

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: Slovakia, minimal size of the groups n = 5

EQA round: AKS1/22 - Basic Clinical Chemistry - Serum

Deadline: 28.01.2022

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 the 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	[mmol/L]				53							0								53	51	96%
Samples and groups																						
Sample A		150	2,3	1,6	53							0		CRV	150,9	2,3	5%	143	159	53	51	96%
(2) Indirect ISE		150	2,3	1,5	49	0														49		
Other					4	0														4		
														3x 3, 1x 99								
Sample B		131	1,8	1,4	53							0		CRV	133,1	2,0	5%	126	140	53	52	98%
(2) Indirect ISE		131	1,8	1,3	49	0														49		
Other					4	0														4		
														3x 3, 1x 99								
(2) Potassium	[mmol/L]				53							0								53	51	96%
Samples and groups																						
Sample A		3,86	0,08	2,2	53							0		CRV	3,799	0,057	7%	3,53	4,07	53	52	98%
(2) Indirect ISE		3,85	0,08	2,2	49	0														49		
Other					4	0														4		
														3x 3, 1x 99								
Sample B		5,76	0,08	1,5	53							0		CRV	5,736	0,086	7%	5,33	6,14	53	51	96%
(2) Indirect ISE		5,76	0,09	1,6	49	0														49		
Other					4	0														4		
														3x 3, 1x 99								
(3) Chloride	[mmol/L]				53							53	50	94%								0
Samples and groups																						
Sample A		140	3,1	2,2	53		CVP	140	0,53	7%	130	150								53	51	96%
(3) Indirect ISE		140	2,9	2,1	49	0														49		
Other					4	0														4		
							1x 2, 3x 4															
Sample B		115	3,0	2,6	53		CVP	115	0,50	7%	106	124								53	52	98%
(3) Indirect ISE		115	2,9	2,5	49	0														49		
Other					4	0														4		
							1x 2, 3x 4															
(4) Calcium	[mmol/L]				51							0								51	49	96%
Samples and groups																						
Sample A		2,46	0,06	2,5	51							0		CRV	2,452	0,037	8%	2,25	2,65	51	49	96%
(2) Phot. with o-cresolftalexon		2,47	0,03	1,2	7	0														7		
(3) Photom. with arsenazo III		2,42	0,05	2,3	24	0														24		
(4) Photomet. with NM-BAPTA		2,49	0,06	2,4	20	0														20		
Sample B		3,41	0,09	2,8	51							0		CRV	3,421	0,051	8%	3,14	3,7	51	51	100%
(2) Phot. with o-cresolftalexon		3,44	0,04	1,3	7	0														7		
(3) Photom. with arsenazo III		3,35	0,12	3,5	24	0														24		
(4) Photomet. with NM-BAPTA		3,46	0,07	2,2	20	0														20		

