

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: 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 _{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}							
(1) Sodium					349							0				349	343	98%			
Samples and groups	[mmol/L]																				
Sample A		132	2,0	1,5	349							0	CRV	130,9	2,0	5%	124	138	349	345	99%
(2) Indirect ISE		131	1,9	1,4	300	0													300		
(3) Direct ISE		133	2,7	2,0	49	0													49		
Sample B		140	2,1	1,5	349							0	CRV	139,1	2,1	5%	132	147	349	346	99%
(2) Indirect ISE		140	2,0	1,4	300	0													300		
(3) Direct ISE		141	2,9	2,1	49	0													49		
(2) Potassium					349							0							349	341	98%
Samples and groups	[mmol/L]																				
Sample A		5,91	0,13	2,2	349							0	CRV	5,843	0,088	7%	5,43	6,26	349	345	99%
(2) Indirect ISE		5,90	0,12	2,0	301	0													301		
(3) Direct ISE		5,99	0,15	2,5	47	0													47		
Other					1	0													1		
Sample B		3,95	0,08	2,1	349							0	CRV	3,876	0,058	7%	3,6	4,15	349	342	98%
(2) Indirect ISE		3,95	0,08	2,0	301	0													301		
(3) Direct ISE		3,96	0,11	2,8	47	0													47		
Other					1	0													1		
(3) Chloride					349							349	345	99%					0		
Samples and groups	[mmol/L]																				
Sample A		118	3,0	2,5	349	CVP	118	0,39	7%	109	127	349	348	100%					0		
(3) Indirect ISE		118	3,0	2,5	304	0						304									
(4) Direct ISE		118	2,3	2,0	43	0						43									
Other					2	0						2									
Sample B		123	2,7	2,2	349	CVP	123	0,36	7%	114	132	349	345	99%					0		
(3) Indirect ISE		123	2,7	2,2	304	1						304									
(4) Direct ISE		123	2,8	2,3	43	0						43									
Other					2	0						2									
(4) Calcium					331							0							331	325	98%
Samples and groups	[mmol/L]																				
Sample A		2,85	0,06	2,1	331							0	CRV	2,846	0,043	8%	2,61	3,08	331	327	99%
(2) Phot. with o-cresolftalexon		2,85	0,10	3,7	37	0													37		
(3) Photom. with arsenazo III		2,85	0,06	2,2	181	0													181		
(4) Complex Ca-NM-BAPTA		2,86	0,04	1,6	99	0													99		
(6) ISE		2,85	0,07	2,6	13	0													13		
Other					1	0													1		
Sample B		3,04	0,06	2,1	331							0	CRV	3,02	0,045	8%	2,77	3,27	331	327	99%

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(4) Calcium	[mmol/L]				331							0									331	325	98%			
--- Samples and groups ---																										
Sample B		3,04	0,06	2,1	331							0		CRV	3,02	0,045	8%	2,77	3,27		331	327	99%			
(2) Phot. with o-cresolftalexon		3,06	0,11	3,5	37	0																37				
(3) Photom. with arsenazo III		3,03	0,06	2,1	181	0																181				
(4) Complex Ca-NM-BAPTA		3,06	0,05	1,7	99	0																99				
(6) ISE		3,04	0,04	1,6	13	0																13				
Other					1	0																1				
														1x 99												
(5) Inorganic phosphate	[mmol/L]				315							315	310	98%									0			
--- Samples and groups ---																										
Sample A		1,36	0,04	3,3	315		CVP	1,36	0,061	10%	1,22	1,5			315	313	99%						0			
(1) UV-molybdate method		1,36	0,04	3,3	307	0									307											
Other					8	0									8											
							4x 2, 4x 3																			
Sample B		1,98	0,05	2,9	315		CVP	1,98	0,079	10%	1,78	2,18			315	312	99%						0			
(1) UV-molybdate method		1,98	0,05	2,9	307	0									307											
Other					8	0									8											
							4x 2, 4x 3																			
(6) Iron	[µmol/L]				302										302	301	100%						0			
--- Samples and groups ---																										
Sample A		43,0	1,1	2,6	302		CVP	43	0,16	15%	36,5	49,5			302	301	100%						0			
(2) Method with ferrozine/ferene		43,1	1,2	2,7	238	0									238											
(4) Method with TPTZ		42,7	0,88	2,1	61	0									61											
Other					3	0									3											
							2x 1, 1x 99																			
Sample B		29,6	0,88	3,0	302		CVP	29,6	0,12	15%	25,1	34,1			302	301	100%						0			
(2) Method with ferrozine/ferene		29,7	0,88	3,0	238	0									238											
(4) Method with TPTZ		29,1	0,70	2,4	61	0									61											
Other					3	0									3											
							2x 1, 1x 99																			
(7) Magnesium	[mmol/L]				304										0								304	300	99%	
--- Samples and groups ---																										
Sample A		1,41	0,04	3,0	304										0		CRV	1,383	0,021	15%	1,17	1,6		304	302	99%
(2) Photometry		1,41	0,04	3,1	262	0																			262	
(4) UV enzyme method		1,40	0,03	2,5	41	0																			41	
Other					1	0																			1	
																	1x 99									
Sample B		1,99	0,07	3,7	304										0		CRV	1,97	0,030	15%	1,67	2,27		304	302	99%
(2) Photometry		1,98	0,07	3,7	262	1																			262	
(4) UV enzyme method		2,03	0,06	3,1	41	0																			41	
Other					1	0																			1	
																	1x 99									
(8) Lithium	[mmol/L]				45										0									45	43	96%
--- Samples and groups ---																										
Sample A		1,19	0,06	5,5	45										0		CRV	1,2	0,018	12%	1,05	1,35		45	44	98%
(1) Flame emission phot.		1,17	0,10	8,9	8	0																			8	
(3) ISE		1,22	0,05	4,3	18	0																			18	

