

## EQA round: TDM1/24 - Therapeutic Drugs

Setup: groups - M (measurement principle); minimal size of the groups n = 5

RoM = robust average	AV = assigned value	D <sub>max</sub> = 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 <sub>tot</sub> = total number of the results	CVPG = consensus of the participants' groups	N <sub>eva</sub> = number of the results assessed
N <sub>out</sub> = number of the results removed before calculation	U <sub>AV</sub> = expanded uncertainty of the assigned value (k = 2)	N <sub>suc</sub> = number of successful results
		S <sub>rel</sub> = relative success

Test Sample Group	[unit]	RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	Comparability					Traceability							
							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
<b>Set 1</b>																			
<b>(81) Digoxin</b>	[µg/L]				127														
<b>Sample A1</b>		1,34	0,19	14	127														
(2) EIA (EMIT, CEDIA)		1,31	0,079	6	13	0							CRV	1,3	0,033	36%	0,832	1,77	
(4) LIA, ILMA		1,33	0,28	21	67	0													
(6) Immunoturbidimetry, KIMS		1,36	0,11	7,7	45	0													
Other					2	0													
													2x 99						
<b>Sample B1</b>		0,73	0,15	20	127														
(2) EIA (EMIT, CEDIA)		0,725	0,08	11	13	0							CRV	0,694	0,017	36%	0,444	0,944	
(4) LIA, ILMA		0,712	0,18	26	67	0													
(6) Immunoturbidimetry, KIMS		0,758	0,11	14	45	0													
Other					2	0													
													2x 99						
<b>(87) Ethosuximide</b>	[mg/L]				6														
<b>Sample A1</b>					6	0													
Other					6	0													
													2x 3, 4x 5						
<b>Sample B1</b>					6	0													
Other					6	0													
													2x 3, 4x 5						
<b>(84) Phenobarbital</b>	[mg/L]				22														
<b>Sample A1</b>		19,7	1,8	9	22														
(4) LIA, ILMA		20,3	1,2	5,9	7	0							CVP	19,7	0,92	20%	15,7	23,7	
(6) Immunoturbidimetry, KIMS		20	2,4	12	8	0													
Other					7	0													
													1x 1, 2x 2, 2x 3, 2x 5						
<b>Sample B1</b>		39,9	2,4	6,1	22														
(4) LIA, ILMA		40,6	3,5	8,7	7	0													
(6) Immunoturbidimetry, KIMS		40,1	2,2	5,5	8	0													
Other					7	0													
													1x 1, 2x 2, 2x 3, 2x 5						
<b>(85) Phenytoin</b>	[mg/L]				34														
<b>Sample A1</b>		9,48	0,67	7,1	34														
(2) EIA (EMIT, CEDIA)		10,2	0,37	3,7	5	0													
(4) LIA, ILMA		9,08	0,49	5,4	11	0													
(6) Immunoturbidimetry, KIMS		9,55	0,34	3,6	12	0													
Other					6	0													
													1x 1, 3x 3, 2x 5						

