2026 California Thoracic Society Annual Educational Conference

& Chronic Obstructive Pulmonary Disease Symposium

Thursday March 12, 2026-Sunday March 15, 2026

Earn up to 19 CME/CEU/MOC Credits

Jointly Provided by AKH Inc., Advancing Knowledge in Healthcare and the California Thoracic Society

PORTOLA HOTEL & SPA
AT MONTEREY BAY

Thursday March 12, 2026 (6 CME/CEU/MOC Credits)
COPD Symposium
Friday March 13, 2026 (6.5 CME/CEU/MOC Credits):
Advances in Interventional Pulmonary, Remote Monitoring in Pulmonary and Sleep Medicine, Approach to Symptom Management in Chronic Lung Disease and Critical Care
Saturday March 14, 2026 (6.5 CME/CEU/MOC Credits)
Sepsis and Shock, Extracorporeal Membrane Oxygenation, Inpatient Pulmonary Complications of Cancer Care
Sunday March 15, 2026
Fellow and Resident Track Symposium

California Thoracic Society
ATS Chapter Serving California and Arizona

AKH INC.
ADVANCING KNOWLEDGE IN HEALTHCARE

California Thoracic Society
Annual Conference
March 12-15, 2026
Portola Hotel and Spa, Monterey, CA

Saturday March 14, 2026

Advances in Management of the Patient with Sepsis

8:00 am – 8:10 am: Welcome and Introduction

8:10 am – 8:55 am: Keynote Address – Phenotyping and Personalized Medicine in Sepsis

- **Angela Rogers, MD (Stanford)** - This speaker will discuss phenotyping in the patient with sepsis and septic shock and how close we are to precision medicine in managing sepsis.

8:55 am – 9:20 am: Incorporating Artificial Intelligence Decision Making in Identifying Sepsis

- **Gabriel Wardi, MD (UC San Diego)** - This speaker will describe how artificial intelligence can be used to identify the septic patient before they present with end stage symptoms to impact care earlier in the course of illness.

9:20 pm – 9:35 pm: Pro: The Severe Sepsis and Septic Shock Early Management Bundle (SEP-1) Bundle Saves Lives

- **Sean Townsend, MD (CPMC-Sutter)**- This speaker will argue the benefits of the SEP-1 Bundle/how it saves lives.

9:35 pm – 9:50 pm: Con: : The Severe Sepsis and Septic Shock Early Management Bundle (SEP-1) Bundle Does Not Save Lives

- **Natalie Achamallah, MD, MS (Cottage Health)** - This speaker will argue the against the SEP-1 Bundle/highlight its limitations.

9:50-10:00 am Question and Answer

10:00 am – 10:30 am: Break

Extracorporeal Membrane Oxygenation

10:30 am – 10:55 am: When to refer to an ECMO center and when to deploy ECMO

- **Nida Qadir, MD (UC Los Angeles)** - This speaker will discuss the evidence behind the use of ECMO in patients with respiratory failure and when providers should consider referral to an ECMO center and when centers should use ECMO.

10:55 am – 11:20 am: What about ECMO to go?

- **Mazen Odish, MD (UC San Diego)** - This speaker will discuss the advent of mobile ECMO services, how they can help improve patient care, and the use of extracorporeal cardiopulmonary resuscitation.

11:20 am – 11:45 pm: Ventilator Strategies for the patient on ECMO

- **Abirami Kumaresan, MD (Cedars-Sinai)** - This speaker will discuss the how ventilator strategies may differ in the patient on ECMO and how different ECMO configurations impact which ventilator strategy to use.

11:45 pm – 12:10 pm: What you need to know about pediatric ECMO

- **Kathleen Ryan, MD (Stanford)** - This speaker will discuss the utility of ECMO in neonates and children, and the complexities of management in children who needs mechanical support.

