Wednesday, June 21

8:30am - 4:30pm

**ASAIO 6th ANNUAL PEDIATRIC MEDICAL DEVICE DAY**

8:30am

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-9:25am
Orphan Products PI Perspective
Christopher Almond, MD, Stanford University, Palo Alto, CA

9:25am-9:45am
Demystifying the FDA Process
Iki Adachi, MD, Texas Children’s Hospital, Houston, TX

9:45am-10:05am
Where The CDRH Is Going
Vasum Peiris, MD, FDA, Silver Spring, MD

10:05am-10:15am
Discussion and Questions

10:15am - 10:30am
**Pediatric Refreshment Break 1**

10:30am - 11:40am

**Pediatric Day Session 2: Updates From The Field**

10:30am-10:50am
PediMacs
Dr. Joseph Rossano, MD, MS, Children’s Hospital of Pennsylvania, Philadelphia, PA

10:50am-11:10am
Early Report From PumpKIN
Timothy Baldwin, PhD, NHLBI/NIH, Bethesda, MD

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 - 2:45pm

**Pediatric Day Session 3: Getting A Pediatric Device to Market**

1:30pm-2:15pm
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

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 Center, 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
8:00am - 5:30pm

VAD UNIVERSITY

Course Director: Pramod Bonde, MD, Yale University, New Haven, CT

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

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

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

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

The Four Cs of VAD Care
Communication
Compliance
Coagulation
Complications
Basar Sareyyupoglu, MD, University Hospitals of Case Western, Cleveland, OH
Hari Mallidi, MD, Brigham and Women’s Hospital / Harvard Medical School, Boston, MA
William Holman, MD, University of Alabama, Birmingham, AL
Pamela Combs, PhD, RN, Advocate Christ Medical Center, Oak Lawn, IL

Total Artificial Heart
Devices in the Pipeline
Clinical Implant and Care of TAH Patients
Programmatic Aspects
Vigneshwar Kasirajan, MD, VCU School of Medicine, Richmond, VA
Daniel Timms, PhD, BiVACOR, Houston, TX

Thursday, June 22

7:45am - 12:30pm

GENERAL SESSION 1

7:45am - 8:00 am
Introduction & Welcome -
Marvin Slepian, MD, ASAIO Program Chair, University of Arizona, Tucson, AZ

8:00 am - 9:15 am
Top Graded Abstracts

#179 Implanted Novel Autologous Bioprosthetic Valve Can Adapt the Histological Character to the Environment
Yoshiaki Takewa, MD, PhD, National Cerebral & CV Center, Suita, Osaka, Japan

#275 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

#265 Post Transplant Survival in Patients Bridged to Transplant with a Ventricular Assist Device: Poor Outcomes Extend Beyond the Standard Adolescent Age Group
Raheel Rizwan, MD, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

#239 Using Wall Shear Stress and Platelet Stress Accumulation in the Design of a Bioartificial Kidney

9:00am-9:15am  #160 Stretchable Electronic Conformal Skin-adherent Wearable Patches: a Novel Method for Wireless Patient Monitoring  
Jacob Garlant, University of Arizona, Tucson, AZ

9:15am - 9:45am  ASAIO President’s Address  
William Fissell, MD, Vanderbilt University, Nashville, TN

9:45am - 10:30am  Visit Exhibits & Posters

10:30am-12:30pm  GENERAL SESSION 1 - Continued  
Medical Device Innovations - How Do We Drive It, Build It and Deliver It in the Future?

10:30am-10:50am  Medical Device/Therapeutics Innovation - The Issue, The Need And The Process  
Marvin Slepian, MD, University of Arizona, Tucson, AZ

10:50am-11:10am  Rapid Prototyping Additive Manufacturing

11:10am-11:30am  Modeling and Simulation Approaches - Enhancing Certainty, Reducing Animal Studies, Speeding Development  
Tina Morrison, PhD, FDA, Silver Spring, MD

11:30am-12:00pm  Visit Exhibits & Posters

12:00pm-12:30pm  Visit Exhibits & Posters

12:30pm-1:30pm  Lunch Break

1:30pm-3:00pm  CARDIAC 1

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-2:00pm  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-2:20pm  Discussion

2:15pm-2:30pm  Cardiac Abstracts

2:15pm-2:30pm  #176 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) Devices  
Randall Olmsted, Baylor College of Medicine, Houston, TX

2:30pm-2:45pm  #77 International Analysis of LVAD Point-of-care vs Plasma INR: a Multicenter Study  
Sarah Schettke, PA-C, Mayo Clinic, Rochester, MN

