



# THE FLOW

"We're in the business of hope"

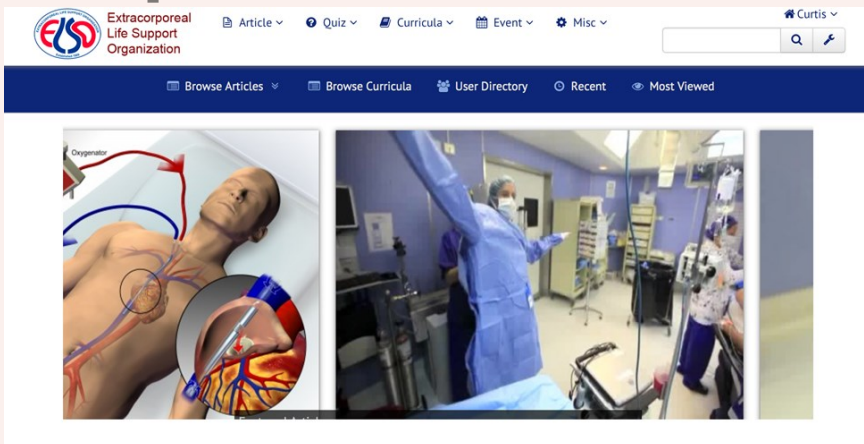
-Micheal Heard, RN

HAPPY ★ NEW ★ YEAR

## From the President,

The advancement of extracorporeal life support education throughout the world is a core mission of ELSO. By partnering with medical centers, professional societies, and other educational organizations, ELSO has developed unique educational programs that are carefully tailored to the spectrum of providers, reflecting the multidisciplinary approach to patient management that is inherent to ECLS care. The success of our recent two-day ECMO workshop in Hawaii held in partnership with the Society of Critical Care Medicine highlights ELSO's commitment to ECLS education. During the next few months ELSO will partner with additional organizations, including the Society of Thoracic Surgeons, the American Association for Thoracic Surgery, and the American Society of Extracorporeal Technology, to host ECLS workshops, seminars, and educational sessions. Outstanding educational activities are also being offered at the upcoming 4<sup>th</sup> South and West Asia Chapter ELSO Conference (February 15-18) in Doha, Qatar and the 6<sup>th</sup> EuroELSO Congress (May 4-7) in Maastricht, The Netherlands. We look forward to developing new educational relationships and novel approaches to ECLS education as we continue to expand our global educational initiative.

## Help Needed



ELSO is in the process of developing online educational content to be used for courses and workshops. We are currently seeking expert contributors. Interested individuals with the ability to create content, diagrams and animations are specifically encouraged to apply. For more information, please email Curt Froehlich at [Froehlich@ELSO.org](mailto:Froehlich@ELSO.org).

Thank you!



### *Nominations for Fellowship of the Extracorporeal Life Support Organization (FELSO) Now Open!*

*The ELSO community can now make nominations for induction to FELSO, the honorary designation recognizing extraordinary contributions to the art and science of ECLS. Applications will receive consideration by the FELSO Nominating Committee. Please see the link below for more information and online application.*

<http://www.else.org/FELSO.aspx>



## 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 12 year old 40kg girl is on VA-ECMO via the femoral vessels for myocarditis. She has been on for 24 hours. She is well supported on 4 L/min flow. ECHO shows rare left ventricular ejection (twice per minute) and a large left atrium. Pulmonary artery pressure is nonpulsatile. It has gone from 15 mmHg to 22 mmHg over the last six hours. Dobutamine has no effect.

*What is happening and what should we do?*

With no ventricular ejection, the left atrium and ventricle gradually fill with bronchial and thebesian blood (a slow but continuous flow from the systemic circulation). That blood generates pressure as the left heart gets distended. When the pressure reaches 25 mmHg gross pulmonary edema will occur, so must be prevented. The options are to place a drainage catheter in the left atrium by thoracotomy or trans septal catheter placement, or to create an atrial septostomy to allow left to right atrium decompression. Placing a drainage catheter in the pulmonary artery is technically possible but rarely done. Another approach is to drain the left ventricle with a percutaneous “Impella” pump or by direct transapical cannulation.

