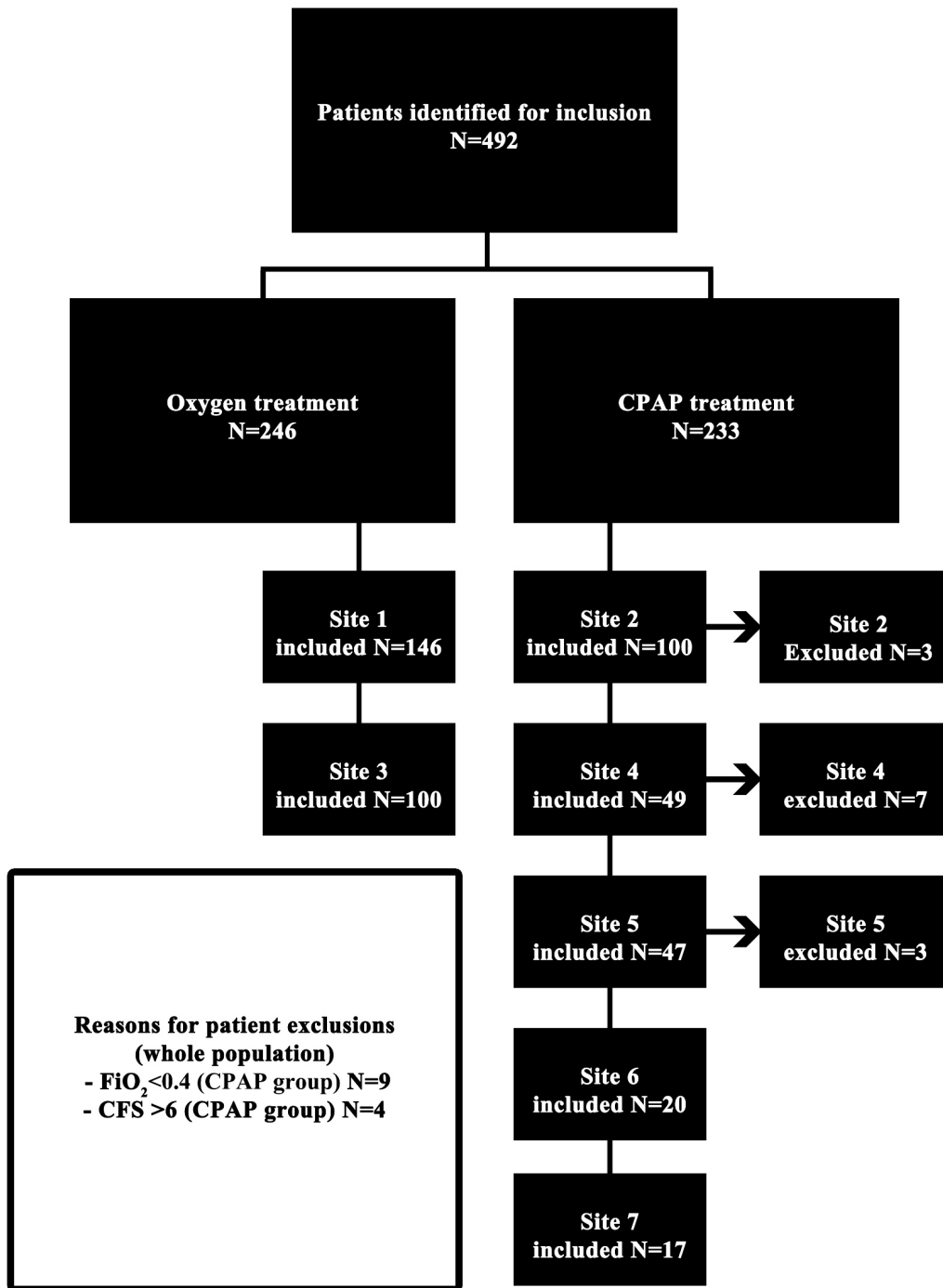