2:45pm-3:00pm  #73 ICU Sequential Organ Failure Assessment (SOFA) Score Improves Risks 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  
Chairman: Egemen Tuzun, MD, PhD, Texas A & M, College Station, TX

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

2:00pm-3:00pm  Bioengineering Abstracts
#283 A Novel VAD Platform Configured for Right Heart Mechanical Circulatory Support
_J. Ryan Stanfield, PhD, VADovations, Oklahoma City, OK_

#191 In vitro Performance of a Novel Membrane-oscillating Left Ventricular Assist Device Under Physiological Conditions
_Nathalie Tapolsky, BS, University of Louisville, Louisville, KY_

#85 Automatic Regulation Feasibility Testing of a Bioprosthetic Total Artificial Heart in a Bovine Model
_Jean-Christophe Perikés, MD, Carmat, Velizy-Villacoublay, France_

**PULMONARY 1 - Pro/Con of ECLS as Bridge to Recovery-Early Ambulation/Mobilization vs Rest and Get Off ECLS ASAP**

_Chairman: Bryan Whitson, MD, PhD, Ohio State University, Columbus, OH_

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_

**RENEAL 1 - Global Issues in Renal Replacement Therapy**

_Co-Chairs: Prabir Roy-Chaudhury, MD, PhD, University of Arizona, Tucson, AZ
Fokko Wieringa, PhD, Wearable Health Solutions, Eindhoven, Netherlands_

**Global RRT: An Overview**
_Miguelle Riella, MD, PhD, Catholic University of Parana, Curitiba, PR, Brazil_

**Commercial Opportunities and Business Challenges**
_Derek Wiebenson, BS, Baxter Healthcare, Englewood, CO_

**Legacy of Koff and the Road Ahead**
_Jasper Boomker, PhD, Dutch Kidney Foundation, Bussum, Noord, Netherlands_

**Reducing the Burden of Water Requirement**
_Christian Bluchel, PhD, Temasek Polytechnic, Singapore_

3:00pm-3:45pm
**Visit Exhibits & Posters**

**CARDIAC 2-Debate-VADS: Bioengineering and VADs**

3:45pm-4:05pm
_Pro: New Pump Designs Have Reached the "Perfect Pump"
_David Feldman, MD, PhD, University of Cincinnati Med Ctr, Cincinnati, OH_

4:05pm-4:25pm
_Con: LVAD Technology Improvement Can Further Improve Clinical Outcomes
_John M. Stulak, MD, Mayo Clinic, Rochester, MN_

**Cardiac Abstracts**

3:45pm-4:05pm
#118 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_

4:05pm-4:45pm
#116 LVAD Outflow Graft Size Impacts Thrombogenic Potential
_Venkatar Chivukula, PhD, University of Washington, Seattle, WA_

**BIOENGINEERING 2**

3:45pm-4:15pm
_Biventricular Heart Assist with Devices Acting on the Epicardium_
_John Criscione, MD, PhD, Texas A&M University, College Station, TX_

4:15pm-4:45pm
_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_

**Bioengineering Abstracts**

4:45pm-5:00pm
#174 In-vitro Feasibility Study of a Pulsatile Intra-ventricular Assist Device Mimicking Jellyfish-like Movement_
_Wu Tingting, MD, Soochoow University, Suzhou, China_
3:45pm - 5:00pm

**VAD 1 - Strategies for Every Day Life Within a VAD Program**

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

Telemonitoring: Challenges and Benefits  
*Michele Kassemos, 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 - 5:30pm

**PULMONARY 2 - Lung Injury Mini-Summit - An ASAIO Innovation Opportunity**

*Chairman: Joe GN "Skip" Garcia, MD, University of Arizona, Tucson, AZ*

3:45pm-4:25pm  
**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*

4:25pm-4:55pm  
**Pathobiology of Acute Lung Injury - What Are The Targets For Intervention?**  
*Jeffrey Jacobson, MD, University of Illinois, Chicago, IL*

4:55pm-5:25pm  
**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 - 5:30pm

**RENEAL 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*

Living Membranes  
*Dmitrios Stamatialis, PhD, University of Twente MRA Institute, Enschede, Netherlands*

Membrane Breakthroughs  
*Dean Johnson, PhD, University of Rochester, Rochester, NY*

Nanodialysis Technology and Experience  
*Karin Gerritsen, MD, PhD, UMC Utrecht, Netherlands*

Hemodialysis on the Run - WAK  
*Victor Gura, MD, Cedar-Sinai Medical Ctr, Los Angeles, CA*

Update on the AWAK for PD  
*Martin Roberts, PhD, University of California Los Angeles, Los Angeles, CA*

