

SUPPLEMENTARY TABLE 1. Comparison of the results of each analyser during the study period

Analyser	Median (IQR)	Min	Max	Number of patients
Analyser-1	66 (27)	18	1035	1915 (23%)
Analyser-2	66 (29)	18	2015	2210 (27%)
Analyser-3	67 (31)	18	1231	1787 (22%)
Analyser-4	73 (50)*	18	1227	2259 (28%)
TOTAL	67 (33)	18	2015	8171

Median and interquartile range (IQR), min and max values presented as $\mu\text{mol/L}$.

Analyser 4: Emergency & Night-Shift Analyser

*Kruskal-Wallis test $P < 0.001$. Pairwise comparisons (*post-hoc* Dunn test): Results are estimated from the emergency analyser (Analyser-4) were higher than analyser-1, analyser-2 and analyser-3 (P values after Bonferroni correction are < 0.001 for all comparisons)

SUPPLEMENTARY TABLE 2. Comparison of the results of each analyser on a daily basis throughout the study period.

Analyser	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Analyser-1	74	85	95	86	80	NA	NA
Analyser-2	84	102	95	77	69	NA	NA
Analyser-3	78	122	96	81	81	NA	NA
Analyser-4	95	97	114	88	88	107	111

Median creatinine values of each analyser on study days. Median values presented as $\mu\text{mol/L}$. The observed differences between analysers are presented here: **Day 1:** Analyser 1 and 4. **Day 2:** Analyser 1 and 3 and Analyser 1 and 4. **Day 3:** There is no difference between the analysers. **Day 4:** Analyser 1 and 2. **Day 5:** Analyser 2 and 4, Analyser 2 and 3 and Analyser 1 and 4.

Department	Analyzer	Result (μmol/L)	Reference Range	Result Date	Previous Result (μmol/L)	Date of Previous Result	Delta Check (%)	Violation Score	Moving sum of violations	Moving percentage of failed delta checks (MPFDC)	TEa added Delta Check % Values	TEa added Delta check status (Violation score)	TEa added DCF sum (Moving sum of violations)	MPFDC (TEa added)
Pediatric Rheumatology	AdviaChemistryXPT_1	70	0,51 - 0,97	2.10.2023 11:21	60	12/04/2023	16	0	0	0	33,6	1	6	30
Pediatric Nephrology	AdviaChemistryXPT_2	42	0,29 - 0,66	2.10.2023 11:21	45	15/06/2023	-8	0	0	0	6,0	0	6	30
Cardiology	AdviaChemistryXPT_3	105	0,7 - 1,3	2.10.2023 11:21	104	26/09/2023	2	0	0	0	17,0	0	6	30
Pediatric Hematology	AdviaChemistryXPT_1	47	0,29 - 0,66	2.10.2023 11:21	39	18/09/2023	20	1	0	0	38,5	1	6	30
Nephrology	AdviaChemistryXPT_2	232	0,5 - 1,1	2.10.2023 11:21	315	18/09/2023	-26	-1	-1	-5	-15,4	0	6	30
Thoracic Surgery	AdviaChemistryXPT_3	58	0,4 - 0,74	2.10.2023 11:21	56	24/08/2023	3	0	-1	-5	18,7	0	6	30
Oncology	AdviaChemistryXPT_3	96	0,5 - 1,1	2.10.2023 11:21	89	28/08/2023	7	0	-1	-5	23,0	1	7	35
Urology	AdviaChemistryXPT_2	81	0,7 - 1,3	2.10.2023 11:21	81	09/08/2023	0	0	-1	-5	15,0	0	6	30
Pediatric Nephrology	AdviaChemistryXPT_1	43	0,4 - 0,74	2.10.2023 11:22	47	25/09/2023	-8	0	-1	-5	6,3	0	5	25
Infectious Diseases	AdviaChemistryXPT_1	74	0,7 - 1,3	2.10.2023 11:22	79	21/09/2023	-6	0	-1	-5	8,5	0	5	25
Cardiology	AdviaChemistryXPT_3	96	0,7 - 1,3	2.10.2023 11:22	90	05/09/2023	7	0	-1	-5	22,9	1	5	25
Pediatric Metabolism	AdviaChemistryXPT_2	81	0,7 - 1,3	2.10.2023 11:22	87	18/09/2023	-6	0	0	0	8,0	0	5	25
Hematology	AdviaChemistryXPT_3	56	0,5 - 1,1	2.10.2023 11:22	53	25/09/2023	5	0	0	0	20,8	1	6	30
Cardiology	AdviaChemistryXPT_3	72	0,7 - 1,3	2.10.2023 11:22	73	11/11/2022	-2	0	0	0	12,2	0	6	30
Urology	AdviaChemistryXPT_1	96	0,7 - 1,3	2.10.2023 11:22	114	27/07/2023	-16	0	0	0	-3,7	0	6	30
Urology	AdviaChemistryXPT_2	78	0,7 - 1,3	2.10.2023 11:22	77	15/08/2023	1	0	0	0	16,3	0	6	30
Pediatric Oncology	AdviaChemistryXPT_3	37	0,29 - 0,66	2.10.2023 11:22	35	10/04/2023	5	0	0	0	20,8	1	7	35
General Surgery	AdviaChemistryXPT_1	67	0,5 - 1,1	2.10.2023 11:22	76	02/08/2023	-12	0	0	0	1,6	0	7	35
Cardiology	AdviaChemistryXPT_2	88	0,7 - 1,3	2.10.2023 11:23	89	12/07/2023	-2	0	-1	-5	12,7	0	6	30
Neurology	AdviaChemistryXPT_3	60	0,7 - 1,3	2.10.2023 11:23	68	29/09/2023	-12	0	0	0	1,6	0	6	30
Gastroenterology	AdviaChemistryXPT_1	66	0,5 - 1,1	2.10.2023 11:23	62	25/09/2023	7	0	0	0	23,2	1	6	30
Pulmonary Medicine	AdviaChemistryXPT_3	88	0,7 - 1,3	2.10.2023 11:23	87	08/09/2023	1	0	0	0	16,2	0	6	30
Pediatric Neurology	AdviaChemistryXPT_3	37	0,29 - 0,66	2.10.2023 11:23	29	23/05/2023	27	1	1	5	46,4	1	7	35
Dermatology	AdviaChemistryXPT_1	49	0,5 - 1,1	2.10.2023 11:23	52	31/08/2023	-7	0	0	0	7,2	0	6	30
Internal Medicine	AdviaChemistryXPT_2	77	0,5 - 1,1	2.10.2023 11:23	74	10/07/2023	4	0	1	5	19,1	1	7	35
Pediatric Endocrinology	AdviaChemistryXPT_2	44	0,4 - 0,74	2.10.2023 11:23	44	05/12/2022	0	0	1	5	15,0	0	7	35
Pediatric Neurology	AdviaChemistryXPT_3	42	0,29 - 0,66	2.10.2023 11:24	31	24/04/2023	37	1	2	10	57,7	1	7	35
Cardiology	AdviaChemistryXPT_2	64	0,7 - 1,3	2.10.2023 11:24	70	17/08/2023	-9	0	2	10	4,8	0	7	35



Supplementary figure 1. A visual of how the model detects error after applying a 15% error in the positive direction for a random batch. (The model was designed to give a warning when the control limit was reached 3 times in a row. The titles with yellow background illustrate the MPFDC's error detection of erroneous results.) MPFDC - moving percentage of failed delta checks.