

Supplementary Data

Length of hospitalisation	Coefficient	Significance	95% Confidence Interval
Type of Diabetes	4.8	p=0.009*	[1.2, 8.4]
Age Group			
30-49	4.0	p=0.020*	[0.6, 7.4]
50-69	5.9	p=0.001*	[2.4, 9.4]
>70	17.8	p<0.001*	[12.8, 22.9]
Sex	1.8	p=0.162	[-0.7, 4.4]
Ethnicity Group			
Asian	0.6	p=0.771	[-3.7, 5.0]
Black	1.0	p=0.697	[-4.0, 5.9]
Mixed	-2.9	p=0.420	[-9.9, 4.1]
Other	-6.6	p=0.185	[-16.3, 3.2]

Supplementary table 1: Linear regression model summary for length of hospitalisation, with type of diabetes as exposure, with age, sex, and ethnicity as covariates. Sex coefficient reported for male as compared to female. Ethnicity group coefficient compared to people of White ethnicity. *p<0.05.

Parameters	Male (median (Q1-Q3); n)			Female (median (Q1-Q3); n)		
	Type 1 diabetes	Type 2 diabetes	Significance	Type 1 diabetes	Type 2 diabetes	Significance
pH	7.19 (7.08-7.28); 140	7.24 (7.12-7.29); 51	p=0.1103	7.25 (7.11-7.29); 128	7.24 (7.10-7.30); 40	p=0.8710
Bicarbonate (mmol/L)	10.85 (6.55-17.02); 140	14.20 (8.65-19.35); 51	p=0.0957	12.75 (7.88-16.45); 128	12.30 (6.98-17.38); 40	p=0.9505
Glucose (mmol/L)	28.73 (22.23-37.30); 141	24.91 (18.04-34.85); 52	p=0.0388*	25.40 (18.49-32.29); 131	29.15 (16.00-35.42); 40	p=0.3493
Lactate (mmol/L)	3.40 (2.13-5.00); 142	2.60 (2.20-4.47); 51	p=0.2336	2.130 (1.645-3.250); 131	2.55 (1.95-3.70); 40	p=0.1075
Serum osmolality (mosm/L)	313.10 (302.60-322.60); 142	306.80 (298.90-325.50); 52	p=0.3444	307.40 (299.68-313.62); 131	316.20 (302.67-329.95); 40	p=0.0044*
Urea (mmol/L)	8.25 (5.80-12.10); 142	9.3 (7.2-17.5); 53	p=0.0754	5.90 (4.50-8.85); 135	8.85 (5.83-14.50); 42	p=0.0008*
Hypoglycaemic episodes (n)	0.00 (0.00-1.00); 265	0.00 (0.00-0.00); 90	p=0.1441	0.00 (0.00-1.00); 289	0.00 (0.00-0.00); 83	p=0.0195*
Hypokalaemic episodes (n)	0.00 (0.00-1.00); 277	0.00 (0.00-1.00); 99	p=0.1750	0.00 (0.00-1.00); 303	0.00 (0.00-1.00); 86	p=0.9900
Hyperkalaemic episodes (n)	0.00 (0.00-0.00); 277	0.00 (0.00-0.00); 99	p=0.8946	0.00 (0.00-0.00); 303	0.00 (0.00-0.00); 86	p=0.0505
DKA duration (hours)	15.05 (9.63-22.32); 276	12.99 (7.6-22.09); 99	p=0.2314	13.28 (8.65-21.67); 303	14.35 (8.20-21.12); 86	p=0.9319
Length of hospitalisation (days)	3.30 (1.81-7.27); 272	10.91 (4.98-24.09); 98	p<0.0001*	2.73 (1.62-5.32); 302	11.02 (5.17-20.10); 85	p<0.0001*

Supplementary table 2: Biochemical profiles for severity on admission and management, complications and outcomes of DKA management by type of diabetes based on sex. *p<0.05. Abbreviations: Q1 first quartile; Q3 third quartile; Sig - significance