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Test Sample Group	[unit]	RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	Comparability					Traceability									
							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>
<b>Sample B1</b>		7,94	0,44	5,5	34		CVP	7,94	0,18	20%	6,35	9,53	34	34	100						0
(2) EIA (EMIT, CEDIA)		8,05	0,67	8,3	5	0							5								
(4) LIA, ILMA		7,76	0,51	6,5	11	0							11								
(6) Immunoturbidimetry, KIMS		8	0,23	2,8	12	0							12								
Other					6	0							6								
								1x 1, 3x 3, 2x 5													
<b>(86) Carbamazepin</b>	[mg/L]				57								57	54	95						0
<b>Sample A1</b>		4,25	0,43	10	57		CVP	4,25	0,14	20%	3,4	5,1	57	54	95						0
(2) EIA (EMIT, CEDIA)		4,44	0,58	13	13	0							13								
(4) LIA, ILMA		4,09	0,26	6,4	16	0							16								
(6) Immunoturbidimetry, KIMS		4,32	0,29	6,7	22	0							22								
Other					6	0							6								
								1x 1, 3x 3, 2x 5													
<b>Sample B1</b>		6,09	0,5	8,2	57		CVP	6,09	0,16	20%	4,87	7,31	57	56	98						0
(2) EIA (EMIT, CEDIA)		6,18	0,62	10	13	0							13								
(4) LIA, ILMA		5,9	0,32	5,5	16	0							16								
(6) Immunoturbidimetry, KIMS		6,16	0,47	7,7	22	0							22								
Other					6	0							6								
								1x 1, 3x 3, 2x 5													
<b>(88) Valproic acid</b>	[mg/L]				86								86	81	94						0
<b>Sample A1</b>		78,2	4,9	6,3	86		CVP	78,2	1,3	20%	62,5	93,9	86	83	97						0
(2) EIA (EMIT, CEDIA)		79,7	5,9	7,4	26	0							26								
(4) LIA, ILMA		76,9	4,5	5,8	30	0							30								
(6) Immunoturbidimetry, KIMS		78,5	4,5	5,7	28	0							28								
Other					2	0							2								
								2x 1													
<b>Sample B1</b>		123	7,4	6	86		CVP	123	2	20%	98,4	148	86	82	95						0
(2) EIA (EMIT, CEDIA)		126	10	7,9	26	0							26								
(4) LIA, ILMA		122	7,1	5,8	30	0							30								
(6) Immunoturbidimetry, KIMS		122	5,8	4,7	28	0							28								
Other					2	0							2								
								2x 1													
<b>(91) Lithium</b>	[mmol/L]				19								0								19
<b>Sample A1</b>		0,792	0,044	5,6	19								0		CRV	0,825	0,013	12%	0,726	0,924	19
(5) Spectrophotometry		0,79	0,045	5,6	7	0							7								7
(99) Another measurement principle		0,82	0,015	1,8	5	0							5								5
Other					7	0							7								7
															2x 0, 1x 2, 2x 3, 1x 4, 1x 6						
<b>Sample B1</b>		0,176	0,034	19	19								0		CRV	0,155	0,003	38%	0,096	0,214	19
(5) Spectrophotometry		0,15	0,015	9,9	7	0							7								7
(99) Another measurement principle		0,195	0,007	3,8	5	0							5								5
Other					7	0							7								7
															2x 0, 1x 2, 2x 3, 1x 4, 1x 6						
<b>(83) Primidone</b>	[mg/L]				8								8	7	88						0
<b>Sample A1</b>													8	7	88						0

