



NEWSLETTER

Editor: Omar Alibrahim, MD

Co-Editor: Kennethia Banks

Message from the President

At ELSO, and across our chapters, Summer is a time for new leadership. We have new leaders at SWAAC ELSO, EuroELSO, and LATAM ELSO. We look forward to how they will shape ELSO in the coming months and years.

In addition to chapter leaders, we have a new Chair of the ELSO Registry Committee, Joe Tonna. As Joe gets ready to take the lead in January, I wanted to acknowledge the significant contributions of Ryan Barbaro during his time as Chair of the ELSO Registry Committee.



I have a unique insight on the progress that Ryan has made for the organization, as Ravi and I sat in his role immediately prior to him. He has far surpassed anything that we did. One of the longest lasting contributions Ryan has achieved is leading the development of formal definitions for each field in the ELSO registry. This was a major step forward in quality improvement of the registry and has allowed it to be seen as a high-quality data source by industry, regulatory agencies, and individual investigators. Process wise, he has revolutionized the management of the registry by developing transparently documented systems and multiple teams for each of the major tasks. Not only has this allowed improved efficiency of work but has also allowed many more people to be involved and greatly improved the rigor of scientific review that registry research requests receive. This team-based approach gave ELSO the flexibility to move to real time reporting and develop a COVID-19 specific dataset for our community within two weeks during the early days of the pandemic. As a result of these and many more improvements, the number of academic papers published using data from the ELSO registry has risen exponentially during his tenure.

While publishing clinical data to improve patient care has been a cornerstone of the registry since its inception, Ryan has also innovated. Within the US, regulatory approval of devices for ECMO has often been challenging. In collaboration with industry and the FDA, he has created a pathway to allow industry to use ELSO registry data in support of FDA applications. This has been very successful, and led to both relabeling of existing ECMO equipment, as well as novel ECMO devices to be brought to the market in the US that otherwise likely would not have. Developing something to improve patient care that industry, regulators, and clinicians all value is quite an accomplishment. Ryan has helped improve how ELSO helps to satisfy changing global regulatory requirements – from Europe and other regions, in addition to the FDA's expectations.

I would like to thank Ryan for his leadership, and he and his team for all of their contributions to ELSO and am looking forward to seeing Joe's upcoming successes. Looking to the future, I am eager to see all of you in Boston for our annual meeting. An impressive scientific program has been assembled, and it is a wonderful opportunity to come together and share what we have learned in how to best care for the sickest patients.

Matthew Paden, President, ELSO

IN THIS ISSUE

- Letter from President 1
- Committee Roundup 2-6
- Research 6-7
- Bedside with Bartlett 8
- ECMO Around the World 9-13
- CEO Remarks 14

Committee Roundup

Nominations & Membership Committee



Dr. Joseph Tonna, MD, MS, FCCM, FACEP, FAAEM, is the Chair-Elect of the ELSO Registry Committee and is very excited and honored to be coming into this important role. He is the Immediate Past Chair of the Scientific Oversight Committee (SOC) and has served on the SOC since 2017. Clinically, he is an Associate Professor with Tenure at the University of Utah with appointments in the Divisions of Cardiothoracic Surgery and Emergency Medicine. He is the Section Head of Cardiothoracic Critical Care, Medical Director of the Cardiovascular ICU/Cardiothoracic Critical Care, and the Associate Director of Extracorporeal Membrane Oxygenation (ECMO) Services. He works as an Attending Physician in the

Cardiothoracic Intensive Care Units and in the Emergency Department. He is funded by the National Heart Lung and Blood Institute (NHLBI) of the National Institutes of Health (NIH). His clinical and research interests include extracorporeal membrane oxygenation (ECMO), extracorporeal cardiopulmonary resuscitation (ECPR). His goals for the Registry include building upon the incredible work of Dr. Ryan Barbaro, and past Chairs. He hopes to foster strong collaboration between the ELSO Registry and the new Research Committee, with a particular focus on building up the possibility of the Registry to dynamically support funded research, such as prospective studies and clinical trials.

Registry Report Generation Freeze

The next data freeze will take place on July 15, 2022. The deadline to submit your center's data into the registry will be July 10, 2022.

