



Penn Medicine

Continuing Medical and
Interprofessional Education

IN-PERSON AND VIRTUAL

PENN MEDICINE ECMO/MCS SYMPOSIUM 2023

CME/CE-CERTIFIED CONFERENCE

FEBRUARY 3-4, 2023

In-Person Meeting Location

Arthur H. Rubenstein Auditorium at the
Smilow Center for Translational Research
3400 Civic Center Blvd.
Philadelphia, PA 19104

<https://upenn.cloud-cme.com/ECMO2023>



PROGRAM OVERVIEW & TARGET AUDIENCE

This symposium is designed as a two-day educational program with a series of lectures on adult extracorporeal membrane oxygenation and mechanical circulatory support (ECMO/MCS). It will also offer the opportunity for training on extracorporeal technique to support cardiac and respiratory patients whose heart and lungs are unable to provide an adequate amount of gas exchange to sustain life. Subject experts will present insights into the technical aspects of the use of ECMO/MCS along with risks, benefits, and outcomes. Best practices in medical and nursing management of the ECMO/MCS patients along with how perfusion can empower nursing to manage ECMO/MCS patients in the critical care setting will be discussed.

This activity has been designed for cardiovascular, pulmonary, critical care and anesthesia physicians, surgeons, perfusionists, nurse practitioners, physician assistants, respiratory therapists, nurses, fellows, residents and other healthcare professionals who want to enhance their knowledge of extracorporeal membrane oxygenation.

LEARNING OBJECTIVES

Upon completion of this activity, physicians and health care providers will be able to:

- Identify the appropriate patient who is a candidate for advanced temporary mechanical support, specifically VA ECMO/MCS and VV ECMO/MCS
- Discuss the different types of temporary mechanical support available for acute cardiac and/or respiratory failure
- Explain how to utilize resources appropriately so that advanced support is not placed in futile situations
- Review when heart and lung transplant may be an option in the setting of severe cardio respiratory failure

HOSTING DEPARTMENT

Penn Medicine ECMO/MCS Symposium 2023 is hosted by the Division of Cardiac Surgery and Cardiovascular Medicine at Penn Medicine.



ACCREDITATION



JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, Penn Medicine is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

DESIGNATION OF CREDIT

Physicians: Penn Medicine designates this live activity for a maximum of 13.25 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Nurses: This program provides 13.25 NCPD hours.

Physician Assistants: Penn Medicine has been authorized by the American Academy of PAs (AAPA) to award *AAPA Category 1 CME credit* for activities planned in accordance with AAPA CME Criteria. This activity is designated for 13.25 *AAPA Category 1 CME credits*. PAs should only claim credit commensurate with the extent of their participation.

Perfusionists: The American Board of Cardiovascular Perfusion has approved this symposium for 14.9 CEU's.

Amount of Credit Available by Day:

Day 1 – 8.5

Day 2 – 4.75

Total = 13.25

Certificates and Transcripts: After the conference has concluded, all participants will receive a follow-up email with instructions and a link with instructions on how to claim their credit. Once participants submit the request for credit, the earned credits will be available for viewing on your transcript or available for printing at <https://upenn.cloud-cme.com>. Please note that the individual certificate will not be mailed.

LIVE AND VIRTUAL PRESENTATIONS

Penn Medicine ECMO/MCS Symposium 2023 will be held Friday and Saturday, February 3 – 4, 2023 by in-person or live-stream (virtual) attendance. The live and virtual presentations will follow the scheduled agenda in real time (EST).

TO ATTEND IN-PERSON:

Meeting Location

Arthur H. Rubenstein Auditorium at the Smilow Center for Translational Research
3400 Civic Center Blvd., Philadelphia, PA 19104

Parking

Monday – Friday parking is available at 3400 Civic Center Blvd. Saturday parking is available in the Perelman Center parking garage. The cost for parking is \$20 and is not reimbursed or validated by the conference.