The Regulatory Viewpoint  
*Murray Sheldon, MD, FDA, Silver Spring, MD*

3:45pm - 5:00pm

**PEDIATRIC 1 : Short-Term MCS Bridge Debate**

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 Thiagarajan, MBBS, MPH, Boston Children’s Hospital, Boston, MA*

4:25-4:30pm  
Discussion

4:30pm-5:00pm

**Pediatric Abstracts**

#97 Stretchable Electronic Conformal Skin-adherent Wearable Patches: a Novel Method for Wireless Patient Monitoring  
*Jason Goldberg, MD, University of Arizona, Tucson, AZ*

4:45pm-5:00pm  
#259 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**

#19 A Novel Tissue Engineered Conduit for Use in Assisted Fontan Circulation  
Christopher Broda, MD, Baylor College of Medicine, Houston, TX

#36 Novel Islet Macroencapsulations Devices for the Treatment of Diabetes Type 1  
Dimitrios Stamatiadis, PhD, University of Twente MRA Institute, Enschede, Netherlands

#61 Impact of Physiologic Pulsatile Flow on Microcirculation During Cardiopulmonary Bypass  
Gengo Sunagawa, MD, Cleveland Clinic, Cleveland, OH

#68 Treating Short Bowel Syndrome Through Enterogenesis: Defining a Protocol for Safe Bowel Distraction  
Meredith Barrett, MD, University of Michigan, Ann Arbor, MI

#72 Controlling the Variance of Normalized Hemolysis Index from in vitro Hemolysis Testing  
Luidi Zhang, PhD, Soochow University, Suzhou, China

#81 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

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

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

Stephanie Zawada, The University of Arizona, Tucson, AZ

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

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

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

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

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

Kaitlyn Ammann, BS, University of Arizona, Tucson, AZ

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

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

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

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

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

#258 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

#270 Mechanical and Rheological Characterization of RBCs Following Hemoglobin Replacement for Potential Treatment of Sickle Cell Disease  
Luke Ziegler, BS, McGowan Institute of Regenerative Medicine, Pittsburgh, PA

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

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

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

**Cardiac Posters**

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

#13 Readmission Rates in African-Americans Patients Supported with Left Ventricular Assist Devices (LVADs) After Hemodynamic Unloading  
David Tehrani, MD, University of Chicago Medicine, Chicago, IL
#14 Design Consideration of EVAHEART®2 LVAD Inflow Cannula
Tadashi Motomura, MD, PhD, Evahert Inc., Houston, TX

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

#16 Left Ventricular Assist Device Versus Total Artificial Heart: Do Patients Report the Same Energy Level?
Barbara Rotter, RN, Cedars-Sinai Medical Ctr, Los Angeles, CA

#17 Unplanned Readmissions 6 Months Post Discharge: Left Ventricular Assist Device Versus Total Artificial Heart
Newman Huie, BSN, Cedars-Sinai Heart Institute, Los Angeles, CA

#18 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

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

#26 The Ianus Perfusion; Strategy for Peripheral ECMO
Marco Gennari, MD, Centro Cardiologico Monzino, Milan, Italy

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

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

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

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

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

#43 Promoting Growth Through Partnership: iCCAC's VAD Mentorship Program
Rasha Adam, BS, ANW, Plymouth, MN

#45 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

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

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

#48 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

#58 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

#62 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

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

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

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

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

#114 Impact of Left Ventricle Size on LVAD Thrombosis Risk
Venkat Keshav Chivukula, PhD, University of Washington, Seattle, WA

#129 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

#135 Case Series of a Novel Peripheral Right Ventricular Assist Device for Acute Right Heart Failure
Mary S. Melvin, MD, University of Rochester, Rochester, NY

#139 Long-term Impacts of Reducing Pulmonary Vascular Resistance with VAD Therapy in Bridge-to-transplant Patients
Jason Han, BS, Hospital at University of Pennsylvania, Philadelphia, PA

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

#163 Ventricular Assist Device Cannulation Strategy for the Failing Single Ventricle: Atrium or Ventricle?
Katsuhide Maeda, MD, PhD, Stanford University, Stanford, CA

#167 Implantable Hemodynamic Monitoring in Patients with an LVAD
Friday, June 23

**GENERAL SESSION 2**

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

8:00am - 12:00pm

**ASAIOfyi - for young innovators - Rapid Fire Presentations**

8:00am - 8:30am
**#146 RAS-Q - A Novel Passive Right Heart Assist System**
Tim Kaufmann, PhD, RWTH Aachen University, Aachen, NRW, Germany

8:05am - 8:10am
**#187 Using Compliant Oxygenators to Improve Flow Conditions in Pulsatile ECMO Circuit**
Ralf Borchardt, PhD, enmodes GmbH, Aachen, NRW, Germany

