



# NEWSLETTER

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## Message from the President

As I look forward to 2022, I can't help but reflect on the past several years.

The last in person ECMO meeting I was able to attend was the SWAAC ELSO meeting in Johannesburg in February of 2020, and have been living in the virtual world since.



I am happy that our SWAAC ELSO colleagues are meeting in person this weekend in Riyadh and have put together a truly wonderful conference. The two years between those meetings has been difficult for all of us and we all have seen a lot of change. At the time of the Johannesburg conference, COVID-19 had only been given a name 10 days before the meeting, the Wuhan outbreak was the major site in the world with just over 43,000 people hospitalized, we were having new outbreaks in Italy and South Korea, and had only 2,621 deaths reported. Starting the Riyadh conference almost exactly 2 years later, we are in the waning phases of the Omicron wave, and have seen the deaths of 5,925,319 patients. While we all know that mortality counts alone will severely underestimate the burden of any disease, stop for a minute and reflect on the scale of this. It is something that none of us would have predicted, nor thought we would face during our careers. Yet we have, and I am continually amazed with the selflessness and dedication that I see among my healthcare colleagues in providing care.

The theme of the Johannesburg conference was the concept of "Ubuntu," defined for me as, "I am, because we are." Going into this pandemic, I can't think of a more appropriate theme that reflects the sense of the interconnected community that we would need. During the past two years, you have done amazing things for your patients and each other. Most importantly, you have done it together. Bedside care, published manuscripts, real time research, new program development, and educational efforts are some examples of this, but sometimes just being able to sit and listen to each other was equally as valued. Throughout this last two years, the way that the ELSO community has pulled together and leaned on each other in order to provide high value care for the sickest patients in this pandemic has been simply incredible. I hope that 2022 brings this pandemic to a close, brings the ability for all of us to rest and recharge, and brings us all back together in person.

Matt Paden, MD  
President, ELSO

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## Committee Roundup

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### Registry Committee

#### Improved Data Request Forms & Website

The Scientific Oversight Committee (SOC) Co-Chairs Aparna Hoskote (UK), Marc Anders (US), and Ram Ramanathan (Singapore) have introduced a more streamlined process to evaluate and respond to reviewers to new data requests: a standardized web-based evaluation form with objective scoring criteria for the scientific merit of individual studies; regular meetings of the SOC (every 3rd Wednesday each month), and large dataset SOC (3rd Friday each month); introduced a new data request form for study proposal. ELSO updated the data request webpage (<https://www.elseo.org/Registry/DataRequest.aspx>) with helpful links, writing tips and tricks and introduction videos (thanks to Erika O'Neil) for writing a sophisticated proposal. Adeel Abbasi (US), John Priest (US), Kiran Shekar (Australia), Akram Zaaqoq (US), Max Malfertheiner (Germany), and Jordi Riera (Spain) joined the SOC with their invaluable expertise.

#### Upcoming Registry Improvements – April Release

##### *Trauma Addendum*

A new optional addendum will be released in the April update for trauma patients treated with ECLS. The trauma addendum is the result of several years' work by multiple centers internationally led by Justyna Swol, MD (Nuremberg Germany).

##### *Equipment Entry Improvements*

Adding or replacing equipment will be more obvious in the registry. This will improve clarity such that equipment meant to be replaced will no longer be erroneously entered as being in use simultaneously, which is rare.

##### *ECMO Transfers*

The registry will now have the ability to track patients on ECMO who transfer to other centers.

#### Quality Dashboard

ELSO is developing a COVID-19 reporting segment to the Quality Dashboard.

The next set of ELSO Reports will be released in April. We continue to encourage entry to ELSO Registry as soon as you are able – you can watch new cases get added in the dashboard.



## Publications Committee

Recent new guidelines: anticoagulation, circuitry, and mobile ECMO transportation, which has two forms accompanying this guideline: checklist and intake form. Please see our [guidelines page](#) for the latest. An overview of recent guidelines are shown below:

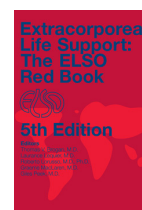
### ELSO GUIDELINES FOR PATIENT CARE 2021/2022

