The Sanibel Symposium

APRIL 3-6, 2019
SANIBEL HARBOUR RESORT
FORT MYERS, FLORIDA

17080 Safety St., Suite 109
Fort Myers, FL 33908
Phone: 888.499.5672
www.sanibelsymposium.com
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www.sanibelsymposium.com
GENERAL INFORMATION

HOTEL MAP

DINING RECOMMENDATIONS

- **The Mucky Duck** (Captiva)
- **Courtside Steak House** (on property)
- **The Bubble Room** (Captiva)
- **Lighthouse Restaurant** (very close)
- **The Green Flash**
- **Jacaranda** (Live music on Sanibel)
- **The Island Cow**
- **The Beached Whale** (Ft Myers Beach)
- **Doc Ford’s Rum Bar**
- **Matanza's** (Live music upstairs)
- **Yabo** (very rock and roll)
- **Twilight** (restaurant, wine bar)
- **Matzaluna**
- **Bimini Bait Shack** (very close)
- **Cracker Box** (after 9PM)
- **SOB’s** (local hangout)
ADmiral's Club
- Medtronic
- Haemonetics
- Perfusion.com
- LivaNova

C aptain's Club
- CardioQuip
- Nordson MEDICAL
- Transonic Systems
- Essential Pharma
- Radiometer
- Terumo
- Quest Medical

Mariner's Club
- SpecialtyCare
- Boheringer Labs
- Eight Medical
- Spectrum Medical
- Biomed Simulation
- Cellmedix
- RanD
- Teleflex
- Global Blood Resources
- Perfusion Life
- Grifols
- Instrumentation Labs
- Ilex Medical
- Edwards Lifesciences
- ART Nation
MARBLE GAME

Please tear out this page and turn in with your guess for the number of marbles in each exhibitor’s marble jar. The jars are located at each Exhibitor's booth.

Your Name: ____________________________

<table>
<thead>
<tr>
<th>Exhibitor</th>
<th>Marbles</th>
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<tbody>
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<td>ART Nation</td>
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<td>Biomed Simulation</td>
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<td>Transonic Systems</td>
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Total Marbles: ___________
**SHARK TANK**

*Shark Tank! AQUALUNG &/OR ECMO*

**SHARK TANK!**

Questions for the audience?

1. Should perfusionist be actively involved in all ECMO cases or just in a consulting role?
2. Should non-CV surgery institutions perform ECMO (VV or VA)?
3. Should all ECMO fall under the prevue of the perfusionist?
4. Can ECMO and other extracorporeal technologies (ECCO2R etc) grow without perfusionist support?
5. How do you see yourself or the profession (Perfusionist) in 10, 15, 20 years?
6. Is there a role for e-perfusion in the near future concerning ECMO or other extracorporeal technologies?

This is a new and exciting event at the Sanibel Symposium, which will be held at pool side with Pizza and Beverages on **Wednesday night at 1730 - 1900**. It will be an open forum where we will discuss the main topics listed above. This event is completely multidisciplinary, so we welcome all attendees and exhibitors to participate. Come and get some input from our expert Dr. L Keith Scott, who is a world renowned leader in this field. So let's have some fun and learn from one another. **There will not actually be sharks.**

Dr. L Keith Scott is an adult and pediatric intensivist and director of the SICU at LSU Health in Shreveport. Dr. Scott has particular expertise in ECMO having performed that procedure for more than 20 years. Also, he is former Chief of the CVICU at Wake Forest University. Currently he is Professor of Pediatrics, Surgery and Medicine at LSU Health. Dr. Scott also holds a master degree in Global Health and infectious Diseases from the University of Edinburgh and is active in developing ICU care models in Haiti and parts of rural Africa.
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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>0700-1500</td>
<td>Registration Open</td>
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<tr>
<td>0700-2000</td>
<td>Exhibitor Setup in Royal &amp; Sabal Ballrooms</td>
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<tr>
<td>0800-0900</td>
<td>Essential Pharmaceuticals</td>
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<td></td>
<td>Breakfast Session in Queens Ballroom</td>
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<td></td>
<td>Cardioplegia Update: Long-term Efficacy and Cellular Impact</td>
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<td></td>
<td>Kevin McCusker Ph.D., CCP, Assistant Professor of Surgery, New York Medical College, Valhalla, New York</td>
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<td>Serdar Gunaydin, MD, PhD, Chair &amp; Clinical Professor, Department of Cardiovascular Surgery, Numune Training &amp; Research Hospital, University of Health Sciences, Ankara-Turkey</td>
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<td>0900-0910</td>
<td>Opening Remarks in Queens Ballroom</td>
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<td>0910-0945</td>
<td>VA-ECMO as Bridge to Heart Transplant: A Brave New World?</td>
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<td>Michael Harper, MD</td>
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<td>0945-1015</td>
<td>The ECMO Evolution: What’s a Clinician to Do?</td>
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<td>Common Issues of ECMO that Need to be Understood Now</td>
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<td>William Harris, CCP</td>
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<td>1015-1025</td>
<td>BREAK</td>
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<tr>
<td>1025-1055</td>
<td>ECMO as Primary Tx for Respiratory Failure- How far are we?</td>
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<td>Touch on mechanical ventilation heavily</td>
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<td>Keith Scott, MD</td>
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<td>1055-1155</td>
<td>The Evolution of ECLS</td>
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<td>Farzad Najam, MD, Director of Cardiac Surgery, The George Washington University Hospital</td>
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<td>Elsayed Abo-Salem, MD, Intervention Cardiologist, St. Louis University Hospital</td>
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| 1155-1300 | LivaNova TandemLife WORKSHOP – In Gardens Ballroom  
Lunch will be sponsored by TandemLife in Exhibitors Ballroom |
| 1300-1330 | Hypoxia in spite of ECMO- “What do you do when Qb runs out?”  
Steve Conrad, MD |
| 1330-1400 | Simulation in Education-Why is this important to the Perfusionist  
Jeffrey B. Riley MHPE, CCP |
| 1400-1430 | Why VV ECMO must be looked at differently as oxygen content and less as flow and concerns for pO2 or 02 saturations by pulse oximetry Registry- “Why the effort is worth it!”  
Robert Bartlett, MD |
| 1430-1445 | Panel Discussion - “It’s worth the effort” |
| 1445-1500 | BREAK |
| 1500-1515 | Essential Pharmaceuticals  
Custodiol HTK...What’s in that stuff?  
William Nicotra, CCP, LP, Medical Science Liaison |
| 1515-1550 | Perioperative Utilization of Viscoelastic Hemostasis Monitoring in Cardiothoracic Surgery  
Joe Deily, PA  
Cardiothoracic Surgery Physician Assistant  
Shipley Cardiothoracic Center, Healthpark Medical Center |
| 1600-1700 | Haemonetics Workshop - In Gardens Ballroom  
Featuring hors d’oeuvres, select wine & beer sponsored by Haemonetics |
| 1730-1900 | Shark Tank Aqualung &/or ECMO  
Featuring Dr. L Keith Scott, Professor of Pediatrics, Surgery & Medicine  
Louisiana State University Health  
(Located at the pool adjacent to yacht & hammocks) |

**Thursday, April 4th, 2019**  
**Moderator-Ty Walker, CCP, CPBMT**

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<th>Time</th>
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<td>0700-1500</td>
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<td>Time</td>
<td>Session</td>
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| 0800-0900 | **TERUMO CARDIOVASCULAR GROUP**  
Breakfast Session in Queens Ballroom  
The Evolution of Continuous Inline Blood Gas Monitoring - the CDI-550  
David Fallen, CCP Emeritus Director of Clinical Support for Perfusion Products |
| 0900-0905 | Opening Remarks in Queen’s Ballroom                                                        |
| 0905-0940 | The Challenge of Timing during Arrhythmia: Implementation of New Real Time Methods  
Kacey Dee, Clinical Lead, Teleflex                                                  |
| 0940-1010 | BREAK In Exhibitor Hall                                                                       |
| 1010-1050 | Standards, Guidelines and Registries: Optimizing Perfusion Practice in a Value-Based Healthcare System  
David Fitzgerald, MPH, CCP, Clinical Coordinator, College of Health Professions, CVP Program, Medical University of South Carolina |
| 1050-1130 | Plasma Exchange in post-CABG Vasoplegia  
L Keith Scott, Professor of Pediatrics, Surgery & Medicine  
Louisiana State University Health                                                     |
| 1130-1225 | **Keynote Address**  
“The Sky is Falling” [Chicken Little]  
Jeffrey B. Riley MHPE, CCP                                                                  |
| 1225-1325 | Lunch with Exhibitors Sponsored by Perfusion.com  
Exhibitor Ballroom                                                                            |
| 1325-1405 | **Perfusion Leadership**  
Susan J. Englert, RN CNOR, CPBMT, CCP, LP, Sanibel Symposium Coordinator                  |
| 1405-1445 | Applying High Reliability Organization Principles to Your Perfusion Department and Cardiac Team  
Dr. Tony Shackelford MHA, DHA, CCP, CCT, Chief Perfusionist – Perfusion  
Medical University of South Carolina, Charleston South Carolina                           |
| 1445-1525 | The Essential Role of Leadership in Establishing a “Just Culture”  
David Fitzgerald, MPH, CCP, Clinical Coordinator, College of Health Professions, CVP Program, Medical University of South Carolina |
| 1545-1625 | **Team Perfect Perfusion: Applying Navy SEALs Extreme Ownership Leadership Concepts to Achieve Consistent Success**  
Dr. Tony Shackelford MHA, DHA, CCP, CCT, Chief Perfusionist – Perfusion  
Medical University of South Carolina, Charleston South Carolina                           |
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<th>Time</th>
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<th>Speaker(s)</th>
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<tr>
<td>1625-1640</td>
<td>ABL90 Plus in CVOR</td>
<td>Jim Halbleib, Sr. Clinical Application Specialist, Radiometer America Inc.</td>
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<tr>
<td>1640-1710</td>
<td>Protamine Test Dose: Impact on ACTs and Circuit Integrity</td>
<td>Courtney Fischer, CPC, CCP, University Health Network, Toronto General Hospital, Toronto, Ontario, Canada</td>
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<tr>
<td>1830-2100</td>
<td>SANIBEL SOIRÉE EXHIBITOR’S WELCOME RECEPTION</td>
<td>Featuring dinner &amp; several carving stations, select wine &amp; beer Light &amp; fun entertainment. Sponsored by PERFUSION.COM Located in the Exhibitor Ballroom</td>
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**Friday, April 5th, 2019**

**Moderator- Susan Englert, RN, CCP, LP, CPBMT**

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<th>Speaker(s)</th>
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<tr>
<td>0700-1200</td>
<td>Registration Open</td>
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<tr>
<td>0800-0900</td>
<td>LivaNova</td>
<td>Larry Petree, Sr Marketing Manager at LivaNova/Cardiac Surgery</td>
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<tr>
<td>0900-0930</td>
<td>BREAK Exhibitors Ballroom</td>
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<tr>
<td>0930-0935</td>
<td>Opening Remarks in Queens Ballroom</td>
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<tr>
<td>0935-1020</td>
<td>The Ascent of Adult Extracorporeal Membrane Oxygenation (ECMO) in a Community Hospital</td>
<td>Gary Allen, MD, FACS, AdventHealth Waterman, Tavares, Florida</td>
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<tr>
<td>1020-1100</td>
<td>Improving Decreased Heater Cooler Efficiency as a Result of Heater Cooler Infection Control Strategy</td>
<td>Adam Blakey, CCP, VCU Health</td>
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<td>1100-1115</td>
<td>Personalized Platelet Function Assessment Using the TEG Coagulation Analyzer</td>
<td>Crystal Humes, Clinical Specialist, TEG</td>
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<td>1115-1130</td>
<td>Transonic Systems</td>
<td>Roger Delong, CP, PE, MBA, Clinical Specialist</td>
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<td>1130-1230</td>
<td>Lunch with Exhibitors Sponsored by Perfusion.com</td>
<td>Exhibitor Ballroom</td>
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<td>Time</td>
<td>Session Title</td>
<td>Presenter(s)</td>
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<td>1230-1315</td>
<td>ECPR Megacode Simulation in a Cardiac ICU with First Person Video Debriefing</td>
<td>Ashley Hodge, CCP, MBA, Associate Chief, Perfusion Services Cardiothoracic Surgery Quality and Safety Officer, Nationwide Children’s Hospital</td>
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<tr>
<td>1315-1400</td>
<td>Update on the Surgical Treatments for Atrial Fibrillation</td>
<td>Paul DiGiorgi, M.D. Lee Physician Group Cardiothoracic Surgery</td>
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<tr>
<td>1400-1445</td>
<td>Engagement of Cardiac Surgeons Needed to Alter the Opioid Crisis</td>
<td>Brian Hummel, MD, Lee Memorial Health System</td>
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<tr>
<td>1445-1550</td>
<td>The KBC Protocol – A Customized All-blood Answer to Single Dose Cardioplegia in Adults</td>
<td>Catherine Lunsford, CCP, WellStar Health System, Marietta, Georgia William Cooper, MD, WellStar Medical Group, Cardiovascular Surgery, Marietta, Georgia</td>
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<tr>
<td>1600-1700</td>
<td>QUEST MEDICAL WORKSHOP In Garden’s Ballroom</td>
<td>Featuring hors d’oeuvres, select wine &amp; beer</td>
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**Saturday, April 6th, 2019**

