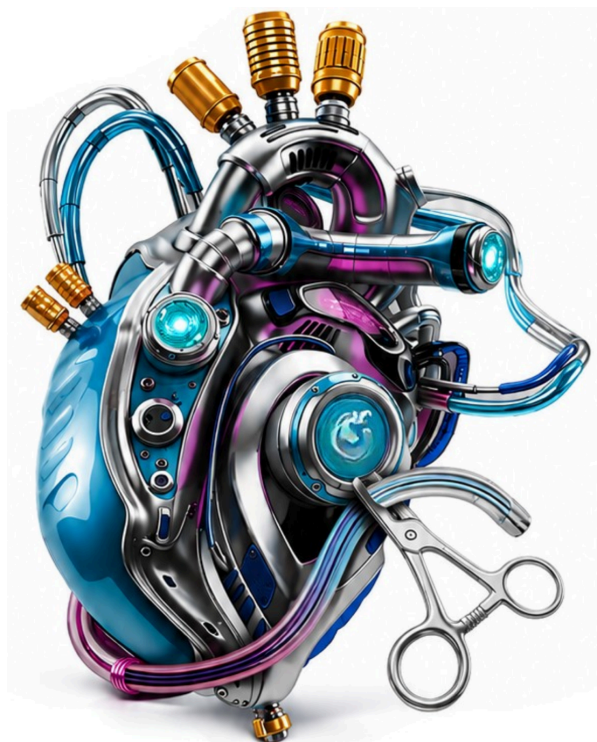


MCSPERFCON 2026

Mechanical Circulatory Support & Perfusion Symposium
Two-Day Program



25 – 26 September

TMC3 Collaborative Building
7255 Helix Park Avenue, Houston

Baylor College of Medicine

Texas Heart Institute
Division of Continuing
Professional Development

14.00 · 14.00 · 14.00 · 14.00 · 17.1

AMA PRA Category 1 Credits™
ABIM MOC Part 2 · ABS MOC Part 2
ANCC contact hours · ABCP CAT I CEU

Four floors, at a glance

One registration on Level 1. Three educational pathways. Sponsors on every floor.

1

Main Helix Hall

Day 1 didactics. Day 2: Track 1 Part 1 — ECMO lectures on stage, ECMO-1 to ECMO-6 flanking the seating in both blocks, struck at 1:20. Perfusionist sub-track from 2:00. Registration and Diamond sponsors.

2

Hermann Hall Auditorium · Levy Room

Track 2, the echocardiography workshop, all day. Lectures in Hermann Hall Auditorium. Skill stations in the Levy Room. Tier 1 sponsors in the surrounding circulation.

3

Exhibitor floor

Tier 1 and Tier 2 sponsors. No educational track. Break and lunch circulation both days, and the 1:20 to 2:00 window on Saturday.

4

Rotunda · Braeswood Room

Track 1 Part 2, the MCS Workshop, from 1:30. Impella in the Braeswood Room; Stations 1, 2, 4, 5, 6 and 7 in the Rotunda. Counterclockwise loop, 2:00 to 4:50. Ours to 6:00, clear-out to 6:30.

Leadership

James M. Anton, MD

Chairman and Program Director

Sri Kartik A. Valluri, MD

Program Director

Cesar Castillo, MD

Program Director; Director of the Echocardiography and ECMO Workshops

Mourad H. Senussi, MD, MS

Program Director; Director of the MCS Workshop

Subhasis Chatterjee, MD

Program Director; Director of Curriculum and Faculty

Nick Villalobos, MD

Program Director, Echocardiography Workshop

Pedro Salinas, MD

Program Director, Echocardiography Workshop

Edward C. Yang, MD

Director of Budget and Finance

Keturah Ramirez

Administrative Director, MCSPERFCON 2026

Accreditation. See Continuing Education handout for accreditation information.

The Planning Committee

Twelve members from The Texas Heart Institute, Baylor College of Medicine and the Division of Continuing Professional Development (DCPD) — the group behind the program. The Program Directors are on the preceding page.

Deborah Lowery Adams, MA, LP, CCP

Assistant Professor
Program Director & Clinical Coordinator, CV
Perfusion Program
The Texas Heart Institute at Baylor College of Medicine

Keri Sprung, MBA

Assistant Professor
The Texas Heart Institute at Baylor College of Medicine

Daynene Vykoukal, PhD

Director, Education
The Texas Heart Institute at Baylor College of Medicine

Summer Virginia Alvarez, PharmD

Senior Business Strategy & Development Associate
Division of Continuing Professional Development, Baylor College of Medicine

Jessica Bell

Program Management Associate
Division of Continuing Professional Development · The Texas Heart Institute

Sarita Moore

Coordinator, Business Operations
School of Health Professions
The Texas Heart Institute School of Perfusion Technology

Kathleen Kibler, LP, CCP

Instructor, School of Perfusion Technology
The Texas Heart Institute at Baylor College of Medicine

Michael Fordis, MD

Professor of Pediatrics
Director, Center for Collaborative and Interactive Technologies
Senior Associate Dean for Continuing Professional Development
Founder, Institute for Continuing Professional Development in Quality Improvement and Patient Safety
*The Center for Collaborative and Interactive Technologies
Baylor College of Medicine*

Kaylinh Ly, MPH

Senior Manager, Program Management
Division of Continuing Professional Development, Baylor College of Medicine

Jessica Rodriguez

Senior Program Management Associate
Division of Continuing Professional Development · The Texas Heart Institute

Adam Harshman, CCP, MsEDHP**Ramon Bernal**

Broadcast, Videography, and Photography Associate
The Texas Heart Institute at Baylor College of Medicine

Didactics — TMC³ Helix Hall

Main Helix Hall, Level 1. 7:50 AM to 5:10 PM. Single track, all attendees. Every talk is ten minutes with a hard stop; every session closes with a panel. MC James M. Anton, MD.

7:50–8:20 AM **Journey of the Total Artificial Heart (Non-Clinical)**
NOT DESIGNATED FOR CME CREDIT
 Billy Cohn, MD

8:20–8:35 AM **Mechanical Circulatory Support: The Patient Experience with the Chaplain**
NOT DESIGNATED FOR CME CREDIT
 Enrique Contreras y Martinez, MDiv, BCC

8:35–8:50 AM *Break*

8:50–9:00 AM **Welcome & Opening Remarks**
 James Anton, MD

SESSION 1 **Understanding Shock Physiology: A Common Language for Intensivists & Perfusionists**

9:00–9:10 **What Is Shock and Perfusion?**
 Miriam Freundt, MD

9:10–9:20 **Cardiogenic Shock Phenotyping**
 Jacob Jentzer, MD

9:20–9:30 **Understanding Venous Return: Rational Use of Fluids**
 Mourad Senussi, MD, MS

9:30–9:40 **Establishing a Shock Team**
 James Horowitz, MD

9:40–10:00 **Panel Discussion**
 Cesar Castillo, MD · Subhasis Chatterjee, MD
 moderators

SESSION 2 **From Fluids to Pressors: Resuscitation Before MCS**

10:00–10:10 **Invasive Hemodynamic Monitoring**
 Mourad Senussi, MD, MS

10:10–10:20 **Non-Invasive Hemodynamic Monitoring**
 Ali Omranian, MD

10:20–10:30	Fundamentals of Inotropes Jacob Jentzer, MD
10:30–10:40	Rational Use of Vasopressors in Vasodilatory Shock Subhasis Chatterjee, MD
10:40–11:00	Panel Discussion Mohammed Merchant, MD · Toni Duculan, MBA, BSN, RN moderators
11:00–11:15	<i>Break</i>
11:15–12:00	<i>Lunch</i>

SESSION 3 IABP in the Modern Shock Algorithm: Bridge, Bailout, or Both?

