### Wednesday, June 21

<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Event</th>
</tr>
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<tbody>
<tr>
<td>8:30am - 4:30pm</td>
<td><strong>ASAIO 6th ANNUAL PEDIATRIC MEDICAL DEVICE DAY</strong></td>
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</tbody>
</table>
| **ASAIO 6th ANNUAL PEDIATRIC MEDICAL DEVICE DAY** | Co-Chairs: **Timothy Maul**, CCP, PhD, Nemours Children's Hospital, Orlando, FL  
**Eric Chen**, MS, FDA, Silver Spring, MD  
**Christopher Almond**, MD, MPH, Stanford University, Palo Alto, CA  
8:30am-8:35am **Introduction**  
**Timothy Maul**, CCP, PhD, Nemours Children's Hospital, Orlando, FL  |
| 8:35am - 10:15am   | **Pediatric Day Session 1: Bringing Products To Market**                      |
| 8:35am-8:55am      | **Orphan Products Funding For Clinical Trials**  
**Eric Chen**, MS, FDA, Silver Spring, MD  |
| 8:55am-9:15am      | **Orphan Products PI Perspective**  
**Christopher Almond**, MD, Stanford University, Palo Alto, CA  |
| 9:15am-9:35am      | **Demystifying the FDA Process**  
**Kurt Dasse**, PhD, Hbeat Medical, LLC, Cocoa, FL  |
| 9:35am-9:55am      | **Where The CDRH Is Going**  
**Vasum Peiris**, MD, FDA, Silver Spring, MD  |
| 9:55am-10:05am     | **Discussion and Questions**                                                   |
| 10:05am-10:30am    | **Pediatric Refreshment Break 1**                                             |
| 10:30am - 11:45am  | **Pediatric Day Session 2: Updates From The Field**                          |
| 10:30am-10:50am    | **PediMacs**  
**Joseph Rossano**, MD, MS, Children's Hospital of Pennsylvania, Philadelphia, PA  |
| 10:50am-11:10am    | **Early Report From PumpKIN**  
**Robert Jaquiss**, MD, UT Southwestern Medical Ctr, Dallas, TX  |
| 11:10am-11:30am    | **Quality Improvement Science Of VADs**  
**Angela Lorts**, MD, Cincinnati Children's Hospital, Cincinnati, OH  |
| 11:30am-11:45am    | **Discussion and Questions**                                                   |
| 11:45pm - 1:30pm   | **Lunch Break**                                                               |
| 1:30pm - 2:15pm    | **Pediatric Day Session 3: Getting A Pediatric Device to Market**           |
| 1:30pm-1:52pm      | **Pediatric Device Consortia Panel**  
**Julia Finkel**, MD, Children's National Health System, Washington, DC  
**Matthew Maltese**, PhD, The Children's Hospital of Philadelphia, Philadelphia, PA  
**Wenda C. Carlyle**, PhD, CardioMed Device Consultants, Annapolis, MD  |
| 1:53pm-2:15pm      | **Berlin Heals C-MIC: A Disruptive Approach for the Treatment of Heart Failure with a Novel Microcu**  
**Johannes Mueller**, MD, Berlin Heals GmbH, Berlin, Germany  
**Peter Goettel**, MD, Berlin Heals, GmbH, Berlin, Germany  |
| 1:30pm-1:52pm      | **Corinnova’s Novel Device for MCS**  
**William Altman**, BSEE, MBA, Corinnova Inc., Houston, TX  
**Keith Sagerko**, BS, MHA, MBA, Corinnova Inc., Houston, TX  |
| 2:15pm - 2:30pm    | **Pediatric Refreshment Break 2**                                             |
| 2:30pm - 4:30pm    | **Pediatric Day Session 4: New Ideas In Anticoagulation**                    |
2:30pm-2:50pm  DTIs
Patricia Massicotte, MD, University of Alberta, Edmonton, Alberta

2:50pm-3:10pm  Is TEG No Longer Needed?
David Rosenthal, MD, Stanford University, Palo Alto, CA

3:10pm-3:30pm  Surface Passivation
Lise Tchouta, MD, MS, MHS, Columbia University Medical Ctr, New York, NY

3:30pm-3:50pm  Bioinspired Surface Coating for Mechanical Circulator Support
Michael Super, PhD, Wyss Institute at Harvard, Boston, MA

3:50pm-4:10pm  Acute Stroke Management
Rebecca Ichord, MD, Children’s Hospital Philadelphia, Philadelphia, PA

4:10pm-4:30pm  Discussion and Closing Comments
Timothy Maul, CCP, PhD, Nemours Children’s Hospital, Orlando, FL

8:00am - 5:00pm  MCS/VAD UNIVERSITY
Course Director: Pramod Bonde, MD, Yale University, New Haven, CT

8:00am-8:05am  Welcome
Pramod Bonde, MD, Yale University, New Haven, CT

8:05am-9:30am  How Engineering Influences Medicine
Fundamentals of Engineering Principles in Design, Development and Testing of Circulatory Devices
Steven Koenig, PhD, University of Louisville, Louisville, KY
Jeff LaRose, MSME, HeartWare, Miami Lakes, FL
Kevin Bourque, MSME, St. Jude Medical Inc., Burlington, MA

9:30am-10:30am  How Medicine Helps Engineering Innovation
Who Can and Cannot Benefit from VAD Therapy?
How Do We Expand the Potential Recipient Pool?
Tim Kaufmann, Prof Dr, RWTH Aachen University, Aachen, NRW, Germany
Hari Mallidi, MD, Brigham and Women’s Hospital / Harvard Medical School, Boston, MA

10:30am-11:30am  Economics Of VAD Therapy: What You Need To Know?
Infrastructure Needed
Dynamics of Healthcare Delivery
Financial Viability
Pavan Atluri, MD, University of Pennsylvania, Philadelphia, PA

11:30am-1:00pm  Clinical Aspects of VAD Implantation & Approach
Hemodynamic Stabilization of Acute Circulatory Shock
Approaches and Pitfalls
Technical Pearls
What Not To Do
Basar Sareyyupoglu, MD, University Hospitals of Case Western, Cleveland, OH
Pramod Bonde, MD, Yale University, New Haven, CT

1:00pm-2:00pm  Mock Loop Challenge/ Prototype Challenge Presentations
Single Ventricle Pediatric Mock Circulation for Student Instruction and Clinical Simulation
Bill Ngha, MS, MS-I, St. George’s University, Charlotte, NC

Hybrid Cardiovascular Simulator
Jeison Fonseca, PhD, Institute Dante Pazzanese of Cardiology, Sao Paulo, SP, Brazil

Development of a Mock Circulatory Loop for in vitro Testing of Ventricular Assist Devices
Sotirios Spiropoulos, MD, Medical University Graz, Austria

A Compact Mock Loop for a Ventricular Assist Device Performance Verification
Po-Lin Hsu, PhD, Soochow University, Suzhou, Jiangsu, China

A Non-Conventional, Concentric, “Total” Artificial Heart
Arnold Lande, MD, Northport Navigatable Waters Institution, Northport, MI

ASAIO 63rd Annual Conference - Prototype Challenge Submission
Bruno Utiyama da Silva, PhD, Institute Dante Pazzanese of Cardiology, Sao Paulo, Brazil

1:00pm-2:00pm  Lunch Break

2:00pm-4:00pm  The Four Cs of VAD Care
Communication
Compliance
Coagulation
Complications
William Holman, MD, University of Alabama, Birmingham, AL
Basar Sareyyupoglu, MD, University Hospitals of Case Western, Cleveland, OH
Dawn Christensen, MS, FNP-BC, Innovative Program Solutions LLC, Pine Grove, PA
Pamela Combs, PhD, RN, Advocate Christ Medical Center, Oak Lawn, IL

4:00pm-5:00pm  Total Artificial Heart
## Thursday, June 22

### GENERAL SESSION 1

**7:45am - 12:30pm**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>7:45am - 7:55am</td>
<td><strong>Introduction &amp; Welcome</strong> - Marvin Slepian, MD, ASAIO Program Chair, University of Arizona, Tucson, AZ</td>
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<tr>
<td>7:55am-8:00am</td>
<td>ASAIO fyi - for young innovators Announcement - Priscilla Petit, Heartbeat Medical, Cocoa, FL</td>
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<tr>
<td>8:00am - 9:15am</td>
<td>Top Graded Abstracts</td>
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<tr>
<td>8:00am-8:10am</td>
<td>Implanted Novel Autologous Bioprosthetic Valve Can Adapt the Histological Character to the Environment - Yoshiaki Takewa, MD, PhD, National Cerebral &amp; CV Center, Suita, Osaka, Japan</td>
</tr>
<tr>
<td>8:10am-8:20am</td>
<td>Progress in the Development of a Miniature, Hemocompatible Continuous Flow Ventricular Assist Device for Infants and Children - Peter Wearden, MD, PhD, Nemours Children's Hospital, Orlando, FL</td>
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<tr>
<td>8:20am-8:30am</td>
<td>Post Transplant Survival in Patients Bridged to Transplant with a Ventricular Assist Device: Poor Outcomes Extend Beyond the Standard Adolescent Age Group - Farhan Zafar, MD, Cincinnati Children's Hospital Medical Ctr, Cincinnati, OH</td>
</tr>
<tr>
<td>8:30am-8:40am</td>
<td>Using Wall Shear Stress and Platelet Stress Accumulation in the Design of a Bioartificial Kidney - Steven Goebel, PhD, SimuTech Group Inc., Rochester, NY</td>
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<tr>
<td>8:40am-8:50am</td>
<td>Stretchable Electronic Conformal Skin-adherent Wearable Patches: a Novel Method for Wireless Patient Monitoring - Jacob Garlant, University of Arizona, Tucson, AZ</td>
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<tr>
<td>8:50am-9:00am</td>
<td>International Analysis of LVAD Point-of-care vs Plasma INR: a Multicenter Study - Sarah Schettle, PA-C, Mayo Clinic, Rochester, MN</td>
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<tr>
<td>9:00am-9:15am</td>
<td>Discussion</td>
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<tr>
<td>9:15am - 9:45am</td>
<td><strong>ASAIO President’s Address</strong> - William Fissell, MD, Vanderbilt University, Nashville, TN</td>
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#### Visit Exhibits & Enjoy Refreshments

