THE AMERICAN ACADEMY
OF
CARDIOVASCULAR PERFUSION

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Winter 2024

The Academy Newsletter

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Message from the AACP President

As my presidential year comes to a close and the Academy meeting draws near, I find myself reflecting on how quickly time has passed this year. It feels like just yesterday that I was accepting the reins from Dave Fitzgerald at the closing business meeting. This year has been full of activity—at home, with the Academy, and in school as I teach as well as work toward my doctoral degree.

With the increasing prevalence of artificial intelligence in our lives, and as you will see at the annual meeting in February, I asked AI why time seems to fly. ChatGPT's response was insightful:

1. **Attention and Engagement**: When we are deeply engaged in an activity, whether at work or with loved ones, we lose track of time because we're not focused on the clock.

2. **Aging and Time Perspective**: As we age, the proportion of our life that any given period represents decreases. For example, when you're 10 years old, a year is 10% of your life, but when you're 40, a year is only 2.5%. This shift in perspective can make time seem to pass faster as we get older.

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3. **Routine vs. Novelty**: Time often feels like it passes slowly when we're in routine or monotonous situations, because we're paying more attention to the passage of time. In contrast, when we are experiencing something new or novel, we are more likely to be distracted, and our brains process new information more deeply. This sense of "newness" makes time feel like it moves faster. This idea is often linked to the "time flies when you're having fun" phenomenon.

In short, time seems to fly when we are fully engaged, as a result of how our brains perceive and process time, or experiencing novelty.

My response to ChatGPT: Wow, you're smart! We all strive for perfection in our work and personal lives. As perfusionists, we thrive on routine but also embrace novelty. The search for novelty is what drives us in our careers and unites us as the American Academy of Cardiovascular Perfusion.

As you read this final newsletter from my time as president, I want to highlight that novelty is just one aspect that brings us together. Our collective effort is what truly propels the Academy forward. This year has been a wonderful experience, and our mission would not have succeeded without the support of the entire group.

I extend my deepest gratitude to the Council, committee members, the student ambassador chair, the social media committee, past presidents for their invaluable advice, and to David and Jill Palanzo for their dedication to the Academy.

Thank you all for making this year a success.

Allison Weinberg
AACP President

Jesse Anderson, M.S.
Perfusion Student
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Jesse was born and raised in Nebraska, honorably discharged from the United States Marines and studied at the University of Nebraska Lincoln (UNL), where he achieved a Bachelor of Science in Biochemistry. After graduating from UNL, he studied at the University of Nebraska Medical Center (UNMC), earning a Master's in Medical Anatomy. These experiences illuminated perfusion, which became a spotlight as a future career. Now in his second year of clinical perfusion training at UNMC, Jesse continues to dedicate his time towards improving his extracorporeal techniques and knowledge.

Stone Heart: Got Calcium?

The focal point of cardiovascular perfusion techniques is the preservation of myocardial tissue and improving the overall functionality of the heart. Naturally, this is achieved through hypothermic techniques and cold cardioplegia administration - among numerous other methods. A nightmare familiar to healthcare providers, both in and out of the operating room, is not witnessing the return of a normal sinus rhythm (NSR) when performing resuscitation methods on a patient in asystole. For perfusionists, this breath-holding moment occurs after the removal of the aortic cross-clamp (x-clamp) and the return of normothermic blood - sometimes given before x-clamp removal, which is referred to as a "hot-shot" [2]. Typically, the combination of warm, normothermic blood, lidocaine, and magnesium reintroduction to the heart promotes the return of NSR. In the event of a non-life sustaining arrhythmia, a variety of other medications and methods may be implemented, such as amiodarone and pacing. Rare cases have occurred where the left ventricle is inappropriately contracting and is non-responsive to all attempts of rectification. This period of warm, ischemic contracture is referred to as "Stone Heart." [6]

This hyperbolic term, "Stone Heart," was first described in literature in 1972 by the cardiologist and thoracic surgeon, Denton Cooley [7]. From 1966 to 1971, Dr. Cooley performed nearly 5000 cardiothoracic procedures. Of these operations, 51 patients unfortunately passed away on the table, and of these 51, 13 of the deceased were the result of the rare "Stone Heart" phenomenon [1,7]. Dr. Cooley and his colleagues reviewed the pathological and clinical characteristics of each of the deceased and determined nearly all of them were elderly, had long-standing congestive heart failure, and their left ventricles showed significant myocardial hypertrophic progression. It is noteworthy that during these operations, although the perfusionist arrested the heart as per their protocol, they did not utilize hypothermic techniques. However, they were conscientious enough to delineate that ischemia begets ischemia, which may have resulted in a depletion of adenosine triphosphate (ATP), leading to the failure of the massive tissue to contract. To confirm their theory, they visualized the myocardial bands microscopically. The sarcomeres depicted contraction bands analogous to that of severely fatigued muscles or those in a state of rigor mortis [1,7]. Their assumption in 1972 still holds water today, as the exact mechanism of action is elusive; however, it is believed to revolve around the relationship between ionic calcium (Ca^{2+}) and ATP.

