



Program 2017

63rd Annual Conference

June 21-24, 2017 - Chicago

*"Patient-Centric Innovation-
Artificial Organs Beyond the Conventional"*

March 17, 2017



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

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

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

- 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

8:00am - 9:15 am

Top Graded Abstracts

8:00am-8:15am

#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

8:15am-8:30am

#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

8:30am-8:45am

#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

8:45am-9:00am

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

- Steven Goebel, PhD, SimuTech Group Inc., Rochester, NY

9:00am-9:15am

#160 Stretchable Electronic Conformal Skin-adherent Wearable Patches: a Novel Method for Wireless Patient Monitoring

- Jacob Garland, University of Arizona, Tucson, AZ

9:15am - 9:45 am	ASAI0 President's Address <i>William Fissell, MD, Vanderbilt University, Nashville, TN</i>
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 <i>Marvin Slepian, MD, University of Arizona, Tucson, AZ</i>
10:50am-11:10am	Rapid Prototyping Additive Manufacturing
11:10am-11:30am	Modeling and Simulation Approaches - Enhancing Certainty, Reducing Animal Studies, Speeding Development <i>Tina Morrison, PhD, FDA, Silver Spring, MD</i>
11:30am-11:50am	The Revolution In Material Development <i>Art Coury, PhD, Northeastern University, Boston, MA</i>
11:50am-12:10pm	Efficiency in Regulatory Strategies <i>Valerie Merkle, PhD, FDA, Silver Spring, MD</i>
12:10pm-12:30pm	Fueling The Process - The VC/Financial Perspective
12:30pm-1:30pm	Lunch Break
1:30pm-3:00pm	CARDIAC 1 <u>Panel: Patient Pump Interaction</u> Panelists: <i>John M. Stulak, MD, Mayo Clinic Hospital, Rochester, MN</i> <i>Robert Adamson, MD, Sharp Memorial Hospital, San Diego, CA</i> <i>Keith Aaronson, MD, University of Michigan, Ann Arbor, MI</i> <i>Mary Keebler, MD, Vanderbilt University, Nashville, TN</i>
1:30pm-1:45pm	Case #1: Surgical Challenges with Complex Case Scenarios - Multiple Reoperations and Pump Exchanges <i>Simon Maltais, MD, PhD, Mayo Clinic, Rochester, MN</i>
1:45pm-1:50pm	Discussion
1:50pm-2:05pm	Case #2: Patient Device Selection Difficulties - Thromboembolic Events and Gastrointestinal Bleeding <i>Nir Uriel, MD, MSc, University of Chicago, Chicago, IL</i>
2:05pm-2:10pm	Discussion
2:15pm-3:00pm	Cardiac Abstracts #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 <i>Randall Olmsted, Baylor College of Medicine, Houston, TX</i>
2:30pm-2:45pm	#77 International Analysis of LVAD Point-of-care vs Plasma INR: a Multicenter Study <i>Sarah Schettle, PA-C, Mayo Clinic, Rochester, MN</i>
2:45pm-3:00pm	#112 Concomitant Mitral Valve Procedures at the Time of Continuous-flow Left Ventricular Assist Device Implantation in Patients with Preoperative Severe Mitral Regurgitation <i>Masashi Kawabori, MD, Texas Heart Institute, Houston, TX</i>
1:30pm-3:00pm	BIOENGINEERING 1 - A New Era in Cardiac Research <i>Chairman: Egemen Tuzun, MD, PhD, Texas A & M, College Station, TX</i>
1:30pm-2:00pm	MRI Compatible Ex-Vivo Beating Heart (Physioheart) Platform: A New Era in Cardiac Research <i>Bas de Mol, MD, PhD, JD, University of Amsterdam, The Netherlands</i>
2:00pm-3:00pm	Bioengineering Abstracts #283 A Novel VAD Platform Configured for Right Heart Mechanical Circulatory Support <i>J. Ryan Stanfield, PhD, VADovations, Oklahoma City, OK</i>
2:15pm-2:30pm	#191 <i>In vitro</i> Modelling of Calcific Particles and Testbed for Cerebral Protection Devices (CPD) Under Physiological Conditions <i>Nathalie Tapolsky, BS, University of Louisville, Louisville, KY</i>
2:30pm-2:45pm	#85 Automatic Regulation Feasibility Testing of a Bioprosthetic Total Artificial Heart in a Bovine Model <i>Jean-Christophe Perlès, MD, Carmat, Vélizy-Villacoublay, France</i>
2:45pm-3:00pm	