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		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}		
(5) Inorganic phosphate	[mmol/L]				50							50	48	96%								0		
Samples and groups																								
Sample A		1,90	0,06	3,4	50	CVP	1,9	,0090	10%	1,71	2,09	50	49	98%								0		
(1) UV-molybdate method		1,90	0,06	3,4	48	0						48												
Other					2	0						2												
						2x2																		
Sample B		1,33	0,05	3,8	50	CVP	1,33	,0068	10%	1,19	1,47	50	49	98%								0		
(1) UV-molybdate method		1,33	0,05	3,8	48	0						48												
Other					2	0						2												
						2x2																		
(6) Iron	[µmol/L]				46							46	44	96%								0		
Samples and groups																								
Sample A		16,3	0,80	4,9	46	CVP	16,2	0,11	15%	13,7	18,7	46	44	96%								0		
(2) Method with ferrozine/ferene		16,4	0,87	5,3	36	0						36												
(4) Method with TPTZ		15,9	0,21	1,3	10	0						10												
Sample B		43,5	1,4	3,3	46	CVP	43,1	0,21	15%	36,6	49,6	46	44	96%								0		
(2) Method with ferrozine/ferene		43,6	1,5	3,4	36	0						36												
(4) Method with TPTZ		42,8	1,2	2,9	10	0						10												
(7) Magnesium	[mmol/L]				51							0										51	51	100%
Samples and groups																								
Sample A		1,45	0,03	2,7	51							0		CRV	1,45	0,022	15%	1,23	1,67		51	51	100%	
(2) Photometry		1,45	0,03	2,5	41	0																41		
(4) UV enzyme method		1,47	0,05	3,9	10	0																10		
Sample B		1,58	0,04	2,8	51							0		CRV	1,577	0,029	15%	1,34	1,82		51	51	100%	
(2) Photometry		1,57	0,04	2,6	41	0																41		
(4) UV enzyme method		1,60	0,06	4,0	10	0																10		
(8) Lithium	[mmol/L]				10							0										10	10	100%
Samples and groups																								
Sample A		1,71	0,03	2,2	10							0		CRV	1,793	0,027	12%	1,57	2,01		10	10	100%	
(4) Photometry		1,71	0,03	2,0	8	0																8		
Other					2	0																2		
														2x3										
Sample B		1,24	0,03	2,6	10							0		CRV	1,285	0,034	12%	1,13	1,44		10	10	100%	
(4) Photometry		1,25	0,03	3,0	8	0																8		
Other					2	0																2		
														2x3										
(9) Total protein	[g/L]				51							0										51	51	100%
Samples and groups																								
Sample A		53,4	1,4	2,7	51							0		CRV	54	1,3	9%	49,1	58,9		51	51	100%	
(1) Biuret		53,4	1,4	2,7	51	0																51		
Sample B		62,2	1,6	2,5	51							0		CRV	62,3	1,5	9%	56,6	68		51	51	100%	
(1) Biuret		62,2	1,6	2,5	51	0																51		
(10) Albumin	[g/L]				48							48	46	96%								0		
Samples and groups																								
Sample A		34,3	1,6	4,6	48	CVP	34,5	0,24	10%	31	38	48	46	96%								0		

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		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}	
(10) Albumin					48							48	46	96%							0		
Samples and groups	[g/L]																						
Sample A		34,3	1,6	4,6	48	CVP	34,5	0,24	10%	31	38	48	46	96%							0		
(1) BCG		34,4	1,5	4,3	46	0						46											
Other					2	0						2											
						2x 2																	
Sample B		40,0	1,7	4,2	48	CVP	40,3	0,26	10%	36,2	44,4	48	47	98%							0		
(1) BCG		40,1	1,6	4,0	46	0						46											
Other					2	0						2											
						2x 2																	
(11) Osmolality					16							16	15	94%							0		
Samples and groups	[mmol/kg]																						
Sample A		330	5,8	1,8	16	CVP	328	1,3	5%	311	345	16	15	94%							0		
(1) Osmometer		330	5,8	1,8	16	0						16											
Sample B		302	4,9	1,6	16	CVP	301	1,5	5%	285	317	16	16	100%							0		
(1) Osmometer		302	4,9	1,6	16	0						16											
						3x 1, 3x 2																	
(12) Lactate					21							21	21	100%							0		
Samples and groups	[mmol/L]																						
Sample A		3,42	0,15	4,3	21	CVP	3,45	0,029	15%	2,93	3,97	21	21	100%							0		
(3) Photometric enzyme method		3,41	0,13	3,7	15	0						15											
Other					6	0						6											
						3x 1, 3x 2																	
Sample B		2,97	0,09	3,3	21	CVP	3	0,024	15%	2,55	3,45	21	21	100%							0		
(3) Photometric enzyme method		2,97	0,07	2,6	15	0						15											
Other					6	0						6											
						3x 1, 3x 2																	
(13) Bilirubin total					53							0									53	51	96%
Samples and groups	[µmol/L]																						
Sample A		60,4	5,1	8,5	53							0		CRV	58,7	1,3	21%	46,3	71,1		53	51	96%
(2) DCA, DPD		60,4	5,2	8,5	52	0															52		
Other					1	0															1		
														1x 1									
Sample B		31,8	3,1	9,7	53							0		CRV	31,2	0,70	21%	24,6	37,8		53	52	98%
(2) DCA, DPD		31,9	3,1	9,7	52	0															52		
Other					1	0															1		
														1x 1									
(15) Cholesterol					51							0									51	45	88%
Samples and groups	[mmol/L]																						
Sample A		3,07	0,10	3,4	51							0									51	46	90%
(1) Enzyme method CHOD-PAP		3,07	0,10	3,4	51	0								CRV	3,222	0,032	9%	2,93	3,52		51		
Sample B		3,37	0,09	2,8	51							0									51	49	96%
(1) Enzyme method CHOD-PAP		3,37	0,09	2,8	51	0								CRV	3,438	0,034	9%	3,12	3,75		51		
(16) Glucose					53							0									53	52	98%
Samples and groups	[mmol/L]																						
Sample A		5,30	0,16	3,0	53							0		CRV	5,369	0,054	8%	4,93	5,8		53	53	100%
(1) GOD photometry		5,36	0,15	2,7	10	0															10		