12:10 pm – 12:20 pm: Question and Answer

12:20 pm – 1:20 pm: Lunch

Hands-On Session:

1:20 pm – 2:20 pm: Non-Invasive Cardiac Output Monitors **Speaker Abirami Kumaresan, MD (Cedars-Sinai)** ECMO Machines **Mazen Odish, MD (UC San Diego)** ECMO Placement **David Gordon, DNP (UC San Francisco) & Brianna Zuckerman, NP (UC San Francisco)** Ventilator Settings and Portable ventilators **Joe Van Vleet, RT (UC Los Angeles) & Theresa Cantu, RT (Valley Children's)**

2:20 pm – 2:45 pm: Break

Inpatient and Pulmonary Complications of Cancer Care

2:45 pm – 3:10 pm: Pulmonary Complications of Hematopoietic Stem Cell Transplantation

- **Husham Sharifi, MD (Stanford)** - This speaker will discuss the pulmonary complications that arise after HCT, in particular the development of bronchiolitis obliterans syndrome and approaches to management.

3:10 pm – 3:35 pm: Pulmonary Vascular Complications of Malignancy

- **Naomi Habib, MD (Norton Thoracic Institute)**- This speaker will discuss the Pulmonary Vascular Disease complications of malignancy including PA sarcoma, pulmonary tumor thrombotic microangiopathy, and medications that can cause PAH.

3:35 pm – 4:00 pm: Drug induced Interstitial Lung Disease and Pneumonitis During Cancer Therapy

- **Weijia Chua, MD (Stanford)** - This speaker will discuss the pulmonary complications of interstitial lung disease and pneumonitis that develop after chemotherapy and targeted immunotherapy

4:00 pm – 4:25 pm: Respiratory Complications of Acute Leukemia

- **Hugh Davis, MD (City of Hope)** - The speaker will discuss various oncologic emergencies, how they are recognized, and how they are managed in the acute setting.

4:25 pm – 4:35 pm: Question and Answer

5:30 pm – 7:30 pm: Trainee Poster Competition (NON-CME) – Food and beverages will be served

Mazen Odish, MD is a NIH funded physician-scientist and intensivist at the University of California, San Diego in the Division of Pulmonary, Critical Care, and Sleep Medicine. Dr. Odish attends in the intensive care units and is a core member of UCSD's Extracorporeal Membrane Oxygenation (ECMO) program. He helps run the mobile ECMO team, ECPR, and ECMO quality improvement, and education programs. He further teaches for the extracorporeal life support organization. His NIH funded research is in ventilator settings during V-V ECMO.

Mobile ECMO and ECPR

Mazen F. Odish, MD

Pulmonary and Critical Care Medicine

Associate Professor of Medicine

University of California, San Diego (UCSD)

Disclosures

ECMO Educator for Extracorporeal Life Support Organization (ELSO)

PI of NIH K23 ECMO Study on Ventilator Management, 1K23HL181397

UCSD ECMO education program on cannulation and management, Mobile ECMO, & ECPR

I have the following relationships with ACCME defined ineligible companies:

Consulted for ECMO companies (no compensation)

I WILL NOT discuss off-label use and/or investigational use of any drugs or devices.

Agenda

- **Mobile ECMO ~ 10 minutes**
  - Case
  - History
  - When to consider mobile ECMO
  - How to get mobile ECMO
  - Key points for mobile ECMO
- **Extracorporeal CPR (ECPR) ~ 10 minutes**
  - History
  - Data – does it work?
  - How to improving outcomes
  - ECPR in California
- **Questions**

