

## **UC Irvine**

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#### **Title**

An Advanced Perfusion Elective for Emergency Medicine Residents

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communication interactions with patients with varying cultural backgrounds.

**Curricular Design:** Approximately once a month, select residents participate in a one hour small group facilitated by a faculty preceptor. The small group activities are mapped in advance with cases, questions and suggested answers for the preceptor. The groups are a mix of residents at all levels of training (EM1, EM2 and EM3). Rotation activities vary, depending on subject, including small group didactic, role-playing, out-of-hospital activities, as well as use of mixed media stimulus. Residents will be expected to participate in all rotation exercises, and may be required to submit written or spoken assignments.

**Impact/Effectiveness:** Reflective practice can be an effective modality in achieving empathy among practitioners and their patients, which in turn translates to strengthening several ACGME milestones, including: professional values; professional centered communication; and team management. The AAR provides a comfortable forum for resident discussion and possible incorporation of these topics into their practice.

## 11 An Advanced Perfusion Elective for Emergency Medicine Residents

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**Background:** We focus on two exciting developments in the management of acute and chronic cardiopulmonary failure not yet addressed in standard residency training:

1) extracorporeal membrane oxygenation (ECMO) and 2) ventricular assist devices (VADs).

1. A growing number of tertiary medical centers are using ECMO to resuscitate patients with cardiac arrest, shock, or ARDS, with encouraging preliminary results. Emergency physicians (EPs) are becoming involved at every step in the care of these patients, from the decision to initiate ECMO to placing patients “on pump” and ICU management
2. An increasing number of patients with advanced heart failure are receiving implantable VADs. These devices use continuous mechanical pumps to bypass the native heart and increase cardiac output. Understanding the health needs for these patients will become an essential skill set for EPs regardless of practice setting.

**Educational Objectives:**

1. Recognize the clinical indications, physiology, and complications related to both arterial-venous (AV) and venovenous (VV) ECMO
2. Gain a practical understanding of how VA and VV ECMO circuits work from cannulation to pump management and troubleshooting, weaning, and decannulation

3. Recognize the indications, function, and potential problems related to mechanical support devices in patients with advanced heart failure

**Curricular Design:**

1. Duration: 2-4 weeks
2. Components:
  - a. Didactic and Practical Instruction with VAD coordinators and perfusionists to learn about device function, malfunction, and troubleshooting.
  - b. Procedural Observation: Residents will observe and possibly assist ECMO cannulation and observe VAD placement in the OR.
  - c. Self-Directed Rounding: Residents will follow post-intervention ICU patients daily
  - d. Attend weekly VAD/transplant review conference
  - e. Self-Study: We developed a structured syllabus with readings/multimedia
  - f. ECMO Call: Residents will be “on call” for after-hours ECMO cannulation during weekdays (M-F)

**Impact/Effectiveness:** Effectiveness:

1. Feedback: Mid and end of rotation
2. Scholarly Work: Update/revise ED ECMO protocols, curriculum and syllabus

**Impact:**

1. Clinically and professionally position EPs to make critical management decisions in patients with heart failure or acute cardiopulmonary failure
2. Spur interest and research in these areas
3. Possible collaboration with European ECMO centers

**SAMPLE SCHEDULE**

Week 1:

	MON	TUES	WED	THURS	FRI
AM	-Orient with VAD/ Perfusionists -OR Cases -Rounding	-OR Cases -Rounding	-VAD/ECMO seminar 1	(No OR Cases) -Rounding	-OR Cases -Rounding
PM	-Loose ends -Self study -ECMO call	-Loose ends -Self study -ECMO call	-VAD/ECMO seminar 1 -Loose ends -Self study -ECMO call	-Transplant Conference -Loose ends -Self study -ECMO call	-Loose ends -Check-in -Self study -ECMO call

Week 2:

	MON	TUES	WED	THURS	FRI
AM	-OR Cases -Rounding	-VAD/ECMO seminar 2	-OR Cases -Rounding	(No OR Cases) -Rounding -Cardiohelp (portable ECMO) training	-OR Cases -Rounding
PM	-Loose ends -Self study -ECMO call	-VAD/ECMO seminar 2 -Self study -ECMO call	-Loose ends -Self study -ECMO call	-Transplant Conference -Loose ends -Self study -ECMO call	-Loose ends -Feedback -Self study -ECMO call

Sample Schedule

Week 3-4:

	MON	TUES	WED	THURS	FRI
AM	Ride with mobile ECMO Teams/ Shadow CT ICU in Paris or Dusseldorf* (*under discussion: PMID 2717983)				
PM					