

## Summary statistics - quantitative results

(Groups: measurement principle)

Filter: minimal size of groups n = 5

## EQA round: AM2/17 - Basic Clinical Chemistry - Urine

Dead line: 13.10.2017

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>	AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL	N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub>
<b>(61) Sodium</b>					250							250	245	98%								0
Samples and groups	[mmol/L]																					
<b>Sample A</b>		160	2,4	1,5	250		CVP	160	0,38	11%	142	178	250	248	99%							0
(2) Indirect ISE		160	2,3	1,4	236	0							236									
(3) Direct ISE		161	5,0	3,1	14	0							14									
<b>Sample B</b>		66,1	1,4	2,1	250		CVP	66,1	0,21	11%	58,8	73,4	250	246	98%							0
(2) Indirect ISE		66,1	1,3	2,0	236	0							236									
(3) Direct ISE		67,2	2,5	3,7	14	0							14									
<b>(62) Potassium</b>					250								250	247	99%							0
Samples and groups	[mmol/L]																					
<b>Sample A</b>		64,7	2,0	3,1	250		CVP	64,7	0,31	15%	54,9	74,5	250	248	99%							0
(2) Indirect ISE		64,7	1,9	2,9	236	0							236									
(3) Direct ISE		64,6	3,5	5,5	14	0							14									
<b>Sample B</b>		25,1	0,68	2,7	250		CVP	25,1	0,10	15%	21,3	28,9	250	247	99%							0
(2) Indirect ISE		25,1	0,64	2,5	236	0							236									
(3) Direct ISE		25,7	1,6	6,4	14	0							14									
<b>(63) Chloride</b>					248								248	235	95%							0
Samples and groups	[mmol/L]																					
<b>Sample A</b>		188	4,6	2,4	248		CVP	188	0,72	14%	161	215	248	247	100%							0
(3) Indirect ISE		188	4,4	2,3	232	0							232									
(4) Direct ISE		186	9,5	5,1	14	0							14									
Other					2	0							2									
							2x 2															
<b>Sample B</b>		66,8	3,5	5,3	248		CVP	66,8	0,55	14%	57,4	76,2	248	235	95%							0
(3) Indirect ISE		66,9	3,5	5,3	232	0							232									
(4) Direct ISE		67,0	3,5	5,3	14	0							14									
Other					2	0							2									
							2x 2															
<b>(64) Calcium</b>					254								254	253	100%							0
Samples and groups	[mmol/L]																					
<b>Sample A</b>		3,01	0,11	3,7	254		CVP	3,01	0,017	18%	2,46	3,56	254	253	100%							0
(2) Phot. with o-cresol.		3,07	0,09	3,0	38	0							38									
(3) Phot. with arsenazo		2,98	0,13	4,2	136	0							136									
(4) Complex Ca-NM-BAPTA		3,04	0,06	2,1	69	0							69									
(6) ISE		2,74	0,03	1,1	9	0							9									
Other					2	0							2									
							2x 1															
<b>Sample B</b>		2,08	0,08	4,1	254		CVP	2,08	0,013	18%	1,7	2,46	254	253	100%							0
(2) Phot. with o-cresol.		2,11	0,07	3,5	38	0							38									
(3) Phot. with arsenazo		2,05	0,08	4,3	136	0							136									