Mobile ECMO

Case

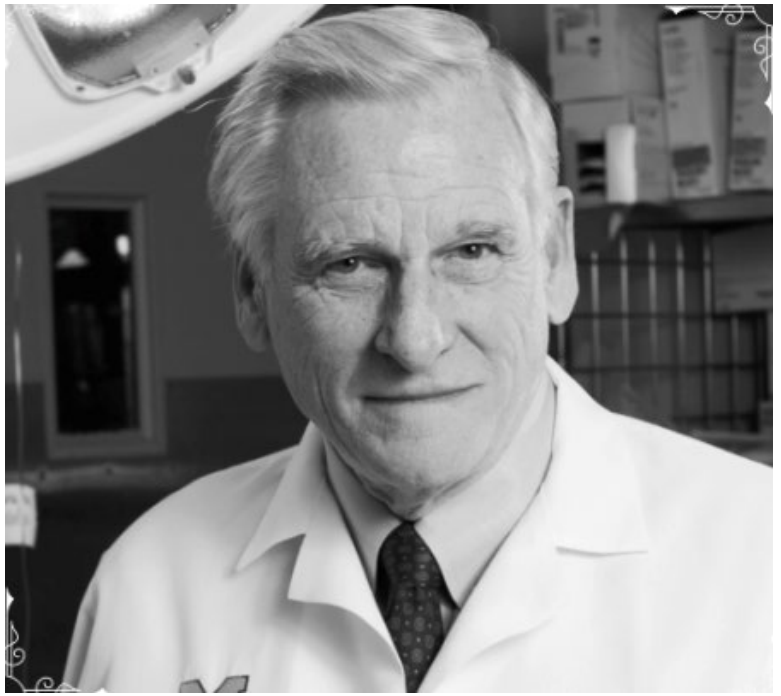
- 31 year old female with COVID ARDS

- 10 days post-partum
  - C-section while intubated
  - Unable to supinate for transfer, SpO2 84% while prone
  - RR 32, TV 450, PEEP 20, pplat 42, FiO_2 1
  - No access to inhaled pulmonary vasodilators
  - Doesn't tolerate turns

- 142 miles away (2.5 hours drive away)

First mobile ECMO done in 1975 by Dr. Robert Bartlett

- 1972: First ECMO in a human being by Hill et al.
- 1975: First inter-hospital transfer by Bartlet et al.
- 1995: Case series of 19 neonates requiring mobile ECMO
- 2011: Mobile ECMO increased due to H1N1 Pandemic
- 2015: Stockholm Experience: 2010-2013 reported 282 mobile ECMO
- 2019: COVID pandemic



Robert Hawes Bartless, MD
1939-2025

Hill JD, O'Brien TG, Murray JJ, Dontigny L, Bramson ML, Osborn JJ, Gerbode F. Prolonged extracorporeal oxygenation for acute post-traumatic respiratory failure (shock-lung syndrome). Use of the Bramson membrane lung. N Engl J Med. 1972 Mar 23;286(12):629-34. doi: 10.1056/NEJM197203232861204. PMID: 5060491.

Bartlett RH, Gazzaniga AB, Fong SW, Jefferies MR, Roohk HV, Haiduc N. Extracorporeal membrane oxygenator support for cardiopulmonary failure. Experience in 28 cases. J Thorac Cardiovasc Surg. 1977 Mar;73(3):375-86. PMID: 839827.

Broman LM, Holzgraefe B, Palmér K, Frenckner B. The Stockholm experience: interhospital transports on extracorporeal membrane oxygenation. Crit Care. 2015 Jul 9;19(1):278. doi: 10.1186/s13054-015-0994-6. PMID: 26160033; PMCID: PMC4498561.

Mobile ECMO when conventional transfer is to high risk

- **Still same patient selection criteria for ECMO!**
- However, unable to transfer:

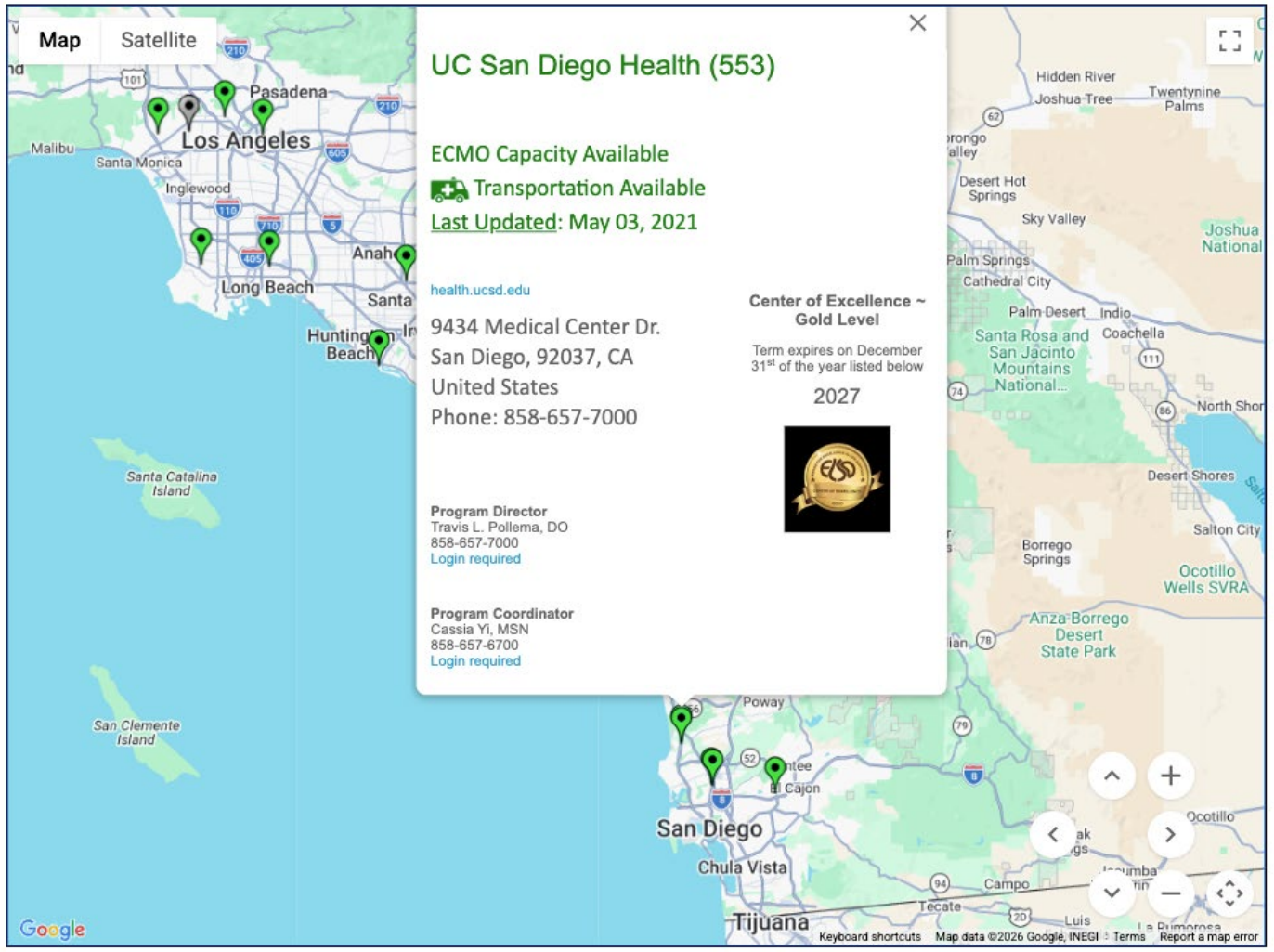
- **Pulmonary Failure (V-V ECMO)**
- Refractory hypoxia / hypercapnia
- Unable to supinate if prone
- Unable to tolerate turns
- On inhaled pulmonary vasodilators
- Ventilator settings so high that transfer ventilators unsafe

- **Cardiac Failure (V-A ECMO)**
- Unable to provide other MCS (IABP, Impella, etc.)
- Multiple pressors/intropes
- Unable to tolerate bed turns / imaging