In our hospital we create an atrial septostomy in the cath lab. Whatever the approach, it is best to do it before pulmonary edema occurs.

If the left ventricle is not contracting after another day or two there is a high risk of intracardiac clot, even with full anticoagulation, so start planning for transplantation if that is an option.

**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)**

# ELSO MEMBERSHIPS



Become a  
**MEMBER**  
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## **ELSO Membership**

- ECMO clinicians, research scientists, and members of regulatory and public health institutions are now eligible for membership in ELSO
- Membership allows physicians, nurses, perfusionists, respiratory therapists, researchers and other healthcare professionals to become more directly involved in the world's largest ECMO community
- Affiliation with an ELSO Member Center is not necessary to apply
- Members receive benefits separate from Member Center privileges

## **Benefits of membership include:**

- Direct participation in the world's largest ECMO community
- ELSO Member Newsletters
- ELSO Registry Data Reports– January 2017 Reports available on website!
- Discounts on one copy of the ELSO Red Book (\$20 off list price) and one copy of the ECMO Specialist Manual (\$5 off)
- 10% discount on Annual ELSO Conference Registration fee
- Official Certificate of ELSO Membership
- Admission to the Members-Only Business Meeting at the Annual ELSO Conference
- Discounted registration rates for global ELSO Chapter Conferences (EuroELSO, Asia-Pacific ELSO, Latin-America ELSO, South & West Asia ELSO)
- Access to the ELSO Online Discussion Board
- Access to ELSO Online ECMO Knowledge Assessment Examination (Certificate of Completion included upon successful completion)
- Eligibility to participate in ELSO Committees and Working groups

Please visit us at <http://www.else.org/members/individualMembership.aspx>

*Please note that for the 10% discount on the Annual North American ELSO conference it can take up to 2 weeks to import your discount code into the CVENT registration program.*



# The ELSO Award of Excellence Application



The application is a multi-focus assessment of an ECLS Center. It was developed based on the ELSO Guidelines for New ECLS Programs and the ELSO Guidelines for Training and Education. ECLS Centers that wish to achieve the Center of Excellence designation should use these guidelines and go above and beyond expectations. Centers must be experienced in patient care with established policies and procedures. They should have a comprehensive, in-depth training and education process, as well as a defined family education program. Centers must incorporate highly developed quality initiatives and continuously review processes within their program. Outcome reviews must be demonstrated as an integral component of their organization.

The application is divided into seven sections:

1. Systems Focus - the ECLS Center provides generalized information about your institution
2. Environmental Focus - the Center provides information about the facility and equipment available for ECLS
3. Workforce Focus - the center describes the personnel caring for the patient
4. Knowledge Management - the Center provides information on the ECLS Team training and competencies
5. Quality Focus - the Center provides evidence regarding continuous quality improvement activities
6. Process Optimization - the Center provides information concerning outcome reviews and developmentally focused care
7. Patient & Family Focus - the Center describes the family education and participation in care

## Who May Apply?

Centers may apply for the ELSO Award for Excellence in Life Support after meeting entry criteria. A Center must be an ELSO member in good standing for at least three years; must have supported an average of five (5) patients per year for the past five years; and, must have reported all patients to the ELSO registry.



After meeting these requirements, a Center may complete the ELSO Award for Excellence in Life Support application. A minimum score must be achieved on the application in order to be designated as a Center of Excellence. The application is reviewed and scored in seven categories; the score is received using a standardized Award Scoring Tool based on a five (5) point Likert Scale. Each question is scored and the total score is tabulated.

The ELSO Award for Excellence in Life Support has an entry-level application process for those new ECLS programs that desire a review of their initial processes, such as equipment, personnel and training. These programs are invested in following the ELSO guidelines. Additionally, the minimum requirements for applying for this review must be met. A Center must be an ELSO member in good standing and although there is no minimum patient requirement, all patients treated with ECLS must be reported to ELSO.

After meeting these requirements, the new ECLS program may complete the application for the Path to Excellence recognition. Achieving the Path to Excellence recognition allows the ECLS program to continue forward with patient care and the development of a robust quality review program that should allow them to meet criteria to apply for the ELSO Award for Excellence in Life Support designation.