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(16) Glucose	[mmol/L]				53							0									53	52	98%	
Samples and groups																								
Sample A		5,30	0,16	3,0	53							0	CRV	5,369	0,054	8%	4,93	5,8		53	53	100%		
(3) Method with hexokinase		5,29	0,16	3,0	43	0														43				
Sample B		5,74	0,18	3,1	53							0	CRV	5,824	0,058	8%	5,35	6,29		53	52	98%		
(1) GOD photometry		5,81	0,16	2,8	10	0														10				
(3) Method with hexokinase		5,72	0,18	3,1	43	0														43				
(17) Uric acid	[µmol/L]				51							0									51	51	100%	
Samples and groups																								
Sample A		242	9,8	4,1	51							0	CRV	247,8	2,9	12%	218	278		51	51	100%		
(2) Enzyme-photomet. m.		242	9,8	4,1	51	0														51				
Sample B		607	20	3,3	51							0	CRV	613	6,1	12%	539	687		51	51	100%		
(2) Enzyme-photomet. m.		607	20	3,3	51	0														51				
(18) Urea	[mmol/L]				53							0									53	52	98%	
Samples and groups																								
Sample A		14,7	0,48	3,3	53							0	CRV	15,2	0,15	15%	12,9	17,5		53	52	98%		
(1) UV enzymatic m.(GMD)		14,7	0,48	3,3	53	0														53				
Sample B		14,6	0,56	3,8	53							0	CRV	15,19	0,15	15%	12,9	17,5		53	53	100%		
(1) UV enzymatic m.(GMD)		14,6	0,56	3,8	53	0														53				
(19) Creatinine	[µmol/L]				53							0									53	53	100%	
Samples and groups																								
Sample A		482	18	3,8	53							0	CRV	489,9	5,3	13%	426	554		53	53	100%		
(1) Jaffe		474	17	3,5	28	0														28				
(3) Enzyme		491	13	2,7	25	0														25				
Sample B		142	7,2	5,1	53							0	CRV	143,5	1,4	13%	124	163		53	53	100%		
(1) Jaffe		142	8,7	6,2	28	0														28				
(3) Enzyme		143	5,1	3,6	25	0														25				
(20) Triacylglycerols	[mmol/L]				51							0									51	50	98%	
Samples and groups																								
Sample A		1,37	0,06	4,4	51							0	CRV	1,321	0,013	15%	1,12	1,52		51	50	98%		
(1) Photometric enzyme (GPO-PAP)		1,36	0,06	4,4	49	0														49				
Other					2	0														2				
Sample B		2,24	0,06	3,0	51							0	CRV	2,221	0,022	15%	1,88	2,56		51	50	98%		
(1) Photometric enzyme (GPO-PAP)		2,24	0,06	2,9	49	0														49				
Other					2	0														2				
													2x2											
(21) ALP	[µkat/L]				51							47	47	100%							51	51	100%	
Samples and groups																								
Sample A		6,95	0,63	9,0	51							47	47	100%	CRV	7,17	0,20	20%	5,73	8,61		51	51	100%
(3) IFCC method; (1) Abbott		7,07	0,23	3,2	10	0	CVPG	7,15	0,14	15%	6,07	8,23	10											
(3) IFCC method		6,95	0,63	9,0	51	0																51		
(3) IFCC method; (58) Beckman Coulter (AU)		7,82	0,41	5,2	10	0	CVPG	7,8	0,23	15%	6,63	8,97	10											
(3) IFCC method; (60) Roche		6,46	0,23	3,6	22	0	CVPG	6,59	0,074	15%	5,6	7,58	22											

