

Summary statistics - quantitative results

(Groups: measurement principle)

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

EQA round: AKS3/22 - Basic Clinical Chemistry - Serum

Deadline: 29.07.2022

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]				47							0									47	47	100%
Samples and groups																							
Sample A		124	2,0	1,6	47							0		CRV	124,6	1,9	5%	118	131	47	47	100%	
(2) Indirect ISE		124	1,9	1,6	45	0															45		
Other					2	0															2		
														1x 3, 1x 99									
Sample B		119	1,6	1,4	47							0		CRV	119,7	1,8	5%	113	126	47	47	100%	
(2) Indirect ISE		119	1,6	1,3	45	0															45		
Other					2	0															2		
														1x 3, 1x 99									
(2) Potassium	[mmol/L]				47							0									47	46	98%
Samples and groups																							
Sample A		2,88	0,06	2,1	47							0		CRV	2,845	0,043	7%	2,64	3,05	47	46	98%	
(2) Indirect ISE		2,89	0,05	1,9	45	0															45		
Other					2	0															2		
														1x 3, 1x 99									
Sample B		4,34	0,09	2,1	47							0		CRV	4,322	0,065	7%	4,01	4,63	47	47	100%	
(2) Indirect ISE		4,34	0,09	2,2	45	0															45		
Other					2	0															2		
														1x 3, 1x 99									
(3) Chloride	[mmol/L]				47							47	46	98%									0
Samples and groups																							
Sample A		108	3,3	3,1	47		CVP	109	0,64	7%	101	117									47	46	98%
(3) Indirect ISE		108	3,3	3,0	45	0															45		
Other					2	0															2		
							1x 2, 1x 4																
Sample B		96,7	3,2	3,3	47		CVP	97,3	0,65	7%	90,4	105									47	47	100%
(3) Indirect ISE		96,5	3,1	3,2	45	0															45		
Other					2	0															2		
							1x 2, 1x 4																
(4) Calcium	[mmol/L]				45							0									45	42	93%
Samples and groups																							
Sample A		2,00	0,04	2,5	45							0		CRV	1,995	0,030	8%	1,83	2,16	45	42	93%	
(2) Phot. with o-cresolftalexon		1,98	0,05	2,6	6	0															6		
(3) Photom. with arsenazo III		1,96	0,06	3,5	18	0															18		
(4) Photomet. with NM-BAPTA		2,02	0,03	1,9	21	0															21		
Sample B		1,80	0,05	2,9	45							0		CRV	1,797	0,027	8%	1,65	1,95	45	44	98%	
(2) Phot. with o-cresolftalexon		1,77	0,06	3,8	6	0															6		
(3) Photom. with arsenazo III		1,80	0,06	3,7	18	0															18		
(4) Photomet. with NM-BAPTA		1,81	0,03	2,2	21	0															21		