Publications Committee

Our latest guidelines can be found [here](#): We want to thank ASAIO for being our publication partner in guidelines, especially for making these freely available. On our website, you will find a pdf and link for each one. In addition, we are working on translations for each.

Pediatric Nutrition Guideline has been published and can be found [here](#).

ELSO is busy with many publications across many areas, from guidelines, to the 6th Edition of the Red Book. We are organizing subcommittees by major publication category, as well as the overseeing Publications Committee. If you are interested in being involved, please send an email with a paragraph on your background and areas of interest to publications@elso.org.

The 6th Edition of the Red Book is underway! We look forward to releasing the new version in this Fall 2022.



Research Committee

The Research Committee started a series of Research Webinars that focuses on introduction to clinical research in extracorporeal support. – The first webinar on “How to Conduct Observational Research in ECMO” was held on June 2nd. Link to webinar: https://us02web.zoom.us/webinar/register/WN_pzM-z7-5SXaswVur5ONmNQ

Applications is currently opened for ELSO Research Grants for 2023. All applications must be received by September 30th, 2022. Notifications will be announced in December 2022. More details can be found on the website by clicking the link below. (<https://www.else.org/ecmo-resources/ResearchGrantApplication.aspx>).

Conference Committee

The Conference Committee has developed an exciting agenda filled with cutting edge educational content relevant to both novice practitioners and ECMO experts for the 33rd Annual ELSO Conference, to be held from September 15th – 17th, 2022 in Boston, MA.

We look forward to gathering together again and we hope to see you there! [Register Now!](#)

Calling All Abstracts!

Abstract Submission Deadline is approaching! Please submit your abstract [here](#) by July 15!

Upcoming Meetings

Event: 33rd Annual ELSO Conference

Location: Boston Marriott Copley Place in Boston, Massachusetts

Dates: September 14, 2022 – September 17, 2022

Please visit our Conference Site here: <https://cvent.me/m7xbVy>

Pre-Conference is September 14-15, 2022. Conference Dates: September 15-17, 2022

Event: ELSO LATAM Congress 2022

Location: Lima, Peru

Dates: November 10, 2022 – November 12, 2022

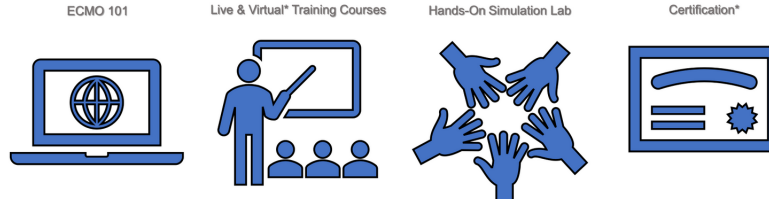
Event: SWACC ELSO 2023

Location: Punjab , India

Dates: February 25-27, 2023

The latest information on ELSO & Collaborative Meetings can be found [here](#).

ELSO Academy



The ELSO – Adult ECMO Certification (E-AEC) Exam is now available!

ELSO has outlined standardized educational criteria and launched an online application process via ELSO Academy for ECMO clinicians who have demonstrated satisfactory completion of criteria listed on our website. This journey is designed to be inclusive of the entire ECMO interprofessional team. Certification is valid for three years; upon which time a renewal can be pursued to maintain certification.

This exam is comprised of National Board of Medical Examiner (NBME)-style questions aimed at helping health professionals, across the continuum of care, enhance and demonstrate their clinical knowledge. ELSO undertook a multi-stage implementation process to ensure we can bring forward a solid knowledge assessment tool for the ECMO community. Our exam development process included several rounds of psychometric analysis, on both expert and novice level ECMO clinicians. For additional information, please visit:

<https://www.elseo.org/Education/certificationexam.aspx>

ELSO Foundations:

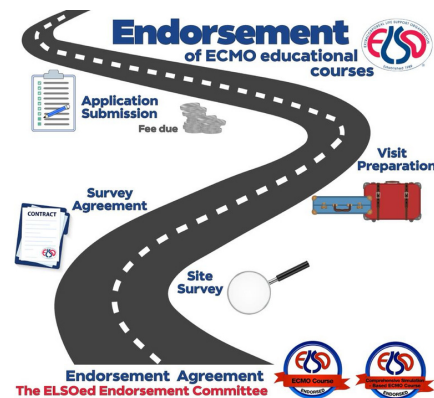
ELSO Foundations: Adult ECMO Training Course is now available. This self-paced ECMO course consists of 53 modules, covering over 80 learning objectives which are anchored in the foundational concepts that will allow practitioners to develop, strengthen, and refine clinical skills related to ECMO patient care skills.