12:00–12:10	IABP Revisited: Old, Relevant, and Often Misunderstood Sam Sheth, MD
12:10–12:20	IABP at the Bedside: Troubleshooting for Nurses and Perfusionists Erik Guevara, Director of Circulatory Support
12:20–12:30	Axillary Balloon Pump Barry Trachtenberg, MD
12:30–12:40	What's the Best Way to Wean the IABP? Mohammed Merchant, MD
12:40–1:00	Panel Discussion Meaghan Martinez-Palmer, DO · Analisia Gonzalez Stewart, MD moderators

SESSION 4 The Impella

1:00–1:10	Pressure Volume Loops and LV Unloading Ajith Nair, MD
1:10–1:20	Impella Insertion and Management Pearls Joggy George, MD
1:20–1:30	VA ECMO + Impella Subhasis Chatterjee, MD
1:30–1:40	Protective Cardiac Surgery with Impella Ismael Salas de Armas, MD

1:40–2:00 **Panel Discussion**
Nikolaos Diakos, MD, PhD · JoAnn Lewis, ACNP
moderators

SESSION 5 MCS for RV Failure

2:00–2:10 **Right-Sided MCS: Centrifugal Flow Pumps**
Manish Patel, MD

2:10–2:20 **Right-Sided MCS: Axial Flow Pumps**
Salman Bandeali, MD

2:20–2:30 **Letting Go of the Right Side: When and How to Wean the RVAD**
Adeel Ahsan, MD

2:30–2:40 **One Pump Isn't Enough: When to Escalate to BiVAD**
Ajith Nair, MD

2:40–3:00 **Panel: Supporting the Failing Right Heart — When, Which Device, and When to Let Go**
John Park, BSN, RN, CCRN · Mourad Senussi, MD, MS
moderators

3:00–3:15 *Break*

SESSION 6 VAD Physiology for Non-VAD Providers

3:15–3:25 **Concepts of VAD Physiology: What Everyone Must Know**
Lola Xie, MD

3:25–3:35 **Optimizing LVAD Hemodynamics in the ICU**
Cesar Castillo, MD

3:35–3:45 **VAD Complications & Troubleshooting: Recognition and Management**
Harish Devineni, MD

3:45–3:55 **How to Reduce Stroke Over the Lifetime of an LVAD Patient**
Adeel Ahsan, MD

3:55–4:05 **Panel: Optimization of LVAD**
Mohammed Merchant, MD · Erik Guevara, Director of Circulatory Support
moderators

SESSION 7 Biventricular Failure

4:05–4:15 Percutaneous Biventricular Support vs ECMO for BiV Failure
Marwan Jumean, MD

4:15–4:25 Surgical Approach to Biventricular Failure
Juan Marciano, MD

4:25–4:45 Closing the Loop: The Total Artificial Heart in 2026
Joseph Rogers, MD

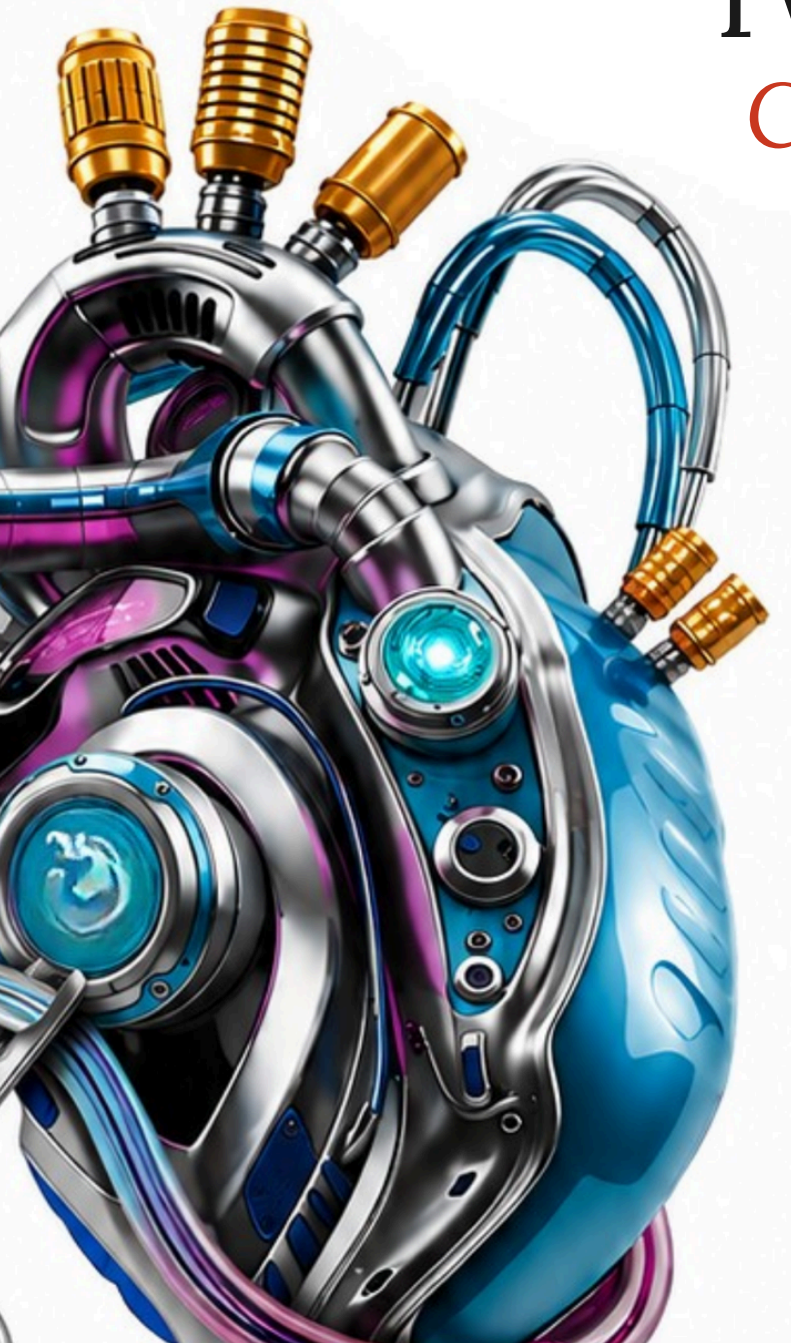
4:45–5:05 Panel: BiVAD vs TAH — Decision-Making in End-Stage Biventricular Failure
Subhasis Chatterjee, MD · Thomas Powell, MD
hosts · panel: Marwan Jumean, MD · Juan Marciano, MD · Joseph Rogers, MD

5:05–5:10 Closing Remarks
James Anton, MD · Sri Kartik A. Valluri, MD

SATURDAY 26 SEPTEMBER

DAY TWO

Two tracks. Two journeys. *Choose your path.*



Saturday begins as one room. You sign in at 7:30. Then the day splits in two.