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Test	[unit]	Comparability					Traceability																
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(8) Lithium					45							0									45	43	96%
Samples and groups	[mmol/L]																						
Sample A		1,19	0,06	5,5	45							0		CRV	1,2	0,018	12%	1,05	1,35	45	44	98%	
(4) Photometry		1,18	0,05	5,0	16	0														16			
Other					3	0														3			
Sample B		1,83	0,09	5,0	45							0		3x2 CRV	1,853	0,028	12%	1,63	2,08	45	44	98%	
(1) Flame emission phot.		1,78	0,10	5,8	8	0														8			
(3) ISE		1,87	0,07	3,9	18	0														18			
(4) Photometry		1,81	0,07	4,3	16	0														16			
Other					3	0														3			
														3x2									
(9) Total protein					341							0									341	335	98%
Samples and groups	[g/L]																						
Sample A		83,3	2,1	2,6	341							0		CRV	84,94	0,99	9%	77,2	92,6	341	336	99%	
(1) Biuret		83,3	2,1	2,6	341	0														341			
Sample B		77,3	2,0	2,6	341							0		CRV	78,17	0,92	9%	71,1	85,3	341	338	99%	
(1) Biuret		77,3	2,0	2,6	341	0														341			
(10) Albumin					330							330	328	99%							0		
Samples and groups	[g/L]																						
Sample A		52,2	1,6	3,0	330	CVP	52,2	0,21	10%	46,9	57,5	330	329	100%							0		
(1) BCG		52,2	1,5	3,0	301	0						301											
(2) BCP		51,8	1,7	3,2	29	0						29											
Sample B		49,0	1,6	3,2	330	CVP	49	0,21	10%	44,1	53,9	330	328	99%							0		
(1) BCG		49,0	1,6	3,2	301	0						301											
(2) BCP		48,5	1,5	3,2	29	0						29											
(11) Osmolality					128							128	121	95%							0		
Samples and groups	[mmol/kg]																						
Sample A		297	6,5	2,2	128	CVP	297	1,4	5%	282	312	128	124	97%							0		
(1) Osmometer		297	6,4	2,1	126	0						126											
Other					2	1						2											
Sample B		312	6,0	1,9	128	CVP	312	1,3	5%	296	328	128	122	95%							0		
(1) Osmometer		312	5,9	1,9	126	0						126											
Other					2	1						2											
(12) Lactate					159							159	156	98%							0		
Samples and groups	[mmol/L]																						
Sample A		2,95	0,13	4,4	159	CVP	2,95	0,026	15%	2,5	3,4	159	156	98%							0		
(1) UV enzyme method		2,93	0,13	4,4	74	0						74											
(2) Enzyme electrodes		3,08	0,25	8,3	16	0						16											
(3) Photometric enzyme method		2,95	0,12	3,9	68	0						68											
Other					1	1						1											
Sample B		4,92	0,21	4,2	159	CVP	4,92	0,041	15%	4,18	5,66	159	157	99%							0		
(1) UV enzyme method		4,89	0,21	4,2	74	0						74											
(2) Enzyme electrodes		5,01	0,35	7,0	16	0						16											