1:30pm-3:00pm

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
1:45pm-2:00pm

Pro: Don Hayes, Jr., MD, MS, Ohio State University, Columbus, OH
Con: James Blum, MD, Emory University Hospital, Atlanta, GA

2:00pm-2:15pm
2:15pm-2:30pm
2:30pm-2:45pm

Pro: Joseph Zwischenberger, MD, University of Kentucky, Lexington, KY
Con: William Lynch, MD, MS, University of Michigan, Ann Arbor, MI

Panel Discussion

2:45pm-3:00pm
2:45pm-3:00pm

Pulmonary Abstracts

#254 CO₂ Based Servo Regulation of Artificial Lung Sweep Gas
Alex Thompson, PhD, VA Ann Arbor Healthcare System, Ann Arbor, MI

1:30pm-3:00pm

RENAL 1 - Global Replacement Therapy: From Innovation to Finance

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
Ty Schockley, ScD, Baxter Healthcare Corporation, Waukegan, IL
Legacy of Kolff and the Road Ahead
Jasper Boomker, PhD, Dutch Kidney Foundation, Bussum, Noord, Netherlands

Discussion

3:00pm-3:45pm

Visit Exhibits & Posters

3:45pm - 5:00pm

CARDIAC 2-Debate-VADS: Bioengineering and VADs

3:45pm-4:05pm
4:05pm-4:25pm

Pro: New Pump Designs Have Recached the "Perfect Pump"
David Feldman, MD, PhD, University of Cincinnati Med Ctr, Cincinnati, OH
Con: LVAD Technology Improvement Can Further Improve Clinical Outcomes
John M. Stulak, MD, Mayo Clinic, Rochester, MN

4:30pm-5:00pm
4:30pm-4:45pm

Cardiac Abstracts

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

4:45pm-5:00pm

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

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

4:45pm - 5:00pm
4:45pm-5:00pm

Bioengineering Abstracts

#174 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

Integration Of Processes Within VAD Programs
Pamela Combs, PhD, RN, Advocate Christ Medical Center, Oak Lawn, IL
Telemonitoring: Challenges and Benefits
Michelle 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 Devies - 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 - 5:00pm

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

Cellular Advances

William Fissell, Vanderbilt University, Nashville, TN

Biomaterial Advances

Dmitrios Stamatialis, PhD, University of Twente MRA Institute, Enschede, Netherlands

Mechanical Breakthroughs

Dean Johnson, PhD, University of Rochester, Rochester, NY

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

4:30pm-4:45pm

#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

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

ASAIOfyi - for young innovators - Rapid Fire Presentations

8:00am-8:05am

#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**

Peng Wu, PhD, Soochow University, Suzhou, Jiangsu, China

8:30am - 9:30am **ASAIOfyi - for young innovators - Student Design Competition Presentations**

9:30am - 9:50am **Keynote Address:**

Medical Devices, Aftificial 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:**

Postcardiotomy Cardiogenic Shock: What, When, Where and Why?

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 **#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

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. 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 Jayaram, PhD, PT, Rehabilitation Institute of Chicago, Chicago, IL

2:25pm-2:40pm **Funding Opportunities and Commercialization of Robotics and Mobility Systems**

Bruce Floersheim, PhD, GoX Studios, Tempe, AZ

Q&A

VAD 2 Shark Tank

Chairman: *Peggy Blood, MSN, RN, University of Alabama at Birmingham, Birmingham, AL*

a. VAD Equipment Management

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

b. Sustainable Staffing Models

Teresa Buena, 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 Schloegelhofer, BSc, Medical University of Vienna, Vienna, Austria

h. Orientation/Education of Team Members

PULMONARY 3-Bioartificial Lungs

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

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

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

Panel Discussion

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

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

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

RENAL 3-Quantum Leaps: From Biology to Technology to Clinical Care

Living Membranes

Patricia Dankers, Eindhoven

Microfluidic Diagnostics

Ian Papautsky, University of Illinois, Chicago, IL

Bioengineered Organs

Jason Wertheim

Renal Abstracts

#71 Small Animal Study and Hemocompatibility of Small Form Factor Microfluidic Filtration System with Nitride Membranes