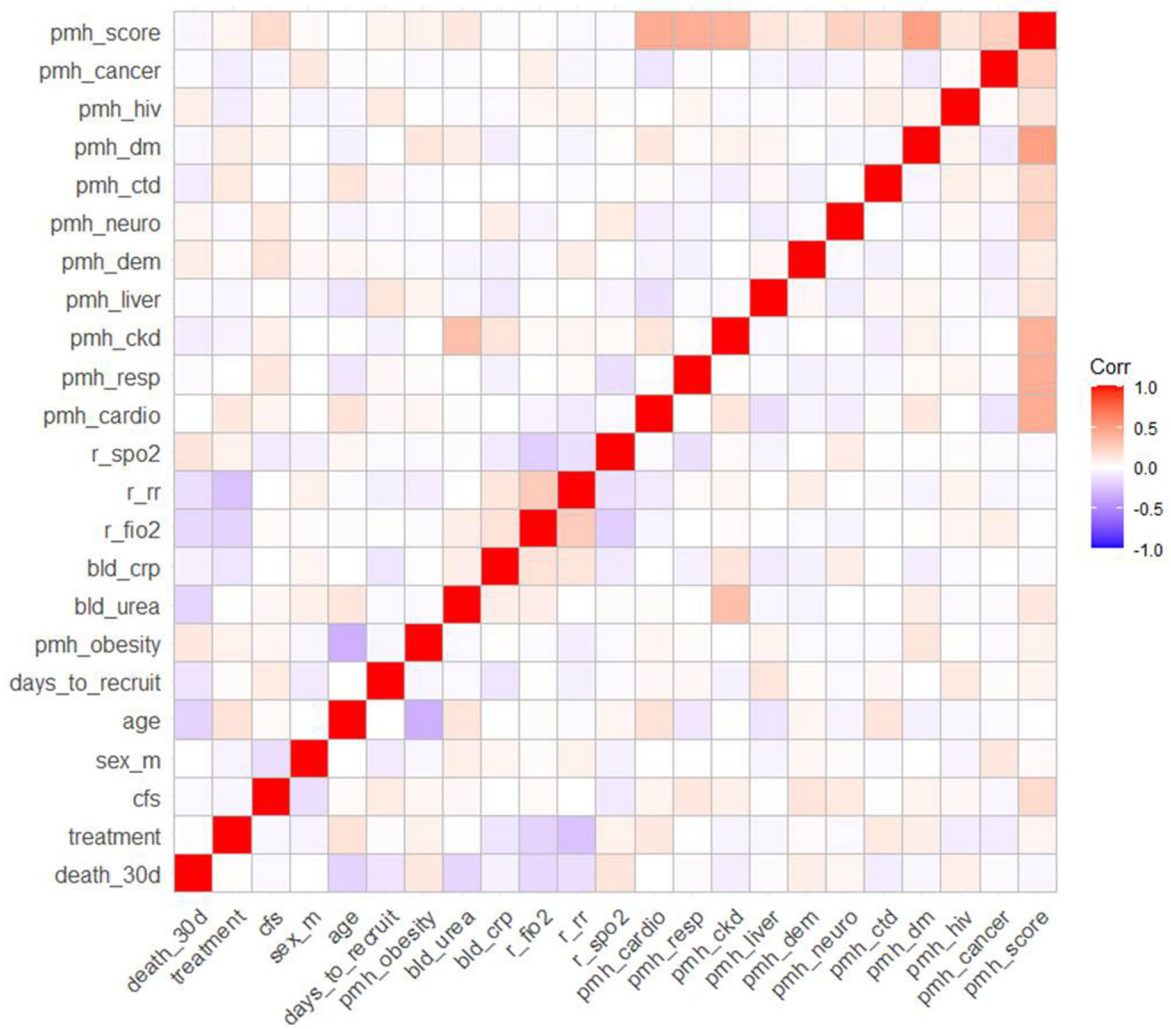


