



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

TEST	SEX	AGE	REFERENCE RANGE	CRITICAL VALUE	
<b>Base Excess</b>	M/F	All Ages	-3.0 to 3.0	None defined	
<b>Bicarbonate</b>	M/F	All Ages	22-26 mmol/L	None defined	
<b>Calcium, Ionized, Respiratory Therapy</b>	M/F	≥2 days	1.12-1.26 mmol/L	<b>Low</b> <0.76 mmol/L	<b>High</b> >1.49 mmol/L
<b>Carboxyhemoglobin, Arterial and Venous Blood</b>	M/F	All Ages Non-Smokers: Average Smokers: Heavy Smokers:	0.5-1.5% 1.5-5.0% 8.0-9.0%	<b>Low</b> None defined	<b>High</b> >20.0%
<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 mmol/L	<b>High</b> >125 mmol/L
<b>Creatinine</b>	M/F  M F	0 - 3 days 4 days - 1 month 2 months - 9 years 10 - 17 years ≥18 years ≥18 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 0.7-1.3 mg/dL 0.6-1.1 mg/dL	<b>Low</b> None defined	<b>High</b> >7.3 mg/dL
<b>ECMO, Arterial pH pCO<sub>2</sub> pO<sub>2</sub></b>	M/F	All Ages	7.35-7.45 34-46 mmHg 150-500 mmHg	<b>Low</b> <7.31 <27mmHg <91 mmHg	<b>High</b> >7.54 >59 mmHg None defined
<b>ECMO, Venous pH pCO<sub>2</sub> pO<sub>2</sub></b>	M/F	All Ages	7.33-7.43 39-54 mmHg 30-40 mmHg	<b>Low</b> <7.31 <27 mmHg None defined	<b>High</b> >7.54 >59 mmHg 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 <51 mg/dL <51 mg/dL <51 mg/dL <51 mg/dL	<b>High</b> >299 mg/dL >299 mg/dL >499 mg/dL >499 mg/dL >499 mg/dL >499 mg/dL
<b>Hematocrit</b>	M F	5 - 150 years 5 - 150 years	40-52% 35-46%	<b>Low</b> <18 % <18%	<b>High</b> None defined
<b>Hemoglobin</b>	M F	11 - 150 years 11 - 150 years	13.6-18.0 g/dL 11.5-16.0 g/dL	<b>Low</b> <6.0 g/dL <6.0 g/dL	<b>High</b> None defined
<b>Lactate</b>	All	0 min – 150 years	0.5-2.0 mmol/L	<b>Low</b> None defined	<b>High</b> >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 <sub>2</sub> , Arterial Blood	M/F	All Ages	34-46 mmHg	Low <21 mmHg	High >69 mmHg
pCO <sub>2</sub> , Venous Blood	M/F	All Ages	39-54 mmHg	Low <11 mmHg	High >69 mmHg
pO <sub>2</sub> , 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 <sub>2</sub> , 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	135-145 mmol/L	Low <121 mmol/L	High >159 mmol/L