Registration: <https://www.elseo.org/education/elseoandelseoendorsedcoursesworkshops.aspx>

ELSO Endorsed Courses

In an effort to enable global access to a standard approach for education and training, while maintaining local access, ELSO is happy to announce our new endorsed course application process.

For more information and to apply, please look [here](#):





IN CASE YOU MISSED IT:

If you missed the ELSO Adult ECMO Practitioner Certification Webinar (E-AEC) on "All you need to know about the ELSO Adult ECMO Practitioner Certification" you can watch the session [here](#).

Topics covered (ABCDE): application - how to apply for E-AEC; bedside experience and other criteria required to apply for ELSO Practitioner Certification; documentation needed to successfully submit an application; and exam technical details about proctoring system and exam content.

[Click Here](#) To Register for the ELSO – Adult ECMO Certification Exam.

Upcoming ELSO In-Person Training Courses

We will be announcing more new courses soon. Don't miss anything by checking [here](#).

Event: ECMO Cannulation Workshop
Date: October 24, 2022 & October 25, 2022
Location: ELSO Headquarters,
Address: 3001 Miller Road, Ann Arbor, MI
[Register Here](#)



Event: ELSO Simulation Courses (two sessions)
Dates: November 2-3, 2022 & November 4-5, 2022
Location: Ann Arbor Marriott Ypsilanti at Eagle Crest
Address: 1275 S Huron St, Ypsilanti, MI 48197
[Register Here](#)

This course is designed for learners who have completed the ELSO Virtual ECMO Training Course or for practitioners with a strong foundational knowledge of ECMO patient care. Using patient case scenarios, VA and VV ECMO concepts are further explored. In the setting of small groups, students will have an opportunity for hands on learning and troubleshooting of clinical cases. This is a great opportunity to apply what was discussed in the multi-day lecture series. This course is structured for multidisciplinary learning at various stages of experience. Two one and a half day sessions are available for up to 60 learners each.



Coordinator's Corner

Coordinator's Symposia are currently scheduled to take place quarterly throughout the calendar year 2022. Each Symposium will highlight topics that are important to a large number of centers in the current environment. Symposia will be co-moderated by two members of the committee and will offer panelists the opportunity to present short topic-based informational presentations. Following the panel presentations, there will be an open forum for group Q&A and discussion. Each Symposium is scheduled to be 90 minutes in duration.

Date: September 14 - September 17, 2022 (Date & Time TBD)

Location: In-person during Coordinator Meeting at the 2022 ELSO Conference

Title: Navigating Patient, Equipment, and Cannulation Strategy Selection

Moderators: Evan Gajkowski & Justin Young **Panelists:** TBD

Date: December 14, 2022, 4p PST / 7p EST

Title: Identifying Creative Operational & Staffing Models During a Period of Scarce Resources

Moderators: Wei Ting Chen & Guillermo Herrera **Panelists:** TBD

Webinars will be available on our webinar page, where the first Coordinator Symposium is already available on **Starting a New Program:** <https://www.else.org/ecmo-resources/WebinarsVideos.aspx>

Research Alley

There is no current consensus on whether neonates should receive therapeutic hypothermia (TH) who suffer perinatal hypoxic ischemic encephalopathy or later onset hypoxic-ischemic brain injury as a result of or associated with cardiorespiratory failure or arrest, and require ECMO. We aim to better understand the practice of TH in neonatal ECMO by surveying the care provided by ECMO programs across the world.

This project has received IRB approval through Boston Children's Hospital. All data will be presented as aggregated, de-identified data only.

This activity should take less than 10 minutes to complete and is geared towards ECMO medical directors only.