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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]				44							44	42	95%								0			
Samples and groups																									
Sample A		0,926	0,02	2,7	44	CVP	0,925	,0062	10%	0,832	1,02	44	42	95%								0			
(1) UV-molybdate method		0,924	0,02	2,6	42	0						42													
Other					2	0						2													
						2x2																			
Sample B		1,52	0,03	2,5	44	CVP	1,52	,0094	10%	1,36	1,68	44	44	100%								0			
(1) UV-molybdate method		1,52	0,03	2,3	42	0						42													
Other					2	0						2													
						2x2																			
(6) Iron	[µmol/L]				40							40	39	98%								0			
Samples and groups																									
Sample A		34,0	0,76	2,2	40	CVP	34,1	0,19	15%	28,9	39,3	40	39	98%								0			
(2) Method with ferrozine/ferene		34,2	0,70	2,1	33	0						33													
(4) Method with TPTZ		33,5	0,52	1,6	7	0						7													
Sample B		21,3	0,61	2,9	40	CVP	21,3	0,14	15%	18,1	24,5	40	39	98%								0			
(2) Method with ferrozine/ferene		21,4	0,59	2,8	33	0						33													
(4) Method with TPTZ		20,7	0,52	2,5	7	0						7													
(7) Magnesium	[mmol/L]				45							0										45	44	98%	
Samples and groups																									
Sample A		0,964	0,02	2,5	45							0		CRV	0,96	0,014	15%	0,816	1,11				45	44	98%
(2) Photometry		0,970	0,02	3,0	35	0																35			
(4) UV enzyme method		0,951	0,01	1,4	10	0																10			
Sample B		1,18	0,03	2,7	45							0		CRV	1,171	0,018	15%	0,995	1,35				45	44	98%
(2) Photometry		1,18	0,03	3,1	35	0																35			
(4) UV enzyme method		1,17	0,02	1,8	10	0																10			
(8) Lithium	[mmol/L]				9							0										9	8	89%	
Samples and groups																									
Sample A		1,23	0,03	3,0	9							0		CRV	1,275	0,019	12%	1,12	1,43				9	9	100%
(4) Photometry		1,21	0,05	4,9	7	0																7			
Other					2	0																2			
						2x3																			
Sample B		0,980	0,05	6,1	9							0		CRV	1,01	0,015	12%	0,888	1,14				9	8	89%
(4) Photometry		0,975	0,06	6,8	7	0																7			
Other					2	0																2			
						2x3																			
(9) Total protein	[g/L]				45							0										45	44	98%	
Samples and groups																									
Sample A		52,4	1,2	2,2	45							0		CRV	53,2	1,3	9%	48,4	58				45	44	98%
(1) Biuret		52,4	1,2	2,2	45	0																45			
Sample B		74,9	2,0	2,6	45							0		CRV	74,9	1,8	9%	68,1	81,7				45	45	100%
(1) Biuret		74,9	2,0	2,6	45	0																45			
(10) Albumin	[g/L]				42							42	41	98%								0			
Samples and groups																									
Sample A		33,5	1,6	4,6	42	CVP	33,9	0,27	10%	30,5	37,3	42	41	98%								0			

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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}	
(10) Albumin					42							42	41	98%							0		
Samples and groups	[g/L]																						
Sample A		33,5	1,6	4,6	42	CVP	33,9	0,27	10%	30,5	37,3	42	41	98%							0		
(1) BCG		33,7	1,4	4,1	39							39											
Other					3							3											
Sample B		47,4	2,1	4,4	42	CVP	47,7	0,38	10%	42,9	52,5	42	41	98%							0		
(1) BCG		47,6	2,0	4,3	39							39											
Other					3							3											
						3x2																	
(11) Osmolality					16							16	16	100%							0		
Samples and groups	[mmol/kg]																						
Sample A		269	5,0	1,9	16	CVP	268	1,4	5%	254	282	16	16	100%							0		
(1) Osmometer		269	5,0	1,9	16							16											
Sample B		265	5,0	1,9	16	CVP	263	1,7	5%	249	277	16	16	100%							0		
(1) Osmometer		265	5,0	1,9	16							16											
(12) Lactate					19							19	17	89%							0		
Samples and groups	[mmol/L]																						
Sample A		4,92	0,24	4,9	19	CVP	4,97	0,058	15%	4,22	5,72	19	19	100%							0		
(3) Photometric enzyme method		4,97	0,18	3,7	11							11											
Other					8							8											
Sample B		5,93	0,38	6,4	19	CVP	5,97	0,083	15%	5,07	6,87	19	17	89%							0		
(3) Photometric enzyme method		6,00	0,33	5,5	11							11											
Other					8							8											
						4x1, 4x2																	
(13) Bilirubin total					47							0									47	45	96%
Samples and groups	[µmol/L]																						
Sample A		43,8	3,4	7,7	47							0		CRV	43	0,90	21%	33,9	52,1	47	47	100%	
(2) DCA, DPD		43,9	3,4	7,7	46																46		
Other					1																1		
Sample B		22,7	2,5	11	47							0		CRV	21,8	0,50	21%	17,2	26,4	47	45	96%	
(2) DCA, DPD		22,7	2,5	11	46																46		
Other					1																1		
														1x1									
(15) Cholesterol					45							0									45	43	96%
Samples and groups	[mmol/L]																						
Sample A		2,87	0,09	3,4	45							0									45	43	96%
(1) Enzyme method CHOD-PAP		2,87	0,09	3,4	45									CRV	2,972	0,043	9%	2,7	3,24	45			
Sample B		4,12	0,15	3,6	45							0									45	45	100%
(1) Enzyme method CHOD-PAP		4,12	0,15	3,6	45									CRV	4,187	0,042	9%	3,81	4,57	45			
(16) Glucose					47							0									47	47	100%
Samples and groups	[mmol/L]																						
Sample A		6,76	0,20	3,0	47							0		CRV	6,899	0,069	8%	6,34	7,46	47	47	100%	
(1) GOD photometry		6,95	0,16	2,2	6																6		

