



## Chemistry Age Related Reference Ranges and Critical Values

TEST	SEX	AGE	REFERENCE RANGE	CRITICAL VALUE	
<b>Albumin</b>	M/F	0 - 6 days 6 days - 37 months 37 months - 7 years 7 - 20 years ≥20 years	2.6-3.6 g/dL 3.4-4.2 g/dL 3.5-5.2 g/dL 3.7-5.6 g/dL 3.5-5.0 g/dL	None defined	
<b>Alanine Aminotransferase (ALT, SGPT)</b>	Male  Female	0 - 1 month 1 month - 1 year 1 - 3 years 3 - 9 years 9 - 18 years ≥18 years  0 - 1 month 1 month - 1 year 1 - 3 years 3 - 9 years 9 - 18 years ≥18 years	10-25 U/L 10-35 U/L 10-30 U/L 10-25 U/L 10-30 U/L 10-35 U/L  10-25 U/L 10-35 U/L 10-25 U/L 10-25 U/L 10-20 U/L 10-35 U/L	None defined	
<b>Alkaline Phosphatase</b>	Male  Female	0 - 1 month 1 month - 1 year 1 - 3 years 3 - 6 years 6 - 9 years 9 - 12 years 12 - 15 years 15 - 18 years 18 - 59 years ≥59 years  0 - 1 month 1 month - 1 year 1 - 3 years 3 - 6 years 6 - 9 years 9 - 12 years 12 - 15 years 15 - 18 years 18 - 59 years ≥ 59 years	75-316 U/L 82-383 U/L 104-345 U/L 93-309 U/L 86-315 U/L 42-362 U/L 74-390 U/L 52-171 U/L 53-128 U/L 56-119 U/L  48-406 U/L 124-341 U/L 108-317 U/L 96-297 U/L 69-325 U/L 51-332 U/L 50-162 U/L 47-119 U/L 42-98 U/L 53-141 U/L	None defined	
<b>Ammonia</b>	M/F	0 - 1 day 1 day - 2 weeks 2 weeks - 18 years ≥18 years	64-107 μmol/L 56-92 μmol/L 21-50 μmol/L 11-32 μmol/L	<b>Low</b> None defined	<b>High</b> None defined None defined >99 μmol/L >99 μmol/L
<b>Amylase</b>	M/F	0 - 1 month 1 - 6 months 6 months - 1 year 1 - 3 years 3 - 9 years 9 - 18 years ≥18 years	<10 U/L <10-17 U/L <10-44 U/L 10-79 U/L 16-91 U/L 19-76 U/L 10-200 U/L	None defined	



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<b>Aspartate Amino-Transferase (AST, SGOT)</b>	M/F	0 - 6 days 6 days - 3 years 3 - 7 years 7 - 10 years	35-140 U/L 20-60 U/L 15-50 U/L 15-40 U/L	None defined	
	Male	10 - 12 years 12 - 16 years 16 - 20 years ≥20 years	10-60 U/L 10-45 U/L 10-45 U/L 14-50 U/L		
	Female	10 - 12 years 12 - 16 years 16 - 20 years ≥20 years	10-50 U/L 10-30 U/L 5-30 U/L 8-39 U/L		
<b>Bilirubin, Direct</b>	M/F	0 - 1 month ≥1 month	0.0-0.6 mg/dL 0.0-0.2 mg/dL	None defined	
<b>Bilirubin, Total</b>	M/F	0 - 1 day 1 - 2 days 2 - 5 days 5 days - 20 years ≥20 years	0.0-8.0 mg/dL 3.4-11.5 mg/dL 1.5-12.0 mg/dL 0.6-1.4 mg/dL 0.3-1.2 mg/dL	<b>Low</b> None defined	<b>High</b> >14.9 mg/dL
<b>Blood Urea Nitrogen (BUN)</b>	M/F	0 - 6 days 6 days - 20 years 20 - 60 years ≥60 years	4-12 mg/dL 5-18 mg/dL 6-20 mg/dL 8-23 mg/dL	<b>Low</b> None defined	<b>High</b> >104 mg/dL
<b>Calcium, Ionized, Plasma &amp; Whole Blood (Inpatient/ED/Surgery)</b>	M/F	0 - 1 day 1 - 2 days ≥2 days	1.08-1.28 mmol/L 1.00-1.18 mmol/L 1.14-1.33 mmol/L	<b>Low</b> <0.76 mg/dL	<b>High</b> >1.49 mmol/L
<b>Calcium, Ionized, Serum (Outreach)</b>	M/F	0 - 1 day 1 - 2 days ≥2 days	1.08-1.28 mmol/L 1.00-1.18 mmol/L 1.14-1.40 mmol/L	<b>Low</b> <0.76 mg/dL	<b>High</b> >1.49 mmol/L
<b>Calcium, Total</b>	M/F	0 - 10 days 10 days - 2 years 2 - 12 years ≥12 years	7.6-10.4 mg/dL 9.0-11.0 mg/dL 8.8-10.8 mg/dL 8.6-10.3 mg/dL	<b>Low</b> <6.0 mg/dL	<b>High</b> >13.0 mg/dL
<b>Carbon Dioxide, Total (CO<sub>2</sub>, Bicarbonate)</b>	M/F	0 - 1 week 1 week - 1 month 1 month - 6 months 6 months - 1 year 1 - 2 years 2 - 60 years ≥60 years	17-26 mmol/L 17-27 mmol/L 17-29 mmol/L 18-29 mmol/L 20-31 mmol/L 22-28 mmol/L 23-31 mmol/L	None defined	
<b>Chloride</b>	M/F	0 - 1 month 1 month - 90 years ≥90 years	98-113 mmol/L 98-107 mmol/L 98-111 mmol/L	<b>Low</b> <76 mg/dL	<b>High</b> >125 mg/dL
<b>Cholesterol, Total</b>	M/F	All Ages	108-199 mg/dL	Refer to NCEP ATP III Recommendations under the Lipid Profile	