Category	Clinical status	Suggested action
<b>Green</b>	RR $\geq$ 20bpm with SpO <sub>2</sub> $\leq$ 94%	Administer O <sub>2</sub> < 40% by face mask. If SpO <sub>2</sub> rises to > 94%, observe and monitor
<b>Yellow</b>	RR $\geq$ 20bpm with SpO <sub>2</sub> $\leq$ 94% on FiO <sub>2</sub> $\leq$ 40%	Start 15L/min via non-rebreath mask  <i>Senior clinical review to consider:</i>  If orientated and able to tolerate well-fitted non-vented face mask, trial CPAP 10cmH <sub>2</sub> O with FiO <sub>2</sub> 0.6  If further escalation appropriate, consider increasing CPAP 12-15 cmH <sub>2</sub> O + 60-100% oxygen if needed  If not, IMV if in accordance with TEP
<b>Red</b>	RR $\geq$ 20bpm with SpO <sub>2</sub> $\leq$ 94% on 15L/min O <sub>2</sub> via non-rebreath mask and/or patient unable to tolerate CPAP mask, obtunded, disorientated, rising FiO <sub>2</sub> needs, significant clinical decline	Urgent critical care review and prepare for intubation if in accordance with TEP

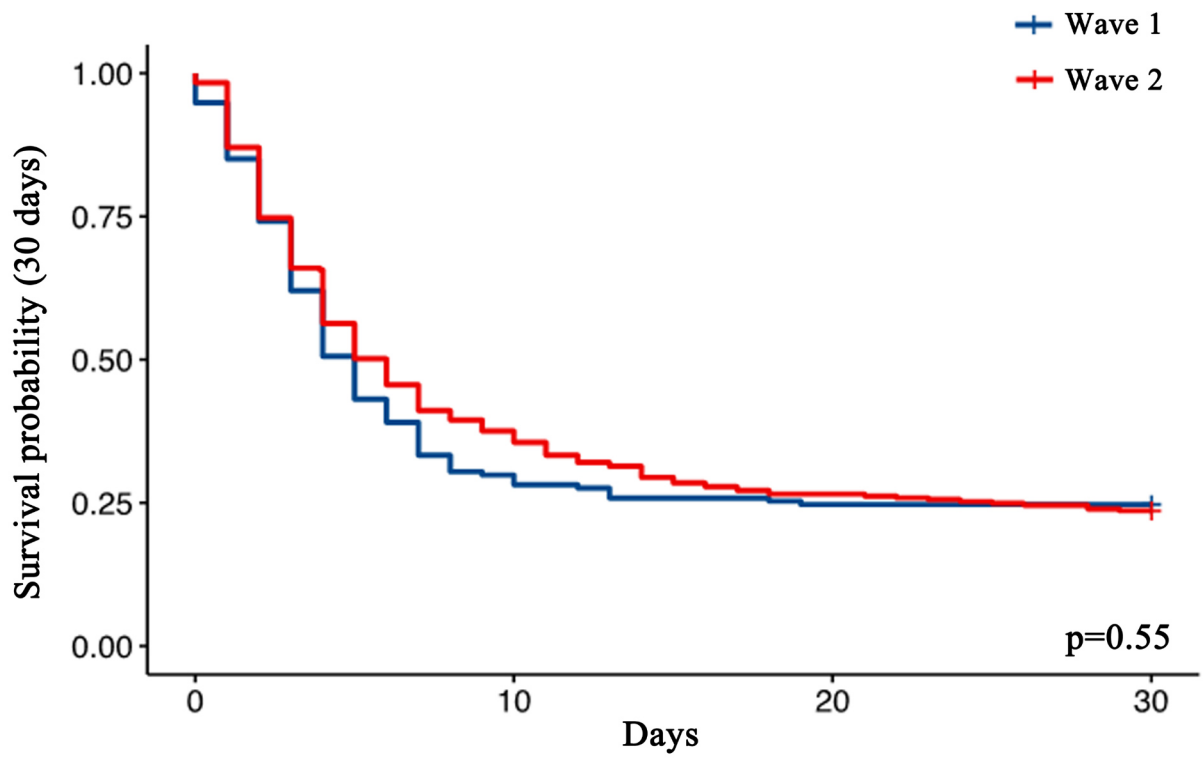
Abbreviations: RR = respiratory rate; SpO<sub>2</sub> = oxygen saturation; CPAP = continuous positive airway pressure; FiO<sub>2</sub> = fraction of inspired oxygen, IMV = invasive mechanical ventilation, TEP = treatment escalation plan



