Adult Veno-Venous (VV) Extracorporeal Membrane Oxygenation (ECMO) Eligibility Criteria for COVID-19 Pneumonia

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This guidance was created by the Minnesota Extracorporeal Membrane Oxygenation Consortium.

Inclusion Criteria\(^1\)

**Acute respiratory distress syndrome (ARDS)**

- Does the patient fulfill oxygenation and/or ventilation criteria?
  - On \(\text{FiO}_2 \geq 80\%\), \(\text{PEEP} \geq 10\), and \(\text{VT} \leq 6 \text{ mL/kg PBW}\)
    - \(\text{PaO}_2/\text{FiO}_2 < 50\) for more than 3 hours
    - \(\text{PaO}_2/\text{FiO}_2 < 80\) for more than 6 hours
    - \(\text{pH} < 7.25, \text{PaCO}_2 > 60 \text{ mm Hg with RR} > 35\) for more than 6 hours
- Has mechanical ventilation been optimized, including trial of neuromuscular blockade and prone position?

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\(^1\) Adapted from the EOLIA trial (DOI: 10.1056/NEJMoa1800385) and Bullen et al (DOI: 10.1016/j.chest.2020.04.016)
Exclusion Criteria\(^2\)

- Positive pressure ventilation prior to consideration of ECMO
  - > 7 days of invasive mechanical ventilation
  - > 10 days of invasive mechanical ventilation + non-invasive mask ventilation (e.g. CPAP, BiPAP)
- Age
  - > 60 years if otherwise healthy
  - > 50 years if co-morbidities present (diabetes, hypertension, etc.)
- BMI > 40 kg/m\(^2\)
- Unacceptable risk of hemorrhage with therapeutic anticoagulation
- Marker(s) of poor short-term prognosis in relation to underlying disease
  - Multi-system organ failure
  - Cardiac arrest prior to consideration of ECMO
- Premorbid conditions that would limit life expectancy to less than a few years and/or preclude a reasonable chance of recovery after ECMO
  - Advanced malignancy
  - Advanced chronic organ failure (e.g. liver, kidney, lung)
  - Progressive neurodegenerative diseases (e.g. ALS, Alzheimer’s dementia)
  - Chronic immunocompromising condition