

Patient selection for VV ECMO

Determine **risk score** by adding the scores from diagnostic group ① and clinical modifier ②
 Ensure no absolute contraindication ③ present
 Use chart ④ to establish eligibility and expected outcome for VV ECMO support

<p>① Diagnostic group</p> <p><i>Favourable Diagnostic Categories (Score =1)</i></p> <ul style="list-style-type: none"> Community acquired pneumonia (infective cause) Aspiration pneumonitis Status Asthmaticus Primary graft dysfunction following lung transplant within 7 days Adult respiratory distress syndrome [ARDS] from primary pulmonary causes (excluding trauma) <p><i>High Risk Diagnostic Categories (Score =2)</i></p> <ul style="list-style-type: none"> Necrotising pneumonia Pulmonary vasculitis (Goodpasture's, ANCA-associated, other autoimmune) Lung transplant recipient 7-30 days post transplant Traumatic injuries Moderate TBI with hypoxia/chest injury to allow neuro assessment Bronchial tear with air leak and hypoxia ARDS from direct chest trauma <p><i>Unfavourable Diagnostic Categories (Score =3)</i></p> <ul style="list-style-type: none"> Invasive aspergillosis Pneumocystis jirovecii pneumonia ARDS from non-pulmonary cause (e.g. burns, pancreatitis) Lung transplant recipients >30 days and suitable for re-transplantation (see also bridge to transplant) 	<p>② Clinical modifier</p> <p>Score chronic co-morbidities and acute clinical state</p> <p>Chronic - one or more present (Score +1)</p> <ul style="list-style-type: none"> Peripheral vascular disease (symptomatic, revascularised or amputation) Previously known ischaemic heart disease or prior revascularisation Prior valve surgery, CABG or aortic surgery Moderate COPD (GOLD Stage II, FEV1 50-80%) Chronic renal failure stage 3 or 4 CKD (eGFR 60-15) Chronic liver disease Long-term immunosuppression <p>Acute - one or more present (Score +1)</p> <ul style="list-style-type: none"> Lactate ≥10 Noradrenaline >1 mcg/KG/min AST or ALT > 1000, or, INR >3.0 Anuria >4 hours
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③ Absolute contraindications

Lung disease

- Severe chronic lung disease (see bridge to transplant)
- Acute/ subacute pulmonary fibrosis likely cause of respiratory failure
- Previous known/treated SLE, extra-articular Rheumatoid Arthritis, Scleroderma, Dermatomyositis, Sarcoidosis
- Clinical course or pathological investigations suggestive of irreversible process (e.g. bleomycin lung injury)
- Obliterative bronchiolitis likely cause of respiratory failure
- Graft versus host lung disease

Patient profile

- Age >75
- Bone marrow transplant recipients
- Terminal illness or non-treatable malignancy
- Liver cirrhosis Child-Pugh B or C or jaundice/ ascites/ encephalopathy
- Severe brain injury
- Severe cardiac disease, cardiomyopathy (VAD/ inotropes)
- Chronic renal failure CKD 5 or dialysis

Acute condition

- Pulmonary oedema for LVF - consider VA ECMO
- Septic shock with hypoxia predominant presentation rather than pulmonary infiltrates
- Advanced microcirculatory failure with severe mottling or established purpura

④ Eligibility chart

5	Red	Black	Black	Black
4	Yellow	Red	Black	Black
3	Green	Yellow	Red	Black
1-2	Green	Green	Yellow	Red
	<40	40-54	55-64	65-75

The chart indicates eligibility and expected outcome for VV ECMO according to patient age and risk score (1-5) which is the diagnostic group 1, 2 or 3 plus presence of acute (+1) and/or chronic modifiers (+1).

GREEN Good expected outcome
YELLOW Uncertain expected outcome
RED Poor expected outcome
BLACK Negligible benefit

Comments: ECMO initiation is only considered if in keeping with known patient wishes or that of the patient's medical treatment decision maker (MTDM)