Parameters	White (median (Q1-Q3); n)			Asian (median (Q1-Q3); n)			Black (median (Q1-Q3); n)			Other (median (Q1-Q3); n)			Mixed (median (Q1-Q3); n)		
	Type 1 diabetes	Type 2 diabetes	Sig.	Type 1 diabetes	Type 2 diabetes	Sig.	Type 1 diabetes	Type 2 diabetes	Sig.	Type 1 diabetes	Type 2 diabetes	Sig.	Type 1 diabetes	Type 2 diabetes	Sig.
pH	7.22 (7.09-7.29); 207	7.24 (7.08-7.29); 57	p=0.8908	7.21 (7.06-7.28); 24	7.21 (7.13-7.27); 11	p=0.8403	7.21 (7.08-7.28); 12	7.28 (6.96-7.31); 11	p=0.5757	7.27 (7.19-7.33); 4	7.3 (7.26-7.37); 4	p=0.4331	7.20 (7.09-7.26); 12	7.32 (7.29-7.34); 2	p=0.1973
Bicarbonate (mmol/L)	11.90 (7.20-17.00); 207	11.50 (6.60-17.30); 57	p=0.9249	11.05 (5.52-13.85); 24	10.50 (7.80-19.50); 11	p=0.3596	12.95 (6.80-16.80); 12	11.70 (6.90-16.90); 11	p=0.7907	15.85 (11.25-16.80); 4	18.85 (16.15-22.15); 4	p=0.1627	11.15 (8.00-16.30); 12	23.35 (23.2-23.5); 2	p=0.0048*
Glucose (mmol/L)	28.20 (20.45-34.25); 209	23.60 (15.61-29.60); 57	p=0.0136*	26.9 (20.67-36.82); 25	31.26 (25.30-34.80); 11	p=0.7561	22.80 (18.30-37.30); 13	38.80 (31.10-39.80); 11	p=0.0324*	28.62 (26.29-31.17); 4	20.84 (16.26-32.44); 4	p=0.5218	29.15 (23.74-35.93); 12	23.36 (15.00-33.40); 3	p=0.2359
Lactate (mmol/L)	2.61 (1.85-4.10); 210	2.50 (2.01-3.55); 57	p=0.6604	2.54 (1.92-3.80); 25	4.20 (3.40-6.17); 11	p=0.0103*	2.13 (1.64-2.70); 13	2.90 (2.29-4.21); 11	p=0.0567	2.00 (1.45-3.77); 4	2.46 (1.70-2.67); 3	p=0.7758	4.4 (2.05-5.10); 12	2.30 (2.10-2.70); 3	p=0.1585
Serum osmolality (mosm/L)	310.55 (300.69-320.20); 210	306.60 (298.71-321.40); 57	p=0.3955	321.40 (299.40-337.30); 25	331.00 (322.40-334.80); 11	p=0.4464	303.20 (299.25-322.40); 13	331.00 (327.58-346.20); 11	p=0.0038*	306.59 (301.71-336.60); 4	315.30 (301.11-336.19); 4	p=0.8857	305.74 (303.14-320.65); 12	295.70 (289.06-344.70); 3	p=0.8552