One must understand how ventricular contraction occurs to understand how calcium plays a role in the "Stone Heart" phenomenon. Normal contraction requires electrical stimulation from the sino-atrial (SA) node to the atrioventricular (AV) node, through the bundle of His, then the left and right branches, the Purkinje fibers, and finally arriving at the cardiomyocytes [9]. Depolarization and subsequent repolarization of the ventricles occur in five distinct phases, beginning with Phase 0. This phase is known as rapid depolarization. Voltage-gated, fast-acting ionic sodium (Na^+) channels open. A rapid influx of Na^+ raises the resting membrane potential, typically around -70mV, past the membrane threshold to +50mV. Phase 1 is known as peak depolarization. The priorly opened fast Na^+ channels close, and transient efflux potassium (K^+) channels open in an attempt to commence repolarization. This attempt is thwarted in Phase 2, the plateau. Influx L-type Ca^{2+} channels open, balancing the K^+ efflux, prolonging depolarization and promoting ventricular contracture. In phase 3, repolarization begins. The L-type Ca2+ channels close and rapid influx delayed rectifier K+ channels open, initiating rapid relaxation of the ventricles. Lastly, phase 4 is the resting phase. The sodium, potassium, and calcium electrolytes continue to exchange and balance to a homeostatic level [9].

Myocardial contraction during the plateau phase is the result of a process called Calcium-Induced Calcium Release (CICR) [5]. As the action potential propagates through the cardiomyocyte and stimulates the opening of the Ca^{2+} channels in the sarcolemma, the influx of Ca^{2+} from the T-tubule interacts with the sarcoplasmic reticulum (SR). The SR responds to the increase in cytosolic calcium ions and opens ryanodine receptors (RyRs), promoting further release of Ca^{2+} from intracellular stores. These compounding accumulations are known as calcium sparks. Sufficient sparks signal the closing of the RyRs and promote the cross-bridge cycling of cardiac contraction. Elevated calcium ions are able to sufficiently interact with troponin C, opening the binding site of tropomyosin on the actin filament. The myosin filament head, currently bound with adenosine diphosphate (ADP) and inorganic phosphate (iP), attaches to actin's myosin-binding site. Release of iP causes the myosin head conformation to change (cocking), sliding the thin actin filament past the thick myosin filament, leading to muscle shortening or contraction - this process is known as the power stroke. ADP is thereafter released, and ATP is allowed to bind, signaling the release of the head from the binding site. Subsequent hydrolysis of ATP to ADP reverts the head's conformation (de-cocking) to its original state, readying the thick filament for another cross-bridge cycle [5].

Akin to the release of ATP, calcium is also relieved of its duties with troponin, typically as intracellular ion concentrations decline. The resurgence of Ca^{2+} in the cytosol from actin promotes efflux and intracellular storage of the ion. These calcium-release mechanisms are energetically mediated by the plasma membrane calcium ATPase (PMCA) pump and SR/ER calcium ATPase (SERCA) pump, respectively [5]. The non-energetic transportation of the ions involves the sodium-calcium exchange transporter (NCX) [3]. If extracellular Ca^{2+} is elevated beyond homeostatic levels, as the case with exogenous calcium chloride administration before cross-clamp removal, the NCX transportation is inhibited. Disruption to the concentration gradient decreases this ion exchange and prompts a rapid rise in mitochondrial production of ATP in attempts to force calcium into storage or efflux extracellularly [8]. Not only can the ATP production be depleted in this manner, but the elevated intracellular Ca^{2+} concentration elicits significant uptake by the mitochondria via N-methyl-d-aspartate receptors (NMDAR). Exceptionally high levels of calcium in the mitochondria then disrupt the cristae and its overall function, leading to dysfunction and cytotoxic death [8]. With both poor transport of ionic calcium out of the cell and mitochondrial ATP depletion, the calcium-ADP-iP interaction becomes dysregulated. The promotion of weak spastic contractures is thought to be due to the overabundance of

Ca^{2+} bound to troponin leading to a state akin to rigor mortis.

However, some studies suggest that Ca^{2+} regulation is unperturbed by elevated calcium levels. This research indicates that ATP depletion and mitochondrial dysfunction are the result of the ischemic nature of heart failure, and an irregular cross-bridge lattice formation is the culprit behind stone heart - the left ventricle is believed to lock itself into this conformation once the heart is arrested [4]. Although the exact mechanism of action remains elusive and the reversal of such a condition is poor, progress is being made to prevent stone heart. Myosin inhibitor MYK-461 (Mavacamten) is clinically approved for other indications (ie. cardiac hypertrophy). It
partially inhibits myosin activation, resulting in lower energy consumption and slower development of improper cross-bridge formation. Researchers tested its effect on reversing stone heart, with no success. On the contrary, Mavacamten was able to attenuate the formation of initiated stone hearts in swine models [6].