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<b>Cholesterol, HDL</b>	M/F	All Ages	40-125 mg/dL	Refer to NCEP ATP III Recommendations under the Lipid Profile			
<b>Cholesterol/HDL Ratio</b>	M/F	All Ages	0.0-5.0 mg/dL	None defined			
<b>Cholesterol, LDL</b>	M/F	All Ages	0-99 mg/dL	Refer to NCEP ATP III Recommendations under the Lipid Profile			
<b>C-Reactive Protein (CRP)</b>	M/F	All Ages	0-10 mg/L	None defined			
<b>C-Reactive Protein, High Sensitivity (hsCRP)</b>	M/F	All Ages	0-3 mg/L	None defined			
<b>Creatine Kinase, Total (CK, CPK)</b>	M/F	0 - 3 years 3 - 7 years 7 - 10 years	60-305 U/L 75-230 U/L 60-365 U/L	None defined			
	Male	10 - 12 years 12 - 14 years 14 - 16 years 16 - 20 years ≥20 years	55-215 U/L 60-330 U/L 60-335 U/L 55-370 U/L 35-232 U/L				
	Female	10 - 12 years 12 - 14 years 14 - 16 years 16 - 20 years ≥20 years	80-230 U/L 50-295 U/L 30-240 U/L 45-230 U/L 21-215 U/L				
<b>Creatine Kinase-MB (CK-MB)</b>	M/F	All ages	Negative: up to 6 ng/mL and less than 5% of total CK Positive: over 6 ng/mL and more than 4% of total CK				
<b>Creatinine</b>	M/F	0 - 4 days 4 days - 2 months 2 months - 10 years 10 - 18 years	0.30-1.00 mg/dL 0.20-0.40 mg/dL 0.30-0.70 mg/dL 0.50-1.00 mg/dL			<b>Low</b> None defined	<b>High</b> >7.3 mg/dL
	Male Female	≥18 years ≥18 years	0.70-1.30 mg/dL 0.60-1.10 mg/dL				
<b>Ferritin</b>	Male	0 - 1 month 1 - 7 months 7 months - 1 year 1 - 6 years 6 - 19 years ≥19 years	36-381 ng/mL 36-391 ng/mL 36-100 ng/mL 36-84 ng/mL 36-311 ng/mL 22-322 ng/mL	None defined			
	Female	0 - 1 month 1 - 7 months 7 months - 1 year 1 - 6 years 6 - 19 years ≥19 years	36-483 ng/mL 36-329 ng/mL 36-70 ng/mL 36-84 ng/mL 36-92 ng/mL 10-291 ng/mL				



