

## Supplemental table 1

### Microbial assessments

Microbial assessment	Patients (N=31)	
	Before or at admission	>48 h after ECMO start
<b>Patients with positive culture/s</b>	<b>N=28</b>	<b>N=25</b>
	<b>n (%)</b>	<b>n (%)</b>
<b>Multiple agents recovered (cases)</b>	<b>19 (67.9)</b>	<b>8 (32)</b>
<b>Gram-positive bacteria</b>	<b>18 (64.3)</b>	<b>12(48)</b>
<i>Staphylococcus aureus</i>	7 (25)	2 (8)
<i>Streptococcus pneumoniae</i>	7 (25)	1 (4)
<i>Gram-positive, other</i>	4 (14.3)	1 (4)
<i>Staphylococcus epidermidis</i>	1 (3.6)	
<i>Coagulase negative staphylococci</i>		5 (20)
<i>Enterococcus faecium</i>		1 (4)
<i>Enterococcus faecalis</i>		2 (8)
<b>Gram-negative bacteria</b>	<b>12 (42.9)</b>	<b>3 (12)</b>
<i>Neisseria meningitides</i>	4 (14.3)	
<i>Escherichia coli</i>	2 (7.1)	
<i>Pseudomonas aeruginosa</i>	2 (7.1)	2 (8)
<i>Moraxella catarrhalis</i>	1 (3.6)	
<i>Fusobacterium nucleatum</i>	1(3.6)	
<i>Enterobacter aerogenes</i>	1 (3.6)	
<i>Serratia marcescens</i>	1 (3.6)	

<i>Stenotrophomonas maltophilia</i>		1 (4)
<b>Viruses</b>	<b>27 (96,4)</b>	<b>2 (8)</b>
<i>RS virus</i>	4 (14.3)	
<i>Influenza B</i>	4 (14.3)	
<i>Cytomegalo</i>	3 (10.7)	2 (8)
<i>Metapneumo</i>	3 (10.7)	
<i>Parainfluenza</i>	2 (7.1)	
<i>Influenza A</i>	2 (7.1)	
<i>Bocca</i>	2 (7.1)	
<i>Adeno</i>	2 (7.1)	
<i>Epstein-Barr</i>	2 (7.1)	
<i>Entero</i>	2 (7.1)	
<i>Rhino</i>	1 (3.6)	
<b>Fungii</b>	<b>6 (21.4)</b>	<b>19 (76)</b>
<i>Candida spcs</i>	5 (17.9)	12 (48)
<i>Aspergillus</i>	1 (3.6)	4 (16)
<i>Zygomycet</i>		3 (12)

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Positive assessments of potential pathogens acknowledged before or from samplings within the first 24 hours from commencement of extracorporeal membrane oxygenation are shown in the first data column. in Septic shock. The second column displays data on positive cultures obtained after at least 48 hrs from commencement of ECMO. No positive cultures were sampled between 24 and 48 hrs.

## Supplemental Table 2

### Characteristics of patients related to support mode

	VV ECMO (n=10)	VA ECMO (n=21)	<i>p</i>
Age, years	6.7±4.2	4.9±5.3	0.32
Body weight, kg	24.4±14.6	22.9±19.6	0.82
Patients on vasoactive drug, n (%)	10 (100)	21 (100)	1.0
CPR, n (%)	1 (10)	8 (38)	0.21
Immunosuppression, n (%)	3 (30)	5 (24)	1.0
Multiple microorganisms in cultures, n (%)	2 (20)	4 (19)	1.0
pH	7.12 (7.04-7.18)	7.21 (7.08-7.3)	0.14
b-Hemoglobin, g/dL	13.5 (11.9-14.9)	12.6 (11.7-14)	0.40
PaO <sub>2</sub> /FiO <sub>2</sub> ratio, mmHg	60±34.8	43±14.5	0.091
MAP (mmHg)	59±12.8	47±14.3	<b>0.036</b>
PIM2/3, EMR%	15.2 (13.6-26.1)	32.6 (23.4-58.7)	<b>0.044</b>
b-lactate, mmol/L	6±6.3	9.4±6.6	0.24
b-WBC, x10 <sup>9</sup> /L	6.5±8.1	7.4±10.4	0.82
b-PLT, x10 <sup>12</sup> /L	54 (28-74)	30 (18-52)	0.063
aPTT (12 hrs), s	82 (54-112)	90 (67-130)	0.41
p-creatinine, μmo/L	58 (35-117)	68 (45-158)	0.43
PT, INR	2.0±0.4	2.0±0.8	0.11
p-C-reactive protein, mg/L	104 (76-286)	92 (34-148)	0.23
p-procalcitonin, μg/L	218 (3-264)	203 (23-332)	0.70
S <sub>PRE</sub> O <sub>2</sub> (%)	82 (75-85)	76 (71-82)	0.10
ECMO blood flow day 1 (mL/kg min <sup>-1</sup> )	100 (81-117)	90 (68-116)	0.58

$V_{\text{ECMOO}_2}$ day 1 (mL/kg min <sup>-1</sup> )	3.3 (2.7-4.6)	3.9 (3.0-6.1)	0.25
LOS ECMO, days	8.5(4.8-14.5) (range: 4-34)	6 (5-11.5) (range: 1-72)	0.45
LOS ECMO + PICU, days	15 (9-21) (range: 8-83)	10 (6.5-18) (range: 1-85)	0.20
LOS ECMO (survivors) + PICU, days	15 (10-25) (range: 8-83)	11 (8-18) (range: 6-85)	0.30
Survival ECMO, n (%)	8 (80)	14 (66.7)	0.68
Survival from ICU, n (%)	8 (80)	13 (61.9)	0.43
Survival from hospital, n (%)	8 (80)	13 (61.9)	0.43
Long-term survival (median 6.5 years)	6 (60)	13 (61.9)	1.0