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(16) Glucose	[mmol/L]				47							0									47	47	100%
Samples and groups																							
Sample A		6,76	0,20	3,0	47							0	CRV	6,899	0,069	8%	6,34	7,46	47	47	100%		
(3) Method with hexokinase		6,74	0,20	2,9	41	0													41				
Sample B		13,2	0,37	2,8	47							0	CRV	13,89	0,14	asym.	12,2	15,1	47	47	100%		
(1) GOD photometry		13,4	0,30	2,2	6	0													6				
(3) Method with hexokinase		13,1	0,36	2,7	41	0													41				
(17) Uric acid	[µmol/L]				45							0									45	45	100%
Samples and groups																							
Sample A		393	13	3,4	45							0	CRV	397,2	4,0	12%	349	445	45	45	100%		
(2) Enzyme-photomet. m.		393	13	3,4	45	0													45				
Sample B		299	8,0	2,7	45							0	CRV	305,5	3,1	12%	268	343	45	45	100%		
(2) Enzyme-photomet. m.		299	8,0	2,7	45	0													45				
(18) Urea	[mmol/L]				47							0									47	45	96%
Samples and groups																							
Sample A		10,0	0,29	2,9	47							0	CRV	10,53	0,11	15%	8,95	12,2	47	45	96%		
(1) UV enzymatic m.(GMD)		10,0	0,29	2,9	47	0													47				
Sample B		5,08	0,19	3,8	47							0	CRV	5,19	0,052	15%	4,41	5,97	47	46	98%		
(1) UV enzymatic m.(GMD)		5,08	0,19	3,8	47	0													47				
(19) Creatinine	[µmol/L]				47							0									47	47	100%
Samples and groups																							
Sample A		166	5,5	3,3	47							0	CRV	168	2,4	13%	146	190	47	47	100%		
(1) Jaffe		167	7,0	4,2	23	0													23				
(3) Enzyme		166	4,2	2,5	24	0													24				
Sample B		393	12	2,9	47							0	CRV	390,3	3,9	13%	339	442	47	47	100%		
(1) Jaffe		392	18	4,6	23	0													23				
(3) Enzyme		393	8,9	2,3	24	0													24				
(20) Triacylglycerols	[mmol/L]				45							0									45	45	100%
Samples and groups																							
Sample A		1,48	0,06	4,3	45							0	CRV	1,466	0,015	15%	1,24	1,69	45	45	100%		
(1) Photometric enzyme (GPO-PAP)		1,48	0,06	4,5	43	0													43				
Other					2	0													2				
Sample B		1,23	0,04	3,6	45							0	CRV	1,244	0,012	15%	1,05	1,44	45	45	100%		
(1) Photometric enzyme (GPO-PAP)		1,23	0,04	3,6	43	0													43				
Other					2	0													2				
													2x2										
(21) ALP	[µkat/L]				45							42	42	100%							45	42	93%
Samples and groups																							
Sample A		2,47	0,13	5,4	45							42	42	100%	CRV	2,606	0,073	20%	2,08	3,13	45	45	100%
(3) IFCC method; (1) Abbott		2,53	0,04	2,0	10	0	CVPG	2,56	0,048	15%	2,17	2,95	10										
(3) IFCC method		2,47	0,13	5,4	45	0															45		
(3) IFCC method; (58) Beckman Coulter (AU)		2,69	0,19	6,9	6	0	CVPG	2,66	0,066	15%	2,26	3,06	6										
(3) IFCC method; (60) Roche		2,38	0,07	3,3	22	0	CVPG	2,4	0,024	15%	2,04	2,76	22										

