

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: minimal size of groups n = 5

EQA round: AKS1/19 - Basic Clinical Chemistry - Serum

Dead line: 01.02.2019

RoM = robust average	AV = assigned value	Dmax = acceptable percent difference
SD = standard deviation	CRV = certified reference value	LL = lower limit
CV = coefficient of variation	RV = reference value	UL = upper limit
Ntot = total number of participants	CVE = consensus value from experts	Neva = number of evaluated participants
Nout = number of results excluded before calculation	CVP = consensus value from all participants	Nsuc = number of successful participants
	CVPG = consensus value from participants groups	Srel = success (relative)
	U _{AV} = expanded uncertainty of the assigned value (k = 2)	

Test	[unit]	Comparability						Traceability															
		RoM	SD	CV [%]	N _{tot}	N _{out}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	
(1) Sodium					187																187	185	99%
Samples and groups	[mmol/L]																						
Sample A		136	2,3	1,7	187									CRV	136,3	2,0	5%	129	144	187	186	99%	
(2) Indirect ISE		136	2,2	1,6	164	0															164		
(3) Direct ISE		137	3,3	2,4	22	0															22		
Other					1	0															1		
														1x 99									
Sample B		132	2,1	1,6	187									CRV	132,1	2,0	5%	125	139	187	185	99%	
(2) Indirect ISE		131	2,0	1,5	164	0															164		
(3) Direct ISE		132	2,7	2,1	22	0															22		
Other					1	0															1		
														1x 99									
(2) Potassium					187																187	186	99%
Samples and groups	[mmol/L]																						
Sample A		6,86	0,14	2,0	187									CRV	6,788	0,100	7%	6,31	7,27	187	186	99%	
(2) Indirect ISE		6,85	0,13	1,9	164	0															164		
(3) Direct ISE		6,89	0,16	2,4	22	0															22		
Other					1	0															1		
														1x 99									
Sample B		4,97	0,09	2,0	187									CRV	4,924	0,074	7%	4,57	5,27	187	187	100%	
(2) Indirect ISE		4,98	0,09	1,9	164	0															164		
(3) Direct ISE		4,97	0,12	2,3	22	0															22		
Other					1	0															1		
														1x 99									
(3) Chloride					187							187	185	99%									0
Samples and groups	[mmol/L]																						
Sample A		121	3,0	2,5	187	CVP	121	0,55	7%	112	130	187	186	99%									0
(3) Indirect ISE		121	3,0	2,5	163	0						163											
(4) Direct ISE		122	2,9	2,3	21	0						21											
Other					3	0						3											
Sample B		114	2,7	2,4	187	CVP	114	0,48	7%	106	122	187	185	99%									0
(3) Indirect ISE		114	2,7	2,4	163	0						163											
(4) Direct ISE		114	2,3	2,0	21	0						21											
Other					3	0						3											
(4) Calcium					175																175	173	99%
Samples and groups	[mmol/L]																						
Sample A		2,98	0,05	1,9	175									CRV	2,956	0,045	8%	2,71	3,2	175	174	99%	
(2) Phot. with o-cresolftalexon		2,98	0,09	3,3	20	0															20		
(3) Photom. with arsenazo III		2,98	0,05	1,9	97	0															97		

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: minimal size of groups n = 5

