



# THE FLOW

August 2017



"What mankind can dream, research and technology can achieve."

-C. Walton Lillehei, Ph.D., M.D.

## Time is running out...Register today!



Join us at our 28<sup>th</sup> ELSO Annual Congress Sept 24-27<sup>th</sup> at the Hilton Hotel in Baltimore, Maryland. This years pre-conference will contain a variety of lecture style talks over both general didactic and cutting edge topics, paired with multiple hands-on small group demonstrations and simulations. Lecture topics include ECMO for Cardiogenic Shock, Sepsis, and Respiratory Failure each containing case discussions with expert panels. Cutting edge topics such as Obesity, Pregnancy, Lung Transplant, and Mobilization will be covered as well. Small group demonstrations include Use of Ultrasound and Percutaneous Cannulation, coupled with hands-on simulations over ECPR, Transport, and VA-VV Conversion. Expanding Horizons in ECLS will also include an optional Special topic: "How to Start a Program".

At the conclusion of the Pre-conference, a special lecture will be given by a recently established program regarding the benefits, pitfalls, and nuts and bolts of establishing a new program. Full details of the entire program will soon be on the agenda page.

Visit the [ELSO Conference website](https://www.elso.org/Members/Courses/November2017Atlanta.aspx) for more details.

<https://www.elso.org/Members/Courses/November2017Atlanta.aspx>



### ELSO Adult ECMO Training Course

November 8 - 11, 2017

Emory Conference Center, Atlanta GA

<https://www.elso.org/Members/Courses/November2017Atlanta.aspx>

Please contact **Kennethia Banks-Borden** [kbanksborden@elso.org](mailto:kbanksborden@elso.org) for more details.

### ASIA-PACIFIC ELSO CONFERENCE 2017

**GOLD COAST, QLD  
12-14 OCTOBER 2017**

ECMO...and beyond – the future of mechanical support

Click HERE to



<http://apelso.com/>





## 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 50 year old man with necrotizing pneumonia has been on VV ECMO for a month. His x-ray is clearing and his tidal volume at 25 cm/H<sub>2</sub>O inflation is 600 cc. During trials off, his SaO<sub>2</sub> is 90%, but his PaCO<sub>2</sub> goes up to the 90s in 20 minutes despite increasing the respiratory rate to 30/min. He is very dyspneic and has to be returned to ECMO support. His chest x-ray and CT shows a few large pneumatoceles and diffuse “honeycombing.” A pulmonary consultant says we have created terminal end stage lung disease and we should stop ECMO.

### **What is happening and what should we do?**

This is a common problem resulting from a very high alveolar level dead space which can occur with necrotizing lung injury. The oxygenation is good because some functional alveoli are working well. However, most of the lung is ventilatory “dead space” resulting from areas of necrosis, so that the respiratory gas is not exposed to pulmonary blood flow. Ventilation to remove CO<sub>2</sub> is very inefficient (the end tidal CO<sub>2</sub> is only 10 mmHg). This certainly looks like irreversible end stage lung disease but in this condition CO<sub>2</sub> clearance almost always recovers in a month or two, unlike end stage COPD or bronchopulmonary dysplasia in a baby. The reason is that the nonfunctional air spaces result from necrosis and are all lined with collagen (scar tissue). As the collagen contracts, the dead space is obliterated and ventilation for CO<sub>2</sub> removal in the functional alveoli becomes efficient again. The patient is well oxygenated with spontaneous breathing off ECMO so that only CO<sub>2</sub> removal is required during the healing phase. Blood flow around 0.5L/min and sweep flow 10L/min will remove 150-200 cc CO<sub>2</sub> per minute. This can be done with the existing ECMO system or a neonatal circuit could be used with a much smaller double lumen catheter and low blood flow.

**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)**



# Upcoming Courses and Meetings



## **28th Annual ELSO Conference**

9/24/2017 - 9/27/2017

Location: Baltimore, MD

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

## **ELSO Adult ECMO Training Course**

11/08/2017 - 11/11/2017

Location: Emory Conference Center, Atlanta GA

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

## **ECMO Management Workshop**

2/23/2018 - 02/24/2018

Location: San Antonio Marriott Rivercenter, San Antonio, TX

<http://www.cvent.com/d/s5qr9j>

Kennethia Banks-Borden 734-996-6600 [kbanksborden@elso.org](mailto:kbanksborden@elso.org)

## **34th Annual Children's National Symposium**

2/25/2018 - 3/1/2018

Location: Keystone, CO

Lisa Williams [liwillia@childrensnational.org](mailto:liwillia@childrensnational.org)

<http://www.cvent.com/events/34th-annual-cnhs-symposium>

## **29th Annual ELSO Conference**

09/13/2018 - 09/16/2018

Location: Scottsdale, Arizona

Kennethia Banks-Borden or Peter Rycus 734-998-6600 [kbanksborden@elso.org](mailto:kbanksborden@elso.org)



# Website Corner



## *Back-to-School*

The kids are heading back to school, and so should you! Learn from your peers and share your knowledge through the Discussion Board.