8:10am - 8:15am
**#120 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
**#151 Effect of Eccentricity in a Blood Shearing Device Using Transient Cfd Analysis**
Peng Wu, PhD, Soochow University, Suzhou, Jiangsu, China

8:20am - 8:25am
**#181 Large Eddy Simulation and Hemolysis Estimation of the FDA Nozzle Model**
8:30am - 9:30am  ASAIOfyi - for young innovators - Student Design Competition Presentations

9:30am - 9:50am  Keynote Address:
Medical Devices, Artificial Organs, Organs-On-A Chip And Beyond:
How To Impact Healthcare In The Future - Perspectives From The NIH
Roderic Pettigrew, MD, PhD, Director NIBIB/NIH, Bethesda, MD

9:50am - 10:15am  Keynote Address:
Stretching Our Way into the Future - Flexible and Stretchable Electronics -
New Materials and Sensors for Medicine
John Rogers, PhD, Northwestern University, Evanston, IL

10:15am-11:00am  Visit Exhibits & Posters

11:00am-12:00pm  GENERAL SESSION 2 - Continued

11:00am-11:30am  ASAIO History Group
Scientific Biography of William S Pierce, MD
Gerson Rosenberg, PhD, Penn State College of Medicine, Hershey, PA

11:30am-12:00pm  ASAIO Hastings Lecture
The Total Artificial Heart - Past, Present and Future
Jack Copeland, MD, University of Arizona, Tucson, AZ
Introduction Richard Smith, MSEE, University of Arizona, Tucson, AZ

12:00pm-1:30pm  Lunch Break

1:30pm-3:00pm  CARDIAC 3- Acute Temporary Support

Panelists:
Jonathan Rich, MD, Northwestern University, Chicago, IL
Claudius Mahr, DO, University of Washington, Seattle, WA

1:30pm-1:45pm  Case #1:
INTERMACS I Patient on Short-Term Support: Transition to Durable System and Timing
Ulrich Jorde, MD, Montefiore Medical Center, Bronx, NY

1:45pm-1:50pm  Discussion

1:50pm-2:05pm  Case #2:
Aly El Banayosy, MD, INTEGRIS Baptist Medical Center, Oklahoma City, OK

2:05pm-2:15pm  Discussion

2:15pm-3:00pm  Cardiac Abstracts

2:15pm-2:30pm  #112 Concomitant Mitral Valve Procedures at the Time of Continuous-flow Left Ventricular Assist Device Implantation in Patients with Preoperative Severe Mitral Regurgitation
Masashi Kawabori, MD, Texas Heart Institute, Houston, TX

2:30pm-2:45pm  #124 High-molecular-weight von Willebrand Factor Multimer Loss in Patients on Short Term Mechanical Circulatory Support Devices
Oksana Volod, MD, Cedars Sinai Medical Center, Los Angeles, CA

2:45pm-3:00pm  #276 Heartware™ vs. Heartmate II™: A Comparison of Post-implant Surgical Recovery
Alexandra Eisenbeiss, BS, Intermountain Medical Center, Murray, UT

1:30pm-3:00pm  BIOENGINEERING 3

Co-Chairs:
Tom Sugar, PhD, ASU Polytech Engineering Program, Mesa, AZ
Arun Jayaram, PhD, PT, Rehabilitation Institute of Chicago, Chicago, IL

1:30pm-1:40pm  Mobility Exoskeletons, Robots: Artificial Organs Too!
Marvin J. Sleopian, 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 Jayaram, PhD, PT, Rehabilitation Institute of Chicago, Chicago, IL

2:25pm-2:40pm  Funding Opportunities and Commercialization of Robotics and Mobility Systems
1:00pm-3:00pm  
**VAD 2 Shark Tank**  
*Chairman: Peggy Blood, MSN, RN, University of Alabama at Birmingham, Birmingham, AL*

- **a. VAD Equipment Management**  
  Kathleen Schultz, BS(BME), MBA, Aurora St. Luke’s Medical Ctr, Milwaukee, WI

- **b. Sustainable Staffing Models**  
  Teresa Bueno, DNP, MSN, Memorial Regional Hospital, Hollywood, FL

- **c. Keeping Rehab, SNF and Dialysis Centers Ready to Receive**  
  Carole Ballew, MSN, UVA, Charlottesville, VA

- **d. Self Care Management Model**  
  Jessie Casida, PhD, RN, University of Michigan, Ann Arbor

- **e. Efficacy of a Thrombus Management Protocol**  
  *Mary Bradbury, PharmD, Inova Fairfax Hospital, Falls Church, VA*

- **f. Importance of Understanding Why Patients Refuse DT LVAD**  
  Matthias Loebe, MD, PhD, Miami Transplant Institute, Miami, FL

