Summary statistics - quantitative results

EQA round: AKS3/23 - Basic Clinical Chemistry - Serum

Deadline: 28.7.2023

Setup: groups - measurement principle; Slovakia; minimal size of the groups n = 5

RoM = robust average	AV = assigned value	D_{max} = acceptable difference
SD = standard deviation	CRV = certified reference value	LL = lower limit
CV = coefficient of variation	CVP = consensus of all participants	UL = upper limit
N_{tot} = total number of the results	CVPG = consensus of the participants' groups	N_{eva} = number of the results assessed
N_{out} = number of the results removed before calculation	U_{AV} = expanded uncertainty of the assigned value (k = 2)	N_{suc} = number of successful results
		S_{rel} = relative success

Test / Sample / Group	[unit]	RoM	SD	CV [%]	N_{tot}	N_{out}	Comparability AV	U_{AV}	D_{max}	LL	UL	N_{eva}	N_{suc}	S_{rel} [%]	Traceability AV	U_{AV}	D_{max}	LL	UL	N_{eva}	N_{suc}	S_{rel} [%]
(22) **α-amylase**	[µkat/L]				40							0								40	38	95
Sample A												0								40	38	95
(0) Not specified		0,784	0,03	3,9	40	0									CRV 0,843	0,025	15%	0,716	0,97	40		
Sample B												0								40	40	100
(0) Not specified		1,94	0,087	4,5	40	0									CRV 2,06	0,056	15%	1,75	2,37	40		
(35) **α-amylase pancreatic**	[µkat/L]				21							21	21	100						0		
Sample A												21	21	100						0		
(0) Not specified		0,421	0,012	2,9	21	0	CVP 0,414	0,006	18%	0,339	0,489	21										
Sample B												21	21	100						0		
(0) Not specified		1,27	0,024	1,9	21	0	CVP 1,26	0,01	18%	1,03	1,49	21										
(32) **γ-globulin (elfo)**	[-]				7							7	5	71						0		
Sample A												7	5	71						0		
(0) Not specified		0,153	0,05	33	7	0	CVP 0,128	0,007	30%	0,089	0,167	7										
Sample B												7	6	86						0		
(0) Not specified		0,142	0,031	22	7	0	CVP 0,134	0,005	30%	0,093	0,175	7										
(10) **Albumin**	[g/L]				37							37	36	97						0		
Sample A												37	36	97						0		
(1) BCG		31,4	1,4	4,5	37	0	CVP 31,6	0,27	10%	28,4	34,8	37										
Sample B												37	36	97						0		
(1) BCG		55,1	2	3,6	37	0	CVP 55,6	0,39	10%	50	61,2	37										
(31) **Albumin (elpho)**	[-]				7							7	5	71						0		
Sample A												7	5	71						0		
(0) Not specified		0,593	0,1	17	7	0	CVP 0,639	0,013	15%	0,543	0,735	7										
Sample B												7	6	86						0		
(0) Not specified		0,614	0,088	14	7	0	CVP 0,625	0,018	15%	0,531	0,719	7										
(21) **ALP**	[µkat/L]				40							37	35	95						40	36	90
Sample A		1,5	0,098	6,5	40							37	35	95						40	38	95
(3) IFCC method		1,5	0,098	6,5	40	0									CRV 1,627	0,047	18%	1,33	1,92	40		
(3) IFCC method; (1) Abbott		1,54	0,067	4,3	6	0	CVPG 1,59	0,03	14%	1,36	1,82	6										
(3) IFCC method; (58) Beckman Coulter (AU)		1,59	0,082	5,1	6	0	CVPG 1,6	0,047	14%	1,37	1,83	6										
(3) IFCC method; (60) Roche		1,46	0,058	4	23	0	CVPG 1,46	0,021	14%	1,25	1,67	23										
Other					5	0	1x 3/12, 2x 3/46, 1x 3/177, 1x 3/179					2										
Sample B		3,11	0,24	7,6	40							37	36	97						40	37	93
(3) IFCC method		3,11	0,24	7,6	40	0									CRV 3,373	0,094	18%	2,76	3,99	40		
(3) IFCC method; (1) Abbott		3,21	0,089	2,8	6	0	CVPG 3,29	0,063	14%	2,82	3,76	6										
(3) IFCC method; (58) Beckman Coulter (AU)		3,38	0,13	3,7	6	0	CVPG 3,37	0,081	14%	2,89	3,85	6										
(3) IFCC method; (60) Roche		2,99	0,15	5,1	23	0	CVPG 3	0,043	14%	2,58	3,42	23										
Other					5	0	1x 3/12, 2x 3/46, 1x 3/177, 1x 3/179					2										

