

Decision support for ECMO treatment

These criteria refer to the position in favour of ECMO treatment for all patient groups with acute reversible cardiovascular and/or respiratory failure.

Criteria - cardiac

Each one of the following symptoms of hypoperfusion and / or cardiac failure - after volume substitution (≥ 60 ml / kg, or CVP > 10) and inotropy / vasopressor support - constitutes an indication for ECMO.

Plasma lactate > 5 mmol / L without improvement for > 30 min

SvO₂ $< 55\%$ (estimated cardiac index < 2) for > 60 min

Rapid deterioration of ventricular function or severely impaired ventricular function

Severe arrhythmia leading to poor perfusion

Not possible to come off ECC

Ongoing CPR

Inotropic Equivalents (IU) > 50 for 60 min, and > 45 for 8 hours. Patients with myocarditis or post-cardiotomy: IE > 40

Inotropic Equivalent (IE)		
Dopamine	1 x _____ $\mu\text{g}/\text{kg}/\text{min}$	= _____
Dobutamine	1 x _____ $\mu\text{g}/\text{kg}/\text{min}$	= _____
Adrenaline	100 x _____ $\mu\text{g}/\text{kg}/\text{min}$	= _____
Noradrenaline	100 x _____ $\mu\text{g}/\text{kg}/\text{min}$	= _____
Milrinone	15 x _____ $\mu\text{g}/\text{kg}/\text{min}$	= _____
Vasopressin	10000 x _____ IE/kg/min	= _____
	TOTAL SUM	=

Criteria - pulmonary

Each one of the following symptoms of respiratory failure constitutes an indication for ECMO.

Infants

$$\frac{MAP \times 100 \times FiO_2}{PaO_2 \times 7,5} = OI$$

OI > 45 for 6 hours on a ventilator and / or HFO

OI > 35 for more than 12 hours

Exceeds maximum recommended settings on the respirator / HFO:

PIP > 35 during 8 hours

ΔP > 55 during 8 hours

Hz < 10 during 8 timmar

MAP/CDP > 18 cmH₂O during 8 timmar

Children and adults

Murray score above 3.0

Carbon dioxide retention with a pH < 7.10 for 4 hours

Acute deterioration on conventional treatment:

PaO₂ < 4.0 kPa at some time during treatment

PaO₂ < 5.5 kPa during 2 hours

Murray score		
Chest x-ray	No alveolar consolidation	0
	Alveolar consolidation limited to 1 quadrant	1
	Alveolar consolidation limited to 2 quadrant	2
	Alveolar consolidation limited to 3 quadrant	3
	Alveolar consolidation limited to 4 quadrant	4
Hypoxemia	PaO ₂ /FiO ₂ > 40 kPa	0
	PaO ₂ /FiO ₂ 30 – 40 kPa	1
100 % FiO ₂ during 20 min	PaO ₂ /FiO ₂ 23 – 29 kPa	2
	PaO ₂ /FiO ₂ 13 – 22 kPa	3
	PaO ₂ /FiO ₂ < 12 kPa	4
PEEP	PEEP < 5 cmH ₂ O	0
	PEEP 6 – 8 cmH ₂ O	1
	PEEP 9 – 11 cmH ₂ O	2
	PEEP 12 – 14 cmH ₂ O	3
	PEEP > 15 cmH ₂ O	4
Compliance	Compliance > 80 ml/cm H ₂ O	0
	Compliance > 60 – 79 ml/cm H ₂ O	1
Tidal volume / (PIP – PEEP)	Compliance > 40 – 59 ml/cm H ₂ O	2
	Compliance > 20 – 39 ml/cm H ₂ O	3
	Compliance > 19 ml/cm H ₂ O	4