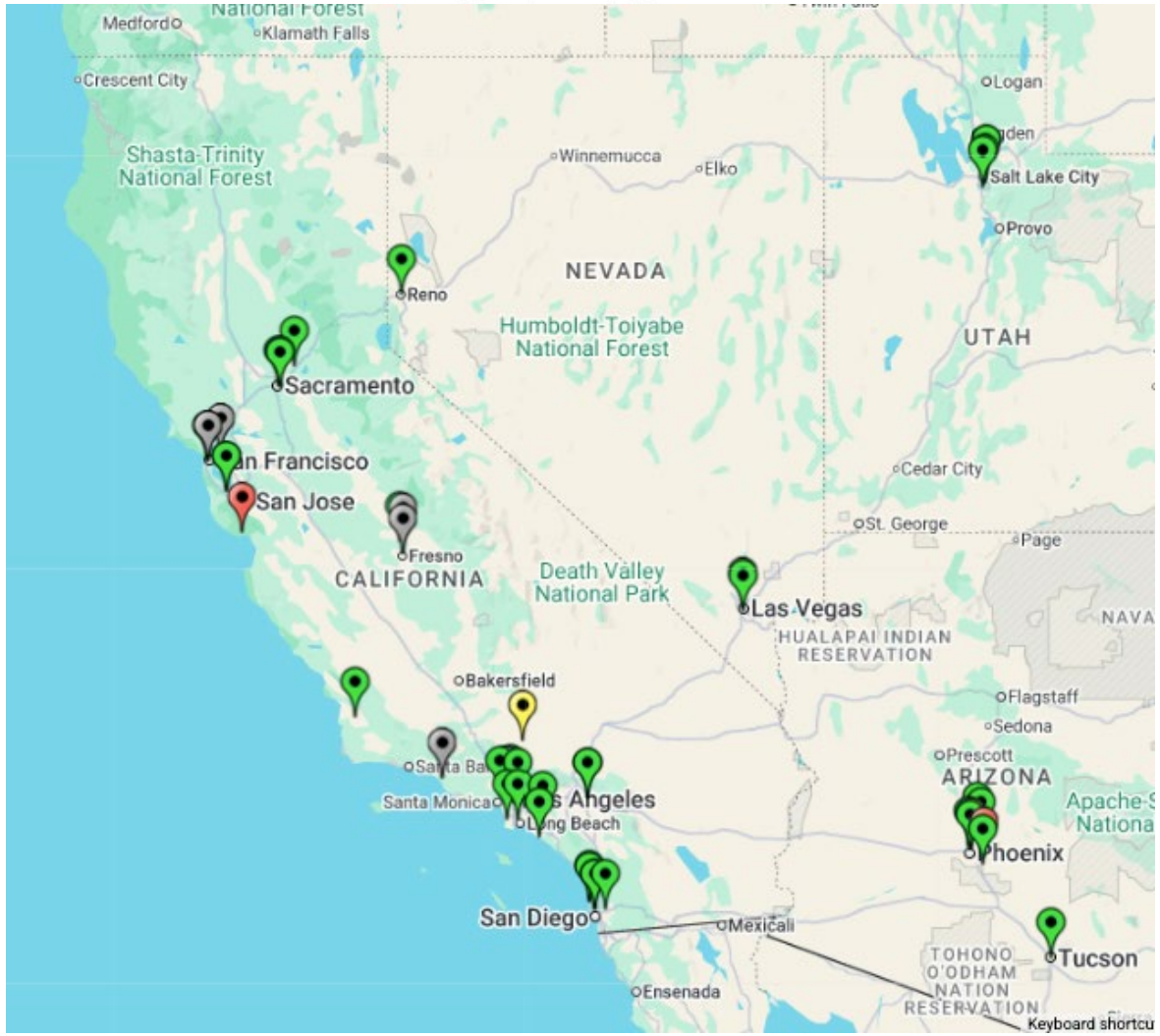
Local Mobile ECMO teams – Use ELSO to find one