Supplementary figure 2.tif



Supplementary figure 3 LZW.tif

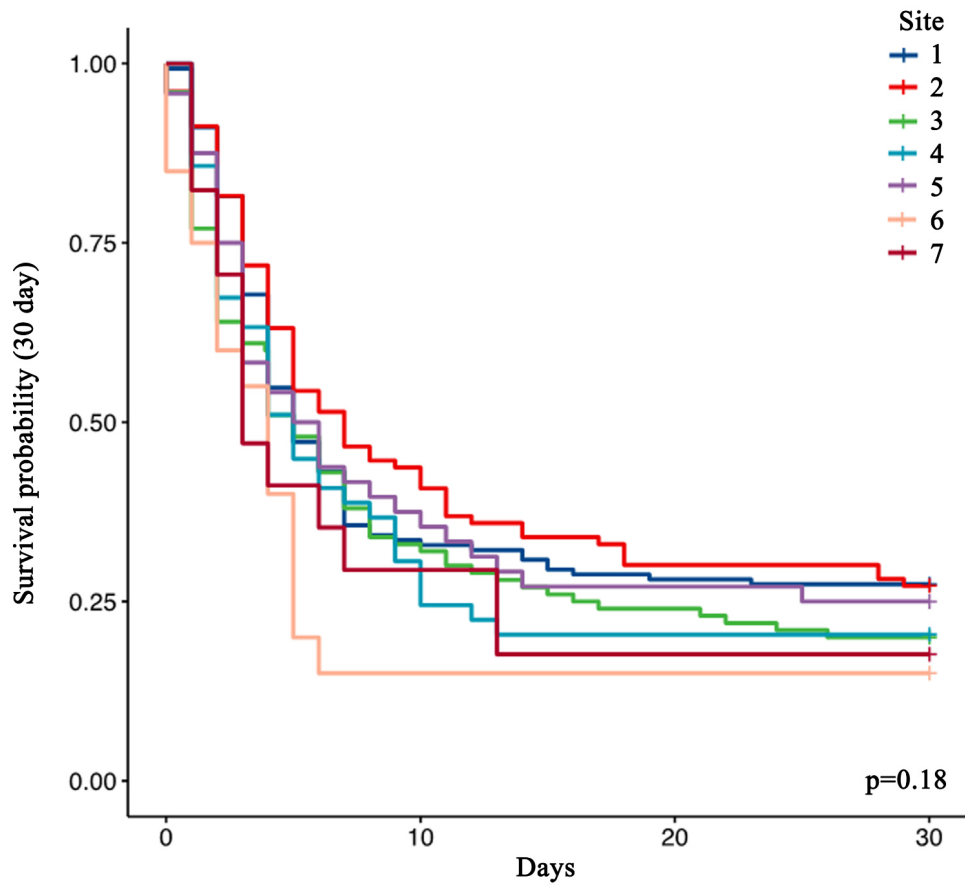


Numbers at risk

	0	10	20	30
Wave 1	171	52	43	43
Wave 2	308	116	82	73

Days

Supplementary figure 4 survival by wave flat.tif

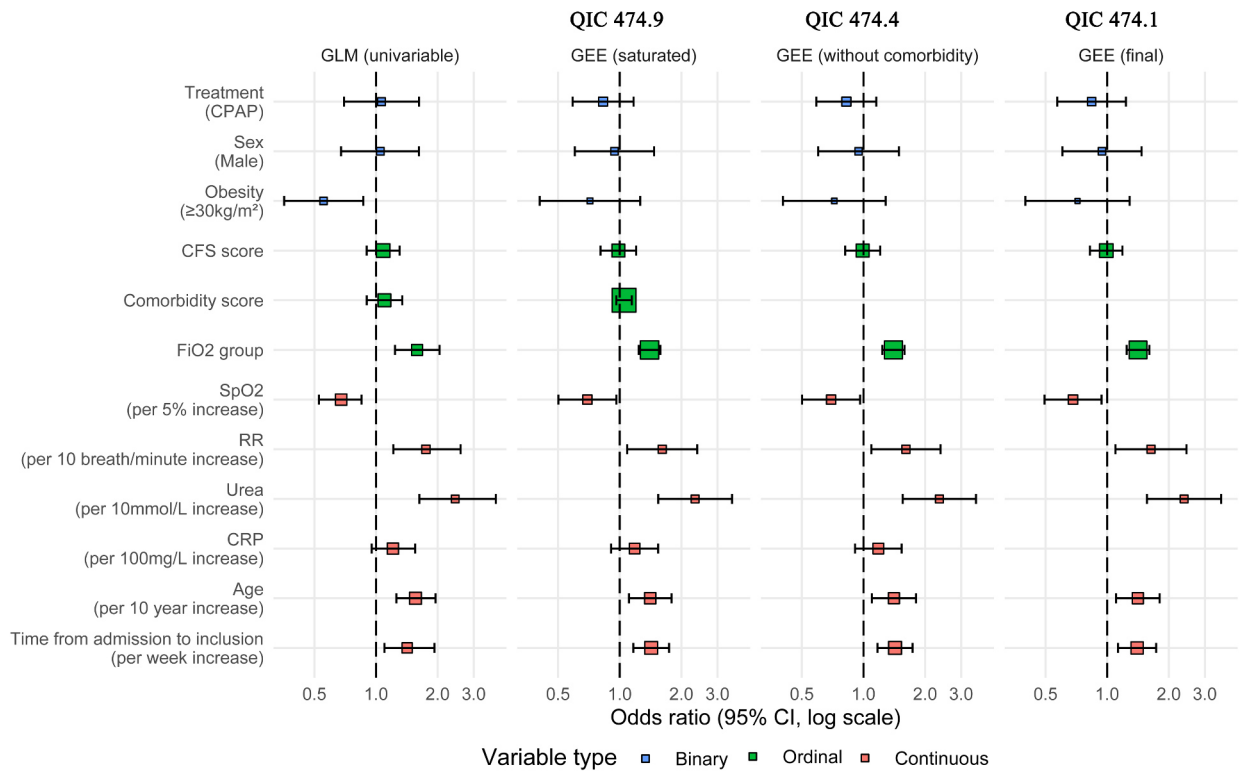


Number at risk

	0	10	20	30
site 1	146	49	41	40
site 2	100	45	31	28
site 3	100	33	24	20
site 4	49	15	10	10
site 5	47	18	13	12
site 6	20	3	3	3
site 7	17	5	3	3

Days

Supplementary figure 5 LZW.tif



Supplementary figure 6 LZW.tif

Variable	Overall, N = 479 <sup>1</sup>	Death by 30 days		p-value <sup>2</sup>
		Yes, N = 365 <sup>1</sup>	No, N = 114 <sup>1</sup>	
<b>Treatment</b>				0.8
Oxygen	246 (51%)	186 (51%)	60 (53%)	
CPAP	233 (49%)	179 (49%)	54 (47%)	
<b>Death in hospital</b>	366 (76%)	362 (99%)	4 (3.5%)	
<b>Age</b>	77 (71, 83)	79 (72, 84)	75 (70, 80)	<0.001
<b>Sex (Male)</b>	307 (64%)	235 (64%)	72 (63%)	0.8
<b>Ethnicity</b>				0.6
Black	8 (1.7%)	5 (1.4%)	3 (2.7%)	
Chinese	1 (0.2%)	1 (0.3%)	0 (0%)	
S Asian	26 (5.4%)	19 (5.2%)	7 (6.2%)	
White	443 (93%)	340 (93%)	103 (91%)	
<b>Clinical Frailty Scale (Group)</b>				0.7
(2,3]	116 (24%)	84 (23%)	32 (28%)	
(3,4]	113 (24%)	87 (24%)	26 (23%)	
(4,5]	152 (32%)	120 (33%)	32 (28%)	