Urea (mmol/L)	7.45 (5.30-10.80); 214	9.30 (6.60-14.10); 61	p=0.0029*	6.15 (4.45-10.20); 24	7.75 (7.50-17.00); 10	p=0.0407*	4.10 (3.10-6.90); 14	8.10 (6.80-18.20); 11	p=0.0158*	4.60 (4.00-16.95); 4	8.60 (5.85-14.15); 4	p=0.8857	8.75 (7.65-10.40); 12	4.30 (3.70-10.50); 3	p=0.2374
Hypoglycaemic episodes (n)	0.00 (0.00-1.00); 430	0.00 (0.00-0.00); 120	p=0.0644	0.00 (0.00-1.00); 48	0.00 (0.00-0.00); 19	p=0.1629	0.00 (0.00-2.00); 31	0.00 (0.00-0.00); 19	p=0.1012	0.00 (0.00-2.00); 6	0.00 (0.00-1.00); 5	p=0.9125	0.00 (0.00-0.00); 22	0.50 (0.00-1.00); 2	p=0.7609
Hypokalaemic episodes (n)	0.00 (0.00-1.00); 452	0.00 (0.00-1.00); 130	p=0.8510	0.00 (0.00-1.00); 50	0.00 (0.00-2.50); 20	p=0.2141	0.00 (0.00-1.00); 32	0.00 (0.00-1.00); 19	p=0.8903	0.00 (0.00-0.00); 7	2.00 (0.00-3.00); 5	p=0.0909	0.00 (0.00-1.00); 22	1.00 (0.00-1.00); 3	p=0.5739
Hyperkalaemic episodes (n)	0.00 (0.00-0.00); 452	0.00 (0.00-0.00); 130	p=0.0711	0.00 (0.00-0.00); 50	0.00 (0.00-0.00); 20	p=0.9546	0.00 (0.00-0.00); 32	0.00 (0.00-0.00); 19	p=0.5282	0.00 (0.00-1.00); 7	0.00 (0.00-0.00); 5	p=0.6364	0.00 (0.00-0.00); 22	0.00 (0.00-3.00); 3	p=0.4783
DKA duration (hours)	13.8 0 (8.95-21.95); 451	13.70 (7.65-19.69); 130	p=0.3216	13.99 (9.65-20.56); 50	14.20 (9.08-27.18); 20	p=0.7132	10.89 (7.86-18.75); 32	17.10 (6.71-28.73); 19	p=0.2571	15.26 (14.46-19.07); 7	8.94 (7.07-13.65); 5	p=0.0732	17.82 (12.07-24.48); 22	15.13 (3.18-17.71); 3	p=0.3530
Length of hospitalisation (days)	2.91 (1.68-5.91); 448	11.36 (5.60-25.96); 129	p<0.0001*	4.14 (1.92-8.62); 48	6.10 (2.91-17.55); 19	p=0.1501	3.56 (1.87-9.14); 32	11.29 (7.77-15.10); 19	p=0.0028*	2.75 (1.33-3.21); 7	6.60 (5.31-8.35); 5	p=0.0103*	2.18 (1.11-4.01); 22	4.53 (4.39-7.67); 3	p=0.0461*