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Test / Sample / Group	[unit]	RoM	SD	CV [%]	N_{tot}	N_{out}	Comparability								Traceability								
								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} [%]
(24) **ALT**	[µkat/L]				41								0									41	36	88
Sample A													0									41	37	90
(0) Not specified		0,698	0,05	7,1	41	0										CRV	0,663	0,02	15%	0,563	0,763	41		
Sample B													0									41	40	98
(0) Not specified		2,6	0,19	7,5	41	0										CRV	2,716	0,06	15%	2,3	3,13	41		
(23) **AST**	[µkat/L]				41								0									41	35	85
Sample A													0									41	41	100
(0) Not specified		0,987	0,06	6,1	41	0										CRV	0,976	0,026	15%	0,829	1,13	41		
Sample B													0									41	35	85
(0) Not specified		3,04	0,28	9,1	41	0										CRV	3,141	0,069	15%	2,66	3,62	41		
(13) **Bilirubin total**	[µmol/L]				42								0									42	41	98
Sample A		15,5	1,9	12	42								0			CRV	15,73	0,36	26%	11,6	19,9	42	41	98
(2) DCA, DPD		15,5	1,8	12	40	0																40		
Other					2	0																2		
																2x 1								
Sample B		50	3,6	7,2	42								0			CRV	51,5	1,1	26%	38,1	64,9	42	42	100
(2) DCA, DPD		49,9	3,6	7,1	40	0																40		
Other					2	0																2		
																2x 1								
(9) **Total protein**	[g/L]				39								0									39	36	92
Sample A													0									39	38	97
(0) Not specified		48,3	1,2	2,5	39	0										CRV	49,6	1,3	9%	45,1	54,1	39		
Sample B													0									39	36	92
(0) Not specified		86,8	2,6	3	39	0										CRV	88,4	2	9%	80,4	96,4	39		
(26) **CK**	[µkat/L]				40								0									40	28	70
Sample A													0									40	30	75
(0) Not specified		4,09	0,43	10	40	0										CRV	4,75	0,13	20%	3,8	5,7	40		
Sample B													0									40	35	88
(0) Not specified		2,36	0,18	7,6	40	0										CRV	2,66	0,068	20%	2,12	3,2	40		
(2) **Potassium**	[mmol/L]				43								0									43	42	98
Sample A		3,43	0,066	1,9	43								0			CRV	3,398	0,054	7%	3,16	3,64	43	42	98
(2) Indirect ISE		3,44	0,064	1,9	42	0																42		
Other					1	0																1		
																1x 99								
Sample B		6,29	0,13	2,1	43								0			CRV	6,28	0,1	7%	5,84	6,72	43	43	100
(2) Indirect ISE		6,29	0,13	2,1	42	0																42		
Other					1	0																1		
																1x 99								
(5) **Inorganic phosphate**	[mmol/L]				39								39	37	95							0		
Sample A		0,81	0,026	3,2	39		CVP	0,812	0,006	10%	0,73	0,894	39	37	95							0		
(1) UV-molybdate method		0,809	0,025	3	38	0							38											
Other					1	0							1											
							1x 2																	
Sample B		1,81	0,042	2,3	39		CVP	1,82	0,01	10%	1,63	2,01	39	39	100							0		
(1) UV-molybdate method		1,81	0,039	2,2	38	0							38											