9:45am - 10:30am

**Visit Posters**

9:45am-10:30am

### GENERAL SESSION 1 - Continued

**10:30am-12:30pm**

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<tr>
<td>10:30am-10:50am</td>
<td><strong>Medical Device/Therapeutics Innovation - The Issue, The Need and The Process</strong> - Marvin Slepian, MD, University of Arizona, Tucson, AZ</td>
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<tr>
<td>10:50am-11:10am</td>
<td>The Revolution in Material Development - Arthur Coury, PhD, Northeastern University, Boston, MA</td>
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<tr>
<td>11:10am-11:30am</td>
<td>Modeling and Simulation Approaches - Enhancing Certainty, Reducing Animal Studies, Speeding Development - Tina Morrison, PhD, FDA, Silver Spring, MD</td>
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<tr>
<td>11:30am-11:50am</td>
<td>Intellectual Property Considerations – Cost Effective and Expeditious Ways to Protect Medical Devices and Therapies - Patrea Pabst, JD, Pabst Patent Group, Atlanta, GA</td>
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<tr>
<td>11:50am-12:10pm</td>
<td>Efficiency in Regulatory Strategies - Valerie Merkle, PhD, FDA, Silver Spring, MD</td>
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<tr>
<td>12:10pm-12:30pm</td>
<td>Fuelling The Process - How to Secure the Capital to Drive Innovation - Michael Marasco, MBA, Northwestern University, Evanston, IL</td>
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<tr>
<td>12:30pm-1:30pm</td>
<td>Lunch Break</td>
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### CARDIAC 1

1:30pm-3:00pm
Panel: Patient Pump Interaction
Panelists:
  John M. Stulak, MD, Mayo Clinic Hospital, Rochester, MN
  Robert Adamson, MD, Sharp Memorial Hospital, San Diego, CA
  Keith Aaronson, MD, University of Michigan, Ann Arbor, MI
  Mary Keebler, MD, Vanderbilt University, Nashville, TN

1:30pm-1:45pm
Case #1:
Surgical Challenges with Complex Case Scenarios - Multiple Reoperations and Pump Exchanges
  Simon Maltais, MD, PhD, Mayo Clinic, Rochester, MN

1:45pm-1:50pm
Discussion

1:50pm-2:05pm
Case #2:
Patient Device Selection Difficulties - Thromboembolic Events and Gastrointestinal Bleeding
  Nir Uriel, MD, MSc, University of Chicago, Chicago, IL

2:05pm-2:10pm
Discussion

2:15pm-3:00pm
Cardiac Abstracts

2:15pm-3:00pm
Infection Complications After Primary Implantation of a Continuous-flow Left Ventricular Assist Device in 526 Patients: Comparison of Axial-flow (HeartMate II) and Centrifugal-flow (HVAD) Device
  Randall Olmsted, Baylor College of Medicine, Houston, TX

2:30pm-2:45pm
ICU Sequential Organ Failure Assessment (SOFA) Score Improves Risk Prediction Accuracy for Durable LVAD Recipients
  Subhasis Chatterjee, MD, Baylor College of Medicine, Houston, TX

1:30pm-3:00pm
BIOENGINEERING 1 - A New Era in Cardiac Research
Co-Chairs:
  Egemen Tuzun, MD, PhD, Texas A & M, College Station, TX
  John Criscione, MD, PhD, Texas A&M University, College Station, TX

1:30pm-2:00pm
MRI Compatible Ex-Vivo Beating Heart (Physioheart) Platform: A New Era in Cardiac Research
  Bastian de Mol, MD, PhD, JD, University of Amsterdam, The Netherlands

2:00pm-3:00pm
Bioengineering Abstracts

2:15pm-2:30pm
A Novel VAD Platform Configured for Right Heart Mechanical Circulatory Support
  J. Ryan Stanfield, PhD, VADovations, Oklahoma City, OK

2:30pm-2:45pm
In vitro Performance of a Novel Membrane-oscillating Left Ventricular Assist Device Under Physiological Conditions
  Nathalie Topalski, BS, University of Louisville, Louisville, KY

2:45pm-3:00pm
Automatic Regulation Feasibility Testing of a Bioprosthetic Total Artificial Heart in a Bovine Model
  Jean-Christophe Perles, MD, Carmat, Vélizy-Villacoublay, France

1:30pm-3:00pm
PULMONARY 1 - Pro/Con of ECLS as Bridge to Recovery-Early Ambulation/Mobilization vs Rest and Get Off ECLS ASAP
Chair: Bryan Whitson, MD, PhD, Ohio State University, Columbus, OH
  Laura Coyle, MSN, Advocate Christ Medical Ctr, Oak Lawn, IL

1:30pm-1:45pm
Pro: Charles Hoopes, MD, University of Alabama, Birmingham, AL

1:45pm-2:00pm
Con: James Blum, MD, Emory University Hospital, Atlanta, GA

2:00pm-2:15pm
Pro: Joseph Zwischenberger, MD, University of Kentucky, Lexington, KY

2:15pm-2:30pm
Con: William Lynch, MD, MS, University of Michigan, Ann Arbor, MI

2:30pm-2:45pm
Panel Discussion

2:45pm-3:00pm
Pulmonary Abstracts

2:45pm-3:00pm
CO₂ Based Servo Regulation of Artificial Lung Sweep Gas
  Alex Thompson, PhD, VA Ann Arbor Healthcare System, Ann Arbor, MI

1:30pm-3:00pm
RENAI 1 - Global Issues in Renal Replacement Therapy
Co-Chairs:
  Prabir Roy-Chaudhury, MD, PhD, University of Arizona, Tucson, AZ
  Fokko Wieringa, PhD, imec, Eindhoven, Noord-Brabant, Netherlands

1:30pm-1:50pm
Global RRT: An Overview
### 1:50pm-2:10pm
**Commercial Opportunities and Business Challenges**
*Prabir Roy-Chaudhury, MD, PhD, University of Arizona, Tucson, AZ*

**Legacy of Kolff and the Road Ahead**
*Derek Wiebenson, BS, Baxter Healthcare, Englewood, CO*

**Reducing the Burden of Water Requirements**
*Christian Bluchel, PhD, Temasek Polytechnic, Singapore*

### 2:10pm-2:30pm
**Commercial Opportunities and Business Challenges**
*Prabir Roy-Chaudhury, MD, PhD, University of Arizona, Tucson, AZ*

**Legacy of Kolff and the Road Ahead**
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*Derek Wiebenson, BS, Baxter Healthcare, Englewood, CO*

**Reducing the Burden of Water Requirements**
*Christian Bluchel, PhD, Temasek Polytechnic, Singapore*

### 3:00pm-3:45pm
**Visit Exibits & Posters**

### 3:45pm - 5:00pm
**CARDIAC 2-Debate-VADS: Bioengineering and VADs**
*Chair: Heather Barone, RC-BC, MSN, Cedars-Sinai Medical Center, Los Angeles, CA*

**Pro:** New Pump Designs Have Recalled the "Perfect Pump"
*David Feldman, MD, PhD, University of Cincinnati Med Ctr, Cincinnati, OH*

**Con:** LVAD Technology Imovement Can Further Improve Clinical Outcomes
*John M. Stulak, MD, Mayo Clinic, Rochester, MN*

### 4:30pm - 5:00pm
**Cardiac Abstracts**

**Cannula and Pump Position is Associated with Left Ventricular Unloading and Clinical Outcome in Patients with HeartWare Ventricular Assist Device**
*Teruhiko Imamura, MD, PhD, University of Chicago, Chicago, IL*

**LVAD Outflow Graft Size Impacts Thrombogenic Potential**
*Venkat Keshav Chivukula, PhD, University of Washington, Seattle, WA*

### 4:45pm - 5:00pm
**Bioengineering Abstracts**

**In-vitro Feasibility Study of a Pulsatile Intra-ventricular Assist Device Mimicking Jellyfish-like Movement**
*Wu Tingting, MD, Soochow University, Suzhou, China*

### 3:45pm - 5:00pm
**BIOENGINEERING 2**
*Co-Chairs:
Howard Frazier, MD, Baylor College of Medicine, Houston, TX
Igor Gregoric, MD, University of Texas Health Science Ctr, Houston, TX
Egemen Tuzun, MD, PhD, Texas A & M, College Station, TX*

**Biventricular Heart Assist with Devices Acting on the Epicardium**
*John Criscione, MD, PhD, Texas A&M University, College Station, TX*

**Modeling Predictions of Arterial Adaptations to Continuous and Induced Pulse Mode Left Ventricular Assist Devices In Heart Failure**
*Phuc Nguyen, PhD, CEO, Prolegon Biotechnologies, Houston, TX*

### 3:45pm - 4:15pm
**Bioengineering Abstracts**

**In-vitro Feasibility Study of a Pulsatile Intra-ventricular Assist Device Mimicking Jellyfish-like Movement**
*Wu Tingting, MD, Soochow University, Suzhou, China*

### 3:45pm - 5:00pm
**VAD 1 - Strategies for Every Day Life Within a VAD Program**
*Co-Chairs:
Stephen Koenig, PhD, University of Louisville, Louisville, KY
Lori Edwards, MSN, RN, INOVA Fairfax Hospital, Falls Church, VA*

**Integration Of Processes Within VAD Programs**
*Pamela Combs, PhD, RN, Advocate Christ Medical Ctr, Oak Lawn, IL*

**Telemonitoring: Challenges and Benefits**
*Michelle Kassemos, BSN, RN, University of California, San Francisco, CA*

**Enhancing Difficult MCS Team Decisions**
*Geetha Bhat, PhD, MD, Advocate Christ Medical Center, Oak Lawn, IL*

**Future Challenges with MCS**
*Mark Slaughter, MD, University of Louisville, Louisville, KY*

### 3:45pm - 5:00pm
**PULMONARY 2 - Lung Injury Mini-Summit - An ASAIO Innovation Opportunity**
*Chair: Joe GN "Skip" Garcia, MD, University of Arizona, Tucson, AZ*

**Keynote: Acute Lung Injury - From Genes to Tissue to Devices - A Role for Precision Medicine in Drug/Device Therapeutics**
*Joe GN "Skip" Garcia, MD, University of Arizona, Tucson, AZ*
4:10pm-4:35pm  Pathobiology of Acute Lung Injury - What Are The Targets For Intervention?
   Jeffrey Jacobson, MD, University of Illinois, Chicago, IL
4:35pm-5:00pm  Devices and Lung Injury - Ventilators/Oxygenators and Beyond - Foe or Friend?
   Can We Build Devices to Help?
   Christian Bime, MD, MSc, University of Arizona, Tucson, AZ

3:45pm - 5:15pm  RENAL 2-Beyond (Today's) Dialysis
   Co-Chairs:
   Shuvo Roy, PhD, University of California San Francisco, San Francisco, CA
   David Humes, MD, University of Michigan, Ann Arbor, MI
3:45pm-4:00pm  Living Membranes
   Dimitrios Stamatialis, PhD, University of Twente MRA Institute, Enschede, Netherlands
4:00pm-4:15pm  Nanoporous Membranes
   Dean Johnson, PhD, University of Rochester, Rochester, NY
4:15pm-4:30pm  Nanodialysis Technology and Experience
   Karin Gerritsen, MD, PhD, UMC Utrecht, Netherlands
4:30pm-4:45pm  Hemodialysis on the Run - WAK
   Victor Gura, MD, Cedar-Sinai Medical Ctr, Los Angeles, CA
4:45pm-5:00pm  Update on the AWAK for PD
   Martin Roberts, PhD, AWAK Technologies, Inc., North Hills, CA
5:00pm-5:15pm  The Regulatory Viewpoint
   Murray Sheldon, MD, FDA, Silver Spring, MD