TO ATTEND BY LIVE-STREAM (VIRTUAL):

Attendees who are registered to attend virtually will receive an email including the link to join the symposium 48 hours in advance. All virtual attendees will be required to sign into the meeting using your first name, last name and email address in order to be marked as attended and receive credit, if applicable.



IN-PERSON AND LIVE-STREAM REGISTRATION FEES:

Please register online at <https://upenn.cloud-cme.com/ECMO2023>.

The fees to attend are as follows: \$300 for physicians and industry attendees, \$150 for perfusionists, nurse practitioners and physician assistants, and \$100 for residents, fellows and students, nurses, respiratory therapists, and allied health professionals.

There is no fee for Penn Medicine staff to attend.

IN-PERSON ATTENDANCE:

All pre-registered, in-person attendees will receive access to the conference, attendee booklet, continental breakfast, lunch and breaks. Registration also includes access to view the presentations online for one year. Due to the COVID-19 pandemic, walk-ins are discouraged. Please be sure to register in advance.

LIVE-STREAM (VIRTUAL) ATTENDANCE:

All pre-registered virtual attendees will receive an email that includes a link with instructions to sign-in and join the virtual conference 48 hours preceding the symposium, as well as the attendee booklet (downloadable PDF). Registration also includes access to view the presentations online for one year.

Need to Register by Mail?

Please note: mailed registrations may take more than 5-10 business days before they are received because we continue to experience longer delays in receiving mail. We encourage all attendees to register online. See the registration form for mailing instructions. All registrations will be confirmed by email as long as your registration is received before February 1, 2023.

BE SURE TO CHECK YOUR SPAM BOX FOR EMAILS REGARDING THIS CONFERENCE.

CANCELLATION POLICY

In order to process refunds for course withdrawals, cancellations must be received in writing by January 20, 2023 (subject to a service charge equivalent to 10% of the registration fee, but no less than \$25.00). No refunds will be issued thereafter.

The University reserves the right to cancel or postpone any course due to unforeseen circumstances. In the event of cancellation or postponement, the University will refund registration fees but is not responsible for related costs or expenses to participants, including cancellation fees assessed by hotels, airlines, and travel agencies.

OVERNIGHT ACCOMMODATIONS

Sheraton University City

3549 Chestnut Street

Philadelphia, PA 19104

215-387-8000

A limited block of rooms are available to our attendees. The discounted room rate is \$159, plus 16.37% taxes per night.

To reserve your room, visit:

<https://www.marriott.com/event-reservations/reservation-link.mi?id=1671647967266&key=GRP&app=resvlink>

or call Marriott reservations at 1-888-627-7071 or call the hotel directly and reference: *ECMO/MCS Symposium 2023 Room Block*

FACULTY

COURSE DIRECTOR

Christian Bermudez, MD

Professor of Surgery

Surgical Director, Lung Transplantation and ECMO

Director, Thoracic Transplantation

Division of Cardiovascular Surgery

COURSE CO-DIRECTORS

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Adjunct Assist Professor of Surgery