Track 1 is ECMO in the morning, on Level 1. Mechanical Circulatory Support (MCS) in the afternoon, on the 4th floor.

Track 2 is Cutting-Edge Critical Care Echocardiography, all day, on Level 2. Lectures in Hermann Hall. Hands-on in the Levy Room.

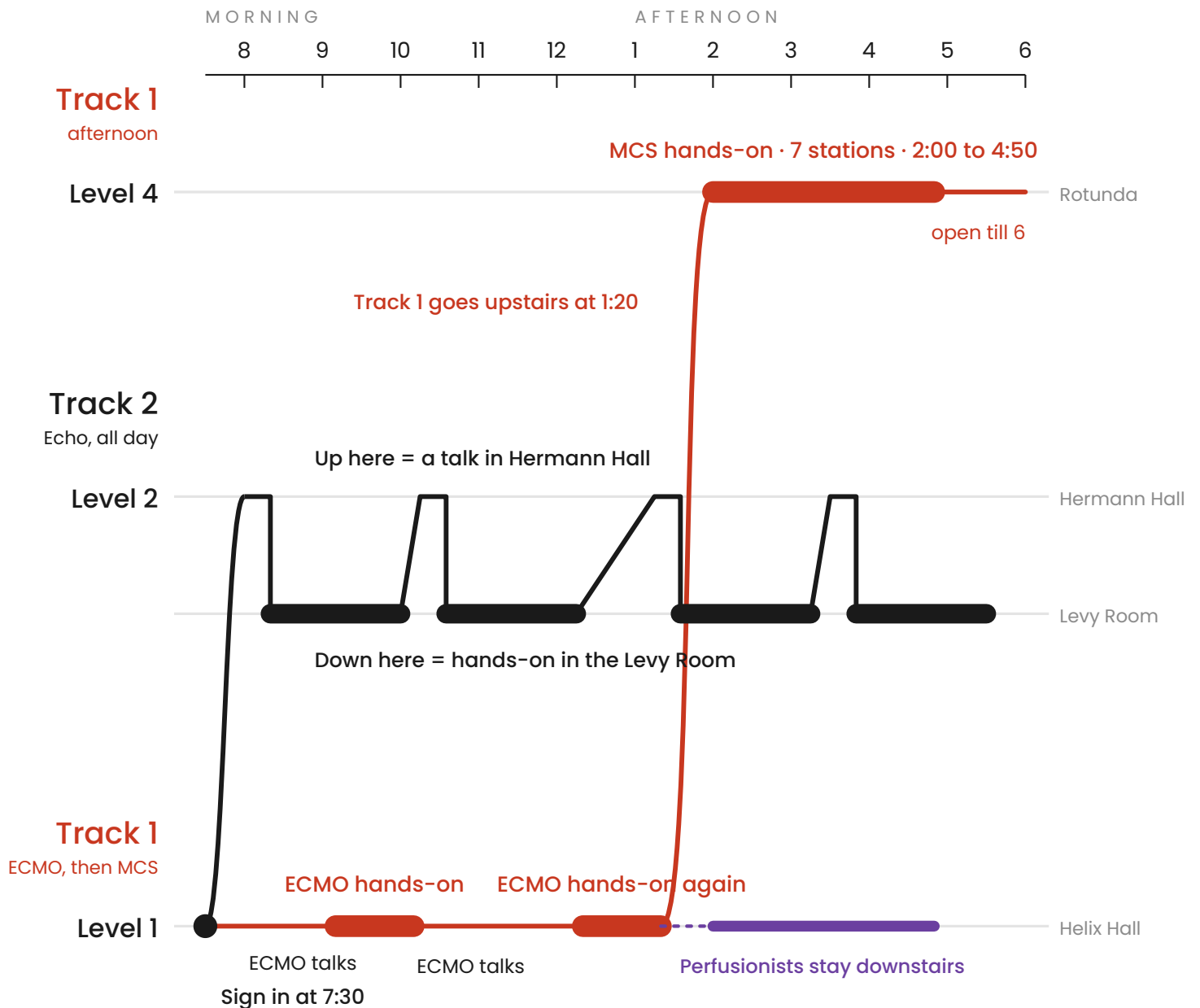
Two tracks never cross. Stay with the one you choose.

SATURDAY 26 SEPTEMBER

DAY TWO

drawn.

Read it like a map. Time goes left to right. The floors go bottom to top. Each line is a person. The thick parts are hands-on. Follow the red line and you are in Track 1. Follow the black line and you are in Track 2.



Track 1 · Part 1 — ECMO Workshop

Always on Level 1, Main Helix Hall. Lectures on stage. Six stations, ECMO-1 to ECMO-6, flanking the seating, running in both blocks. At 1:20 the ECMO Workshop is over and the stations come down. The perfusionist sub-track stays in this hall from 2:00.

7:30–7:50 AM *Registration*

7:50–8:00 AM **Welcome & Opening Remarks**
Sri Kartik A. Valluri, MD · Subhasis Chatterjee, MD

SESSION 8 VV ECMO

8:00–8:10 **Who, When, and Why: VV ECMO Patient Selection in 2026**
Analisa Gonzalez Stewart, MD

8:10–8:20 **Bridge to Transplant, Recovery & No-Man's Land**
Nirmal Sharma, MD

8:20–8:30 **Cannulation Strategies**
Ramiro Fernandez, MD

8:30–8:40 **Weaning VV ECMO: Extubate or Decannulate?**
Sri Kartik A. Valluri, MD

8:40–9:00 **Panel Discussion**
Subhasis Chatterjee, MD · Brittany Duong, MD
moderators

9:00–9:10 *Break*

SESSION 9 ECMO Hands-On Workshop · first block

9:10–10:10 **ECMO-1** Tip to Tip: ECMO Circuit Fundamentals
Deborah Lowery Adams, MA, LP, CCP · Louis Anzalone, MD

9:10–10:10 **ECMO-2** ECMO Monitoring
Kathy Kibler, CCP, LP · Miriam Freundt, MD

9:10–10:10 **ECMO-3** Dual-Lumen Cannulation (Right Internal Jugular)
Sam Sheth, MD · Nikolaos Diakos, MD, PhD · Matthew Nardi, MD

9:10–10:10 **ECMO-4** Low Flow and Loss of Pulsatility
Adam Harshman, CCP, LP · Murphy Rayle, MBA, CCP, LP · Scott Noesges, BS, CCP, LP

9:10–10:10 **ECMO-5** North–South and East–West Phenomena
Toni Duculan, MBA, BSN, RN · Christopher Daniele, MD

9:10–10:10 **ECMO-6** Femoral–Femoral Cannulation
Michael Harms, MD · Ajith Nair, MD · Brent Gudenkauf, MD

Floating Floating faculty — all six stations
Cesar Castillo, MD · Mourad Senussi, MD, MS · Sri Kartik A. Valluri, MD
* Not assigned to a station. Whichever station needs cover, at least three faculty will be present at it.