3:45pm - 5:00pm  PEDIATRIC 1 : Short-Term MCS Bridge Debate
   Co-Chairs
   Tim Kaufmann, Prof. Dr., RWTH Aachen University, Aachen NRW, Germany
   Michael Sobieski, RN, CCP, University of Louisville Jewish Hospital, Louisville, KY
3:45pm-3:55pm  Impella Devices
   Melissa Webb, MD, University of Chicago, Chicago, IL
3:55pm-4:05pm  PediMag
   Peter Wearden, MD, PhD, Nemours Children’s Hospital, Orlando, FL
4:05pm-4:15pm  Rotaflow
   Angela Lorts, MD, Cincinnati Children’s Hospital, Cincinnati, OH
4:15pm-4:25pm  ECMO Is Best
   Ravi Thiyagarajan, MBBS, MPH, Boston Children’s Hospital, Boston, MA
4:25pm-4:30pm  Discussion
4:30pm-5:00pm  Pediatric Abstracts

4:30pm-4:45pm  Improvement in Six Minute Walk Distance and Brain-type Natriuretic Peptide as Markers of Recovery
   Children with Continuous Flow Ventricular Assist Devices
   Jason Goldberg, MD, Baylor College of Medicine, Houston, TX
4:45pm-5:00pm  A Rising Tide Lifts All Boats:
   Ventricular Assist Device Utilization is Associated with Improved Overall Center Waitlist Survival
   Chet Villa, MD, Cincinnati Children’s Hospital Medical Center, Cincinnati, OH

6:00pm - 7:00pm  ASAIO Welcome Reception

8:00am-5:00pm  Abstract Poster Presentations

Bioengineering Posters
101 A Novel Tissue Engineered Conduit for Use in Assisted Fontan Circulation
   Christopher Broda, MD, Baylor College of Medicine, Houston, TX
102 Novel Islet Macrocapsulations Devices for the Treatment of Diabetes Type 1
   Dimitrios Stamatialis, PhD, University of Twente MRA Institute, Enschede, Netherlands
103 Impact of Physiologic Pulsatile Flow on Microcirculation During Cardiopulmonary Bypass
   Gengo Sunagawa, MD, Cleveland Clinic, Cleveland, OH
104 Treating Short Bowel Syndrome Through Enterogenesis: Defining a Protocol for Safe Bowel Disconnection
   Meredith Barrett, MD, University of Michigan, Ann Arbor, MI
105 Controlling the Variance of Normalized Hemolysis Index from in vitro Hemolysis Testing
   Luidi Zhang, PhD, Soochow University, Suzhou, China
Development of the Sequential Flow Pump: Principle of the Sequential Pressurization and Hemolysis Results in Second Model
Shintaro Hara, PhD, University of Tokyo, Tokyo, Japan

The Effects of S-Nitrosothiol on Thrombin-induced Fibrin Formation
Terry Major, MS, University of Michigan, Ann Arbor, MI

A Novel Generic Model for the Investigation of Intraventricular Flow Patterns in Individual Hea
Kristin Hugenroth, Institute of Applied Medical Engineering, Aachen, Germany

Stephanie Zawada, The University of Arizona, Tucson, AZ

A Method to Increase PLA Scaffold Radiopacity Within Cardiac Vessels
Anne-Marie Ginn, Texas A&M University, College Station, TX

Impact of IABP Timing on Aortic Hemodynamics: A Computational Investigation
Gionata Fragomeni, PhD, Magna Graecia University, Catanzaro, Italy

Effect of Leaflet Orientation of Prosthetic Bi-leaflet Mechanical Heart Valve on Flow Through A
Satheesh Kumar, MD, Indian Institute of Technology Bombay, Mumbai, India

Aortic Valve Pressures During Left Ventricular Assist Device Support in a CFD-validated Model
Michele Rossi, PhD, Magna Graecia University, Catanzaro, Italy

Polymer Processing Techniques Impact Vascular Cell Behavior: How You Form It Matters
Kaitlyn Ammann, BS, University of Arizona, Tucson, AZ

Computational Fluid Dynamics to Guide Impeller Refinements for Reducing the Potential
for Thrombus Formation
Mark Goodin, SimuTech Group Inc., Hudson, OH

Galvanotaxis: an Electroceutical Strategy for Modulating Vascular Smooth Muscle Response to
Kaitlyn Ammann, BS, University of Arizona, Tucson, AZ

Novel Implantable Roller Pump to Treat Heart Failure-induced Lymphedema
Samantha Cassel, Drexel University, Philadelphia, PA

Artificial Deep Neural Networks to Estimate Hemodynamic Parameters During
Mechanical Circulatory Support Without Flow or Pressure Sensors
Barry Kuban, BSEE, Cleveland Clinic, Cleveland, OH

Fatty Acids Influence Platelet Membrane Fluidity and Shear-mediated Activation
Alice Sweedo, University of Arizona, Tucson, AZ

Development of an ex-vivo Perfusion System Suitable for
Small Animal Vascularized Composite Allograft Models
Emre Gok, MD, University of Michigan, Ann Arbor, MI

Metabolites Associated with Improved Survival in Alcoholic Hepatitis Patients are
Enriched in ELAD-treated Subjects
Lee Landeen, PhD, Vital Therapies, Inc., San Diego, CA

Drag-reducing Polymers for the Shunting of Rigid Erythrocytes Past Microvessel Bifurcations: a Potential Treatment for Sickle Cell Disease (SCD)
Dan Crompton, BS, University of Pittsburgh, Pittsburgh, PA

Mechanical and Rheological Characterization of RBCs Following Hemoglobin Replacement for Potentie Treatment of Sickle Cell Disease
Luke Zieler, BS, McGowan Institute of Regenerative Medicine, Pittsburgh, PA

Target-specific Electrospinning: a Novel Means of Creating Designer Fibrous Constructs
Daniel Plalomares, BS, University of Arizona, Tucson, AZ

Inventive Knowledge Flow in Medical Technology Development: Patent or Publish?
Michael DiCaro, BS, University of Arizona, Tucson, AZ

Additive Manufacturing as a Development Tool for a Rotary Blood Pump
J. Ryan Stanfield, PhD, University of Utah, Salt Lake City, UT

Cardiac Posters

Infectious Adverse Events Associated with Durable Mechanical Circulatory Support Devices, a Ubiquitous Achilles’ Heel
Jose Mendez, MD, Baylor University Medical Ctr, Dallas, TX

Readmission Rates in African-Americans Patients Supported with Left Ventricular Assist Device (LVADs) After Hemodynamic Unloading
David Tehrani, MD, University of Chicago Medicine, Chicago, IL

Design Consideration of EVAHEART®2 LVAD Inflow Cannula
Tadashi Motomura, MD, PhD, Evaheart inc., Houston, TX

Weight Loss in Patients with Left Ventricular Assist Device Positioned Above or Below the Diap for Patients with Severe Heart-Failure: Does it Make a Difference?
David Chang, MD, Cedars-Sinai Heart Institute, Los Angeles, CA

Left Ventricular Assist Device Versus Total Artificial Heart: Do Patients Report the Same Energy
Heather Barone, RN, Cedars-Sinai Medical Ctr, Los Angeles, CA

Unplanned Readmissions 6 Months Post Discharge: Left Ventricular Assist Device Versus Total Artificial Heart
Newman Huie, BSN, Cedars-Sinai Heart Institute, Los Angeles, CA
A Comparison of Driveline Infections: Left Ventricular Assist Device vs. Total Artificial Heart
Carmelita Runyan, RN-BC,CCRN, Cedars-Sinai Heart Institute, Los Angeles, CA

Cardiac Transplant Outcomes in Patients on Continuous Flow Left Ventricular Assist Device Süç
John Spratt, MD, University of Minnesota, Minneapolis, MN

The Utility of the Prognostic Nutritional Index in Hemodialysis Dependent Patients Who Undergo Cardiovascular Surgery
Soki Kurumisawa, MD, Jichi Medical University, Tochigi, Japan

Global VAD Coordinator Practices with the Use of the HeartWare HVAD System Waveforms and Logfiles
Thomas Schölghofer, BSc, Medical University of Vienna, Vienna, Austria

New Quantitative Method for Evaluating Driveline to Skin Adhesion in Ventricular Assist Systems
Tomoyuki Yame, MD, PhD, Tohoku University, Sendai, Miyagi, Japan

Our Experience with Sleep Apnea Syndrome After Implantation of Left Ventricular Assist Device
Puneet Garcha, MD, Baylor University Medical Ctr, Dallas, TX

Mixing Phenomena During Interaction of Internal and External Circulations - Developing a Combined Simulation Platform of the Human Circulation
Philippe Griessler, MD, Giessen University Hospital, Giessen, Germany

Promoting Growth Through Partnership: ICCAC’s VAD Mentorship Program
Rasha Adam, BS, ANW, Plymouth, MN

Construction and Evaluation of a VAD Care App as Self-management Tool for Patients with Ventricular Assist Devices (VADs)
Jesus Casida, PhD, RN, APN-C, University of Michigan, Ann Arbor, MI

Using HeartWare HVAD Log Files to Observe Patient Behavior and Battery Function
Kristen Kiehl, BS, Aurora St. Luke’s Medical Center, Milwaukee, WI

Mechanical Circulatory Support Nurse Practitioners’ Work Intensity, Role Stress, and Burnout
Rachel Wood, University of Michigan, Ann Arbor, MI

Use of a Mock Ventricle to Simulate Functionality of the Fibrillating Heart for Testing Direct Cardiac Compression Devices
Yirong Zhou, MD, Wright State University, Dayton, OH

Reduction of Mitral Regurgitation Following Continuous Flow Left Ventricular Assist Device Implantation is not Associated with Improved Clinical Outcomes
Renaldo Williams, MD, Vanderbilt University Medical Ctr, Nashville, TN

Patient and Caregiver Activation May Play a Role in Outcomes of Patients Who Receive Left Ventricular Assist Devices
Sandra Carey, PhD, Baylor University Medical Ctr, Dallas, TX

Early Diagnosis of Device Thrombosis in Left Ventricular Assist Device Patients
Joanna Grabka, Medical University of Vienna, Vienna, Austria

Longitudinal Neutrophil to Lymphocyte Ratio Assessment After Left Ventricular Assist Device Implantation
Geetha Bhat, MD, PhD, Advocate Christ Medical Ctr, Oak Lawn, IL

Complications in Thyroid Disorder Patients with Left Ventricular Assist Devices
Hannah Forrester, BS, University of Maryland Medical Ctr, Baltimore, MD

Impact of Diuretic Dosage on Post-operative Right Heart Failure in LVAD Patients
Jaclyn Wu, BS, Ohio State University, Columbus, OH

Effect of Left Ventricle Size on LVAD Thrombosis Risk
Venkat Keshav Chiuwukulu, PhD, University of Washington, Seattle, WA