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Test / Sample / Group	[unit]	RoM	SD	CV [%]	N_{tot}	N_{out}	Comparability									Traceability								
								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} [%]
Other					1	0							1											
							1x 2																	
(27) **gamma-GT**	[µkat/L]				39								0									39	39	100
Sample A													0									39	39	100
(0) Not specified		0,795	0,024	3	39	0										CRV	0,861	0,026	21%	0,68	1,05	39		
Sample B													0									39	39	100
(0) Not specified		1,3	0,038	2,9	39	0										CRV	1,375	0,037	21%	1,08	1,67	39		
(16) **Glucose**	[mmol/L]				42								0									42	41	98
Sample A		3,85	0,13	3,2	42								0			CRV	3,961	0,04	8%	3,64	4,28	42	41	98
(3) Method with hexokinase		3,84	0,11	3	38	0																38		
Other					4	0																4		
																4x 1								
Sample B		7,41	0,2	2,8	42								0			CRV	7,846	0,078	asym.	6,82	8,48	42	42	100
(3) Method with hexokinase		7,39	0,19	2,6	38	0																38		
Other					4	0																4		
																4x 1								
(7) **Magnesium**	[mmol/L]				40								0									40	39	98
Sample A		0,801	0,021	2,6	40								0			CRV	0,787	0,016	15%	0,668	0,906	40	39	98
(2) Photometry		0,8	0,019	2,3	34	0																34		
(4) UV enzyme method		0,8	0,03	3,7	6	0																6		
Sample B		0,514	0,019	3,7	40								0			CRV	0,488	0,011	15%	0,414	0,562	40	39	98
(2) Photometry		0,515	0,019	3,7	34	0																34		
(4) UV enzyme method		0,5	0,015	3	6	0																6		
(3) **Chloride**	[mmol/L]				43								43	42	98							0		
Sample A		96,6	2,9	3	43		CVP	97,3	0,63	7%	90,4	105	43	43	100							0		
(3) Indirect ISE		96,6	2,9	3	42	0							42											
Other					1	0							1											
							1x 99																	
Sample B		113	3	2,7	43		CVP	114	0,73	7%	106	122	43	42	98							0		
(3) Indirect ISE		113	3,1	2,8	42	0							42											
Other					1	0							1											
							1x 99																	
(15) **Cholesterol**	[mmol/L]				39								0									39	37	95
Sample A													0									39	38	97
(0) Not specified		2,93	0,08	2,7	39	0										CRV	2,971	0,03	9%	2,7	3,24	39		
Sample B													0									39	37	95
(0) Not specified		5	0,15	3	39	0										CRV	5,087	0,051	9%	4,62	5,55	39		
(30) **Cholinesterase**	[µkat/L]				15								15	14	93							0		
Sample A													15	14	93							0		
(0) Not specified		94	4,2	4,5	15	0	CVP	94,5	1,5	12%	83,1	106	15											
Sample B													15	14	93							0		
(0) Not specified		163	7,2	4,4	15	0	CVP	165	2,8	12%	145	185	15											
(19) **Creatinine**	[µmol/L]				43								0									43	43	100
Sample A		190	4,7	2,5	43								0			CRV	189	1,9	13%	164	214	43	43	100
(1) Jaffe		188	6,4	3,4	20	0																20		
(3) Enzyme		191	3,9	2	23	0																23		

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								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		404	12	2,9	43								0			CRV	397,6	4	13%	345	450	43	43	100
(1) Jaffe		400	16	4,1	20	0																20		
(3) Enzyme		407	9,8	2,4	23	0																23		
(17) **Uric acid**	[µmol/L]				39								0									39	39	100
Sample A													0									39	39	100
(0) Not specified		244	9,8	4	39	0										CRV	243,2	2,4	12%	214	273	39		
Sample B													0									39	39	100
(0) Not specified		513	16	3,2	39	0										CRV	514,4	5,1	12%	452	577	39		
(12) **Lactate**	[mmol/L]				18								18	18	100							0		
Sample A		1,01	0,037	3,7	18		CVP	0,994	0,021	15%	0,844	1,15	18	18	100							0		
(3) Photometric enzyme method		1,01	0,029	2,9	14	0							14											
Other					4	0							4											
							3x 1, 1x 2																	
Sample B		2,01	0,067	3,3	18		CVP	2	0,026	15%	1,7	2,3	18	18	100							0		
(3) Photometric enzyme method		2,02	0,058	2,9	14	0							14											
Other					4	0							4											
							3x 1, 1x 2																	
(28) **LD**	[µkat/L]				32								0									32	31	97
Sample A													0									32	31	97
(0) Not specified		2,11	0,094	4,5	32	0										CRV	2,144	0,049	18%	1,75	2,53	32		
Sample B													0									32	31	97
(0) Not specified		6,29	0,21	3,3	32	0										CRV	6,2	0,14	18%	5,08	7,32	32		
(29) **Lipase**	[µkat/L]				26								22	22	100							0		
Sample A		0,475	0,03	6,4	26								22	22	100							0		
(0) Not specified; (60) Roche		0,481	0,016	3,3	18	0	CVPG	0,485	0,006	24%	0,368	0,602	18											
Other					8	0							4											
							1x 0/1, 1x 0/12, 3x 0/58, 1x 0/177, 2x 0/179																	
Sample B		1,44	0,09	6,2	26								22	22	100							0		
(0) Not specified; (60) Roche		1,43	0,052	3,6	18	0	CVPG	1,43	0,022	24%	1,08	1,78	18											
Other					8	0							4											
							1x 0/1, 1x 0/12, 3x 0/58, 1x 0/177, 2x 0/179																	
(8) **Lithium**	[mmol/L]				8								0									8	8	100
Sample A		0,635	0,037	5,8	8								0			CRV	0,647	0,01	12%	0,569	0,725	8	8	100
(4) Photometry		0,635	0,037	5,8	7	0																7		
Other					1	0																1		
																1x 3								
Sample B		1,01	0,042	4,2	8								0			CRV	1,063	0,016	12%	0,935	1,2	8	8	100
(4) Photometry		1,01	0,042	4,2	7	0																7		
Other					1	0																1		
																1x 3								
(18) **Urea**	[mmol/L]				42								0									42	42	100
Sample A													0									42	42	100
(1) UV enzymatic m.(GMD)		3,05	0,15	5	42	0										CRV	3,108	0,035	15%	2,64	3,58	42		
Sample B													0									42	42	100
(1) UV enzymatic m.(GMD)		15,5	0,53	3,4	42	0										CRV	15,83	0,16	15%	13,4	18,3	42		