(5,6]	98 (20%)	74 (20%)	24 (21%)	
<b>Urea (mmol/L)</b>	9 (6, 13)	10 (7, 14)	7 (5, 11)	<0.001
<b>CRP (mg/L)</b>	131 (78, 196)	136 (79, 203)	116 (62, 178)	0.12
<b>Recruitment FiO<sub>2</sub> (grouped)</b>				<0.001
0.4-0.59	154 (32%)	105 (29%)	49 (43%)	
0.60-0.79	123 (26%)	89 (24%)	34 (30%)	
0.80	202 (42%)	171 (47%)	31 (27%)	
<b>Recruitment RR</b>	24.0 (20.0, 28.0)	24.0 (20.0, 30.0)	22.0 (20.0, 26.0)	0.001
<b>Inclusion SpO<sub>2</sub> (%)</b>	92.0 (88.0, 94.0)	92.0 (88.0, 94.0)	93.0 (90.0, 95.0)	0.002
<b>Max CPAP pressure (cm H<sub>2</sub>O)</b>	10.0 (10.0, 12.0)	10.0 (10.0, 12.0)	10.0 (8.0, 12.0)	0.030
<b>Max CPAP FiO<sub>2</sub></b>	0.53 (0.46, 0.56)	0.53 (0.50, 0.60)	0.52 (0.38, 0.53)	0.002
<b>Time on CPAP (days)</b>	3.0 (1.0, 5.0)	2.0 (1.0, 5.0)	3.5 (1.2, 8.0)	0.015
<b>CPAP discontinuation reason</b>				0.058
Clinician initiated withdrawal	116 (50%)	83 (46%)	33 (61%)	
Patient initiated withdrawal	117 (50%)	96 (54%)	21 (39%)	
<b>Palliative care referral</b>	233 (49%)	218 (61%)	15 (13%)	<0.001
<b>Total admission (days)</b>	8 (5, 17)	7 (4, 14)	18 (11, 28)	<0.001
<b>Time from admission to inclusion (days)</b>	2 (0, 5)	2 (0, 5)	1 (0, 4)	0.003
<b>Time to death (days)</b>	4.0 (2.0, 7.0)	4.0 (2.0, 7.0)	NA (NA, NA)	