- **Use the ELSO Website**
  - https://www.elso.org
  - Membership -> ECMO availability
  - Not always accurate
- California:
  - ECMOprn – Bay Area
  - Stanford
  - Valley Children's - Frezno
  - UCLA
  - Torrance Medical Center
  - Rady Children's – LA/SD
  - UCSD

ECMO Availability Center Map



Mobile ECMO can help improve healthcare equity



- ECMO is centralized to large institutions
- Small communities can have disproportionately affected during pandemics

- **Solutions**
  - ECMO consortiums – San Diego
    - Similar ECMO criteria
    - Share resources/equipment
    - Mobile ECMO if to sick to transfer

Odish M et al. Dec;16(6):2619-2626. doi: 10.1017/dmp.2021.179. Epub 2021 Jun 8. PMID: 34099097; PMCID: PMC8314051.

Odish M et al J Cardiothorac Vasc Anesth. 2021 Oct;35(10):2869-2874. doi: 10.1053/j.jvca.2021.05.047. Epub 2021 May 26. PMID: 34176676; PMCID: PMC8152207.

Key Points for Mobile ECMO - its like box of Chocolates

- **Patient selection is important**
- **Preparation and contingency planning**
  - Prepare to take over all care
  - Two ECMO circuits (one console)
  - Placement of central lines, arterial lines, airways, IABPs, etc
- **Trained and experienced transfer team**
  - Experienced ECMO cannulators
  - Critical care medicine physician
  - ICU Nurse
  - Respiratory Therapist
  - Perfusionist
- **Data shows its safe**

Patient Story Continued

- Mobile ECMO
  - SpO2 60-70s when supinated during cannulation
  - Flight transferred back to UCSD
- ECMO run 12 days
- Tracheostomy
- Survived
  - First saw her daughter at 2 months of age.
  - Home with her husband and 10-month-old baby girl!
  - O2 at night and with excursion, now on room air
  - Followed by pulmonologist in Southern California

Final Points

- Think of mobile ECMO for patients were conventional transfer maybe to unsafe
- Still need to be appropriate candidates for ECMO support
- Mobile ECMO is safe with a well-trained / experienced team
- Use the ELSO website to find local Mobile ECMO teams

Extracorporeal CPR (ECPR)

Why do ECPR? Improve OHCA outcomes!

- 350,000+ OHCA annually in USA
- Only 46% of patients with OHCA get bystander CPR
- OHCA survival to discharge with a **CPC 1-2 ranges 3-10%**