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(21) ALP	[µkat/L]				45							42	42	100%							45	42	93%
Samples and groups																							
Sample A		2,47	0,13	5,4	45							42	42	100%	CRV	2,606	0,073	20%	2,08	3,13	45	45	100%
Other					7	0						4											
							1x 3/12, 3x 3/46, 1x 3/85, 1x 3/177, 1x 3/179																
Sample B		8,73	0,95	11	45							42	42	100%	CRV	9,31	0,26	20%	7,44	11,2	45	42	93%
(3) IFCC method; (1) Abbott		9,12	0,21	2,3	10	0	CVPG	9,14	0,15	15%	7,76	10,6											
(3) IFCC method		8,73	0,95	11	45	0															45		
(3) IFCC method; (58) Beckman Coulter (AU)		10,1	0,41	4,0	6	0	CVPG	10,1	0,23	15%	8,58	11,7											
(3) IFCC method; (60) Roche		8,14	0,35	4,3	22	0	CVPG	8,19	0,099	15%	6,96	9,42											
Other					7	0						4											
							1x 3/12, 3x 3/46, 1x 3/85, 1x 3/177, 1x 3/179																
(22) alpha-amylase	[µkat/L]				46																46	44	96%
Samples and groups																							
Sample A		8,13	0,61	7,5	46							0									46	44	96%
(1) IFCC method		8,13	0,61	7,5	46	1									CRV	8,16	0,23	15%	6,93	9,39	46		
Sample B		4,56	0,27	5,9	46	0						0									46	45	98%
(1) IFCC method		4,56	0,27	5,9	46	0									CRV	4,59	0,13	15%	3,9	5,28	46		
(23) AST	[µkat/L]				47																47	45	96%
Samples and groups																							
Sample A		5,47	0,27	4,9	47							0			CRV	5,48	0,13	15%	4,65	6,31	47	45	96%
(1) IFCC method		5,47	0,27	4,9	47	0															47		
Sample B		4,17	0,21	5,1	47							0			CRV	4,22	0,096	15%	3,58	4,86	47	45	96%
(1) IFCC method		4,17	0,21	5,1	47	0															47		
(24) ALT	[µkat/L]				47																47	45	96%
Samples and groups																							
Sample A		3,13	0,12	4,0	47							0			CRV	3,169	0,077	15%	2,69	3,65	47	47	100%
(1) IFCC method		3,13	0,12	4,0	47	0															47		
Sample B		1,55	0,09	6,4	47							0			CRV	1,536	0,036	15%	1,3	1,77	47	45	96%
(1) IFCC method		1,55	0,09	6,4	47	0															47		
(26) CK	[µkat/L]				45																45	42	93%
Samples and groups																							
Sample A		3,90	0,31	8,0	45							0			CRV	4,34	0,100	20%	3,47	5,21	45	42	93%
(1) IFCC method		3,90	0,31	8,0	45	0															45		
Sample B		3,14	0,17	5,4	45							0			CRV	3,407	0,089	20%	2,72	4,09	45	45	100%
(1) IFCC method		3,14	0,17	5,4	45	0															45		
(27) gamma-GT	[µkat/L]				45																45	44	98%
Samples and groups																							
Sample A		2,43	0,06	2,7	45							0			CRV	2,46	0,061	15%	2,09	2,83	45	45	100%
(1) IFCC method		2,43	0,06	2,6	44	0															44		
Other					1	0															1		
															1x 99								
Sample B		1,63	0,05	3,1	45							0			CRV	1,696	0,044	15%	1,44	1,96	45	44	98%
(1) IFCC method		1,64	0,04	3,0	44	0															44		