Ischemic contracture, also known as stone heart, remains a rare condition in cardiothoracic surgery and perfusion. As research continues to unravel the mysteries of the condition, there may be hope that particular medications administered with cardioplegia could attenuate the formation of stone heart or even irradicate the fear entirely.

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Remembering the General Electric Peirce Lung

Introduction

It's mindboggling that General Electric (GE) no longer makes light bulbs. In fact, they sold their most iconic product line to Savant Systems five years ago. Perhaps equally surprising then, is the fact that over fifty years ago GE manufactured a membrane oxygenator for perfusionists. At the time, GE was already a supplier of pacemakers, monitors, and x-ray equipment to the medical community. Oxygenator development, however, was an entirely new venture. The key to GE's efforts was their groundbreaking ultra-thin silicone rubber film. As a raw material, silicone (originating from sand) had been known about since the early 1800's. For over one hundred years, chemists considered the resin a "sticky mess" and useless for commercial production. In time, the unique properties of silicone became apparent, and in the 1940's companies like GE and Dow Corning built research facilities to study silicone in more detail. Walter L. Robb, a talented GE scientist, had long known that silicone rubber could act like an artificial lung. In 1962, he hit on a way to stretch the silicone rubber into thin sheets. If pinholes appeared, Robb would simply laminate two sheets together, knowing that the probability of pinholes overlapping was exceedingly small. In order to promote silicone's gas transfer capabilities, GE fabricated a box with silicone rubber walls. A hamster was placed inside the box, which was then completely submerged in an aquarium (see Figure 1). Oxygen permeated from the aquarium's water through the silicone panels for the hamster to breathe, while carbon dioxide exited the enclosure in the opposite direction. For added effect, Robb placed goldfish in the aquarium. Their natural gills, like the silicone membrane walls, permitted diffusion of life-saving gases. A video of Robb's hamster demonstration can be found on YouTube at https://youtu.be/AQKnwGzsBwM?si=dfwwGFsOB2IXZlzG.

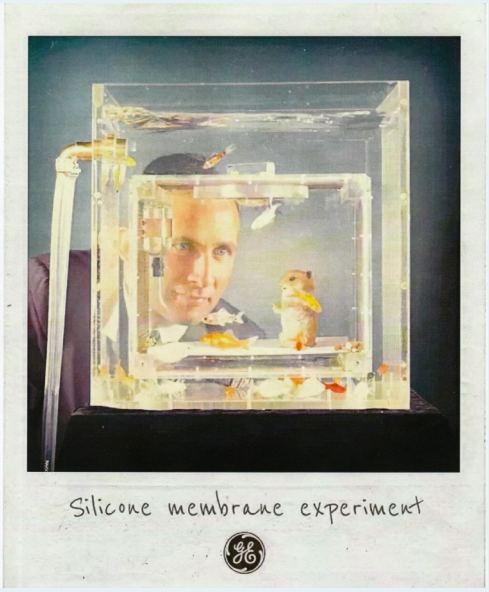


Figure 1. General Electric Hampster

Partnering with Dr. E. Converse Peirce II

Peirce was born in 1917 and raised in the Quaker tradition in Pennsylvania. He became a Harvard-trained surgeon, and spent his early career at Children's Hospital in Boston and Johns Hopkins in Baltimore. For a time, he served as professor of surgery and physiology at Emory University in Atlanta. In 1966, he relocated to Mount Sinai Hospital in New York City to study hypothermia and hyperbaric medicine. Along the way, Peirce developed an interest in synthetic materials for use in membrane oxygenators. He initially focused on Teflon®, a porous substance discovered accidently in 1938 by a DuPont chemist. During a brief stint in Knoxville, Tennessee in the late 1950's, Peirce modified the Clowes sandwich-type membrane lung by replacing the polyethylene sheets with