**Moderator- Susan Englert, RN, CCP, LP, CPBMT**

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<tr>
<td>0800-0900</td>
<td>Perfusion.com Breakfast Session: Accidents, Incidents, and Near-Misses</td>
<td>Michael Colligan, RN, MS, CCP</td>
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<tr>
<td>0900-0905</td>
<td>Opening Remarks in Queens Ballroom</td>
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<tr>
<td>0905-1005</td>
<td>Keynote Speaker Evolution of Cardiac Surgery</td>
<td>Basel Ramlawi, MD, MMSc, FACS, FACC, Chairman, Heart &amp; Vascular Center, Director, Advanced Valve &amp; Aortic Center, Valley Health System</td>
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<tr>
<td>1005-1100</td>
<td>Supply and Demand in the Perfusion Services Sector: 2019 Update</td>
<td>Michael Colligan, RN, MS, CCP</td>
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<tr>
<td>1100-1115</td>
<td>BREAK</td>
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<tr>
<td>1115-1230</td>
<td>Lunch Session in Queens Ballroom</td>
<td>Sponsored by Perfusion.com Professional Building Session The Job Applicant: What Private Companies Want to See</td>
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<td>1230-1400</td>
<td><strong>Ken Farmer Memorial Scholarship</strong></td>
<td>Benjamin Greenfield, MPS, LP, CCP Director of Recruitment and Retention, Perfusion.com, Associate Professor of Perfusion, The Nebraska Medical Center</td>
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<td>The Ken Farmer Scholarship is awarded to a perfusion student(s) who composes and presents an outstanding presentation for the upcoming Sanibel Perfusion Symposium meeting. This Scholarship will be in the amounts of $1500 dollars for 1st place, $1000 dollars for 2nd, $500 dollars for 3rd, $300 dollars for 4th &amp; $200 dollars for 5th.</td>
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<td>1230-1245</td>
<td><strong>Differences in Total Heparin Dose in Patients with Renal Insufficiency</strong></td>
<td>Rory Hall, Cardiovascular Perfusion Student, Quinnipiac University</td>
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<td>1245-1300</td>
<td><strong>Comparison of Hemosep and CATS in Washing Stored Packed Red Blood Cells</strong></td>
<td>Logan Abrams, Clinical Perfusion Student, University of Nebraska Medical Center (UNMC)</td>
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<td>1300-1315</td>
<td><strong>Effects of Retrograde Autologous Prime (RAP) on Transfusion for Cardiac Patient Undergoing Cardiopulmonary Bypass</strong></td>
<td>Swina Sunny, Cardiovascular Perfusion Student, NSUH-LIUP School of Cardiovascular Perfusion</td>
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<td>1315-1330</td>
<td><strong>Onset Venous Saturation as a Predictor for Oxygenation Control During CPB</strong></td>
<td>Robert Lorandini, MS degree candidate, NSUH-LIUP School of Cardiovascular Perfusion</td>
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<td>1330-1345</td>
<td><strong>Multiple approach to Mitral Valve Procedures on Perfusion Techniques</strong></td>
<td>Jessica Abellera, MS degree candidate, NSUH-LIUP School of Cardiovascular Perfusion</td>
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<td><strong>Benefits of Cell Washing of Donor Pack Cells Before Transfusion for Extracorporeal Circulation Poster Presentation in Exhibit Hall</strong></td>
<td>Heena Rana, NSUH-LIUO School of Cardiovascular Perfusion</td>
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SPEAKER EVALUATION & CERTIFICATE LINKS

Online Speaker Evaluations

Online CME Certificates

- CME Certificates will be available online approximately 2-3 weeks after the conference via the link above under your Perfusion.com member profile.
- Please complete your speaker evaluations using the link on this page of the booklet. Please do not rate any speaker that you did not observe.
- For additional conference details and instructions, please visit our website at www.sanibelsymposium.com
Faculty
Greetings Sanibel Symposium Guests!

I was born in Omaha, Nebraska and attended the University of Nebraska-Lincoln (Go Huskers!). In college, I first learned about perfusion while working as a phlebotomist at Bryan Memorial Hospital. After graduating from the University of Nebraska, I went on to the Texas Heart Institute to study Perfusion. I began Perfusion.com as a student project in 1995 while attending perfusion school in Houston, TX. After graduation, I moved to Ft. Myers, Florida to begin my career.

Presently, I reside and work in Ft. Myers, Florida as the owner of Perfusion.com, Inc. I serve on the board of directors for the Florida Perfusion Society, and I am involved in several other professional societies. I’m the one dressed in black in the front running the AV equipment and looking stressed.

PROFESSIONAL AFFILIATIONS & ACHIEVEMENTS

- Past Member, AmSECT Perioperative Blood Management Committee
- Past Director Zone 3, The American Society of Extracorporeal Technology
- Treasurer, Florida Perfusion Society 2009-Present
- Chairman, International Perfusion Association
- Board Member, Perfusion Research & Education Foundation 1996-2000
- Perfusion Director, Heart-to-Heart Mission 2004-Present
- Perfusionist of the Year, Nominee, AmSECT 2007
- Award of Excellence Nominee, AmSECT 2008, 2011
- Perfusionist of the Year, AmSECT 2009
- President’s Award, AmSECT 2012
Hi, my name is Iris J. Chacon. I was born in Honduras Central America. At the age of 14, my family moved to the United States where it was difficult to adjust as a teenager. I was unable to speak English and had to adjust to a different culture. I survived my first year of school and eventually finished High School. I enrolled at Loyola University, in New Orleans and graduated with a Biology degree and minor in both Chemistry and Psychology.

Soon after Loyola I went to Respiratory Therapy School and worked in the NICU at Ochsner Hospital. At Ochsner I was involved with ECMO patients and became interested in perfusion. I applied to the perfusion program at Ochsner Hospital in 1993 and was accepted in the program out of 100 applicants. After graduation, I moved to Gainesville, FL and have lived here for the past 12 years. My husband and I relocated to Texas for one year and decided to return to Florida where I began traveling for Perfusion.com.

Since then I have worked my way up the ladder becoming Vice President of Perfusion.com. I can sincerely say I have enjoyed every moment of this great adventure with Perfusion.com.
Ty Walker has been a pioneer and vocal advocate for blood management for the last 20 years. Ty has shared his research and ideas with the perfusion community at countless meetings throughout his career in perfusion. Recently, Ty’s institution (St. Francis Hospital, Columbus, GA) has received a PHA Quality and Patient Safety Award and the ITC Award for Patient Safety & Quality, directly because of Ty’s involvement in spearheading a blood management program. Ty currently works for Perfusion.com, Inc. in the role of Blood Management Director.

PROFESSIONAL AFFILIATIONS & ACHIEVEMENTS

- St. Francis Quality and Safety Storyboard Award, 2011
- Blood Management, 1st Place, Georgia Hospital Association’s PHA Patient Safety Summit, 2011
- AmSECT Award of Excellence Nominee, 2010
- Institute for Healthcare Improvement (IHI) National Forum, 2010
- Malcolm Baldrige National Quality Award, Committee Mbr, Baptist Hospital, 2004
- International Board of Blood Management 2009/Present
- American Board of Cardiovascular Perfusion, 1976-Present
- CV Service Line, St. Francis, 2011-Present
- Blood Management, St. Francis, 2010-Present
- President of Florida Perfusion Society, 2005-2007
I received my BSN from St. Mary of the Plains School of Nursing located in Wichita, Kansas. Given the opportunity to scrub and circulate on the CVOR team, I quickly fell in love with the perfusion profession and enrolled in the St. Mary of the Plains School of Perfusion. I continued working as a perfusionist for Via Christi Medical Center and Specialty Care. My 30 years of employment in the Wichita area came to an end when I transferred to Florida, with an opportunity of starting a brand new open-heart program and employed by Perfusion.com. In July 2013, I started a new adventure, my own company, Perfusion Services LLC. I am an international speaker with a major focus on patient safety, quality initiatives and total blood management based on evidence-based practices. I now enjoy traveling as a perfusionist to hospitals throughout the United States!

PROFESSIONAL AFFILIATIONS & ACHIEVEMENTS

- RUSH Adjunct Professor Cardiovascular Perfusion Program 2017-Present
- AmSECT Award of Excellence 2019
- AmSECT, President 2010-2012
- AmSECT Presidential Golden Gavel Award 2012
- AmSECT, Secretary 2014-2016
- Director International Board Blood Management 2010-2012
- AmSECT Foundation Board of Directors 2010-2012
- AmSECT Award of Excellence Nominee 2012, 2007, 2005
- AmSECT President’s Award 2010, 2006
- AmSECT Perfusionist of the Year 2008
- Baxter Perfusionist of the Year, Central Region 1999
- Past Kansas Practicing Perfusionist Society, KPPS, Secretary/Treasurer
- Past American Board of Cardiovascular Perfusion, ABCP, Oral Examiner
- President Association of Operating Room Nurses, AORN, #1701, 1985-1986
I was born in Lucca, Italy and grew up between Florence, Italy & Brussels, Belgium. I spent my childhood living in Belgium and Italy, and often traveled from England to North Africa. I attended The Brussels State Technical School for Electrical Engineering and lived in Belgium till the end of 1989.

I received my Nursing Degree from Edison College, and my Master of Health Care Administration from National-Louis University, Chicago.

I have more than 10 years of diverse leadership experience as a clinical/administrative manager, educator and perioperative nursing while promoting professional healthcare delivery, supported by progressive clinical coaching, and clinical/administrative staff development.
I was born and raised in St. Louis, Missouri and graduated with a BA from Washington University with a major in architectural design. I received my RN from Barnes Hospital, part of the Washington University Medical Center, where I worked in open heart surgery as a scrub and circulating nurse.

I graduated from Texas Heart Institute in 1988 and received a BS from the University of Texas in perfusion technology. I’ve worked in Southwest Florida as a perfusionist ever since and am currently employed as the Chief Human Resource Officer for Perfusion.com, Inc.

I’m a former executive board member of the Florida Perfusion Society and practice perfusion at HealthPark Medical Center and Naples Community Hospital. I’m a retired rugby player, advanced scuba diver, NRA instructor, and an avid golfer.
Mr. Springer is the founder of HEME Perfusion started in 2001 in Lincoln Nebraska where prior to the merger with Perfusion.com January 1\textsuperscript{st} of last 2018, was one of the most respected perfusion service providers in the Midwest.

Michael received his certificate in Perfusion Science from the University of Nebraska Medical Center in 1993. Prior to this he earned his Bachelors’ in Science in Bio-Psychology from Nebraska Wesleyan University where he played football and was an active member of the student body.

Michael enjoys substantial amounts of coffee, travel with his family, attending sporting events, and learning new non-perfusion skills on YouTube. He and wife of 25 years, Daria, live in Lincoln, Nebraska where they have 3 children, two daughters of which are in college and a son who is a sophomore in high school.

Michael is proud to be working alongside all the outstanding staff and partner hospitals in Perfusion.com and looks forward to the continued establishment one of the most dynamic and diverse perfusion service providers in the industry.
Ben Greenfield is from Aurora, Nebraska. He attended Nebraska Wesleyan University in Lincoln, Nebraska for his undergraduate degree (Biology and Chemistry). While at NWU he was a member of the basketball and golf teams as well as the Nebraska Wesleyan Chamber Choir. As an undergrad, he conducted breast cancer research at the University of Nebraska Medical Center in Omaha.

Ben received his Masters’ degree in Perfusion Science from UNMC in 2003. He has been employed at the Nebraska Heart Hospital and St. Elizabeth Hospital (Heme Management) in Lincoln and has performed over 3000 heart surgeries and over 2000 orthopedic and neurosurgeries. He is currently employed by Perfusion.com as the Director of Recruitment and Retention and as a Clinical Perfusionist. Ten years after graduation (2013), Ben was named UNMC’s most distinguished alumnus. In July, 2014 he was appointed as an associate professor of perfusion at UNMC as well as a clinical coordinator and liaison for potential perfusion students. In April, 2017, Ben was awarded the Excellence in Teaching award by the UNMC College of Medicine.

Ben has lobbied in the Nebraska Unicameral and currently sits as the government liaison for Perfusion in the Nebraska legislature. In 2008, as President of the Nebraska Perfusion Society, he helped to write the licensure law for perfusion for the state of Nebraska. He has also most recently been added to the State of Nebraska Board of Medicine and Surgery as a representative who will help oversee licensure proposals governing new health care specialties including radiation assistants, surgical first assistants, and nursing.

As a published author in both breast cancer research (UNMC) and Perfusion (UNMC) for his work using pharmacological agents and surface modifications on biocompatibility of the extra-corporeal circuit, Ben receives invitations to address audiences across the country about medicine, changing perfusion technology, and integration of a multidisciplinary approach to cardiac surgery.

Ben currently resides in Roca, Nebraska and is married to his wife Tarah. The couple has two children, Addison (11) and Evan (10). In his spare time Ben spends time as a guest speaker on positivity and perspective in the face of adversity. He also enjoys outdoor activities such as hunting and fishing as well as playing the guitar, ukulele, and singing in a band aptly named SynkopE.
## Wednesday, April 3rd, 2019

**Moderator:** Ty Walker, CCP, CPBMT

<table>
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<tr>
<th>Time</th>
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<tr>
<td>0700-1500</td>
<td>Registration Open</td>
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<tr>
<td>0700-2000</td>
<td>Exhibitor Setup in Royal &amp; Sabal Ballrooms</td>
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<td>0800-0900</td>
<td><strong>Essential Pharmaceuticals</strong></td>
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<td>Breakfast Session in Queens Ballroom</td>
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<td>Cardioplegia Update: Long-term Efficacy and Cellular Impact</td>
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**Bio:** Kevin McCusker Ph.D., CCP, Assistant Professor of Surgery, New York Medical College, Valhalla, New York

Serdar Gunaydin, MD, PhD, Chair & Clinical Professor, Department of Cardiovascular Surgery, Numune Training & Research Hospital, University of Health Sciences, Ankara-Turkey

**Bio:** Dr. Gunaydin received his cardiac surgical training in Turkey, England, and the Netherlands and worked as a clinical fellow in Heinrich Heine University in Dusseldorf-Germany and the Heart Institute of Japan. He studied histology and embryology for three years and completed his PhD in Tissue Engineering and Biomaterial Science at Tokyo University.