## *Discussion Board Topics of the Month*

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

[Weaning and Trialing off VV ECMO](#): Share your philosophy and protocols on trialing off VV ECMO. How long to you keep your gas line clamped before taking the plunge to come off?!

[Membrane Clotting/Clogging](#): Anyone care to share their experience with rapid membrane clotting or clogging in patients? What equipment were you using? What patient types have you experienced it in?

[VA vs VV or VVDL for Respiratory Patients](#): Now that we have lots of options, how do you decide which modality to use?

## *Discussion Board Contributor of the Month*



Congratulations Emma Haisz, RN from Children's Health Queensland Hospital in Brisbane, Australia 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.

Please Take My  
Survey

# Surveys



ELSO is attempting to design quality metrics that will help your institution provide better extracorporeal life support. Quality is often divided into three categories: Outcome, Structure, and Process.

**Outcome** - denotes the effects of care on the health status of patients and populations, such as survival, complications and quality of life.

**Structure** - denotes the attributes of the setting in which care occurs such as facilities, equipment, personnel, and medical staff organization.

**Process** - denotes what is actually done in delivery of care.

Donabedian A. The quality of care: how can it be assessed JAMA 1988

ELSO is partnering with ArborMetrix to develop a state of the art quality reporting platform. This platform will report back to you how your center is performing based on selected outcomes. These outcomes will be risk adjusted and compare your center to peer centers. In order to make sure we develop a product that serves you best we would like to ask you to fill out the following survey. Please click the link to complete.



<https://www.surveymonkey.com/r/QualityMetrix>

## Survey of Worldwide Practice of Extracorporeal Membrane Oxygenation (VA-ECMO) to manage neonates with congenital diaphragmatic hernia

We are conducting a brief survey to understand the current practice of ECMO to manage congenital diaphragmatic hernia. Our focus is to understand varying practice patterns across institutions and providers and examine differences in approaches (VV vs VA). We thank you for your participation in our research and look forward to sharing the results in the future!

Click here to complete.



<https://ci-redcap.hs.uci.edu/surveys/?s=8R7DYTXENK>

For further information, please contact:

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Dr. Matteo Di Nardo email: [matteo.dinardo@opbg.net](mailto:matteo.dinardo@opbg.net)

The Impella has been used in the pediatric community to provide temporary LVAD support in patients with cardiogenic shock, as a bridge to decision, and as a bridge to durable VAD placement. A recent survey was sent to the Pediatric International Consortium of Circulatory Assist Clinicians to better understand the application of the Impella in pediatric populations. Since this was a small segment of the MCS population, we would like to send the survey out to more centers to compare results. If you have used the Impella in your institution, please consider completing this survey.

Take the survey now >

<https://www.surveymonkey.com/r/VVHF72X>



# Cohen Children's Medical Center

Cohen Children's Medical Center, a division of the Northwell Health Care System based in New Hyde Parke, NY, recently celebrated 20 years of providing ECMO support to critically ill infants, children and adults. Over 60 families, along with the program founders and current staff, attended the celebration and enjoyed face painting, music and a buffet lunch. Our cafeteria was festive with balloons and happy families. An enormous cake in the shape of an ECMO circuit complete with clamps and an oxygenator was created by a local bakery. Not only did it look great, it was delicious!

Speakers included Dr. Charles Schleien, Executive Director of Cohen Children's Hospital, Dr. Peter Silver, Chief Medical Officer at Cohen's and Dr. Todd Sweberg, Medical Director Pediatric ICU. Additionally, one young man, who had been on ECMO as a teenager and the mothers of two infants supported with ECMO soon after birth, spoke movingly of their personal experiences. The afternoon was an energizing event for families as they returned to the hospital with their now thriving kids and also for the doctors, nurses and other team members who could clearly see the dividends of their hard work and efforts. The whole team looks forward to the future, as we continue to advance and strive to be the best ECMO program we can be, supporting any patient we can with this life saving intervention.



## ECMO Management Workshop

February 23 - February 24 2081

San Antonio Marriott Rivercenter, San Antonio, TX

<http://www.cvent.com/d/s5qr9j>



The workshop includes the basic management principles common to extracorporeal membrane oxygenation (ECMO) programs for adult patients. This intense two-day workshop will cover topics including basic physiology of ECMO, equipment and patient selection, and economic and ethical considerations. Save on workshop registration by joining ELSO as an individual member today! This program is held in conjunction with the Society of Critical Care Medicine's Critical Care Congress. The Society has reviewed the program to ensure its appropriateness for the critical care provider. However, the program is developed and managed by ELSO, an independent not-for profit organization, who is solely responsible for its content and management.