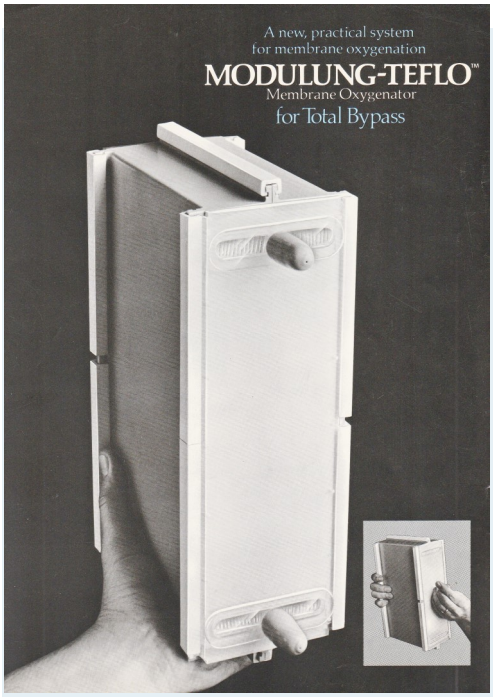


Figure 2. Travenol Modulung-Teflo

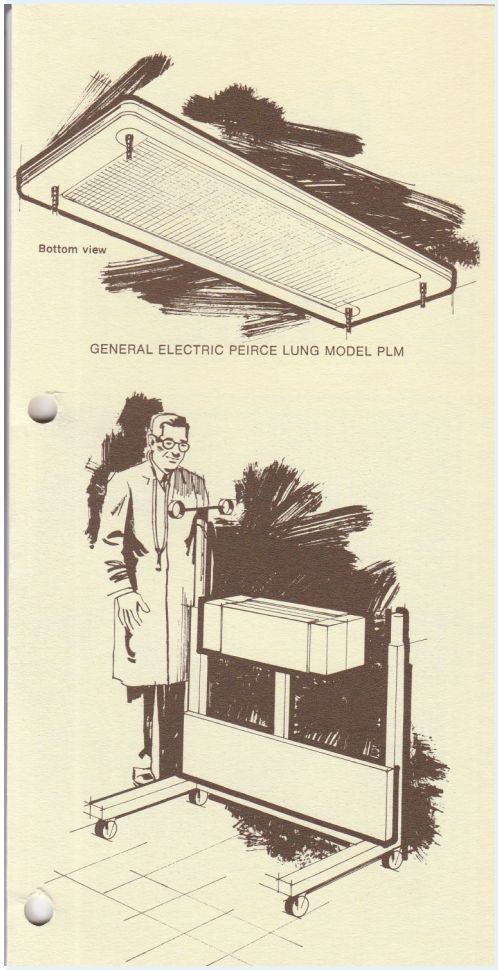


Figure 3. GE Peirce Lung

Teflon®. This crude device, Peirce's first attempt at building a functioning membrane, is occasionally on display at the National Museum of American History in Washington, DC. In 1962, Peirce teamed with Dr. Pierre Galletti to construct the experimental "Klung" device (the name *Klung* refers to a combination kidney-lung membrane). Again, Teflon® was used for oxygenation along with cellophane for simultaneous dialysis. A decade later, the Travenol Modulung-Teflo™ appeared on the market – often referred to as the first truly operational microporous membrane oxygenator (see Figure 2).

By the mid-1960's, Peirce had shifted his focus from Teflon® to silicone. Working with GE, a prototype disposable oxygenator was built using a newly formulated silicone-polycarbonate membrane material (see Figure 3). This copolymer, named MEM-213, proved far less expensive than Teflon®, and offered higher permeability for gas exchange. Aimed at the pediatric population, this inaugural GE Peirce lung retained the sandwich-type look of Clowes' device and featured a top-end flowrate of 2.0 LPM. The University of Michigan Medical Center evaluated the device over a two-year period in twenty-four children, publishing their findings in 1972. About this same time, Peirce summarized much of his pioneering membrane research in his classic textbook, *Extracorporeal Circulation for Open-Heart Surgery*.

Second-generation Device

In 1973, the GE DuaLung™ membrane oxygenator appeared on the market (see Figure 4). Unlike the original GE Peirce lung which required ninety-eight silicone sheets for adult perfusion, the enhanced GE DuaLung™ needed just twenty-six. A most innovative feature was the device's integral heat exchanger, considered a secondary add-on component of nearly all other extracorporeal systems. Priced at less than half the cost of its predecessor, the DuaLung™ gained considerable attention at the outset. Full page advertising pieces appeared in perfusion journals starting in early 1974. Unfortunately, its priming volume exceeded a liter, nearly twice what capillary-type membrane fibers required. Furthermore, reports of heat exchanger leaks began to appear. Comparable membranes like the coiled Sci-Med used totally disposable plastic for the device's outer housing. The DuaLung™ oxygenator's flimsy sheet membrane, on the other hand, had to be fitted inside a reusable metal holder and secured with six perimeter screws (see Figure 5). This step lengthened the assembly time, and after just a couple years of production the GE DuaLung™ fell out of favor with perfusionists, fading into obscurity.