ECMO Coordinator

Division of Cardiovascular Surgery

Mary Frances Quinn, RN, BSN

Clinical Nurse IV

Extracorporeal Support Nurse

Heart and Vascular ICU

Audrey Spelde, MD

Assistant Professor

Department of Anesthesiology

and Critical Care

GUEST SPEAKERS

Matthew Bacchetta, MD, MBA, FACS

Professor of Cardiac Surgery, Thoracic Surgery
and Biomedical Engineering

H. William Scott, Jr. Chair in Surgery

Department of Cardiac Surgery

Surgical Director, Vanderbilt Respiratory Institute

Director, VUMC ECMO Program

Lung Transplant Medical Director

Vanderbilt University Adult Hospital

Nashville, TN

David Feldman, MD, PhD, FACC

Cardiology – Advanced Heart Failure
and Transplant

Newark NJ

John F. Fraser, MB ChB, PhD, FRCP (Glas),

FFARCSI, FRCA, FCICM, FELSO

Professor & Pre-Eminent Specialist in
Intensive Care Medicine

The Prince Charles Hospital, Brisbane

Director of the Critical Care Research Group

University of Queensland &

The Prince Charles Hospital, Brisbane

Director of Intensive Care Unit

St Andrew's War Memorial Hospital

Brisbane, Australia

President of ASIA-PAC ELSO



Asad Usman, MD

Assistant Professor

Department of Anesthesiology
and Critical Care

Joyce Wald, DO

Professor of Clinical Medicine

Medical Director, Shock Team

Director, Practice Development Heart Failure,
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Jason Gluck, DO, MBA, FACC

Medical Director MCS/ECMO

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Surgical Director of ECMO Program

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Cardiac Surgeon

NYU Langone Health

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and Surgery

Enterprise Chief of Advanced Cardiac and
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Director, Advanced Heart Failure &
Cardiac Transplant

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Nir Uriel, MD

Director of Advanced Heart Failure
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New York Presbyterian Hospital
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Corey Ventetuolo, MD, MS

Medical Director, Adult ECMO Service
Associate Director
RI Pulmonary Hypertension Center
Director of Pulmonary Medicine
Clinical Research
Brown University
Providence, RI

PENN MEDICINE SPEAKERS**Michael Acker, MD**

Chief, Division of Cardiovascular Surgery
Julian Johnson Professor of Surgery

Joe Adler, DPT

Cardiovascular and Pulmonary Clinical Specialist
Acute Care Team Leader
Good Shepherd Penn Partners
Penn Medicine presbyterian Medical Center

Pavan Atluri, MD

Professor of Surgery
Director, Minimally Invasive and
Robotic Cardiac Surgery Program
Director, Cardiac Transplantation and
Mechanical Circulatory Support Program

Mauer Biscotti, MD

Surgical Fellow
Cardiothoracic Surgery Fellowship
University of Pennsylvania

Edward Cantu, MD

Associate Professor of Surgery

Marisa Cevasco, MD

Assistant Professor of Surgery
Director, CT Surgery Fellowship Program

Andrew Courtwright, MD, PhD

Assistant Professor of Clinical Medicine

Maria M. Crespo, MD, FCCP

Associate Professor of Clinical Medicine
Medical Director, Penn Lung Transplant Program

Joshua Diamond, MD, MSCE

Associate Professor of Medicine
Associate Medical Director
Penn Lung Transplant Program

Esther Vorovich, MD

Associate Professor of Medicine
Northwestern University Feinberg
School of Medicine
Chicago, IL

Demetris Yannopoulos, MD

Professor of Medicine
Center for Resuscitation Medicine
Research Director, Interventional Cardiology
Director, Resuscitation Medicine
University of Minnesota Medical School
Minneapolis, MN

Paul Fiorilli, MD

Assistant Professor of Clinical Medicine
Co-Director, Transcatheter Valve Program
Associate Program Director, Interventional
Cardiology Fellowship Training Program

Katelyn Gerrity, CRNP

Nurse Practitioner
Transplant Coordinator
Hospital of the University of Pennsylvania

Jacob Gutsche, MD

Associate Professor
Chief, Division of Cardiac Critical Care
Co-Medical Director Penn Lung Rescue
Department of Anesthesiology and Critical Care

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Todd Kilbaugh, MD

Professor Anesthesiology
Critical Care Medicine and Pediatrics
Associate Chair for Research
Anesthesiology and Critical Care Medicine
Endowed Chair
Translational Science and Innovation
Director, Resuscitation Science Center
of Emphasis, CHOP Research Institute
Director, The ECMO Center at CHOP

Taisei Kobayashi, MD

Assistant Professor of Clinical Medicine
Co-Director of the Coronary Chronic
Total Occlusion Team
Co-Director of the Penn Denervation Center
Leadership Committee of the Pulmonary
Embolism Response Team

