



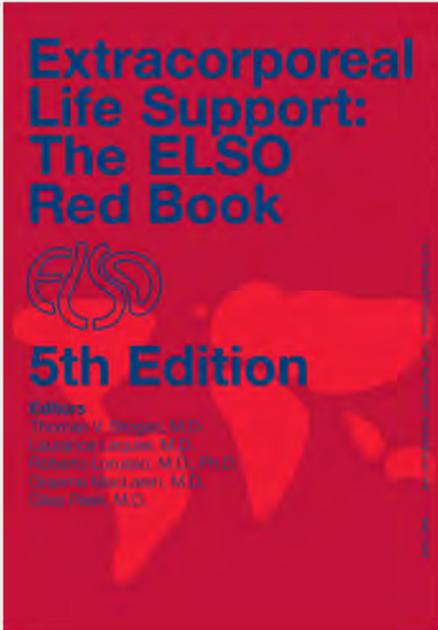
# THE FLOW



May 2017

“Plan your day, but live for the interruptions.  
They often turn out to be the part that matters most.”

-J. Devn Cornish, MD

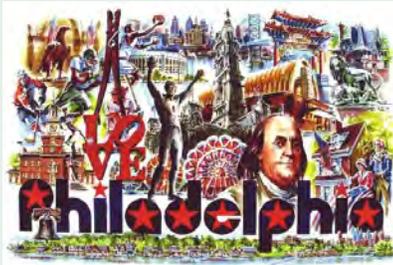


## HOT OFF THE PRESS

The 5th Edition ELSO Red Book is *now available!!* This edition is the largest and most comprehensive Red Book ever. Ensure your team has a copy of the most up to date ECMO resource available!!

[Click here to get your copy today!](#)

### ELSO Adult ECMO Training Course



Drexel University College of Medicine

Independence Blue Cross Simulation Center

Philadelphia, PA

Date: June 21-24, 2017

<https://www.else.org/Members/Courses/June2017Philadelphia.aspx>

Location: Philadelphia, PA

For more information contact:

**Kennethia Banks-Borden** 734-998-6600

[kbanksborden@else.org](mailto:kbanksborden@else.org)

DON'T MISS THE DEADLINE!

The deadline for ELSO Database form submission is July 9th. All forms must be submitted by this date to be included in the annual reports.





## Bedside with Dr. Bartlett

*Dr. Bartlett is considered by many to be the “father” of ECMO. He has a vast amount of experience and has faced many critical situations and decisions. In this newsletter series, he will join us on ECMO rounds at the bedside.*

A newborn infant with a left diaphragmatic hernia had an uncomplicated delivery and was moderately hypoxemic. The hernia was repaired the next day. She had a successful repair and was stable and ventilating well for several hours. Now 12 hours post-op she has progressive hypoxia and hypercarbia. She is failing rapidly despite high frequency oscillator ventilation, 100% FiO<sub>2</sub>, inhaled nitric oxide (iNO) and a variety of drugs.

### ***What's happening and what should we do?***

This scenario of respiratory failure in CDH following a “honeymoon” period used to be quite common. Nowadays it is rare because babies who develop hypoxemia following a successful repair usually respond to inhaled nitric oxide. Most of our current CDH ECMO patients are so sick that they go on ECMO before repair of the hernia, and the outcome is dependent on the extent of bilateral hypoplasia. The cause of the sudden deterioration might be a tension pneumothorax, a plugged or misplaced endotracheal tube, or some type of ventilator malfunction. If these things are ruled out, the cause is pulmonary arteriolar vasospasm causing persistent fetal circulation syndrome (PFC). In PFC, pulmonary vascular resistance is very high, the ductus opens, and blood flows from the pulmonary artery to the aorta, resulting in progressive hypoxemia and (if severe enough), hypercarbia. Usually PFC after a successful repair responds to nitric oxide or pulmonary vasodilators. We know this baby had adequate lung function for a while, so we can expect a prompt recovery on ECMO in this case. The pulmonary vasospasm is exacerbated by metabolic or respiratory acidosis, both of which will occur in this case and both of which will be reversed by extracorporeal support. In the very old days we used to induce respiratory alkalosis by extreme hyperventilation since the pulmonary vasospasm might decrease at a pH over 7.6. Of course that was much more damaging to the lung than any potential benefit. In this case, we should go on to ECMO support without delay, establish normal gas exchange, and expect that the PFC will resolve in a day or two. We would probably do this with venovenous double lumen catheter access, although catheter position is critical in newborn infants, especially with anatomic variations and diaphragmatic hernia, so we might just go to venoarterial access through the neck vessels to simplify management.