Dr. Gunaydin currently serves as director of department of cardiovascular surgery in Numune Training and Research Hospital, Ankara-Turkey. He is chief of basic sciences subcommittee, Turkish Society of Cardiovascular Surgery and also a member of the Steering Committee for Minimally Invasive Extracorporeal Technology International Society (MiECTIS).

Dr. Gunaydin’s main research interests are clinical evaluation and biomaterial confirmation of novel cardiopulmonary bypass-related technologies based on the
Abstract: Adequate myocardial protection during cardiac surgery is essential to successful clinical outcomes. Despite a multitude of commercially available cardioplegic solutions, no clear consensus has been reached on the optimal composition or technique for using them. Heterogeneity in delivery temperature, dosing frequency, and substrate composition makes it difficult to evaluate these solutions in a clinical setting. There is momentum to incorporate myoprotective methods that extend the safe ischemic time, reducing the need for cardioplegia re-dosing. These techniques increase the time between dosing, which may lower cross-clamp times and, ultimately, the time on CPB, both of which are linked to improved outcomes. This is especially attractive in patients with valvular lesions where the administration of cardioplegia may require the use of specialized delivery cannulae or obscures the operative field, extending ischemic time. When minimally invasive techniques are employed, there is limited access to the coronary anatomy which reduces access for delivery and makes repeated dosing difficult. Such challenges have led to an evaluation of a newer generation of cardioplegic solution. Single dose cardioplegic techniques offer comfortable conditions but extending the adjunct myocardial preservation further is a major question. Different randomized controlled trials did comparison to conventional techniques in the context of traditional cardiac surgery but no specific data are available for different single dose techniques and modes of cardiac surgery.

We did a series of experimental and clinical research for comparison of currently available single-dose and conventional techniques. We tested the impact on cell viability and integrity to demonstrate long-term cardioprotection and clarify whether these solutions were acting better on neonatal/adult endothelium or myocardium examining different cell lines. We also compared different cardioplegia techniques based on early and 30-day clinical outcome via thorough monitoring of cardioprotection in a clinical setting. We did comparisons of early and late clinical outcomes for CABG, minimally invasive valve, pediatric and complex cardiac surgery population. We have performed a series of clinical and experimental research on endothelial glycocalyx (EG) and CPB recently. We aimed to compare plasma levels of syndecan-1, a biomarker of EG integrity, in patients undergoing minimally invasive valve surgery with either Del Nido or HTK cardioplegia verified by cell culture of myocardial cells. We also documented the impact of excessive transfusion on EG. Given its importance, protection of the EG is undoubtedly a promising future target in cardiac operations. Our data underlines the impact of current protection techniques on cellular function. A possible association between elevated syndecan-1 levels and postoperative complications needs to be clarified in larger studies.

Myocardial preservation is a concept without clear and specific clinical signs. Especially long-term outcomes have not been studied in detail. Our data underlines the importance of long-term efficacy of cardioplegic techniques which becomes more prominent in high-risk patients who have truly a chance to benefit from adjunct cardioprotection.
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<th>Time</th>
<th>Session</th>
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<tr>
<td>0900-0910</td>
<td><strong>Opening Remarks in Queens Ballroom</strong></td>
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<td>0910-0945</td>
<td><strong>VA-ECMO as Bridge to Heart Transplant: A Brave New World?</strong></td>
<td>Michael Harper, MD</td>
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<td><strong>Bio:</strong> Dr. Harper currently works at the INTEGRIS Baptist Medical</td>
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<td>Center’s Nazih Zuhdi Transplant Institute/Institute for Advanced</td>
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<td>Cardiac Care as an Intensivist in the transplant and MCS intensive care</td>
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<td></td>
<td>units. He is part of an active acute and long-term MCS program as well</td>
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<td></td>
<td>as the solid organ transplant programs. Interests include research into</td>
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<td>microvascular perfusion and recruitment in shock states, mobile</td>
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<td>ECMO, and eCPR.</td>
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<td><strong>Abstract:</strong> In light of the new UNOS heart allocation system heart</td>
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<td>transplant off of VA-ECMO is anticipated to increase. We will review the</td>
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<td>current data pertaining to the utilization of veno-arterial ECMO as</td>
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<td>bridge to orthotopic heart transplant. Topics covered will include</td>
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<td>immediate complications surrounding transplant (bleeding, primary graft</td>
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<td>dysfunction, etc) and limitations around the use of VA-ECMO in this</td>
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<td>setting.</td>
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<td>0945-1015</td>
<td><strong>The ECMO Evolution: What’s a Clinician to Do? Common Issues of ECMO</strong></td>
<td>William Harris, CCP</td>
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<td>that Need to be Understood Now**</td>
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<td><strong>Bio:</strong> William E. Harris is the Director of ECLS Services for</td>
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<td>Perfusion.com.</td>
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<td>After completing his undergraduate degree at the Ohio Wesleyan</td>
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<td>University concentrating in biology and chemistry, he attended The Ohio</td>
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<td>State University school of Extracorporeal Technology. After then</td>
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<td>completing a year-long perfusion fellowship at the Emory University</td>
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<td>Medical System, Mr. Harris was employed for over 32 years at the</td>
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<td>Ochsner Medical System as a Perfusionist in New Orleans where he was</td>
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<td>an Assistant Director, a clinical and didactic instructor for the</td>
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<td>Ochsner School of Perfusion as well as the SUNY Perfusion programs. Mr.</td>
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<td>Harris was instrumental in the development of the Ochsner ECMO program</td>
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<td></td>
<td>since 1984 until his departure in 2015. His appointments have included</td>
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<td>the AmSECT/ELSO Liaison for over 14 years and the Chair and member of</td>
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<td>the ELSO Device and Techniques Committee. He is a member of the AACP and</td>
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<td></td>
<td>the AMSECT societies. Mr. Harris is often seen on Film, Television, and</td>
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<td></td>
<td>commercials as an actor, which has been one of his hobbies for over 10</td>
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<td><strong>Abstract:</strong> From the earliest years in the 70’s and before, Extra-Corporeal Membrane Oxygenation (ECMO, ECLS) has now evolved into an accepted standard of care for all age populations by various physician specialties and health care professionals. Because of this burgeoning worldwide usage, individual programs have had to explore creative strategies to address the increased staffing requirements and the purchasing of additional</td>
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equipment to fill this need. Fortunately, several manufacturers have jumped into a now relatively lucrative market offering options for programs in equipment choice. But staffing evolution continues to be problematic. In this presentation, several actual hybrid-staffing models will be discussed with the hope that many programs could incorporate an example to alleviate shortages.

While personally visiting many ECMO programs, I do believe that Veno-Venous ECMO continues to be misunderstood by many practitioners. Unfortunately, morbidity and mortality incidences often increase due to certain confusions and mismanagement. In the second half of this presentation, various misconceptions of VV ECMO will be noted with the intention of promoting patient care improvements. Cannulation techniques, calculated flows, adequate oxygen delivery, fluid management, blood composition, and monitoring techniques will be entertained.

1015-1025 BREAK

1025-1055 ECMO as Primary Tx for Respiratory Failure- How far are we? Touch on mechanical ventilation heavily
Keith Scott, MD

Bio: Dr. L Keith Scott is an adult and pediatric intensivist and director of the SICU at LSU Health in Shreveport. Dr. Scott has particular expertise in ECMO having performed that procedure for more than 20 years. Also, he is former Chief of the CVICU at Wake Forest University. Currently he is Professor of Pediatrics, Surgery and Medicine at LSU Health. Dr. Scott also holds a master’s degree in Global Health and infectious Diseases from the University of Edinburgh and is active in developing ICU care models in Haiti and parts of rural Africa.

Abstract: Once a patient is on ECMO, what do you do with mechanical ventilation? This talk will discuss evidence and current consensus on the management of mechanical ventilation once on ECMO. Topics to be discussed:
- Control vs Spont vent strategies
- Sedation Strategy
- Should you use more ECMO support or more vent support during weaning

1055-1155 The Evolution of ECLS
Farzad Najam, MD, Director of Cardiac Surgery, The George Washington University Hospital
Elsayed Abo-Salem, MD, Interventional Cardiologist, St. Louis University Hospital
Perfusionist TBD
Bio: Farzad Najam, MD, serves as the Director of Cardiac Surgery and an Associate Clinical Professor of Surgery at The George Washington University Hospital. He is board certified in Thoracic Surgery. He specializes in cardiac surgery and has expertise in mitral valve repair surgery, surgery for atrial fibrillation, valvular heart disease, thoracic aortic diseases, Transcatheter aortic valve replacement (TAVR) and Extracorporeal Membrane Oxygenation (ECMO). Dr. Najam earned his Bachelor of Medicine and Bachelor of Surgery degrees in 1991 from King Edward Medical College in Pakistan. He attended the Brooklyn Hospital Center/New York University where he was an intern and a second-year resident in surgery. He completed a residency in surgery at Morristown Memorial Hospital/UMDNJ in New Jersey, where he served as a senior resident in general surgery, later becoming chief resident. He served as chief resident of cardiothoracic surgery at The George Washington University Medical Center and was later named chief resident at the Cleveland Clinic Foundation’s Department of Thoracic and Cardiovascular Surgery. In addition, he participated in fellowships in cardiovascular surgery at the Children’s National Medical Center and the Veterans Affairs Medical Center in Washington, DC. From 2002-04, Dr. Najam practiced as a Clinical Associate in the Department of Thoracic and Cardiovascular Surgery at the Cleveland Clinic Foundation. He is a fellow of the American College of Surgeons. Dr. Najam was the recipient of the Colonel Abid Hussain Gold Medal. He also received the Ames L. Filippone Jr., MD Chairman’s Award in Surgery from Morristown Memorial Hospital. Dr. Najam’s book “Robotic Surgery” was awarded the Book of the year award by the British Medical Association in 2009. He has been named the Washingtonian Top Doctor in the field of Cardiac Surgery by his peers in 2012, 2014 and 2015. Dr. Najam has conducted numerous oral presentations, both at the national and international level. His professional memberships include the Society of Thoracic Surgeons and the Cardiothoracic Surgery Network. He is also a diplomat of the American Board of Thoracic Surgery.

Bio: Dr. Elsayed Abo-Salem attended medical school at University of Mansura, Egypt. His Fellowships were at University of Cincinnati College of Medicine, University of Mansura, Egypt and Residency at Texas Tech University School of Medicine. He is certified by the American Board of Internal Medicine (Cardiovascular Disease) and American Board of Internal Medicine (Internal Medicine).

1155-1300 LivaNova TandemLife WORKSHOP – In Gardens Ballroom
Lunch will be sponsored by TandumLife in Exhibitors Ballroom

1300-1330 Hypoxia in spite of ECMO- “What do you do when Qb runs out?”
Steve Conrad, MD
Bio: Steven Conrad, MD PhD, MCCM is the Ike Muslow Endowed Chair of Clinical Informatics and Professor of Internal Medicine, Pediatrics, Emergency Medicine and Surgery at Louisiana State University Health Sciences Center – Shreveport. His clinical practice includes adult and pediatric critical care and emergency medicine. His research interest is in computational modeling of artificial organs.

Dr. Conrad is Director of the Extracorporeal Life Support Program at University Health System in Shreveport, LA. He established the ECLS program in 1993, and expanded it to include adult, pediatric and neonatal support, as well as continuous renal replacement and plasma therapies. He has authored numerous peer-reviewed publications and textbook chapters on ECLS. He is a past president of ELSO, and has served on its Steering Committee for a number of years.

Abstract: Venovenous extracorporeal membrane oxygenation (ECMO) is used to support patients with hypoxemia due to severe respiratory failure. However, hypoxemia can persist during VV ECMO. If tissue oxygen delivery is maintained, mild to moderate hypoxemia will be well tolerated, but if tissue hypoxia develops, then the cause of hypoxemia must be addressed and corrected. During VV support for respiratory failure, hypoxemia is global, with all tissues receiving hypoxemic blood. Adequate oxygen saturation on VV ECMO requires adequate hemoglobin, a membrane lung operating below its rated flow, low recirculation, and extracorporeal circuit flow that captures a large fraction of the cardiac output. The approach to hypoxemia during VV ECMO includes addressing each of these. Identifying and limiting recirculation will improve effective extracorporeal flow. Anemia has two detrimental effects. First, it limits oxygen transfer through the membrane lung. Second, it increases oxygen extraction resulting in low mixed venous oxygen saturation that increases the effective venous admixture with circuit blood. Transfusion to near normal levels will help improve oxygen saturation. Increasing effective extracorporeal flow to capture at least 60% of the cardiac output is necessary. If the extracorporeal flow fraction is less than 60% due to an increased cardiac output, then reducing cardiac output through reducing exogenous catecholamines, use of beta blockade, or hypothermia may help improve the extracorporeal flow fraction. Hypothermia has the added benefit of reducing oxygen consumption and therefore improving mixed venous saturation. A final option is to leverage gas exchange through the native lungs, such as through prone positioning, as long as lung protective strategies can be maintained.

