S5 Table. Univariate analysis of factors associated with administration of crystalloid or colloid for 2716 fluid resuscitation episodes in 1456 patients

Variable	OR[95%CI] for receiving crystalloid	p_value	OR[95%CI] for receiving colloid	p_value
Age (per one year increase)	0.99[0.98 to 1]	0.0070	1.01[1 to 1.01]	0.0710
Gender				
Female	1.00		1.00	
Male	1.34[1.04 to 1.73]	0.0247	0.73[0.58 to 0.93]	0.0103
Number of days in ICU at survey date	0.99[0.99 to 1]	0.0724	1.01[1 to 1.01]	0.1032
Number of days in ICU at survey				
0 day	1.00		1.00	
>0 day	0.56[0.42 to 0.73]	<0.0001	1.54[1.2 to 1.98]	0.0007
Severity of illness in 24 hrs prior to survey date				
Low(< median)	1.00	0.0068	1.00	0.0052
High(>= median)	0.67[0.51 to 0.88]		1.39[1.08 to 1.8]	
Missing	0.99[0.7 to 1.4]		0.88[0.63 to 1.23]	
Trauma at hospital admission Yes/No				
Trauma at hospital admission, No	1.00		1.00	
Trauma at hospital admission, Yes	1.85[1.14 to 3.01]	0.0125	0.55[0.35 to 0.85]	0.0079
Traumatic brain injury Yes/No				
Traumatic brain injury, No	1.00		1.00	
Traumatic brain injury, Yes	3.37[0.97 to 11.67]	0.0556	0.29[0.1 to 0.87]	0.0277
Trauma category at hospital admission				
No trauma	1.00	0.0362	1.00	0.0186
Trauma without TBI	1.58[0.94 to 2.67]		0.65[0.4 to 1.05]	
Trauma with TBI	3.47[1 to 12.02]		0.28[0.1 to 0.85]	
Sepsis in 24 hrs prior to survey date				
Sepsis in 24 hrs prior to survey date, No	1.00		1.00	
Sepsis in 24 hrs prior to survey date, Yes	0.66[0.52 to 0.85]	0.0010	1.47[1.16 to 1.85]	0.0014
Chronic health points liver criteria				
No	1.00		1.00	
Yes	0.44[0.26 to 0.74]	0.0023	2.04[1.21 to 3.42]	0.0073
Chronic health points renal criteria				
No	1.00		1.00	
Yes	1.06[0.46 to 2.47]	0.8901	0.77[0.33 to 1.8]	0.5514
Chronic health points cardiac criteria				
No	1.00		1.00	
Yes	0.58[0.37 to 0.9]	0.0163	1.63[1.06 to 2.53]	0.0274
Chronic health points respiratory criteria				
No	1.00		1.00	
Yes	0.61[0.39 to 0.96]	0.0314	1.36[0.87 to 2.14]	0.1814
Chronic health points immunocompromised				
No	1.00		1.00	
Yes	1.01[0.68 to 1.48]	0.9782	1.05[0.73 to 1.51]	0.7827