**Is there a question or clinical situation that you would like to consult**

**Dr. Bartlett with? Send your question to [newsletter@elso.org](mailto:newsletter@elso.org)**

**The ELSO Award Committee is pleased to announce the  
Centers that were awarded at the EURO ELSO  
Conference**

**Maastricht, The Netherlands for 2017 – 2020**



**Aberdeen Royal Infirmary  
Aberdeen, Scotland, United Kingdom**

**University Hospital Regensburg, UKR  
Regensburg, Germany**



**Our Lady's Children's Hospital  
Dublin, Ireland**

**Leiden University Medical Center (LUMC)  
Leiden, The Netherlands**

**University Medicine Greifswald  
Greifswald, Germany**

**Aarhus University Hospital, OPI East  
Aarhus, Denmark**



**Hospital Dr. Rafael Ángel Calderón Guardia, C.C.S.S.  
San Jose, Central, El Carmen, Costa Rica**

# Surveys and Results

We are conducting a brief survey to understand the current state of safety and quality in ECMO care. Our focus is to understand varying practice patterns across institutions and providers and examine differences in technique. We thank you for your participation in our research and look forward to sharing the results in the future!

Click here to complete: <https://www.surveymonkey.com/r/GrayELSOsurvey>

For further information, please contact

Dr. Brian Gray at [graybw@iupui.edu](mailto:graybw@iupui.edu)



**Riley Hospital for Children**  
Indiana University Health

Although over 26,000 newborns have been treated with ECMO since 1975 and survival rates have improved, intracranial injuries remain a major complication. Despite a high frequency of abnormalities identified on neuroimaging, there appears to be little standardization of neuromonitoring protocols during or after treatment (Van Heijst 2014).

In light of these facts, we are surveying all ELSO pediatric programs to determine the landscape of clinical practice utilizing neurological testing in this patient population. The following anonymous survey will take **no more than 5 minutes to complete** and we greatly appreciate your participation in this research project.

## Survey Link

This survey has been approved by our institution's IRB and does not include identifiers for your institution. The survey should be compatible with your mobile phone as well.

For further info, please contact the primary investigator of this study:

Jennifer Bain, MD PhD, Assistant Professor Child Neurology  
01(646) 426-3876  
Neurological Institute of New York  
180 Fort Washington Ave , Mail Code: 5th FL  
New York, NY 10032 USA

Thank you to all the centers who participated in our ECMO Equipment Survey. We have had 31 responses! I took the top four questions and thought we would share the answers.

1. *What type of ECMO pump does your center use?*  
1 center used Roller; 18 centers used CP and 12 centers used a combination of RP and CP
2. *For centers that use a combination of RP and CP, what criteria do you use to choose a system?*  
4 centers used age of patient; 11 used weight; 2 said cardiac; 5 other responses varied
3. *On your CP system do you use a bladder?*  
24 centers said NO; 7 centers said YES
4. *What type of CP do you use?*  
The centers were evenly split between Cardiohelp, Rotaflow, Centrimag/  
Pediomag and Sorin Revolution.



If you are interested in seeing the rest of survey or have any questions please contact Teka Siebenaler at [Teka.siebenaler@nortonhealthcare.org](mailto:Teka.siebenaler@nortonhealthcare.org) and let me know. I am happy to share the information.