Jeremy Mazurek, MD

Assistant Professor of Clinical Medicine
Medical Director, Pulmonary
Hypertension Program
Director, Pulmonary Hypertension/Pulmonary
Vascular Disease Fellowship

Juan Ortega-Legaspi, MD, PhD

Assistant Professor of Clinical Medicine

Michael Ruggero, PharmD

Clinical Pharmacy Specialist
HV ICU

Kiran Sidhu, MD, MPH

Assistant Professor of Clinical Medicine

Nabil Thalji, MD

Assistant Professor of Anesthesiology
Department of Anesthesiology and Critical Care

Emily Vail, MD

Assistant Professor of
Anesthesiology and Critical Care

William Vernick, MD

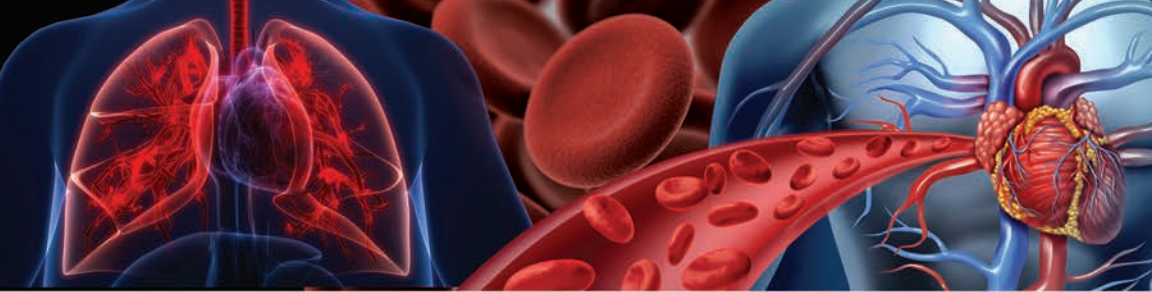
Associate Professor of Clinical
Anesthesiology and Critical Care
Director, Cardiac Anesthesia
Penn-Presbyterian Medical Center
Co-Medical Director, Penn Lung Rescue

Hima Vidula, MD

Associate Professor of Medicine
Medical Director, Mechanical Circulatory
Support Program

DISCLOSURES

Penn Medicine, Office of Continuing Medical and Interprofessional Education, adheres to the *ACCME Standards for Integrity and Independence in Accredited Continuing Education*. Faculty disclosure information will be made available in the conference materials and syllabi. Faculty members are also expected to disclose products or devices within to participants any discussions of off-label and/or investigational uses of pharmaceutical products or devices within their presentations.



PENN MEDICINE ECMO/MCS SYMPOSIUM 2023

AGENDA | FRIDAY, FEBRUARY 3, 2023

- 7:30 AM – 8:00 AM **In-Person Registration and Continental Breakfast**
- 7:45 AM – 8:00 AM **Virtual Attendee Sign-in**
(Broadcast goes live at 8:00 am)
- 8:00 AM – 8:15 AM **Welcome Address and Introductions**
Christian Bermudez, MD
- 8:15 AM – 9:00 AM **Keynote: TBD**
John Fraser, MD

SESSION 1

ECMO Evolution in Covid-19 ARDS

Moderators: *Christian Bermudez, MD, Jack Gutsche, MD and Asad Usman, MD*

- 9:00 AM – 9:15 AM **Planning for the Unplannable:
Pandemic ECMO Resource Management**
Jacob Gutsche, MD
- 9:15 AM – 9:30 AM **When Medical Management Fails: When to use ECMO**
Corey Ventetuolo, MD
- 9:30 AM – 9:45 AM **COVID ECMO: The Penn Experience**
Asad Usman, MD
- 9:45 AM – 10:00 AM **ECMO Cannulation Strategies for ARDS:
What was Different This Time?**
Amy Hackmann, MD
- 10:00 AM – 10:45 AM **Debate Panel with Cases**
Moderator: *Christian Bermudez, MD*
Panelists: *Eduardo Rame, MD, Michael Ruggero, PharmD,
Jeremy Mazurek, MD*
- Case 1: Intracranial Bleeding – Heparin vs Bivalirudin**
Nabil Thaji, MD
- Case 2: Pulmonary Hypertension & RV Failure – VV ECMO vs OxyRVAD**
Mallory Hunt, MD
- 10:45 AM – 11:00 AM Coffee Break

