

Appendix: online supplementary data

Table S1: Time from arrival to treatment, 2017-2018 (regional hospitals)

Hospital (number of patients)	2017 median times from arrival to treatment in mins (IQR)		2018 median times from arrival to treatment in mins (IQR)		Jonckheere's test (assessment of all 4 observations)
	Month 1	Month 6	Month 1	Month 3	
<b>Hospital 1(n=83)</b>	102 (68-174)	49 (25-68)	33.5 (26-42)	28 (21-42)	z=5.900, p<0.0005
<b>Hospital 2(n=107)</b>	189 (121-271)	40 (24-53)	86 (36-107)	41 (32-56)	z=5.747, p<0.0005
<b>Hospital 3 (n=119)</b>	183 (126-215)	92.5 (58-109)	33.5 (25-61)	71 (36-108)	z=4.987, p<0.0005

Table S2: All-hospital quality of care indicators, 2017

Indicator	Four-week block								Chi-square (1-3 vs 4-6)
	1	2	3	4	5	6	1-3	4-6	
<b>Percentage of children with severe respiratory distress made nil by mouth (n=1785)</b>	100/227 (44)	185/277 (67)	229/306 (75)	238/283 (84)	283/318 (89)	336/374 (90)	514/810 (63)	857/975 (88)	148.360, p<0.0005
<b>Percentage of children with severe respiratory distress given oxygen (n=1785)</b>	117/227 (52)	202/277 (73)	215/306 (70)	218/283 (77)	244/318 (77)	348/374 (93)	534/810 (66)	810/975 (83)	69.963, p<0.0005
<b>Percentage of antibiotic doses prescribed accurately (n=5729)</b>	345/890 (39)	618/955 (65)	744/923 (81)	812/942 (86)	871/1029 (85)	839/990 (85)	1707/2768 (62)	2522/2961 (85)	408.949, p<0.0005
<b>Percentage of children requiring transfusion given correct volume of blood (n=1670)</b>	126/226 (56)	208/246 (85)	232/280 (83)	242/278 (87)	298/347 (86)	253/293 (86)	566/752 (75)	793/918 (86)	33.714, p<0.0005
<b>Percentage of blood transfusions given to children who did not require them (n=1762)</b>	67/269 (25)	36/269 (13)	30/293 (10)	38/301 (13)	7/346 (2)	2/284 (1)	133/831 (16)	47/931 (5)	57.467, p<0.0005
<b>Percentage of children with hypoglycaemia treated with the correct dose of dextrose (n=1393)</b>	101/172 (59)	156/224 (70)	179/224 (80)	204/254 (80)	192/258 (74)	183/261 (70)	436/620 (70)	579/773 (75)	3.651, p=0.056
<b>Percentage of children with seizures treated with the correct dose of anticonvulsant (n=561)</b>	45/84 (54)	64/92 (70)	82/113 (73)	96/107 (90)	71/93 (76)	60/72 (83)	191/289 (66)	227/272 (83)	22.249, p<0.0005

Table S3: All-hospital quality of care indicators, 2018

Indicator	Month								Chi-square
	1	2	3	4	5	6	1-3	4-6	
<b>Proportion of children with severe respiratory distress made nil by mouth (n=401)</b>	26/51 (51%)	33/63 (52%)	34/78 (44%)	41/74 (55%)	53/62 (85%)	59/73 (81%)	93/192 (48%)	153/209 (73%)	25.889, p<0.0005
<b>Proportion of children with severe respiratory distress given oxygen (n=401)</b>	27/51 (53%)	34/63 (54%)	54/78 (69%)	46/74 (62%)	52/62 (84%)	59/73 (81%)	115/192 (60%)	157/209 (75%)	10.629, p=0.001
<b>Proportion of antibiotic doses prescribed accurately (n=625)</b>	64/105 (61%)	78/101 (77%)	90/110 (82%)	84/105 (80%)	66/98 (67%)	75/106 (71%)	232/316 (73%)	225/309 (73%)	0.029, p=0.865
<b>Proportion of children requiring transfusion given correct volume of blood (n=348)</b>	37/46 (80%)	50/57 (88%)	51/63 (81%)	54/68 (79%)	48/54 (89%)	48/60 (80%)	138/166 (83%)	150/182 (82%)	0.031, p=0.860
<b>Proportion of blood transfusions given to children who did not require them (n=527)</b>	31/77 (40%)	27/84 (32%)	35/98 (36%)	26/94 (28%)	31/85 (36%)	29/89 (33%)	93/259 (36%)	86/268 (32%)	0.856, p=0.355
<b>Proportion of children with hypoglycaemia treated with the correct dose of dextrose (n=259)</b>	42/49 (86%)	41/45 (91%)	43/47 (91%)	33/41 (80%)	38/44 (86%)	31/33 (94%)	126/141 (89%)	102/118 (86%)	0.520, p=0.471
<b>Proportion of children with seizures treated with the correct dose of anticonvulsant (n=98)</b>	12/19 (63%)	7/11 (64%)	12/22 (55%)	18/22 (83%)	8/11 (73%)	8/13 (62%)	31/52 (60%)	34/46 (74%)	2.234, p=0.135