Survey link is: https://redcap.tch.harvard.edu/redcap_edc/surveys/?s=YFYWEEYE4R

Thank you so much in advance for your assistance!

Bradley De Souza, MB BCh BAO, FRCPC



Neuromonitoring Practices for patients on Extracorporeal Membrane Oxygenation

This survey regarding neuromonitoring for ECMO patients. The survey will allow us to explore and better understand current practice. Purpose: There is a paucity of literature available on the current practices of neuromonitoring for ECMO patients across the nation. Our survey aims at exploring and understanding current practices surrounding neuromonitoring in adult patients receiving ECMO support.

Link to online survey: <https://redcap.hfhs.org/redcap/surveys/?s=CK7CCJ3CP4ELT7LY>

Thank you so much in advance for your assistance!

Authors: • Hassan Aboul-Nour, MD • Ammar Jumah, MD• Morgan Howard, MD• Omar Choudhury, MD• Lonni Schultz, PhD• Bradley Howell, MD• Jayna Gardner-Gray, MD• Namita Jayaprakash, MB BcH BAO MRCEM

Left Heart Decompression in Patients without Congenital Heart Disease on Venous-arterial ECMO

My name is Siddharth Mahajan, and I am pediatric cardiology fellow at Cohen Children's Medical Center, Northwell Health, New York. Along with my colleague Deirdre Lewis who is a pediatric critical care fellow, we are doing an institutional survey on left heart decompression in patients without congenital heart disease on venous-arterial Extra Corporeal Membrane Oxygenation (VA-ECMO).

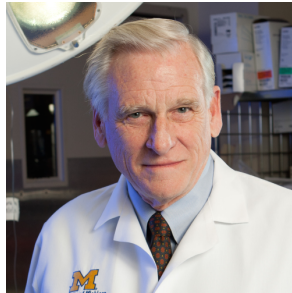
We performed a systematic review and meta-analysis on left heart decompression in pediatric patients on VA-ECMO and found limited evidence on this topic. This survey is therefore designed to understand institutional practices for left heart decompression in patients without congenital heart disease on VA-ECMO.

The pediatric intensive care unit, cardiology and cardiac surgery teams at Cohen Children's Medical Center appreciate your participation in this survey! Please feel free to contact Todd Sweberg (tsweberg@northwell.edu) or Aparna Kulkarni (akulkarni@northwell.edu) with any further questions that you may have.

Please consider participating in our survey (link below) and forwarding this survey to your physician colleagues.

<https://redcap.northwell.edu/surveys/?s=EJ8WAEWKHXNA7Y3T>

Bedside with Bartlett



Robert Bartlett, MD
Founder, Board of Directors Emeritus, ELSO
Professor Emeritus of Surgery, University of Michigan

Case Review

You have a 50 year old male with an Impella and 2 inotropes for cardiogenic shock due to acute MI. They've been on the Impella for 12 hours. Lactate is climbing from 3 to 6, and CVP has been rising to mid 20s. Cardiac index is 1.8.

The above patient is placed on VA ECMO and the Impella is in. The patient begins to have recovery of heart function, but is having intermittent confusion that seems to be getting worse. A left radial arterial line is in place, as is a L hand saturation monitor, which shows good saturations. PaO₂ from the Left hand is 80mmHg. CXR show bilateral whiteout lungs, which are believed to be due to a new pneumonia that is being treated. Echocardiography shows good biventricular function. Peripheral perfusion is good, with a falling lactate. CT head shows no acute findings. What is a probable cause of the worsening confusion.

Cerebral hypoxemia due to north/south syndrome or Harlequin syndrome. The improving cardiac function with poor lung aeration on VA ECMO may result in perfusion of deoxygenated blood to the head vessels. The L hand may be receiving blood from the retrograde flow of the ECMO circuit. All patients on VA ECMO peripherally should have a right radial arterial line, as this will measure the most "proximal" vessel coming off the aortic arch and thus will give a better indication of the blood going to the patient's bilateral carotid arteries and thus their head oxygenation. Non invasive approaches to measure regional saturations of the brain can also be used to supplement the direct measurement of PaO₂ from the right wrist.