SESSION 2

ECMO and Other Devices in Cardiogenic Shock

Moderators: *Pavan Atluri, MD, Paul Fiorilli, MD and Joyce Wald, DO*

- 11:00 AM – 11:15 AM **Current Perspective of Cardiogenic Shock in 2022:
From new Definitions to new Devices**
Joyce Wald, DO
- 11:15 AM – 11:30 AM **Interpreting Hemodynamics in Cardiogenic Shock
to Guide Treatment Strategies**
Eduardo Rame, MD



11:30 AM – 11:45 AM **When ECMO is the Best Option in Cardiogenic Shock:
Defining Clinical Scenarios**
Christian Bermudez, MD

11:45 AM – 12:00 PM **Percutaneous Axial Flow Pumps and Their Role in
Advanced Cardiogenic Shock**
Marisa Cevasco, MD

12:00 PM – 12:15 PM **ECPR 2023**
Demetris Yannopoulos, MD

12:15 PM – 1:00 PM **Debate with Cases**
Moderator: Joyce Wald, DO

Case 1: Acute Decompensated Heart Failure with Incessant VT
Prasad Konda, MD

Case 2: Weaning ECMO in Heart Failure Patients
Mauer Biscotti, MD

1:00 PM – 2:00 PM **Lunch**

SESSION 3

ECMO & Transplantation

Moderators: Michael Acker MD, Maria Crespo, MD and Hima Vidula, MD

2:00 PM – 2:15 PM **Implications of Mechanical Bridge to Heart Transplant in the
New Allocation System ECMO / IMPELLA 5.5 vs Durable VAD**
Nir Uriel, MD

2:15 PM – 2:30 PM **Prolonged ECMO Support in COVID ARDS:
When and who should be considered for Lung Transplant**
Maria Crespo, MD

2:30 PM – 2:45 PM **The New Kid on the Block: Normothermic Regional Perfusion (NRP)
for DCD Donors and its Impact in Heart Transplant**
Nader Moazami, MD

2:45 PM – 3:30 PM **Debate with Cases**
Moderators: Marisa Cevasco, MD and Taisei Kobayashi, MD

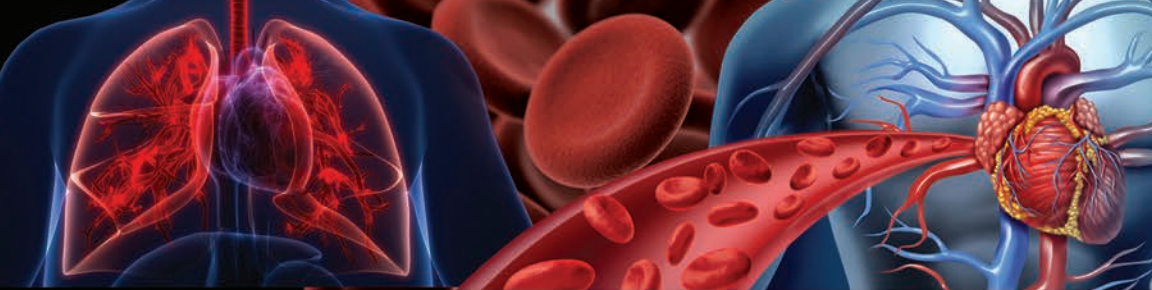
Case 1: Mock Listing Discussion for Heart Transplant