10:10–10:20 *Break*

SESSION 10 VA ECMO

10:20–10:30 VA ECMO for Shock and Arrest: Selecting the Right Patients, Fast
Mourad Senussi, MD, MS

10:30–10:40 Cannulation Strategies, Flows, Afterload & the LV: Managing the Hemodynamics of VA ECMO
Sam Sheth, MD

10:40–10:50 Anticoagulation and Complications in VA ECMO: What Keeps You Awake at Night
Hlaing Tint, MD

10:50–11:00 Weaning VA ECMO
Cesar Castillo, MD

11:00–11:20 Panel Discussion
Toni Duculan, MBA, BSN, RN · Sri Kartik A. Valluri, MD
moderators

11:20–12:10 *Lunch*

12:10–12:20 *Break*

SESSION 11 ECMO Hands-On Workshop · second block

12:20–1:20 **ECMO-1** Tip to Tip: ECMO Circuit Fundamentals
Deborah Lowery Adams, MA, LP, CCP · Louis Anzalone, MD

12:20–1:20	ECMO-2 ECMO Monitoring Kathy Kibler, CCP, LP · Miriam Freundt, MD
12:20–1:20	ECMO-3 Dual-Lumen Cannulation (Right Internal Jugular) Sam Sheth, MD · Nikolaos Diakos, MD, PhD · Matthew Nardi, MD
12:20–1:20	ECMO-4 Low Flow and Loss of Pulsatility Adam Harshman, CCP, LP · Murphy Rayle, MBA, CCP, LP · Scott Noesges, BS, CCP, LP
12:20–1:20	ECMO-5 North–South and East–West Phenomena Toni Duculan, MBA, BSN, RN · Christopher Daniele, MD
12:20–1:20	ECMO-6 Femoral–Femoral Cannulation Michael Harms, MD · Ajith Nair, MD · Brent Gudenkauf, MD
	Floating Floating faculty — all six stations Cesar Castillo, MD · Mourad Senussi, MD, MS · Sri Kartik A. Valluri, MD * Not assigned to a station. Whichever station needs cover, at least three faculty will be present at it.
1:20–2:00	<i>Transition & Exhibitor Hall</i>

SESSION 12 Advanced Perfusion Talks

	Session moderator Kathy Kibler, CCP, LP
2:00–2:10	From High Volume to ELSO Center of Excellence Subhasis Chatterjee, MD
2:10–2:20	Establishing an ECMO Program in the Community Vivekkumar B. Patel, MD
2:20–2:30	ECMO with Limited Resources — International Perspective Stepan Maruniak, MD, PhD
2:30–2:50	Debate: DCD Transplant & NRP — Proposition (Pro) vs Opposition (Con) Pro: Murphy Rayle, MBA, CCP, LP · Scott Noesges, BS, CCP, LP · Con: Adam Harshman, CCP, LP · Blaine Johnson, MBA, CCP, LP
	Format Modified Public Forum, 20 minutes Pro constructive 4 min · Con constructive 4 · Pro rebuttal 4 · Con rebuttal 4 · Pro summary 2 · Con summary 2 · Timekeeper: Deborah Lowery Adams No crossfire or audience questions. Session moderator Kathy Kibler, CCP, LP.

2:50-3:00

Break

SESSION 13 **December 2026 Class Presentations**

Faculty moderators

Blaine Johnson, MBA, CCP, LP · Adam Harshman, CCP, LP

3:00-3:10

**Hemoconcentration Effects on Complement Levels
Pre- and Post-Cross-Clamping**

Ashley Sumpter, Perfusion Student

3:10-3:20

**Blood Conservation and Its Relation to Goal-Based
Perfusion in Adult Cardiac Surgery**

Jackson "Ben" Burkett, Perfusion Student

3:20-3:30

Buffer

3:30-3:40

Hyperoxia While on CPB: How Much Is Too Much?

Joshua Grover, Perfusion Student

3:40-3:50

**CTEPH on Bypass: Surgical Approach, Deep
Hypothermia & Perfusion Management**

Auden Chang Houseworth, Perfusion Student

3:50-4:00

**Beyond the Hospital: ECPR and Emerging Frontier of
Pre-Hospital ECMO**

Natalie Johnson, Perfusion Student

4:00-4:10

**Optimizing Negative Pressure During CPB: The Benefits
and Risks of VAVD**

Dru Wallis, Perfusion Student

4:10-4:20

Identifying and Managing RIDDLER Syndrome

Beth Johnston, Perfusion Student

4:20-4:30

**How Low, How Long: The Relationship Between DO₂i
and TDR**

Morgan Weiss, Perfusion Student

4:30-4:50

Questions / Overtime

Blaine Johnson, MBA, CCP, LP · Adam Harshman, CCP, LP

Track 1 · Part 2 — MCS Workshop

4th floor. A separate system, independent of the ECMO Workshop in set-up and device. Impella in the Braeswood Room; every other station in the Rotunda. Fifty attendees in seven groups, twenty minutes at each station, five to move, one counterclockwise loop.

1:30 – 2:00	Check-in on the 4th floor · group assignment by lanyard
2:00 – 4:50	Seven rotations
4:50 – 5:00	Formal close · evaluations · CME sign-out — led by Mourad H. Senussi, MD, MS and the workshop team; Sri Kartik A. Valluri, MD present
5:00 – 6:00	Open session · stations standing · providers pack from 5:30

STATIONS Seven stations, one loop

1	Intra-Aortic Balloon Pump I Jared Mortus, MD · Analisia Gonzalez Stewart, MD	Rotunda
2	Intra-Aortic Balloon Pump II Austin Niu, MD · Matthew Nardi, MD	Rotunda
3	Impella — Journey Through Shock Michael Harms, MD · Brent Gudenkauf, MD four tables · own timekeeper	Braeswood Room
4	Right Ventricular Assist Device Bassel Akbik, MD · Mohammed Merchant, MD	Rotunda
5	Left Ventricular Assist Device Ed Yang, MD · Cesar Castillo, MD	Rotunda
6	Total Artificial Heart I — Pneumatic Pulsatile Design Erik Guevara, Director of Circulatory Support · Thomas Powell, MD Powell: physician faculty covering Stations 6 and 7	Rotunda
7	Total Artificial Heart II — Continuous-Flow Rotary Design Manufacturer representative — confirmed on the day · Thomas Powell, MD Powell: physician faculty covering Stations 6 and 7	Rotunda

R1 2:00–2:20	R2 2:25–2:45	R3 2:50–3:10	R4 3:15–3:35	R5 3:40–4:00	R6 4:05–4:25	R7 4:30–4:50
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Track 2 — Echocardiography Workshop

Level 2. 8:00 AM to 5:30 PM. A complete day of its own; it never merges with Track

1. Dr. Villalobos welcomes at 8:00; Dr. Salinas and Dr. Villalobos wrap up at 5:30.

Two rooms, all day. Every lecture is in **Hermann Hall Auditorium**. Every skill-station rotation is in the **Levy Room**. You will walk between them at each change — the room is named on every line at the right.