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<th>1330-1400</th>
<th>Simulation in Education-Why is this important to the Perfusionist</th>
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<td>Jeffrey B. Riley MHPE, CCP</td>
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Bio: Jeffrey B. Riley is an internationally renowned cardiovascular perfusionist, expert clinician, educator, consultant, and editor. Jeff has managed clinical teams and directed perfusion technology education programs at several major academic healthcare centers and in the private sector. Jeff is an award-winning author with more than 100 peer-reviewed publications focusing on quality management, perfusion education, simulation, and original research topics in clinical extracorporeal technology. Mr. Riley was graduated from the first formal perfusion education program in the United States and has given back to the perfusion profession through his leadership roles in national professional organizations and the education of hundreds of perfusionists, representatives from industry, nurses, and physicians. Jeff most recently served as system chief perfusionist and ECMO co-coordinator at University Hospitals Cleveland Medical Center. Prior to Cleveland, Jeff practiced at the Mayo Clinic in Rochester Minnesota as the Perfusion Work Group Director and ECMO Co-Coodinator. Jeff served the American Society of Extracorporeal Technology as the President from 2014 to 2016 and in 2012 was recently named one of 36 Pioneers in Perfusion at AmSECT’s 50th Anniversary International Conference. Currently Jeff is a Research Associate Professor at SUNY Upstate Cardiovascular Perfusion program and the Science Officer for Biomedical Simulations, Inc.

Abstract: Simulation in perfusion education is important to decrease risk to patients and complete most of the fundamental training in the preclinical phase of education. Perfusion students should be competent in basic procedure skills prior to clinical preceptorships. Practicing perfusionists should be able to master specific technique-related competencies prior to performing the technique on live patients. High fidelity simulation allows educators and clinicians to accomplish these two goals. High-risk, low-frequency procedure techniques are best practiced by perfusionists between low frequency clinical events. Deep hypothermia with exsanguination, and ECMO-related procedure techniques are examples of high-risk, low-frequency procedures that benefit from practice especially when the use of these procedures is low. Some
Perfusion teams and many ECMO teams have policies to maintain clinician competencies using simulation when patient contact hours are low. ELSO guidelines call for specialist remediation between ECMO patients especially when specialist-patient circuit contact hours are low. Perfusionists, physicians, residents, and others would benefit from similar guidelines. Currently there are no guidelines for the use of simulation for cardiovascular perfusion teams.

The American Board of CV Perfusion, American Society of Extracorporeal Technology, American Academy of CV Perfusion, Extracorporeal Life Support Organization, and the Perfusion Program Directors Council are advocating standards and guidelines for high-fidelity extracorporeal simulation. The ABCP is recognizing a growing list of facilities to provide standardized perfusion procedures that qualify for cases for Certified Clinical Perfusionist recertification.

Most all US perfusion education programs have acquired perfusion simulators and are incorporating simulation into their curricula for the sole purpose of incorporating the system approach in training. How long will it take for cardiac surgical teams to incorporate the use of simulation as part of their culture? There is an explosion of information and studies regarding the clinical use of simulation that cannot go ignored in Perfusion practice. Of course, simulation and the use of wet-labs are being rapidly adopted by ECMO teams, which is proving beneficial in the current rapid-adoption phase of ECMO.

**1400-1430**

**Why VV ECMO must be looked at differently as oxygen content and less as flow and concerns for pO2 or O2 saturations by pulse oximetry Registry- “Why the effort is worth it!”**

Robert Bartlett, MD

Bio: Dr Robert Bartlett developed extracorporeal life support (ECLS) from the laboratory through the first successful clinical trials to routine practice worldwide. ECLS has led to new understanding of the pathophysiology of renal, cardiac, and pulmonary failure which provides the basis for much of modern critical care. Dr. Bartlett is a founding member of the Extracorporeal Life Support Organization (ELSO). His work has been recognized by awards from the American College of Surgeons, American Academy of Pediatrics, American Pediatric Surgery Association, Society of Critical Care Medicine and membership in the National Academy of Medicine. Dr Bartlett continues laboratory and clinical research at the University of Michigan where he is Professor of Surgery, Emeritus.

Abstract: "The goal of ECMO is to maintain normal oxygen delivery at 3-5X oxygen consumption. With ECMO we can control the variables (arterial oxygen content and cardiac output). We can measure the DO2:VO2 ratio as ECMO drainage (mixed venous) saturation. PaO2 or SaO2 are not goals of ECMO."
ECMO requires a lot of time, work, understanding, and personal involvement. Each day and each patient is a life and death balance. Is it worth it?

1430-1445  Panel Discussion - “It’s worth the effort”

1445-1500  BREAK

1500-1515  Essential Pharmaceuticals
Custodiol HTK...What’s in that stuff?
William Nicotra, CCP, LP, Medical Science Liaison

Abstract: Custodiol HTK is a complex myocardial preservation solution developed by Dr. Bretschneider. The solution is comprised of multiple components formulated specifically to protect and preserve the heart. Each of these components will be discussed in detail with supporting scientific documentation.

1515-1550  Perioperative Utilization of Viscoelastic Hemostasis Monitoring in Cardiothoracic Surgery
Joe Deily, PA, Cardiothoracic Surgery Physician Assistant, Shipley Cardiothoracic Center, Healthpark Medical Center

Bio: Mr. Deily completed his Undergraduate Bachelor's Degree at St. Joseph's University in Philadelphia. He then completed his Master’s Degree at Quinnipiac University's Physician Assistant Program in Connecticut. Mr. Deily has been a full-time Cardiothoracic PA since 2000. He has traveled to numerous countries to train surgeons, residents, perfusionists, and other health care providers in vessel harvesting. He has lectured on numerous topics at different cardiac conferences, and currently works at the Shipley Cardiothoracic Center in Fort Myers. Abstract: Thromboelastography can be used to help guide blood transfusion management in patients with coagulopathies after heart surgery. Platelet mapping can help determine a patient's risk of bleeding when undergoing surgery, as well as optimize the timing of surgery. A discussion of how TEG can be used in the perioperative setting will be reviewed in detail.
1600-1700  Haemonetics Workshop - In Gardens Ballroom
Featuring hors d’oeuvres, select wine & beer sponsored by Haemonetics

1730-1900  Shark Tank Aqualung &/or ECMO
Featuring Dr. L Keith Scott, Professor of Pediatrics, Surgery & Medicine LSU Health

Bio: Dr. L Keith Scott is an adult and pediatric intensivist and director of the SICU at LSU Health in Shreveport. Dr. Scott has particular expertise in ECMO having performed that procedure for more than 20 years. Also, he is former Chief of the CVICU at Wake Forest University. Currently he is Professor of Pediatrics, Surgery and Medicine at LSU Health. Dr. Scott also holds a master degree in Global Health and infectious Diseases from the University of Edinburgh and is active in developing ICU care models in Haiti and parts of rural Africa.

QUESTIONS FOR THE AUDIENCE?

1. Should perfusionist be actively involved in all ECMO cases or just in a consulting role?
2. Should non-CV surgery institutions perform ECMO (VV or VA)?
3. Should all ECMO fall under the prevue of the perfusionist?
4. Can ECMO and other extracorporeal technologies (ECCO2R etc) grow without perfusionist support?
5. How do you see yourself or the profession (Perfusionist) in 10, 15, 20 years?
6. Is there a role for e-perfusion in the near future concerning ECMO or other extracorporeal technologies?

(Located at the pool adjacent to yacht & hammocks)

Thursday, April 4th, 2019
Moderator-Ty Walker, CCP, CPBMT

0700-1500  Registration Open

0800-0900  TERUMO CARDIOVASCULAR GROUP
Breakfast Session in Queens Ballroom:
The Evolution of Continuous Inline Blood Gas Monitoring - the CDI-550
David Fallen, CCP Emeritus Director of Clinical Support for Perfusion Products

Bio: 2005 - current - Director of Clinical Support for Perfusion Products, Terumo Cardiovascular Group
1988 - 2005 - Perfusion Manager, Asheville Cardiovascular and Thoracic Surgeons, (now Asheville Heart), Asheville, North Carolina
1982 - 1988 - Staff Perfusionist and Clinical Instructor, Shadyside Hospital Pittsburgh, PA
1981 - 1982 - Shadyside Hospital School of Cardiovascular Perfusion - Certificate program

Abstract: The CDI continuous inline blood gas monitoring technology has a long history of product improvements that, over the years, have made the system more user-friendly while providing highly reproducible results. As procedures and patients have become more challenging, the need for continuous monitoring of a wide range of patient information has been recognized as vital in achieving Goal Directed Perfusion (GDP) targets and for the development of strategies and patient care protocols. Over the past 14 years, a great body of research has been generated supporting the importance of metabolic monitoring to assure that minimum oxygen delivery requirements are being obtained through the development of oxygen delivery guidelines or DO2 guidelines. Acute Kidney Injury has been identified as a marker of inadequate oxygen delivery and the cause of significant patient morbidity and associated significant hospital costs. This presentation will provide supporting data in regards to morbidity rates and the cost of treatment of what can be a preventable occurrence. The CDI-550 is now able to provide a continuous indexed DO2 value to help you achieve your GDP goals for the patients you treat every day.

0900-0905 Opening Remarks in Queen’s Ballroom

0905-0940 The Challenge of Timing during Arrhythmia: Implementation of New Real Time Methods
Kacey Dee, Clinical Lead, Teleflex

Bio: Cardiac Nurse of 18 years with a background in CTICU, including heart and lung transplant, MCS management and organ procurement. Past Industry experience with hemostatic patch sales and the last 10 years with Teleflex Interventional Capital Division. Currently holds a dual role in managing a defined territory and the Clinical Specialist team that oversees US and Canadian IABP clinical/sales support.

Abstract: IABP has been a well-established therapy for compromised LV performance for almost 50 years. The main effects of the IABP occur due to volume displacement using the principle of Counterpulsation. When the IABP is correctly synchronized to the cardiac cycle, it should result in afterload reduction and diastolic augmentation, which may enhance coronary and systemic perfusion. Patients in heart failure and other conditions seen today are prone to arrhythmia, which produces unknown and potentially detrimental effects on the LV. New studies demonstrate how IABP timing effects LV performance from the Pressure/Volume plane. These findings will be reviewed to enhance clinical knowledge of the benefits of correct timing and the possible negative effects of timing errors. A new timing method for intra-beat inflation will be presented along with the results from clinical study of this method in Cardiac surgery patients.
1010-1050 Standards, Guidelines and Registries: Optimizing Perfusion Practice in a Value-Based Healthcare System

David Fitzgerald, MPH, CCP, Clinical Coordinator College of Health Professions, CVP Program Medical University of South Carolina

Bio: Dave Fitzgerald is an instructor and clinical coordinator for the Cardiovascular Perfusion (CVP) program at the Medical University of South Carolina in Charleston. Prior to his tenure at MUSC, he was the Director of Perfusion Services for the INOVA Fairfax Hospital in Falls Church, VA. Dave’s area of interest in perfusion education include blood management, patient safety and human factors, and high-fidelity simulation. Dave has volunteered in several perfusion organizations, including several committees and elected board positions. He has previously served AmSECT as President, Zone Director and Committee Chair for the AmSECT Safety Committee. He still enjoys serving the society on the ICEBP, Safety, and Conventional Planning Committee Groups. Outside of perfusion, Dave enjoys his time at home with his wife Susie, three children (Connor, Casey, and Chloe), and two dogs (Cody and Callie). The family enjoys hiking, spending time at the beach, and trying new restaurants in Charleston.

Abstract: The National Academy of Medicine (formerly the Institute of Medicine) defines Quality as “The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional practice.” Despite this definition, quality may be tough to observe and measure in a clinical setting. Dr. Avedis Donabedian, viewed by many to be the father of quality, further describe the theoretical underpinnings of clinical quality. He posed that quality can be supported by three pillars- structure, process and outcomes. Structure can be defined as elements that comprise the environment of care. These include the equipment, team members, space and available resources. The process describes how care is delivered to patients. The process is guided by professional standards and guidelines, clinical practice guidelines, and institutional policies and procedures. The outcomes help clinicians measure whether the treatment delivered to patients produces the desired effect. We quantify outcomes using tools such as quality reports and outcome registries.

Perfusionists are key stakeholders in optimizing quality in a cardiothoracic surgical service line. Many of the aforementioned tools are currently available an supported by perfusion organizations. The learning objectives for this presentation are as follows:

- Discuss the evolution of healthcare delivery in the United States.
- Describe the pillars of quality in contemporary healthcare systems.
- Describe how practicing perfusionists can use these tools to optimize the quality and safety of service delivered to patients.


**1050-1130**  
**Therapeutic Plasma Exchange in post-CABG Vasoplegia**  
L. Keith Scott MD MSc FCCM, Professor of Pediatrics, Surgery & Medicine, Louisiana State University Health

Bio: Dr. L Keith Scott is an adult and pediatric intensivist and director of the SICU at LSU Health in Shreveport. Dr. Scott has particular expertise in ECMO having performed that procedure for more than 20 years. Also, he is former Chief of the CVICU at Wake Forest University. Currently he is Professor of Pediatrics, Surgery and Medicine at LSU Health. Dr. Scott also holds a master degree in Global Health and infectious Diseases from the University of Edinburgh and is active in developing ICU care models in Haiti and parts of rural Africa.

