

# PROCIRCA ADULT ECMO BOOT CAMP COURSE OUTLINE

UPMC LIFE  
CHANGING  
MEDICINE



## COURSE OBJECTIVE

The curriculum was designed for the bedside clinician to improve their understanding of ECMO technologies, with an emphasis on practical hands-on simulation training.

## COURSE AGENDA

### Days 1-4

0700-0715 **Welcome and Course Overview** - Lectures Repeated Daily

0715-0800 **Circuit Set-up and Priming**

- Utilizing (hospital) ECMO circuit and priming protocols, to reinforce the basics of setting up and priming a circuit.
- Demonstration paired with lecture.

0800-0830 **Cannulation**

- Review of cannulae, cannulation options, and strategies for cannulating both VA and VV ECMO.
- Choosing the right cannulae for your patient.
- Procirca can provide Biomedicus cannulae and insertion kits, Avalon cannulae and insertion kits, or utilize alternate cannulae and policies that you select.

0830-0845 **BREAK**

0845-1000 **ECMO Management**

Initiation, stabilization, and management of the adult ECMO patient in the ICU setting, incorporating your institutional policies and guidelines. Topics include:

- Anticoagulation management
  - > Review current clinical practice for anticoagulation: ACT, aPTT, antiXa levels, TEG
- Shift responsibilities
  - > Circuit Checks - What are we looking for?
  - > Clot - When is the appropriate time to intervene?
- Transport of ECMO patients within the hospital
- Transport of ECMO patients outside of the hospital setting
- Adjunctive therapies (CRRT; Plasmapheresis)
- Complications
  - > Signs and symptoms of common complications
  - > ECMO specialists often identify trends and emerging issues at the bedside. Know what to look for and when to call for help.

1000-1030 **Emergent Interventions**

- Oxygenator failure
- Pump failure
- Unintentional de-cannulation

1030-1100 **Special Situations**

- Rehabilitation
- Ambulation

1100-1200 **LUNCH BREAK**

1200-1600 **Simulation**

Simulation exercises will be tailored to reinforce the morning session lecture content and meet your specific educational requirements. Hospital equipment can be utilized in conjunction with the Califia Perfusion Simulator to create the most realistic clinical setting. Hands-on activities/simulations include:

- Circuit set-up and priming
- Oxygenator change out
- Air embolism
- Cannulation/Initiation of support
- Pump failure
- Circuit replacement
- Accessing the negative side of the circuit
  - > Hand crank
  - > Backup console
- Shift report, shift checklist, circuit checks
  - > Replacing pump head

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## Day 5

### High Fidelity Simulation

Utilizing your equipment and existing policies/procedures, we will facilitate a simulation experience that provides an opportunity for team building and comprehensive evaluation of your clinical capabilities.

Several 60-90 minute scenarios will deliver full immersion experiences in a realistic clinical setting. All team members can participate (Physician, RN, Perfusion team, ECMO Specialist, Respiratory Therapist, OR staff) under the direction of Procirca's faculty. All simulation scenarios are followed by a 30-minute debriefing session which highlights areas where the team excels and where there may be opportunities to improve performance.

### Optional Simulation Activities

#### ***Cannulation, Initiation, Stabilization of ECMO in clinical setting***

The hospital team, alongside Procirca faculty, will prepare for an ECMO insertion. The group will prime the ECMO circuit, cannulate the "patient," connect to the ECMO circuit, stabilize the "patient" and transport the ECMO "patient" within the hospital setting. Procirca will utilize hospital's existing checklists, policies, and procedures as checkpoints for debriefing. This simulation event can be replicated with multiple groups and increase in complexity based on experience of the participating team members.

#### **A. ECMO Emergencies**

Your team will experience an emergent intervention on an ongoing ECMO patient.

Emergent interventions can include:

- Air entrainment
- Oxygenator failure requiring change out
- Circuit change out
- Pump failure

#### **B. Bedside Management**

Your team will go through 60 minutes of standard ECMO management actions.

Topics can include:

- Perform shift responsibilities
  - > Shift checklist
- Blood gases
  - > Send and analyze patient arterial/venous and oxygenator gases
- Anticoagulation monitoring
  - > Send sample, receive results and perform proper intervention
- Evaluate cannulation sites
  - > Cannula position

#### **C. ECMO Interventions**

Your team will identify and intervene when presented with various ECMO complications, which may include:

- Limb ischemia
  - > Add a distal perfusion cannula
- Adding an additional cannula to existing ECMO
  - > Cut in a venous cannula
  - > CCRT usage
- Weaning
  - > VA wean with TEE
  - > VV gas trial