

MARCH NEWSLETTER

Saskatchewan Respiratory Therapy Education Committee



Extracorporeal Membrane Oxygenation

A BRIEF HISTORY, OVERVIEW AND WHAT THE FUTURE COULD LOOK LIKE

- The first clinical use of extracorporeal technology was in 1951. However, it was not until the 1970s that ECMO emerged as a standalone therapy.
- ECMO is associated with high morbidity and mortality, with variable survival to discharge of 60%, 43%, and 29% for veno-venous (VV)-ECMO, veno-arterial (VA)-ECMO, and extracorporeal cardiopulmonary resuscitation (eCPR) cases, respectively.
- Indications for VV-ECMO include refractory hypoxemia or hypercapnia in acute respiratory failure despite maximal conventional therapies. VA-ECMO indications include cardiogenic shock and extracorporeal cardiopulmonary resuscitation (eCPR) for refractory cardiac arrest, which require rapid initiation to prevent further decompensation and improve neurologic outcomes.
- Most programs suggested an initial “lung protective strategy”; however, variation occurred in how this was defined (peak inspiratory pressure: 20-30 cm H₂O; positive end expiratory pressure: 5-15 cm H₂O; tidal volume: 3-4 vs 4-6 mL/kg; inspired fraction of oxygen 0.3-0.5). Some programs specified only that management should be left to the discretion of the treating team. No programs specifically addressed ventilation strategy for VA-ECMO.
- ECLS protocols vary across Canada. Programs describe variable approaches to key elements. This variability might represent a lack of evidence or consensus in these areas and creates the opportunity for collaboration among institutions to share protocols and best practice.
- Future innovations, such as improved surface coatings, endothelialisation and AI technology, push the boundaries and may position ECMO as a long-term support for further enhancing survival and quality of life.

**THE RESPIRATORY THERAPIST
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INTO THE OPERATING ROOM,
BUT AT THE LAST MINUTE, HE
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**SOCIAL MEDIA HIGHLIGHT:
[@ECMORESOURCE1](#)**

**WE ARE PLANNING TO
PROVIDE 6 WEBINARS
BETWEEN APRIL AND
SEPTEMBER. STAY TUNED FOR
FURTHER DETAILS ON DATES
AND TOPICS.**

Educational Resources

EXTRACORPOREAL MEMBRANE OXYGENATION

ARTICLE RESOURCES

- [Evolution of extracorporeal membrane oxygenation: historical milestones and advanced developments](#)
- [CEPP: Canadian Extracorporeal Life Support \(ECLS\) Protocol Project](#)
- [Extracorporeal membrane oxygenation \(ECMO\): A narrative review for the emergency clinician](#)
- [Invasive mechanical ventilation in patients with acute respiratory distress syndrome receiving extracorporeal support: a narrative review of strategies to mitigate lung injury](#)

If you're having difficulty accessing the articles SHA Library Services is a great resource available to all SHA employees. Feel free to contact them to setup a library card number to obtain off site access.

VIDEO RESOURCES

- [Do You Know the Differences Between VV-ECMO and VA-ECMO??](#)
- [ECMO \(Extracorporeal Membrane Oxygenation\)](#)
- [ECMO Fundamentals](#)



WEBINARS

- [EMCrit Wee - Jason Bartos on the Minneapolis ECPR Experience](#)
- [ECMO: VA ECMO For Dummies!](#)
- [ECMO Podcast](#)

PODCASTS

- [Episode 33: ECMO with Dr. Rosanne Sheinberg](#)
- [The Basics of ECMO with Dr. Jason Katz](#)

SUMMARIES & GUIDELINES

- [ESLO Guidelines](#)
- [ESLO ECMO 101: Training Modules](#)

We appreciate the ongoing support and ask Saskatchewan RRTs to fill out our [feedback form](#) and be entered into our annual giveaway.

As we continue to grow this committee we are finding a need for more Directors.

If you're interested in joining the SaskRTEC please send us an email at admin@saskrtec.ca