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(12) Lactate					159							159	156	98%							0					
Samples and groups	[mmol/L]																									
Sample B		4,92	0,21	4,2	159		CVP	4,92	0,041	15%	4,18	5,66		159	157	99%								0		
(3) Photometric enzyme method		4,93	0,20	4,0	68	0								68												
Other					1	1								1												
							1x 0																			
(13) Bilirubin total					355									0							355	353	99%			
Samples and groups	[µmol/L]																									
Sample A		82,0	5,2	6,3	355									0		CRV	82,8	2,0	21%	65,4	101		355	354	100%	
(1) Jendrassik-Gróf		83,8	4,6	5,5	64	0																			64	
(2) DCA, DPD		81,1	4,8	5,9	265	0																				265
(4) Oxidation-reduction methods		87,7	2,0	2,2	24	0																				24
Other					2	0																				2
																2x 99										
Sample B		74,7	4,7	6,3	355									0		CRV	76	1,7	21%	60	92		355	353	99%	
(1) Jendrassik-Gróf		75,9	4,4	5,8	64	0																				64
(2) DCA, DPD		74,0	4,5	6,1	265	0																				265
(4) Oxidation-reduction methods		79,4	1,8	2,3	24	0																				24
Other					2	0																				2
																2x 99										
(15) Cholesterol					343									8	7	88%							335	327	98%	
Samples and groups	[mmol/L]																									
Sample A		5,58	0,18	3,3	343									8	7	88%							335	331	99%	
(1) Enzyme method CHOD-PAP		5,59	0,18	3,2	334	0										CRV	5,672	0,057	9%	5,16	6,19				334	
(1) Enzyme method CHOD-PAP; (149) Siemens (Dade)		5,23	0,30	5,8	8	0	CVPG	5,23	0,23	6,5%	4,89	5,57		8												
Other					1	0																				1
																1x 99										
Sample B		4,64	0,16	3,5	343									8	8	100%							335	330	99%	
(1) Enzyme method CHOD-PAP		4,64	0,16	3,4	334	0										CRV	4,793	0,048	9%	4,36	5,23				334	
(1) Enzyme method CHOD-PAP; (149) Siemens (Dade)		4,17	0,24	5,9	8	0	CVPG	4,17	0,19	6,5%	3,89	4,45		8												
Other					1	0																				1
																1x 99										
(16) Glucose					358									0									358	351	98%	
Samples and groups	[mmol/L]																									
Sample A		5,29	0,13	2,5	358									0		CRV	5,411	0,054	8%	4,97	5,85		358	351	98%	
(1) GOD photometry		5,32	0,15	2,8	100	0																				100
(2) GOD electrochemical		5,31	0,02	0,50	10	0																				10
(3) Method with hexokinase		5,28	0,13	2,4	248	0																				248
Sample B		11,9	0,27	2,3	358									0		CRV	12,04	0,12	8%	11	13,1		358	357	100%	
(1) GOD photometry		11,9	0,29	2,4	100	0																				100
(2) GOD electrochemical		11,8	0,23	2,0	10	0																				10
(3) Method with hexokinase		11,9	0,26	2,2	248	0																				248
(17) Uric acid					351									0									351	350	100%	
Samples and groups	[µmol/L]																									
Sample A		462	13	2,9	351									0		CRV	471,6	4,7	12%	415	529		351	351	100%	
(2) Enzyme-photomet. m.		462	13	2,9	351	0																				351
Sample B		310	9,6	3,1	351									0		CRV	316,5	3,2	12%	278	355		351	350	100%	

