBC (Male)	4.2 - 5.6 M/ μ L
RBC (Female)	3.8 - 5.1 M/ μ L
RBC (Child)	3.5 - 5.0 M/ μ L

White Blood Cells

WBC (Male)	3.8 - 11.0 K / mm ³
WBC (Female)	3.8 - 11.0 K / mm ³
WBC (Child)	5.0 - 10.0 K / mm ³

HEMOGLOBIN

Hgb (Male)	14 - 18 g/dL
Hgb (Female)	11 - 16 g/dL
Hgb (Child)	10 - 14 g/dL
Hgb (Newborn)	15 - 25 g/dL

HEMATOCRIT

Hct (Male)	39 - 54%
Hct (Female)	34 - 47%
Hct (Child)	30 - 42%
MCV	78 - 98 fL
MCH	27 - 35 pg
MCHC	31 - 37%
neutrophils	50 - 81%
bands	1 - 5%
lymphocytes	14 - 44%
monocytes	2 - 6%
eosinophils	1 - 5%
basophils	0 - 1%

COAGULATION

ACT	90 - 130 seconds
APTT	21 - 35 seconds
platelets	140,000 - 450,000 /ml
plasminogen	62 - 130%
PT	10 - 14 seconds
PTT	32 - 45 seconds
FSP	Less than 10 µg/dL
fibrinogen	160 - 450 mg/dL
bleeding time	3 - 7 minutes
thrombin time	11 - 15 seconds

HEMODYNAMIC PARAMETERS

cardiac index	2.5 - 4.2 L / min / m ²
cardiac output	4 - 8 LPM
left ventricular stroke work index	40 - 70 g / m ² / beat
right ventricular stroke work index	7 - 12 g / m ² / beat
mean arterial pressure	70 - 105 mm Hg
pulmonary vascular resistance	155 - 255 dynes / sec / cm to the negative 5
pulmonary vascular resistance index	255 - 285 dynes / sec / cm to the negative 5
stroke volume	60 - 100 mL / beat
stroke volume index	40 - 85 mL / m ² / beat
systemic vascular resistance	900 - 1600 dynes / sec / cm to the negative 5
systemic vascular resistance index	1970 - 2390 dynes / sec / cm to the negative 5
systolic arterial pressure	90 - 140 mm Hg
diastolic arterial pressure	60 - 90 mm Hg
central venous pressure	2 - 6 mm Hg; 2.5 - 12 cm H ₂ O
ejection fraction	60 - 75%
left arterial pressure	4 - 12 mm Hg
right atrial pressure	4 - 6 mm Hg
pulmonary artery systolic	15 - 30 mm Hg
pulmonary artery diastolic	5 - 15 mm Hg
pulmonary artery pressure	10 - 20 mm Hg
pulmonary artery wedge pressure	4 - 12 mm Hg
pulmonary artery end diastolic pressure	8 - 10 mm Hg
right ventricular end diastolic pressure	0 - 8 mm Hg

ARTERIAL VALUES

pH	7.35 - 7.45
PaCO ₂	35 - 45 mm Hg
HCO ₃	22 - 26 mEq/L
O ₂ saturation	96 - 100%
PaO ₂	85 - 100 mm Hg
BE	-2 to +2 mmol/L

VENOUS VALUES

pH	7.31 - 7.41
PaCO ₂	41 - 51 mm Hg
HCO ₃	22 - 29 mEq/L
O ₂ saturation	60 - 85%
PaO ₂	30 - 40 mm Hg
BE	0 to +4 mmol/L

CARDIAC MARKERS

troponin I	0 - 0.1 ng/ml (onset: 4-6 hrs, peak: 12-24 hrs, return to normal: 4-7 days)
troponin T	0 - 0.2 ng/ml (onset: 3-4 hrs, peak: 10-24 hrs, return to normal: 10-14 days)
myoglobin (Male)	10 - 95 ng/ml (onset: 1-3 hrs, peak: 6-10 hrs, return to normal: 12-24 hrs)
myoglobin (Female)	10 - 65 ng/ml (onset: 1-3 hrs, peak: 6-10 hrs, return to normal: 12-24 hrs)

GENERAL CHEMISTRY

Acetone	0.3 - 2.0 mg%
Albumin	3.5 - 5.0 gm/dL
alkaline phosphatase	32 - 110 U/L
anion gap	5 - 16 mEq/L
Ammonia	11 - 35 µmol/L
Amylase	50 - 150 U/dL
AST,SGOT (Male)	7 - 21 U/L
AST,SGOT (Female)	6 - 18 U/L
bilirubin, direct	0.0 - 0.4 mg/dL
bilirubin, indirect	total minus direct
bilirubin, total	0.2 - 1.4 mg/dL
BUN	6 - 23 mg/dL
calcium (total)	8 - 11 mg/dL