## To Start an Application

The Award for Excellence is now an on-line application process. It is found on the ELSO website under "Excellence". Each Center administrator must sign in to the ELSO Website and designate access to your team members for the Center of Excellence role.

1. Designate the assigned individuals to complete your application on the ELSO website.
2. Have your system administrator log in to [ELSO.org](http://ELSO.org) with their username and password.
3. On the Manage Tab, select or add the center members responsible for completing the award.
4. Click Edit Tab on the far left column and scroll down to select the box with the Center of Excellence award application role.
5. Click to save changes.



It is highly recommended that every Center start by reading the [Application Instructions](#) under Application Support 2017 under the Excellence Tab.

To start the application, either select the Application Support 2017 page and choose the award you wish to apply for (near the bottom) or select, "Start my application." This will bring you to a home page where there are tabs across the top.

Generally, begin at "*BASIC INFO*" - This will collect all the basic information regarding your center contacts. You will select the award applied for, (this will generate the payment tab described later). You will also acknowledge that you have read the Award Policies and Procedures and the Award Instructions. Those documents are located in the Support Document tab. Furthermore, you are granting Consent to a Site Visit by the Center of Excellence Committee. Not every Center will be visited, as the process will be a percentage of the applicants for 2017, and they will be randomly chosen.

Additionally, this tab will have the electronic signature verifying that all information contained therein is correct and true. This does not have to be sign at the start of an application, you may delegate this to a medical director or administrator who reads the final application before submission.

Click Save to continue. Please note that there is a red dot on each tab. When the tab is complete, the dot will turn green!

Next tab is '*DEMOGRAPHICS*'. This is a snapshot of your center, including type of hospital, patients, and other information that will be useful in describing a Center of Excellence. Once complete, click Save, if all information is entered the dot will turn green.

Next tab is "*PLAQUE INFORMATION*". This will capture all information regarding the potential plaque if your center is designated. As well, it also allows your Center to choose the Conference you wish to have it presented at. This will assist the committee in planning for 2017.

Next tab is "*AOE APPLICATION*". This is the entire award application, either for Path or Center of Excellence. This is not required to be completed at one sitting. You may begin a section and save your work at the end of each section. You will be able to return where you left off.

**Of Note:** There is a downloadable paper form for the Award Application. This is found under the Support Documents tab as the Award for Excellence Application Worksheet.

The final tab is "*PAYMENT*". This tab is available for Centers to produce an invoice prior to submitting the Award Application. However you must complete the required information on the BASIC INFO tab first. This tab will produce an invoice for you to print or save for your use.

If you have any questions, please feel free to email [award@elso.org](mailto:award@elso.org)

## ECMO Center Spotlight Children's Healthcare Of Atlanta

In 1998, Egleston Children's Health Care system and Scottish Rite Medical Center came together to form Children's Healthcare of Atlanta - one of the largest pediatric systems in the country. In 2006, Children's assumed responsibility for the management of services at Hughes Spalding Children's Hospital, growing the system to three hospitals with 575 beds and 27 neighborhood locations.

Children's ECMO Program was brought about by an assessed need by the attending neonatologists and administration of Egleston Children's Hospital. In

the late 80's, Neonatologist Dr. Francine Dykes and NICU manager Karen Trotochaud, RN assessed a need for ECMO and were instrumental in the early stages of supporting the initiation of a center in Atlanta. The administration was in pursuit of becoming one of the best children's hospitals in the United States. They knew that having state-of-the-art technologies and being able to take care of the sickest children in the state would help accomplish that goal. Physicians are an important aspect of achieving that goal and to have a top tier ECMO Program would require recruiting one of the best ECMO attending physicians in the country. Dr. J. Devn Cornish was recruited from San Diego Children's Hospital ECMO Program. Dr. Cornish accepted the challenge and the wheels were in motion.



The program was initiated on January 1, 1991 and was open for neonates, pediatrics and cardiac patients, with patients cared for in either the NICU or PICU. The first patient was placed on ECMO January 13th, a meconium aspiration – perfect for the first experience! After 56 hours of veno-venous ECMO, he was successfully decannulated and a survivor! The first year saw 27 patients on ECMO, an absolute banner year!

