

## Summary statistics - quantitative results

(Groups: measurement principle)

Filter: Slovakia, minimal size of groups n = 5

## EQA round: AKS2/18 - Basic Clinical Chemistry - Serum

Dead line: 13.04.2018

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 <sub>AV</sub> = expanded uncertainty of the assigned value (k = 2)	

Test	[unit]	Comparability					Traceability															
		RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>								
<b>(1) Sodium</b>					59							0			59	57	97%					
Samples and groups	[mmol/L]																					
<b>Sample A</b>		131	2,3	1,7	59							0	CRV	130,9	2,0	5%	124	138	59	58	98%	
(2) Indirect ISE		131	2,2	1,7	50	0													50			
(3) Direct ISE		133	0,67	0,50	9	0													9			
<b>Sample B</b>		140	2,1	1,5	59							0	CRV	139,1	2,1	5%	132	147	59	58	98%	
(2) Indirect ISE		140	2,1	1,5	50	0													50			
(3) Direct ISE		141	2,2	1,6	9	0													9			
<b>(2) Potassium</b>					59							0			59	57	97%					
Samples and groups	[mmol/L]																					
<b>Sample A</b>		5,91	0,14	2,3	59							0	CRV	5,843	0,088	7%	5,43	6,26	59	58	98%	
(2) Indirect ISE		5,89	0,13	2,1	50	0													50			
(3) Direct ISE		6,06	0,08	1,3	9	0													9			
<b>Sample B</b>		3,94	0,09	2,4	59							0	CRV	3,876	0,058	7%	3,6	4,15	59	57	97%	
(2) Indirect ISE		3,94	0,09	2,4	50	0													50			
(3) Direct ISE		3,93	0,07	1,9	9	0													9			
<b>(3) Chloride</b>					59							59	59	100%					0			
Samples and groups	[mmol/L]																					
<b>Sample A</b>		118	2,0	1,7	59	CVP	118	0,39	7%	109	127	59	59	100%					0			
(3) Indirect ISE		118	2,2	1,9	50	0						50										
(4) Direct ISE		119	0,89	0,75	9	0						9										
<b>Sample B</b>		123	2,1	1,7	59	CVP	123	0,36	7%	114	132	59	59	100%					0			
(3) Indirect ISE		123	2,3	1,9	50	0						50										
(4) Direct ISE		124	1,5	1,2	9	0						9										
<b>(4) Calcium</b>					56							0			56	54	96%					
Samples and groups	[mmol/L]																					
<b>Sample A</b>		2,84	0,06	2,4	56							0	CRV	2,846	0,043	8%	2,61	3,08	56	55	98%	
(2) Phot. with o-cresolftalexon		2,82	0,22	7,6	8	0																
(3) Photom. with arsenazo III		2,83	0,06	2,3	31	0																
(4) Complex Ca-NM-BAPTA		2,85	0,04	1,5	17	0																
<b>Sample B</b>		3,03	0,07	2,6	56							0	CRV	3,02	0,045	8%	2,77	3,27	56	54	96%	
(2) Phot. with o-cresolftalexon		3,00	0,24	7,9	8	0																
(3) Photom. with arsenazo III		3,01	0,06	2,1	31	0																
(4) Complex Ca-NM-BAPTA		3,05	0,06	2,0	17	0																
<b>(5) Inorganic phosphate</b>					55							55	53	96%					0			
Samples and groups	[mmol/L]																					
<b>Sample A</b>		1,37	0,04	3,5	55	CVP	1,36	,0061	10%	1,22	1,5	55	54	98%					0			
(1) UV-molybdate method		1,37	0,04	3,5	55	0						55										
<b>Sample B</b>		1,98	0,04	2,1	55	CVP	1,98	,0079	10%	1,78	2,18	55	54	98%					0			

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## EQA round: AKS2/18 - Basic Clinical Chemistry - Serum