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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>(64) Calcium</b>					254							254	253	100%									0
Samples and groups	[mmol/L]																						
<b>Sample B</b>		2,08	0,08	4,1	254	CVP	2,08	0,013	18%	1,7	2,46	254	253	100%									0
(4) Complex Ca-NM-BAPTA		2,12	0,04	2,3	69							69											
(6) ISE		1,83	0,11	6,1	9							9											
Other					2							2											
						2x 1																	
<b>(73) Magnesium</b>					215							215	208	97%									0
Samples and groups	[mmol/L]																						
<b>Sample A</b>		4,99	0,21	4,3	215	CVP	4,99	0,036	20%	3,99	5,99	215	212	99%									0
(2) Photometry with coloured dyes		4,99	0,22	4,3	186							186											
(4) Enzymatic UV method		5,00	0,18	3,6	26							26											
Other					3							3											
						3x 1																	
<b>Sample B</b>		2,60	0,14	5,2	215	CVP	2,6	0,023	20%	2,08	3,12	215	210	98%									0
(2) Photometry with coloured dyes		2,60	0,14	5,3	186							186											
(4) Enzymatic UV method		2,58	0,10	4,0	26							26											
Other					3							3											
						3x 1																	
<b>(65) Inorganic phosphate</b>					247							247	243	98%									0
Samples and groups	[mmol/L]																						
<b>Sample A</b>		14,1	0,57	4,1	247	CVP	14,1	0,090	18%	11,5	16,7	247	243	98%									0
(1) UV-molybdate method		14,1	0,57	4,1	237							237											
(2) Reduction photometry		14,3	0,55	3,8	5							5											
(3) Molybdate-vanadate		13,9	0,62	4,4	5							5											
<b>Sample B</b>		6,92	0,35	5,1	247	CVP	6,92	0,055	18%	5,67	8,17	247	245	99%									0
(1) UV-molybdate method		6,92	0,34	5,0	237							237											
(2) Reduction photometry		6,94	0,46	6,6	5							5											
(3) Molybdate-vanadate		6,94	0,53	7,7	5							5											
<b>(66) Osmolality</b>					126							126	121	96%									0
Samples and groups	[mmol/kg]																						
<b>Sample A</b>		756	7,4	0,97	126	CVP	756	1,6	4%	725	787	126	122	97%									0
(1) Osmometer		756	7,2	0,96	125							125											
Other					1							1											
						1x 99																	
<b>Sample B</b>		325	3,6	1,1	126	CVP	325	0,79	4%	312	338	126	122	97%									0
(1) Osmometer		325	3,6	1,1	125							125											
Other					1							1											
						1x 99																	
<b>(67) Urea</b>					245							245	243	99%									0
Samples and groups	[mmol/L]																						
<b>Sample A</b>		286	13	4,6	245	CVP	286	2,1	17%	237	335	245	243	99%									0
(1) UV enzymatic m.(GMD)		285	13	4,5	237							237											
Other					8							8											
						4x 2, 3x 5, 1x 99																	
<b>Sample B</b>		136	6,2	4,5	245	CVP	136	0,96	17%	112	160	245	243	99%									0
(1) UV enzymatic m.(GMD)		136	6,2	4,5	237							237											

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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>(67) Urea</b>	[mmol/L]				245							245	243	99%								0	
Samples and groups																							
<b>Sample B</b>		136	6,2	4,5	245		CVP	136	0,96	17%	112	160	245	243	99%							0	
Other					8	0							8										
4x 2, 3x 5, 1x 99																							
<b>(68) Creatinine</b>	[mmol/L]				259								0								259	250	97%
Samples and groups																							
<b>Sample A</b>		13,2	0,58	4,4	259								0		RV	12,9	0,28	21%	10,1	15,7	259	254	98%
(2) Jaffé without depro.		13,2	0,66	5,0	137	0																137	
(3) Enzyme		13,3	0,49	3,7	120	0																120	
Other					2	0																	2
<b>Sample B</b>		6,00	0,29	4,8	259								0		<sup>2x 1</sup> RV	5,89	0,17	21%	4,65	7,13	259	251	97%
(2) Jaffé without depro.		5,95	0,32	5,5	137	0																137	
(3) Enzyme		6,05	0,24	3,9	120	0																120	
Other					2	0																	2
2x 1																							
<b>(69) Uric acid</b>	[mmol/L]				243								243	225	93%							0	
Samples and groups																							
<b>Sample A</b>		0,711	0,04	6,2	243		CVP	0,711	0,070	23%	0,547	0,875	243	240	99%							0	
(2) Enzyme-photomet. m.		0,711	0,04	6,2	242	0							242										
Other					1	0							1										
1x 1																							
<b>Sample B</b>		0,319	0,03	9,6	243		CVP	0,319	0,048	23%	0,245	0,393	243	226	93%							0	
(2) Enzyme-photomet. m.		0,319	0,03	9,5	242	0							242										
Other					1	0							1										
1x 1																							
<b>(70) Glucose</b>	[mmol/L]				239								239	231	97%							0	
Samples and groups																							
<b>Sample A</b>		16,4	0,52	3,2	239		CVP	16,4	0,082	22%	12,7	20,1	239	236	99%							0	
(1) GOD photometry		16,5	0,55	3,3	52	0							52										
(2) GOD electrochemical		16,0	0,46	2,9	15	0							15										
(3) Method with hexokinase		16,4	0,51	3,1	172	0							172										
<b>Sample B</b>		1,51	0,08	5,4	239		CVP	1,51	0,013	22%	1,17	1,85	239	232	97%							0	
(1) GOD photometry		1,53	0,13	8,2	52	0							52										
(2) GOD electrochemical		1,49	0,16	11	15	0							15										
(3) Method with hexokinase		1,51	0,07	4,9	172	0							172										
<b>(71) Total protein</b>	[g/L]				229								214	206	96%							0	
Samples and groups																							
<b>Sample A</b>		0,667	0,14	21	229								214	212	99%							0	
(1) Biuret; (58) Beckman Coulter (Olympus)		0,784	0,03	4,9	6	0	CVPG	0,8	0,010	30%	0,56	1,04	6										
(1) Biuret; (60) Roche		0,563	0,02	4,5	6	0	CVPG	0,577	0,011	30%	0,403	0,751	6										
(2) Pyrogallol red; (12) Beckman Coulter		0,703	0,06	9,6	11	0	CVPG	0,718	0,051	30%	0,502	0,934	11										
(2) Pyrogallol red; (49) BioVendor		0,665	0,09	14	6	0	CVPG	0,665	0,094	30%	0,465	0,865	6										
(2) Pyrogallol red; (58) Beckman Coulter (Olympus)		0,804	0,02	3,6	44	0	CVPG	0,8	0,010	30%	0,56	1,04	44										