BLOCK 1 Foundations of Critical Care Echo

8:00–8:20	Welcome and Opening Lecture — Critical Care Echocardiography as an Extension of the Physical Exam — Heart, Lungs, and Abdomen Nick Villalobos, MD	
8:20–9:10	Rotation 1 — Lung Ultrasound · FAST Exam · Apical, Subcostal & Parasternal Windows John Levasseur, DO · Theo Danciu, MD	Levy Room
9:10–10:00	Rotation 2 — same stations, groups swap Kha Dinh, MD · Dorian Alexander, MD · Bassel Akbik, MD · Thomas Powell, MD · Dharani Narendra, MD	Levy Room
10:00–10:15	Break	

BLOCK 2 Critical Care Echocardiography in Undifferentiated Shock

10:15–10:35	Critical Care Echocardiography in Undifferentiated Shock Dorian Alexander, MD	Hermann Hall Auditorium
10:35–11:25	Rotation 1 — LV Function · RV Function · Tamponade Assessment Kha Dinh, MD · Bilal Jalil, MD	Levy Room
11:25–12:15	Rotation 2 — same stations, groups swap Dorian Alexander, MD · Jeremy Walder, DO · Kunle Idowu, MD · Deepa Gotur, MD · Kayla Knuf, MD	Levy Room
12:15–1:15	Lunch	

BLOCK 3 Hemodynamic Assessment: Fluid Responsiveness vs. Venous Congestion

1:15–1:35	Hemodynamic Assessment with Critical Care Echo — Fluid Responsiveness vs. Venous Congestion Pedro Salinas, MD	Hermann Hall Auditorium
1:35–2:25	Rotation 1 — Fluid Responsiveness · Cardiac Output · VExUS Protocol Nick Villalobos, MD · Pedro Salinas, MD	Levy Room
2:25–3:15	Rotation 2 — same stations, groups swap Osa Obonor, MD · Kirk Jackson, MD, MBA · Terry Lonergan, MD · Gabe Patarroyo-Aponte, MD	Levy Room
3:15–3:30	<i>Break</i>	

BLOCK 4 MCS Management & Rescue TEE

3:30–3:40	The Role of Echocardiography in MCS Management Trent Wray, MD	Hermann Hall Auditorium
3:40–3:50	When Every Beat Counts — Rescue TEE in the Critically Ill Patient Kayla Knuf, MD	Hermann Hall Auditorium
3:50–4:40	Rotation 1 — Rescue TEE Scanning · Impella Position Under Echo Guidance Theo Danciu, MD · Pedro Salinas, MD	Levy Room
4:40–5:30	Rotation 2 — same stations, groups swap Bilal Jalil, MD · Kirk Jackson, MD, MBA · Osa Obonor, MD · Kunle Idowu, MD	Levy Room
5:30	Final Comments and Wrap-Up — Echo Workshop concludes Pedro Salinas, MD · Nick Villalobos, MD	Hermann Hall Auditorium
5:30–6:00	<i>Wind-down · venue closes 6:00</i>	

Every name

93 faculty and staff, alphabetical by surname.

Deborah Lowery Adams, MA, LP, CCP

Adeel Ahsan, MD

Bassel Akbik, MD

Dorian Alexander, MD

Summer Alvarez — BCM DCPD

James Anton, MD

Louis Anzalone, MD

Ismael Salas de Armas, MD

Salman Bandeali, MD

Jackson "Ben" Burkett *Perfusion Student*

Cesar Castillo, MD

Subhasis Chatterjee, MD

Billy Cohn, MD

Miguel Curo *Junior Perfusion Student*

Theo Danciu, MD

Christopher Daniele, MD

Harish Devineni, MD

Nikolaos Diakos, MD, PhD

Kha Dinh, MD

Joshua Dollahite *Junior Perfusion Student*

Toni Duculan, MBA, BSN, RN

Brittany Duong, MD

Ramiro Fernandez, MD

Miriam Freundt, MD

Sofia Garza *Junior Perfusion Student*

Joggy George, MD

Deepa Gotur, MD

Joshua Grover *Perfusion Student*

Brent Gudenkauf, MD

Erik Guevara, Director of Circulatory Support

Michael Harms, MD

Adam Harshman, CCP, LP

James Horowitz, MD

Auden Chang Houseworth *Perfusion Student*

Kunle Idowu, MD

Kirk Jackson, MD, MBA

Bilal Jalil, MD

Jacob Jentzer, MD

Blaine Johnson, MBA, CCP, LP

Natalie Johnson *Perfusion Student*

Beth Johnston *Perfusion Student*

Marwan Jumean, MD

Kathy Kibler, CCP, LP

Kayla Knuf, MD

Ross Leth *Junior Perfusion Student*

John Levasseur, DO

Davis Lewis *Junior Perfusion Student*

JoAnn Lewis, ACNP

Terry Lonergan, MD

Kaylinh Ly, MPH

Juan Marcano, MD

Enrique Contreras y Martinez, MDiv, BCC

Meaghan Martinez-Palmer, DO

Stepan Maruniak, MD, PhD

Quinlan McCollow *Junior Perfusion Student*

Mohammed Merchant, MD

Jared Mortus, MD

Ajith Nair, MD

Matthew Nardi, MD

Dharani Narendra, MD

Austin Niu, MD

Scott Noesges, BS, CCP, LP

Osa Obonor, MD

Ali Omranian, MD

John Park, BSN, RN, CCRN

Gabe Patarroyo-Aponte, MD

Manish Patel, MD

Vivekkumar B. Patel, MD

Thomas Powell, MD

Keturah Ramirez — Program Administrator

Murphy Rayle, MBA, CCP, LP

Jessica Rodriguez — BCM DCPD

Joseph Rogers, MD

Pedro Salinas, MD

Marie Sanchez — Admin Secretary

Mourad Senussi, MD, MS

Nirmal Sharma, MD

Sam Sheth, MD

Analisa Gonzalez Stewart, MD

Ashley Sumpter *Perfusion Student*

Hlaing Tint, MD

Dan Tolpin, MD

Barry Trachtenberg, MD

Sri Kartik A. Valluri, MD

Nick Villalobos, MD

Phuong Vo *Junior Perfusion Student*

Jeremy Walder, DO

Dru Wallis *Perfusion Student*

Morgan Weiss *Perfusion Student*

Trent Wray, MD

Lola Xie, MD

Ed Yang, MD

Ernest Yu *Junior Perfusion Student*

Every objective, one place

79 objectives — one per talk, panel and hands-on station — as registered with Baylor College of Medicine DCPD. Each ECMO station is listed once; it runs in both blocks. Echo rotation 2 repeats rotation 1.

