

Test Update

Standardization of Electrolytes and Blood Gas Testing

UVM Health

On 12/9/2025 a major update and standardization change to all Electrolytes and Blood Gas testing in both Main Lab and POCT will be deployed across UVM Health sites. This will apply to testing performed on the Ortho Vitros 7600s chemistry analyzers, Rapid Point 500 and 500E (RP500) blood gas instruments, i-STAT POCT devices, and EPOC POCT devices.

Please refer to the tables below for information surrounding each analyte's updated reference range and Critical Values.

Analyte	Testing System	Sample Type	Patient Age	Reference Range	Critical Values
Sodium	All	Serum, Plasma, Whole Blood	All	136-145 mmol/L	<125 or >155 mmol/L
Potassium	All	Serum, Plasma, Whole Blood	0-1mo	3.7-5.9 mmol/L	<3 or ≥6 mmol/L
			1mo-1y	3.7-5.6 mmol/L	
			≥1y	3.5-5.0 mmol/L	
Chloride	Vitros 7600	Serum,	All	96-110 mmol/L	None
	i-STAT RP500	Plasma, Whole Blood			
TCO2	All	Serum, Plasma, Whole Blood	All	22-27 mmol/L	<10 or >40 mmol/L
	i-STAT RP500	Cord Arterial Cord Venous	N/A	14-22 mmol/L	None
Anion Gap	Vitros 7600 RP500	Serum, Plasma, Whole Blood	All	5-14	None
Ionized Calcium	i-STAT	Plasma, Whole Blood	0-6mo	1.00-1.50 mmol/L	<0.85 or >1.60 mmol/L
	EPOC		6mo-18y	1.14-1.35 mmol/L	<0.80 or >1.45 mmol/L
	RP500		≥18y	1.14-1.35 mmol/L	<0.80 or >1.60 mmol/L
Lactic Acid	i-STAT Vitros 7600 RP500	Plasma, Whole Blood	All	≤2 mmol/L	>2 mmol/L
Methemoglobin	RP500	Whole Blood	All	<1.5%	≥20%
Carboxyhemoglobin	RP500	Whole Blood	All	<5%	>15%
Base Excess	i-STAT	Whole Blood	All	-2.0 to 3.0	None
	EPOC	Cord Arterial	N/A	-7.0 to 1.8	≤-10
	RP500	Cord Venous	N/A	-7.0 to 0.6	≤-10

UVM Medical Center

Pathology & Laboratory Medicine

Location

111 Colchester Ave.
Burlington, VT 05401

Lab Customer Service

802-847-5121
800-991-2799



University of
Vermont Health

Test Update

Standardization of Electrolytes and Blood Gas Testing

UVM Health

Analyte	Testing System	Sample Type	Patient Age	Reference Range	Critical Values
pH	i-STAT EPOC RP500	Whole Blood	0-7d	7.29-7.45	<7.2 or >7.5
		Arterial	7d-6mo	7.35-7.45	
		Capillary	≥6mo	7.35-7.45	<7.2 or >7.55
		Whole Blood	0-6mo	7.31-7.41	<7.2 or >7.5
		Venous			
		Other	≥6mo	7.31-7.41	<7.2 or >7.55
		Cord Arterial	N/A	7.18-7.38	≤7.1
		Cord Venous	N/A	7.25-7.45	≤7.1
		Pleural Fluid	N/A	None	None
pCO ₂	i-STAT EPOC RP500	Whole Blood	0-1mo	27-41 mmHg	<20 or >70 mmHg
		Arterial	1mo-18y	35-45 mmHg	<20 or >70 mmHg
		Capillary	≥18y	35-45 mmHg	None
		Whole Blood	0-18y	41-51 mmHg	<20 or >70 mmHg
		Venous			
		Other	≥18y	41-51 mmHg	None
		Cord Arterial	N/A	42-71 mmHg	None
		Cord Venous	N/A	31-53 mmHg	None
pO ₂	i-STAT EPOC RP500	Whole Blood	0-7d	55-95 mmHg	None
		Arterial	≥7d	80-100 mmHg	
		Whole Blood	All	30-60 mmHg	
		Capillary			
		Whole Blood	All	30-50 mmHg	
		Venous			
		Other			
		Cord Arterial	N/A	<31 mmHg	None
		Cord Venous	N/A	17-41 mmHg	
O ₂ Saturation	i-STAT EPOC RP500	Whole Blood	All	95-98%	None
		Arterial			
		Whole Blood	All	60-85%	
		Capillary			None
		Whole Blood	All	60-80%	
		Venous			None
		Other			

For questions or concerns about this change please reach out to the Medical Director of Clinical Chemistry (clayton.wilburn@uvmhealth.org).

UVM Medical Center
Pathology & Laboratory Medicine

Location
111 Colchester Ave.
Burlington, VT 05401

Lab Customer Service
802-847-5121
800-991-2799