Table S4: All-hospital paediatric mortality, 2017

	<b>Admissions</b>	<b>Discharged alive</b>	<b>Deaths</b>	<b>Outcome not recorded</b>	<b>Deaths + outcome not recorded</b>	<b>Mortality (%)</b>	<b>Periodised mortality (%)</b>
<b>Month 1</b>	1101	941	139	21	160	14.5	15.7
<b>Month 2</b>	1148	944	162	42	204	17.8	
<b>Month 3</b>	1099	939	157	3	160	14.6	
<b>Month 4</b>	1070	947	123	0	123	11.5	10.3
<b>Month 5</b>	1156	1044	101	11	112	9.7	
<b>Month 6</b>	1067	963	91	13	104	9.7	

Table S5: All-hospital paediatric mortality, 2018

	<b>Admissions</b>	<b>Discharged alive</b>	<b>Deaths</b>	<b>Outcome not recorded</b>	<b>Deaths + outcome not recorded</b>	<b>Mortality (%)</b>	<b>Periodised mortality (%)</b>
<b>Month 1</b>	1678	1536	116	26	142	8.5%	10.1%
<b>Month 2</b>	1685	1518	136	31	167	9.9%	
<b>Month 3</b>	2028	1795	129	104	233	11.5%	
<b>Month 4</b>	2069	1811	124	134	258	12.5%	9.4%
<b>Month 5</b>	2474	2242	98	134	232	9.4%	
<b>Month 6</b>	2300	2150	108	42	150	6.5%	

Table S6: Individual hospital paediatric mortality trends in 2017 and 2018

Hospital	2017			2018		
	1 <sup>st</sup> 12 weeks	2 <sup>nd</sup> 12 weeks	Chi-square	1 <sup>st</sup> 3 months	2 <sup>nd</sup> 3 months	Chi-square
1 (R)	64/509 (12.6%)	74/788 (9.4%)	3.295, p=0.069 (n=1297)	117/1159 (10.1%)	233/1227 (19%)	37.670, p<0.0005 (n=2386)
2 (R)	84/442 (19%)	39/389 (10%)	13.227, p<0.0005 (n=831)	64/1059 (6%)	120/1829 (6.6%)	0.301, p=0.583 (n=2888)
3 (R)	108/534 (20.2%)	46/646 (7.1%)	44.238, p<0.0005 (n=1180)	116/806 (14.4%)	63/851 (7.4%)	20.984, p<0.0005 (n=1657)
4 (D)	47/225 (20.9%)	21/212 (9.9%)	10.021, p=0.002 (n=437)	40/190 (21.1%)	45/245 (18.4%)	0.491, p=0.484 (n=435)
5 (D)	61/389 (15.7%)	52/319 (16.3%)	0.050, p=0.823 (n=708)	31/274 (11.3%)	68/329 (20.7%)	9.534, p=0.002 (n=603)
6 (D)	24/149 (16.1%)	20/107 (18.7%)	0.292, p=0.589 (n=256)	21/132 (15.9%)	11/265 (4.2%)	16.438, p<0.0005 (n=397)
7 (D)	22/179 (12.3%)	8/206 (3.9%)	9.421, p=0.002 (n=385)	18/246 (7.3%)	12/326 (3.7%)	3.730, p=0.053 (n=572)
8 (D)	22/188 (11.7%)	5/125 (4%)	5.651, p=0.017 (n=313)	19/191 (9.9%)	7/215 (3.3%)	7.557, p=0.006 (n=406)
9 (D)	56/520 (10.8%)	57/376 (15.2%)	3.816, p=0.051 (n=896)	86/638 (13.5%)	38/695 (5.5%)	25.309, p<0.0005 (n=1333)
10 (D)	19/92 (20.7%)	7/54 (13%)	1.374, p=0.241 (n=146)	14/113 (12.4%)	27/144 (18.8%)	1.910, p=0.167 (n=257)
11 (D)	17/121 (14.0%)	10/71 (14.1%)	0.000, p=0.995 (n=192)			
12 (D)				16/583 (2.7%)	16/717 (2.2%)	0.352, p=0.553 (n=1300)