Abstract: is an uncommon event post-CABG but when it occurs, the resultant hypotension can lead to subsequent organ failure. This can result in longer ICU stay, need for renal replacement therapy and higher mortality. Therapeutic Plasma Exchange has been used in the acute treatment of post-CABG vasoplegia. Will discuss the basic physiology of vasoplegia and further discuss our institutions and others experience that have used TPE for cardiovasodilatory shock and discuss a future study.

**1130-1225**  
**Keynote Address**  
“The Sky is Falling” [Chicken Little]  
Jeffrey B. Riley MHPE, CCP

Bio: Jeffrey B. Riley is an internationally renowned cardiovascular perfusionist, expert clinician, educator, consultant, and editor. Jeff has managed clinical teams and directed perfusion technology education programs at several major academic healthcare centers and in the private sector. Jeff is an award-winning author with more than 100 peer-reviewed publications focusing on quality management, perfusion education, simulation, and original research topics in clinical extracorporeal technology. Mr. Riley was graduated from the first formal perfusion education program in the United States and has given back to the perfusion profession through his leadership roles in national professional organizations and the education of hundreds of perfusionists,
representatives from industry, nurses, and physicians. Jeff most recently served as system chief perfusionist and ECMO co-coordinator at University Hospitals Cleveland Medical Center. Prior to Cleveland, Jeff practiced at the Mayo Clinic in Rochester Minnesota as the Perfusion Work Group Director and ECMO Co-Coordinator. Jeff served the American Society of Extracorporeal Technology as the President from 2014 to 2016 and in 2012 was recently named one of 36 Pioneers in Perfusion at AmSECT’s 50th Anniversary International Conference. Currently Jeff is a Research Associate Professor at SUNY Upstate Cardiovascular Perfusion program and the Science Officer for Biomedical Simulations, Inc.

Abstract: Occasionally it feels like the sky is falling and we feel paranoid. In an early version of the Chicken-Little parable, CL was struck by an acorn and concluded the sky was falling. CL and his friends went on a journey to tell the king. Most versions of the Chicken Little story warn about paranoia and mass hysteria. In multiple versions of the story the message to be gleaned changes, depending on the theme. Where there is a happy ending, the message is not to be a chicken but to have courage! In other versions where the birds during their journey are eaten by the clever fox, the fable is interpreted as admonishment not to believe everything one is told. What has fallen from the sky in the last few years and hit perfusionists in the head? What has been our response? Paranoia, hysteria or positive action? Here are the falling sky issues that Perfusion needs to address as a health care profession.

<table>
<thead>
<tr>
<th>The sky is falling</th>
<th>Paranoia / Hysteria</th>
<th>Reaction / Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfusionist shortage; Cardiac surgeon shortage</td>
<td>Compensation inflation; Sign-on bonuses; Lowering reimbursement</td>
<td>Retiring perfusionists and surgeons; Train more perfusionists and surgeons; Decrease perfusionist scope of practice</td>
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<tr>
<td>Lack of leaders</td>
<td>Minimal succession planning</td>
<td>Investment in leadership training and mentorship</td>
</tr>
<tr>
<td>Lack of professionalism</td>
<td>Contract perfusion industry influence</td>
<td>Decreasing membership in perfusion professional societies</td>
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<td>Poor compliance with evidence-based standards of care</td>
<td>Not ready for accrediting agency surveys?</td>
<td>Fly below the radar; Depend on other team members; Professional org strategic planning</td>
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<tr>
<td>Lack of educators</td>
<td>Where are our future teachers going to come from?</td>
<td>Perfusion Program Directors Council actions; Use more simulation for basic education</td>
</tr>
<tr>
<td>Caregiver burnout is prevalent</td>
<td>Ethical challenges and kick-backs; Shrinking scope of practice</td>
<td>Local chief perfusionist / supervisor leadership</td>
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Workforce demographic changes are changing us  
Younger; Gender shift; Expectations  
Change the way we manage perfusion teams  
Technology / cybersecurity is overwhelming  
Cannot keep pace with flood of information  
Include continuous learning as part of team behaviors

Despite the easy conclusion that some days our sky is falling, there are numerous positive actions being taken to hold up the sky. We depend, sometimes unwittingly, on our professional organizations (.orgs) and the Perfusion education program directors despite the minimal support they receive from our rank and file. Where the Perfusion profession has successfully kept the sky from falling, we have used information, group assessment / planning, and effective communication.

What can you do when the sky seems to be falling? You will see your professional role clearly.

Sanibel 2019: Mr. Jeff Riley MHPE, CCP  rileyjb@gmail.com

1225-1325  
Lunch with Exhibitors Sponsored by Perfusion.com
Exhibitor Ballroom

1325-1405  
Perfusion Leadership
Susan J. Englert, RN CNOR, CPBMT, CCP, LP, Sanibel Symposium Coordinator

Bio: Susan Englert is President of Perfusion Services LLC. Her focus is patient safety, quality initiatives and total blood management based on evidence-based practices. She is Past President of AmSECT, Past International Board of Directors of Perioperative Blood Management Technologist and Past President of Association of Operating Room Nurses. She is AmSECT Safety Committee Chair and recently awarded AmSECT 2019 Award of Excellence. She is also an Adjunct Professor at RUSH Cardiovascular Perfusion and an international speaker with interests in research and publications. Lead By Example.........

Abstract: According to the Department of Labor in 1948, only 28.6% (17 million) of the workforce were made up of females who were working outside the home in 1948. Currently, there are 74.6 million (46.8%) of females working outside the home. Another interesting current statistic is that 63.1% of females who are in the workforce have a child or children under 3 years of age. In addition 75% of females in the labor force have children who are aged 6-17 years of age.
Since our current focus here is on Certified Clinical Perfusionists, out of the entire workforce, females comprise only 46.8% of the workforce, whereas 38% of the workforce accounts for Clinical Perfusionists in the United States.³

In the fourth quarter of 2018, a survey (SurveyMonkey.com) was conducted and made available to all CCP’s on perflist and perfmail. There were approximately 3200 surveys distributed via email with 262 responses (8.2%). These surveys were distributed to both males and females over a broad spectrum of staff members who are Certified Clinical Perfusionists (CCPs), chief perfusionists and program directors in the United States.

Although our sample size was small based on the rate of returned surveys (8.2%) returned results indicated that a total of 35% of males who were CCPs have wives or partners who stay at home with their children, while 30% of female CCPs have to use some sort of daycare for their children. While 35% of males are not active or cannot volunteer for their children’s extracurricular activities, 45% of females believe they cannot be active in their activities due to interference from their careers. The overwhelming majority of females (65%) have serious concerns about work-life balance, while only 40% of males did. Within the workplace, 40% of females felt they had to try harder to get people to listen to their guidance, while 75% of males felt that females did not have to work harder to get people to listen to them.

The gender pay gap is a reality for most females. In the U.S., American females makes 80% of what American males make in a year.⁴ In this survey, an overwhelming number of females believe they make less than their male counterparts, and 70% are unsure if they do. Eighty-seven percent of males believe that females are compensated equally as males or are unsure.

Although the trend lines are showing that females are making great gains in the workplace, compensation packages and management in the perfusion field, it also shows that there is an attitudinal difference between how females view their obstacles and how males view female’s obstacles. Females feel like there is a pay gap, fewer management opportunities and gender bias within the workplace, while a lot of men feel that there is no pay gap and do not feel there is any bias within the workplace.

I will compare the survey results of each gender in our field of perfusion to see if they are perceived as gender-related or job-related.


2. “Angela Young (Not Verified).” 12 Stats About Working Women, blog.dol.gov/2017/03/01/12-stats-about-working-women.
Applying High Reliability Organization Principles to Your Perfusion Department and Cardiac Team

Dr. Tony Shackelford MHA, DHA, CCP, CCT, Chief Perfusionist – Perfusion
Medical University of South Carolina, Charleston South Carolina

Bio: I have been a perfusionist for over 28 years and have worked in a variety of healthcare settings. I am currently the Chief Perfusionist at the Medical University of South Carolina (MUSC). Received Doctorate in Health Administration in 2009. My core interests and strengths are in Strategic Planning and Operation Management, Operating Room Design (specifically Cardiac Operating Rooms), Quality Assurance/Improvement and most importantly improving patient safety via human factor analysis. Prior to 2013, along with clinically practicing, I was an active Assistant Professor for 11 years at MUSC’s Perfusion School, didactically and clinically teaching and conducting research. While there I actively served on the College of Health Professions’ various committees and served as President of Faculty Assembly in 2011-2012. I remain an adjunct assistant professor at the College Health Profession teaching the Foundations in Leadership for Doctor of Health Administration-Interprofessional Studies Program.

Abstract The healthcare industry is one of the most complicated in the world. It is designed, or its goal, is to deliver excellent value-based care through large economies of scale while providing individualized and customized care. A simple description but very hard to achieve due to the intricacies of multiple factors, human, system and “machine” errors. Not performing well in this industry can have fatal results. Other industries such as airlines, space program, nuclear power plants exist and thrive in this “high stakes” environment. These industries have managed to succeed by adopting principles of a high reliability organization. According to Quint Studer "High reliability organizations are organizations
(HRO) with systems in place that make them exceptionally consistent in accomplishing their goals and avoiding potentially catastrophic errors." There are five core principles of a high reliable organization which are sensitivity to operations, reluctance to oversimplify the reasons for problems, preoccupation with failure, deference to expertise and resilience.

The purpose of this talk is to review from an organizational perspective a healthcare HRO and from a micro perspective the deployment of the HRO tools, systems, and resources inside a perfusion department to deliver excellent service and care.

1445-1525  The Essential Role of Leadership in Establishing a “Just Culture”
David Fitzgerald, MPH, CCP, Clinical Coordinator College of Health Professions, CVP Program Medical University of South Carolina

Bio: Dave Fitzgerald is an instructor and clinical coordinator for the Cardiovascular Perfusion (CVP) program at the Medical University of South Carolina in Charleston. Prior to his tenure at MUSC, he was the Director of Perfusion Services for the INOVA Fairfax Hospital in Falls Church, VA. Dave’s area of interest in perfusion education include blood management, patient safety and human factors, and high-fidelity simulation. Dave has volunteered in several perfusion organizations, including several committees and elected board positions. He has previously served AmSECT as President, Zone Director and Committee Chair for the AmSECT Safety Committee. He still enjoys serving the society on the ICEBP, Safety, and Conventional Planning Committee Groups. Outside of perfusion, Dave enjoys his time at home with his wife Susie, three children (Connor, Casey, and Chloe), and two dogs (Cody and Callie). The family enjoys hiking, spending time at the beach, and trying new restaurants in Charleston.

Abstract: The Just Culture movement is broadly defined as a learning culture that is constantly improving and oriented toward consumer safety (Boysen, 2013). It is considered the modern model of workplace accountability. According to Boysen (2013), the framework “ensures a balanced accountability for both individuals and the organization responsible for designing and improving systems in the workplace”. A Just Culture is a philosophy of a high reliability organization. While it holds employees accountable for the quality of their choices, it does so in a manner that recognizes the systems designed around them. In other words, it helps leaders establish a system of justice that reflects what we know of socio-technical system design, human ‘free will’, and our escapable human fallibility.

Instituting a Just Culture “Requires a change in focus from errors and outcomes to system design and management of the behavior choices of employees” (Marx, 2001). The aim is to find a productive balance between extremes of punishment and blamelessness. Organizations that empower their employees to report unsafe conditions are able to learn from their mistakes and near-misses. A Just Culture promotes a shared responsibility in patient safety. In an effort to improve the quality and safety of patient
care, many healthcare leaders have adopted these Just Culture principles in their systems (Sammer et al, 2010):

- Controlling for outcome/severity bias
- Understanding that errors and ‘drift’ are human.
- As healthcare providers, we are bound to serve patients by adhering to the essential duties.
- When an error or near-miss occurs, we are committed to conduct an error investigation.
- As leaders, we are charged to develop a proactive learning culture/

The learning objectives for this presentation are the following:

1. Describe the Just Culture workplace accountability model.
2. Discuss the three types of behaviors that may contribute to an adverse outcome.
3. Describe the Just Culture principles in a departmental clinical service line.


Abstract: The fundamental premise behind Team Perfect Perfusion (TPP) is it may be difficult for one person to be perfect all the time, but as a team we can still deliver perfect care to the patient...every time. When perfusion is called not many options are left for the patient. We are the one of the last teams called, an extreme team that brings an extreme service. And this means there is no room for error and we must achieve excellence every time. Yet how well that team performs every time is owned by the leader. In the 2015 book: Extreme Ownership How U.S. Navy SEALs Lead and Win by Jocko Willink, Leif Babin, state “there are not bad teams, just bad leaders” There are many supportive structures, processes and tools such as just culture, high reliability organization traits, etc., that go into having a team perform perfectly. Extreme ownership is a position that the leader takes first and using all the aforementioned items for the team to succeed.

This presentation will:
- Describe the 12 principles of extreme ownership promotes TPP and provide examples within the Perfusion world.
- Provide an open forum discussing audience provided team problems through the lens of extreme ownership.

1625-1640  
**ABL90 Plus in CVOR**  
Jim Halbleib, Sr. Clinical Application Specialist, Radiometer America Inc.

Bio: Jim graduated with a B.S.; M.S. Microbiology and 30 years of Blood Gas Experience with Radiometer America.

Abstract: Blood conservation is critical for better CVOR patient outcomes and cost containment. When using POC blood gas analyzers for cardiopulmonary bypass and CVICU patients, Total Hemoglobin should be an optical measurement as opposed to conductivity measurement for hematocrit as the preferred methodology. Analyzers like the ABL90 Flex Plus (Radiometer, Denmark) are the most accurate and reliable method for determining safe transfusion thresholds.