Supplementary table 3a: Biochemical profiles for severity on admission and management, complications and outcomes of DKA management by type of diabetes based on ethnicity. * $p < 0.05$. Abbreviations: Q1 first quartile; Q3 third quartile; Sig - significance

Parameters	Type 1 diabetes (median (Q1-Q3); n)						Type 2 diabetes (median (Q1-Q3); n)					
	White	Asian	Black	Other	Mixed	Sig.	White	Asian	Black	Other	Mixed	Sig.
pH	7.22 (7.09-7.29); 207	7.21 (7.06-7.28); 24	7.21 (7.08-7.28); 12	7.27 (7.19-7.33); 4	7.20 (7.09-7.26); 12	p=0.8146	7.24 (7.08-7.29); 57	7.21 (7.13-7.27); 11	7.28 (6.96-7.31); 11	7.30 (7.26-7.37); 4	7.32 (7.29-7.34); 2	p=0.2589
Bicarbonate (mmol/L)	11.90 (7.20- 17.00); 207	11.05 (5.52- 13.85); 24	12.95 (6.80- 16.80); 12	15.85 (11.25- 16.80); 4	11.15 (8.00- 16.30); 12	p=0.7141	11.50 (6.60- 17.30); 57	10.50 (7.80- 19.50); 11	11.70 (6.90- 16.90); 11	18.85 (16.15- 22.15); 4	23.35 (23.20- 23.50); 2	p=0.0459*
Glucose (mmol/L)	28.20 (20.45- 34.25); 209	26.90 (20.67- 36.82); 25	22.80 (18.30- 37.30); 13	28.62 (26.29- 31.17); 4	29.15 (23.74- 35.93); 12	p=0.9012	23.60 (15.61- 29.60); 57	31.26 (25.30- 34.80); 11	38.80 (31.10- 39.80); 11	20.84 (16.26- 32.44); 4	23.36 (15.00- 33.40); 3	p=0.533
Lactate (mmol/L)	2.61 (1.85-4.10); 210	2.54 (1.92-3.80); 25	2.13 (1.64-2.70); 13	2.00 (1.45-3.77); 4	4.40 (2.05-5.10); 12	p=0.1667	2.50 (2.01-3.55); 57	4.20 (3.40-6.17); 11	2.90 (2.29-4.21); 11	2.46 (1.70-2.67); 3	2.30 (2.10-2.70); 3	p=0.0406*
Serum osmolality (mosm/L)	310.55 (300.69- 320.20); 210	311.12 (299.79- 321.00); 25	303.20 (299.25- 322.40); 13	306.59 (301.71- 336.60); 4	305.74 (303.14- 320.65); 12	p=0.9943	306.60 (298.71- 321.40); 57	319.20 (301.60- 322.40); 11	331.00 (327.58- 346.20); 11	315.30 (301.11- 336.19); 4	295.70 (289.06- 344.70); 3	p=0.0080*
Urea (mmol/L)	7.45 (5.30-10.80); 214	6.15 (4.45- 10.20); 24	4.10 (3.10-6.90); 14	4.60 (4.40- 16.95); 4	8.75 (7.65- 10.40); 12	p=0.0227*	9.30 (6.60- 14.10); 61	7.75 (7.50- 17.00); 10	8.10 (6.80- 18.20); 11	8.60 (5.85- 14.15); 4	4.30 (3.70- 10.50); 3	p=0.5902
Hypoglycaemic episodes (n)	0.00 (0.00-1.00); 430	0.00 (0.00-1.00); 48	0.00 (0.00-2.00); 31	0.00 (0.00-2.00); 6	0.00 (0.00-0.00); 22	p=0.5707	0.00 (0.00-0.00); 120	0.00 (0.00-0.00); 19	0.00 (0.00-0.00); 19	0.00 (0.00-1.00); 5	0.50 (0.00-1.00); 2	p=0.7227
Hypokalaemic episodes (n)	0.00 (0.00-1.00); 452	0.00 (0.00-1.00); 50	0.00 (0.00-1.00); 32	0.00 (0.00-0.00); 7	0.00 (0.00-1.00); 22	p=0.8717	0.00 (0.00-1.00); 130	0.00 (0.00-2.50); 20	0.00 (0.00-1.00); 19	2.00 (0.00-3.00); 5	1.00 (0.00-1.00); 3	p=0.2356
Hyperkalaemic episodes (n)	0.00 (0.00-0.00); 452	0.00 (0.00-0.00); 50	0.00 (0.00-0.00); 32	0.00 (0.00-1.00); 7	0.00 (0.00-0.00); 22	p=0.2623	0.00 (0.00-0.00); 130	0.00 (0.00-0.00); 20	0.00 (0.00-0.00); 19	0.00 (0.00-0.00); 5	0.00 (0.00-3.00); 3	p=0.5304
DKA duration (hours)	13.80 (8.95- 21.95); 451	13.99 (9.65- 20.56); 50	10.89 (7.86- 18.75); 32	15.26 (14.46- 19.07); 7	17.82 (12.07- 24.48); 22	p=0.1927	13.70 (7.65- 19.69); 130	14.20 (9.08- 27.18); 20	17.10 (6.71- 28.73); 19	8.94 (7.07- 13.65); 5	15.13 (3.18- 17.71); 3	p=0.4043
Length of hospitalisation (days)	2.91 (1.68-5.91); 448	4.14 (1.92-8.62); 48	3.56 (1.87-9.14); 32	2.75 (1.33-3.21); 7	2.17 (1.11-4.01); 22	p=0.0721	11.36 (5.60- 25.96); 129	6.10 (2.91- 17.55); 19	11.29 (7.77- 15.10); 19	6.60 (5.31-8.35); 5	4.53 (4.39-7.67); 3	p=0.1090

Supplementary table 3b: Biochemical profiles for severity on admission and management, complications and outcomes of DKA management by ethnicity based on type of diabetes. *p<0.05. Abbreviations: Q1