Dead line: 13.04.2018

Test	[unit]	Comparability					Traceability																	
		RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>		
<b>(5) Inorganic phosphate</b>	[mmol/L]				55							55	53	96%									0	
Samples and groups																								
<b>Sample B</b>		1,98	0,04	2,1	55	CVP	1,98	0,079	10%	1,78	2,18	55	54	98%									0	
(1) UV-molybdate method		1,98	0,04	2,1	55	0						55												
<b>(6) Iron</b>	[µmol/L]				52							52	51	98%									0	
Samples and groups																								
<b>Sample A</b>		42,9	0,97	2,3	52	CVP	43	0,16	15%	36,5	49,5	52	51	98%									0	
(2) Method with ferrozine/ferene		42,9	0,89	2,1	36	0						36												
(4) Method with TPTZ		42,8	1,1	2,6	16	0						16												
<b>Sample B</b>		29,4	0,76	2,6	52	CVP	29,6	0,12	15%	25,1	34,1	52	51	98%									0	
(2) Method with ferrozine/ferene		29,5	0,78	2,6	36	0						36												
(4) Method with TPTZ		29,1	0,82	2,8	16	0						16												
<b>(7) Magnesium</b>	[mmol/L]				54							0										54	54	100%
Samples and groups																								
<b>Sample A</b>		1,41	0,04	3,0	54							0		CRV	1,383	0,021	15%	1,17	1,6			54	54	100%
(2) Photometry		1,41	0,04	3,1	52	0																52		
Other					2	0																2		
<b>Sample B</b>		2,00	0,06	3,5	54							0		CRV	1,97	0,030	15%	1,67	2,27			54	54	100%
(2) Photometry		2,00	0,07	3,5	52	0																52		
Other					2	0																2		
<b>(8) Lithium</b>	[mmol/L]				7							0										7	6	86%
Samples and groups																								
<b>Sample A</b>		1,22	0,08	6,7	7							0		CRV	1,2	0,018	12%	1,05	1,35			7	7	100%
Other					7	0																7		
<b>Sample B</b>		1,89	0,08	4,7	7							0		CRV	1,853	0,028	12%	1,63	2,08			7	6	86%
Other					7	0																7		
<b>(9) Total protein</b>	[g/L]				59							0										59	58	98%
Samples and groups																								
<b>Sample A</b>		82,9	2,3	2,8	59							0		CRV	84,94	0,99	9%	77,2	92,6			59	59	100%
(1) Biuret		82,9	2,3	2,8	59	0																59		
<b>Sample B</b>		76,8	2,3	2,9	59							0		CRV	78,17	0,92	9%	71,1	85,3			59	58	98%
(1) Biuret		76,8	2,3	2,9	59	0																59		
<b>(10) Albumin</b>	[g/L]				57							57	56	98%										0
Samples and groups																								
<b>Sample A</b>		51,7	1,6	3,1	57	CVP	52,2	0,21	10%	46,9	57,5	57	56	98%										0
(1) BCG		51,7	1,6	3,1	54	0						54												
Other					3	0						3												
<b>Sample B</b>		48,7	1,6	3,2	57	CVP	49	0,21	10%	44,1	53,9	57	56	98%										0
(1) BCG		48,7	1,6	3,2	54	0						54												
Other					3	0						3												

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Test	[unit]	Comparability					Traceability																
		RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>	
<b>(11) Osmolality</b>					19							19	17	89%							0		
Samples and groups	[mmol/kg]																						
<b>Sample A</b>		296	7,0	2,4	19		CVP	297	1,4	5%	282	312	19	17	89%						0		
(1) Osmometer		297	6,5	2,2	17	0							17										
Other					2	1							2										
							1x 0, 1x 99																
<b>Sample B</b>		312	6,8	2,2	19		CVP	312	1,3	5%	296	328	19	18	95%						0		
(1) Osmometer		313	6,1	1,9	17	0							17										
Other					2	1							2										
							1x 0, 1x 99																
<b>(12) Lactate</b>					26								26	25	96%						0		
Samples and groups	[mmol/L]																						
<b>Sample A</b>		2,97	0,14	4,8	26		CVP	2,95	0,026	15%	2,5	3,4	26	25	96%						0		
(1) UV enzyme method		2,89	0,13	4,5	10	0							10										
(3) Photometric enzyme method		3,02	0,14	4,8	14	0							14										
Other					2	1							2										
							1x 0, 1x 2																
<b>Sample B</b>		4,92	0,27	5,4	26		CVP	4,92	0,041	15%	4,18	5,66	26	25	96%						0		
(1) UV enzyme method		4,77	0,28	5,9	10	0							10										
(3) Photometric enzyme method		5,05	0,34	6,7	14	0							14										
Other					2	1							2										
							1x 0, 1x 2																
<b>(13) Bilirubin total</b>					62								0								62	60	97%
Samples and groups	[µmol/L]																						
<b>Sample A</b>		80,6	5,2	6,4	62								0		CRV	82,8	2,0	21%	65,4	101	62	61	98%
(1) Jendrassik-Gróf		83,5	5,2	6,2	8	0															8		
(2) DCA, DPD		79,8	4,8	6,0	52	0															52		
Other					2	0															2		
															2x 4								
<b>Sample B</b>		73,5	5,3	7,2	62								0		CRV	76	1,7	21%	60	92	62	60	97%
(1) Jendrassik-Gróf		77,7	3,5	4,5	8	0															8		
(2) DCA, DPD		72,8	5,1	7,0	52	0															52		
Other					2	0															2		
															2x 4								
<b>(15) Cholesterol</b>					57								1	1	100%						56	56	100%
Samples and groups	[mmol/L]																						
<b>Sample A</b>		5,57	0,19	3,4	57								1	1	100%						56	56	100%
(1) Enzyme method CHOD-PAP		5,57	0,19	3,4	55	0									CRV	5,672	0,057	9%	5,16	6,19	55		
Other					2	0							1								1		
							1x 1/149								1x 1/149, 1x 99								
<b>Sample B</b>		4,64	0,17	3,6	57								1	1	100%						56	56	100%
(1) Enzyme method CHOD-PAP		4,64	0,17	3,6	55	0									CRV	4,793	0,048	9%	4,36	5,23	55		
Other					2	0							1								1		
							1x 1/149								1x 1/149, 1x 99								
<b>(16) Glucose</b>					62								0								62	61	98%
Samples and groups	[mmol/L]																						
<b>Sample A</b>		5,29	0,14	2,6	62								0		CRV	5,411	0,054	8%	4,97	5,85	62	61	98%
(1) GOD photometry		5,30	0,17	3,1	26	0															26		