EQA round: AKS1/19 - Basic Clinical Chemistry - Serum

Dead line: 01.02.2019

Test	[unit]	Comparability						Traceability																	
		RoM	SD	CV [%]	N _{tot}	N _{out}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}			
(4) Calcium	[mmol/L]				175							0									175	173	99%		
Samples and groups																									
Sample A		2,98	0,05	1,9	175							0		CRV	2,956	0,045	8%	2,71	3,2		175	174	99%		
(4) Photomet. with NM-BAPTA		2,98	0,04	1,6	51	0															51				
(6) ISE		2,93	0,06	2,3	6	0															6				
Other					1	1															1				
Sample B		3,49	0,07	2,0	175							0		CRV	3,488	0,052	8%	3,2	3,77		175	173	99%		
(2) Phot. with o-cresolftalexon		3,50	0,09	2,6	20	0															20				
(3) Photom. with arsenazo III		3,47	0,07	2,0	97	0															97				
(4) Photomet. with NM-BAPTA		3,52	0,05	1,7	51	0															51				
(6) ISE		3,46	0,08	2,4	6	0															6				
Other					1	1															1				
														1x 0											
(5) Inorganic phosphate	[mmol/L]				166							166	160	96%									0		
Samples and groups																									
Sample A		1,73	0,05	2,9	166	CVP	1,73	0,096	10%	1,55	1,91	166	162	98%									0		
(1) UV-molybdate method		1,73	0,05	3,0	162	0						162													
Other					4	0						4													
Sample B		1,01	0,03	3,5	166	CVP	1,01	0,068	10%	0,909	1,12	166	161	97%									0		
(1) UV-molybdate method		1,01	0,03	3,6	162	0						162													
Other					4	0						4													
						4x 2																			
(6) Iron	[µmol/L]				156							156	155	99%									0		
Samples and groups																									
Sample A		32,6	0,67	2,1	156	CVP	32,6	0,13	15%	27,7	37,5	156	156	100%									0		
(2) Method with ferrozine/ferene		32,6	0,68	2,1	117	0						117													
(4) Method with TPTZ		32,4	0,67	2,1	39	0						39													
Sample B		20,8	0,57	2,7	156	CVP	20,8	0,11	15%	17,6	24	156	155	99%									0		
(2) Method with ferrozine/ferene		20,8	0,54	2,6	117	0						117													
(4) Method with TPTZ		20,5	0,61	3,0	39	0						39													
(7) Magnesium	[mmol/L]				167																		167	158	95%
Samples and groups																									
Sample A		1,89	0,06	3,5	167									CRV	1,859	0,028	15%	1,58	2,14		167	167	100%		
(2) Photometry		1,88	0,06	3,5	142	0																	142		
(4) UV enzyme method		1,92	0,05	2,6	25	0																	25		
Sample B		0,800	0,03	3,8	167									CRV	0,755	0,011	15%	0,641	0,869		167	158	95%		
(2) Photometry		0,803	0,03	3,8	142	0																	142		
(4) UV enzyme method		0,782	0,02	3,4	25	0																	25		
(8) Lithium	[mmol/L]				28							28	24	86%										0	
Samples and groups																									
Sample A		0,776	0,03	4,9	28	CVP	0,776	0,018	12%	0,682	0,87	28	26	93%									0		
(1) Flame emission phot.		0,765	0,02	2,9	7	0						7													
(3) ISE		0,795	0,00	0,93	9	0						9													
(4) Photometry		0,755	0,04	6,1	11	0						11													
Other					1	0						1													
						1x 2																			

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: minimal size of groups n = 5