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(21) ALP					51							47	47	100%							51	51	100%
Samples and groups	[µkat/L]																						
Sample A		6,95	0,63	9,0	51							47	47	100%	CRV	7,17	0,20	20%	5,73	8,61	51	51	100%
Other					9	0						5											
							1x 3/12, 3x 3/46, 1x 3/85, 1x 3/177, 2x 3/178, 1x 3/179																
Sample B		4,30	0,32	7,5	51							47	47	100%	CRV	4,45	0,13	20%	3,56	5,34	51	51	100%
(3) IFCC method; (1) Abbott		4,32	0,18	4,1	10	0	CVPG	4,38	0,089	15%	3,72	5,04											
(3) IFCC method		4,30	0,32	7,5	51	0															51		
(3) IFCC method; (58) Beckman Coulter (AU)		4,70	0,28	5,9	10	0	CVPG	4,66	0,13	15%	3,96	5,36											
(3) IFCC method; (60) Roche		4,04	0,15	3,7	22	0	CVPG	4,11	0,045	15%	3,49	4,73											
Other					9	0						5											
							1x 3/12, 3x 3/46, 1x 3/85, 1x 3/177, 2x 3/178, 1x 3/179																
(22) alpha-amylase					52							0									52	51	98%
Samples and groups	[µkat/L]																						
Sample A		3,30	0,19	5,8	52							0									52	51	98%
(1) IFCC method		3,30	0,19	5,8	52	0								CRV	3,321	0,095	15%	2,82	3,82	52			
Sample B		8,51	0,56	6,6	52							0									52	52	100%
(1) IFCC method		8,51	0,56	6,6	52	0								CRV	8,49	0,23	15%	7,21	9,77	52			
(23) AST					53							0									53	45	85%
Samples and groups	[µkat/L]																						
Sample A		1,86	0,12	6,7	53							0		CRV	1,88	0,041	15%	1,59	2,17	53	47	89%	
(1) IFCC method		1,86	0,12	6,6	52	0															52		
Other					1	0																1	
Sample B		3,13	0,21	6,8	53							0		1x 99 CRV	3,235	0,071	15%	2,74	3,73	53	45	85%	
(1) IFCC method		3,14	0,20	6,5	52	0															52		
Other					1	0																1	
														1x 99									
(24) ALT					54							0									54	54	100%
Samples and groups	[µkat/L]																						
Sample A		3,59	0,16	4,4	54							0		CRV	3,606	0,089	15%	3,06	4,15	54	54	100%	
(1) IFCC method		3,60	0,16	4,5	53	0															53		
Other					1	0																1	
Sample B		1,32	0,07	6,0	54							0		1x 99 CRV	1,327	0,032	15%	1,12	1,53	54	54	100%	
(1) IFCC method		1,32	0,07	6,0	53	0															53		
Other					1	0																1	
														1x 99									
(26) CK					51							0									51	50	98%
Samples and groups	[µkat/L]																						
Sample A		9,60	0,73	7,7	51							0		CRV	10,33	0,27	20%	8,26	12,4	51	50	98%	
(1) IFCC method		9,60	0,73	7,7	51	0															51		
Sample B		4,38	0,33	7,6	51							0		CRV	4,75	0,17	20%	3,8	5,7	51	50	98%	
(1) IFCC method		4,38	0,33	7,6	51	0															51		

