

Appendix 1 (as supplied by the authors)

Optimizing ECLS provision during the COVID-19 pandemic: practical considerations for Canadian jurisdictions

Online Appendix

Supplementary Table 1 – Alberta Health Services Provincial Critical Care COVID-19 ECLS Subgroup Membership

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Supplementary Table 1: Alberta Health Services Provincial Critical Care COVID-19 ECLS Subgroup Membership

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Tom Stelfox, MD	Chair, Department of Critical Care Medicine, Calgary Zone
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Sherri Kashuba	Executive Director, Critical Care Strategic Clinical Network
Christopher Coltman RN	Clinical Nurse Educator, CVICU, Foothills Medical Centre
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Laura Slipp RN	Patient Care Manager, Alberta Children's Hospital

Supplementary Table 2 - Sample proposed ECLS referral criteria

REFERRAL CONSIDERATIONS

Consider referral to ECLS centre when the following criteria are met:

- PaO₂:FiO₂ ratio of <120 mm Hg for > 3 hours **with inability to maintain lung protective ventilation (LPV)**
- PaO₂:FiO₂ of <100 mm Hg for > 6 hours **even with maintenance of LPV**
- an arterial blood pH of <7.25 with a partial pressure of arterial carbon dioxide [PaCO₂] of ≥60 mm Hg for >6 hours
- endotracheal intubation and high pressure mechanical ventilation for **less** than 7 days
- near maximization of conventional therapies
- no severe life-limiting chronic illnesses. Expected life expectancy of at least 2 years of independent functioning, should the patient survive

Supplementary Table 3 – ECLS Triage levels

<p>Level 1</p>	<ul style="list-style-type: none"> • ECLS programs in green state • current ECLS volume within normal, sustainable operating range • adequate supply of hardware and disposables • contingent upon adequate availability of critical care beds & staff • safe operating range adjusted based on overall critical care resources and needs, in communication with the ECLS centre
<p>Level 2</p>	<ul style="list-style-type: none"> • increased strain on critical care resources will trigger restrictions to ECLS • patients in high-risk cohort should not be offered ECLS • shared decision-making model with minimum of 2 ECLS consultants determine suitability of ECLS on case-by-case basis • expected that several groups of patients will be restricted from ECLS, including ECPR, cardiogenic shock with no obvious and reversible etiology, and post-cardiotomy shock with high-risk features
<p>Level 3</p>	<ul style="list-style-type: none"> • ECLS restricted to only those patients with high probability of survival • Patients most likely to benefit from VV ECMO include pneumonia (aspiration, viral, or bacterial), or VA ECMO for rapidly reversible cardiogenic shock (viral myocarditis, septic cardiomyopathy, overdose, or Takutsobo cardiomyopathy)
<p>Level 4 (Black Stage)</p>	<ul style="list-style-type: none"> • Overwhelming demand for critical care resources • All ECLS activities suspended • All ECLS and critical care resources redirected to NON-ECLS critically-ill patients

Supplementary Figure 1 – Provincial ECLS Pandemic Resource Capacity Dashboard

XX ECLS program - Utilization Status Report			
		Active Cases Range	Disposables Range
RED	Crisis Resource Management Situation, with active rationing of ECLS resources	X to XX	X to X
YELLOW	Above average volume with impacts on ECLS service delivery and Critical Care	X to X	X to X
GREEN	Delivery of ECLS Care is not impacted by current case volume/inventory	0 to X	0 to X
Date Updated		Number	Status
	Current ACTIVE CASES	X	Red/Yellow/Green
	Current DISPOSABLES	X	Red/Yellow/Green
	Definitions		
	Active Cases: Number of patients currently on ECLS		
	Disposable : Number of runs that could be completed (accounting for all disposables required for a complete circuit) were no additional disposables available for acquisition		
	XX in table above is the maximum number of ECLS cases that could be run based only on hardware (not considering space/staffing).		