Thromboelastography Platelet Mapping (TEG-PM) Based Anticoagulation Protocol for Mechanical Circulatory Support Devices (MCSD): a Follow Up Study
Oksana Volod, MD, Cedars Sinai Medical Ctr, Los Angeles, CA

Case Series of a Novel Peripheral Right Ventricular Assist Device for Acute Right Heart Failure
Amber Melvin, MD, University of Rochester, Rochester, NY

Long-term Impacts of Reducing Pulmonary Vascular Resistance with Vad Therapy in Bridge-to-transplant Patients
Jennifer J. Chung, MD, Hospital at University of Pennsylvania, Philadelphia, PA

Long Term Outcomes of Elderly Patients Receiving Continuous Flow Left Ventricular Support
Nicolas Brozzi, MD, University of Miami, Miami, FL

Ventricular Assist Device Cannulation Strategy for the Failing Single Ventricle: Atrium or Ventri
Katuhide Maeda, MD, PhD, Stanford University, Stanford, CA

Implantable Hemodynamic Monitoring in Patients with an LVAD
Lauren Wolman Abrut, BS, Scripps Health, San Diego, CA

Postoperative Acute Kidney Injury After Implantation of Left-ventricular Assist Device: a Comparison of Heartmate II and HeartWare Devices
Andre Crispinelis, BS, BA, Baylor College of Medicine, Houston, TX

Hemodynamic Effects of a Compact Maglev Centrifugal LVAD Under Pulsatile Operation: an in-vitro Study
Po-Lin Hsu, PhD, Soochow University, Suzhou, Jiangsu, China

Lactate Dehydrogenase Levels as Predictors of Acute Kidney Injury in the Setting of Pump Hem
in LVAD Patients
Ghulam Murtaza, MD, Advocate Christ Medical Ctr, Oak Lawn, IL

161 PCC Use in VAD Implantation
Yaron Barac, MD, Duke Medical Ctr, Durham, NC

162 Left Ventricular Assist Device Driveline Infection and Obesity
Mehmet H. Akay, University of Texas Health Science Center, Houston, TX

163 Inflow Cannula Position Variability Between 2nd and 3rd Generation Left Ventricular Assist De
Jama Johanyar, MD, Mayo Clinic, Phoenix, AZ

164 Evaluation of Doxycycline's Effect on vWF and Platelets in the Presence of Haemolysis
Christian Robinson, Swansea University, Swansea, United Kingdom

165 Elevated Heart Rate in Left Ventricular Assist Device (LVAD) Patients: Good or Bad?
Haysun Choi, Intermountain Medical Ctr, Murray, UT

166 Efficacy of Tolvaptan Therapy in Stage D Heart Failure Patients After LVAD Implantation
George Gavrilos, Pharm D, MA, Advocate Christ Medical Center, Oak Lawn, IL

167 Single Center Experience of Bivads
Gregory Macaluso, MD, Advocate Christ Medical Center, Oak Lawn, IL

168 Time-related Risk of Adverse Events During Long-term Support with HeartMate II
Salvatore Poddì, MD, Mayo Clinic, Rochester, MN

Pediatric Posters

169 Antithrombotic Guideline for the PumpKIN Trial: Design and Rationale
Patti Massicotte, MD, University of Alberta, Edmonton, Alberta

170 Durable Continuous Flow VAD Therapy Induces Pathogenic Changes in AV Leaflets:
Gene Expression Changes in Common with Calcific Aortic Valve Disease Leaflets
Katsuhide Maeda, MD, PhD, Stanford University, Stanford, CA

171 Effect of Inhaled Nitric Oxide on Hemodynamics in Lambs with Superior Cavopulmonary Shunt
Hitoshi Kanamitsu, MD, Stanford University, Stanford, CA

172 Perfluorocarbons Promote Type II Pneumocyte Maturation and Surfactant Protein Synthesis in
Preterm Lambs Supported on an Artificial Placenta
Elena Perkins, BS, University of Michigan, Ann Arbor, MI

173 Cardiac Injury in Premature Lambs Supported by the Artificial Placenta
Elena Perkins, BS, University of Michigan, Ann Arbor, MI

174 In vitro Characterization of the Pittsburgh Pediatric Ambulatory Lung Device
Ryan Orizondo, PhD, University of Pittsburgh, Pittsburgh, PA

175 Platelet Aggregation Results in Chronic Studies with the Penn State
Pulsatile Pediatric Ventricular Assist Device
Branka Lukic, MS, Penn State University, Hershey, PA

176 Diamond in the Rough? Outcomes of VAD Implantation as a Bridge-to-decision in
Children and Young Adults with Social Concerns
Chet Villa, MD, Cincinnati Children's Hospital, Cincinnati, OH

177 Modeling Fetal and Neonatal Circulations with and Without Pulmonary Atresia
Juliana Sánchez-Posada, PhD, Universidad de los Andes, Bogotá, Colombia

Friday, June 23

8:00am - 12:00pm

GENERAL SESSION 2
Co-Chairs:
Jonathan Haft, MD, University of Michigan, Ann Arbor, MI
Marvin Slepian, MD, University of Arizona, Tucson, AZ

8:00am - 8:30am

ASAIO fyi - for young innovators - Rapid Fire Presentations

8:00am-8:05am
Using Compliant Oxygenators to Improve Flow Conditions in Pulsatile ECMO Circuit
Ralf Borchardt, PhD, enmodes GmbH, Aachen, NRW, Germany

8:05am-8:10am
RAS-Q - A Novel Passive Right Heart Assist System
Philine Ritter, MSc, enmodes GmbH, Aachen, NRW, Germany

8:10am-8:15am
The Influence of Anastomosis Angle of Outflow Graft to Aorta on Hemodynamics of
Aortic Valve Regurgitation in Left Ventricular Assist Device Support
Kei Iizuka, MD, National Cerebral & Cardiovascular Center, Suita, Osaka, Japan

8:15am-8:20am
Effect of Eccentricity in a Blood Shearing Device Using Transient Cfd Analysis
Peng Wu, PhD, Soochow University, Suzhou, Jiangsu, China

8:20am-8:25am
Large Eddy Simulation and Hemolysis Estimation of the FDA Nozzle Model
Peng Wu, PhD, Soochow University, Suzhou, Jiangsu, China

8:30am - 9:30am

ASAIO fyi - for young innovators - Student Design Competition Presentations
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>8:30am-8:37am</td>
<td>Urinary Catheter Redesign</td>
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<td>Thomas Wright, North Carolina State University, Raleigh, NC</td>
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<td>8:37am-8:44am</td>
<td>HealthWaze: A Smart Tag System for Tracking an In-Patient Population in a Hospital</td>
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<td>Sajani Jivan, University of Arizona, Tucson, AZ</td>
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<td>8:44am-8:51am</td>
<td>Self-Clearing VP Shunt</td>
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<td>Jonathan Freund, North Carolina State University, Raleigh, NC</td>
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<td>8:51am-8:58am</td>
<td>The &quot;MICELI&quot; – Point of Care Microfluidic Aggregometry System</td>
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<td>Andrea Santoleri, University of Arizona, Tucson, AZ</td>
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<td>8:58am-9:05am</td>
<td>Adjustable Trocar</td>
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<td>Zaid Atto, BASc, University of Toronto, Toronto, Ontario</td>
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<td>9:05am-9:12am</td>
<td>Hydraulic Cardiac Sleeve</td>
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<td>Rachel McCoy, Carnegie Mellon University, Pittsburgh, PA</td>
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<td>9:12am-9:19am</td>
<td>Extrusion 3D Printing of a Microfluidic Chip for Use in Medical Research</td>
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<td>Rachelle Walter, BS, University of Colorado - Denver, Denver, CO</td>
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<td>9:19am-9:30am</td>
<td>Discussion</td>
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<td>9:30am-9:50am</td>
<td>Keynote Address</td>
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<td>Medical Devices, Artificial Organs, Organs-On-A Chip And Beyond:</td>
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<td>How To Impact Healthcare In The Future - Perspectives From The NIH</td>
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<td>Roderic Pettigrew, MD, PhD, Director NIBIB/NIH, Bethesda, MD</td>
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<td>9:50am-10:15am</td>
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<td>Stretching Our Way into the Future - Flexible and Stretchable Electronics -</td>
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<td>New Materials and Sensors for Medicine</td>
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<td>John Rogers, PhD, Northwestern University, Evanston, IL</td>
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<td>10:15am-11:00am</td>
<td>Visit Exhibits &amp; Enjoy Refreshments</td>
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<td>10:15am-11:00am</td>
<td>Visit Posters</td>
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<td>11:00am-12:00pm</td>
<td>GENERAL SESSION 2 - Continued</td>
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<td>11:00am-11:30am</td>
<td>ASAIO History Group</td>
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<td>Scientific Biography of William S Pierce, MD</td>
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<td>Gerson Rosenberg, PhD, Penn State College of Medicine, Hershey, PA</td>
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<td>11:30am-12:00pm</td>
<td>ASAIO Hastings Lecture</td>
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<td>The Total Artificial Heart - Past, Present and Future</td>
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<td>Jack Copeland, MD, University of Arizona, Tucson, AZ</td>
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<td>Introduction Richard Smith, MSEE, University of Arizona, Tucson, AZ</td>
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<td>12:00pm-12:15pm</td>
<td>Fellowship Award Announcements</td>
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<td>12:15pm-1:30pm</td>
<td>Lunch Break</td>
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<td>1:30pm-3:00pm</td>
<td>CARDIAC 3- Acute Temporary Support</td>
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<td>Co-Chairs:</td>
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<td>Jonathan Rich, MD, Northwestern University, Chicago, IL</td>
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<td>Claudius Mahr, DO, University of Washington, Seattle, WA</td>
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<td>1:30pm-1:45pm</td>
<td>Case #1:</td>
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<td>INTERMACS I Patient on Short-Term Support: Transition to Durable System and Timing</td>
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<td>Ulrich Jorde, MD, Montefiore Medical Center, Bronx, NY</td>
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<td>1:45pm-1:50pm</td>
<td>Discussion</td>
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<td>1:50pm-2:05pm</td>
<td>Case #2:</td>
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<td>Aly El Banayosy, MD, INTEGRIS Baptist Medical Center, Oklahoma City, OK</td>
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<td>2:05pm-2:15pm</td>
<td>Discussion</td>
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<td>2:15pm-3:00pm</td>
<td>Cardiac Abstracts</td>
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<tr>
<td>2:15pm-2:30pm</td>
<td>#112 Concomitant Mitral Valve Procedures at the Time of Continuous-flow Left Ventricular Assist Implantation in Patients with Preoperative Severe Mitral Regurgitation</td>
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1:30pm-3:00pm

**BIOENGINEERING 3**

**Co-Chairs:**
- Tom Sugar, PhD, ASU Polytech Engineering Program, Mesa, AZ
- Arun Jayaraman, PhD, PT, Northwestern University, Chicago, IL