- **g. Outpatient Rehabilitation of VAD Patients & Monitoring Daily Life Activity**  
  Thomas Schloeglhofer, BSc, Medical University of Vienna, Vienna, Austria

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

- **1:30pm-1:45pm**  
  Donfang Wang, MD, PhD, University of Kentucky, Lexington, KY
  William Federspiel, PhD, University of Pittsburgh, Pittsburgh, PA

- **2:00pm-2:15pm**  
  Panel Discussion

- **2:15pm-2:30pm**  
  **Pulmonary Abstracts**
  
  #54 Low Resistant Respiratory Assist System for Paracorporeal Lung Support: an In-vivo Study  
  Ralf Borchardt, PhD, enmodes GmbH, Aachen, NRW, Germany

  #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: From Biology to Technology to Clinical Care**  
*Co-Chairs: Jasper Boomker, PhD, Dutch Kidney Foundation, Bussum, Noord, Netherlands  
William Fissell, MD, Vanderbilt University, Nashville, TN*

- **Supramolecular Biomaterials**  
  Patricia Dankers, PhD, Eindhoven University of Technology, Netherlands

- **Microfluidic Diagnostics**  
  Ian Papautsky, PhD, University of Illinois, Chicago, IL

- **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, Wearable Health Solutions, Eindhoven, 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  
  Fernando Aguels, MS, 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**

**#147 Temporary Ventricular Assist Devices as a Bridge to Transplantation: Assessing the Impact of an Evolving Strategy**  
Chet Villa, MD, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

**#194 Development Update on the Enson pCAS System**  
Mark Gartner, PhD, MBA, Enson Inc., Pittsburgh, PA

**#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**

*Co Chairs:*  
James Long, MD, PhD, INTEGRIS Baptist Medical Center, Oklahoma City, OK  
Randall Starling, MD, Cleveland Clinic, Cleveland, OH

**Pro: Heart Transplantation Should Be Favored Over Durable VAD Strategy**  
Emma Birks, MD, PhD, University of Louisville, Louisville, KY

**Con: All Elderly Patients Should Be Approached with VADS First**  
Simon Maltais, MD, PhD, Mayo Clinic, Rochester, MN

**Cardiac Abstracts**

**#251 Bridging to Heart Transplantation (BTT) in Seputagenarians with LVADs**  
Eugene DePasquale, MD, Ronald Reagan UCLA Medical Center, Buena Park, CA

4:30pm-5:00pm  
**BIOENGINEERING 4**

*Chairman:* Peter Wearden, MD, PhD, Nemours Children's Hospital, Orlando, FL

**Managing the Future of Cardiovascular Imaging in Children**  
Rajesh Krishnamurthy, MD, Nationwide Children's Hospital, Columbus, OH

**Falling in Love With Your Own Technology! Pros, Cons and Hitchhiking**  
Kurt Dasse, PhD

4:45pm-5:00pm  
**Discussion**

3:45pm-5:00pm  
**PULMONARY 4 - ELCS and Big Data: Driving Innovation and Outcome**

*Chairman:* Joseph Zwischenberger, MD, University of Kentucky, Lexington, KY

**3:45pm-4:00pm**  
Jonathan Haft, MD, University of Michigan, Ann Arbor, MI

4:00pm-4:15pm  
James Blum, MD, Emory University Hospital, Atlanta, GA

4:15pm-4:30pm  
Ryan Barbaro, MD, University of Michigan, Ann Arbor, MI

4:30pm-4:45pm  
Steven Conrad, MD, PhD, Louisiana State University HCS, Shreveport, LA

4:45pm-5:00pm  
**Panel Discussion**

3:45pm-5:00pm  
**RENAI 4-Vascular Access: From Bedside to Bench to Bedside**

*Co-Chairs:*  
William Fissell, MD, Vanderbilt University, Nashville, TN  
Michael Allon

**Biology Of Vascular Access Dysfunction**  
Prabir Roy-Chaudhury, MD, PhD, University of Arizona, Tucson, AZ

**Novel Therapies for Vascular Access Dysfunction**

**Clinical Trials in Vascular Access: Time for a Change**  
Laura Dember

**Patient Perspectives on Vascular Access: Not to Be Forgotten**  
Terry Foust Litchfield, Lifeline, Vernon Hills, IL

3:45pm-5:00pm  
**PEDIATRIC 3: Beyond Bridge to Transplant**

**Destination Therapy**  
Christopher Almond, MD, MPH, Stanford University, Palo Alto, CA

**Psychosocial Issues for VAD Patients: Sex, Drugs, and Rock n’ Roll**  
Christina Vanderpluym, MD, Boston Children’s Hospital, Boston, MA