EQA round: AKS1/19 - Basic Clinical Chemistry - Serum

Dead line: 01.02.2019

Test	[unit]	Comparability						Traceability															
		RoM	SD	CV [%]	N _{tot}	N _{out}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	
Sample B		1,43	0,07	5,4	28		CVP	1,43	0,036	12%	1,25	1,61	28	26	93%								0
(1) Flame emission phot.		1,45	0,06	4,6	7	0							7										
(3) ISE		1,42	0,09	6,8	9	0							9										
(4) Photometry		1,43	0,06	4,7	11	0							11										
Other					1	0							1										
							1x2																
(9) Total protein					180								0								180	177	98%
Samples and groups	[g/L]																						
Sample A		68,9	1,9	2,7	180								0		CRV	69,46	0,82	9%	63,2	75,8	180	178	99%
(1) Biuret		68,9	1,9	2,7	180	0															180		
Sample B		66,2	1,6	2,5	180								0		CRV	66,01	0,78	9%	60	72	180	179	99%
(1) Biuret		66,2	1,6	2,5	180	0															180		
(10) Albumin					175								175	174	99%								0
Samples and groups	[g/L]																						
Sample A		44,9	1,2	2,7	175		CVP	44,9	0,23	10%	40,4	49,4	175	174	99%								0
(1) BCG		44,9	1,2	2,8	160	0							160										
(2) BCP		44,2	0,90	2,0	15	0							15										
Sample B		42,1	1,4	3,2	175		CVP	42,1	0,25	10%	37,8	46,4	175	174	99%								0
(1) BCG		42,2	1,3	3,0	160	0							160										
(2) BCP		40,4	1,1	2,8	15	0							15										
(11) Osmolality					78								78	73	94%								0
Samples and groups	[mmol/kg]																						
Sample A		317	5,9	1,9	78		CVP	317	1,6	5%	301	333	78	75	96%								0
(1) Osmometer		317	5,9	1,9	78	0							78										
Sample B		311	5,2	1,7	78		CVP	311	1,4	5%	295	327	78	75	96%								0
(1) Osmometer		311	5,2	1,7	78	0							78										
(12) Lactate					92								92	91	99%								0
Samples and groups	[mmol/L]																						
Sample A		4,91	0,19	3,9	92		CVP	4,91	0,049	15%	4,17	5,65	92	92	100%								0
(1) UV enzyme method		4,89	0,19	3,9	39	0							39										
(2) Enzyme electrodes		4,97	0,16	3,1	9	0							9										
(3) Photometric enzyme method		4,92	0,18	3,7	44	0							44										
Sample B		1,89	0,08	4,6	92		CVP	1,89	0,022	15%	1,6	2,18	92	91	99%								0
(1) UV enzyme method		1,89	0,07	3,9	39	0							39										
(2) Enzyme electrodes		2,00	0,15	7,4	9	0							9										
(3) Photometric enzyme method		1,88	0,07	4,1	44	0							44										
(13) Bilirubin total					186								0								186	180	97%
Samples and groups	[µmol/L]																						
Sample A		77,8	5,2	6,7	186								0		CRV	73,9	1,7	21%	58,3	89,5	186	181	97%
(1) Jendrassik-Gróf		78,8	5,3	6,7	28	0																	28
(2) DCA, DPD		77,1	4,7	6,0	140	0																	140
(4) Oxidation-reduction methods		83,2	4,0	4,8	17	0																	17
Other					1	0																	1
Sample B		26,5	2,6	9,8	186								0		1x0 CRV	25,4	0,70	21%	20	30,8	186	183	98%

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: minimal size of groups n = 5

EQA round: AKS1/19 - Basic Clinical Chemistry - Serum

Dead line: 01.02.2019

Test	[unit]	Comparability					Traceability								
		RoM	SD	CV [%]	N _{tot}	N _{out}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	
(13) Bilirubin total					186										
Samples and groups	[µmol/L]														
Sample B		26,5	2,6	9,8	186										
(1) Jendrassik-Gróf		26,7	2,5	9,4	28	0					CRV	25,4	0,70	21%	20 30,8
(2) DCA, DPD		26,3	2,7	10	140	0									
(4) Oxidation-reduction methods		27,8	1,1	3,8	17	0									
Other					1	0									1
											1x0				
(15) Cholesterol					177										
Samples and groups	[mmol/L]														
Sample A		3,89	0,14	3,6	177										
(1) Enzyme method CHOD-PAP		3,90	0,13	3,4	170	0					CRV	4,027	0,040	9%	3,66 4,39
(1) Enzyme method CHOD-PAP; (149) Siemens (Dade)		3,55	0,08	2,5	7	0	CVPG	3,55	0,086	6,5%	3,31	3,79			7
Sample B		3,70	0,14	3,7	177										
(1) Enzyme method CHOD-PAP		3,71	0,13	3,5	170	0					CRV	3,696	0,037	9%	3,36 4,03
(1) Enzyme method CHOD-PAP; (149) Siemens (Dade)		3,42	0,08	2,4	7	0	CVPG	3,42	0,079	6,5%	3,19	3,65			7
(16) Glucose					189										
Samples and groups	[mmol/L]														
Sample A		11,6	0,28	2,4	189										
(1) GOD photometry		11,6	0,37	3,2	40	0					CRV	11,32	0,11	8%	10,4 12,3
(2) GOD electrochemical		11,4	0,13	1,2	5	0									5
(3) Method with hexokinase		11,6	0,26	2,2	144	0									144
Sample B		4,41	0,11	2,6	189										
(1) GOD photometry		4,47	0,12	2,8	40	0					CRV	4,29	0,043	8%	3,94 4,64
(2) GOD electrochemical		4,37	0,05	1,2	5	0									5
(3) Method with hexokinase		4,39	0,10	2,4	144	0									144
(17) Uric acid					184										
Samples and groups	[µmol/L]														
Sample A		364	13	3,7	184										
(2) Enzyme-photomet. m.		364	13	3,7	184	0					CRV	361,2	3,6	12%	317 405
Sample B		461	15	3,4	184										
(2) Enzyme-photomet. m.		461	15	3,4	184	0					CRV	454,5	4,5	12%	399 510
(18) Urea					186										
Samples and groups	[mmol/L]														
Sample A		19,8	0,63	3,2	186										
(1) UV enzymatic m.(GMD)		19,8	0,63	3,2	181	0					CRV	19,92	0,20	15%	16,9 23
(5) Electrochemical m.		20,1	0,37	1,8	5	0									5
Sample B		30,8	1,1	3,6	186										
(1) UV enzymatic m.(GMD)		30,7	1,1	3,6	181	0					CRV	31,03	0,31	15%	26,3 35,7
(5) Electrochemical m.		31,4	0,74	2,4	5	0									5
(19) Creatinine					188										
Samples and groups	[µmol/L]														
Sample A		345	13	3,6	188										
											CRV	343,3	3,4	13%	298 388