- ELSO Guidelines for Patient Care, Respiratory & Cardiac Support, ECMO in COVID-19  
<https://www.else.org/ecmo-resources/else-ecmo-guidelines.aspx>
- Management of Adult Patients Supported with Venovenous Extracorporeal Membrane Oxygenation (VV ECMO): Guideline from the Extracorporeal Life Support Organization (ELSO)  
[https://journals.lww.com/asaiojournal/Fulltext/2021/06000/Management\\_of\\_Adult\\_Patients\\_Supported\\_with.1.aspx](https://journals.lww.com/asaiojournal/Fulltext/2021/06000/Management_of_Adult_Patients_Supported_with.1.aspx)
- Extracorporeal Life Support Organization (ELSO) Guidelines for Follow-up After Neonatal and Pediatric Extracorporeal Membrane Oxygenation  
[https://journals.lww.com/asaiojournal/Fulltext/2021/09000/Extracorporeal\\_Life\\_Support\\_Organization\\_ELSO.1.aspx](https://journals.lww.com/asaiojournal/Fulltext/2021/09000/Extracorporeal_Life_Support_Organization_ELSO.1.aspx)
- Pediatric Extracorporeal Cardiopulmonary Resuscitation ELSO Guidelines  
[https://journals.lww.com/asaiojournal/Fulltext/2021/03000/Pediatric\\_Extracorporeal\\_Cardiopulmonary.2.aspx](https://journals.lww.com/asaiojournal/Fulltext/2021/03000/Pediatric_Extracorporeal_Cardiopulmonary.2.aspx)
- Extracorporeal Cardiopulmonary Resuscitation in Adults. Interim Guideline Consensus Statement From the Extracorporeal Life Support Organization  
[https://journals.lww.com/asaiojournal/Fulltext/2021/03000/Extracorporeal\\_Cardiopulmonary\\_Resuscitation\\_in.1.aspx](https://journals.lww.com/asaiojournal/Fulltext/2021/03000/Extracorporeal_Cardiopulmonary_Resuscitation_in.1.aspx)
- Extracorporeal Life Support Organization (ELSO): Guidelines for Pediatric Cardiac Failure  
[https://journals.lww.com/asaiojournal/Fulltext/2021/05000/Extracorporeal\\_Life\\_Support\\_Organization\\_ELSO.1.aspx](https://journals.lww.com/asaiojournal/Fulltext/2021/05000/Extracorporeal_Life_Support_Organization_ELSO.1.aspx)
- ELSO Guidelines for Adult and Pediatric Extracorporeal Membrane Oxygenation Circuits  
[https://journals.lww.com/asaiojournal/Fulltext/2022/02000/ELSO\\_Guidelines\\_for\\_Adult\\_and\\_Pediatric.1.aspx](https://journals.lww.com/asaiojournal/Fulltext/2022/02000/ELSO_Guidelines_for_Adult_and_Pediatric.1.aspx)

## Online Book Ordering System

We have heard your request to develop a online book ordering system. We are happy to announce that the new online book ordering system will be launching on March 1, 2022!

<https://www.else.org/Publications.aspx>





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## Quality Committee

The Center of Excellence Committee has announced that due to the current staffing crisis, the 2022 cycle deadline is now May 27, 2022 at 2359 EST.

The Award designation period has new dates this year! Since its inception, the award designation has been from September to September. In order to simplify, the Award will now be valid for a 3-year calendar period - January 1st to December 31st.

For example: Centers who are expiring in September 2022 should reapply by May 27, 2022. Their award period has been extended to December 31st and the new award period for this cycle will be January 1st 2023 to December 31st 2025. They will re-apply during the 2025 cycle (beginning fall of 2024) Each Center should find it easier to remember when to re-apply as it will be the cycle of the year that you expire. Questions or Concerns? Please email [Award@elso.org](mailto:Award@elso.org)

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## Technology & Innovation Committee

ELSO is interested in keeping apprised of our community's needs, especially as regulations change. We are also interested in working with our industry partners to meet their needs so that innovations in technology can make its way to our patients. Our best way to help each other is to ensure we have good data in the ELSO Registry. If there are changes in your region, please let us know at [support@elso.org](mailto:support@elso.org).