The program was initially set up with two arms of administration, with a research coordinator and a clinical coordinator, with both positions performing ECMO priming, management and education. The program's original clinical coordinator, a neonatal nurse practitioner, left the following year to focus on her NP role and her position was filled by Micheal Heard, RN. Recruited by Dr. Cornish from University of Virginia via Miami Children's Hospital, she brought with her extensive experience in ECMO and developing ECMO programs.



The program continued in a two coordinator style until the program expanded. Scott Wagoner, RRT joined the Children's ECMO leadership team in 1998. In 2002, the leadership structure changed and Scott became the manager of the Advanced Technologies Department and Micheal transitioned to the ECMO Educator/Coordinator role. Today, the department has grown to include two Advanced Technology Coordinators; Joel Davis, RRT and Christina Salisbury, RN, BSN, and six full-time Advanced Technology Specialists. This team provides 24/7 in-house priming availability, including ECPR, bedside clinical expertise in patient and emergency management. Dr. Jim Fortenberry serves as overall medical director for the program with the unit based medical directors Dr. Matt Paden (PICU), Dr. Shri Deshpande (CICU) and Dr. Anthony Piazza and Dr. Sarah Keene (NICU) who serve as co-medical directors for the NICU.



The program utilizes both roller and centrifugal pump technologies; the Sorin Revolution centrifugal pump and the Sorin S3 roller pump (we are switching to the S5 system in 2017). ECMO is performed in the NICU, PICU, and cardiac ICU's. Our pumps are staffed 1:1 with ECMO specialists (RN/RRT) who are pulled from all three ICU's. We currently have 46 trained ECMO specialists. Our program has the ability to run five cases simultaneously and averages around 60 cases per year. We are looking forward to expanding to six beds in 2017 with the purchase of our new pump system.

The Children's ECMO program has been a designated Center of Excellence by ELSO since 2007 and in 2016 we were recognized with the Platinum Level designation. We also celebrated our 25th Anniversary by having the busiest year in the history of our program. 6





# Upcoming Courses and Meetings

## 4th Annual SWACELSO Conference

2/15/2017 - 2/18/2017

<http://elso-swac2017.org/>

Location: Doha, Qatar

[info@elso-swac2017.org](mailto:info@elso-swac2017.org)

## 33rd Annual Children's National Symposium: ECMO and the Advanced Therapies for Respiratory Failure

2/26/2017 - 3/2/2017

<http://www.cvent.com/d/1fqxtc>

Location: Keystone, Colorado USA

**Lisa Williams** 202-476-5919

[LIWILLIA@childrensnational.org](mailto:LIWILLIA@childrensnational.org)

## STS/ELSO ECMO Management

3/10/2017 - 3/12/2017

<http://www.sts.org/ecmo>

Location: USF Health Center for Advanced Medical  
Learning and Simulation, Tampa, FL

**Michelle Taylor** 312-202-5864

[mtaylor@sts.org](mailto:mtaylor@sts.org)

## LAELSO Adult VV ECMO Course

4/5/2017 - 4/8/2017

<http://www.anesthesiologia.cl/ecmolatam/contacto.php>

Location: Hotel Radisson La Dehesa, Santiago Chile

**E.U Andrea Fernández** +56 226105251

[andreaclc@gmail.com](mailto:andreaclc@gmail.com)

## ELSO Adult ECMO Training Course

4/5/2017 - 4/8/2017

Location: Emory Conference Center, Atlanta GA

**Peter Rycus, MPH** 734-998-6600 [prycus@elso.org](mailto:prycus@elso.org)

**Course is full.** Go to [ELSO Website](#) for waitlist details.

## Euro-ELSO 2017

5/4/2017 - 5/7/2017

<http://www.euroelso.net/euroelso-2017.html>

Location: Maastricht, The Netherlands

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

6/2/2017 - 6/4/2017

Location: Children's Hospital Colorado - Aurora, CO

**Alexandria Wilkinson** 720-777-6948

[alexandria.wilkinson@childrenscolorado.org](mailto:alexandria.wilkinson@childrenscolorado.org)

## 28th Annual ELSO Conference

9/24/2017 - 9/27/2017

Location: Baltimore, MD

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

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/>





# Website Corner



## Happy New Year!

So far 2017 is shaping up to be a blockbuster year for the Discussion Board. We have had 48 posts by users over the last month in 18 forums. Keep those questions rolling in and share your experiences with your fellow ECMOlogists.