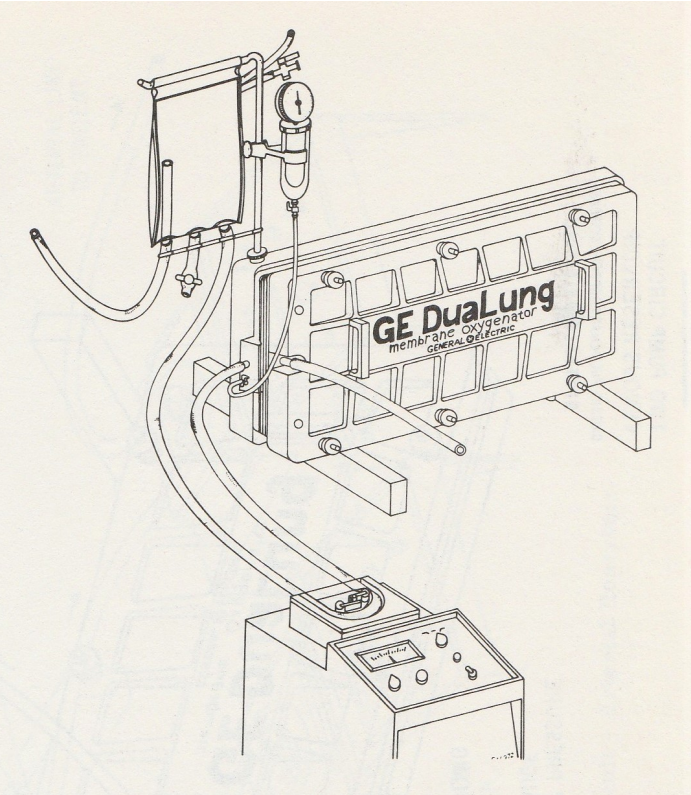


Figure 4. GE DuaLung Schematic

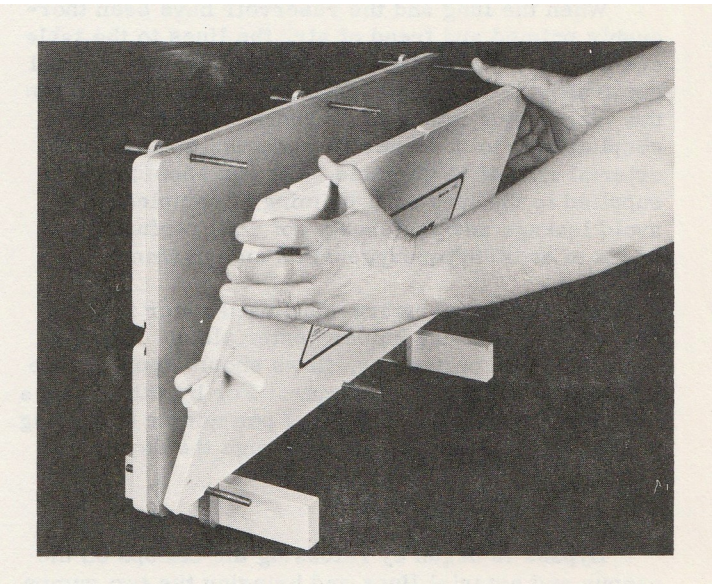


Figure 5. GE DuaLung Screws

Conclusion

Early membrane oxygenators like the GE Peirce lung were bulky, hard to assemble, and prone to leak. Though not widely used clinically, these crude devices inspired the development of today's compact, high-efficiency membrane designs. In 1959, Dr. Denis Melrose summed up artificial oxygenation by stating, *"Of the artificial systems, the most attractive is that where, in imitation of the natural pulmonary anatomy, a membrane separates blood from gas"*. Innovators like Kolff, Clowes, Bramson, Kolobow, Landé, and of course Peirce recognized the special mystique of membrane materials for use in blood oxygenation. How fortunate are we, that for a brief time, a company known for light bulbs would share in this same vision and enthusiasm.

46th Annual Seminar of
The American Academy of Cardiovascular Perfusion
Embassy Suites Denver Downtown Convention Center
1420 Stout St, Denver, CO 80202
February 5-8th, 2025
(Tentative Program)

Wednesday, February 5th, 2025

1:00 pm – 5:00 pm	REGISTRATION
2:30 pm – 5:00 pm	**Manufacturers' Breakout Rooms**
5:00 pm – 5:30 pm	Opening Business Meeting *Fellow, Member, Senior, and Honorary Members*
5:30 pm – 7:00 pm	**Special Scientific Panel Session – Pro/Con Debates** *AI vs. Focus on the Patient and Not the Buttons* *James Beck and Steven Sutton* *Transplant Harvest: Traditional vs. NRP* *Kathryn Gray DeAngelis and Frederick Hill*

Thursday, February 6th, 2025

7:00 am – 10:00 am	REGISTRATION
7:00 am – 7:30 am	Video Presentations and Breakfast
7:30 am – 9:30 am	**Special Scientific Panel Session – Transplants and Controversy** *Normothermic Regional Perfusion (NRP) - Michael Hancock* *Harvest Pool Challenges - Junnifer Murriet, AOPO President* *Legal and Ethical Hurdles - Dr. Jordan Hoffman, Medical Director* *Panel Discussion*
9:30 am – 11:30 am	**Fireside Chats** *Everything ECMO* *Pediatrics* *Precepting Our Future Colleagues* *Simulation: Low and High Fidelity* *Students Only Forum*
11:30 am – 12:30 pm	Lunch (Speaker - Livanova)
12:30 pm – 2:30 pm	**Special Scientific Panel Session – Future Technology** *AI and Simulation - Dr. Marc Dickstein* *AI and Apps - Dr. Zain Khalpy* *AI-enabled Clinical Decision Support During Cardiopulmonary Bypass - Dr. Roger Dias* *AI: The Genie in the Lamp or Opening Pandora's Box? - Dr. Adam Fernandez* *Panel Discussion*
2:30 pm – 3:00 pm	Break