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: minimal size of groups n = 5

EQA round: AKS1/19 - Basic Clinical Chemistry - Serum

Dead line: 01.02.2019

Test	[unit]	Comparability					Traceability																
		RoM	SD	CV [%]	N _{tot}	N _{out}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	
(19) Creatinine					188							0									188	186	99%
Samples and groups	[µmol/L]																						
Sample A		345	13	3,6	188							0		CRV	343,3	3,4	13%	298	388	188	187	99%	
(1) Jaffe		343	15	4,4	89	0															89		
(3) Enzyme		346	10	3,0	99	0															99		
Sample B		387	14	3,7	188							0		CRV	381,6	3,8	13%	331	432	188	187	99%	
(1) Jaffe		382	15	4,0	89	0															89		
(3) Enzyme		391	12	3,0	99	0															99		
(20) Triglycerides					178							0									178	170	96%
Samples and groups	[mmol/L]																						
Sample A		1,00	0,06	6,8	178							0		CRV	0,955	0,100	15%	0,811	1,1	178	172	97%	
(1) Photometric enzyme (GPO-PAP)		1,00	0,06	6,8	172	0															172		
(2) Enzymatic UV method		1,05	0,03	2,8	6	0															6		
Sample B		1,70	0,06	3,9	178							0		CRV	1,67	0,022	15%	1,41	1,93	178	175	98%	
(1) Photometric enzyme (GPO-PAP)		1,70	0,06	3,9	172	0															172		
(2) Enzymatic UV method		1,74	0,05	3,0	6	0															6		
(21) ALP					184							0									184	178	97%
Samples and groups	[µkat/L]																						
Sample A		6,38	0,87	14	184							0		CRV	6,536	0,018	24%	4,96	8,11	184	179	97%	
(3) IFCC method		6,38	0,88	14	183	0															183		
Other					1	0															1		
Sample B		3,44	0,45	13	184							0		CRV	3,522	0,095	24%	2,67	4,37	184	179	97%	
(3) IFCC method		3,44	0,45	13	183	0															183		
Other					1	0															1		
(22) alpha-amylase					178							7	7	100%							171	169	99%
Samples and groups	[µkat/L]																						
Sample A		5,04	0,26	5,2	178							7	7	100%							171	171	100%
(1) IFCC method		5,02	0,25	4,9	171	0								CRV	5,084	0,030	15%	4,32	5,85	171			
(1) IFCC method; (149) Siemens (Dade)		6,13	0,13	2,2	7	0	CVPG	6,13	0,13	9,5%	5,54	6,72	7										
Sample B		7,29	0,42	5,7	178							7	7	100%							171	169	99%
(1) IFCC method		7,26	0,39	5,4	171	0								CRV	7,265	0,20	15%	6,17	8,36	171			
(1) IFCC method; (149) Siemens (Dade)		9,16	0,16	1,8	7	0	CVPG	9,16	0,16	9,5%	8,28	10,1	7										
(23) AST					186							0									186	181	97%
Samples and groups	[µkat/L]																						
Sample A		2,45	0,11	4,6	186							0		CRV	2,444	0,017	15%	2,07	2,82	186	181	97%	
(1) IFCC method		2,45	0,11	4,6	186	0															186		
Sample B		1,68	0,07	4,6	186							0		CRV	1,684	0,037	15%	1,43	1,94	186	185	99%	
(1) IFCC method		1,68	0,07	4,6	186	0															186		
(24) ALT					187							0									187	180	96%
Samples and groups	[µkat/L]																						
Sample A		3,82	0,16	4,2	187							0		CRV	3,847	0,020	15%	3,26	4,43	187	186	99%	
(1) IFCC method		3,82	0,16	4,2	187	0															187		
Sample B		1,87	0,08	4,6	187							0		CRV	1,829	0,048	15%	1,55	2,11	187	180	96%	