## Discussion Board Topics of the Month

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

Palliative Care: When during the course of an ECMO run does Palliative Care get consulted?

Shortage of 13fr Cannulas: What are centers doing about single manufacturers and what are the differences between the two manufacturers?

ECMO Specialist Wages: How do we adequately compensate our Specialists and justify it to the bean counters?

Patient Selection for Sepsis: Sepsis used to be a strong contraindication for ECMO. How are you selecting patients now that it is no longer the case?



## Discussion Board Contributor of the Month

Congratulations to Sara Matthews, RN from Omaha Children's Hospital & Medical Center. Thanks for your great questions and keep those posts coming!



## 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!

## Keep it Online!

Lately, we have noticed posts that have contained the phrase "feel free to contact me offline at [xxxx@yourhospital.org](mailto:xxxx@yourhospital.org)". We want to urge our users to avoid offline conversations. The Discussion Board is meant to be an open forum for everyone to discuss the latest and greatest in ECMO and how their tackling the problems that we face every day. If you discuss offline, you are robbing your colleagues of the opportunity to learn from your experience and from potentially great dialogue as they respond to you. ***So, please, let's keep it online!***





# Technical Bulletin

Subject: Catheter tube disconnect

Products

Date: January 2017

Affected: All OriGen RDLC Catheters

To: All distributors and customers

## WARNING: potential catheter damage caused by tube clamps

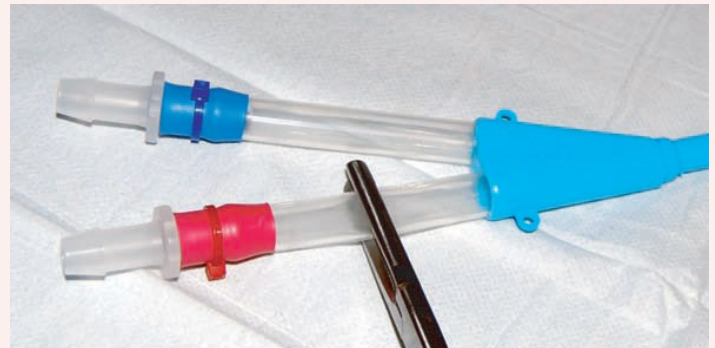
We have identified a potential mechanism that may cause damage to the OriGen Reinforced Dual Lumen Catheter.

Clamping the clear tube very close to the blue hub may cause a localized adhesive failure in the bond between the clear tube and the molded hub. Forcefully rotating the clamp while it is in place may potentially cause an immediate disconnect of the clear tube or lead to a later fatigue failure of the adhesive bond, with subsequent clear tube disconnect from the hub.

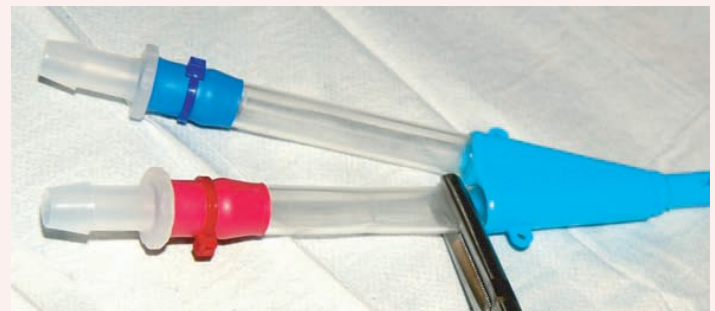
Incidence of this is very rare, but it is easy to avoid by clamping in the middle of the clear tube (see photo below). We have tested all sizes of catheters and have been able to force a failure only in the larger sizes (28F and 32F). However, out of an abundance of caution, please clamp all sizes of catheters only in the middle.

We are working on changes to the manufacturing process to eliminate this hazard, but in the interim, please take care to clamp the clear tube only in the middle. Please contact OriGen if you have questions.