1640-1710  
**Protamine Test Dose: Impact on ACTs and Circuit Integrity**  
Courtney Fischer, CPC, CCP, University Health Network, Toronto General Hospital, Toronto, Ontario, Canada

Bio: Courtney Fischer originally trained as a Registered Nurse and worked in the Pediatric ICU before beginning her training as a Cardiovascular Perfusionist in 2016. She is now member of the Perfusion department at Toronto General Hospital. She thoroughly enjoys the fast-paced environment and wide scope of perfusion practice that TGH has to offer.
Abstract: Protamine is the gold standard for heparin reversal following open heart surgery utilizing cardiopulmonary bypass (CPB). A protamine test dose (PTD) is routinely administered to examine a patient’s hemodynamic response prior to full heparin reversal. Historically at our institution, there has been no standardization to cease CPB pump sucker usage since it is felt that this small test will not significantly affect patient activated clotting times (ACTs). Therefore, CPB pump suckers have been routinely used during and post PTD until the full dosage has been started. This has the benefit of ensuring that any shed blood is returned to the patient during the test dose as well as enabling the team to recommence CPB urgently if necessary. However, on occasion this practice has been unpredictably associated with the observation of clot in the CPB circuit, rendering the circuit unusable. Therefore, the purpose of this study was to investigate a PTD and the impact on patient ACT levels and ultimately circuit integrity. It is hypothesized that the PTD will result in a destabilization of the ACT; continued pump sucker usage will result in an increased risk of disrupting CPB circuit integrity.

Methods: Data was prospectively collected on 120 CPB patients undergoing a variety of procedures from coronary bypass, complex valve procedures to heart transplants from July to October, 2018. ACTs were documented prior to CPB termination, post PTD, and post protamine full dose. Statistical analysis was completed using a paired t-test.

Results: The average PTD was calculated to be $36 \pm 21$ mg or $11 \pm 7\%$ of the full protamine dose of $367 \pm 153$ mg. This “test” dose ranged from 1% to 67% of full dose depending upon the anesthetist. Post PTD ACTs were widely variable. On average, there was a $40 \pm 25\%$ drop from last ACT on CPB ($650 \pm 155$ sec) to the ACT post PTD ($376 \pm 153$ sec) $p<0.05$. In fact, $81 \pm 5\%$ of the patient’s ACTs fell below our institutional ACT standard of 480 seconds for CPB initiation.

In conclusion, regardless of the protamine test dosage, CPB circuit integrity is at risk when pump suckers are continuously in use during the test dose administration. Although there is an institutional standardization policy for protamine test dosing, there is a high degree of variation in anesthesiologist practice when it actually comes to administering the “test” dose of protamine. Furthermore, there is no reliable way to predict how a patient’s ACT will respond to a protamine test dose. Therefore, we strongly recommend that the pump suckers should be discontinued before any amount of protamine is administered to the patient.

1830-2100 SANIBEL SOIRÉE EXHIBITOR’S WELCOME RECEPTION
Featuring dinner & several carving stations, select wine & beer Light & fun entertainment. Sponsored by PERFUSION.COM Located in the Exhibitor Ballroom

Friday, April 5th, 2019
Moderator- Susan Englert, RN, CCP, LP, CPBMT

0700-1200 Registration Open
LivaNova

Breakfast Session in Queens Ballroom

Inspired Perfusion

Larry Petree, Sr Marketing Manager at LivaNova/Cardiac Surgery

Bio: Developing, promoting and applying clinical technology to improve patient outcomes is my passion. Success then drives increased sales and market share growth. By combining engineering training and 15 years of R&D experience with 15+ years of Marketing and Product Management, I have compiled a success track record of full medical product life cycle experience in the Perfusion and Extra-Corporeal Life Support fields. I have extensive CVOR experience in promoting, training and troubleshooting perfusion devices. I frequently work with Sales and Clinical Specialist teams in situations that need expert support and serve as a consultant to clinicians solving problems and driving improvements. I also work internally with Quality, Operations and Engineering to achieve product line objectives. Project experience includes acquisition due diligence, clinical needs assessment, technology review, investment proposals, writing design requirements, conceptual and prototype design and testing, regulatory submissions, manufacturing, clinical acceptance verification, marketing launch, forecasting, sales/clinical support and product phase out.

I'm currently focused on Marketing and Clinical Support of LivaNova's full line of perfusion and Endoscopic Vessel Harvesting products lines and expanding into ECLS with the acquisition of TandemLife. I enjoy a broad range of activities including forecasting and business planning, promotional programs, event management, marketing collateral creation and direct customer engagement. Several times each year I present invited lectures scientific meetings on advancements in perfusion technology and clinical techniques. I also enjoy working strategically with sales and other product lines to grow business, while tracking our success and fine-tuning our marketing programs.

0900-0930 BREAK Exhibitors Ballroom

0930-0935 Opening Remarks in Queens Ballroom

0935-1020 The Ascent of Adult Extracorporeal Membrane Oxygenation (ECMO) in a Community Hospital

Gary Allen, MD, FACS, AdventHealth Waterman, Tavares, Florida

Bio: Gary Allen, MD, FACS, is a board-certified cardiothoracic surgeon who specializes in treating patients with various disorders of the lungs, heart, airway and great vessels. He is specially trained in minimally invasive techniques for performing aortic valve surgery, mitral valve surgery and lung surgery, and has vast experience in performing open heart surgery,
coronary artery bypass, surgical ventricular remodeling, aneurysm surgery of the thoracic aorta and surgical correction for atrial fibrillation. A recipient of the Ralph D. Alley Prize for Cardiothoracic Surgery and other honors, Dr. Allen is a leading physician in his field who provides advanced diagnostic testing and surgical treatments at AdventHealth Waterman. He is a graduate of Albany Medical College in New York and carried out his general surgery residency at the University of Texas Health Sciences Center prior to undertaking his fellowship training in cardiovascular surgery at the University of Utah.

Abstract: Statement of the Problem: Access to high volume ECMO centers in the US varies widely. While the number of Adult ECMO programs in the United States has risen over the last several years, approximately 80% of the growth has occurred in low volume (i.e. < 6 ECMO cases annually) programs. Despite total program growth, access to high volume centers has not improved. We sought to establish a high-quality adult ECMO program in a non-teaching 270 bed community hospital.

Methodology & Theoretical Orientation: A multidisciplinary clinical and administrative team was recruited to build the program. All clinical members achieved ELSO (Extracorporeal Life Support Organization) certification. A quality committee was organized to prospectively collect clinical data and perform outcomes analysis. Mock training sessions using the CardioHelp® System (MAQUET Inc) were executed prior to the “go live” date. Patient selection was performed collaboratively between the critical care, cardiology, and cardiothoracic physicians. All patients underwent tracheostomy and percutaneous gastrostomy tube placement post cannulation. Anticoagulation was achieved with Bivalirudin for all patients with an activated clotting time goal of 180-200 seconds. Bronchoscopy was performed daily. Findings: Ten (male 8) patients underwent ECMO (venous-venous or VV 8) between January 2018 and March 2019. The mean age was 54 + 12 years. All of the VV patients were cannulated through the right internal jugular vein with an Avalon® cannula. One patient had a cannulation complication requiring surgical repair. All patients survived their ECMO run, and all 8 of the VV patients survived to discharge or transfer. There were no device related malfunctions. Conclusion & Significance: Community hospitals may deliver safe and high quality ECMO care thus minimizing “access stress” to large volume centers. A multidisciplinary approach to team training and patient selection is a cornerstone of supporting good outcomes.


**1020-1100** Improving Decreased Heater Cooler Efficiency as a Result of Heater Cooler Infection Control Strategy
Adam Blakey, MPS, CCP, VCU Health

**Bio:** Adam attended the University of the Cumberlands as a pitcher for the Patriots while completing his bachelor’s in science in Biology and Minor in Chemistry in 2009. Adam graduated from Vanderbilt’s Cardiovascular Perfusion program with a certificate in 2012. He then furthered his education by obtaining his Masters of Perfusion Science (MPS) degree from the University of Nebraska Medical Center in 2018. Adam currently resides in Richmond, VA with his wife and son and is a perfusionist as VCU Health.

**Abstract:**

**Background.** Heater-cooler units (HCU’s) play a vital role in temperature management during cardiopulmonary bypass. In recent years, HCU’s have been shown to play a significant role in the propagation of bacteria causing patient infection and significant harm. As a result, various institutions across the world have begun moving the HCU either far away or outside of the operative theater entirely. The purpose of this study was to examine the effect that the increased length of HCU water lines have on the ability of the device to heat and cool. We hypothesized that the increase in water line distance leads to a decrease in HCU efficiency and that insulating the water lines would blunt the effect of this increase in distance.

**Methods.** Five water line conditions were compared under two cooling and two warming conditions. Short water lines, long water lines, and long water lines with foam, rubber, or tape insulation were compared.

**Results.** Cooling from an arterial line temperature of 26.7°C - 19.7°C showed no difference between conditions with the exception that every long line condition takes significantly longer to cool than short water lines. Cooling from 35.6°C - 28.6°C revealed that all insulations reduce the cooling time compared to long water lines without insulation, but only foam insulation reduces to the level of the short water lines. During warming conditions, all insulations reduced the warming time compared to long uninsulated water lines, but none were comparable to short water lines. **Conclusion.** Increased water line length leads to a decrease in HCU efficiency. Insulation is effective at increasing efficiency of long water lines, but only at warmer temperatures and not to the level of short water lines. Only foam insulated long water lines was able to match the efficiency of short water lines but only across a single temperature range.
Personalized Platelet Function Assessment Using the TEG Coagulation Analyzer
Crystal Humes, Clinical Specialist, TEG

Bio: Crystal is a clinical consultant for Haemonectics where she provides hemostasis management education using the TEG analyzer. Prior to her current role, she worked as a nurse in many specialties including interventional radiology, transplant, cardiac post-surgical care, and emergency medicine. She holds a Master’s of Science in Nursing and has worked at some of the top academic institutes including New York University hospital and the University of Virginia. Crystal lives in Florida where she enjoys working with clinicians to improve blood management programs and providing education on coagulation.

Abstract: Understanding a patient’s true platelet function can provide valuable insight into the risk for bleeding and help manage therapeutic response to anti-platelet therapy. Individual patient response to platelet inhibiting drugs has been shown to be variable, with up to 30% of patients showing sub-optimal response to clopidogrel.

The TEG hemostasis analyzer with platelet mapping testing is a POC or laboratory based device that provides a picture of a patient’s coagulation status. The information is viewed in real time and can help assess the risk of bleeding prior to surgery by understanding how the patient’s platelet function is responding to antiplatelet therapy. The TEG analyzer shows underlying hemostasis including clotting factors, baseline platelet function and clot strength, clot breakdown plus receptor specific platelet function and inhibition. TEG testing can also be used to identify hypercoagulable states where patients may be at risk for thrombotic or ischemic events. Hospitals have incorporated TEG platelet mapping testing to their clinical practice and blood management programs to reduce unnecessary use of blood products, preoperative wait times, and readmissions.
**Transonic Systems**

There’s Clot in the Oxygenator, But How Much?
Roger Delong, CP, PE, MBA, Clinical Specialist

Bio: Roger is a clinical perfusionist with over 20 years of experience. Using his earlier engineering expertise and perfusion experience, he moved to the dark side to develop and improve surgical and ECLS monitoring devices.

Abstract: In perfusion school, much emphasis is placed on the mechanisms of clotting, and in practice, we use the various tools available to assay the propensity to clot. During ECLS, when there’s too much clot, we change out the oxygenator. But what about the period of time between initiating ECLS and replacing the oxygenator? Are all clotting patterns the same? More importantly, is the patient being damaged as the clot progresses to a critical level? We need a more effective way to assess an oxygenator.

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**Lunch with Exhibitors Sponsored by Perfusion.com**

Exhibitor Ballroom

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**ECPR Megacode Simulation in a Cardiac ICU with First Person Video Debriefing**

Ashley Hodge, CCP, MBA, Associate Chief, Perfusion Services Cardiothoracic Surgery Quality and Safety Officer, Nationwide Children’s Hospital

Bio: Ashley is the Associate Chief at Nationwide Children’s Hospital. She also maintains the role as Cardiothoracic Surgery Quality and Safety Officer where she runs the Quality Program for the Heart Center. Ashley graduated from the Ohio State University Perfusion program and subsequently attend The Citadel, where she completed her Masters in Business Administration. She is a pediatric perfusionist and passionate about quality improvement with the use of data in perfusion.