**Remote Monitoring**  
Holger Buchholz, MD, Stollery Children’s Hospital, Edmonton, Alberta

**Home Echo**
Bioengineering Posters

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

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

#31 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

#50 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

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

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

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

#140 Open Storage Effect on Nitric Oxide Releasing Materials
  Kayga Amoako, PhD, University of New Haven, West Haven, CT

#145 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

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

#169 Effect of Turbulent Flow on von Willebrand Factor
  Choon-Sik Jhun, PhD, Penn State College of Medicine, Hershey, PA

#172 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

#185 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

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

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

#198 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

#201 Progress in the Development of an Automatic Ventricular Assist Device with Pulse Augmentation and Regurgitant Flow Shutoff
  Nicole Byram, BS, Cleveland Clinic, Cleveland, OH

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

#212 Method for Design a Control System Considering Fail and Safety Interaction Between VAD and Patient Body
  Andre Cavaleirho, Sr., PhD, Fundacao Sao Andre, Sao Andre, Brazil

#217 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 Testing
  Paulino Alvarez, MD, Cleveland Clinic, Cleveland, OH

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

#221 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

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

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

#244 Low Shear and Thromboresistance in the Synchronous Pulsatile Adult and Pediatric TORVAD
#261 Formation of Aggregates in Perfluorocarbon Emulsions When These are Diluted with Plasma Expanders
Yissel Luengas, Universidad de los Andes, Bogotá, Colombia

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

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

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

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Chen Chen, PhD, CH Biomedical Inc., Suzhou, Jiangsu, China

Cardiac Posters

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

#52 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

#59 International VAD Coordinator Team Compositions and Advanced Nurse Practitioners in VAD Teams
Thomas Schloeghofer, BS, Medical University of Vienna, Vienna, Austria

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

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

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

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

#83 Towards the Perfect Fit of VADs: Virtual Fitting and Hemodynamic Investigation
Simon Sonntag, PhD, ennomes GmbH, Aachen, Germany

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

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

#119 3D Printed Mitral Valve Models: Realistic Surgical Simulation
Divneet Mandair, University of Arizona, Tucson, AZ

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

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

#123 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

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

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

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

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

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

#137 HMII Driveline Fracture and Outflow Graft Bend Relief Disconnection with Pseudoaneurysm Formation
Bessie Sycip, RN, Medstar Washington Hospital Center, Washington, DC

#138 Effects of Using a Torsional Ventricular Assist Device (TVAD) on Regional Cardiac Mechanics
#148 Continuous Suction Monitoring Reveals High Probability of Suction in Well-adjusted VAD-outpatients
Elaine Soohoo, MS, BME, Carnegie Mellon University, Pittsburgh, PA
Heinrich Schima, PhD, Medical University Vienna, Vienna, Austria

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

#150 Advantages of Integrating Pressure-regulating Devices into Mechanical Circulatory Support Pumps
David Horvath, BS, Cleveland Clinic, Cleveland, OH

#153 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

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

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

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

#184 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

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

#190 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

#199 Synchronization of a Soft Robotic Ventricular Assist Device to the Native Cardiac Rhythm Using an Epicardial Electrogram
Daniel Bautista-Salinas, BS, Boston Children’s Hospital, Boston, MA

#200 Chronic Administration of Electrical Microcurrent to the Heart is Safe and Does Not Impair Cardiac Function
Johannes Mueller, MD, Berlin Heals, Berlin, Germany

#205 ECMO Utilization and Short-term Outcomes in Pediatric Patients with Congenital Heart Disease
Paul Madera, MD, Nicklaus Children’s Hospital, Miami, FL

#214 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

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

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

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

#264 Evaluation of Late Follow-up in Patients with Pulmonary Insufficiency Submitted to Intervention to Correct the Tetralogy of Fallot in Cardiovascular Simulator
Jeison Fonseca, PhD, Institute Dante Pazzanese of Cardiology, Sao Paulo, Brazil

#266 Maximum Level of Mobility During Acute Mechanical Circulatory Support with Axillary Deployment of the Impella 5.0 is Associated with Improved Survival
Michele Esposito, MD, Tufts Medical Center, Boston, MA

#271 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

#272 Assessing Contraction Kinetics and Sarcomeric Protein Expression in Electrically Paced Engineered Heart Tissues
Vic Keschrumrus, PhD, University of Arizona, Tucson, AZ

#277 "Strategy Formulation" for the Assessment of Power Loss in the Total Cavopulmonary Connection Zone
Sanjeev Dasrao Muskawad, MD, Indian Institute of Technology, Bombay, Mumbai, India