first quartile; Q3 third quartile; Sig - significance

Parameters	<29 (median (Q1-Q3); n)			30-49 (median (Q1-Q3); n)			50-69 (median (Q1-Q3); n)			>70 (median (Q1-Q3); n)		
	Type 1 diabetes	Type 2 diabetes	Sig.	Type 1 diabetes	Type 2 diabetes	Sig.	Type 1 diabetes	Type 2 diabetes	Sig.	Type 1 diabetes	Type 2 diabetes	Sig.
pH	7.24 (7.10-7.29); 136	NA; 0	-	7.19 (7.05-7.29); 64	7.22 (7.06-7.29); 21	p=0.6543	7.20 (7.10-7.28); 61	7.25 (7.12-7.31); 44	p=0.3099	7.25 (7.13-7.40); 9	7.24 (7.16-7.28); 26	p=0.5216
Bicarbonate (mmol/L)	12.20 (7.40-16.25); 136	NA; 0	-	11.20 (6.22-16.45); 64	12.90 (6.90-19.20); 21	p=0.6654	12.20 (6.20-17.20); 61	12.70 (8.40-17.10); 44	p=0.6825	13.10 (8.60-19.10); 9	13.90 (8.70-17.80); 26	p=0.7456
Glucose (mmol/L)	25.70 (18.79-32.69); 140	NA; 0	-	29.65 (22.25-35.82); 64	26.60 (22.63-39.00); 21	p=0.5970	29.16(23.11-37.53); 62	25.93 (15.00-33.25); 44	p=0.0171*	15.74 (11.56-31.02); 8	27.01 (16.05-33.40); 27	p=0.2094
Lactate (mmol/L)	2.32 (1.62-3.73); 140	NA; 0	-	2.62 (2.06-5.00); 65	2.42 (2.20-4.75); 21	p=0.8282	3.00 (2.01-4.50); 61	2.60 (1.70-3.80); 43	p=0.1340	3.08 (2.20-4.80); 9	2.62 (2.19-4.64); 27	p=0.8645
Serum osmolality (mosm/L)	306.09 (298.0-313.34); 140	NA; 0	-	311.12 (302.63-319.70); 65	309.92 (300.40-328.50); 21	p=0.9776	320.77 (307.57-329.10); 62	308.97 (296.88-322.14); 44	p=0.0145*	302.90 (294.52-320.96); 8	321.10 (303.43-344.70); 27	p=0.1409
Urea (mmol/L)	5.70 (4.20-7.70); 140	NA; 0	-	8.40 (6.60-13.70); 65	6.90 (5.20-8.00); 23	p=0.0543	10.70 (7.00-18.50); 63	9.30 (5.90-17.00); 43	p=0.4350	10.50 (7.40-11.80); 11	10.30 (8.80-18.50); 29	p=0.4499
Hypoglycaemic episodes (n)	0.00 (0.00-1.00); 288	0.00; 1	p=1.000	0.00 (0.00-1.00); 140	0.00 (0.00-1.00); 37	p=0.4443	0.00 (0.00-0.00); 109	0.00 (0.00-0.00); 82	p=0.4261	0.00 (0.00-2.00); 17	0.00 (0.00-0.00); 53	p=0.0996
Hypokalaemic episodes (n)	0.00 (0.00-1.00); 298	0.00; 1	p=1.000	0.00 (0.00-1.00); 147	0.00 (0.00-1.00); 38	p=0.0420 *	0.00 (0.00-0.00); 112	0.00 (0.00-1.00); 82	p=0.0015*	0.00 (0.00-0.00); 19	0.00 (0.00-0.00); 63	p=0.5466
Hyperkalaemic episodes (n)	0.00 (0.00-0.00); 298	0.00; 1	p=1.000	0.00 (0.00-0.00); 147	0.00 (0.00-0.00); 38	p=0.5421	0.00 (0.00-0.50); 112	0.00 (0.00-0.00); 82	p=0.2762	0.00 (0.00-0.00); 19	0.00 (0.00-1.00); 63	p=0.5664
DKA duration (hours)	14.33 (9.41-21.95); 297	17.10; 1	p=0.8054	13.98 (9.12-21.92); 147	16.81 (12.41-27.97); 38	p=0.0998	12.77 (8.14-21.39); 112	14.31 (7.46-20.66); 82	p=0.7640	11.60 (7.10-24.82); 19	12.52 (7.41-19.09); 63	p=0.9148
Length of hospitalisation (days)	2.23 (1.30-4.05); 298	12.04; 1	p=0.0602	3.11 (1.75-6.14); 145	4.99 (4.20-15.10); 37	p<0.0001 *	5.70 (2.84-9.94); 109	9.60 (5.94-17.77); 82	p=0.0001*	13.98 (8.50-22.00); 18	16.04 (5.88-30.62); 62	p=0.6019