Katelyn Gerrity, Juan Ortega-Legaspi, MD, PhD, Kiran Sidhu, MD, MPH

Case 2: Mock Lung Transplant Listing Discussion (COVID pt)

Andrew Courtwright, MD and Joshua Diamond, MD

3:30 PM – 3:45 PM **Coffee Break**



SESSION 4

Basic and Translational Science in ECMO

Moderators: *Edward Cantu, MD and Todd Kilbaugh, MD*

- 3:45 PM – 4:00 PM **Targeting Microcirculation in Cardiogenic Shock on Temporary MCSS**
Audrey Spelde, MD
- 4:00 PM – 4:15 PM **Myocardial Recovery in Cardiogenic Shock on Mechanical Support – Cellular Mechanisms**
Michael Ibrahim, MD
- 4:15 PM – 4:30 PM **Advances in Ex Vivo Lung Perfusion and Cross-circulation to Increase the Donor Pool**
Matthew Bacchetta, MD
- 4:30 PM – 4:45 PM **ECMO and Organ Donation**
Emily Vail, MD
- 4:45 PM – 5:00 PM **The Science Behind Xenotransplantation: Current Challenges and Future Direction (EVLP)**
Nader Moazami, MD
- 5:00 PM – 5:15 PM **Open Discussion/Q&A**
- 5:15 PM – 6:00 PM **Friday Conclusion**
Directors Take of the Day: Christian Bermudez, MD, Joyce Wald, DO, Asad Usman, MD, Salim Olia, PhD, Audrey Spelde, MD and Mary Frances Quinn, RN



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AGENDA | SATURDAY, FEBRUARY 4, 2023

- 7:30 AM – 8:00 AM **In-Person Registration and Continental Breakfast**
- 7:45 AM – 8:00 AM **Virtual Attendee Sign-in**
(Broadcast goes live at 8:00 am)
- 8:00 AM – 8:10 AM **Welcome Address and Introductions**
Christian Bermudez, MD

SESSION 5

Cardiogenic Shock in the Hub & Spoke Model

Moderators: *Christian Bermudez, MD, Juan Ortega-Legasi, MD and Joyce Wald, DO*

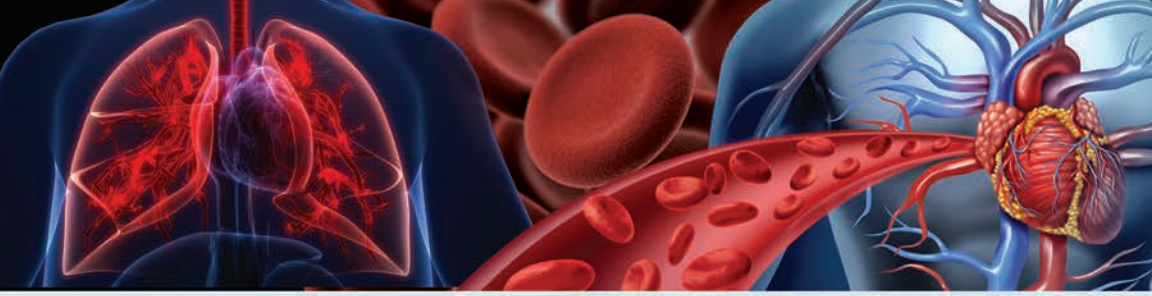
- 8:10 AM – 8:25 AM **Hub and Spoke Model for Shock: How to Work with the Community**
Joyce Wald, DO
- 8:25 AM – 8:40 AM **How to Coordinate & Prepare the Patient in a Non-ECMO Center/Mock Shock Call**
Video Session
- Expectations From Transferring and Receiving Centers: How to Be a Good Spoke**
Jamie Hanson, MD and Joyce Wald, DO
- 8:40 AM – 8:55 AM **Hemodynamic Monitoring & Management: Bridging to Transfer**
David Feldman, MD
- 8:55 AM – 9:05 AM **Optimal Hemo Support Drugs for CGS (epi, norepi, dobut, dopa)**
Esther Vorovich, MD
- 9:05 AM – 9:30 AM **Keynote: The Patient Experience**
Moderator: *Asad Usman, MD*
- ECMO Life Stories: The Patient and Family Experience**
- 9:30 AM – 9:50 AM Coffee Break