# Coordinator Corner



This section of the newsletter is for new and experienced coordinators to share their thoughts and ideas about managing an ECMO Department. Charlie Nix is the new ECMO Coordinator at Northeast Georgia Health System in Gainesville, GA and has graciously agreed to share his thoughts about taking on this new responsibility. If you are interested in contributing to this section or have questions, please contact [newsletter@ELSO.org](mailto:newsletter@ELSO.org)

When the job of ECMO coordinator was offered to me a few months ago, I was very excited for the many possibilities it could provide. Working with a new program with very few cases under its belt, with no full time coordinator in place, combined with the dream of having a program that I could build from almost the ground up was intriguing for me. After the details were worked out, I happily accepted the position. Leaving an established program where all policies and procedures were in place with very experienced staff and moving to a program with loose polices in place and very few procedures written was very eye opening for me. Never having been a coordinator before and always having someone more experienced to turn to had definitely spoiled me. In the past I had ridden the coat tails of those before me, now it was my job to establish those coat tails for those coming after me. After my first week of hospital orientation and my first day in my office reading polices and order sets currently in place, I felt very overwhelmed and underwhelmed all at one time. With no true orientation as to what an ECMO coordinator does, I sat in my office wondering what exactly I was supposed to be doing. After sitting down and envisioning what I wanted this program to be, not only in the present but also the future, the list of things to do definitely started to grow. Current staff had received some didactic and hands on education, but my goal was to ensure they all had the same information and that we were all on the same page from an education stand point. I hosted a full day didactic ECMO course and required all of the current staff and a few new staff to attend. I revamped the current policies and wrote emergency procedures that were not currently in place. I worked with the medical director in tweaking the current order set in place. A lot of time was spent figuring out the current charting system and making sure our ELSO data was in the registry. I also developed a database for our system. I have figured out that a lot of politics are involved in being coordinator as well. I by no means think this is unique to my organization. I have used the phrase, “We all have to play nice in the sandbox together” probably 100 times in the short time I’ve been here. When you have a new program, roles have to be defined, and it is hard to sometimes step back and determine which services need to be involved and what is really best for patients. Different disciplines and units want to be involved, but too many cooks in the kitchen can be a bad thing. When patient volume is low, it is difficult to educate current staff and make sure the most experienced staff stay competent. After almost three months in my current job I’m starting to realize how much more education my staff not only need but also desire. Another lesson I have learned is nothing happens quite as quickly as I want it to. Every system has a process, and it is usually slower than anticipated. It is a definitely going to be a marathon not a sprint in this journey toward building a center of excellence.



# Website Corner

## Start your summer off right, with a Discussion Board Staycation

Who needs sand, sun, and surf when you have the world of ECMO at your fingertips? Before you start planning that summer dream vacation, be sure to check out the Discussion Board for new questions and discussions. Don't forget to stop by for Gary Grist's informative webinars to give you something to keep your mind occupied while TSA rifles through your luggage or the kids are asking "are we there yet?".

## Discussion Board Topics of the Month

These are the hottest topics. Stop by and provide your input!

Reproducible PE Like Signs with Flow Change: Here's a head-scratcher for you ECMO physiologists out there. See if you can provide some insights!

LV Venting on VA ECMO: What is your experience in patients needing LV vents on VA ECMO? DO you have a low threshold? What parameters are you looking at?

## Discussion Board Contributor of the Month

Congratulations to Teka Siebenaler from Kosair Children's Hospital, Kentucky for being our Discussion Board Contributor of the Month! Keep sharing your experience.



## Logging On

All ELSO Member institutions have an Administrative Account for your ELSO Registry data entry. This account can create separate accounts for your local physicians and ECMO Specialists. Contact your local ECMO Coordinator to get your accounts set up! Conversely, you can sign up for an individual membership to take advantage of discounts on Red Books and ELSO Conference Registration.