3:00 pm – 3:15 pm Who Loves Paying Taxes? Pay Your Fair Share Without Leaving a Tip – John Bruno RICP®, QPFC
Northwestern Mutual Wealth Management Company

3:15 pm - 5:00 pm **Scientific Paper Session**

EVALUATING THE IMPACT OF MAINTAINING PATIENT DO2 TO REDUCE ACUTE KIDNEY INJURY (AKI)
Christa Bond Kampert University of Maryland Medical Systems- St. Joseph Medical Center and Clifford Edwin Fonner Maryland Cardiac Surgery Quality Initiative

MODERN OVERHAUL OF THE PRE-BYPASS CHECKLIST: LEVERAGING LIVE DATA CAPTURE TO REPLACE "YES/NO" CHECKLIST DESIGN
Michael W Vespe, Joseph Lewis, Marc E Stone; Icahn School of Medicine at Mount Sinai, New York, NY

TIME-DOSE RESPONSE OF OXYGEN DELIVERY DURING CARDIOPULMONARY BYPASS IN MITRAL VALVE SURGERY: DOES SURGICAL APPROACH MATTER?
Reisinger M, Kachel M, Wang C, Pirelli L, Geirsson A, Argenziano M, Kurlansky P, Chung C, Fung K, Beck J, George I; New York-Presbyterian Hospital, Columbia University Medical Center, New York, NY

COUNTY-LEVEL DISTRIBUTION OF EXTRACORPOREAL MEMBRANE OXYGENATION IN SOUTH CAROLINA
Christopher Marler, Brittney Waters, Mattie Solomon, Laura Dell'Aiera, Mary Dooley; Medical University of South Carolina

THE EFFECT OF CIRCUIT RINSING ON REDUCING THE CARBON FOOTPRINT
Julie Collins, Allison Weinberg, Darian Murcek-Ellis, Cristina Parra; Rush University Medical Center

FIRST IN-HUMAN EARLY FEASIBILITY STUDY OF BiVACOR TOTAL ARTIFICIAL HEART
Sanjay Patel: Michael E DeBakey VA Medical Center, Houston, Texas
William Cohn, Daniel Timms: BiVACOR, Inc.

5:30 pm – 8:30 pm **Sponsor's Hands-On Workshop & Reception**

Friday, February 7th, 2025

7:00 am – 10:00 am REGISTRATION
7:00 am – 7:45 am Video Presentations and Breakfast

7:45 am – 9:45 am **Special Scientific Panel Session – Pediatrics**

Overview of Blood Conservation in Pediatrics - Ron Angona
Adequacy of Perfusion in Pediatrics - Molly Dreher
Autologous Prime in Pediatrics - Joseph Deptula
New Spin to Old Techniques in Blood Conservation - Ashleigh LeBlanc
Wrapping it up, What we do with the Blood - Kevin Charette
Panel Discussion

9:45 am – 11:45 am **Fireside Chats**

Pediatrics and Pediatric ECMO
AI in Perfusion
Perfusion Accidents
Team Dynamics
Simulation: Low and High Fidelity

11:45 am – 1:00 pm Lunch

1:00 pm – 2:45 pm **Special Scientific Panel Session – ECMO**

ECPR - Mark Martin
ECPR Survivor - Sarah Cassalan-Bittle
Pediatric Ambulatory ECMO - Jessica Cornman
ECMO Resource Management, Both Human and Material - Kathryn Gray DeAngelis
Panel Discussion

2:45 pm – 3:15 pm Break

3:15 pm – 5:00 pm **Memorial Session**

Introduction – David Fitzgerald
Charles C. Reed Memorial Lecture
- Dr. Joseph (Jay) Zwischenberger
Thomas G. Wharton Memorial Lecture
- Allison Weinberg

6:30 pm **Induction Dinner**

All Attendees and Guests (pre-registration required)

Saturday, February 8th, 2025

7:00 am – 10:00 am REGISTRATION
7:00 am – 7:30 am Video Presentations and Breakfast
7:30 am – 10:00 am **Scientific Paper Session**

PRESSURE DROP ACROSS COMMON LEFT VENTRICLE VENT CATHETERS
Nicholas Ownbey, Tyler Randolph, Nicholas Majzer, Mary Dooley, David Fitzgerald, David Fisher, Laura Dell'Aiera, Lloyd Felmly, and William Dauch; Medical University of South Carolina, Charleston, SC

POSTOPERATIVE HEMOGLOBIN CHANGES FOLLOWING ULTRAFILTRATION IN CARDIAC PATIENTS
Ethan Forsberg, Carly Falotico, Douglas Smego, Hui Li, Brandon Tomcek, Chris Blaylock, Kirk Bingham, Margaret Carlson, Joseph Tonna; University of Utah Health

PERFUSION SUPPLY CHAIN: A BUSINESS CASE FOR COLLABORATION
Robert L. Reed; University of Alabama Medical Center, Birmingham, Alabama