1:30pm-1:40pm

**Mobility Exoskeletons, Robots: Artificial Organs Too!**

Marvin J. Slepian, MD, University of Arizona, Tucson, AZ

1:40pm-1:55pm

**Exoskeletons & Augmentation Systems - Present and Emerging Technology and Applications**

Tom Sugar, PhD, Arizona State University, Mesa, AZ

1:55pm-2:10pm

The Hidden Mechanics of Human Locomotion and Relevance to Wearable Robots

Elliot J. Rouse, PhD, Rehabilitation Institute of Chicago, Chicago, IL

2:10pm-2:25pm

**Medical and Rehab Applications of Exoskeletons and Robotics**

Arun Jayaraman, PhD, PT, Northwestern University, Chicago, IL

2:25pm-2:40pm

**Funding Opportunities and Commercialization of Robotics and Mobility Systems**

Bruce Floersheim, PhD, GoX Studios, Tempe, AZ

2:40pm-3:00pm

Q&A

1:00pm-3:00pm

**VAD 2 Shark Tank**

**Co-Chairs:**
- Peggy Blood, MSN, RN, University of Alabama at Birmingham, Birmingham, AL
- Karl Nelson, RN, MBA, INTEGRIS Baptist Medical Center, Oklahoma City, OK

1:00pm-1:15pm

a. VAD Equipment Management

Kathleen Schultz, BSBME, MBA, Aurora St. Luke’s Medical Ctr, Milwaukee, WI

1:15pm-1:30pm

b. Sustainable Staffing Models

Carole Balcew, MSN, UVA, Charlottesville, VA

1:30pm-1:45pm

c. Keeping Rehab, SNF and Dialysis Centers Ready to Receive

Jessie Casida, PhD, RN, University of Michigan, Ann Arbor

1:45pm-2:00pm
d. Self Care Management Model

Mary Bradbury, PharmD, Inova Fairfax Hospital, Falls Church, VA

2:00pm-2:15pm
e. Efficacy of a Thrombus Management Protocol

Matthias Loeb, MD, PhD, Miami Transplant Institute, Miami, FL

2:15pm-2:30pm

f. Importance of Understanding Why Patients Refuse DT LVAD

Thomas Schroeghofer, BSc, Medical University of Vienna, Vienna, Austria

2:30pm-2:45pm

g. Outpatient Rehabilitation of VAD Patients & Monitoring Daily Life Activity

Carole Balcew, MSN, UVA, Charlottesville, VA

2:45pm-3:00pm

h. Orientation/Education of Team Members

Erin Justice, RN, MS, BSN, Medstar Heart and Vascular Institute, Washington, DC

1:30pm-3:00pm

**PULMONARY 3-Bioartificial Lungs**

**Chair:** Bryan Whitson, MD, PhD, Ohio State University, Columbus, OH

1:30pm-1:45pm

Dongfang Wang, MD, PhD, University of Kentucky, Lexington, KY

1:45pm-2:00pm

William Federspiel, PhD, University of Pittsburgh, Pittsburgh, PA

2:00pm-2:15pm

Panel Discussion

2:15pm-3:00pm

**Pulmonary Abstracts**

2:15pm-2:30pm

#54 Low Resistant Respiratory Assist System for Paracorporeal Lung Support: an *in-vivo* Study

Ralf Borchardt, PhD, enmodes GmbH, Aachen, NRW, Germany

2:30pm-2:45pm

#165 *In-vitro* and *in-vivo* Chronic Studies of an Integrated, Wearable Blood Pump-lung

Shalv Madhani, BS, University of Pittsburgh, Pittsburgh, PA

2:45pm-3:00pm

#144 A CFD Model to Predict Oxygen Transfer in Artificial Lungs

Andreas Kaesler, Dipl.-Ing, RWTH University Aachen, Aachen, Germany

1:30pm-3:00pm

**RENAL 3-Quantum Leaps: Merging Biology & Technology**
1:30pm-1:50pm  Bioengineering of Renal Membranes Using Supramolecular Biomaterials
   Patricia Dankers, PhD, Eindhoven University of Technology, Netherlands
1:50pm-2:10pm  Microfluidic Diagnostics
   Ian Papautsky, PhD, University of Illinois, Chicago, IL
2:10pm-2:30pm  Bioengineered Organs
   Jason Wertheim, MD, PhD, Northwestern University, IL
2:30pm-3:00pm  Renal Abstracts
2:30pm-2:45pm  #71 Small Animal Study and Hemocompatibility of Small Form Factor Microfluidic Filtration System with Nitride Membranes
   Dean Johnson, PhD, University of Rochester, Rochester, NY
2:45pm-3:00pm  #180 Update on Continuous Electrolyte and pH Monitoring
   Fokko Wieringa, PhD, imec, Eindhoven, Noord-Brabant, Netherlands

1:30pm-3:00pm  PEDIATRIC 2: ECMO
1:30pm-1:45pm  Quadrox as a Central Shunt
   David Hoganson, MD, Boston Children's Hospital, Boston, MA
1:45pm-2:00pm  ECMO and the FDA: Update
   Claire Hambright, BS, FDA, Silver Spring, MD
2:00pm-2:20pm  Debate: Using a "Right Sized" ECMO Circuit
   Adult Circuits Are Fine for Small Patients
   Neale Zingle, BS, LP, CCP, Lurie Children's Hospital, Chicago, IL
   ECMO Circuits Should Be Appropriately Sized for the Patient
   Robert Bartlett, MD, University of Michigan, Ann Arbor, MI
2:20pm-3:00pm  Pediatric Abstracts
2:22pm-2:34pm  #147 Temporary Ventricular Assist Devices as a Bridge to Transplantation: Assessing the Impact of Evolving Strategy
   Chet Villa, MD, Cincinnati Children's Hospital Medical Center, Cincinnati, OH
2:34pm-2:46pm  #194 Development Update on the Enson pCAS System
   Mark Gartner, PhD, MBA, Enson Inc., Pittsburgh, PA
2:46pm-2:58pm  #25 Perfluorocarbons and the Artificial Placenta: Preventing Injury and Promoting Lung Development
   Joseph Church, MD, University of Michigan Health System, Ann Arbor, MI
3:00pm-3:45pm  Visit Exhibits & Posters

3:45pm-5:00pm  CARDIAC 4-Debate-VADS: Options for the Elderly
3:45pm-4:05pm  Pro: Heart Transplantation Should Be Favored Over Durable VAD Strategy
   Emma Birks, MD, PhD, University of Louisville, Louisville, KY
4:05pm-4:25pm  Con: All Elderly Patients Should Be Approached with VADS First
   Simon Maltais, MD, PhD, Mayo Clinic, Rochester, MN
4:30pm-5:00pm  Cardiac Abstracts
4:30pm-4:45pm  #251 Bridging to Heart Transplantation (BTT) in Senepagenerians with LVADs
   Eugene DePasquale, MD, Ronald Reagan UCLA Medical Center, Buena Park, CA
3:45pm-5:00pm  BIOENGINEERING 4
3:45pm - 4:15pm  Managing the Future of Cardiovascular Imaging in Children
   Rajesh Krishnamurthy, MD, Nationwide Children's Hospital, Columbus, OH
4:15pm - 4:45pm  Falling in Love With Your Own Technology! Pros, Cons and Hitchhiking
   Kurt Dasse, PhD, Hbeat Medical LLC, Cocoa, FL
4:45pm-5:00pm  Discussion
3:45pm-5:00pm

PULMONARY 4 - ELCS and Big Data: Driving Innovation and Outcomes

Chair: Joseph Zwischenberger, MD, University of Kentucky, Lexington, KY

3:45pm-4:00pm
Jonathan Haft, MD, University of Michigan, Ann Arbor, MI
James Blum, MD, Emory University Hospital, Atlanta, GA
Ryan Barbara, MD, University of Michigan, Ann Arbor, MI
Steven Conrad, MD, PhD, Louisiana State University HCS, Shreveport, LA
4:00pm-4:15pm
Panel Discussion

3:45pm-5:00pm

RENAL 4-Vascular Access: From Bedside to Bench to Bedside

Chair: William Fissell, MD, Vanderbilt University, Nashville, TN

3:45pm-4:00pm
Biology Of Vascular Access Dysfunction
Prabir Roy-Chaudhury, MD, PhD, University of Arizona, Tucson, AZ

4:00pm-4:15pm
Novel Therapies for Vascular Access Dysfunction
Joris Rotmans, MD, PhD, Leiden University Medical Ctr, Leiden, Netherlands

4:15pm-4:30pm
Clinical Trials in Vascular Access: Time for a Change
Gerry Beathard, MD, PhD, University of Texas Medical Branch, Houston, TX

4:30pm-4:45pm
Patient Perspectives on Vascular Access: Not to Be Forgotten
Terry Faust Litchfield, Lifeline, Vernon Hills, IL

4:45pm-5:00pm
Discussion

3:45pm-5:00pm

PEDIATRIC 3: Beyond Bridge to Transplant

3:45pm-4:00pm
Destination Therapy
Jenna Murray, MSN, CPNP-AC, Lucile Packard Children's Hospital, Palo Alto, CA

4:00pm-4:15pm
Psychosocial Issues for VAD Patients: Sex, Drugs, and Rock n' Roll
Christina Vanderpluym, MD, Boston Children's Hospital, Boston, MA

4:15pm-4:30pm
Remote Monitoring
Holger Buchholz, MD, Stollery Children's Hospital, Edmonton, Alberta

4:30pm-4:45pm
Home Echo
David Rosenthal, MD, Stanford University, Palo Alto, CA

4:45pm-5:00pm
End of Life Issues
Beth Kaufman, MD, Stanford University, Palo Alto, CA

5:15pm-5:45pm

ASAIO Member Business Meeting

8:00am-5:00pm

Abstract Poster Presentations

Bioengineering Posters

178 Shear Induced Degradation of Signal Molecules in PI3K-Akt Pathway in Human Platelets
Shirong Zheng, MD, University of Louisville, Louisville, KY

179 Controlled Gas Exchange in Whole Lung Bioreactors
Alexander Engler, MS, Yale University, New Haven, CT

180 The Platelet Activity State Assay Can Detect Shear-mediated Platelet Activation Associated with Thrombosis in LVAD Patients
Filippo Consolo, PhD, Università Vita Salute, Milano, Italy

181 Development of Axial Flow Blood Pumps That Implanted at Aortic Valve Position to Realize Concept of Valvo Pump
Eiji Okamoto, PhD, Tokai University, Sapporo, Hokkaido, Japan

182 Long-term Use Assessment of the Apico-aortic Blood Pump: Bearing System Analysis
Bruno Utiyama, PhD, Instituto Dante Pazzanese de Cardiologia, São Paulo, Brazil

183 The Progress in the Sputnik Ventricular Assist Device Development
Dmitry Telyshev, PhD, National Research University of Electronic Technology, Zelenograd, Moscow, Russia

184 Muscle-powered Counterpulsation VAD for Long-term Cardiac Support
Jooli Han, Carnegie Mellon University, Pittsburgh, PA