ELSO educational activities continue to expand globally through collaboration among the ELSO chapters. In April, the Latin America ELSO chapter organized an ECMO Training Course modeled after the ELSO courses offered in the United States. This was the fourth course organized and hosted by the Santiago Chile Clinica las Condes (CLC) ECMO team, led by Dr. Rodrigo Diaz. In an effort to continue developing the educational curriculum and advancing ECMO simulation and debriefing skills, there is an ongoing collaboration with the AP ELSO chapter's Hong Kong Queen Mary (HKQM) hospital and North America ELSO chapter's Nemours/duPont Hospital for Children ECMO teams. Chan Wai Kit (Ricky) and Chan Ting Bun (Bun), both Advanced Practice Nurses at HKQM hospital, traveled to Chile to present new technology used in high fidelity ECMO simulation and to share methods for enhancing debriefing skills. As extracorporeal life support care progresses, finding new ways to improve the delivery of critical care medicine, the need for education continues to grow exponentially. ELSO is committed to assisting teams in their delivery of quality educational programs through collaboration. The newest recommendations for education have been published in the 5th edition of the ELSO Red Book. ELSO endorsement guidelines for independent courses are currently under development. Stay tuned for this exciting new phase in ELSO educational activities. If you would like to become involved, please contact Curt Froehlich ([froehlich@elso.org](mailto:froehlich@elso.org)), Chair of Education and Logistics or Mark Ogino ([mogino@elso.org](mailto:mogino@elso.org)), Global Education Director/Chair-Elect (2018-2020).

## ELSO's Global Educational Initiative



Chan Wai Kit (Ricky) (L) &  
Chan Ting Bun (Bun) (R)



# Upcoming Courses and Meetings

## 27th Annual Specialist Education in Extracorporeal Membrane Oxygenation (SEECMO) Conference

6/2/2017 - 6/4/2017

Location: Children's Hospital Colorado - Aurora, CO

<https://cmetracker.net/CHCOL/Catalog>

Alexandria Wilkinson 720-777-6948 at [alexandria.wilkinson@childrenscolorado.org](mailto:alexandria.wilkinson@childrenscolorado.org)

## ELSO Adult ECMO Training Course

06/21/2017 - 06/24/2017

Location: Philadelphia, PA

<https://www.else.org/Members/Courses/June2017Philadelphia.aspx>

Kennethia Banks-Borden 734-998-6600 [kbanksborden@else.org](mailto:kbanksborden@else.org)

## AP-ELSO Adult ECMO Training Course 2017

07/17/2017 - 07/21/2017

<https://goo.gl/forms/nd9ztDurl1GSuKnW2>

Location: Hong Kong

Registration is now open. Deadline: 15 June 2017

Please contact Peter Lai at [lck230@ha.org.hk](mailto:lck230@ha.org.hk) or Viann Yu at [yth184@ha.org.hk](mailto:yth184@ha.org.hk) for further details.

## 28th Annual ELSO Conference

9/24/2017 - 9/27/2017

Location: Baltimore, MD

Peter Rycus, MPH 734-998-6601 at [prycus@else.org](mailto:prycus@else.org)

<http://www.cvent.com/d/x5qj6f>

28th Annual ELSO Conference September 25-27, Pre-Conference Symposium September 24-25.

Venue: Hilton Baltimore

## Asia-Pacific ELSO Conference 2017

10/12/2017 - 10/17/2017

Location: Gold Coast, Queensland, Australia

<http://apelso.com/>

## EuroELSO ECMO Course: Adult ECMO for respiratory failure and septic shock

11/06/2017 - 11/09/2017

Location: Stockholm, Sweden

Bjorn Frenckner +46-70 722 61 15 at [bjorn.frenckner@karolinska.se](mailto:bjorn.frenckner@karolinska.se)

## Facebook

If you use Facebook please visit our sites and “like” us! We intend to use Facebook as a way to present information to not only ELSO members but to anyone who is interested in our organization. [www.facebook.com/ELSO.org](http://www.facebook.com/ELSO.org)



Euro-ELSO Facebook page:  
[www.facebook.com/EuroELSO](http://www.facebook.com/EuroELSO)



## Twitter

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The ELSO Newsletter editorial team’s goal is to bring you a newsletter that is entertaining, informational, and educational. Please welcome Rebecca Rose, ECMO Manager from the University of Chicago to our editorial team. If you would like to join us or have any suggestions for improving the newsletter or would like to contribute content, please contact Joel Davis at [jdavis@elso.org](mailto:jdavis@elso.org).

Thank you from the ELSO Newsletter editorial team  
Joel Davis, Kennethia Banks-Borden, Teka Siebenaler, Omar Al-Ibrahim, Terri Wells, Nandini Nair, and Rebecca Rose

