

Supplementary Table S3: Summary of predictor variables stratified across participants with and without a positive admission outcome.

Factor variables	Missing	Events among participants with an admission outcome (N)	Events among participants with no admission outcome (N)	Total events (N)	Event admission rate (%)	Odds ratio (95% CI)	p-value
Patient Information							
Male sex	3	204	625	829	0.246	1.26 (1.00, 1.59)	0.055
Previous admissions	4	98	194	292	0.336	2.00 (1.51, 2.64)	<0.0001
Urgent referral	5	60	37	97	0.619	6.46 (4.23, 9.99)	<0.0001
Clinical Signs and Symptoms							
Respiratory							
Difficulty breathing	4	154	206	360	0.428	3.71 (2.87, 4.79)	<0.0001
Stridor	5	6	11	17	0.353	1.45 (0.59, 3.84)	0.469
Indrawing	5	48	36	84	0.571	4.00 (2.33, 6.35)	<0.0001
Flaring	5	40	24	64	0.625	4.93 (2.94, 8.44)	<0.0001
Grunting	5	13	8	21	0.619	4.44 (1.85, 11.32)	0.001
Tracheal tug	5	12	10	22	0.545	3.26 (1.39, 7.80)	0.006
Accessory muscle use	5	44	26	70	0.629	5.07 (3.08, 8.50)	<0.0001
Wheezing	5	25	36	61	0.410	1.91 (1.11, 3.23)	0.0165
Cough	5	130	313	443	0.293	1.17 (0.89, 1.53)	0.251
Central cyanosis	4	5	2	7	0.714	NA	<0.0001
Circulation							
Supplemental oxygen	3	9	1	10	0.900	NA	0.001
Capillary refill time > 3 seconds (upper limb)	4	50	18	68	0.735	10.88 (6.38, 19.40)	<0.0001
Cool peripheries	0	39	10	49	0.796	2.84 (0.89, 9.05)	0.074
Weak or absent radial pulse	4	0	1	1	0.000	NA	0.972
Pallor	8	83	39	122	0.680	9.15 (6.17, 13.81)	<0.0001

Dehydration							
Skin pinch	4	18	191	209	0.086	1.98 (0.98, 3.88)	0.049
Sunken eyes	4	38	44	82	0.463	2.84 (1.80, 4.46)	<0.0001
No tears while crying	4	11	20	31	0.355	1.70 (0.78, 3.53)	0.162
Dry oral mucosa	4	29	26	55	0.527	0.31 (0.18, 0.49)	<0.0001
Gastrointestinal/Genitourinary							
Vomiting	4	103	159	262	0.393	2.70 (2.03, 3.58)	<0.0001
Diarrhoea	4	90	248	338	0.266	1.32 (1.00, 1.74)	0.0458
Chronic diarrhoea	4	10	20	30	0.333	1.43 (0.62, 3.11)	0.386
Dysentery	4	10	21	31	0.323	1.35 (0.59, 2.93)	0.458
Neurologic							
AVPU:	4						
1. <i>alert</i>		355	1242	1597	0.222	0.17 (0.05, 0.54)	0.003
2. <i>responds to voice</i>		3	0	3	1.000	NA	NA
3. <i>responds to pain</i>		5	3	8	0.625	NA	NA
4. <i>unresponsive</i>		0	0	0	0.000	NA	NA
Convulsions (reported, history of)	4	5	1	6	0.833	NA	0.155
Convulsions during assessment, (observed)	4	1	2	3	0.333	NA	0.273
Irritable	8	42	73	115	0.365	2.09 (1.40, 3.11)	<0.0001
Inability to drink or breastfeed	9	97	91	188	0.516	4.62 (3.37, 6.34)	<0.0001
Malnutrition							
Oedema	8	19	11	30	0.633	6.19 (2.97, 10.58)	<0.0001
Severe wasting	0	19	23	42	0.452	2.82 (1.21, 6.27)	0.0126
Infection							
History of fever	8	321	899	1220	0.260	3.08 (2.19, 4.44)	<0.0001
Rash	8	50	273	323	0.150	0.56 (0.41, 0.78)	<0.001
Infective lesion	8	10	70	80	0.130	0.48 (0.23, 0.89)	0.0304
Trauma							