185 Open Storage Effect on Nitric Oxide Releasing Materials
Kagya Amoako, PhD, University of New Haven, West Haven, CT

186 Comparison of Large-eddy and Reynolds-averaged Navier-stokes Simulations Regarding Their Potential to Predict Hemolysis in Blood Pumps
Benjamin Torner, Institute of Turbomachinery, Rostock, Germany

187 Asymmetric Membranes for Extracorporeal Blood Circulation Devices
Monica Faria, PhD, Universidade de Lisboa, Lisbon, Portugal

188 Effect of Turbulent Flow on von Willebrand Factor

13
189 ECG-synchronized Rotational Speed Change System Has Preventive Effect on Right Heart Failure During Continuous-flow LVAD Support
Daichi Akiyama, MD, National Cerebral and Cardiovascular Center, Research Institute, Osaka, Japan

190 Comparative in-vitro Hemolysis as a Measurable Parameter for Minor Polishing Defect Diagnosis for a Compact Maglev LVAD
Po-Lin Hsu, PhD, Soochow University, Suzhou, Jiangsu, China

191 Use of Robust Mock Circulatory Loops to Effectively Evaluate the Physiological Flow Performance of VADs
Luke Herbertson, PhD, FDA, Silver Spring, MD

192 Artificial Shear Effect on Leukocytes at a Biomaterial Interface Using a Rheometer
Gemma Radley, Colon Cardio - Technology Ltd., Swansea, United Kingdom

193 Prediction Method of Shear Induced Thrombus Formation on Pipe Orifice Flows by Hybrid CFD Methods with Considering Aggregation Process
Masaaki Tamagawa, PhD, Kyushu Institute of Technology, Kitakyushu, Fukuoka, Japan

194 Progress in the Development of an Automatic Ventricular Assist Device with Pulse Augmentati Regurgitant Flow Shutoff
Nicole Byram, BS, Cleveland Clinic, Cleveland, OH

195 Methodology for the Design of Control System Based on the Concepts of Reliability Analysis an Inherent Safety for VADs
Jeferson Dias, Jr., MD, University of São Paulo, São Paulo, Brazil

196 Method for Design a Control System Considering Fail and Safety Interaction Between VAD and Patient Body
Andre Cavalheiro, Sr., PhD, Fundacao Santa Andre, Santo Andre, Brazil

197 Transient Power Elevation During Iron Dextran Infusion in a Patient with a Heart Mate II Continuous-flow Left Ventricular Assist Device: Case Report and in vitro Testin
Paulino Alvarez, MD, Cleveland Clinic, Cleveland, OH

198 Wireless Mechano-Acoustic Characterization of Altered Flow in Ventricular Assist Devices
Genevieve Messina, University of Arizona, Tucson, AZ

199 Annexin V Binding: a Useful Marker of Shear-mediated Platelet Activation Induced with Mechanical Circulatory Support
Yana Roka Moia, PhD, University of Arizona, Tucson, AZ

200 Characterization of an Arteriovenous Mock Circulation Loop for Testing Intervascular Bioartificial Organs
Jarrett Meyer, MD, University of California San Francisco, San Francisco, CA

201 Framework for Development of Hybrid Control System for Ventricular Assist Device
Marcelo Silva, MD, Escola Politecnica da USP, Sao Paulo, Brazil

202 Low Shear and Thromboresistance in the Synchronous Pulsatile Adult and Pediatric TORVAD
Jeffrey Gohean, MSME, Windmill Cardiovascular Systems Inc., Austin, TX

203 Formation of Aggregates in Perfluorocarbon Emulsions When These are Diluted with Plasma Er Yissel Luengas, Universidad de los Andes, Bogota, Colombia

204 A Bicameral Pump for Sustained Moderate Flow Extracorporeal Circulation
Edward Leonard, PhD, Columbia University, New York, NY

205 Design and Development of a Hybrid Mock Circulation Loop for Hardware-in-the-loop Validatic Ventricular Assist Devices
Ethan Rapp, University of Texas at Austin, Austin, TX

206 Stability of PEG and Zwitterionic Surface Modifications on PDMS PDMS
Thomas Plegue, VA Ann Arbor Healthcare System, Ann Arbor, MI

207 Susceptibility to G-load and Tilting Movement of CH-VAD Fully Magnetically Suspended Blood
Chen Chen, PhD, CH Biomedical Inc., Suzhou, Jiangsu, China

Cardiac Posters

208 Motion-activated System for Better Chest Drainage: Bench Testing, in vivo, and First Clinical Experience Report
Jamshid Karimov, MD, PhD, Cleveland Clinic, Cleveland, OH

209 Synchronized Paracorporeal Electromagnetic Pulsatile Pump Can Decrease Infarct Size in Porcine Model with Acute Myocardial Infarction
Chi-Hsiao Yeh, MD, Chang Gung Memorial Hospital, Keelung, Keelung, Taiwan

210 International VAD Coordinator Team Compositions and Advanced Nurse Practitioners in VAD T
Thomas Schlaghofer, BS, Medical University of Vienna, Vienna, Austria

211 Space and Time Resolved Detection of Platelet Activation and von Willebrand Factor Conformational Changes in Deep Suspensions
Jacopo Biasetti, PhD, Johns Hopkins University, Baltimore, MD

212 Changes in Hemodynamic and Pump-related Parameters in Regards to Posture in Calves Implanted with a Continuous-flow Total Artificial Heart
Nicole Byram, BS, Cleveland Clinic, Cleveland, OH

213 Neutrophil to Lymphocyte Ratio Predicts Survival in Patients Supported with
Extracorporeal Membrane Oxygenation
Gardner Yost, MS, Advocate Christ Medical Center, Oak Lawn, IL

214 High Oxygen Partial Pressure Generates Reactive Oxygen Species and Pro-inflammatory Cytokines During Cardiopulmonary Bypass
Yutaka Fuji, PhD, Niigata University of Health and Welfare, Niigata, Japan

215 Towards the Perfect Fit of VADs: Virtual Fitting and Hemodynamic Investigation
Simon Sonntag, PhD, enmodes GmbH, Aachen, Germany

216 Continuous-flow Left Ventricular Assist Device Therapy in Adult Patients with Transposition of the Great Vessels
Tadahisa Sugihara, MD, Texas Heart Institute, Houston, TX

217 Influence of Systemic Blood Pressure and LVAD Speed on Thrombogenicity of LVAD Therapy
Venkat Keshav Chivukula, PhD, University of Washington, Seattle, WA

218 3D Printed Mitral Valve Models: Realistic Surgical Simulation
Divneet Mandair, University of Arizona, Tucson, AZ

219 Thrombogenic Potential of Altered Hemodynamics at the Left Ventricular Apex-LVAD Cannula Interface: a Numerical Study
Filippo Consolo, PhD, Università Vita Salute, Milano, Italy

220 Trend Analysis of the Recent Redemption Price of the Medical Devices in Japanese Insurance System
Eiki Akagawa, PhD, National Cerebral & Cardiovascular Center, Suita, Japan

221 Optimal Cannula and Pump Position Associating with Better Left Ventricular Unloading and Clinical Outcome in Patients with HeartMate II Ventricular Assist Device
Teruhiko Imamura, MD, PhD, University of Chicago Medicine, Chicago, IL

222 Geographic Distance Implications in LVAD Therapy Clinical Outcomes
Dallin Rees, Intermountain Medical Center, Murray, UT

223 Thrombus Formation in Chest Tubes: Histological Analysis and High-speed Camera Visualization of Intraluminal Clot
Jamshid Karimov, MD, PhD, Cleveland Clinic, Cleveland, OH

224 The Role of NOX4 (NADPH Oxidase 4) in Platelet Activation
Naing Bajaj, BS, University of Arizona, Tucson, AZ

225 Non Coronary Aortic Valve Cusp Tear from Peripheral Imella When Utilized as Left Ventricular for Patients on Extra Corporeal Membrane Oxygenation Support for Cardiogenic Shock
Muhammad Masood, MD, Washington University in St. Louis, St. Louis, MO

226 Identifying the Origin of Gastrointestinal Bleeding in Left Ventricular Assist Devices- Is Timing of the Essence?
Alyssa Choi, MD, University of Washington, Seattle, WA

227 HMII Driveline Fracture and Outflow Graft Bend Relief Disconnection with Pseudoaneurysm Fc
Bessie Scipio, RN, Medstar Washington Hospital Center, Washington, DC

228 Effects of Using a Torsional Ventricular Assist Device (tVAD) on Regional Cardiac Mechanics
Elaine Soohoo, MS, BME, Carnegie Mellon University, Pittsburgh, PA

229 Continuous Suction Monitoring Reveals High Probability of Suction in Well-adjusted VAD-outptp:
Heinrich Schima, PhD, Medical University Vienna, Vienna, Austria

230 Modeling of Mechanical Circulatory Support Pump Interactions with the Variable Hemodynamic Environment
David Horvath, BS, Cleveland Clinic, Cleveland, OH

231 Advantages of Integrating Pressure-regulating Devices into Mechanical Circulatory Support Pump
David Horvath, BS, Cleveland Clinic, Cleveland, OH

232 Versatile Potential of a New Rotary Blood Pump Heartmate 3 in Patients with Multiple Assist Device Related Complications
Jens Garbade, MD, PhD, Heart Center Leipzig, Leipzig, Germany

233 Blood Trauma and Inflammation During Cardiopulmonary Bypass: The Role of Air and Negative Pressure
Benjamin Carr, MD, University of Michigan, Ann Arbor, MI

234 Predictive Value of Preoperative Prealbumin on Outcomes in Patients Undergoing LVAD Implantation
Andre Criteselli, BS, Baylor College of Medicine, Houston, TX

235 Outcomes in Adult Patients with Advanced Heart Failure and Small Body Size Undergoing LVAD Implantation
Nastasya Volkovich, THI/BCM, Houston, TX

236 In vitro Modelling of Calcific Particles and Testbed for Cerebral Protection Devices (CPD) Under Physiological Conditions
Catharina Lierath, MD, Institute of Applied Medical Engineering/AME, Aachen, Germany

237 Renal Function with Long-term Support on a Durable Left Ventricular Assist Device
Masatoshi Akiyama, MD, PhD, Tohoku University Hospital, Sendai, Japan

238 Percutaneous Assessment and Management of Outflow Graft Obstruction in Patients with Continuous Flow Left Ventricular Assist Devices: a Single Center Case Series
Carlos Davila, MD, Tufts Medical Center, Boston, MA

239 Synchronization of a Soft Robotic Ventricular Assist Device to the Native Cardiac Rhythm Using an Epicardial Electrogram
240 Chronic Administration of Electrical Microcurrent to the Heart is Safe and Does Not Impair Cardiac Function
Daniel Bautista-Salinas, BS, Boston Children’s Hospital, Boston, MA

241 ECMO Utilization and Short-term Outcomes in Pediatric Patients with Congenital Heart Disease
Alejandro Martinez Herrada, MD, Nicklaus Children’s Hospital, Miami, FL