<sup>1</sup> n (%); Median (IQR)

<sup>2</sup> Pearson's Chi-squared test; Wilcoxon rank sum test; Fisher's exact test

Supplementary figure 7.tif

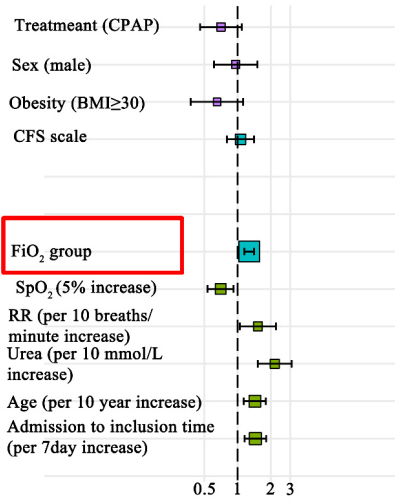


Indicates which variable is being directly manipulated in sensitivity analysis

a)

Sensitivity analysis i): Excluding Oxygen group patients with maximal  $FiO_2 > 0.6$ .

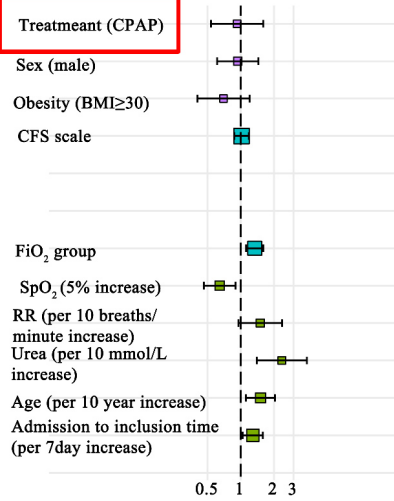
n=463



b)

Sensitivity analysis ii): Excluding patients with CPAP duration < 24 hours.

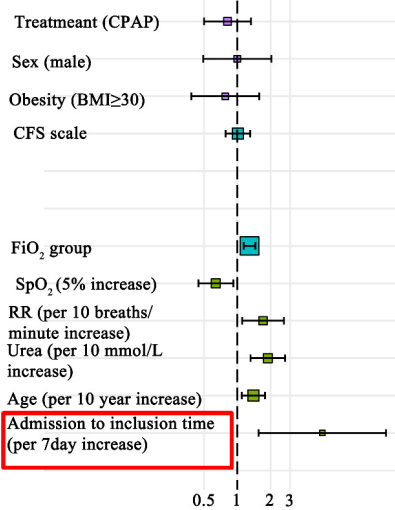
n=419



c)

Sensitivity analysis iii): Excluding patients with a prolonged time from admission to inclusion (>7 days)

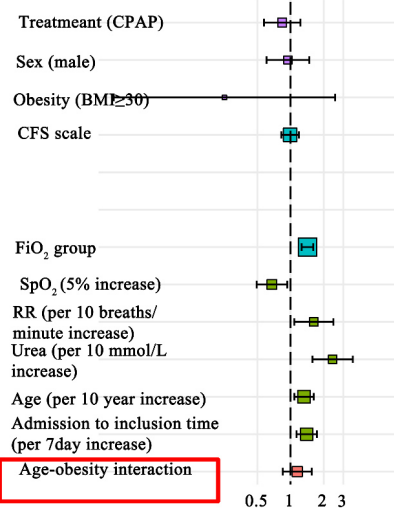
n=355



d)