Acceptable:  
Clamp the clear tube near the middle



Not Acceptable:  
Do not clamp the clear tube close to the blue hub



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**OriGen**  
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# Registry Riddles

The online ELSO Registry was updated this past fall and there have been many questions! Every question sent is very helpful – so keep up the emails to Peter Rycus. The Registry Committee is working as quickly as possible to complete an instruction sheet as well as complete a comprehensive data point definition document. Please stay tuned for times when they are posted on line.

The Newsletter Committee has decided to start a section where you can send in your questions and the Registry Committee will answer it for you. The answers will then be posted in the newsletter for all to learn about!

This issue we are going to address the new Severity Score. The Severity Score includes data that will be used to calculate Mortality Risk Scores. This will be a query that Centers will be able to run on patient populations. The data being collected is detailed and time consuming to collect. However, if another department in your institution is already collecting this information on your ICU patients, this may be an easy way to share the information. It may also be beneficial to discuss with your Electronic Medical Record team the possibility of generating a report to capture this information automatically for you.

The most important question that has been asked lately is:

**“For severity scores, when is the 24-hour period to be reviewed?”**

These values are to be the worst values in the 24-hour period after ICU admission and prior to ECLS. There may be patients that this information does not exist for. Such as floor patients who were placed on ECLS in the OR and never had an ICU admission prior to ECLS.

Some have expressed concern over patients that have been in the ICU for weeks prior to ECLS. The data collected still needs to reflect the first 24-hour period of ICU admission.

Additionally, a question has been around “what about transfers on ECLS?” These patients should have a ECLS registry form completed by the first ECLS center that should capture that information. Therefore, you would not be responsible for collecting it in your Center.

Finally, another question has been “Do I have to collect this information?” As you know, the ELSO Registry is evolving. Every data point is being reviewed and updated to include the most pertinent. That being said, if your Center is unable to dedicate the time or does not see a benefit, such as neonatal ECMO, then perhaps you may decide to not collect this information. However, ELSO strongly recommends that you do collect the information, as the future use of the data may not yet be known. The paper form of the Registry includes space to collect the information requested:

Heart Rate /min		Resp Rate /min		SBP	
DBP		Mean BP		Temp C	
GCS		Hgb g/dl		Hct %	
WBC 10 <sup>3</sup> /ml		Platelets 10 <sup>3</sup> /ml		pH	
PaCO2 mmHg		PaO2		FiO2	
Na mEq/L		K mEq/L		HCO3	
Ca mg/dL		iCa mmol/L		Lactate	
Creatinine mg/dL		Bilirubin mg/dL		AST U/L	
INR		Fibrinogen mg/dL		Urine Output mL/24hrs	

Pupil Response: Reactive \_\_\_\_\_ Fixed and Dilated \_\_\_\_\_ Unequal or Dilated \_\_\_\_\_

Admission Type: Floor \_\_\_\_\_ OR \_\_\_\_\_ Other \_\_\_\_\_ Other Hospital \_\_\_\_\_

Chronic Conditions: None \_\_\_\_\_ AIDS \_\_\_\_\_ Hepatic Failure \_\_\_\_\_ Lymphoma \_\_\_\_\_

Metastatic Cancer \_\_\_\_\_ Leukemia \_\_\_\_\_ Immunosuppression \_\_\_\_\_ Cirrhosis \_\_\_\_\_

Vasopressors: Yes \_\_\_\_\_ No \_\_\_\_\_ Unknown \_\_\_\_\_

Mechanical Ventilation: Yes \_\_\_\_\_ No \_\_\_\_\_ Unknown \_\_\_\_\_

# Educational Opportunities and Surveys

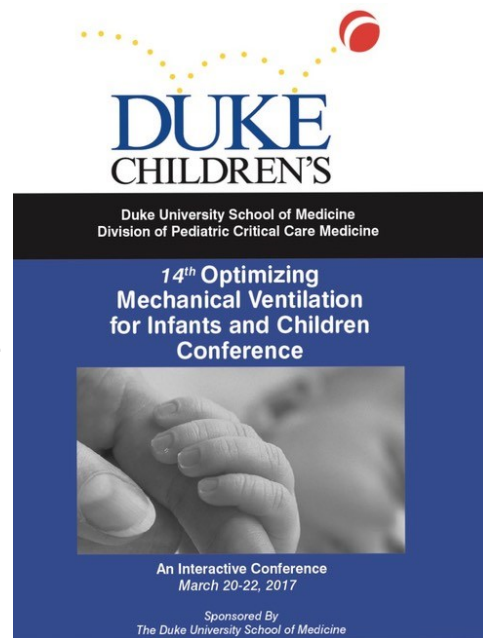
## 14th Optimizing Mechanical Ventilation for Infants & Children Conference