Comparison between patients offered venovenous and venoarterial extracorporeal membrane oxygenation as primary mode in septic shock

**Abbreviations:** aPTT, activated partial thromboplastin time oxygenation; CPR, cardiopulmonary resuscitation; CRRT, continuous renal replacement therapy; ECMO, extracorporeal membrane; ICU, intensive care unit; MAP, mean arterial blood pressure; LOS, length of stay; PIM, Pediatric Index of Mortality rev. 2 or 3; PLT, platelet count; PT, prothrombin time;  $S_{\text{PREO}_2}$ , pre-membrane lung oxygen saturation;  $V_{\text{ECMOO}_2}$ , net extracorporeal oxygen delivery; VA, venoarterial; VV, venovenous; WBC, white blood cell count

### Supplemental Table 3

#### Comparisons related to outcome in extracorporeal membrane oxygenation in pediatric septic shock

	Survivors (n=21)	Non-survivors (n=10)	<i>p</i>
<b>Data before ECMO</b>			
Age, years	4.7±4.7	7.1±5.5	0.23
Bodyweight, kg	23.5±17.7	23±19.1	0.94
Male sex, n (%)	12 (57.1)	4 (40)	0.46
Cardiopulmonary resuscitation before ECMO, n (%)	6 (28.6)	3 (30)	1.0
Immunosuppression, n (%)	3 (14.3)	5 (50)	0.074
Multiple microorganisms in cultures, n (%)	6 (28.6)	0 (0)	0.14
pH	7.20 (7.09-7.27)	7.19 (7.06-7.28)	0.80
b-Hemoglobin, g/dL	12.1 (11.6-13.2)	11.8 (11-13.2)	0.64
PaO <sub>2</sub> /FiO <sub>2</sub> ratio, mmHg	45±19.5	54±27.8	0.34
MAP (mmHg)	53±14.3	47±15.3	0.30
PIM2/3, EMR%	31.6 (14.6-55.2)	28 (14-49.4)	0.85
b-Lactate, mmol/L	6.5±4.8	12.5±8.1	<b>0.015</b>
b-White blood cell count, x10 <sup>9</sup> /L	28.5±68.3	4.2±5.5	0.30
aPTT (12 hrs), s	91 (62-144)	78 (56-108)	0.22
b-Creatinine, μmol/L	52 (41-100)	114 (80-215)	<b>0.019</b>
PT (INR)	1.8±0.53	2.1±1.08	0.37
p-C-reactive protein, mg/L	99 (54-168)	94 (42-217)	0.89
p-procalcitonin, μg/L	185(15-244)	292 (133-760)	0.11
Number of vasoactive durugs	1 (1-2.5)	2 (1-2.2)	0.96
Inhaled nitric oxide, n (%)	5 (23.8)	2 (20)	1.0

**ECMO data**

ECMO, days	7 (5-10.5)	7 (2.8-19.2)	0.92
ECMO flow rate day 1, mL/kg min <sup>-1</sup>	100 (77-116)	79.1 (69.3-119)	0.82
VV-ECMO, n (%)	8 (38.1)	2 (2)	
VV-ECMO flow rate day 1, mL/kg min <sup>-1</sup>	100 (81-112)	111 (range: 82-140)	0.60
Pre-membrane oxygen saturation, S <sub>PRE</sub> O <sub>2</sub> , %	81 (74-84)	87 (range: 81-94)	0.30
Net oxygen delivery - VV ECMO day 1, mL/kg min <sup>-1</sup>	3.6 (3.1-5.5)	2.3 (range: 1.8-2.9)	0.068
VA-ECMO, n (%)	13 (61.9)	8 (80)	
VA-ECMO flow rate day 1, mL/kg min <sup>-1</sup>	100 (70-125)	73 (68-109)	0.26
Pre-membrane oxygen saturation, S <sub>PRE</sub> O <sub>2</sub> , %	78 (72-82)	74 (67-83)	0.80
Net oxygen delivery - VA ECMO day 1, mL/kg min <sup>-1</sup>	4.0 (3.0-7.6)	3.8 (2.7-5.3)	0.43
Converted from VV to VA-ECMO, n (%)	2 (9.5)	0 (0)	
Converted from VA to VV-ECMO, n (%)	2 (9.5)	1 (10)	
Converted from VV to VA to VV-ECMO, n (%)	1 (4.7)	0 (0)	
Adjuvant therapies			
CRRT, n (%)	18 (85.7)	9 (90)	1.0
CRRT, days	7 (4-11.2)	8 (1.5-16.5)	0.96
Plasmapheresis, n (%)	4 (19)	3 (30)	0.65
Plasmapheresis, no. of treatments	2 (1-3.8)	2 (1-5)	0.71

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Comparison between survivors and non-survivors in pediatric patients supported with extracorporeal membrane oxygenation in septic shock

**Abbreviations:** aPTT, activated partial thromboplastin time; ECMO, extracorporeal membrane oxygenation; CPR, cardiopulmonary resuscitation; CRRT = continuous renal replacement therapy; MAP,

mean arterial blood pressure; PIM, Pediatric Index of Mortality rev. 2 or 3; VA, venoarterial; VV,  
veno-venous