DAY ONE · FRIDAY 25 SEPTEMBER

Didactics, Main Helix Hall

SESSION 1 — UNDERSTANDING SHOCK PHYSIOLOGY: A COMMON LANGUAGE FOR INTENSIVISTS & PERFUSIONISTS

9:00–9:10	What Is Shock and Perfusion? Explore shock physiology and differentiate major shock subtypes to support early recognition and coordinated management strategies.
9:10–9:20	Cardiogenic Shock Phenotyping Utilize clinical and hemodynamic parameters to classify cardiogenic shock phenotypes and guide escalation of vasoactive and mechanical support.
9:20–9:30	Understanding Venous Return: Rational Use of Fluids Apply venous return physiology to guide fluid management, physiologic assessment, and vasoactive resuscitation strategies.
9:30–9:40	Establishing a Shock Team Apply hemodynamic and bedside physiologic data to assess shock severity and support escalation to advanced circulatory support and real-time clinical decision-making.
9:40–10:00	Panel Discussion Present multidisciplinary shock management frameworks for coordinated assessment, escalation, and critical care communication.

SESSION 2 — FROM FLUIDS TO PRESSORS: RESUSCITATION BEFORE MCS

10:00–10:10	Invasive Hemodynamic Monitoring Explore markers of tissue perfusion and end-organ dysfunction in shock states.
10:10–10:20	Non-Invasive Hemodynamic Monitoring Utilize non-invasive hemodynamic monitoring tools in real-time cardiovascular critical care decision-making.
10:20–10:30	Fundamentals of Inotropes Apply cardiovascular physiology, perfusion goals, and hemodynamic profiles to inotrope selection.

10:30–10:40	Rational Use of Vasopressors in Vasodilatory Shock Apply vasopressor and infusion-management strategies in vasodilatory and refractory shock states.
10:40–11:00	Panel Discussion Apply a stepwise multidisciplinary resuscitation algorithm integrating monitoring, pharmacologic support, hemodynamic assessment, and escalation strategies.

SESSION 3 — IABP IN THE MODERN SHOCK ALGORITHM: BRIDGE, BAILOUT, OR BOTH?

12:00–12:10	IABP Revisited: Old, Relevant, and Often Misunderstood — IABP Physiology & Waveforms Explore counterpulsation physiology — diastolic augmentation of coronary perfusion pressure and systolic afterload reduction — and interpret arterial waveform tracings to identify inflation and deflation timing errors.
12:10–12:20	IABP at the Bedside: Troubleshooting for Nurses and Perfusionists Utilize a structured bedside approach to intra-aortic balloon pump alarms, loss of augmentation, and vascular, hemolytic and positional complications, to support timely recognition and escalation by nursing and perfusion staff.
12:20–12:30	Axillary Balloon Pump Apply access-site selection criteria to determine when axillary rather than femoral placement is appropriate, particularly for ambulatory patients bridged to transplant or durable mechanical support.
12:30–12:40	What's the Best Way to Wean the IABP? Apply weaning strategies for the intra-aortic balloon pump, comparing ratio-based and volume-based approaches, and use hemodynamic and end-organ perfusion endpoints to determine readiness for removal.
12:40–1:00	Panel Discussion Apply contemporary trial evidence, including the neutral mortality findings of IABP-SHOCK II in infarct-related cardiogenic shock, to define the populations in which counterpulsation remains appropriate — mechanical complications of myocardial infarction, bridge-to-decision, and acute decompensated heart failure — and the thresholds for escalation to higher-output mechanical support.

SESSION 4 — THE IMPELLA

1:00–1:10	Pressure Volume Loops and LV Unloading Apply pressure-volume loop interpretation during left ventricular unloading with Impella.
1:10–1:20	Impella Insertion and Management Pearls Utilize patient selection and complication management strategies for Impella support.
1:20–1:30	VA ECMO + Impella Explore integration of Impella with VA ECMO strategies for combined mechanical circulatory support.
1:30–1:40	Protective Cardiac Surgery with Impella Apply escalation and exit strategies for Impella use during and after protective cardiac surgery.
1:40–2:00	Panel Discussion Apply multidisciplinary decision-making to percutaneous micro-axial flow pump support, integrating patient selection, insertion strategy, hemodynamic targets, and escalation across cardiology, cardiac surgery, critical care, and nursing perspectives.

SESSION 5 — MCS FOR RV FAILURE

2:00–2:10	Right-Sided MCS: Centrifugal Flow Pumps Explore right-sided MCS devices, including centrifugal flow pumps and axial flow pumps, based on mechanism and clinical applications.
2:10–2:20	Right-Sided MCS: Axial Flow Pumps Apply right-sided MCS device comparisons to RV support strategy selection in acute right ventricular failure.
2:20–2:30	Letting Go of the Right Side: When and How to Wean the RVAD Apply RVAD weaning criteria to determine when and how to wean right ventricular assist devices.
2:30–2:40	One Pump Isn't Enough: When to Escalate to BiVAD Apply escalation strategies for BiVAD support when single-pump support is inadequate in biventricular failure.
2:40–3:00	Panel: Supporting the Failing Right Heart — When, Which Device, and When to Let Go Apply physiology in acute RV failure management through real-world resuscitation decision-making under pressure.

SESSION 6 — VAD PHYSIOLOGY FOR NON-VAD PROVIDERS

3:15–3:25	Concepts of VAD Physiology: What Everyone Must Know Explore fundamental concepts of ventricular assist device physiology.
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3:25–3:35	Optimizing LVAD Hemodynamics in the ICU Utilize hemodynamic management strategies to optimize left ventricular assist device support in the intensive care unit.
3:35–3:45	VAD Complications & Troubleshooting: Recognition and Management Explore strategies for recognizing and managing ventricular assist device complications and troubleshooting scenarios. Apply hemodynamic and support strategies to identify and manage right ventricular failure in left ventricular assist device patients.
3:45–3:55	How to Reduce Stroke Over the Lifetime of an LVAD Patient Utilize strategies to reduce stroke risk over the lifetime of ventricular assist device patients.
3:55–4:05	Panel: Optimization of LVAD Apply multidisciplinary approaches to optimize ventricular assist device management and long-term patient care.

SESSION 7 — BIVENTRICULAR FAILURE

4:05–4:15	Percutaneous Biventricular Support vs ECMO for BiV Failure Explore management strategies for biventricular failure, specifically comparing percutaneous biventricular support and ECMO.
4:15–4:25	Surgical Approach to Biventricular Failure Apply escalation criteria for durable surgical support and describe surgical approaches for biventricular failure.
4:25–4:45	Closing the Loop: The Total Artificial Heart in 2026 Explore indications, patient selection, and device characteristics for total artificial heart support, comparing pneumatic pulsatile and continuous-flow designs from both the surgical and intensive care perspectives.
4:45–5:05	Panel: BiVAD vs TAH — Decision-Making in End-Stage Biventricular Failure Utilize multidisciplinary decision-making in choosing between BiVAD and TAH for end-stage biventricular failure.