March 20-22, 2017 at the 21c Museum Hotel,  
Durham, North Carolina

The Duke Children's Division of Pediatric Critical Care Medicine and Duke Health invite you to attend our 14th Optimizing Mechanical Ventilation for Infants and Children Conference. This conference will focus on the latest advances in invasive and non-invasive mechanical ventilation, adjunct therapies for acute lung injury, respiratory monitoring, and sedation management. The program will also provide an understanding of cardiorespiratory interactions and mechanisms of acute lung injury. Clinicians will participate in lectures and interactive workshops focused on the skills necessary to optimize mechanical ventilation and patient-ventilator interactions for infants and children. The conference will be held at the 21c Museum Hotel in downtown Durham (<http://www.21cmuseumhotels.com/durham>).

The conference brochure is attached. Details and registration form can also be found at [www.OMVConference.com](http://www.OMVConference.com).

[2017 OMV Registration Link](#)



 DukeHealth

 AACRC  
American Association  
for Respiratory Care



**Take the Survey**

### Fellow Pediatric Critical Care Physicians and Trainees:

We would like to ask for your participation in our research project, which is to identify, characterize, and help to define the ethical considerations associated with withdrawal of a Ventricular Assist Device (VAD) or Extracorporeal Membrane Oxygenation (ECMO) circuits in patients in a Pediatric Intensive Care Unit (PICU) or a Pediatric Cardiothoracic Intensive Care Unit (PCTICU).

Because of your expertise in working with critically ill children in the ICU, we would appreciate no more than 5-10 minutes of your time to complete this survey. Your participation is completely voluntary. Your completion of the survey will serve as your consent to participate in the study.

Click [here](#) to take the survey: Thank you in advance for your help!

Antonia Melas DO ([amelas@mednet.ucla.edu](mailto:amelas@mednet.ucla.edu)), Leanna Huard MD ([lhuard@mednet.ucla.edu](mailto:lhuard@mednet.ucla.edu)), and Robert Kelly, MD ([RKelly@mednet.ucla.edu](mailto:RKelly@mednet.ucla.edu))

Mattel Children's Hospital  
Division of Critical Care



## 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

Follow us on twitter!  
[www.twitter.com/ELSOOrg](http://www.twitter.com/ELSOOrg)



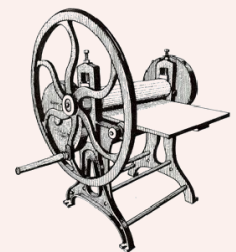
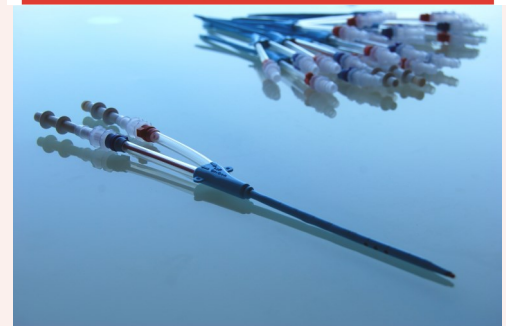
"Having solved the problem making the RDLC tips, the process of molding the hub onto that tip has just fallen apart. Scrap rates of 90% have caused us to abandon that mold and build a new one of a different design. This process is likely to take 14 weeks until the first prototypes can be run, but I will keep the community updated.

I sincerely apologize for the delays, and would like to reassure all of the ECMO community that we know how important this product is and are doing everything we can to get production re-started.

Richard Martin  
OriGen

# OriGen

BIOMEDICAL



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The ELSO Newsletter editorial team’s goal is to bring you a newsletter that is entertaining, informational, and educational. We are always looking for additional members to join our 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

