

Supplemental Data Table S1. Interference test of five endogenous interferents on electrolyte and metabolite levels in i-SmartCare 10 analyzer

Interferent		Analyte					
		Na ⁺ (mmol/L)	K ⁺ (mmol/L)	iCa ²⁺ (mmol/L)	Cl ⁻ (mmol/L)	Glucose (mmol/L)	Lactate (mmol/L)
K ⁺ (12 mmol/L)	Control	151	N/A	1.20	N/T	N/T	N/T
	Test	146	N/A	1.24	N/T	N/T	N/T
	Bias	--5	N/A	0.04	N/T	N/T	N/T
	%Bias	--3%	N/A	3%	N/T	N/T	N/T
iCa ²⁺ (5 mmol/L)	Control	151	3.75	N/A	N/T	N/T	N/T
	Test	153	3.80	N/A	N/T	N/T	N/T
	Bias	2	0.05	N/A	N/T	N/T	N/T
	%Bias	1%	1%	N/A	N/T	N/T	N/T
Mg ²⁺ (5 mmol/L)	Control	142	3.20	1.33	N/T	N/T	N/T
	Test	143	3.20	1.47	N/T	N/T	N/T
	Bias	1	0.00	0.14	N/T	N/T	N/T
	%Bias	1%	0%	11%	N/T	N/T	N/T
Lactate (10 mmol/L)	Control	N/T	N/T	N/T	107	N/T	N/A
	Test	N/T	N/T	N/T	107	N/T	N/A
	Bias	N/T	N/T	N/T	0	N/T	N/A
	%Bias	N/T	N/T	N/T	0%	N/T	N/A
Uric Acid (12 mmol/L)	Control	N/T	N/T	N/T	N/T	3.11	5.00
	Test	N/T	N/T	N/T	N/T	3.05	5.20
	Bias	N/T	N/T	N/T	N/T	-0.06	0.20
	%Bias	N/T	N/T	N/T	N/T	-2%	4%
CLIA criteria		±4	±0.5	±2%*	±5%	±6	±30%*

Deviations from the preset criteria are indicated in bold.

*Ricos allowable total error was applied for iCa²⁺ (allowable total error in serum sample) and lactate since CLIA criteria for these analytes were not available. Abbreviations: CLIA, Clinical Laboratory Improvement Amendments; N/A, not applicable; N/T, not tested

Supplemental Data Table S2. Spearman's rank correlation coefficient (r) for five blood gas analyzers and the comparator (i-Smart-Care 10)

Analyte	N	ABL90 FLEX PLUS	Gem Premier 5000	Stat Profile pHOx Ultra	RapidLab 1265	i-Stat
pH	182	0.98	0.98	0.95	0.95	0.92
pCO ₂	193	0.98	0.98	0.97	0.95	0.92
pO ₂	195	0.93	0.94	0.92	0.86	0.84
Na ⁺	194	0.95	0.96	0.94	0.95	0.93
K ⁺	195	1.00	1.00	0.99	0.99	0.99
Cl ⁻	203	0.97	0.96	0.90	0.94	Not tested
iCa ²⁺	195	0.97	0.96	0.93	0.95	0.95
Glucose	187	0.99	0.99	0.97	0.99	0.99
Lactate	209	0.98	0.98	0.97	0.98	Not tested
Hct	192	0.89	0.93	0.95	0.89	0.94

Correlation coefficients (r) < 0.9 are indicated in bold.
Abbreviation: Hct, hematocrit.

Supplemental Data Table S3. Measurement principles of point-of-care analyzers included in the study

Analyte	i-SmartCare 10	ABL90 FLEX PLUS	RapidLab 1265	Stat Profile pH0x Ultra	i-Stat	Gem Premier 5000
pH	ISE	Glass electrode	ISE	ISE	ISE	ISE
pCO ₂	pH selective membrane	Severinghaus electrode	Severinghaus electrode	ISE	ISE	Patented design with pH selective membrane
pO ₂	Amperometry	Optical system	Amperometry	Amperometry	Amperometry	Amperometry
Na ⁺	ISE	ISE	ISE	ISE	ISE	ISE
K ⁺	ISE	ISE	ISE	ISE	ISE	ISE
iCa ²⁺	ISE	ISE	ISE	ISE	ISE	ISE
Cl ⁻	ISE	ISE	ISE	ISE	Not tested	ISE
Glucose	Amperometry	Amperometry	Enzymatic-amperometric electrode	Enzymatic-amperometric electrode	Enzymatic-amperometric electrode	Enzymatic-amperometric electrode
Lactate	Amperometry	Amperometry	Enzymatic-amperometric electrode	Enzymatic-amperometric electrode	Not tested	Enzymatic-amperometric electrode

Abbreviation: ISE, ion-selective electrode.