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TEST	SEX	AGE	REFERENCE RANGE	CRITICAL VALUE	
<b>Gamma Glutamyl Transferase</b> (Gamma GT, GGT)	Male          Female	0 - 6 months 6 months - 1 year 1 - 12 years 12 - 18 years ≥18 years  0 - 6 months 6 months - 1 year 1 - 12 years 12 - 18 years ≥18 years	12-122 U/L 1-39 U/L 3-22 U/L 2-42 U/L 2-30 U/L  15-132 U/L 1-39 U/L 4-22 U/L 4-24 U/L 2-24 U/L	None defined	
<b>Glucose</b>	M/F	0 - 1 day 1 day - 1 month 1 month - 1 year 1 - 60 years 60 - 90 years ≥90 years	40-60 mg/dL 50-80 mg/dL 60-100 mg/dL 74-100 mg/dL 82-115 mg/dL 75-121 mg/dL	<b>Low</b> <31 mg/dL <31 mg/dL <41 mg/dL <41 mg/dL <41 mg/dL <41 mg/dL	<b>High</b> >299 mg/dL >299mg/dL >499 mg/dL >499 mg/dL >499 mg/dL >499 mg/dL
<b>Glucose, CSF</b>	M/F	0 - 2 years ≥2 years	60-80 mg/dL 40-70 mg/dL	<b>Low</b> <40 mg/dL	<b>High</b> None defined
<b>Iron</b>	M/F	0 - 2 days 2 days - 2 years ≥2 years	100-250 µg/dL 40-100 µg/dL 35-140 µg/dL	<b>Low</b> None defined	<b>High</b> >279 µg/dL
<b>Iron Binding Capacity, Total (TIBC)</b>	M/F	All Ages	220-390 µg/dL	None defined	
<b>Unsaturated Iron Binding Capacity</b>	M/F	All Ages	130-300 µg/dL	None defined	
<b>% Iron Saturation</b>	M/F	All Ages	15-50%	None defined	
<b>Lactate, CSF</b>	M/F	All Ages	1.1-2.4 mmol/L	<b>Low</b> None defined	<b>High</b> >3.0 mmol/L
<b>Lactate, Serum and Plasma</b>	M/F	All Ages	Venous: 0.5-2.2 mmol/L Arterial: 0.5-1.6 mmol/L	<b>Low</b> None defined	<b>High</b> >2.9 mmol/L
<b>Lactate Dehydrogenase (LDH)</b>	Male          Female	0 - 1 month 1 month - 1 year 1 - 6 years 6 - 9 years 9 - 12 years 12 - 15 years 15 - 18 years 18 - 90 years ≥90 years  0 - 1 month 1 month - 1 year 1 - 3 years 3 - 6 years 6 - 9 years 9 - 12 years 12 - 15 years 15 - 18 years 18 - 90 years ≥90 years	125-735 U/L 170-450 U/L 155-345 U/L 145-300 U/L 120-325 U/L 120-290 U/L 105-235 U/L 100-190 U/L 99-284 U/L  145-765 U/L 190-240 U/L 165-395 U/L 135-345 U/L 140-280 U/L 120-260 U/L 100-275 U/L 105-230 U/L 100-190 U/L 99-284 U/L	None defined	





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TEST	SEX	AGE	REFERENCE RANGE	CRITICAL VALUE	
				Low	High
Sodium	M/F	0 - 1 year	133-146 mmol/L	<126 mmol/L	>149 mmol/L
		1 - 12 years	138-145 mmol/L	<121 mmol/L	>159 mmol/L
		≥12 years	136-145 mmol/L	<121 mmol/L	>159 mmol/L
Triglycericde	M/F	All Ages	26-149 mg/dL	Refer to NCEP ATP III Recommendations under the Lipid Profile	
Uric Acid	M/F	0 - 6 days	1.9-7.9 mg/dL	None defined	
		6 days - 3 years	1.8-5.0 mg/dL		
		3 - 7 years	2.2-4.7 mg/dL		
		7 - 10 years	2.0-5.0 mg/dL		
	Male	10 - 12 years	2.3-5.4 mg/dL		
		12 - 14 years	2.7-6.7 mg/dL		
		14 - 16 years	2.4-7.8 mg/dL		
		16 - 20 years	4.0-8.6 mg/dL		
	Female	≥20 years	3.5-7.2 mg/dL		
		10 - 12 years	3.0-4.7 mg/dL		
		12 - 16 years	3.0-5.8 mg/dL		
		16 - 20 years	3.0-5.9 mg/dL		
≥20 years	2.6-6.0 mg/dL				

Reference ranges are subject to update. Refer to the individual test listed on the Legacy web site or the patient chart for reference ranges at time of testing.

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