Dean Johnson, PhD, University of Rochester, Rochester, NY

#180 Update on Continuous Electrolyte and pH Monitoring

Fokko Wieringa, PhD, Wearable Health Solutions, Eindhoven, Netherlands

PEDIATRIC 2: ECMO

Quadrox as a Central Shunt

David Hoganson, MD, Boston Children's Hospital, Boston, MA

ECMO and the FDA: Update

Fernando Aguel, MS, FDA, Silver Spring, MD

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

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

2:34pm-2:46pm

#194 Development Update on the Ension pCAS System

Mark Gartner, PhD, MBA, Ension 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

Co Chairs:

James Long, MD, PhD, INTEGRIS Baptist Medical Center, Oklahoma City, OK

Randall Starling, MD, Cleveland Clinic, Cleveland, OH

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 Seputagenarians with LVADs

Eugene DePasquale, MD, Ronald Reagan UCLA Medical Center, Buena Park, CA

3:45pm-5:00pm

BIOENGINEERING 4

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

3:45pm - 4:15pm

Managing the Future of Cardiovascular Imaging in Children

Rajesh Krishnamurthy, MD, Nationwide Children's Hospital, Columbus, OH

4:15 - 4:45pm

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 Hopital, Atlanta, GA

4:15pm-4:30pm

Ryan Barbaro, 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

RENAL 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

Discussion

3:45pm-5:00pm

PEDIATRIC 3: Beyond Bridge to Transplant

3:45pm-4:00pm

Destination Therapy

Christopher Almond, MD, MPH, Stanford University, 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

ASAI0 Member Business Meeting

Saturday, June 24

8:30am-10:00am

MEDICAL DEVICE ENTREPRENEUR'S FORUM

Chairman: David Humes, MD, University of Michigan, Ann Arbor, MI

Proposals Due Monday, March 20, 2017

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

Heidi Dalton, Inova, Fairfax, VA

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

Inflammatory Response in Adult ECMO Patients

9:10am-9:40am

What Is in the Pipeline?

Martin Strueber, Grand Rapids

9:40am-10:00am

Panel Discussion

10:00am-10:15am

Break

10:15am-12:00pm

SESSION II

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

Impact of New Technology on Complications Profile

Christian Bermudez, MD, Hospital of the 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

11:15-11:35am

Transition from ECMO to Durable MCS Devices: Long-Term Results

Behzad Soleimani, Penn State Hershey Medical CTR, Hershey, PA

11:35am-12:00pm

Panel Discussion

12:00-1:10pm

Lunch Break

1:10pm-2:45pm

SESSION III

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 Learnt from Recent Trials

J. Plum

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?