Supplementary table 4: Biochemical profiles for severity on admission and management, complications and outcomes of DKA management by type of diabetes across age groups. *p<0.05. Abbreviations: Q1 first quartile; Q3 third quartile; Sig - significance

Parameters	Overall (median (Q1-Q3); n)			Type 1 diabetes (median (Q1-Q3); n)			Type 2 diabetes (median (Q1-Q3); n)		
	>320 (n=107)	≤320 (n=260)	Sig.	>320 (n=72)	≤320 (n=203)	Sig.	>320 (n=35)	≤320 (n=57)	Sig.
pH	7.21 (7.08-7.28); 106	7.24 (7.09-7.31); 252	p=0.0969	7.19 (7.06-7.27); 71	7.24 (7.10-7.30); 198	p=0.0465*	7.24 (7.16-7.28); 35	7.24 (7.09-7.32); 54	p=0.8231
Bicarbonate (mmol/L)	11.80 (7.10-17.80); 106	12.20 (7.34-16.65); 252	p=0.7158	10.60 (6.40-16.80); 71	12.55 (7.37-16.60); 198	p=0.4324	14.40 (10.00-19.20); 35	11.50 (7.30-16.70); 54	p=0.1003
Glucose (mmol/L)	36.30 (30.03-39.80); 107	24.30 (17.08-29.89); 259	p<0.0001*	36.86 (31.21-39.80); 72	24.65 (18.68-29.90); 202	p<0.0001*	35.17 (29.10-39.80); 35	22.17 (15.00-27.30); 57	p<0.0001*
Lactate (mmol/L)	3.83 (2.50-5.30); 106	2.30 (1.70-3.53); 259	p<0.0001*	4.05 (2.65-5.61); 72	2.30 (1.70-3.54); 202	p<0.0001*	3.04 (2.30-5.20); 34	2.30 (1.80-3.36); 57	p=0.0054*
Urea (mmol/L)	11.60 (8.10-18.50); 106	6.80 (5.00-9.30); 259	p<0.0001*	10.05 (7.65-16.60); 72	6.40 (4.70-8.80); 202	p<0.0001*	17.25 (9.80-20.70); 34	7.50 (5.80-10.80); 57	p<0.0001*
Hypoglycaemic episodes (n)	0.00 (0.00-0.00); 102	0.00 (0.00-0.00); 249	p=0.1313	0.00 (0.00-0.00); 70	0.00 (0.00-0.00); 194	p=0.1570	0.00 (0.00-0.00); 32	0.00 (0.00-0.00); 55	p=0.8236
Hypokalaemic episodes (n)	0.00 (0.00-0.00); 107	0.00 (0.00-1.00); 260	p=0.0192*	0.00 (0.00-0.00); 72	0.00 (0.00-1.00); 203	p=0.0019*	0.00 (0.00-1.00); 35	0.00 (0.00-0.00); 57	p=0.7415
Hyperkalaemic episodes (n)	0.00 (0.00-1.00); 107	0.00 (0.00-0.00); 260	p<0.0001*	0.00 (0.00-1.00); 72	0.00 (0.00-0.00); 203	p=0.0001*	0.00 (0.00-1.00); 35	0.00 (0.00-0.00); 57	p=0.0212*
DKA duration (hours)	15.06 (10.71-22.15); 107	13.92 (9.15-19.73); 260	p=0.1159	15.86 (11.63-23.21); 72	13.49 (9.11-19.56); 203	p=0.0162*	13.90 (7.40-21.12); 35	15.62 (9.23-22.21); 57	p=0.4468
Length of hospitalisation (days)	6.18 (2.70-14.16); 105	3.53 (1.81-7.77); 253	p=0.0002*	4.00 (2.16-9.24); 70	2.72 (1.59-5.72); 198	p=0.0108*	11.35 (7.67-19.16); 35	7.30 (4.39-17.30); 55	p=0.0967

Supplementary table 5: Biochemical profiles for severity on admission and management, complications and outcomes of DKA management by serum osmolality in mmol/L. *p<0.05. Abbreviations: Q1 first quartile; Q3 third quartile; ; Sig - significance