- **Can we improve this?**

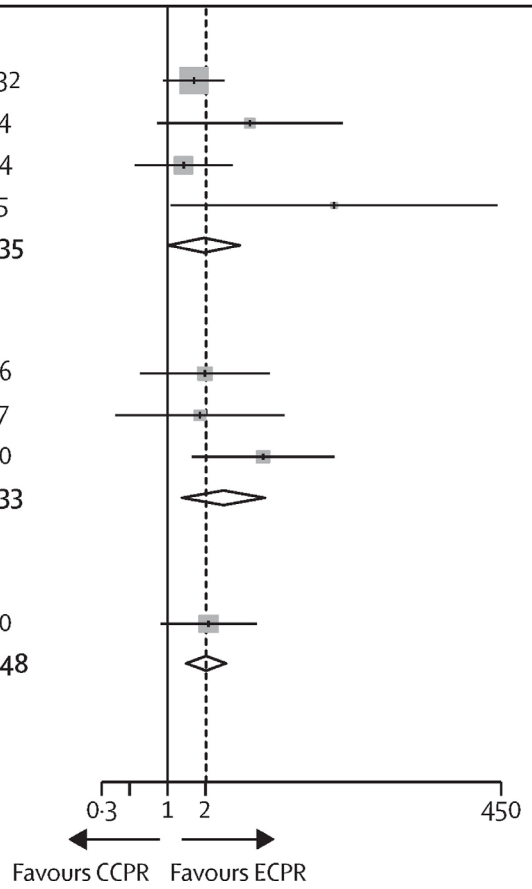
Data for ECPR is controversial

ARREST Trial (Lancet)	All Shockable 1 center	ECPR: 6/14 (43%) CPR: 1/16 (7%)
Prague OHCA Study Group (JAMA)	~60% shockable 1 center Arrest to ECPR: 58 (43-70)	ECPR: 39/256 (31.5%) CPR: 29/256 (22%)
INCEPTION (Netherland study – NEJM)	All Shockable 10 centers Arrest to ECPR: 74 (63 to 87)	ECPR: 14/70 (20%) CPR: 10/62 (16%)

DOI: 10.1056/NEJMoa2204511
DOI:10.1001/jama.2022.1025
DOI: 10.1016/S0140-6736(20)32338-2

Meta-analysis favors ECPR

	ECPR (n/N)	CCPR (n/N)	Odds ratio (95% CI)	Weight	p value
OHCA					
Belohlavek et al (2022)[23]	39/124	29/132	1·63 (0·93–2·85)	38·5%	
Maekawa et al (2013)[46]	7/24	2/24	4·53 (0·83–24·65)	4·6%	
Suverein et al (2023)[21]	14/70	10/64	1·35 (0·55–3·30)	16·1%	
Yannopoulos et al (2020)[22]	6/15	0/15	21·21 (1·07–420·80)	1·5%	
Random-effects model	**66/233**	**41/235**	**1·96 (1·02–3·79)**	**60·7%**	**0·045**
Heterogeneity: I^2=31%, τ^2=0·14, p=0·23					
IHCA					
Chen et al (2008)[10]	9/46	5/46	1·99 (0·61–6·49)	9·4%	
Lin et al (2010)[12]	5/27	3/27	1·82 (0·39–8·51)	5·5%	
Shin et al (2011),[41] Shin et al (2013)[42]	14/60	3/60	5·78 (1·57–21·35)	7·7%	
Random-effects model	**28/133**	**11/133**	**2·80 (1·31–6·00)**	**22·6%**	**0·0080**
Heterogeneity: I^2=0%, τ^2=0, p=0·40					
Both OHCA and IHCA					
Patricio et al (2019)[9]	17/80	9/80	2·13 (0·89–5·11)	16·7%	
Random-effects model	**111/446**	**61/448**	**2·04 (1·41–2·94)**	**100·0%**	**0·0001**
Heterogeneity: I^2=3%, τ^2=0·0091, p=0·41					
Test for subgroup differences: χ^2=0·50, df=2 (p=0·78)					