Major trauma	8	0	3	3	0.000	NA	NA
Burns	8	2	15	17	0.118	0.45 (0.07, 1.62)	0.296
Poisoning	8	4	7	11	0.364	1.96 (0.51, 6.56)	0.282
Severe pain	8	110	72	182	0.604	7.07 (5.12, 9.84)	<0.0001
Other							
Parent concern	4	93	42	135	0.69	9.85 (6.73, 14.64)	<0.0001
Sociodemographic Information							
Child HIV status	4	144	441	585	0.246	0.92 (0.23, 0.32)	0.142
Maternal HIV status	4	11	42	53	0.208	0.93 (0.45, 1.76)	0.828
Primary caregiver:	4						
1. <i>mother</i>		333	1186	1519	0.219	0.28 (0.25, 0.32)	0.012
2. <i>father</i>		9	10	19	0.474	2.19 (1.27, 8.04)	0.008
3. <i>grandparent</i>		19	31	50	0.380	0.67 (0.16, 2.03)	0.527
4. <i>other relative</i>		3	16	19	0.158	NA	NA
5. <i>non-relative</i>		0	1	1	0.000	NA	NA
Mother alive	4	5	5	10	0.500	0.29 (0.08, 1.04)	0.051
Maternal education:	4						
1. <i>no school</i>		16	44	60	0.267	1.15 (0.64, 2.15)	0.655
2. <i>primary</i>		151	362	513	0.294	0.75 (0.42, 1.40)	0.34
3. <i>secondary</i>		170	621	791	0.215	0.31 (0.15, 0.64)	0.001
4. <i>post-Secondary</i>		24	212	236	0.102	0.39 (0.07, 2.34)	0.524
Boil all drinking water	4	199	885	1084	0.184	0.49 (0.38, 0.62)	<0.0001
Primary water source for drinking:	4						
1. <i>bottled</i>		1	4	5	0.200	NA	NA
2. <i>municipal/tap</i>		223	1023	1246	0.179	1.13 (0.59, 7.70)	0.900
3. <i>bore hole</i>		103	143	246	0.419	0.29 (0.06, 2.02)	0.347
4. <i>protected spring</i>		30	62	92	0.326	0.44 (0.02, 3.14)	0.562
5. <i>open source</i>		3	3	6	0.500	NA	NA
6. <i>slow running water</i>		1	2	3	0.333	NA	NA

7. <i>fast running water</i>		1	0	1	1.000	NA	NA
Laboratory Testing							
HIV		2	1	3	0.667	NA	
Malaria		166	128	294	0.565	0.99 (0.99, 0.99)	<0.0001
Continuous Variables	Missing	Median (IQR) for participants with an admission outcome	Median (IQR) for participants without an admission outcome	Odds Ratio (95% CI)			p-value
Patient Information							
Age (months)	4	16.5 (32.9)	13.1 (21.8)	1.01 (1.00, 1.01)			<0.01
Length of illness (days)	0	2.5 (2.0)	3.0 (2.0)	1.00 (0.98, 1.01)			0.931
Vital Signs							
Oxygen saturation	10	98.1 (2.9)	99.0 (2.1)	0.86 (0.83, 0.90)			<0.0001
Transformed oxygen saturation*	10	0 (0)	0 (0)	1.06 (1.04, 1.09)			<0.0001
Heart Rate	10	149.5 (31.2)	138.0 (27.0)	1.03 (1.02, 1.03)			<0.0001
Respiratory Rate	6	50 (22.0)	43.0 (18.0)	1.03 (1.02, 1.04)			<0.0001
Temperature	4	37.8 (1.9)	36.8 (0.7)	2.64 (2.32, 3.02)			<0.0001
Anthropometric Information							
Height (cm)	9	77 (22.5)	74.0 (21.1)	1.01 (1.00, 1.01)			<0.01
Weight (kg)	4	9.9 (4.2)	9.2 (4.6)	1.01 (0.99, 1.03)			0.47
MUAC (mm)	3	140 (24.0)	143.0 (23.0)	0.99 (0.98, 1.00)			<0.001
Sociodemographic Information							
Maternal Age	2	26 (7.0)	26 (7.0)	1.00 (0.98, 1.02)			0.903

*Transformed Spo2 computed using physiologically derived altitude adjusted virtual shunt formula: $70.103 * \log_{10}(101.687 - spo2) - 55.833$.