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: minimal size of groups n = 5

EQA round: AKS1/19 - Basic Clinical Chemistry - Serum

Dead line: 01.02.2019

Test	[unit]	Comparability						Traceability															
		RoM	SD	CV [%]	N _{tot}	N _{out}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	AV	U _{AV}	D _{max}	LL	UL	N _{eva}	N _{suc}	S _{rel}	
(29) Lipase					110							99	97	98%									0
Samples and groups	[µkat/L]																						
Sample B		1,36	0,17	13	110							99	98	99%									0
(0) Not specified; (179) Siemens (Bayer)		1,74	0,17	9,8	6	0	CVPG	1,74	0,24	24%	1,32	2,16											
Other					11	0																	
								1x 0/5, 1x 0/49, 3x 0/149, 1x 0/177, 3x 0/178, 2x 0/999															
(30) Cholinesterase					76							74	73	99%									0
Samples and groups	[µkat/L]																						
Sample A		139	4,7	3,4	76							74	73	99%									0
(1) Standard method		139	4,4	3,2	74	0	CVP	139	1,3	12%	122	156											
Other					2	0																	
								2x 1/149															
Sample B		111	4,0	3,6	76							74	73	99%									0
(1) Standard method		111	3,8	3,4	74	0	CVP	111	1,1	12%	97,6	125											
Other					2	0																	
								2x 1/149															
(31) Albumin (elpho)					58							58	58	100%									0
Samples and groups	[-]																						
Sample A		0,636	0,04	6,6	58		CVP	0,636	0,014	15%	0,54	0,732											0
(0) Not specified		0,636	0,04	6,6	58	0																	
Sample B		0,621	0,03	6,0	58		CVP	0,621	0,012	15%	0,527	0,715											0
(0) Not specified		0,621	0,03	6,0	58	0																	
(32) gamma-globuline (elpho)					58							58	57	98%									0
Samples and groups	[-]																						
Sample A		0,126	0,01	9,4	58		CVP	0,126	,0038	30%	0,088	0,164											0
(0) Not specified		0,126	0,01	9,4	58	0																	
Sample B		0,138	0,01	9,5	58		CVP	0,138	,0043	30%	0,096	0,18											0
(0) Not specified		0,138	0,01	9,5	58	0																	
(35) alpha-amylase pancreatic					69							69	68	99%									0
Samples and groups	[µkat/L]																						
Sample A		4,27	0,15	3,4	69		CVP	4,27	0,043	10%	3,84	4,7											0
(1) With IFCC calibration		4,27	0,15	3,4	69	0																	
Sample B		6,45	0,22	3,4	69		CVP	6,45	0,066	10%	5,8	7,1											0
(1) With IFCC calibration		6,45	0,22	3,4	69	0																	
(36) Calcium ionised					33							33	31	94%									0
Samples and groups	[mmol/L]																						
Sample A		1,82	0,06	3,5	33		CVP	1,82	0,027	10%	1,63	2,01											0
(2) Direct ISE		1,82	0,06	3,5	30	0																	
Other					3	0																	
								3x 1															
Sample B		2,31	0,11	4,8	33		CVP	2,31	0,047	10%	2,07	2,55											0
(2) Direct ISE		2,31	0,12	5,2	30	0																	
Other					3	0																	
								3x 1															