Guest Contributor:

Joseph Tonna, MD, MS, FCCM, FACEP, FAAEM

ECMO AROUND THE WORLD

APELSO Updates

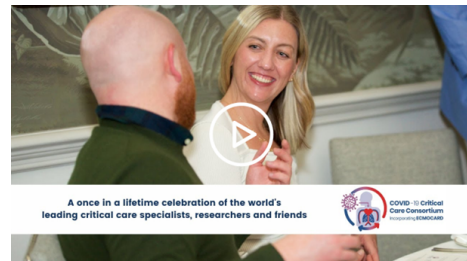
John Fraser, MD, APELSO Chairman

Firstly, I must start by offering my sincere congratulations to **Jan Bělohávek**, **Nicholas Barrett** and members of the EuroELSO Steering and Scientific Committees for an outstanding Congress in May. What a privilege it was to come together again after so long. Perhaps most importantly, it was inspiring to finally meet and shake hands with the friends with whom we would meet on Zoom, week after week during the darkness of the past two years, but never face to face.

Thank you to guests from the extended ELSO network who joined us for the **COVID-19 Critical Care Consortium Reception** held in conjunction with the Congress, and to **Fisher & Paykel Healthcare** who funded the event, and Marketing Manager **Sam Frame** and colleagues for assisting the organizers.

It was a privilege to spend time with guests including the man who started it all, **Professor Robert Bartlett**, and his wife **Wanda**, who joined us from the States for the event. Thank you, Bob, for continuing to share your wisdom and friendship with us all.

The event reminded me how important this community is. We are united by a commitment to helping the sickest of the sick and supporting each other as we consider the future of ECMO, research, and critical care. You can view photos and videos from the event via the Critical Care Research Group's [website](#).



Solving a 40-year-old ECMO Mystery

In the last ELSO newsletter, I mentioned that the COVID-19 Critical Care Consortium had a manuscript accepted by a leading medical journal. I can now reveal that the **British Medical Journal** has published the paper, Venovenous extracorporeal membrane oxygenation in patients with acute COVID-19 associated respiratory failure: comparative effectiveness study.

Led by senior author Dr. Eddy Fan, Toronto General Hospital Research Institute and Medical Director of the Extracorporeal Life Support Program (ECLS) at University Health Network (UHN), Toronto, and clinical and research fellow in Critical Care Medicine, UHN, Dr. Martin Urner, this is the largest international, registry-based cohort study looking into ECMO effectiveness to treat acute respiratory failure caused by COVID-19.

During the pandemic, ECMO has been used as a last-resort intervention to save some of the sickest COVID-19 patients. The study is the first to demonstrate that ECMO does provides a significant benefit in acute respiratory failure due to COVID-19, reducing COVID-19 mortality by 7.1%. You can read more about the study [here](#).

We also celebrated the next generation of ECMO leaders at EuroELSO. Congratulations to the **2022 Young Investigators**: Nina Buchtele, Joppe Drop, Lorenzo Foti, Hala Hamadah, Paolo Meani, Jan Steffen Pooth, Anne-Kristin Schaefer, Joseph E. Siatan, Tharusan Thevathasan, Anna Valerianova, Clemens Wiest, and our own **Silver Heinsar**.

Silver is the first Young Investigator to receive the award twice, and continues his work in Brisbane, Australia as junior doctor at St Andrew's War Memorial Hospital, and emerging researcher at the Critical Care Research Group, The Prince Charles Hospital. Dr. Heinsar presented two scientific abstracts at EuroELSO: Level of sedation in patients with COVID-19 supported with ECMO: A comparative analysis of the COVID-19 Critical Care Consortium database, and Comparison of blood trauma in an ovine model of cardiogenic shock supported by pulsatile and continuous-flow VA ECMO. Congratulations Silver.

I would also like to acknowledge and congratulate **Karin Wildi** from our extended network here in Asia-Pac who has been named as one of the Young Investigators at the ATS 2022 Conference, winning the ATS International Trainee Scholarship. Dr. Wildi presented her poster and abstract, Early Clinical Improvement in ARDS Results from Selecting the Right Subphenotype for Anti-inflammatory Treatment — a Preclinical Randomized



(Upper L) VV ECMO for COVID-19 Study, Eddy Fan, MD, (Upper R) Silver Heinsara, MD & Nicholas Barrett, MD

Blinded Ovine Study, at the ATS Conference in May. In my capacity as Founder and Director, Critical Care Research Group, I am continually impressed and inspired by the young clinicians and researchers I have the privilege of mentoring. If you would like to learn more about the research we lead at CCRG and how you could be involved, you can read more here in our [2022-23 Research Prospectus](#).