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Test	[unit]	Comparability					Traceability																	
		RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>		
<b>(21) ALP</b>					60							21	19	90%							39	37	95%	
Samples and groups	[µkat/L]																							
<b>Sample A</b>		3,40	0,48	14	60							21	19	90%							39	39	100%	
(3) IFCC method		3,58	0,46	13	38	0									CRV	3,582	0,082	24%	2,72	4,45	38			
(3) IFCC method; (60) Roche		3,02	0,11	3,6	21	0	CVPG	3	0,026	18%	2,46	3,54												
Other					1	0																1		
-----															1x1									
<b>Sample B</b>		6,62	1,2	18	60							21	19	90%							39	37	95%	
(3) IFCC method		7,06	1,1	15	38	0									CRV	6,886	0,16	24%	5,23	8,54	38			
(3) IFCC method; (60) Roche		5,64	0,21	3,6	21	0	CVPG	5,57	0,046	18%	4,56	6,58												
Other					1	0																1		
-----															1x1									
<b>(22) alpha-amylase</b>					61							1	1	100%							60	59	98%	
Samples and groups	[µkat/L]																							
<b>Sample A</b>		8,86	0,43	4,9	61							1	1	100%							60	59	98%	
(1) IFCC method		8,85	0,42	4,7	60	0									CRV	9,01	0,25	15%	7,65	10,4	60			
Other					1	0																		
-----															1x1/149									
<b>Sample B</b>		3,77	0,17	4,5	61							1	1	100%							60	59	98%	
(1) IFCC method		3,76	0,16	4,4	60	0									CRV	3,811	0,11	15%	3,23	4,39	60			
Other					1	0																		
-----															1x1/149									
<b>(23) AST</b>					62							0									62	60	97%	
Samples and groups	[µkat/L]																							
<b>Sample A</b>		3,20	0,21	6,6	62							0			CRV	3,267	0,072	15%	2,77	3,76	62	60	97%	
(1) IFCC method		3,20	0,21	6,6	62	0															62			
<b>Sample B</b>		2,45	0,16	6,6	62							0			CRV	2,474	0,060	15%	2,1	2,85	62	61	98%	
(1) IFCC method		2,45	0,16	6,6	62	0															62			
<b>(24) ALT</b>					63							0									63	63	100%	
Samples and groups	[µkat/L]																							
<b>Sample A</b>		1,25	0,06	5,0	63							0			CRV	1,259	0,030	15%	1,07	1,45	63	63	100%	
(1) IFCC method		1,25	0,06	5,0	63	0															63			
<b>Sample B</b>		2,31	0,11	4,7	63							0			CRV	2,355	0,052	15%	2	2,71	63	63	100%	
(1) IFCC method		2,31	0,11	4,7	63	0															63			
<b>(26) CK</b>					57							0									57	56	98%	
Samples and groups	[µkat/L]																							
<b>Sample A</b>		3,51	0,24	6,9	57							0			CRV	3,692	0,088	20%	2,95	4,44	57	56	98%	
(1) IFCC method		3,51	0,24	6,9	57	0															57			
<b>Sample B</b>		8,45	0,50	6,0	57							0			CRV	8,705	0,21	20%	6,96	10,5	57	57	100%	
(1) IFCC method		8,45	0,50	6,0	57	0															57			
<b>(27) gamma-GT</b>					60							0									60	59	98%	
Samples and groups	[µkat/L]																							
<b>Sample A</b>		3,39	0,13	3,9	60							0			CRV	3,454	0,085	15%	2,93	3,98	60	59	98%	
(1) IFCC method		3,39	0,13	3,9	60	0															60			
<b>Sample B</b>		3,12	0,10	3,4	60							0			CRV	3,181	0,078	15%	2,7	3,66	60	59	98%	
(1) IFCC method		3,12	0,10	3,4	60	0															60			