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(27) gamma-GT					45							0									45	44	98%
Samples and groups	[µkat/L]																						
Sample B		1,63	0,05	3,1	45							0	CRV	1,696	0,044	15%	1,44	1,96		45	44	98%	
Other					1	0							1x 99							1			
(28) LD					37							0									37	36	97%
Samples and groups	[µkat/L]																						
Sample A		3,09	0,11	3,7	37							0	CRV	3,119	0,074	18%	2,55	3,69		37	36	97%	
(3) IFCC method		3,09	0,11	3,7	37	0														37			
Sample B		6,62	0,20	3,1	37							0	CRV	6,59	0,16	18%	5,4	7,78		37	37	100%	
(3) IFCC method		6,62	0,20	3,1	37	0														37			
(29) Lipase					28							21	19	90%							0		
Samples and groups	[µkat/L]																						
Sample A		0,905	0,07	8,7	28							21	20	95%							0		
(0) Not specified; (58) Beckman Coulter (AU)		0,985	0,13	13	5	0	CVPG	0,916	0,039	24%	0,696	1,14	5							5			
(0) Not specified; (60) Roche		0,877	0,05	5,8	15	0	CVPG	0,878	0,015	24%	0,667	1,09	15							15			
Other					8	0						1								1			
								1x 0/1, 1x 0/12, 2x 0/116, 1x 0/177, 3x 0/179															
Sample B		0,539	0,03	5,9	28							21	20	95%							0		
(0) Not specified; (58) Beckman Coulter (AU)		0,540	0,01	2,7	5	0	CVPG	0,533	0,017	24%	0,405	0,661	5							5			
(0) Not specified; (60) Roche		0,538	0,01	3,0	15	0	CVPG	0,54	,0075	24%	0,41	0,67	15							15			
Other					8	0						1								1			
								1x 0/1, 1x 0/12, 2x 0/116, 1x 0/177, 3x 0/179															
(30) Cholinesterase					18							18	17	94%							0		
Samples and groups	[µkat/L]																						
Sample A		88,7	4,1	4,6	18		CVP	89,6	1,1	12%	78,8	101	18	17	94%					18	17	94%	
(1) Standard method		88,7	4,2	4,7	17	0							17							17			
Other					1	0						1								1			
								1x 99															
Sample B		125	5,6	4,5	18		CVP	126	1,7	12%	110	142	18	17	94%					18	17	94%	
(1) Standard method		125	5,8	4,7	17	0							17							17			
Other					1	0						1								1			
								1x 99															
(31) Albumin (elpho)					8							8	7	88%							0		
Samples and groups	[-]																						
Sample A		0,633	0,05	9,3	8		CVP	0,634	0,014	15%	0,538	0,73	8	8	100%					8	8	100%	
(0) Not specified		0,633	0,05	9,3	8	0							8							8			
Sample B		0,632	0,05	8,9	8		CVP	0,63	0,017	15%	0,535	0,725	8	7	88%					8	7	88%	
(0) Not specified		0,632	0,05	8,9	8	0							8							8			
(32) gamma-globuline (elpho)					8							8	8	100%							0		
Samples and groups	[-]																						
Sample A		0,133	0,01	12	8		CVP	0,133	,0046	30%	0,093	0,173	8	8	100%					8	8	100%	
(0) Not specified		0,133	0,01	12	8	0							8							8			
Sample B		0,130	0,02	15	8		CVP	0,134	,0055	30%	0,093	0,175	8	8	100%					8	8	100%	

Summary statistics - quantitative results

(Groups: measurement principle)

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

EQA round: AKS3/22 - Basic Clinical Chemistry - Serum

Deadline: 29.07.2022

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}	
(32) gamma-globuline (elpho)					8							8	8	100%									0
Samples and groups	[-]																						
Sample B		0,130	0,02	15	8	CVP	0,134	0,0055	30%	0,093	0,175	8	8	100%									0
(0) Not specified		0,130	0,02	15	8							8											
(35) alpha-amylase pancreatic					21							21	21	100%									0
Samples and groups	[µkat/L]																						
Sample A		7,24	0,21	2,9	21	CVP	7,35	0,086	18%	6,02	8,68	21	21	100%									0
(1) With IFCC calibration		7,24	0,21	2,9	21							21											
Sample B		3,83	0,11	2,8	21	CVP	3,87	0,042	18%	3,17	4,57	21	21	100%									0
(1) With IFCC calibration		3,83	0,11	2,8	21							21											
(36) Calcium ionised					7							7	6	86%									0
Samples and groups	[mmol/L]																						
Sample A		1,34	0,05	3,9	7	CVP	1,34	0,019	10%	1,2	1,48	7	6	86%									0
(2) Direct ISE		1,34	0,05	3,9	6							6											
Other					1							1											
						1x0																	
Sample B		1,05	0,03	2,8	7	CVP	1,04	0,019	10%	0,936	1,15	7	6	86%									0
(2) Direct ISE		1,05	0,03	2,8	6							6											
Other					1							1											
						1x0																	

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End of report

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