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## ELSO AmSECT Liaison Update

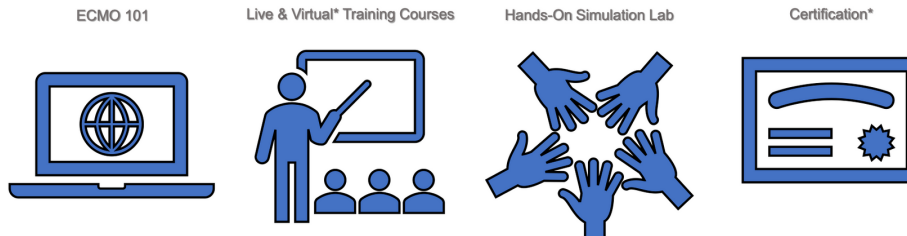
ELSO is excited to announce that **Desiree Bonadonna, MPS FPP CCP**, is currently serving as ELSO's new Perfusion Liaison. Desiree has been elected to step into the role that Justin Sleasman has done a tremendous job overseeing during the last few years.

As your perfusion liaison, Desiree's goal is to promote evidence-based inter-professional collaboration. Extracorporeal support requires multidisciplinary expertise to optimize care delivery but is also necessary in every facet from guideline development to education to research, to truly advance and elevate ECLS.

Thank you, Justin Sleasman and Congratulations Desiree Bonadonna!

To access the ELSO Supply Sharing Platform click the following link: [Extracorporeal Membrane Oxygenation \(ECMO\) Supply Exchange | ELSO](#).

## ELSO Academy



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

We are excited to announce the launch of ELSO Adult ECMO Certification (E-AEC).

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.else.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.else.org/education/elseandelseendorsedcoursesworkshops.aspx>

#### **Endorsed Courses:**

We will release a new process to endorse courses by March 1, 2022. This new process is designed to be easier to administer and globally inclusive. More to come!

**SAVE THE DATE!!**

**Event:** ELSO Adult ECMO Practitioner Certification Webinar

**Date:** Mar 23, 2022, 4pm Eastern Time

**Registration:** To register for the webinar: [Click Here](#)

E-AEC Info session: All you need to know about the ELSO Adult ECMO Practitioner Certification

Topics to be 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.

Topics will be discussed in an open access webinar with ELSO education experts who designed the certification process.

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

**January 2022 ELSO Cannulation Workshop Recap**

ELSO hosted it's first in-person Cannulation Workshop of 2022 at the ELSO Headquarters in Ann Arbor, Michigan on January 20th and 21st, 2022. A total of 10 registrants per day were allowed to participate in each session. To register for our next cannulation workshop, visit our website and place your name on the waitlist to be notified when registration begins.

Link: <https://www.elseo.org/Membership/Courses/2022CannulationCourse.aspx>







## Upcoming ELSO In-Person Training Courses

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

**Event:** Adult ECMO Simulation Training Course *Spots are filling up quickly!* [REGISTER HERE](#)

Dates: April 12 - 13, 2022 and April 14 - 15, 2022

Location: Grand Hyatt Tampa Bay, Tampa, Florida

**Event:** ECMO Cannulation Workshop

Date: October 24, 2022 and October 25, 2022

Location: ELSO Headquarters, Ann Arbor, MI

Register Open Soon!

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## Coordinator's Corner

Coordinator's Symposiums 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. Symposiums 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.

### The schedule for 2022 ELSO Coordinator Symposiums will be:

**Date:** March 9, 2022, 4p PST / 7p EST [REGISTER HERE](#)

**Title:** Starting a New ECMO Program Moderators: Bridget Toy, Rob Hyslop

**Panelist:** Micheal Heard (ELSO Registry), Wei Teng Chen and Erin August (Education and Training), & Tracy Morrison (Staffing / Operations)

**Date:** June 8, 2022, 4p PST / 7p EST

Title: Ethical Considerations & Moral Distress Within ECMO

**Moderators:** Shayna Amos & TBD **Panelists:** TBD

**Date:** September 14 - September 17, 2022 (Date & Time TBD to Coordinate with ELSO Conference)

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



## Conference Committee

The Conference Committee has been busy planning a comprehensive agenda for the 33rd Annual ELSO Conference which is scheduled to take place in Boston, MA this year! Registration is scheduled to begin in late spring. Visit our website for more up to date information.

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

**Event:** 33rd Annual ELSO Conference

**Location:** Boston Marriott Copley Place in Boston, Massachusetts

**Dates:** September 14, 2022 - September 17, 2022

Registration will open soon!!