242 Management of Heart Failure Patients Based on Pulmonary Artery Pressure Measurements Using CardioMEMS - Single Center Experience
Hema Krishna, MD, Medical College of Wisconsin, Milwaukee, WI

243 Six-minute Walk Distance Under 200 Meters Predicts 30-day Heart Failure Readmission
Hema Krishna, MD, Medical College of Wisconsin, Milwaukee, WI

244 The Effect of Extreme Hemodilution with Crystalloids and Colloids on Platelet Aggregability
Jan Simoni, PhD, Texas HemaBioTherapeutics & Bioinnovation Center, Lubbock, TX

245 Impact of Multiple Sternotomies on Heart Transplant Survival
Eugene DePasquale, MD, University of California Los Angeles, Los Angeles, CA

246 Outcomes of Patients with Acute Decompensated Heart Failure and the Relationship to Diuretic Induced Weight Loss - Single Center Experience
Christopher Boyd, MD, Medical College of Wisconsin, Milwaukee, WI

251 Lower Extremity Paralysis Related to Femoral Veno-arterial ECMO Support in Lung Transplant Recipients
Gabriela Dincheva, BS, University of California San Francisco, San Francisco, CA

252 Effects of Pulsatile Blood Flow on Oxygenator Performance
Niklas Steuer, MSc, RWTH Aachen, Aachen, NRW, Germany

Fares Alghanem, BS, University of Michigan, Ann Arbor, MI

254 Development of an Ultra Compact Durable ECMO System and Evaluation in a Chronic Animal Experiment for Over 2 Weeks
Nobumasa Katagiri, PhD, National Cerebral and Cardiovascular Center Research Institute, Suita, Osaka, Japan

255 Determining Optimal Thoracic Artificial Lung Aspect Ratio Using Computational Fluid Dynamics Modeling
Niyu Li, BS, Carnegie Mellon University, Pittsburgh, PA

256 Effects of Hollow Fiber Oscillation on Artificial Lungs
Ryan Orizondo, PhD, University of Pittsburgh, Pittsburgh, PA

257 The Advancing Front Model is Effective at Modeling Oxygen Transfer for Microchannel Artificial Lungs
Mariam Abdelkader, MD, Weilspan - York Hospital, York, PA

258 Successful Extra-corporeal Membrane Oxygenation (ECMO) in HIV-positive Patient
Alida R. Cooke, BS, Carnegie Mellon University, Pittsburgh, PA

Saturday, June 24

8:00am-5:00pm
**ADULT ECMO COURSE**
Course Director: Aly El Banayosy, MD, INTEGRIS Baptist Med Ctr, Oklahoma City, OK

8:00am-8:10am
Welcome
Aly El Banayosy, MD, INTEGRIS Baptist Med Ctr, Oklahoma City, OK

8:10am-10:00am
**SESSION I**

8:10am-8:30am
**ELSO Report**
Jonathan Haft, MD, University of Michigan, Ann Arbor, MI
<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Panel</th>
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<tbody>
<tr>
<td>8:30am-8:50am</td>
<td>Hemocompatibility of Short-Term Support Devices</td>
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<td>James Long, MD, PhD, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK</td>
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<tr>
<td>8:50am-9:10am</td>
<td>Biomaterials and Inflammatory Response in Adult ECMO Patients</td>
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<td>Marvin Slepian, MD, University of Arizona, Tucson, AZ</td>
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<td>9:10am-9:40am</td>
<td>What Is in the Pipeline?</td>
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<td>Martin Strueber, MD, Newark Beth Israel Medical Ctr, Newark, NJ</td>
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<td>9:40am-10:00am</td>
<td>Panel Discussion</td>
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<td>10:00am-10:15am</td>
<td>Break</td>
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<td>10:15am-12:00pm</td>
<td>SESSION II</td>
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<tr>
<td>10:15am-10:35am</td>
<td>Approaching Cardiogenic Shock Patients Beyond Medical Management: Which Way to Go?</td>
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<td>Aly El Banayosy, MD, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK</td>
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<tr>
<td>10:35am-10:55am</td>
<td>Impact of New Technology on Complications Profile</td>
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<td>Christian Bermudez, MD, Hospital of th University of Pennsylvania, Philadelphia, PA</td>
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<td>10:55am-11:15am</td>
<td>Data from Oklahoma ECMO Network Model</td>
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<td>Karl Nelson, RN, MBA, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK</td>
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<td>11:15am-11:35am</td>
<td>Transition from ECMO to Durable MCS Devices: Criteria and Long-Term Results</td>
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<td>Behzad Soleimani, Penn State Hershey Medical CTR, Hershey, PA</td>
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<td>11:35am-12:00pm</td>
<td>Panel Discussion</td>
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<td>12:00pm-1:10pm</td>
<td>Lunch Break</td>
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<td>1:10pm-2:45pm</td>
<td>SESSION III</td>
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<tr>
<td>1:10pm-1:30pm</td>
<td>Quality Measures for ECMO Programs</td>
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<td>Jonathan Haft, MD, University of Michigan, Ann Arbor, MI</td>
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<td>1:30pm-1:50pm</td>
<td>Difficult Cannulation: Tips and Tricks</td>
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<td>Alireza GhodsiZad, MD, PhD, University of Miami, Miami, FL</td>
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<td>1:50pm-2:10pm</td>
<td>rECMO: Programming Challenge and Clinical Results</td>
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<td>Christoph Brehm, MD, Penn State Hershey Medical Ctr, Hershey, PA</td>
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<td>2:10pm-2:30pm</td>
<td>ECMO Beyond Your Imagination</td>
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<td>Michael Koerner, MD, PhD, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK</td>
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<td>2:30pm-2:45pm</td>
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<td>3:00pm-5:00pm</td>
<td>SESSION IV</td>
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<tr>
<td>3:00pm-3:20pm</td>
<td>ARDS: Lessons Learned from Recent Trials</td>
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<td>James Blum, MD, FCCM, Emory University Hospital, Atlanta, GA</td>
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<td>3:20pm-3:40pm</td>
<td>VV ECMO in ARDS Patients: Excellent Outcomes</td>
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<td>Christoph Brehm, MD, Penn State Hershey Medical Ctr, Hershey, PA</td>
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<td>3:40pm-4:00pm</td>
<td>Prone vs VV ECMO Trial in ARDS Patients: Are We There Yet?</td>
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<td>Jacob Gutsche, MD, University of Pennsylvania, Philadelphia, PA</td>
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<td>4:00pm-4:20pm</td>
<td>Screening and Infection Management in Adult ECMO Patients</td>
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<td>Allison Nazinitsky, MD, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK</td>
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<td>4:20pm-4:40pm</td>
<td>Role of ECMO in Organ Donation</td>
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<td>Christopher Wigfield, Advocate Christ Medical Ctr, Chicago, IL</td>
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<td>4:40pm-4:55pm</td>
<td>Panel Discussion</td>
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<td>4:55pm-5:00pm</td>
<td>Closing Remarks</td>
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<td>8:30am-10:00am</td>
<td>MEDICAL DEVICE ENTREPRENEUR'S FORUM</td>
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<td>Panelists:</td>
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<td>David Humes, MD, University of Michigan, Ann Arbor, MI</td>
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<td>Edward Berger, PhD, Larchmont Strategic Advisors, Chestnut Hill, MA</td>
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<td>Eric Chen, MS, FDA, Silver Spring, MD</td>
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<td>8:30am-9:00am</td>
<td>Mayalife</td>
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<td>Sarah Cheng, UC Berkeley/UCSF, Berkeley, CA</td>
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<tr>
<td>9:00am-9:30am</td>
<td>Lamprey</td>
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<td>Chethan Eleswarpu, UC Berkeley, Berkeley, CA</td>
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8:30am-10:00am  **CARDIAC 5-Debate-VADS: Finances, Cost of Therapy, and VADs**

**Co-Chairs:**

- Ashish Shah, MD, Vanderbilt University Medical Ctr, Nashville, TN
- Jonathan Haft, MD, University of Michigan, Ann Arbor, MI

**8:30am-8:50am**

**Pro: VADs Is a Cost-Effective Therapy**

*Andrew Sauer, MD, University of Kansas Hospital, Kansas City, KS*

**8:50am-9:10am**

**Con: Our Community May Have to Limit VAD Therapy**

*Keith Aaronson, MD, University of Michigan, Ann Arbor, MI*

9:15am-10:00am  **Cardiac Abstracts**

9:15am-9:30am  **#152 Outcomes in Patients with Surgical Closure of Left Ventricular Outflow Tract After Continuous Left Ventricular Assist Device Implantation**

*Chitaru Kuririhara, MD, Baylor College of Medicine, Houston, TX*

9:30am-9:45am  **#256 Center Variability in Pediatric VAD Discharge: How Do We Learn from Each Other?**

*Amanda Schubert, BSN, RN, Cincinnati Children’s Hospital Medical Center, Cincinnati, OH*

9:45am-10:00am  **#136 Left Ventricular Assist Devices; How Do We Define Success?**

*Anwer Lucman, MD, Mayo Clinic, Rochester, MN*

8:30am-10:00am  **BIOENGINEERING 5 - Abstracts**

8:30am-8:45am  **#125 Contribution of Computational Model for Heart Tissue Local Stress Caused by Suture in VAD Implantation**

*Antoine Chalon, Université de Lorraine, Nancy, France*

8:45am-9:00am  **#284 Material Hemocompatibility Testing for Improved Blood-contacting Device Design**

*Trevor Snyder, PhD, VADovations, Oklahoma City, OK*

9:00am-9:15am  **#234 In vitro Investigation on the Effect of Aortic Compliance Changes to Flow Patterns and Hemodynamics with PIV**

*Martin Buesen, BS, Cardiovascular Engineering, Aachen, Germany*

9:15am-9:30am  **#243 Optimization of a Small Scale, PDMS Microfluidic Artificial Lung**

*Lindsay Ma, VA Ann Arbor Healthcare System, Ann Arbor, MI*

9:30am-9:45am  **#233 Surface-engineered Small Intestinal Submucosa for New Regenerative Vascular Grafts**

*Karen Valencia Rivero, MSc, Universidad de los Andes, Bogotá, DC*

8:30am-10:00am  **PULMONARY 5**

8:30am-8:45am  **Lung Scaffolding/Printing**

*Bryan Whitson, MD, PhD, Ohio State University, Columbus, OH*

8:45am-9:00am  **Liquid Ventilation**

*Ron Hirschl, MD, CS Mott Children’s Hospital, Ann Arbor, MI*

9:00am-9:15am  **Lung Stem Cell Transplantation**

*Don Hayes, Jr, MD, MS, Ohio State University, Columbus, OH*

9:15am-9:30am  **Panel Discussion**

9:30am-10:00am  **Pulmonary Abstracts**

9:30am-9:45am  **#66 Normothermic Donor Lung Preservation Using the Organ Care System Significantly Reduces Ischemia/Reperfusion Injury by Promoting Cytokine Antagonists**