RELATIONSHIP BETWEEN NUMBER OF DAYS PRIMED AND EFFICIENCY OF OXYGENATORS: A PRE-EXPERIMENTAL STUDY
Austin Racicot, Allison Weinberg, Julie Collins; Rush University Medical Center

EXPLORING CELL FREE DNA AS A BIOMARKER FOR EVALUATING CARDIOPLEGIA EFFICACY IN CARDIAC SURGERY
Anne Krueger, Toshinobu Kazui, Raymond K Wong; The University of Arizona and Banner University Medical Center-Tucson

CASE PRESENTATION: HEART FAILURE FOLLOWED BY HLA SENSITIZATION NECESSITATING TRANSPORT TO OUTSIDE FACILITY ON BERLIN HEART VENTRICULAR ASSIST DEVICE
Alex Gum; Children's Healthcare of Atlanta

MANAGEMENT OF HIGHLY SENSITIZED HEART TRANSPLANT RECIPIENTS
Caleb Varner; New York Presbyterian – Morgan Stanley Children's Hospital

EFFICACY OF VIDEO VISUAL AIDS IN CONJUNCTION WITH LECTURE AND LABORATORY DIDACTIC COURSES FOR PERFUSION STUDENTS
Daniel Spencer, Camille Dang, Allison Weinburg, Julie Collins; Department of Cardiovascular Perfusion, Rush University Medical Center

10:00 am –12:00 pm **Fireside Chats**

ECMO and VAD Challenges
Emerging Techniques of Transplant and Organ Procurement
The Future of Our Career
Shortage Solutions
Women in Perfusion

12:00 pm Closing Business Meeting

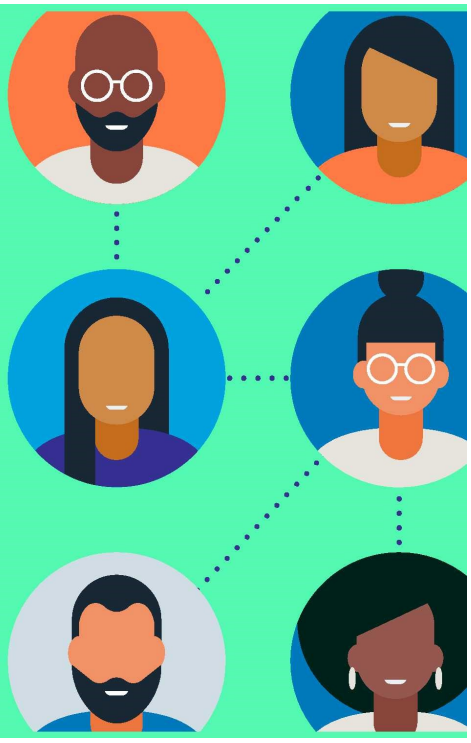
Fellow, Senior, and Honorary Members Only

HELP SHAPE THE FUTURE OF THE AACP

Build your resume while networking with professionals in your field by volunteering with the AACP! We have several opportunities with varying levels of commitment. The future is bright with you on our team!

- **Fireside Chat Moderator**- we'll pair you with a Fellow Member to help lead the conversation in a fireside chat session.
- **Speaker**- share your experience with your peers and gain recognition
- **Rather stay behind the scenes?**
  - We're always searching for fresh ideas- help make your idea come to life! Or leave us your idea and we'll take the lead
  - Webpage/graphic arts experience? We'd love your help
  - Sponsors' Workshop setup- who doesn't like a theme party?

Get started today by emailing us at office@theaacp.com



46th Annual Seminar of
The American Academy of Cardiovascular Perfusion
Fireside Chat Topics

Thursday, February 6, 2025

In-Person

- **Everything ECMO**-*Collaborate with colleagues about the intricacies of what goes into all parts of ECMO*
- **Pediatrics**- *An open forum to discuss standards of care, challenges, and new practices in the field*
- **Precepting Our Future Colleagues**- *Everything from training new hires to training students, what have you found that works the best/ worst*
- **Simulation: From Low to High Fidelity**- *See what other centers are doing to build and grow this important technique (Combo: chat and simulation)*
- **Students Only Forum**- *A forum to meet and greet for students only*

Webcast

- **Team Dynamics-** *Team challenges and how to deal with them within small, large, and always changing teams*
- **Future of Our Career –** *What does our future career look like with staffing shortages vs flooding of the market, emerging technologies, and coverage of all ancillary technique*

Friday, February 7, 2025

In-Person

- **Pediatrics and Pediatric ECMO-** *What's new, what's not, and what struggles do we face as the specialty moves forward*
- **AI in Perfusion-** *Let's discuss what this looks like, where this is going, and could it go too far?*
- **Perfusion Accidents**- *If you can think of it, it has either happened to someone else or will to you. Let's share and learn.*
- **Team Dynamics-** *Team challenges and how to deal with them within small, large, and always changing teams*
- **Simulation: From Low to High Fidelity-** *See what other centers are doing to build and grow this important technique (Combo: chat and simulation)*