LA ELSO Updates

Dr. Rene D. Gomez, LA ELSO Chairman

The ELSO Latam community, is very excited about making the last arrangements for our upcoming 5th Latin American ELSO Conference in Lima, Peru from November 10th-12th, 2022! We invite the entire ECMO community to come and enjoy the conference in person, in one of the most beautiful historical places in the world, and enjoy the delicious Peruvian cuisine. The conference agenda will be available for all to view once it has been finalized.



5th Annual Latin American ELSO Conference

Location: Country Club Hotel, Lima Peru,
When: November 10th -12th , 2022

Hotel link:

<https://www.countryclublimahotel.com/>

The ELSO guidelines will be translated from English to Spanish and from English to Portuguese. They will be available on the ELSO website at the end of August 2022. You can currently find the translations on the ELSO LATAM website: <https://elsolatam.net/>, which is already available in Spanish and Portuguese and soon in English.

We are also working on translating the support documents for the Registry Data Entry from English to Spanish, in order to accommodate the Spanish-speaking community in helping with submitting cases in to the database.

The LA ELSO education committee has started organizing webinars every 2 months, with interesting topics and the participation of experts in the different ECLS disciplines from most of the LA ELSO countries.

For more updates visit our website: <https://elsolatam.net/>

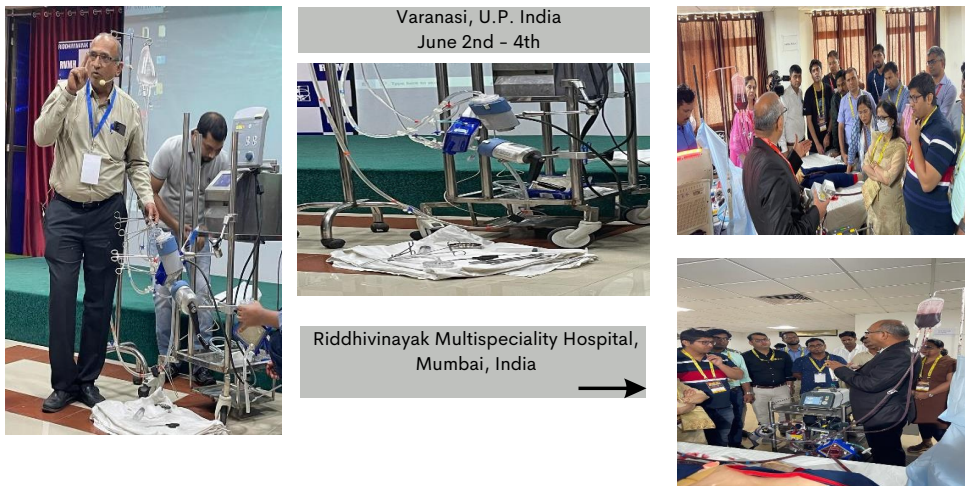
SWAAC ELSO Updates

Poonam Malhotra, MD, SWAAC ELSO Chair

ECMO CENTER – KUWAIT – The AL Adan Hospital was awarded was “Center of Excellence” by ELSO on 20th June 2022. It is a big achievement and provide for SWAACELSO Chapter. Congratulations to the AL Adan, Kuwait team led by Dr. Huda.



Several successful workshops took place in May and earlier this month. To highlight a few, one was located in Varanasi, U.P. India and another one was located at Riddhivinayak Multispeciality Hospital, Mumbai, India.



Click on the links below to view some of the course that took place within the SWAAC ELSO Chapter.

- The Simulation Society at AIIMS on June 18-19, 2022 - Session can be seen by clicking [here](#).
- Riddhivinayak Multispeciality Hospital, Mumbai, India - Some of the glimpses of this simulation program can be seen [here](#).