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(21) ALP					352							121	117	97%							231	228	99%
Samples and groups	[µkat/L]																						
Sample B		6,50	1,0	15	352							121	117	97%							231	228	99%
(1) IFCC method		6,97	0,81	12	227	0									CRV	6,886	0,16	24%	5,23	8,54	227		
(3) IFCC method; (60) Roche		5,57	0,21	3,7	121	0	CVPG	5,57	0,046	18%	4,56	6,58	121										4
Other					4	0																	
															4x1								
(22) alpha-amylase					334							8	8	100%							326	323	99%
Samples and groups	[µkat/L]																						
Sample A		8,88	0,45	5,1	334							8	8	100%							326	323	99%
(1) IFCC method		8,86	0,43	4,9	326	0									CRV	9,01	0,25	15%	7,65	10,4	326		
(1) IFCC method; (149) Siemens (Dade)		11,0	0,63	5,8	6	0	CVPG	11,1	0,65	9,5%	10	12,2	6										
Other					2	0							2										
															1x 0/149, 1x 99/149								
Sample B		3,76	0,17	4,6	334							8	8	100%							326	323	99%
(1) IFCC method		3,76	0,17	4,4	326	0									CRV	3,811	0,11	15%	3,23	4,39	326		
(1) IFCC method; (149) Siemens (Dade)		4,40	0,20	4,6	6	0	CVPG	4,4	0,15	9,5%	3,98	4,82	6										
Other					2	0							2										
															1x 0/149, 1x 99/149								
(23) AST					357							0									357	354	99%
Samples and groups	[µkat/L]																						
Sample A		3,29	0,15	4,5	357							0			CRV	3,267	0,072	15%	2,77	3,76	357	354	99%
(1) IFCC method		3,29	0,15	4,5	356	0															356		
Other					1	0																	1
															1x 99								
Sample B		2,50	0,13	5,1	357							0			CRV	2,474	0,060	15%	2,1	2,85	357	356	100%
(1) IFCC method		2,50	0,13	5,1	356	0															356		
Other					1	0																	1
															1x 99								
(24) ALT					358							0									358	355	99%
Samples and groups	[µkat/L]																						
Sample A		1,26	0,07	5,8	358							0			CRV	1,259	0,030	15%	1,07	1,45	358	355	99%
(1) IFCC method		1,26	0,07	5,8	357	0															357		
Other					1	0																	1
															1x 99								
Sample B		2,34	0,12	5,1	358							0			CRV	2,355	0,052	15%	2	2,71	358	357	100%
(1) IFCC method		2,34	0,12	5,1	357	0															357		
Other					1	0																	1
															1x 99								
(26) CK					317							0									317	314	99%
Samples and groups	[µkat/L]																						
Sample A		3,50	0,21	5,9	317							0			CRV	3,692	0,088	20%	2,95	4,44	317	315	99%
(1) IFCC method		3,50	0,21	5,9	317	0															317		
Sample B		8,44	0,49	5,8	317							0			CRV	8,705	0,21	20%	6,96	10,5	317	315	99%
(1) IFCC method		8,44	0,49	5,8	317	0															317		