Please contact **Kennethia Banks-Borden** 734-996-6600 [kbanksborden@elso.org](mailto:kbanksborden@elso.org) for more information



May 31st 1987 was a big day for James Whitcomb Riley Hospital for Children in Indianapolis, Indiana. It was the day all the hard work of its first ECMO team members paid off. Patient #1 of the Riley ECMO program was cannulated by Dr. Karen West and Dr. Fred Rescorla, pediatric surgeons, and placed on ECMO support.



A team of then 10 ECMO technical specialists lead by Dr. Bill Engle, Riley Neonatologist, and Susan Gunn, RN, ECMO Coordinator, successfully supported patient #1 who celebrates his big 30 as a result of that teams care and commitment.

This May 31st, 2017 the Riley patients and staff celebrated *30 Years Strong* as an ECMO program. 919 ECMO runs later, different equipment, faces and advances in practice have changed the Riley ECMO team, now totaling over 50 members. Designated an ELSO Center of Excellence 5 times since that May day in

1987, the James Whitcomb Riley Hospital ECMO Team remains committed to quality patient care, the advancement of the Riley ECMO program and support of the ELSO community.

**Happy Anniversary to the Riley Team! 30 years ECMO STRONG!**



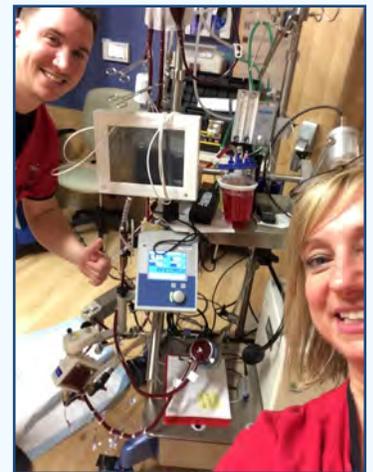
Jim Hart & Kate Jurgens—1990's



Dr. Brian Gray, Dr. Karen West, Dr. Bill Engle



Megan #724



Centrifugal Selfie March 2016





# ECMO's got Talent



## ***SURVIVOR TO SINGER***

### ***STARTING SCHOOL AND FIGHTING FOR HER LIFE***

Most of us do not remember what life was like before Kindergarten, but Angelica had already lived a lifetime by the time she finished Pre-K. She learned early on that life was not to be taken for granted. When she was only 4 years old, she developed a bacterial infection in her lungs that would develop into double pneumonia and cause her to go septic, destroying her kidneys and ravaging her body. She would be put on ECMO life-support at Children's Healthcare of Atlanta as a last ditch effort at saving her life. Two weeks on ECMO, many more weeks in the ICU, and a total of 80 days in the hospital, Angelica would finally return home with her family for the first time in three months, but her life would never be the same.

### ***MOTHER'S GREATEST GIFT***

Hemodialysis and later peritoneal dialysis would be Angelica's new "normal" for the next year and a half until she found a suitable donor match for a kidney transplant. After months of testing, it was discovered that Angelica's mother was a perfect match! As relieved as Angelica's family was to hear this, it was certainly difficult to come to terms with both Angelica and her mother having to undergo such a significant surgery together on the same day. After much reflection, and more testing, the fateful date of Friday, September 13, 2013 was put on the calendar. Angelica would be getting her new kidney!

### ***THE PURPOSE DRIVEN LIFE***

Angelica always seemed to have an interest and a certain aptitude for singing. Her parents first noticed her talent as she began to sing along to popular songs in the car at two years of age! Lady Antebellum's "Need You Now" was one of her early favorites. A few months after Angelica recovered from her serious illness and returned home, her parents encouraged her to pursue her dream of becoming a singer and gave her singing lessons. It became clear almost immediately: singing was Angelica's calling, and using her God given talent to tell her story and inspire others was her purpose!

### ***A STAR IS BORN!***

On Tuesday, June 6th, 2017 America was introduced to this amazing little miracle. Angelica sang [Andra Day's "Rise Up"](#) on America's Got Talent audition and blew everyone away with her performance. On the July 18th show, Angelica brought the audience to their feet and received the coveted "Golden Buzzer" with her performance of [Alicia Key's "Girl on Fire"](#). On Tuesday, August 15th, Angelica brought a judge to tears and advanced to the next round of competition with her performance of ["Clarity" by Nedd](#). Stay tuned for Angelica's next on air performance, happening sometime in September!

### ***GIVING BACK***

To this day, Angelica continues to grow her influence and broaden her reach, touching hearts and souls all over the World. Through her participation in fundraisers all over the United States, she is able to help many children by supporting the children's hospitals they depend on, including the very one that saved her life!

[A SURVIVOR'S SONG: ANGELICA'S MIRACLE STORY](#)





## 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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Thank you from the ELSO Newsletter editorial team  
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