Some of the courses have applied and have been surveyed by ELSO for Endorsement.

EuroELSO Updates

Nicholas Barrett, MD, EuroELSO Chair

In May, 2022, EuroELSO was able to gather in person for our 10th Annual Congress in London. The Congress was a great success with 1,225 onsite delegates from around the world and 175 on line delegates. There was enormous interest in the hands on sessions in particular.

EuroELSO is working closely with ESICM to provide teaching and training related to ECMO at both the EuroELSO and ESICM congresses, while also providing joint masterclasses.

Please visit the [EuroELSO website](#) for the latest happenings in the region.

Congratulations to Jan Belohlavek on his term as Chair! His leadership through a pandemic is historic.

Congratulations to the Centers of Excellence winners that were announced at the Congress from the region and beyond. Well done!



Chief Executive Officer Remarks

This June we find ourselves working hard on many exciting events and publications for our global community. Two are top of mind:

- **ELSO's 33rd Annual Conference.** Our theme this year reflects the global community that we pride ourselves in fostering: *Leading ECMO Globally*. I cannot wait to see everyone in person in Boston this September. We will celebrate the growth and achievements borne of weathering a global pandemic as a global community. I could not be more proud of the tireless work and commitment to the world's sickest patients that our community has gone through with grace when it comes to each other and the patients and families we serve. ELSO's chapter conferences that have taken place already this year bode well for the energy and enthusiasm we can enjoy when we come together this Fall. Congratulations, again, to both SWAAC ELSO and EuroELSO on successful conferences.
- **The ELSO Red Book 6th Edition.** What an incredible team we have from all over the world! The work that many have contributed to the new edition is something worth celebrating - which we will do together in Boston as well, where we will release the new edition. I look forward to thanking each of you that has been involved in this effort in person. I hope you will join me in reading it cover to cover, and thanking the >230 authors from around the world that contributed to this next edition. Please thank Graeme MacLaren and the rest of the editorial team when you see them as well (assuming Graeme might have had a chance to catch up on sleep by then).

The two efforts noted above are only two of many areas where you dedicate your time and energy to something bigger than yourself - for the benefit of many. It is humbling and inspiring.

We continue to find ourselves in challenging times. There are no shortage of challenges to point to in any given day. We have opportunity because of challenges, which we have created together. ELSO's commitment to being a global community is a bit of both: challenge and opportunity. The more we listen to each other, the more we find a way forward together, the more opportunities we create for everyone. The beneficiaries of our global efforts are the sickest patients with a team at their side that brings shared knowledge, shared commitment, and a willingness to keep helping each other so that the next patient does even better.

As we celebrate summer in the Northern Hemisphere, I hope it can be a pause from the hectic pace we normally keep - and that you can take account of the impact you have had during a challenging time. In the Southern Hemisphere, I hope this can be a time of renewed commitment to your loved ones, your teams, your patients, your community - and an eye toward sunnier days ahead.

Thank you for everything you do to make ELSO what it is. We are fortunate because of your work. I hope you are proud of the impact you have as part of ELSO.

Gratefully,

Christine



Christine Stead, MHSA
CEO, ELSO



The Extracorporeal Life Support Organization

Our Mission

Providing global leadership in extracorporeal life support through innovation, advocacy, and advancing knowledge.

Our Vision

ELSO will be the premier organization for the advancement of extracorporeal life support throughout the world.

Guiding Principles

Innovation

Seeking to identify and promote advances for the application of extracorporeal therapies.

Expertise

Bringing together world leaders in the care of critically ill patients for collaboration to advance quality of care through education and publication.

Clinical Support

Maintaining a comprehensive registry of data to assist in reducing morbidity and improving survival of patients requiring extracorporeal therapies.

Community

Fostering communication and collaboration among professionals who apply advanced technologies in the treatment of refractory organ failure.



@ELSO.Org



@ELSOOrg



@ELSO

The Extracorporeal Life Support Organization, Incorporated
3001 Miller Road, Ann Arbor, Michigan 48103

www.elseo.org

For editorial concerns related to this newsletter, please contact newsletter@elseo.org.

Copyright © 2021 The Extracorporeal Life Support Organization. All Rights Reserved.