Webcast

- **Shortage Solutions-** *From human resources to material resources*
- **Everything ECMO**-*Collaborate with colleagues about the intricacies of what goes into all parts of ECMO*

Saturday, February 8, 2025

In-Person

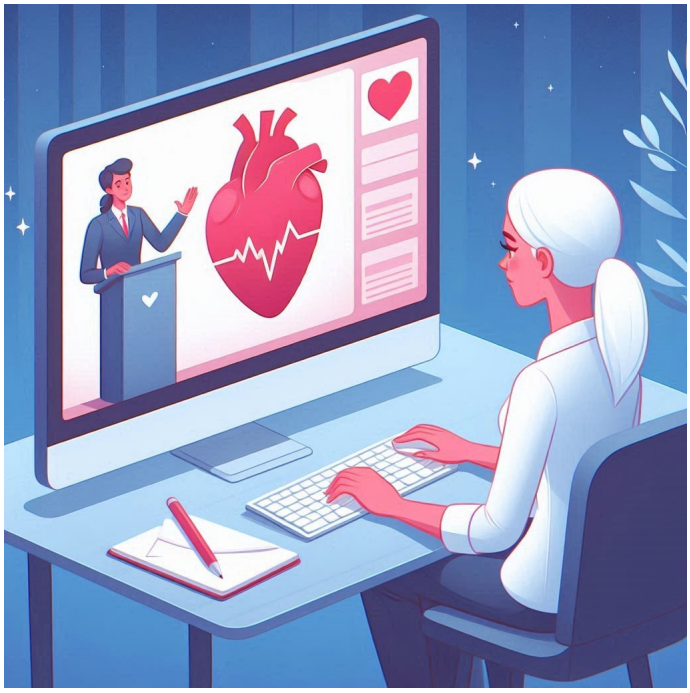
- **Emerging Techniques of Transplant and Organ Procurement** -*Emerging techniques, what do you do, how do you do it? Is it better? Or should we keep it simple?*
- **Women in Perfusion-** *Collaborate with some special situations and challenges of other women in the field*
- **Future of Our Career –** *What does our future career look like with staffing shortages vs flooding of the market, emerging technologies, and coverage of all ancillary techniques*
- **ECMO and VAD Challenges: Scenarios and Transports -** *Let's learn from each other as transports (intra and inter hospital) are becoming their own new specialty*
- **Shortage Solutions-** *From human resources to material resources*

Webcast

- **Pediatrics**- *An open forum to discuss standards of care, challenges, and new practices in the field*
- **AI in Perfusion-** *Let's discuss what this looks like, where this is going, and could it go too far?*

Live Webcast of the AACP Conference

The AACP will be offering a Live Webcast of the 2025 Annual Seminar in Denver, CO. Virtual attendees will be able to stream all of the General Sessions, as well as have two virtual Fireside Chats each day, exclusively for virtual attendees. Virtual attendees will have the opportunity to again ask questions of the moderators, ensuring qualification for Category I CEUs!



Winter Fun
Pre or Post Conference

Attendees of the 46th Annual AACP Seminar in Denver, CO, who wish to take advantage of their time in Colorado before or after the conference, can now utilize exclusive links for discounted lodging and lift tickets at two world class ski resorts!

Winter Park Ski Resort

“From snowshoeing and ski biking to sunset snowcat tours and tubing, you'll find adventure around every turn (skis or no skis!) at Winter Park. Day or night, there's a way to elevate your winter trip with unique, memory-making experiences”.

Lodging: 30% off all lodging at the resort
Ski Pass Promo Code: corp25dwda
(Good for $109 lift tickets if purchased before 11/1/24, $119 lift tickets after)

Keystone Ski Resort

From skiing, riding, tubing, skating, and playing in the world’s largest snow fort, to dinning at restaurants on the mountain or shopping in town, Keystone has something for everyone!

Lodging: (available ONLY at Keystone Resort)
Reservations: (855) 948-0696
Group Code: SKRAAC25
EPIC Ski Pass: (Good at 5 Colorado ski resorts and 30+ resorts around the world)

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Important Academy Dates

The ACADEMY ANNUAL MEETING DEADLINES

ABSTRACT DEADLINE	**October 15, 2024**
MEMBERSHIP DEADLINE	**December 3, 2024**
PRE-REGISTRATION	**January 11, 2025**
HOTEL REGISTRATION	**January 11, 2025**
2024 ANNUAL MEETING	**February 5-8, 2025**

2025 Annual Meeting

Denver, Colorado
February 5-8, 2025

Our Host Hotel
Embassy Suites Denver Downtown Convention Center
1420 STOUT STREET, DENVER, CO 80202

Reservations: 1-800-HILTONS

Single/Double Occupancy: $219.00

Remember to mention that you will be attending the Annual Conference of The American Academy of Cardiovascular Perfusion (AACP).

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