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

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## Announcements

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

### 10th Annual EuroELSO Congress

**Location:** London, UK

**Dates:** May 4, 2022 - May 6, 2022

[Register Here!](#)

Pre-Conference is May 4, 2022. Conference dates: May 5-6, 2022

### 32nd Annual SEECMO Conference

**Location:** Nashville, Tennessee

**Dates:** May 20, 2022 - May 22, 2022

[Register Here!](#)

Hosted by: The Monroe Carell Jr. Children's Hospital at Vanderbilt



## **ECMO Capacity Map**

Thank you for keeping your ECMO capacity updated. The map provides a quick visualization of capacity that is helpful for many to see. Capacity issues continue for a variety of reasons; therefore, the map continues to be needed. We appreciate the time you take to keep your information up to date.



## **Discussion Board**

Welcome 2022! A New Year brings new challenges. Check out the Discussion Board to help your fellow ECMOlogists out!

### **Discussion Board Topics of the Month**

Here are some topics to round out your beach reading with:

- **Staffing ECMO**: Who is staffing your ECMO program now? What challenges are you facing?
- **Cannula Securement**: What are you doing to secure cannula to the patient? To the bed?
- **Anticoagulation**: Does anyone bolus heparin anymore? How do you deal with weaning on DTIs?

### **Discussion Board Contributor of the Month**

**Congratulations!!!** Heather Kline from Ochsner Health systems for being our contributor of the month!....Geaux Heather!

I am interested in contributing towards the **Discussion Board!!**

## **Research Alley**

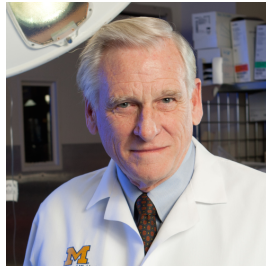
### **Title of the Survey: Echocardiography During Adult VA-ECMO**

"The purpose of this brief survey is to understand the practice patterns regarding echocardiography (TEE or TTE) use in adult VA-ECMO patients. It is important to ascertain baseline information across all adult ECMO centers to understand the roadblocks that may exist for those who do not routinely perform TEE or TTE examination of adult VA-ECMO patients."

**Link to Survey:** [Echocardiography During Adult VA-ECMO](#)

Adam A. Dalia, MD, MBA, FASE  
Assistant Professor of Anesthesia, Harvard Medical School

## Bedside with Bartlett



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

### Case Description

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. Is it time to initiate ECMO? Should you leave the Impella in?

It's time to escalate mechanical circulatory support to peripheral VA ECMO. The patient had biventricular failure, evidenced by the low cardiac index, and the rising CVP, with evidence of worsening perfusion. Impella support can provide up to 5 L of flow, but only on the L side of the heart. This patient has R sided failure, either primarily due to the myocardial infarction, or due to relative overload from the Impella support. If placing peripheral ECMO, it is reasonable to leave the Impella in for concomitant LV mechanical decompression. Impellas cost a lot, and so there is little reason to take it out as long as it's functioning, and it may be necessary to decompress the L side of the heart in the setting of peripheral VA ECMO.



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

### Guest Contributor

Dr. Joseph Tonna, MD, MS, FCCM, FACEP, FAAEM, is an Associate Professor with Tenure at the University of Utah. 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 is the immediate past chair of the ELSO Scientific Oversight Committee (SOC). His clinical and research interests include extracorporeal membrane oxygenation (ECMO) and extracorporeal cardiopulmonary resuscitation (ECPR)

## Patient Stories

### The Tale of a Pediatric COVID Patient... 73 days later

Kari Davidson, RN and Jenna Miller, MD

Meet Trevor, a previously healthy, 12 now turned 13-year-old battling for his life due to severe COVID-19 illness at Children's Mercy Kansas City Hospital. Trevor is a regular, 7th grade boy with a diagnosis of phenylketonuria (PKU) managed by diet at home. Trevor's family, all vaccinated, fell ill to COVID19 last fall. All but Trevor, who had not had a chance to be vaccinated, recovered well. His journey started with over a week on oxygen therapy and non-invasive support in the Pediatric Intensive Care Unit (PICU), until it he had a sudden deterioration and was urgently intubated. With inability to oxygenate him, he then cannulated to VV ECMO. And so, began a 73-day ECMO run.

Trevor's run was challenging as many long VV runs are with balancing sedation, extubation vs ventilator management and ECMO complications. His therapeutics included steroids, remdesivir and tocilizumab. He developed Enterobacter bacterial superinfection and later pulmonary abscesses and necrosis. A tracheostomy was placed mid-run to assist with his comfort and ventilatory needs. His whited-out chest x-rays continued however and after 6 weeks on circuit, the team decided to push the boundaries and tackled pediatric proning on ECMO. This was the one therapy in adult COVID-19 literature that they had not yet tried.