SESSION 6

The Ins and Outs of an ECMO Program

Moderators: *Eduardo Rame, MD and Asad Usman, MD*

- 9:50 AM – 10:05 AM **Creating an ECMO Program: What it Takes**
Jason Gluck, MD
- 10:05 AM – 10:20 AM **ECMO Care Team After Cannulation**
MaryFrances Quinn, RN
- 10:20 AM – 10:35 AM **ECMO Finances – Is it Worth it?**
Kelly Hoenisch, RN



10:35 AM – 10:50 AM **The Lung Rescue Team – Lessons Learned**

William Vernick, MD

10:50 AM – 11:05 AM **Mobile VA – How to Build a Rapidly Deployable Team**

Jason Gluck, DO

11:05 AM – 11:30 AM **Q&A**

SESSION 8

Video Sessions & Closing

Moderators: Jason Han, MD, John Kelly, MD, Salim Olia, PhD and Audrey Spelde, MD

11:30 AM – 11:50 AM **Differences Between Pumps, Oxygenators and Cannulas**

Salim Olia, PhD

11:50 AM – 12:10 PM **ECMO Cannulation –
Discussion (the Assessment), Cannulation Techniques**

Mauer Biscotti, MD

12:10 PM – 12:30 PM **Mobilization of ECMO Patients**

Joe Adler, PT

12:30 PM – 12:50 PM **Bedside Assessment/Rounding on the ECMO Patient**

Audrey Spelde, MD

12:50 PM – 1:00 PM **Closing Remarks**

*Christian Bermudez, MD, Joyce Wald, DO, Audrey Spelde, MD,
Asad Usman, MD, MaryFrances Quinn and Salim Olia, PhD*

SERVICES FOR THE DISABLED If special arrangements are required for an individual with a disability to participate this meeting, please contact the Office of Continuing Medical and Interprofessional Education no later than January 20, 2023, at 215-898-6400.

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IN-PERSON AND VIRTUALPENN MEDICINE
ECMO/MCS SYMPOSIUM 2023FRIDAY AND SATURDAY
FEBRUARY 3 – 4, 2023

We strongly encourage you to register for this conference online by check or credit card at <https://upenn.cloud-cme.com/ECMO2023>

Questions? Contact us at:

penncme@penmedicine.upenn.edu • Phone: 215-898-6400 or 215-898-8005

Please note: we are unable to accept faxed registration forms.

Please print or type

Name (First) _____ (Last) _____

Academic Degree _____

Medical Specialty _____

Affiliation (Hospital, Office, or Company) _____

Address (Affiliation or Home) _____

City _____ State _____ Zip _____

Phone _____ Fax _____

E-mail _____

REGISTRATION FEES

(pre-payment is required to be officially registered)

IN-PERSON/LIVE-STREAM (VIRTUAL) ATTENDANCE:

- Physicians and industry employees – \$300
- Perfusionists, nurse practitioners and physician assistants – \$150
- Residents, fellows and students, nurses, respiratory therapists and allied health professionals – \$100
- There is no fee for Penn Medicine staff to attend.

PAYMENT METHOD

- If you are paying by check or credit card, please register online at <https://upenn.cloud-cme.com/ECMO2023>
- If you are paying by check, you may mail your completed registration form and check made payable to **The Trustees of the University of Pennsylvania/CME** to:
 - Conference Manager
 - Office of Continuing Medical & Interprofessional Education
 - Academic Programs, Penn Medicine, JMEC, SPE, 6th floor
 - 3400 Civic Center Blvd, Bldg. 421
 - Philadelphia, PA 19104-5162
- Do not include any credit card information on the registration form or share via email.