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		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>(71) Total protein</b>					229						214	206	96%							0					
Samples and groups	[g/L]																								
<b>Sample A</b>		0,667	0,14	21	229						214	212	99%							0					
(2) Pyrogallol red; (149) Siemens (Dade)		0,755	0,01	1,8	8	0	CVPG	0,755	0,010	30%	0,528	0,982													
(2) Pyrogallol red; (179) Siemens (Bayer)		0,322	0,03	9,8	17	0	CVPG	0,326	0,018	30%	0,228	0,424													
(4) Turbidimetry; (1) Abbott		0,811	0,02	3,1	24	0	CVPG	0,811	0,011	30%	0,567	1,06													
(4) Turbidimetry; (60) Roche		0,577	0,03	6,7	69	0	CVPG	0,577	0,011	30%	0,403	0,751													
(4) Turbidimetry; (77) Skalab		0,595	0,05	8,7	6	0	CVPG	0,587	0,063	30%	0,41	0,764													
Other					32	0																			
											2x 1/1, 2x 1/12, 1x 1/49, 2x 1/178, 1x 1/179, 1x 2/1, 3x 2/46, 3x 2/60, 2x 2/75, 4x 2/158, 1x 2/166, 2x 2/178, 1x 3/60, 1x 3/77, 1x 3/179, 3x 4/58, 1x 4/125, 1x 4/179														
<b>Sample B</b>		0,199	0,07	40	229						214	206	96%							0					
(1) Biuret; (58) Beckman Coulter (Olympus)		0,282	0,02	9,5	6	0	CVPG	0,282	,0048	30%	0,197	0,367													
(1) Biuret; (60) Roche		0,133	0,01	7,8	6	0	CVPG	0,138	,0048	30%	0,096	0,18													
(2) Pyrogallol red; (12) Beckman Coulter		0,217	0,04	20	11	0	CVPG	0,226	0,032	30%	0,158	0,294													
(2) Pyrogallol red; (49) BioVendor		0,225	0,03	16	6	0	CVPG	0,225	0,036	30%	0,157	0,293													
(2) Pyrogallol red; (58) Beckman Coulter (Olympus)		0,283	0,01	4,2	44	0	CVPG	0,282	,0048	30%	0,197	0,367													
(2) Pyrogallol red; (149) Siemens (Dade)		0,250	0,01	5,7	8	0	CVPG	0,25	0,011	30%	0,175	0,325													
(2) Pyrogallol red; (179) Siemens (Bayer)		0,103	0,01	17	17	0	CVPG	0,103	,0088	30%	0,072	0,134													
(4) Turbidimetry; (1) Abbott		0,259	0,00	3,7	24	0	CVPG	0,259	,0042	30%	0,181	0,337													
(4) Turbidimetry; (60) Roche		0,138	0,01	13	69	0	CVPG	0,138	,0048	30%	0,096	0,18													
(4) Turbidimetry; (77) Skalab		0,126	0,00	6,5	6	0	CVPG	0,135	0,022	30%	0,094	0,176													
Other					32	0																			
											2x 1/1, 2x 1/12, 1x 1/49, 2x 1/178, 1x 1/179, 1x 2/1, 3x 2/46, 3x 2/60, 2x 2/75, 4x 2/158, 1x 2/166, 2x 2/178, 1x 3/60, 1x 3/77, 1x 3/179, 3x 4/58, 1x 4/125, 1x 4/179														
<b>(72) pH</b>					29						29	27	93%							0					
Samples and groups	[-]																								
<b>Sample A</b>		6,63	0,07	1,1	29		CVP	6,63	0,034	5%	6,29	6,97		29	27	93%				0					
(1) Glass electrode		6,63	0,07	1,2	28	0								28											
Other					1	0								1											
											1x 99														
<b>Sample B</b>		6,65	0,15	2,2	29		CVP	6,65	0,066	5%	6,31	6,99		29	27	93%				0					
(1) Glass electrode		6,65	0,15	2,3	28	0								28											
Other					1	0								1											
											1x 99														

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End of report

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