With brainstorming and patient-based adaptations including hand signals, the team was able to successfully prone Trevor almost daily for up to 12+ hours. Initially a skeptic, Trevor was not sure about the process but we soon realized it was exactly what his lungs needed. He showed marked improvement within the first couple days.

We timed this procedure after this rehab warrior worked diligently with PT/OT and his caregiver team to promote strength and mobility while on pump. He would do his exercises, sit up in the cardiac chair for a few hours, and then the team would work to get him prone in the late afternoon. Between the cardiac chair (with parades around the unit once isolation precautions were lifted) and proning, Trevor was exhausted. Ultimately, he would fall asleep soon after proning, as he was worn out from his activities from the day. Over time after his proning and intense physical therapy, his lungs did improve and he was able to wean. His oxygenator was capped for a couple days, while performing all of his therapies, doing a circuit change, and ensuring he would withstand the metabolic demands while off ECMO. On day 73, his Avalon cannula was removed, and Trevor was free from the circuit. It was a long-awaited day, and his care team was extremely proud of his determination.

Although this sweet 13-year-old may never realize the impact he had on his caregiver team, we hope his family recognizes just how special he is to our program. Trevor’s sense of calm demeanor, willingness to work hard and negotiate with his care team, are just a few reasons everybody loves working with Trevor. Our colleagues even managed to get Trevor a special visit from his dog! He entertained himself by playing UNO, using virtual reality in his room and shooting hoops with his bedside ECMO specialists.



As we have learned through experience with long respiratory ECMO runs, sometimes patience, time, and pushing the program out of its comfort zone are key interventions to success! Plus, having a kindhearted, determined patient and family to team up with helps immensely. Even those staff members that did not care for him knew who he was. Trevor is a true hero in the Children’s Mercy PICU!





## Strategic Planning

### **New Mission and Vision**

Thanks to your input! We, at ELSO, now have a new mission and vision statement that captures the feedback shared with us during our strategic planning process. We are excited to share:

#### **Mission**

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

#### **Vision**

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

#### **Strategic Themes**

- **Advocate** for patients, families, and centers to improve access, quality, and outcomes with ECLS.
- Promote **trust and credibility** in all our work.
- Provide **insight and definitive data** for clinical research, quality improvement, and benchmarking for centers, industry, and regulatory agencies.
- Lead as an **inclusive, global, interprofessional, and collaborative** organization.

#### **Thank You**

*A special thank you to the 1,000+ members that shared feedback with us as part of this process. We look forward to continuing to work closely together to meet your needs.*





## Chief Executive Officer Remarks

We have made some changes to the first Newsletter in 2022 that I hope you will enjoy. We aim to highlight our global community and patients, so please send us stories or topics that you would like to share with the ELSO community.

If you have not had a chance to read ELSO's 2021 Annual Report, please do. The theme 'Taking Care' continues to resonate with our community as taking care of the world's sickest patients continues. You can find our Annual Reports [here](#). For our practitioners, please also take a look at [resources](#) designed specifically for healthcare workers treating COVID-19 patients that emphasizes compassion and support. We hope these are a help as we all move toward signs of recovery from the pandemic.

Looking ahead, we will prioritize areas that are high impact for advancing extracorporeal life support. You see these reflected in this newsletter with work on multiple fronts: education, practitioner certification, research, innovation, and improvements in the data we have to achieve the above. The new certification exam and ELSO Foundations course are now available. These were designed globally and now provide a global standard. A new endorsed course process will be announced soon, which will support access to a global standard in education and training.

In February, we had the first in person conference at our affiliate chapter, SWAAC ELSO gathering in Riyadh, Saudi Arabia. I hope this is a start to a year where we can gather again in person, safely, and more often. Our next in person conference will be the EuroELSO conference in London in May. All conferences can be found [here](#), and of course, we are optimistic that we will see all of you in Boston in September!

We are still enjoying winter in the US, but looking forward to Spring and all that comes with it: primarily hope and starting anew. We are hopeful that the pandemic will become endemic; that we can recover and assimilate all we have learned for the benefit of the community of patients we serve, everywhere.



Christine Stead, MHA  
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.



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