Abstract: **INTRODUCTION:** When the decision is made during a cardiac arrest to progress with extracorporeal cardiopulmonary resuscitation (ECPR), speed of deployment of extracorporeal life support (ECLS) may impact morbidity and mortality. At our institution, we strive to initiate ECLS within 30 minutes of activation. Our objective for this simulation was to test the benefit of high-fidelity simulation as it relates to education, preparedness, and comfort level amongst our multidisciplinary cardiothoracic intensive care unit (CTICU) team during an ECPR situation. We performed a high fidelity ECPR simulation scenario in a multidisciplinary setting, initiated ECLS within our institutional goal of less than 30 minutes, evaluated change between pre and post-event surveys to staff, and effectively debriefed the ECLS specialist from the first person view.
METHODS: At the start of the simulation day, a pre-event survey was administered to all attendees assessing experience and comfort level of staff not only in a code situation, but also with an ECLS activation. A didactic session was provided to the CTICU staff relating to ECLS activation, including detailed discussions about room and patient preparation in the event of an ECPR scenario. A simulation followed the lecture with a newborn mannequin (Laerdal Simulation, Wappingers Falls, New York, USA) that was prompted for a witnessed Ventricular Fibrillation that progressed to ECPR activation. Once aware of the decision for ECPR, Google Glass (Google, Mountain View, CA, USA) was placed on the ECLS specialist as they began to prime and prepare the appropriate circuit for deployment. Blood bank prepared the ordered simulated blood products and the cardiothoracic surgery team (Surgeon, Nurses and Perfusionist) arrived at the bedside to begin preparing for ECLS cannulation. The ECLS circuit was completely primed and handed off to the OR team. ECLS flow was established and the scenario concluded once the patient and flow rates were stabilized. All participants then completed a post-event survey. The pre and post-event binary responses were analyzed with the McNemar test for paired data. Survey responses that were ordinal were analyzed by assessing the difference in post – pre event responses utilizing the sign test for non-parametric paired data. All analyses were conducted using SAS 9.4 (SAS Institute, Cary, NC). The Google Glass first person video was analyzed, debriefed, and reviewed in detail with each ECLS specialist.

RESULTS: There was a statistically significant increase in positive responses from pre-event survey to post-event survey for the following questions: adequately prepared for code blue (P=0.0003), role well-defined for code blue (p=0.03), comfortable asking for help (p=0.05), comfortable with ECMO activation (p<0.0001) and role well-defined for ECMO (<0.0001).

CONCLUSION: Multidisciplinary simulation for an ECPR scenario may improve confidence, knowledge, and comfort level of ICU staff during an ECLS activation. Although it can be complex and time-intensive to align, having hospital-wide buy-in for ECPR simulation makes the scenario more realistic and may improve teamwork and communication across the multidisciplinary boundaries. Having the ability to review first person video with the ECLS specialist proved to be very beneficial. It gives the ability to review first-hand what is being seen and heard during the ECLS activation. It can point out areas of strength, areas that need to be improved, areas that may have been overlooked, and areas that can save time during ECPR activation. Continued high fidelity simulation of ECLS in a CTICU is needed to further increase knowledge and understanding of mechanical support management amongst multidisciplinary team members.
Bio: Paul DiGiorgi, M.D. is a Cardiothoracic Surgeon and Cardiothoracic Surgery Section Chief. He serves as the co-chair for our Medical Staff Quality Committee, the chair of our Robotic Steering Committee and our Atrial Fibrillation Working Group.
DiGiorgi, MD, Lee Memorial Health System. Dr. DiGiorgi has significant expertise with the following procedures:
Mitral valve repair, Coronary artery bypass surgery, Aortic valve replacement, Lung surgery, Atrial fibrillation surgery.

Abstract: Atrial fibrillation effect millions of Americans and is rising in prevalence. It is a major risk factor for congestive heart failure and stroke. The surgical treatment of atrial fibrillation, known as the Maze procedure, provides a durable solution for treating symptomatic atrial fibrillation. Etiology, classification, complications, and treatment options for atrial fibrillation will be discussed. Specific detail regarding perfusion strategies will be presented as well.

1400-1445 Engagement of Cardiac Surgeons Needed to Alter the Opioid Crisis
Brian Hummel, MD, Lee Memorial Health System

Bio: Dr. Brian W. Hummel earned his undergraduate degree at the University of South Dakota and his medical education at the University of Iowa College of Medicine. He completed an internship and surgical residency at the University of Texas Southwestern Medical School of Affiliated Hospitals in Dallas. He completed a thoracic and cardiovascular fellowship at Presbyterian Hospital of Dallas and a cardiothoracic and vascular fellowship at the University of Iowa College of Medicine. Dr. Hummel is board certified by the American Board of Surgery and the American Board of Thoracic Surgery. He is past president of the Florida Society of Thoracic and Cardiovascular Surgeons and is a fellow of the American College of Surgeons, American College of Chest Physicians and American College of Cardiology. Dr. Hummel has been named “Who’s Who” and has been designated as one of the “Best Doctors in America.”

Abstract: In 2017, 955 people presented to our hospital system with drug overdose. This talk will describe the response that we have given to this problem from a cardiac standpoint. Endocarditis is an increasing epidemic due to drug use. This will give a surgeon’s perspective on how to deal with the issue at hand that is locally and nationally recognized.
The KBC Protocol – A Customized All-blood Answer to Single Dose Cardioplegia in Adults
Catherine Lunsford, CCP, WellStar Health System, Marietta, Georgia
William Cooper, MD, WellStar Medical Group, Cardiovascular Surgery, Marietta, Georgia

Bio: Catherine Lunsford is currently a perfusionist with the WellStar Health System in Marietta, Georgia and has 15 years of experience. She joined the WellStar team along side Dr. William Cooper at the start of the cardiac surgery program. Prior to joining WellStar, she worked for Emory Healthcare in Atlanta. She holds a degree in Biology from Bob Jones University and is a perfusion graduate of The Medical University of South Carolina.

Bio: Dr. Cooper earned his medical degree at the University of Missouri in Kansas City, Mo. He completed his general surgery and cardiothoracic surgery residencies at Emory University in Atlanta, Ga. He is a Lieutenant Colonel – Medical Corps in the United States Army Reserve. He is board certified by the American Board of Surgery and the American Board of Thoracic Surgery. He is a member of the Atlanta Medical Association, Georgia State Medical Association, Association of Black Cardiologists, Southern Thoracic Surgery Association, Society of Thoracic Surgeons, Association of Black Cardiothoracic Surgeons and Cobb County Medical Society. Dr. Cooper is in practice with WellStar Medical Group, Cardiovascular Surgery.

Abstract: With continued evolution in cardioplegia solutions and techniques, current methods have a broad range and virtually no standard. There has been much experimentation with single-dose techniques, but little data regarding methodology specific to adults. The single-dose formulas being tested vary greatly; most continuing to utilize crystalloid as the carrier. Many now seem willing to abandon the benefits of blood cardioplegia for the convenience of a single dose method. Unwilling to compromise all blood microplegia, the KBC protocol was developed. The challenge was to apply the constituents of a single dose solution to the Quest MPS, an all blood delivery system, all while providing a method appropriate for the adult heart. This technique marries single-dose components in an all blood carrier with an adult-specific dosing assessment; all while highlighting the key importance of communication between the surgeon and perfusionist.

QUEST MEDICAL WORKSHOP In Garden’s Ballroom
Featuring hors d’oeuvres, select wine & beer
Satu**day, April 6**th, 2019  
**Moderator-Susan Englert, RN, CCP, LP, CPBMT**

**0800-0900**  
Perfusion.com Breakfast Session: Accidents, Incidents, and Near-Misses  
Michael Colligan, RN, MS, CCP  

Bio: Michael Colligan currently works as a Director of Perfusion for Comprehensive Care Services and has past experience in both perfusion and nursing at multiple large academic medical centers. He is currently a doctoral candidate at the University of Mississippi Medical Center’s healthcare administration program and serves on the AMSECT safety committee.  

Abstract: Though few recent studies address the rate of sentinel events/near miss events/incidents and accidents in perfusion, past studies have had consistent findings across a range of time and geography. From 1972 through 2007, the rate of injury from CPB incidents has remained nearly constant at approximately one in 1250 procedures (Charriere et al., 2007). From 2000 through 2007, the data shows an event resulting in mortality once for every 4600 procedures (Mejak & Stammers, 2000; Stammers & Mejak, 2001; Charriere et al., 2007).

The author will share recent first-hand experiences which show that, despite advances in both technology and culture, perfusion remains a clinical practice with significant preventable errors happening. Mistakes commonly made during from 1970-1996 continue to happen today, despite the repeating nature of the phenomenon.

The talk will conclude with discussions about possible solutions to produce increases in both safety culture and outcomes.

**0900-0905**  
Opening Remarks in Queens Ballroom

**0905-1005**  
Keynote Speaker  
Evolution of Cardiac Surgery  
Basel Ramlawi, MD, MMSc, FACS, FACC, Chairman, Heart & Vascular Center, Director, Advanced Valve & Aortic Center, Valley Health System

Bio: Basel Ramlawi, M.D, is an attending cardiothoracic surgeon and chairman of The Heart & Vascular Center at Valley Health System in Virginia. He also serves as founding director of the Advanced Valve and Aortic Center.

Dr. Ramlawi is a nationally renowned surgeon for the repair of heart valves, aortic aneurysms and atrial fibrillation using
minimally invasive and catheter-based procedures – leading to decreased pain and recovery time. He is a frequent speaker and faculty member at international cardiovascular conferences. Through extensive experience, exceptional clinical results and innovative techniques, Dr Ramlawi offers his patients the most advanced cardiovascular surgical therapy available anywhere!

Prior to joining Valley Health, Dr. Ramlawi was associate professor of surgery and held a leadership position within the Department of Cardiovascular Surgery and Transplantation at The Methodist DeBakey Heart & Vascular Center in Houston, TX. Previously, Dr. Ramlawi held a faculty appointment at Columbia University and NY-Presbyterian Hospital in New York City.

Dr. Ramlawi is the recipient of prestigious awards such as:

Vivien Thomas Award – American Heart Association
Houston's Top Forty Under Forty Award – Houston Business Journal
Henry Christian Award – The American Federation for Medical Research,
Detweiler Fellowship – The Royal College of Physicians & Surgeons of Canada
Deyer and Baucum Award – Houston Methodist Hospital

He has co-authored over 85 medical and scientific papers, abstracts and book chapters. He is an active speaker at national and international cardiology and cardiovascular surgery conferences.

Dr. Ramlawi’s clinical expertise includes advanced heart valve repair, thoracic aortic & root surgery, arrhythmia surgery, complex cardiac surgery and ventricular assist devices.

His research interests include clinical outcomes and technological innovations within cardiovascular care, especially heart valve repair, aortic pathology, atrial fibrillation and heart failure.

Abstract: Cardiac surgery is an exciting and highly technical field that save patient lives with every procedure. For successful outcomes, the cardiac surgery team must function as unit for optimized patient care. Recently, over the past decade, the pace of cardiac surgery evolution and procedural advancement has not been experienced since the specialty’s birth. Trans-catheter and minimally invasive procedures within cardiac surgery are currently standard of care and have a tangible impact on multidisciplinary ‘heart-team’ cardiac care. This recent and rapid evolution within our field is exciting and should be welcomed by our cardiac surgery teams for the benefit of our patients. However, there is often anxiety regarding the future of the specialty in the face of such rapid change. This presentation will aim to achieve the following:

- Overview of recent clinical cardiac surgery practice evolution and trends to come
- Review impact of recent changes on the cardiac surgery team including perfusion
- Attempt to predict upcoming clinical and administrative changes within field
Supply and Demand in the Perfusion Services Sector: 2019 Update
Michael Colligan, RN, MS, CCP

Bio: Michael Colligan currently works as a Director of Perfusion for Comprehensive Care Services and has past experience in both perfusion and nursing at multiple large academic medical centers. He is currently a doctoral candidate at the University of Mississippi Medical Center's healthcare administration program and serves on the AMSECT safety committee.

Abstract: Current working conditions point to a recent and noticeable undersupply in the number of perfusionists available. This trend appears to have worsened over the past 12 months. This presentation will review recently updated data regarding supply, demand, and market signals of excesses in either. Newly obtained salary data will be presented with a longitudinal review of previously collected salary data. These data points will be placed in the context of two newly proposed metrics for measuring supply and demand in the perfusion market. Previously presented data will be used to supplement the public information and assist in determining the current market state. Finally, published and unpublished predictions will be reviewed to determine where the supply/demand curve will head in the future.

Lunch Session in Queens Ballroom
Sponsored by Perfusion.com
Professional Building Session
The Job Applicant: What Private Companies Want to See
Benjamin Greenfield, MPS, LP, CCP Director of Recruitment and Retention, Perfusion.com, Associate Professor of Perfusion, The Nebraska Medical Center

Bio: Ben received his Masters degree in Perfusion Science from UNMC in 2003. He has been employed at the Nebraska Heart Hospital and St. Elizabeth Hospital (Heme Management) in Lincoln and has performed over 3000 heart surgeries and over 2000 orthopedic and neurosurgeries. He is currently employed by Perfusion.com as the Director of Recruitment and Retention and as a Clinical Perfusionist. Abstract: Today’s perfusion employment market is robust, and opportunities are astounding. If projections are correct, a perfusion workforce shortage will exist for at least the next ten years. As schools grow class sizes to accommodate the workforce need, new and seasoned perfusionists must remain conscious of the job market and standards by which applicants will be compared.
This presentation is an inside look at the process from accepting an applicant to a perfusion education program, through the job search, and what companies looking to hire use as candidate benchmarks. How educators and employers match prospective students to schools and then potential employment is a fascinating process for all to observe and reflect upon.

**1230-1400 Ken Farmer Memorial Scholarship**
The Ken Farmer Scholarship is awarded to a perfusion student(s) who composes and presents an outstanding presentation for the upcoming Sanibel Perfusion Symposium meeting. This Scholarship will be in the amounts of $1500 dollars for 1st place, $1000 dollars for 2nd, $500 dollars for 3rd, $300 dollars for 4th & $200 dollars for 5th.