DAY TWO · TRACK 1

ECMO Workshop and the perfusionist sub-track, Level 1

SESSION 8 — VV ECMO

8:00–8:10	Who, When, and Why: VV ECMO Patient Selection in 2026 Explore who, when, and why patients may be appropriate candidates for VV ECMO in 2026 using patient-selection principles that support timely initiation of extracorporeal respiratory support.
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8:10–8:20	Bridge to Transplant, Recovery & No-Man's Land Apply VV ECMO as a bridge to transplant, bridge to recovery, or support strategy in complex clinical scenarios where patient trajectory may be uncertain.
8:20–8:30	Cannulation Strategies Utilize cannulation strategies for VV ECMO, including clinical considerations that support effective extracorporeal circuit performance, oxygenation, and patient safety.
8:30–8:40	Weaning VV ECMO: Extubate or Decannulate? Apply weaning principles for VV ECMO, including assessment of readiness for extubation or decannulation based on respiratory recovery, circuit support needs, and multidisciplinary clinical decision-making.
8:40–9:00	Panel Discussion Apply multidisciplinary decision-making to venovenous ECMO candidacy, cannulation strategy, and readiness for decannulation, integrating physician, nursing, and perfusion perspectives on daily circuit and patient management.

SESSION 9 — ECMO HANDS-ON WORKSHOP · FIRST BLOCK

9:10–10:10	ECMO-1 — Tip to Tip: ECMO Circuit Fundamentals Trace the extracorporeal circuit from drainage cannula to return cannula, identifying each major component, and apply centrifugal pump preload dependence and afterload sensitivity together with independent control of sweep gas and delivered oxygen fraction to explain how blood flow and gas exchange are manipulated separately in venovenous and venoarterial configurations.
9:10–10:10	ECMO-2 — ECMO Monitoring Perform a systematic physical examination of the extracorporeal circuit and interpret post-oxygenator blood gas, transmembrane pressure gradient, lactate dehydrogenase and plasma-free hemoglobin trends together, in order to distinguish developing oxygenator or circuit dysfunction from an isolated abnormal value and to communicate concerning trends to the ECMO team.
9:10–10:10	ECMO-3 — Dual-Lumen Cannulation (Right Internal Jugular) Describe the design and intended position of a right internal jugular dual-lumen cannula, apply the stiff-wire and mandatory imaging requirements for large-bore placement, and recognize malposition, malrotation and recirculation on transoesophageal echocardiography or fluoroscopy in order to communicate positioning and flow concerns to the ECMO team.

9:10–10:10	ECMO-4 — Low Flow and Loss of Pulsatility Apply the D.O.P.E. framework to a low-flow or no-flow alarm to differentiate cannula displacement, circuit obstruction, patient preload failure and equipment artefact; recognize drainage chatter and loss of arterial pulsatility as markers of unstable drainage and absent native ejection; and escalate for echocardiographic assessment of aortic valve opening and left ventricular distension.
9:10–10:10	ECMO-5 — North–South and East–West Phenomena Explain mixing-cloud physiology in peripheral venoarterial support, recognize differential hypoxemia (North–South, or Harlequin, syndrome) from right radial versus lower-extremity sampling, identify differential carbon dioxide (East–West) physiology, and select management including ventilator oxygen optimization and conversion to venoarterial-venous support with internal jugular return.
9:10–10:10	ECMO-6 — Femoral–Femoral Cannulation Identify the femoral vein and artery under ultrasound and perform the modified Seldinger sequence for peripheral venoarterial cannulation — micropuncture access, 0.018-inch to 0.035-inch stiff-wire exchange, serial dilation and cannula insertion — and apply distal perfusion catheter placement with focused limb assessment to mitigate limb ischemia.

SESSION 10 — VA ECMO

10:20–10:30	VA ECMO for Shock and Arrest: Selecting the Right Patients, Fast Explore patient-selection principles for identifying appropriate candidates for VA ECMO in shock and arrest.
10:30–10:40	Cannulation Strategies, Flows, Afterload & the LV: Managing the Hemodynamics of VA ECMO Utilize VA ECMO hemodynamic principles to guide cannulation strategy, flow management, afterload assessment, and LV management.
10:40–10:50	Anticoagulation and Complications in VA ECMO: What Keeps You Awake at Night Apply anticoagulation principles and complication recognition strategies in VA ECMO management.
10:50–11:00	Weaning VA ECMO Apply clinical and hemodynamic indicators to evaluate readiness for VA ECMO weaning.
11:00–11:20	Panel Discussion Explore multidisciplinary strategies and real-world challenges in VA ECMO management through expert panel-based clinical discussion.

SESSION 12 — ADVANCED PERFUSION TALKS

2:00–2:10	From High Volume to ELSO Center of Excellence Explore key operational and quality considerations for advancing an ECMO program from high-volume clinical activity to ELSO Center of Excellence standards.
2:10–2:20	Establishing an ECMO Program in the Community Apply practical steps for establishing an ECMO program in the community, including program infrastructure, multidisciplinary coordination, circuit management, and patient-safety considerations.
2:20–2:30	ECMO with Limited Resources — International Perspective Apply strategies for delivering ECMO with limited resources while maintaining extracorporeal circulation, oxygenation, perfusion safety, and patient-management priorities.
2:30–2:50	Debate: DCD Transplant & NRP — Proposition (Pro) vs Opposition (Con) Explore clinical, ethical, and perfusion-related considerations in donation after circulatory death and normothermic regional perfusion through proposition and opposition perspectives.

SESSION 13 — DECEMBER 2026 CLASS PRESENTATIONS

3:00–3:10	Hemoconcentration Effects on Complement Levels Pre- and Post-Cross-Clamping Explore how hemoconcentration may influence inflammatory response, complement activation, organ protection, and postoperative recovery during cardiac surgery.
3:10–3:20	Blood Conservation and Its Relation to Goal-Based Perfusion in Adult Cardiac Surgery Utilize blood conservation strategies within a goal-directed perfusion framework during adult cardiopulmonary bypass to support perioperative hemodynamic optimization, oxygen delivery, and postoperative recovery.
3:30–3:40	Hyperoxia While on CPB: How Much Is Too Much? Apply oxygen delivery and perfusion goals during cardiopulmonary bypass to support organ protection and reduce perioperative complications.

3:40–3:50

CTEPH on Bypass: Surgical Approach, Deep Hypothermia & Perfusion Management

Explore perfusion management for pulmonary thromboendarterectomy in chronic thromboembolic pulmonary hypertension, including the surgical approach, deep hypothermic circulatory arrest, cooling and rewarming strategy, and cerebral and organ protection.

3:50–4:00

Beyond the Hospital: ECPR and Emerging Frontier of Pre-Hospital ECMO

Explore pre-hospital extracorporeal cardiopulmonary resuscitation, including candidate selection, portable circuit deployment, and the logistics of transitioning a patient from the field to definitive care.

4:00–4:10

Optimizing Negative Pressure During CPB: The Benefits and Risks of VAVD

Apply vacuum-assisted venous drainage principles during cardiopulmonary bypass, including negative-pressure targets, the benefits for venous return and cannula selection, and recognition of risks such as gaseous microemboli, hemolysis, and air entrainment into the circuit.

4:10–4:20

Identifying and Managing RIDDLER Syndrome

Explore RIDDLER syndrome during extracorporeal support, including its underlying mechanism, the clinical and monitoring findings that identify it, and management strategies to restore adequate oxygen delivery.

4:20–4:30

How Low, How Long: The Relationship Between DO₂i and TDR

Apply goal-directed perfusion principles, relating indexed oxygen delivery and the depth and duration of exposure below threshold to the risk of acute kidney injury, to support renal protection and postoperative recovery.

