



**Adult Blood Gases, Critical Care Panel, Transport and ECMO
Age Related Reference Ranges and Critical Values**

TEST	SEX	AGE	REFERENCE RANGE	CRITICAL VALUE	
Base Excess	M/F	All Ages	-3.0 to 3.0	None defined	
Bicarbonate	M/F	All Ages	17-28 mmol/L	ECMO ONLY	
				Low <17 mmol/L	High >33 mmol/L
Calcium, Ionized, Respiratory Therapy	M/F	≥2 days	1.12-1.26 mmol/L	Low <0.76 mmol/L	High >1.49 mmol/L
Carboxyhemoglobin, Arterial and Venous Blood	M/F	All Ages Non-Smokers: Average Smokers: Heavy Smokers:	0.5-1.5% 1.5-5.0% 8.0-9.0%	Low None defined	High >20.0%
Chloride	M/F	0 - 1 month 1 month - 90 years ≥90 years	98-113 mmol/L 98-107 mmol/L 98-111 mmol/L	Low <76 mmol/L	High >125 mmol/L
Creatinine	M/F	0 - 3 days 4 days - 1 month 2 months - 9 years 10 - 17 years	0.3-1.0 mg/dL 0.2-0.4 mg/dL 0.3-0.7 mg/dL 0.5-1.0 mg/dL	Low None defined	High >7.3 mg/dL
	M F	≥18 years ≥18 years	0.7-1.3 mg/dL 0.6-1.1 mg/dL		
ECMO, Arterial pH pCO ₂ pO ₂	M/F	All Ages	7.35-7.45 34-46 mmHg 150-500 mmHg	Low <7.31 <27mmHg <91 mmHg	High >7.54 >59 mmHg None defined
ECMO, Venous pH pCO ₂ pO ₂	M/F	All Ages	7.33-7.43 39-54 mmHg 30-40 mmHg	Low <7.31 <27 mmHg None defined	High >7.54 >59 mmHg None defined
Glucose	M/F	<1 day	40-60 mg/dL	Low <31 mg/dL	High >299 mg/dL
		1– 30 days	50-80 mg/dL	<31 mg/dL	>299 mg/dL
		1 – 11 months	60-99 mg/dL	<51 mg/dL	>499 mg/dL
		1- 59 years	74-99 mg/dL	<51 mg/dL	>499 mg/dL
		60 – 89 years	82-99 mg/dL	<51 mg/dL	>499 mg/dL
		≥ 90 years	75-99 mg/dL	<51 mg/dL	>499 mg/dL
Hematocrit	M	5 - 150 years	40-52%	Low <18%	High None defined
	F	5 - 150 years	35-46%	<18%	
Hemoglobin	M	11 - 150 years	13.6-18.0 g/dL	Low <6.0 g/dL	High None defined
	F	11 - 150 years	11.5-16.0 g/dL	<6.0 g/dL	
Lactate	All	0 min – 150 years	0.5-2.0 mmol/L	Low None defined	High >2.0 mmol/L



**LEGACY
LABORATORY
SERVICES**

TEST	SEX	AGE	REFERENCE RANGE	CRITICAL VALUE	
				Low	High
Oxygen Saturation, Arterial Blood	M/F	All Ages	94-99%	Low <76%	High None defined
Oxygen Saturation, Venous Blood	M/F	All Ages	60-85%	None defined	
pH, Arterial Blood	M/F	All Ages	7.35-7.45	Low <7.22	High >7.59
pH, Venous Blood	M/F	All Ages	7.33-7.43	Low <7.22	High >7.59
pCO ₂ , Arterial Blood	M/F	All Ages	34-46 mmHg	Low <21 mmHg	High >69 mmHg
pCO ₂ , Venous Blood	M/F	All Ages	39-54 mmHg	Low <11 mmHg	High >69 mmHg
pO ₂ , Arterial Blood	M/F	1 month - 60 years ≥60 years	80-100 mmHg 75-85 mmHg	Low <51 mmHg <51 mmHg	High None defined
pO ₂ , Venous Blood	M/F	All Ages	25-43 mmHg	None defined	
Potassium	M/F	>1 year	3.6-5.0 mmol/L	Low <2.9 mmol/L	High >6.1 mmol/L
Sodium	M/F	≥12 years	136-145 mmol/L	Low <121 mmol/L	High >159 mmol/L