Daniel Brodie, MD, Columbia University Medical Ctr, New York, NY

4:00pm-4:20pm

Screening and Infection Management in Adult ECMO Patients

4:20pm-4:40pm	<i>Allison Nazinitsky, MD</i> Role of ECMO in Organ Donation <i>Christopher Wigfield, University of Chicago, Chicago, IL</i>
4:40pm-4:55pm	Panel Discussion
4:55pm-5:00pm	Closing Remarks
8:30am-10:00am	CARDIAC 5-Debate-VADS: Finances, Cost of Therapy, and VADs <u>Co-Chairs:</u> <i>Ashish Shah, MD, Vanderbilt University Medical Ctr, Nashville, TN</i> <i>Jonathan Haft, MD, University of Michigan, Ann Arbor, MI</i>
8:30am-8:50am	Pro: VADs Is a Cost-Effective Therapy <i>Andrew Sauer, MD, University of Kansas Hospital, Kansas City, KS</i>
8:50am-9:10am	Con: Our Community May Have to Limit VAD Therapy <i>Keith Aaronson, MD, University of Michigan, Ann Arbor, MI</i>
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 <i>Chitaru Kurrihara, MD, Baylor College of Medicine, Houston, TX</i>
9:30am-9:45am	#256 Center Variability in Pediatric VAD Discharge: How Do We Learn from Each Other? <i>Amanda Schubert, BSN, RN, Cincinnati Children's Hospital Medical Center, Cincinnati, OH</i>
9:45am-10:00am	#136 Left Ventricular Assist Devices; How Do We Define Success? <i>Anwer Lucman, MD, Mayo Clinic, Rochester, MN</i>
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 <i>Antoine Chalon, Université de Lorraine, Nancy, France</i>
8:45am-9:00am	#284 Material Hemocompatibility Testing for Improved Blood-contacting Device Design <i>Trevor Snyder, PhD, VADovations, Oklahoma City, OK</i>
9:00am-9:15am	#234 <i>In vitro</i> Investigation on the Effect of Aortic Compliance Changes to Flow Patterns and Hemodynamics with PIV <i>Martin Buesen, BS, Cardiovascular Engineering, Aachen, Germany</i>
9:15am-9:30am	#243 Optimization of a Small Scale, PDMS Microfluidic Artificial Lung <i>Lindsay Ma, VA Ann Arbor Healthcare System, Ann Arbor, MI</i>
9:30am-9:45am	#42 <i>In vitro</i> Blood Flow Loop System for Evaluating the Thrombogenicity of Medical Devices and Biomaterials <i>Megan Jamiolkowski, PhD, University Of Pittsburgh, Pittsburgh, PA</i>
9:45am-10:00am	#233 Surface-engineered Small Intestinal Submucosa for New Regenerative Vascular Grafts <i>Karen Valencia Rivero, MSc, Universidad de los Andes, Bogotá, DC</i>
8:30am-10:00am	PULMONARY 5 <u>Chairman:</u> <i>Donfang Wang, MD, PhD, University of Kentucky, Lexington, KY</i>
8:30am-8:45am	Lung Scaffolding/Printing <i>Bryan Whitson, MD, PhD, Ohio State University, Columbus, OH</i>
8:45am-9:00am	Liquid Ventilation <i>Ron Hirschl, MD, CS Mott Children's Hospital, Ann Arbor, MI</i>
9:00am-9:15am	Lung Stem Cell Transplantation <i>Don Hayes, Jr, MD, MS, Ohio State University, Columbus, OH</i>
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 <i>Bettina Wiegmann, MD, Hannover Medical School, Hannover, Lower Saxony, Germany</i>
9:45am-10:00am	#218 Short Term <i>in vivo</i> Evaluation of Nitric Oxide Generating Artificial Lung in Sheep <i>Angela Lai, BS, Carnegie Mellon University, Pittsburgh, PA</i>
8:30am-10:00am	RENAL 5- Patient Preferences in Kidney Disease: If Not Now When... <u>Co-Chairs:</u> <i>Gema Gonzales, MS, FDA, Silver Spring, MD</i> <i>Shuvo Roy, PhD, University of California San Francisco, San Francisco, CA</i> The Science Of Measuring Patient Preferences <i>John Bridges</i> First Things First <i>Fokko Wieringa, PhD, Wearable Health Solutions, Eindhoven, Netherlands</i> Patient Driven Clinical Research

[Kathy Tuttle](#)

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

9:10am-9:22am

#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](#)

9:22am-9:34am

**#237 Pediatric Ventricular Assist Device Therapy for End-staged Heart Failure:
a Contemporary Ten Year Experience**

[Mahesh Sharma, MD, University of Pittsburgh Medical Center, Pittsburg, PA](#)

9:34am-9:46am

#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](#)

11:55am-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, 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

[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 Efficiently Produce Arbitrary Pulsatile Output on Mechanical Circulatory Support Pumps

[Barry Kuban, BSEE, Cleveland Clinic, Cleveland, OH](#)

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

RENAL 6 - Abstracts

10:45am-11:00am	#164 The Influence of Catheter Design on Convection-dominated Heparin Leakage <i>Michael Barbour, MS, University of Washington, Seattle, WA</i>
11:00am-11:15am	#79 Centrifugal Separator for Implantable Artificial Kidney <i>Koki Ariyoshi, BS, University of Tokyo, Tokyo, Japan</i>
11:15am-11:30am	#55 Bioactive Supramolecular Polymer Materials for Renal Membrane Bioengineering <i>Ronald van Gaal, Eindhoven University of Technology, Eindhoven, Netherlands</i>
11:30am-11:45am	#84 Blood Foam in the Air Trap During Hemodialysis and Automatic Priming of FX-Dialyzers <i>Bernd Stegmayr, MD, PhD, Umea University of Sweden, Umea AC, Sweden</i>
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 <i>Toshiya Okahisa, MD, PhD, Institute of Health Biosciences, Tokushima, Japan</i>

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

ASAI0 / ICCAC MCS Proficiency Verification Courses (6)

Course Co-Chairs:

Dawn Christensen, MS, FNP-BC, Innovative Program Solutions, LLC, Pine Grove, PA

Thomas Schloegelhofer, 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