Pulmonary Posters

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

#44 Effects of Pulsatile Blood Flow on Oxygenator Performance
Lotte Schraven, MSc, RWTH Aachen, Aachen, Germany

#64 Respiratory Insufficiency: Importance of Patient Mobility and the Demand for Wearable Lung Assist Devices (LAD) - Results of a Survey
Nadine Kirsch, Xenios AG, Heilbronn, Germany

#162 Ex vivo Lung Perfusion: A Case Report of a Single-Lung Salvage After Judged Unsuitable for Transplantation During Procurement
Fares Alghanem, BS, University of Michigan, Ann Arbor, MI
#189 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, Japan

#206 Determining Optimal Thoracic Artificial Lung Aspect Ratio Using Computational Fluid Dynamics Modeling  
Ni Yu, BS, Carnegie Mellon University, Pittsburgh, PA

#224 Effects of Hollow Fiber Oscillation on Artificial Lungs  
Ryan Orizondo, BS, University of Pittsburgh, Pittsburgh, PA

#229 The Advancing Front Model is Effective at Modeling Oxygen Transfer for Microchannel Artificial Lungs  
Rei Ukito, BS, Carnegie Mellon University, Pittsburgh, PA

#248 Successful Extra-corporeal Membrane Oxygenation (ECMO) in HIV-positive Patient  
David Kaczorowski, MD, Wellspan- York Hospital, York, PA

#249 Targeted FXII Inhibition for Localized Anticoagulation Effects in Artificial Lungs

## Saturday, June 24

### MEDICAL DEVICE ENTREPRENEUR'S FORUM

**Chairman:** David Humes, MD, University of Michigan, Ann Arbor, MI  
**Proposals Due Monday, March 20, 2017**

### ADULT ECMO COURSE

**Course Director:** Aly El Banayosy, MD, INTEGRIS Baptist Med Ctr, Oklahoma City, OK

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

- **8:10am-8:30am**  
  **ELSO Report**  
  Jonathan Haft, MD, University of Michigan, Ann Arbor, MI

- **8:30am-8:50am**  
  **Hemocompatibility of Short-Term Support Devices**  
  James Long, MD, PhD, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK

- **8:50am-9:10am**  
  **Biomaterials and Inflammatory Response in Adult ECMO Patients**  
  Marvin Slepian, MD, University of Arizona, Tucson, AZ

- **9:10am-9:40am**  
  **What Is in the Pipeline?**  
  Martin Stueber, Grand Rapids

- **9:40am-10:00am**  
  Panel Discussion

- **10:00am-10:15am**  
  Break

### SESSION II

- **10:15am-12:00pm**

- **10:15am-10:35am**  
  **Approaching Cardiogenic Shock Patients Beyond Medical Management: Which Way to Go?**  
  Aly El Banayosy, MD, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK

- **10:35am-10:55am**  
  **Improving Outcomes and Minimizing Complications on ECMO Patients**  
  Christian Bermudez, MD, Hospital of th University of Pennsylvania, Philadelphia, PA

- **10:55am-11:15am**  
  **Data from Oklahoma ECMO Network Model**  
  Karl Nelson, RN, MBA, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK

- **11:15am-11:35am**  
  **Transition from ECMO to Durable MCS Devices: Criteria and Long-Term Results**  
  Behzad Soleimani, Penn State Hershey Medical CTR, Hershey, PA

- **11:35am-12:00pm**  
  Panel Discussion

- **12:00-1:10pm**  
  Lunch Break

### SESSION III

- **1:10pm-2:45pm**

- **1:10pm-1:30pm**  
  **Quality Measures for ECMO Programs**  
  Jonathan Haft, MD, University of Michigan, Ann Arbor, MI

- **1:30pm-1:50pm**  
  **Difficult Cannulation: Tips and Tricks**  
  Ali Ghodsizad, Miami Transplant Institute, Miami, FL

- **1:50pm-2:10pm**  
  **rECMO: Programming Challenge and Clinical Results**  
  Christoph Brehm, MD, Penn State Hershey Medical Ctr, Hershey, PA

- **2:10pm-2:30pm**  
  **ECMO Beyond Your Imagination**  
  Michael Koerner, MD, PhD, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK
2:30pm-2:45pm  Panel Discussion

2:45pm-3:00pm  Break

3:00pm-5:00pm  SESSION IV

3:00pm-3:20pm  ARDS: Lessons Learned from Recent Trials  
James Blum, MD, FCCM, Emory University Hospital, Atlanta, GA

3:20pm-3:40pm  VV ECMO in ARDS Patients: Excellent Outcomes

3:40pm-4:00pm  Prone vs VV ECMO Trial in ARDS Patients: Are We There Yet?