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(27) gamma-GT					51							0								51	50	98%
Samples and groups	[µkat/L]																					
Sample A		2,98	0,13	4,5	51							0		CRV	2,978	0,073	15%	2,53	3,43	51	51	100%
(1) IFCC method		2,98	0,13	4,3	50	0														50		
Other					1	0														1		
Sample B		3,46	0,13	3,8	51							0		1x 99 CRV	3,466	0,088	15%	2,94	3,99	51	50	98%
(1) IFCC method		3,46	0,13	3,7	50	0														50		
Other					1	0														1		
														1x 99								
(28) LD					42							0								42	41	98%
Samples and groups	[µkat/L]																					
Sample A		4,21	0,17	4,1	42							0		CRV	4,24	0,100	18%	3,47	5,01	42	41	98%
(3) IFCC method		4,21	0,16	3,9	41	0														41		
Other					1	0														1		
Sample B		7,46	0,25	3,4	42							0		1x 99 CRV	7,43	0,17	18%	6,09	8,77	42	41	98%
(3) IFCC method		7,45	0,25	3,3	41	0														41		
Other					1	0														1		
														1x 99								
(29) Lipase					30							22	20	91%						0		
Samples and groups	[µkat/L]																					
Sample A		3,39	0,47	14	30							22	20	91%						0		
(0) Not specified; (58) Beckman Coulter (AU)		3,57	0,24	6,9	7	0	CVPG	3,59	0,094	24%	2,72	4,46								7		
(0) Not specified; (60) Roche		3,25	0,38	12	14	0	CVPG	3,31	0,10	24%	2,51	4,11								14		
Other					9	0														1		
								1x 0/1, 1x 0/12, 2x 0/116, 1x 0/177, 2x 0/178, 2x 0/179														
Sample B		1,55	0,20	13	30							22	21	95%						0		
(0) Not specified; (58) Beckman Coulter (AU)		1,71	0,13	7,4	7	0	CVPG	1,71	0,050	24%	1,29	2,13								7		
(0) Not specified; (60) Roche		1,48	0,15	10	14	0	CVPG	1,49	0,037	24%	1,13	1,85								14		
Other					9	0														1		
								1x 0/1, 1x 0/12, 2x 0/116, 1x 0/177, 2x 0/178, 2x 0/179														
(30) Cholinesterase					23							23	22	96%						0		
Samples and groups	[µkat/L]																					
Sample A		93,9	5,7	6,1	23							23	22	96%						0		
(1) Standard method		93,8	6,0	6,4	22	0	CVP	95,4	1,2	12%	83,9	107								22		
Other					1	0														1		
														1x 99								
Sample B		116	7,5	6,4	23							23	22	96%						0		
(1) Standard method		116	7,7	6,6	22	0	CVP	117	1,5	12%	102	132								22		
Other					1	0														1		
														1x 99								
(31) Albumin (elpho)					9							9	9	100%						0		
Samples and groups	[-]																					
Sample A		0,630	0,04	6,9	9		CVP	0,628	0,011	15%	0,533	0,723								9	9	100%
(0) Not specified		0,630	0,04	6,9	9	0														9		
Sample B		0,644	0,03	5,6	9		CVP	0,634	0,011	15%	0,538	0,73								9	9	100%

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: Slovakia, minimal size of the groups n = 5

EQA round: AKS1/22 - Basic Clinical Chemistry - Serum

Deadline: 28.01.2022

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}	
(31) Albumin (elpho)					9							9	9	100%									0
Samples and groups	[-]																						
Sample B		0,644	0,03	5,6	9	CVP	0,634	0,011	15%	0,538	0,73	9	9	100%									0
(0) Not specified		0,644	0,03	5,6	9	0						9											
(32) gamma-globuline (elpho)					9							9	9	100%									0
Samples and groups	[-]																						
Sample A		0,129	0,01	9,2	9	CVP	0,133	,0049	30%	0,093	0,173	9	9	100%									0
(0) Not specified		0,129	0,01	9,2	9	0						9											
Sample B		0,124	0,01	8,4	9	CVP	0,129	,0043	30%	0,09	0,168	9	9	100%									0
(0) Not specified		0,124	0,01	8,4	9	0						9											
(35) alpha-amylase pancreatic					23							23	23	100%									0
Samples and groups	[µkat/L]																						
Sample A		2,74	0,08	3,0	23	CVP	2,76	0,029	18%	2,26	3,26	23	23	100%									0
(1) With IFCC calibration		2,74	0,08	3,0	23	0						23											
Sample B		7,60	0,28	3,7	23	CVP	7,67	0,090	18%	6,28	9,06	23	23	100%									0
(1) With IFCC calibration		7,60	0,28	3,7	23	0						23											
(36) Calcium ionised					5							5	4	80%									0
Samples and groups	[mmol/L]																						
Sample A		1,64	0,05	3,2	5	CVP	1,66	0,029	10%	1,49	1,83	5	4	80%									0
(2) Direct ISE		1,64	0,05	3,2	5	0						5											
Sample B		2,24	0,02	0,99	5	CVP	2,28	0,032	10%	2,05	2,51	5	4	80%									0
(2) Direct ISE		2,24	0,02	0,99	5	0						5											

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End of report

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