Admission source				
Operating room after elective surgery	1.00	0.0014	1.00	0.0033
Emergency room	0.55[0.37 to 0.83]		1.59[1.09 to 2.33]	
Hospital floor	0.46[0.29 to 0.72]		2.05[1.34 to 3.13]	
Transferred from other ICU or hospital	0.8[0.51 to 1.26]		1.25[0.82 to 1.9]	
Operating room after emergency surgery	0.75[0.51 to 1.1]		1.34[0.94 to 1.91]	
Hospital floor after previous ICU stay	0.45[0.27 to 0.73]		2.16[1.36 to 3.42]	
Indication for fluid				
Impaired perfusion/low cardiac output	1.00	<0.0001	1.00	<0.0001
Ongoing bleeding	0.67[0.31 to 1.46]		1.57[0.82 to 3]	
Other fluid losses	0.68[0.4 to 1.13]		1.66[1.04 to 2.65]	
Unit protocol	0.22[0.12 to 0.41]		4.11[2.3 to 7.33]	
Abnormal vital signs	0.74[0.58 to 0.95]		1.22[0.96 to 1.54]	
Fluid indication, other	0.23[0.09 to 0.56]		3.76[1.6 to 8.84]	
Fluid prescriber				
Specialist	1.00	0.0002	1.00	<0.0001
Registrar	0.58[0.45 to 0.74]		1.84[1.45 to 2.32]	
Resident	1.01[0.72 to 1.43]		1.04[0.76 to 1.42]	
Nurse	2.8[0.15 to 52.37]		0.36[0.03 to 4.42]	
Fluid prescriber, other	0.91[0.38 to 2.18]		1.22[0.57 to 2.62]	
Cardiac failure				
No (cardiac SOFA<3)	1.00		1.00	
Yes (cardiac SOFA>=3)	0.84[0.67 to 1.05]	0.1167	1.21[0.98 to 1.5]	0.0779
Respiratory failure				
No (respiratory SOFA<3)	1.00		1.00	
Yes (respiratory SOFA>=3)	0.79[0.61 to 1.03]	0.0832	1.43[1.12 to 1.83]	0.0043
Renal replacement therapy				
No	1.00		1.00	
Yes	0.54[0.38 to 0.76]	0.0005	1.92[1.37 to 2.67]	0.0001
Mechanical ventilation				
No	1.00		1.00	
Yes	0.61[0.49 to 0.77]	<0.0001	1.61[1.29 to 2.01]	<0.0001
Low filling pressure				
No,	1.00	<0.0001	1.00	<0.0001
Yes	1.8[0.86 to 3.74]		0.89[0.48 to 1.64]	
Missing	1.73[1.36 to 2.19]		0.55[0.44 to 0.69]	
Metabolic acidosis				
No	1.00	0.1767	1.00	0.3005
Yes	1.22[0.97 to 1.54]		0.85[0.68 to 1.05]	
Missing	1[0.8 to 1.26]		0.97[0.79 to 1.21]	
Lactate(mmol/L)				
<2,	1.00	0.1406	1.00	0.8615
>=2	1.22[0.97 to 1.54]		0.94[0.76 to 1.17]	
missing	0.98[0.79 to 1.22]		0.99[0.8 to 1.22]	

Heart rate, b/min	1[1 to 1.01]	0.1725	1[1 to 1]	0.9384
Heart rate (per 10 b/min increase)	1.03[0.99 to 1.08]	0.1657	1[0.96 to 1.04]	0.9740
Mean arterial pressure	1[0.99 to 1]	0.3293	1[1 to 1.01]	0.5181
Mean arterial pressure (per 10 mmHg decrease)	1.03[0.98 to 1.09]	0.1999	0.97[0.93 to 1.02]	0.2864
Creatinine(umol/L)				
<170	1.00	0.6113	1.00	0.7008
>=170	0.99[0.73 to 1.33]		1.04[0.78 to 1.39]	
missing	0.9[0.72 to 1.11]		1.1[0.89 to 1.36]	
Bilirubin(umol/L)				
<20	1.00	0.0038	1.00	0.0020
>=20	1.08[0.82 to 1.43]		1[0.76 to 1.3]	
missing	1.47[1.16 to 1.85]		0.69[0.54 to 0.87]	
Albumin(g/L)				
<27	1.00	<0.0001	1.00	<0.0001
>=27	0.76[0.56 to 1.03]		1.28[0.96 to 1.71]	
missing	1.59[1.18 to 2.15]		0.61[0.46 to 0.8]	
Urine output(ml/kg/hr)				
<0.5	1.00	0.1275	1.00	0.3264
>=0.5	0.95[0.74 to 1.23]		1.1[0.87 to 1.4]	
missing	1.22[0.91 to 1.66]		0.94[0.71 to 1.24]	
Fluid output(ml/kg/hr)				
<1	1.00	0.0032	1.00	0.0054
>=1	1.08[0.82 to 1.43]		1.02[0.78 to 1.32]	
missing	1.63[1.16 to 2.3]		0.7[0.51 to 0.97]	

Continuous variables with ≥ 20% missing values are dichotomised and analysed with missing as a separate groups. Categorical variables with ≥ 20% missing values are also analysed with missing as a separate groups. Results are generated from generalised estimating equation (GEE) models with patient ID assigned as clusters. Variables with p-values from GEE <0.1 were eligible to be included in multivariate analysis.