4:00pm-4:20pm  Screening and Infection Management in Adult ECMO Patients  
Allison Nazinitsky, MD, INTEGRIS Baptist Medical Ctr, Oklahoma City, OK

4:20pm-4:55pm  Role of ECMO in Organ Donation  
Christopher Wigfield, Chicago, IL

4:55pm-5:00pm  Panel Discussion

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 Flow Left Ventricular Assist Device Implantation  
Chitaru Kurrihara, 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  #42 In vitro Blood Flow Loop System for Evaluating the Thrombogenicity of Medical Devices and Biomaterials  
Megan Jamiolekowski, PhD, FDA, Silver Spring, MD

9:45am-10:00am  #233 Surface-engineered Small Intestinal Submucosa for New Regenerative Vascular Grafts  
Karen Valencia Rivera, 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

#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

#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 in Kidney Disease: If Not Now When...?

Co-Chairs:
Gema Gonzales, MS, FDA, Silver Spring, MD
Shuvo Roy, PhD, University of California San Francisco, San Francisco, CA

The Science Of Measuring Patient Preferences
First Things First
Fokko Wieringa, PhD, Wearable Health Solutions, Eindhoven, Netherlands

Patient Preferences as a Regulatory Tool
Carolyn Neuland, PhD, FDA, Silver Spring, MD

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

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

#133 Use of Hemodynamic Ramp Test to Optimize Continuous-flow Assist Device in a Fontan Patient
Peter Chau, MD, University of Michigan, Ann Arbor, MI

#237 Pediatric Ventricular Assist Device Therapy for End-staged Heart Failure: a Contemporary Ten Year Experience
Mahesh Sharma, MD, University of Pittsburgh Medical Center, Pittsburgh, PA

#63 Design of a Percutaneous Axial-centrifugal Flow Pump for Failing Fontan Circulation
Dongfang Wang, MD, PhD, University of Kentucky College of Medicine, Lexington, KY

#63 Design of a Percutaneous Axial-centrifugal Flow Pump for Failing Fontan Circulation
Dongfang Wang, MD, PhD, University of Kentucky College of Medicine, Lexington, KY

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:
William Cohn, MD, Texas Heart Institute, Houston, TX
Yoshifumi Naka, MD, PhD, Columbia University, New York, NY

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
Randy Starling, MD, MPH, Cleveland Clinic, Cleveland, OH

11:25am-11:30am
Discussion

11:30am-12:00pm
Cardiac Abstracts

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

#196 Prediction of Right Ventricular Failure in the Current Continuous-flow Left Ventricular Assist Device Era
Cristiano Amarelli, MD, Monaldi, 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
10:45am-12:00pm

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

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

10:45am-11:05am
Navin Kapur, MD, Tufts Medical Ctr, Boston, MA
11:05am-11:25am
Erik Osborn, MD, Ft. Belvoir Hospital, Ft. Belvoir, VA
11:25am-11:45am
Christian Bermudez, MD, Hospital of the Univ of Pennsylvania, Philadelphia
11:45am-12:00pm
Panel Discussion

10:45am-12:00pm

RENAI 6 - Abstracts

Co-Chairs:
Stephen Ash, MD, Ash, Ash Access, Lafayette, IN
Shuvo Roy, PhD, University of California San Francisco, San Francisco, CA

10:45am-11:00am
#164 The Influence of Catheter Design on Convection-dominated Heparin Leakage
Michael Barbour, MS, University of Washington, Seattle, WA

11:00am-11:15am
#79 Centrifugal Separator for Implantable Artificial Kidney
Koki Ariyoshi, BS, University of Tokyo, Tokyo, Japan

11:15am-11:30am
#55 Bioactive Supramolecular Polymer Materials for Renal Membrane Bioengineering
Ronald van Gaal, Eindhoven University of Technology, Eindhoven, Netherlands

11:30am-11:45am
#84 Blood Foam in the Air Trap During Hemodialysis and Automatic Priming of FX-Dialyzers
Bernd Stegmayr, MD, PhD, Umea University of Sweden, Umea AC, Sweden

11:45am-12:00pm
#216 Development of a Novel Cell-free and Concentrated Ascites Reinfusion Therapy (CART) Machine
Which Can Be Easily Used in Safety
Toshiya Okahisa, MD, PhD, Institute of Health Biosciences, Tokushima, Japan

12:00pm - 1:00pm

IFAO SESSION

Co-Chairs:
Bernd Stegmayr, MD, PhD, Umea University, Umea, AC, Sweden
Marvin Slepian, MD, University of Arizona, Tucson, AZ

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

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

8:00am - 3:00pm

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 groups 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