DAY TWO · TRACK 1 · PART 2

MCS Workshop, seven stations, 4th floor

1 · IABP-1

Intra-Aortic Balloon Pump I

Given three bedside vignettes and a printed selection card, differentiate the patient whose physiology will respond to counterpulsation from those who will not, and detect the absolute contraindication among them. Using the balloon catheter, its instructions-for-use sizing panel and three chest radiographs, select the correct balloon volume for a stated patient height and interpret tip position, naming the clinical syndrome produced by each malposition.

2 • IABP-2

Intra-Aortic Balloon Pump II

Given a console running at a 1:2 assist ratio with a facilitator-injected timing error, detect the abnormal augmented arterial waveform, differentiate which of the four timing errors is present, and adjust the inflation or deflation control to restore the three timing targets. Given a finding of blood in the helium line, perform the balloon-rupture and entrapment response in correct sequence and state its rationale.

3 • Impella

Impella — Journey Through Shock

Given shock case cards, a vascular phantom, and ultrasound, differentiate patients with appropriate indications and contraindications for percutaneous transaortic micro-axial flow pump support, including how these relate to randomized-trial eligibility criteria, and select a femoral access site. Using a bench simulator, device components, a console trace, and an echocardiographic image, identify key device, console, and purge-system components; demonstrate the insertion, position-confirmation and repositioning sequence using imaging guidance; and interpret motor current together with the placement signal and pressure/hemodynamic waveforms to assess device position, pump function, and simulated patient response. During a simulated device round and two live alarm scenarios, calculate the hourly heparin dose delivered by the purge circuit, troubleshoot purge-pressure and suction alarms by differentiating diastolic from continuous suction, and — comparing and integrating the available mechanical circulatory support options in a complex clinical scenario — select the next step from wean, add right-sided support, escalate, advance to durable therapy, or palliate.

4 • RVAD

Right Ventricular Assist Device

Given a bedside hemodynamic card, calculate PAPI, the RA/PCWP ratio, and the TAPSE/PASP ratio by hand and select escalate, hold, or wean, stating aloud the published cut-off that drove the decision. Using the torso model, identify RVAD setup and cannulation options and describe the inflow and outflow locations for right ventricular support. Using the bench circuit and torso model, demonstrate a right-atrium-to-pulmonary-artery support configuration and troubleshoot a scripted device event, naming the chamber bypassed and two bedside signs of cannula migration. Using the provided hemodynamic parameters, determine whether support can be safely reduced, maintained, or escalated — including escalation to combined right- and left-sided mechanical circulatory support — during a simulated weaning assessment.

5 • LVAD

Left Ventricular Assist Device

Given three simulated console screens with a clinical vignette, interpret speed, flow, power, and pulsatility index as a single pattern and differentiate pump thrombosis, a suction event, and afterload excess, first stating which parameter is measured and which is estimated. For each screen, identify associated alarm or abnormal console findings and identify right ventricular dysfunction as a potential cause of low flow to distinguish it from an LV- or device-related cause, and select a safe weaning or exit pathway when combined mechanical circulatory support is being withdrawn. Perform a Doppler opening-pressure blood pressure and execute the pulseless-patient assessment sequence, first auscultating the pump hum, checking the controller for alarms, and escalating to the implanting VAD center, selecting the objective threshold at which chest compressions are indicated.

6 • TAH-1

Total Artificial Heart I — Pneumatic Pulsatile Design

Given a running pneumatic driver console displaying an induced full-fill condition, interpret the fill-volume number and both console waveforms and troubleshoot the condition to restored partial fill. Given a simulated pulseless patient supported by a pneumatic pulsatile total artificial heart, demonstrate the correct emergency response — withholding chest compressions, defibrillation and cardioversion — and perform a complete backup driver changeover to configuration.

7 • TAH-2

Total Artificial Heart II — Continuous-Flow Rotary Design

Using a cutaway model of a continuous-flow rotary total artificial heart, differentiate the two vane sets on the single rotor and demonstrate the axial rotor translation that balances the systemic and pulmonary circulations. Given the external controller, battery pack and driveline, perform a battery changeover and a driveline exit-site inspection, and identify which bedside assessments transfer from a native-heart patient to this patient and which do not.

DAY TWO • TRACK 2

Echocardiography Workshop, Level 2

BLOCK 1 — FOUNDATIONS OF CRITICAL CARE ECHO

8:00-8:20

Welcome and Opening Lecture — Critical Care Echocardiography as an Extension of the Physical Exam — Heart, Lungs, and Abdomen

Explore the role of critical care echocardiography as an extension of the physical exam for assessment of the heart, lungs, and abdomen.

8:20–9:10 **Skill Stations · Rotation 1 — Lung Ultrasound · FAST Exam · Apical, Subcostal & Parasternal Windows**
Apply lung ultrasound techniques to assess common cardiopulmonary findings. Utilize the FAST exam for rapid bedside evaluation. Apply acquisition and interpretation of apical, subcostal and parasternal views.

BLOCK 2 — CRITICAL CARE ECHOCARDIOGRAPHY IN UNDIFFERENTIATED SHOCK

10:15–10:35 **LECTURE: Critical Care Echocardiography in Undifferentiated Shock**
Apply focused echocardiographic assessment to support early recognition of shock physiology, cardiac dysfunction, and hemodynamic instability in critically ill patients.

10:35–11:25 **Skill Stations · Rotation 1 — LV Function · RV Function · Tamponade Assessment**
Apply left ventricular function assessment. Apply right ventricular function assessment and pressure–volume relationships. Apply echocardiographic tamponade assessment strategies.

BLOCK 3 — HEMODYNAMIC ASSESSMENT: FLUID RESPONSIVENESS VS. VENOUS CONGESTION

1:15–1:35 **LECTURE: Hemodynamic Assessment with Critical Care Echo — Fluid Responsiveness vs. Venous Congestion**
Explore critical care echocardiography and hemodynamic assessment principles used to differentiate fluid responsiveness from venous congestion.

1:35–2:25 **Skill Stations · Rotation 1 — Fluid Responsiveness · Cardiac Output · VExUS Protocol**
Apply bedside echocardiographic techniques to assess cardiac output, volume status, and hemodynamic profiles. Utilize VExUS findings to guide venous congestion assessment.

2:25–3:15 **Skill Stations · Rotation 2 — same stations, groups A ↔ B**
Apply noninvasive hemodynamic monitoring and echocardiographic data to real-time fluid and perfusion management strategies.

BLOCK 4 — MCS MANAGEMENT & RESCUE TEE

3:30–3:40 **LECTURE A: The Role of Echocardiography in MCS Management**
Explore the role of echocardiography in the management of patients receiving mechanical circulatory support.

3:40–3:50 **LECTURE B: When Every Beat Counts — Rescue TEE in the Critically Ill Patient**
Apply rescue transesophageal echocardiography principles in the evaluation of critically ill patients with hemodynamic instability.

3:50–4:40 **Skill Stations · Rotation 1 — Rescue TEE Scanning · Impella Position Under Echo Guidance**
Utilize focused rescue TEE scanning techniques. Apply echocardiographic guidance techniques for Impella positioning and optimization during MCS management.