carbon dioxide	21 - 34 mEq/L
carbon monoxide	Symptoms at greater than or equal to 10% saturation
Chloride	96 - 112 mEq/L
creatine (Male)	0.2 - 0.6 mg/dL
creatine (Female)	0.6 - 1.0 mg/dL
Creatinine	0.6 - 1.5 mg/dL
Ethanol	0 mg%; Coma: greater than or equal to 400 - 500 mg%
folic acid	2.0 - 21 ng/mL
Glucose	65 - 99 mg/dL (diuresis greater than or equal to 180 mg/dL)
HDL (Male)	25 - 65 mg/dL
HDL (Female)	38 - 94 mg/dL
Iron	52 - 169 µg/dL
iron binding capacity	246 - 455 µg/dL
lactic acid	0.4 - 2.3 mEq/L
lactate	0.3 - 2.3 mEq/L
lipase	10 - 140 U/L
magnesium	1.5 - 2.5 mg/dL
osmolarity	276 - 295 mOsm/kg
parathyroid hormone	12 - 68 pg/mL
phosphorus	2.2 - 4.8 mg/dL
potassium	3.5 - 5.5 mEq/L
SGPT	8 - 32 U/L
sodium	135 - 148 mEq/L
T3	0.8 - 1.1 µg/dL
thyroglobulin	less than 55 ng/mL
thyroxine (T4) (total)	5 - 13 µg/dL
total protein	5 - 9 mg/dL
TSH	Less than 9 µU/mL
urea nitrogen	8 - 25 mg/dL
uric acid (Male)	3.5 - 7.7 mg/dL
uric acid (Female)	2.5 - 6.6 mg/dL

LIPID PANEL (Adult)

cholesterol (total)	Less than 200 mg/dL desirable
cholesterol (HDL)	30 - 75 mg/dL
cholesterol (LDL)	Less than 130 mg/dL desirable
triglycerides (Male)	Greater than 40 - 170 mg/dL
triglycerides (Female)	Greater than 35 - 135 mg/dL

URINE

color	Straw
specific gravity	1.003 - 1.040
pH	4.6 - 8.0
Na	10 - 40 mEq/L
K	Less than 8 mEq/L
Cl	Less than 8 mEq/L
protein	1 - 15 mg/dL
osmolality	80 - 1300 mOsm/L

24 HOUR URINE

amylase	250 - 1100 IU / 24 hr
calcium	100 - 250 mg / 24 hr
chloride	110 - 250 mEq / 24 hr
creatinine	1 - 2 g / 24 hr
creatinine clearance (Male)	100 - 140 mL / min
creatinine clearance (Male)	16 - 26 mg / kg / 24 hr
creatinine clearance (Female)	80 - 130 mL / min
creatinine clearance (Female)	10 - 20 mg / kg / 24 hr
magnesium	6 - 9 mEq / 24 hr
osmolality	450 - 900 mOsm / kg
phosphorus	0.9 - 1.3 g / 24 hr
potassium	35 - 85 mEq / 24 hr
protein	0 - 150 mg / 24 hr
sodium	30 - 280 mEq / 24 hr
urea nitrogen	10 - 22 gm / 24 hr
uric acid	240 - 755 mg / 24 hr

CEREBRAL SPINAL FLUID

appearance	Clear
glucose	40 - 85 mg/dL
osmolality	290 - 298 mOsm/L
pressure	70 - 180 mm/H ₂ O
protein	15 - 45 mg/dL
total cell count	0 - 5 cells
WBCs	0 - 6 / μ L

NEUROLOGICAL VALUES

cerebral perfusion pressure	70 - 90 mm Hg
intracranial pressure	5 - 15 mm Hg or 5 - 10 cm H ₂ O

THYROID

Thyroxine (T4)	Normal Adult Range: 4 - 12 ug/dl
	Optimal Adult Reading: 8 ug/dl
T3-Uptake	Normal Adult Range: 27 - 47%
	Optimal Adult Reading: 37 %
Free T4 Index (T7)	Normal Adult Range: 4 - 12
	Optimal Adult Reading: 8
Thyroid-Stimulating Hormone (TSH)	Normal Adult Range: .5 - 6 miliIU/L

HORMONAL ASSAYS

Free T4	0.8-2.0 ng/dl	
Free T3	2.3-4.2 pg/ml	
TSH	0.25-4.30 microunits/ml	
Serum T3	70-200 ng/dl	
Serum T4	4.0-11.0 micrograms/dl	
Serum Calcitonin	0.02-0.04 ng/ml	
Parathormone	Not detectable to 27 ng/dl	
Follicle Stimulating Hormone		
Male	Not detectable to 20 miu/ml	
Female	Follicular Phase	5-20 miu/ml
	Midcycle Peak	15-35 miu/ml
	Luteal Peak	5-20 miu/ml
	Post- Menopausal	40-200 miu/ml
Luteinising Hormone		
Male	Not detectable to 25 miu/ml	
Female	Post-Menopausal	5-20 miu/ml
Ovulating Females	Follicular Phase	Upto 8 miu/ml
	Mid-cycle Peak	7-50 miu/ml
	Luteal Phase	Upto 7 miu/ml
Prolactin		
Male	Not detectable to 15 ng/ml	
Female	Not detectable to 20 ng/ml	

In Pregnancy	I Trimester	7-31 ng/ml
	II Trimester	31-182 ng/ml
	III Trimester	84-232 ng/ml
	One day Post-partum	20-319 ng/ml
Testosterone		
Male	300-1300 ng/dl	
Female	3-5 ng/dl	
Free Testosterone		
Male	9-30 ng/dl	
Female	0.3-1.9 ng/dl	
17- Ketosteroids		
Male	9-24 mgs/day	
Female	5-17 mgs/day	
17-Ketogenic Steroids		
Male	8-26 mgs/day	
Female	6-18 mgs/day	
Serum Cortisol		
A.M.	4.3-22.6 microgram/dl	
P.M.	3.10-16.6 microgram/dl	
DHEA Sulphates		
Male	80-560 microgram/dl	
Female	35-430 microgram/dl	
Beta HCG	Less than 10	
	I Month	20-1000
	I Trimester	10000-160000
	II Trimester	6000-30000