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<b>(28) LD</b>					46							0									46	45	98%
Samples and groups	[µkat/L]																						
<b>Sample A</b>		7,87	0,22	2,8	46							0		CRV	7,757	0,17	18%	6,36	9,16	46	45	98%	
(3) IFCC method		7,87	0,22	2,8	46	0														46			
<b>Sample B</b>		5,19	0,21	4,0	46							0		CRV	5,039	0,11	18%	4,13	5,95	46	45	98%	
(3) IFCC method		5,19	0,21	4,0	46	0														46			
<b>(29) Lipase</b>					24							20	19	95%									0
Samples and groups	[µkat/L]																						
<b>Sample A</b>		1,71	0,25	15	24							20	20	100%									0
(0) Not specified; (58) Beckman Coulter (Olympus)		1,86	0,12	6,5	10	0	CVPG	1,8	0,041	24%	1,36	2,24	10										
(0) Not specified; (60) Roche		1,62	0,20	12	9	0	CVPG	1,68	0,053	24%	1,27	2,09	9										
Other					5	0							1										
								1x 0/12, 1x 0/149, 3x 0/178															
<b>Sample B</b>		2,48	0,50	20	24							20	19	95%									0
(0) Not specified; (58) Beckman Coulter (Olympus)		2,81	0,09	3,5	10	0	CVPG	2,73	0,049	24%	2,07	3,39	10										
(0) Not specified; (60) Roche		2,23	0,34	15	9	0	CVPG	2,35	0,093	24%	1,78	2,92	9										
Other					5	0							1										
								1x 0/12, 1x 0/149, 3x 0/178															
<b>(30) Cholinesterase</b>					25							25	21	84%									0
Samples and groups	[µkat/L]																						
<b>Sample A</b>		147	5,3	3,6	25							25	22	88%									0
(1) ECCLS method 37°C		147	5,3	3,6	25	1	CVP	150	1,3	12%	132	168	25										
<b>Sample B</b>		157	6,0	3,8	25							25	21	84%									0
(1) ECCLS method 37°C		157	6,0	3,8	25	1	CVP	159	1,3	12%	139	179	25										
<b>(31) Albumin (elpho)</b>					13							13	12	92%									0
Samples and groups	[-]																						
<b>Sample A</b>		0,588	0,05	9,6	13		CVP	0,603	0,013	15%	0,512	0,694	13	13	100%								0
(0) Not specified		0,588	0,05	9,6	13	0							13										
<b>Sample B</b>		0,598	0,05	8,4	13		CVP	0,617	0,011	15%	0,524	0,71	13	12	92%								0
(0) Not specified		0,598	0,05	8,4	13	0							13										
<b>(32) gamma-globuline (elpho)</b>					13							13	13	100%									0
Samples and groups	[-]																						
<b>Sample A</b>		0,140	0,01	8,7	13		CVP	0,137	0,0042	30%	0,095	0,179	13	13	100%								0
(0) Not specified		0,140	0,01	8,7	13	0							13										
<b>Sample B</b>		0,137	0,01	11	13		CVP	0,133	0,0036	30%	0,093	0,173	13	13	100%								0
(0) Not specified		0,137	0,01	11	13	0							13										
<b>(35) alpha-amylase pancreatic</b>					12							12	11	92%									0
Samples and groups	[µkat/L]																						
<b>Sample A</b>		7,80	0,19	2,5	12		CVP	7,88	0,062	10%	7,09	8,67	12	11	92%								0
(1) With IFCC calibration		7,80	0,19	2,5	12	0							12										
<b>Sample B</b>		3,01	0,11	3,8	12		CVP	3,07	0,024	10%	2,76	3,38	12	11	92%								0
(1) With IFCC calibration		3,01	0,11	3,8	12	0							12										

## Summary statistics - quantitative results

(Groups: measurement principle)

Filter: Slovakia, minimal size of groups n = 5

## EQA round: AKS2/18 - Basic Clinical Chemistry - Serum

Dead line: 13.04.2018

Test	[unit]						Comparability						Traceability										
		RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>	
<b>(36) Calcium ionised</b>					7						7	6	86%							0			
Samples and groups	[mmol/L]																						
<b>Sample A</b>		1,78	0,07	4,1	7	CVP	1,82	0,022	10%	1,63	2,01	7	6	86%						0			
(2) Direct ISE		1,78	0,07	4,0	6							6											
Other					1							1											
						Ix 1																	
<b>Sample B</b>		1,86	0,14	7,6	7	CVP	1,92	0,023	10%	1,72	2,12	7	6	86%						0			
(2) Direct ISE		1,90	0,07	3,9	6							6											
Other					1							1											
						Ix 1																	

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End of report

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