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(11) **Osmolality**	[mmol/kg]				11								11	11	100							0		
Sample A													11	11	100							0		
(0) Not specified		238	3,9	1,6	11	0	CVP	236	1,4	5%	224	248	11											
Sample B													11	11	100							0		
(0) Not specified		292	3,5	1,2	11	0	CVP	290	1,8	5%	275	305	11											
(1) **Sodium**	[mmol/L]				43								0									43	42	98
Sample A		114	1,4	1,3	43								0			CRV	115,2	1,7	5%	109	121	43	43	100
(2) Indirect ISE		114	1,4	1,2	42	0																42		
Other					1	0																1		
																1x 99								
Sample B		128	1,8	1,4	43								0			CRV	130,7	2	5%	124	138	43	42	98
(2) Indirect ISE		128	1,7	1,3	42	0																42		
Other					1	0																1		
																1x 99								
(20) **Triacylglycerols**	[mmol/L]				40								0									40	40	100
Sample A													0									40	40	100
(1) Photometric enzyme (GPO-PAP)		0,745	0,041	5,4	40	0										CRV	0,733	0,011	18%	0,601	0,865	40		
Sample B													0									40	40	100
(1) Photometric enzyme (GPO-PAP)		1,69	0,073	4,3	40	0										CRV	1,72	0,017	18%	1,41	2,03	40		
(4) **Calcium**	[mmol/L]				40								0									40	39	98
Sample A		1,76	0,045	2,6	40								0			CRV	1,748	0,026	8%	1,6	1,89	40	40	100
(2) Phot. with o-cresolftalexon		1,72	0,067	3,9	5	0																5		
(3) Photom. with arsenazo III		1,76	0,041	2,3	13	0																13		
(4) Photomet. with NM-BAPTA		1,76	0,045	2,5	22	0																22		
Sample B		2,77	0,064	2,3	40								0			CRV	2,795	0,046	8%	2,57	3,02	40	39	98
(2) Phot. with o-cresolftalexon		2,69	0,059	2,2	5	0																5		
(3) Photom. with arsenazo III		2,78	0,053	1,9	13	0																13		
(4) Photomet. with NM-BAPTA		2,77	0,063	2,3	22	0																22		
(36) **Calcium ionised**	[mmol/L]				4								4	4	100							0		
Sample A													4	4	100							0		
Other					4	0							4											
							4x 2																	
Sample B													4	4	100							0		
Other					4	0							4											
							4x 2																	
(6) **Iron**	[µmol/L]				38								38	38	100							0		
Sample A		17,7	0,81	4,6	38		CVP	17,6	0,16	15%	14,9	20,3	38	38	100							0		
(2) Method with ferrozine/ferene		17,9	0,82	4,6	30	0							30											
(4) Method with TPTZ		17	0,25	1,5	8	0							8											
Sample B		37,9	1,3	3,5	38		CVP	37,8	0,28	15%	32,1	43,5	38	38	100							0		
(2) Method with ferrozine/ferene		38,1	1,3	3,5	30	0							30											
(4) Method with TPTZ		37,1	0,82	2,2	8	0							8											