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							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> [%]	
Other					8	0	1x 2, 3x 3, 4x 5					8											
<b>Sample B1</b>					8	0						8 7 88											
Other					8	0	1x 2, 3x 3, 4x 5					8											
<b>(82) Theophylline</b>	[mg/L]				79							0											
<b>Sample A1</b>		5,05	0,35	6,9	79							0											
(2) EIA (EMIT, CEDIA)		5,16	0,49	9,4	13	0						CRV 4,921 0,049 24% 3,74 6,11											
(4) LIA, ILMA		4,76	0,42	8,9	25	0																	
(6) Immunoturbidimetry, KIMS		5,17	0,23	4,5	39	0																	
Other					2	0						2											
												2x 1											
<b>Sample B1</b>		6,1	0,44	7,1	79							0											
(2) EIA (EMIT, CEDIA)		6,24	0,51	8,2	13	0						CRV 6,041 0,062 24% 4,59 7,5											
(4) LIA, ILMA		5,71	0,42	7,4	25	0																	
(6) Immunoturbidimetry, KIMS		6,27	0,34	5,5	39	0																	
Other					2	0						2											
												2x 1											
<b>Set 2</b>																							
<b>(89) Amicacin</b>	[mg/L]				43							43 39 91					0						
<b>Sample A2</b>		6,53	0,51	7,9	43		CVP	6,53	0,19	20%	5,22	7,84	43	41	95	0							
(2) EIA (EMIT, CEDIA)		6,63	0,57	8,6	15	0						15											
(6) Immunoturbidimetry, KIMS		6,49	0,46	7,1	26	0						26											
Other					2	0						2											
							1x 1, 1x 99																
<b>Sample B2</b>		6,55	0,49	7,5	43		CVP	6,55	0,18	20%	5,24	7,86	43	39	91	0							
(2) EIA (EMIT, CEDIA)		6,52	0,55	8,5	15	0						15											
(6) Immunoturbidimetry, KIMS		6,57	0,47	7,1	26	1						26											
Other					2	0						2											
							1x 1, 1x 99																
<b>(90) Gentamicin</b>	[mg/L]				69							69 65 94					0						
<b>Sample A2</b>		11,2	2,5	22	69							69 68 99					0						
(2) EIA (EMIT, CEDIA)		12,6	1	8,3	14	0	CVP	12,5	0,39	31%	8,62	16,4	14										
(4) LIA, ILMA		12,3	1,2	9,8	18	0	CVP	12,5	0,39	31%	8,62	16,4	18										
(6) Immunoturbidimetry, KIMS		12,8	1,3	10	15	0	CVP	12,5	0,39	31%	8,62	16,4	15										
(6) Immunoturbidimetry, KIMS; (60) Roche		8,33	0,48	5,8	21	0	CVPG	8,33	0,26	21%	6,58	10,1	21										
Other					1	0						1											
							1x 1																
<b>Sample B2</b>		11,3	2,7	24	69							69 65 94					0						
(2) EIA (EMIT, CEDIA)		13	2,3	17	14	0	CVP	12,6	0,53	31%	8,69	16,6	14										
(4) LIA, ILMA		12	1,2	9,9	18	0	CVP	12,6	0,53	31%	8,69	16,6	18										
(6) Immunoturbidimetry, KIMS		13,1	1,5	11	15	0	CVP	12,6	0,53	31%	8,69	16,6	15										
(6) Immunoturbidimetry, KIMS; (60) Roche		8,18	0,33	4	21	1	CVPG	8,18	0,18	21%	6,46	9,9	21										
Other					1	0						1											
							1x 1																

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							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>(93) Methotrexate</b>	[μmol/L]				13								13	11	85									0
<b>Sample A2</b>		2	0,26	13	13		CVP	2	0,18	30%	1,4	2,6	13	11	85									0
(4) LIA, ILMA		2,02	0,24	12	10	0							10											
Other					3	0							3											
													2x 2, 1x 5											
<b>Sample B2</b>		2,01	0,36	18	13		CVP	2,01	0,25	30%	1,4	2,62	13	11	85									0
(4) LIA, ILMA		2	0,28	14	10	0							10											
Other					3	0							3											
													2x 2, 1x 5											
<b>(92) Vankomycin</b>	[mg/L]				73								73	72	99									0
<b>Sample A2</b>		21,4	1,9	9	73		CVP	21,4	0,55	28%	15,4	27,4	73	73	100									0
(2) EIA (EMIT, CEDIA)		20	1,4	6,9	13	0							13											
(4) LIA, ILMA		22,7	1,7	7,6	25	0							25											
(6) Immunoturbidimetry, KIMS		21,1	1,4	6,6	30	0							30											
Other					5	0							5											
													4x 1, 1x 5											
<b>Sample B2</b>		21,5	2	9,2	73		CVP	21,5	0,57	28%	15,4	27,6	73	72	99									0
(2) EIA (EMIT, CEDIA)		20,4	2,1	11	13	0							13											
(4) LIA, ILMA		22,7	1,9	8,4	25	0							25											
(6) Immunoturbidimetry, KIMS		21	1,2	5,8	30	1							30											
Other					5	0							5											
													4x 1, 1x 5											