Sensitivity analysis iv): Inclusion of age-obesity interaction term.

n= 479



Supplementary figure 8 LZW.tif



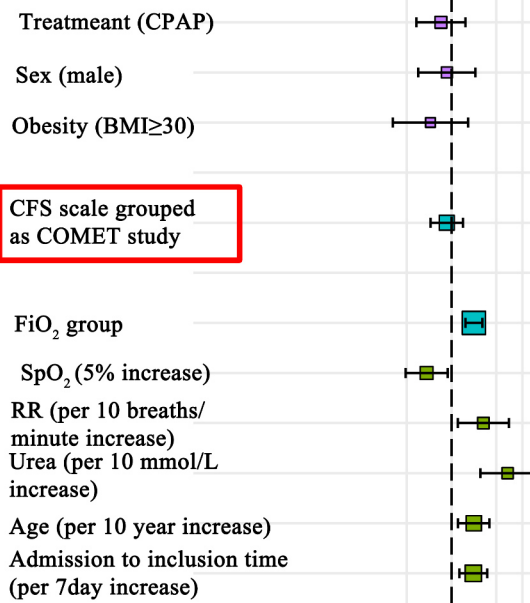


Indicates which variable is being directly manipulated in sensitivity analysis

e)

Sensitivity analysis v): Grouping CFS scale as per COMET study.<sup>19</sup>

n=479

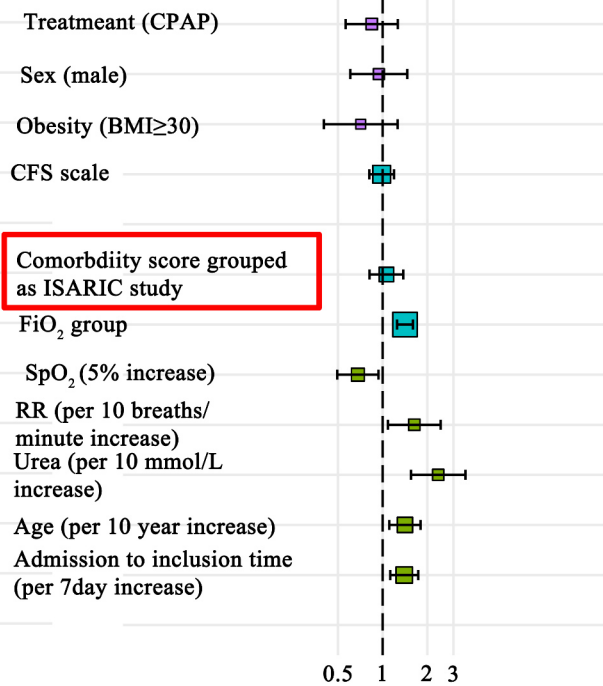


CFS scale grouped as COMET study

f)

Sensitivity analysis v): Grouping CFS scale as per ISARIC study.<sup>20</sup>

n=479



Comorbidity score grouped as ISARIC study

Variable	Overall CPAP group N = 233 <sup>1</sup>	CPAP Treatment sub-group		p-value <sup>2</sup>
		CPAP, clinician discontinued N = 116 <sup>1</sup>	CPAP, patient discontinued N = 117 <sup>1</sup>	
Age	77 (70, 82)	76 (69, 81)	78 (71, 82)	0.080
Sex (male)	156 (67%)	73 (63%)	83 (71%)	0.2
CFS	5 (4, 5)	4.5 (3, 6)	5 (4, 5)	0.97
<b>Comorbidity score group</b>				0.6
A (0,1)	80 (34%)	39 (34%)	41 (35%)	
B (2)	74 (32%)	34 (29%)	40 (34%)	
C (3-5)	79 (34%)	43 (37%)	36 (31%)	
<b>Inclusion FiO<sub>2</sub></b>				0.3
0.35-0.59	51 (22%)	22 (19%)	29 (25%)	
0.6-0.79	65 (28%)	37 (32%)	28 (24%)	
0.8	117 (50%)	57 (49%)	60 (51%)	
Inclusion RR	26 (22, 30)	25 (22, 30)	26 (22, 31)	0.8
Inclusion SpO <sub>2</sub>	92 (88, 95)	91.5 (87, 95)	92 (88, 95)	0.5

Supplementary figure 9.tif