**1230-1245 Differences in total heparin dose in patients with renal insufficiency**
Rory Hall, Cardiovascular Perfusion Student, Quinnipiac University

Bio: My name is Rory Hall, and I am a Cardiovascular Perfusion student at Quinnipiac University, currently in my second clinical rotation. Prior to my enrollment, I worked as an anesthesia technician at various hospitals in the Boston, MA area over the course of 13 years. I had always had an interest in perfusion and cardiac surgery, and eventually reached a point in my life where I felt I was prepared for the challenge of becoming an integral part of the process. I am very much looking forward to completing my clinical rotations and beginning a career that offers a lifetime of continuing education and the opportunity to make a difference in the lives of those in need.

Abstract: The administration of heparin is a mainstay practice in the setting of cardiac surgery and cardiopulmonary bypass (CPB). This experiment was performed to determine if renal insufficiency influences the total amount of heparin needed for adequate anticoagulation during CPB. A case-control study was completed by recording urine output, CPB time, and total heparin administration from patients with renal insufficiency and those without. Comparison of the results for differences in these variables indicated no significant difference between the study group and the control group. Based on the data collected and analyzed in this study, a correlation between renal function and unfractionated heparin dose requirements during CPB was not established. This study had hoped to identify a patient demographic that may be more likely to receive higher doses of heparin, and subsequently a higher risk of post-operative bleeding. Future research on this subject should consider a larger study population, and uniformity of equipment in both the study and control groups.
Comparison of Hemosep and CATS in Washing Stored Packed Red Blood Cells
Logan Abrams
Clinical Perfusion Student, University of Nebraska Medical Center (UNMC)

Bio: I received my Bachelor’s of Science in Exercise Physiology from Brigham Young University-Idaho in 2017. I am expected to graduate with a Masters in Perfusion Science from the University of Nebraska Medical Center in May of this year. I have completed rotations at New York Presbyterian/Columbia University Medical Center (Manhattan, NY) and Oregon Health and Science University (Portland, OR). I am currently rotating at Children’s Mercy Hospital in Kansas City, MO and will be completing my final rotation at Mercy Hospital in Springfield, MO. I received the 2018 Daniel T. Zwada scholarship from the Michigan Perfusion Society and other interprogram scholarships. I was also the 2017 student representative on the UNMC Clinical Perfusion Education Advisory Board.

Abstract: The storing of packed red blood cells (PRBCs) is a common practice necessary for the redistribution of red blood cells (RBC) to patients world-wide. The redistributive process, from donor to patient, may potentially occur over a period of time ranging from 0 to 42 days. At 42 days of storage, PRBCs expire and are no longer viable for transfusion. However, long before their expiration date PRBCs acquire storage lesions, or an undesirable change in blood chemistry and composition which depending on the lesion’s severity, can be incompatible with the blood of the recipient. Changes seen include a decrease in pH, 2,3 DPG, and an increase in extracellular potassium. In order to remove or alleviate storage lesions from the stored PRBCs, a washing process may be performed to prepare the blood for transfusion. Use of the Fresenius Kabi Continuous Autotransfusion System (CATS) cell salvage device is one common option currently capable of cell washing. The intent of this study is to compare the CATS device with the Advancis Surgical Hemosep product in washing of stored PRBCs. Porcine blood samples (n=26) were acquired, RBCs were isolated by centrifugation, and samples were stored for 21 days. After storage, samples were divided into three groups: control, CATS, and Hemosep. Data was collected using a centrifuge and an EPOC blood gas analyzer. All three groups were compared in the following measurements: pCO2, pO2, sodium, potassium, chloride, hematocrit, hemoglobin glucose, and lactate. A statistically significant difference was seen between and in favor of the Hemosep group vs CATS in all categories except pCO2, hemoglobin, and hematocrit. There was no significant difference in pCO2 between groups, and a significant difference in favor of CATS in hemoglobin and hematocrit. After data collection, a small follow up study was completed to analyze the residual volume found in each Hemosep bag after the washing process in order to determine effective RBC mass. The follow up study determined an average of 193 ml of residual volume remained in each Hemosep bag after processing. Adjustment of the initial results for Hemosep’s hematocrits were made according to these results. Comparison between the CATS and the adjusted Hemosep hematocrit yielded insignificant results. This data suggests that the Hemosep may be considered an alternative option for washing stored
PRBCs and is superior in many aspects of the washing process. Washing of PRBCs is also suggested to be an effective method prior to transfusion and should be considered by clinicians where possible.

**Effects of Retrograde Autologous Prime (RAP) on Transfusion for Cardiac Patient Undergoing Cardiopulmonary Bypass**

Swina Sunny, Cardiovascular Perfusion Student, NSUH-LIUP School of Cardiovascular Perfusion

Bio: Swina Sunny is a 2nd year MS degree candidate at NSUH-LIUP School of Cardiovascular Perfusion. Studied Biology at Stony Brook University.

Objective: The aim of this thesis was to test whether retrograde autologous priming of the cardiopulmonary bypass system would result in less hemodilution and less transfusion of packed red cells compared to standard primed system (NON-RAP group).

Methods: Prospectively, data was collected from patients undergoing elective Coronary Artery Bypass Graft (CABG) undergoing CPB. A meta-analysis was performed to get a better understanding of both groups undergoing elective CABG. Evaluations of various papers published comparing both the RAP and NON-RAP group will help in understanding any positive correlations with RAPing the cardiopulmonary bypass system and the reduction in hemodilution as well as the reduction of packed red cell transfusion on pump. Articles from 2013-2018 were reviewed to compare the units of packed red cells given to patients that had the cardiopulmonary bypass circuit RAP versus the NON-RAP group and the effects of reducing the priming volume have on the hemoglobin level and its effect on the oxygen delivery to the tissues. A study design of 60 patients where RAP was used will be compared to NON-RAP group. The prime volume of the RAP group was approximately 800 ml vs the NON-RAP priming volume of 1200 ml. The measures of mean, standard deviation and p-value were calculated using paired t-testing using a graph pad.

Results: Baseline characteristics (age, pre-operative hemoglobin, etc) were not significantly different between the RAP group and the NON-RAP group. The mean priming volume of the RAP group was 800 ml vs 1200 ml for the NON-RAP group. The lowest hematocrit during perfusion for the RAP group was 23.5% versus 21% for the NON-RAP group. A significant association was found in the RAP group to less transfusion of packed red cells.

Conclusion: In conclusion, RAP reduces the priming volume of the cardiopulmonary bypass system resulting in less hemodilution and reduces the intraoperative transfusion of packed cells.

**Onset Venous Saturation as a Predator for Oxygenation Control During CPB**

Robert Lorandini, MS degree candidate, NSUH- LIUP School of Cardiovascular Perfusion
Bio: My name is Robert Lorandini and I am 25 years old from Long Island, NY. I am second year M.S Cardiovascular Perfusion candidate at NSUH/LIU Post School of Cardiovascular Perfusion. I completed a B.S degree in Biochemistry from SUNY Geneseo. I have completed my clinical rotations in perfusion at Maimonides Medical Center in Brooklyn, NY and North Shore University Hospital in Manhasset, NY.

Abstract: Some device testing standards does not address the day to day clinical condition. Such is the case of the AAMI/ISO testing standard for Blood Gas Exchanger (oxygenator). The device is tested at a venous inlet saturation of 70 +/- 5%. However, these conditions are not often seen in the clinical scenario. Venous saturations are usually lower and presents a wide range of variables. Two main areas of focus would be on the performance capability of the device under low venous inlet conditions and the controllability/consistency of the performance. The purpose of this study is to address the latter. The clinical reality is that usually after one or two blood gases, oxygenation and gas exchange is fine tuned and under control. Depending on the institutional protocol, it may be one hour into Cardiopulmonary Bypass (CBP) time. The goal of this study is to hypothesize that an onset venous blood gas can be utilized for precise control of oxygenation (gas exchanges) on CPB. Venous samples are taken just before CPB, onset FiO2, blood gases and O2 transfer will be analyzed to develop a better controlled oxygenation technique for CPB. Data and results of the analysis will be presented.

After the initial study, device performance, CO2 control and patient outcomes should follow.

1330-1345 Multiple approach to Mitral Valve Procedures on Perfusion Techniques
Jessica Abellera, MS degree candidate, NSUH-LIUP School of Cardiovascular Perfusion

Bio: My name is Jessica Abellera, and I am currently a senior graduate student in Cardiovascular Perfusion through the North Shore University/Long Island University Post program. I completed my first clinical rotation at NYU Medical Center and now in my second at Montefiore Medical Center. I am originally from Arizona and have an undergraduate degree from Northern Arizona University in biomedical science with minors in chemistry, psychology, and health and wellness coaching.

Abstract: Mitral valve repair has grown to be a fairly safe and largely effective surgery. Traditionally, mitral valve surgery has been performed with a conventional open sternotomy. However, within recent years, minimally invasive techniques have become more and more popular for various reasons. The goal of minimally invasive mitral valve repair techniques has been to decrease the surgical trauma to patients and improve several aspects of patient outcomes. Even more
recently, robot-assisted mitral valve repair has become the least invasive technique. This study evaluated 90 patients total; 30 who underwent conventional mitral valve surgery, 30 via mini thoracotomy, and 30 with Da Vinci Robotic repair using endoscopic balloon clamp. The purpose of this study was to evaluate the differences in perfusion techniques and their subsequent effects on patient status in each of the three groups. Complex anterior and posterior leaflet repairs were performed in each of the cohorts all repairs considered excellent status. However, for the da Vinci group there was a significant increase in bypass and aortic cross clamp time as well as a decrease in the average flow index throughout the bypass run. Though values were significantly different each technique proved to be adequate as using an oxygen demand/transfer equation, lactate levels, average venous saturation, and urine output. This report suggests that robotic and minimally invasive via mini thoracotomy mitral valve repair could evolve to become the standard of care.

**Poster Presentation in Exhibit Hall**

**Benefits of Cell Washing of Donor Pack Cells Before Transfusion for Extracorporeal Circulation**

Heena Rana, NSUH-LIUO School of Cardiovascular Perfusion

Bio: My name is Heena Rana. I have obtained a Bachelor’s of Science degree in Biology from Rutgers University in NJ. I learned about the perfusion field while I was shadowing a Physician Assistant during a pediatric cardiac procedure. This is when I was inspired to become a perfusionist and pursue my career in perfusion. I am currently enrolled in the NSUH-LIUP School of Cardiovascular Perfusion directed by Mr. Richard Chan. Throughout the course of my study, I have rotated through North Shore University Hospital, Lenox Hill Hospital, and currently posted at NYP-Weill Cornell Medical Center. I am striving to become a successful Perfusionist. I have great knowledge of perfusion techniques and equipment management. Throughout my journey as a perfusion student, I have obtained knowledge and experience in various cases such as Coronary Artery Bypass Grafts, Valvular Replacements/Repairs, Aneurysms with Hypothermic Circulatory Arrest and/or Selective Cerebral Perfusion (Antegrade Cerebral Perfusion), Ventricular Assist Devices, ECMO Intra-aortic Balloon Pump Procedure, Transcatheter Aortic Valve Replacement, Heart Transplant, Minimally Invasive MVR & AVR, Ascending Aorta & Hemi-Arch Replacement, Aortic Aneurysm Repair with Elephant Trunk Procedure, AVR with Konno Procedure, Aortic Root Replacement Moreover, I have experience working with Stockert Sorin S5 Heart-Lung Machine, centrifugal pump, the Sorin Inspire oxygenator Sorin Vanguard Cardioplegia system, Fresenius CATS?CATAmart, Sorin Xtra Brat 2 cell saver systems. Also I have worked with different types of cardioplegia used for myocardial protection techniques. I am anticipating to graduate in May 2019.

**Abstract:**

**OBJECTIVE:** The goal of this thesis was to analyze the effects of allogenic blood transfusion and to examine whether washed or unwashed perioperative transfusion yields more benefits. This thesis examined the length of stay, mortality, and adverse
reactions of patients that received washed or unwashed packed red cells. The hypothesis of this thesis was washing of allogenic packed red cells before perioperative transfusion yields more benefits and postoperative outcomes to the patient versus transfusing with unwashed packed cells during cardiopulmonary bypass.

METHODS: A prospective study design of 60 patients in total (Group 1 and Group 2, n=30 each) was performed to assess the preoperative and immediate postoperative, 6 hours post-CPB, and 12 hours post-CPB hematocrit, hemoglobin, red blood cell volume, blood volume, potassium, sodium, and glucose levels as well as compared and analyzed them to evaluate the differences between both groups, and which yields more benefits in terms of length of stay, mortality, and adverse reactions. The age of packed red cells at the time of administration was noted, to understand the impact and importance of new versus old packed cell units. Also, published scholarly literature and data was gathered and analyzed to present the effects of transfusing with washed packed cells and unwashed packed red cells in adult patients undergoing cardiopulmonary bypass procedures. The measures of mean, standard deviation, and p-value were calculated based on paired t-test using GraphPad Software and Excel. All in all, a meta-analysis was performed to better understand the postoperative outcomes of both, washed and unwashed transfusion, groups.

RESULTS: Data being processed.

CONCLUSION: The data collectively suggests that washing allogenic packed red cells before perioperative transfusion is more beneficial to the patient undergoing cardiopulmonary bypass. The positive results of washing packed cells continue to outweigh the negative side effects of transfusion with unwashed packed cells, therefore it should be a standard of practice for all pack cell transfusion during extracorporeal circulation for all adult cases.
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Wednesday, April 3, 2019


Topics:
1. Fast, reliable and intuitive performance including our new Connectivity Solution with the Cell Saver Elite+ System
2. Bleeding and thrombosis risk assessment with PlateletMapping®
3. Overview of the TEG 6s Analyzer and TEG Manager® Software System

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Location: Gardens Ballroom
Featuring hors d’oeuvres, select wine & beer
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