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(27) gamma-GT					352							0				352	349	99%				
Samples and groups	[µkat/L]																					
Sample A		3,42	0,12	3,5	352							0	CRV	3,454	0,085	15%	2,93	3,98	352	349	99%	
(1) IFCC method		3,42	0,12	3,5	352	0													352			
Sample B		3,14	0,10	3,3	352							0	CRV	3,181	0,078	15%	2,7	3,66	352	350	99%	
(1) IFCC method		3,14	0,10	3,3	352	0													352			
(28) LD					261							0							261	260	100%	
Samples and groups	[µkat/L]																					
Sample A		7,86	0,25	3,1	261							0	CRV	7,757	0,17	18%	6,36	9,16	261	260	100%	
(3) IFCC method		7,86	0,25	3,1	261	0													261			
Sample B		5,17	0,19	3,6	261							0	CRV	5,039	0,11	18%	4,13	5,95	261	260	100%	
(3) IFCC method		5,17	0,19	3,6	261	0													261			
(29) Lipase					162							144	141	98%								0
Samples and groups	[µkat/L]																					
Sample A		1,72	0,19	11	162							144	143	99%								0
(0) Not specified; (1) Abbott		1,75	0,10	6,0	19	0	CVPG	1,75	0,059	24%	1,33	2,17										19
(0) Not specified; (12) Beckman Coulter		1,37	0,10	7,6	9	0	CVPG	1,37	0,13	24%	1,04	1,7										9
(0) Not specified; (58) Beckman Coulter (Olympus)		1,80	0,10	5,8	39	0	CVPG	1,8	0,041	24%	1,36	2,24										39
(0) Not specified; (60) Roche		1,68	0,18	10	65	0	CVPG	1,68	0,053	24%	1,27	2,09										65
(0) Not specified; (179) Siemens (Bayer)		2,00	0,12	5,7	12	0	CVPG	2	0,081	24%	1,52	2,48										12
Other					18	0																0
																						1x 0/5, 4x 0/46, 2x 0/49, 2x 0/149, 1x 0/166, 3x 0/177, 3x 0/178, 2x 0/999
Sample B		2,50	0,37	15	162							144	141	98%								0
(0) Not specified; (1) Abbott		2,63	0,14	5,3	19	0	CVPG	2,63	0,078	24%	1,99	3,27										19
(0) Not specified; (12) Beckman Coulter		2,00	0,16	7,8	9	0	CVPG	2	0,19	24%	1,52	2,48										9
(0) Not specified; (58) Beckman Coulter (Olympus)		2,73	0,13	4,6	39	0	CVPG	2,73	0,049	24%	2,07	3,39										39
(0) Not specified; (60) Roche		2,35	0,31	13	65	0	CVPG	2,35	0,093	24%	1,78	2,92										65
(0) Not specified; (179) Siemens (Bayer)		2,94	0,20	6,7	12	0	CVPG	2,94	0,14	24%	2,23	3,65										12
Other					18	0																0
																						1x 0/5, 4x 0/46, 2x 0/49, 2x 0/149, 1x 0/166, 3x 0/177, 3x 0/178, 2x 0/999
(30) Cholinesterase					117							115	105	91%								0
Samples and groups	[µkat/L]																					
Sample A		150	5,6	3,8	117							115	106	92%								0
(1) ECCLS method 37°C		150	5,5	3,7	115	1	CVP	150	1,3	12%	132	168										115
Other					2	0																0
																						2x 1/149
Sample B		159	5,9	3,7	117							115	108	94%								0
(1) ECCLS method 37°C		159	5,7	3,6	115	1	CVP	159	1,3	12%	139	179										115
Other					2	0																0
																						2x 1/149
(31) Albumin (elpho)					97							97	90	93%								0
Samples and groups	[-]																					
Sample A		0,603	0,05	8,5	97		CVP	0,603	0,013	15%	0,512	0,694										97
																						92
																						95%

Summary statistics - quantitative results

(Groups: measurement principle)

Filter: 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 _{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)					97							97	90	93%									0
Samples and groups	[-]																						
Sample A		0,603	0,05	8,5	97	CVP	0,603	0,013	15%	0,512	0,694	97	92	95%									0
(0) Not specified		0,603	0,05	8,5	97							97											
Sample B		0,617	0,04	7,2	97	CVP	0,617	0,011	15%	0,524	0,71	97	92	95%									0
(0) Not specified		0,617	0,04	7,2	97							97											
(32) gamma-globuline (elpho)					96							96	92	96%									0
Samples and groups	[-]																						
Sample A		0,137	0,01	12	96	CVP	0,137	0,042	30%	0,095	0,179	96	93	97%									0
(0) Not specified		0,137	0,01	12	96							96											
Sample B		0,133	0,01	11	96	CVP	0,133	0,036	30%	0,093	0,173	96	94	98%									0
(0) Not specified		0,133	0,01	11	96							96											
(35) alpha-amylase pancreatic					94							94	90	96%									0
Samples and groups	[µkat/L]																						
Sample A		7,88	0,24	3,1	94	CVP	7,88	0,062	10%	7,09	8,67	94	91	97%									0
(1) With IFCC calibration		7,88	0,24	3,1	94							94											
Sample B		3,07	0,09	3,1	94	CVP	3,07	0,024	10%	2,76	3,38	94	91	97%									0
(1) With IFCC calibration		3,07	0,09	3,1	94							94											
(36) Calcium ionised					55							55	52	95%									0
Samples and groups	[mmol/L]																						
Sample A		1,82	0,06	3,6	55	CVP	1,82	0,022	10%	1,63	2,01	55	52	95%									0
(2) Direct ISE		1,82	0,06	3,6	51							51											
Other					4							4											
Sample B		1,92	0,06	3,6	55	CVP	1,92	0,023	10%	1,72	2,12	55	54	98%									0
(2) Direct ISE		1,93	0,06	3,5	51							51											
Other					4							4											

st_kn_np

End of report

Printed: 18.04.2018