*Bettina Wiegmann, MD, Hannover Medical School, Hannover, Lower Saxony, Germany*

9:45am-10:00am  **#218 Short Term in vivo Evaluation of Nitric Oxide Generating Artificial Lung in Sheep**

*Angela Lai, BS, Carnegie Mellon University, Pittsburgh, PA*

8:30am-10:00am  **RENAL 5 - Patient Preferences: If Not Now When...?**

**Co-Chairs:**

- Gema Gonzalez, MS, FDA, Silver Spring, MD
- Richard Knight, BS, MBA, American Association of Kidney Patients, Tampa, FL

8:30am-8:50am  **The Science of Measuring Patient Preferences**
8:50am-9:10am  
**First Things First**
*Anindita Saha, FDA, Silver Spring, MD*

9:10am-9:30am  
**Patient Driven Clinical Research**
*Fokko Wieringa, PhD, imec, Eindhoven, Noord-Brabant, Netherlands*

9:30am-9:50am  
**Patient Preferences as a Regulatory Tool**
*Caroline Neuland, PhD, FDA, Silver Spring, MD*

9:50am-10:00am  
**Discussion**

8:30am-10:00am  
**PEDIATRIC 4 - Mechanical Support of Single Ventricles**
*Co-Chairs:*

8:30am-8:50am  
**Failing Fontan Pump**
*Amy Throckmorton, PhD, Drexel University, Philadelphia, PA*

8:50am-9:10am  
**Improving Fontan Circulation**
*Richard Figliola, PhD, PE, Clemson University, Clemson, SC*

9:10am-10:00am  
**Pediatric Abstracts**

9:10am-9:22am  
#133 Use of Hemodynamic Ramp Test to Optimize Continuous-flow Assist Device in a Fontan Patien
*Peter Chau, MD, University of Michigan, Ann Arbor, MI*

9:22am-9:34am  
#237 Pediatric Ventricular Assist Device Therapy for End-staged Heart Failure:
*Mahesh Sharma, MD, University of Pittsburgh Medical Center, Pittsburgh, PA*

9:34am-9:46am  
#63 Design of a Percutaneous Axial-centrifugal Flow Pump for Failing Fontan Circulation
*Richard Smith, MSEE, CCE, Banner University Medical Center, Tucson, AZ*

9:46am-9:58am  
#203 Fontan Simulation Using MCS Training Platform
*Richard Smith, MSEE, CCE, Banner University Medical Center, Tucson, AZ*

10:00am-10:45am  
**Enjoy Refreshments**

10:45am-12:00pm  
**Cardiac 6 - Debate - VADs: Total Artificial Heart (TAH), Continuous-Flow Biventricular Support or Heart Transplant**
*Co-Chairs:*

10:45am-11:05am  
**Pro:** Durable Mechanical Circulatory Support Should Be Favored for Most Indications
*Francisco Arabia, MD, Cedars-Sinai Medical Center, Los Angeles, CA*

11:05am-11:25am  
**Con:** Heart Transplantation Should Be the Primary Strategy for Most Indications
*Randall Starling, MD, MPH, Cleveland Clinic, Cleveland, OH*

11:25am-11:30am  
**Discussion**

11:30am-12:00pm  
**Cardiac Abstracts**

11:30am-11:45am  
#262 Development of a Model to Predict Central Venous Pressure in SynCardia 50cc TAH-t Patients
*Jessica Crosby, PhD, SynCardia Systems Inc., Tucson, AZ*

11:45am-12:00pm  
#196 Prediction of Right Ventricular Failure in the Current Continuous-flow Left Ventricular Assist Device Era
*Cristiano Amarelli, MD, Manaldi, Azienda dei Colli, Naples, Italy*

10:45am-12:00pm  
**BIOENGINEERING 6 - Abstracts**

10:45am-11:00am  
#51 Downsizing of Bidirectional Self-expanding Arterial Cannula Designs
*Saad Abdel-Sayed, PhD, Cardiovascular Research Center, Lausanne, Vaud, Switzerland*

11:00am-11:15am  
#286 Development of a Miniaturized Heart Assist Device with Interchangeable Hydraulics of a Miniaturized Heart Assist Device with Interchangeable Hydraulics
*J. Ryan Stanfield, PhD, VADovations, Oklahoma City, OK*

11:15am-11:30am  
#32 Analysis of the Effect of Component Elements of Hemodynamic Shear Stress Profiles on Shear-mediated Platelet Activation in Cardiovascular Implantable Therapeutic Devices
*Filippo Consolo, PhD, Università Vita Salute, Milano, Italy*

11:30am-11:45am  
#210 Ex vivo Pathological Platform for Vascular Device Testing
*Noemi Vanerio, Eindhoven, Netherlands*

11:45am-12:00pm  
#238 Variable-length Trajectory Sequences and Field-oriented Control to


PULMONARY 6: Mechanical Treatment of PH & RV Failure: Impella, Tandem, Nova Lung

Chair: Harold Ott, MD, Harvard Medical School, Boston, MA

10:45am-12:00pm

Navin Kapur, MD, Tufts Medical Ctr, Boston, MA
Erik Osborn, MD, Ft. Belvoir Hospital, Ft. Belvoir, VA
Christian Bermudez, MD, Hospital of the Univ of Pennsylvania, Philadelphia

Panel Discussion

RENAI 6 - Abstracts

Chair: Stephen Ash, MD, Ash Access Technology, Inc., Lafayette, IN

10:45am-12:00pm

#164 The Influence of Catheter Design on Convection-dominated Heparin Leakage
Michael Barbour, MS, University of Washington, Seattle, WA

#79 Centrifugal Separator for Implantable Artificial Kidney
Koki Ariyoshi, BS, University of Tokyo, Tokyo, Japan

12:00pm - 1:00pm

IFAO SESSION

Chair: Bernd Stegmayr, MD, PhD, Umea University, Umea, AC, Sweden

12:00pm-12:20pm

Biomedical Application of Decellularized Tissues
Akio Kishida, Tokyo, Japan - representing JSAO

12:20pm-12:40pm

Effectively Increasing Safety and Survival of VAD Patients
Heinrich Schima, PhD, Medical University of Vienna, Vienna, Austria - representing ESAO

12:40pm-1:00pm

Academia-Industry Collaboration for Medical Device Innovation Supported by Government Strategy
Yoshiyuki Taenaka, MD, PhD, National Cerebral & Cardiovascular Center, Suita, Osaka, Japan

ASAIO / ICCAC MCS Proficiency Verification Courses (6)

Course Co-Chairs:
Dawn Christensen, MS, FNP-BC, Innovative Program Solutions, LLC, Pine Grove, PA
Thomas Schloeglhofer, BSc, Medical University of Vienna, Vienna, Austria

This is the second offering for this novel course. The overall objective of this course is to develop critical thinking skills in providers who care for the MCS population. It is designed to foster critical thinking skills of the novice through expert MCS clinician through highly interactive small group problem-based learning scenarios developed surrounding the patients with advanced CHF and LVAD support.

Highlights of the Course include:

1) A minimum of 8 small group (maximum 12 participants each) problem-based scenarios covering management and troubleshooting of common issues surrounding MCS devices

2) Small group exercises are led by experienced MCS coordinators, Heart Failure Cardiologists, and Cardiac Surgeons who specialize in MCS Support

3) Devices covered in the scenarios include:

- HVAD
- HeartMate II and HeartMate 3
- Centrimag
- Impella
- Berlin Heart Excor
- Syncardia TAH
Invited Faculty Include

Carole Ballew, MSN, RN, University of Virginia, Charlottesville, VA
Jennifer Beckman, MSN, ARNP, University of Washington, Seattle, WA
Peggy Blood, MSN, RN, University of Alabama, Birmingham, AL
Pam Combs, PhD, RN, Advocate Christ Medical Center, Oak Lawn, IL
Lori Edwards, MSN, RN, INOVA Fairfax Hospital, Falls Church, VA
Tonya Elliott, RN, MSN, Medstar Washington Hospital Center, Washington, DC
Stephanie Hopper, BSN, University of Alabama, Birmingham, AL
Jodie Lantz, MSN, RN, Childrens Health, Dallas, TX
Janelle McLean, RN, The Alfred Hospital, Melbourne, VIC, Australia
Karen Meehan, MSN, Advocate Christ Medical Center, Oak Lawn, IL
Heather Moody, APRN ACNP, University of Louisville, Louisville, KY
Anthony Salimbangon, RN, BSN, Ronald Reagan UCLA Medical Ctr, Buena Park, CA
Amanda Schubert, BSN, RN, Cincinnati Children’s Hospital, Cincinnati, OH
Michael Sobieski, RN, CCP, University of Louisville Jewish Hospital, Louisville, KY
Dustin Szczec, RN, BSN, University of Minnesota, Minneapolis, MN
Maureen Thompson, RN, University of Minnesota, Minneapolis, MN
Eugene DePasquale, MD, Ronald Reagan UCLA Medical Center, Los Angeles, CA
Claudius Mahr, DO, University of Washington, Seattle, WA
Bart Meyns, MD, PhD, University of Leuven, Leuven, Belgium
Evgenij Potapov, PD, Dr. Med, German Heart Center Berlin, Berlin, Germany
Edwardo Rame, MD, University of Pennsylvania, Philadelphia, PA
Benjamin Sun, MD, Minneapolis Heart Institute, Minneapolis, MN
Jeffrey Teuteberg, MD, University of Pittsburgh Medical Ctr, Pittsburgh, PA
Nir Uriel, MD, MSc, University of Chicago, Chicago, IL

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Session Descriptions:

Each session is 20 minutes in length and will be repeated 14 times throughout the day (2 sessions per time slot repeated 7 times).

Session attendance is limited to 12 participants to encourage interaction and optimization of Problem Based Learning construct.

8 sessions will be in progress in each of the time slots throughout the day in four different rooms allowing for a maximum of 96 participants.
Additional rooms and scenarios will be added if number of registrants exceeds 96.

Scenario sessions will be run by Coordinator Faculty

Physician and Surgeon faculty are present at each scenario to foster discussion and provide feedback regarding participant’s treatment decisions throughout the scenarios.

Scenarios are designed using ACLS Megacode construct allowing the participants to manage the patient from Heart Failure diagnosis through end of pump support with multiple scenario outcome possibilities depending on the clinical decisions made during the scenario.

Scenario Topics**:

- HVAD S1 – HVAD Scenario 1 – Waveform Interpretation and Thrombus Detection
- HVAD S2 – HVAD Scenario 2 – Hemolysis and Bleeding Management
- HeartMate II S1 – Controller Malfunction/Pump Failure Detection and Management
- HeartMate II S2 – Thrombus Detection/ treatment
- Impella – Pump Migration – Detection and Management
- Centrimag – Pump optimization in RVAD configuration
- EXCOR – Peds Scenario – Clot detection and Controller Replacement
- Syncardia – Driver Exchange – detection and replacement, Air leak detection

**Scenario topics are tentative and subject to change.