DOI:https://doi.org/10.1016/S2213-2600(23)00137-6

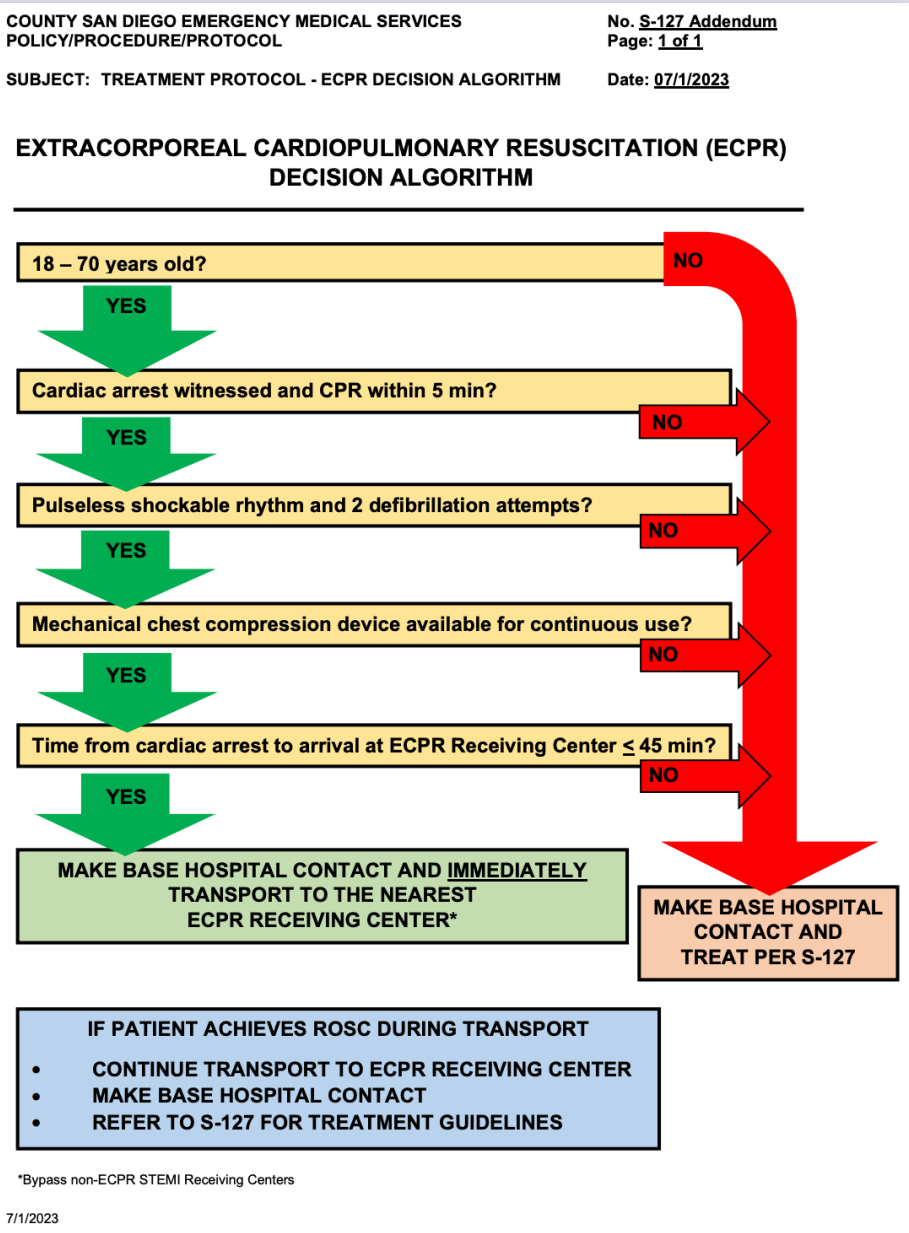
Criteria for ECPR should probably be strict to improve outcomes

- Centers and cannulators with experience
- Arrest time matters (faster on ECMO the better)
- Centralized and protocolized post-ECMO care
  - Immediate coronary re-vascularization
  - Left ventricular venting (IABP, Impella) if needed
  - Protect the brain
  - Minimize ECMO complications: antegrade catheters, protocols, etc
- Strict inclusion criteria
  - Shockable rhythm higher survival than non-shockable
  - Younger do better

Regional ECPR programs in California – expand access

- EMS is going to bring potential ECPR candidates with out of hospital cardiac arrest to certified ECPR centers
- **Examples in California**
  - Los Angeles County ECPR Program – 5 centers
  - San Diego County ECPR Program – 5 centers

https://www.sandiegocounty.gov/content/sdc/ems/ec



COUNTY SAN DIEGO EMERGENCY MEDICAL SERVICES
POLICY/PROCEDURE/PROTOCOL

No. S-127 Addendum
Page: 1 of 1

SUBJECT: TREATMENT PROTOCOL - ECPR DECISION ALGORITHM

Date: 07/1/2023

EXTRACORPOREAL CARDIOPULMONARY RESUSCITATION (ECPR)
DECISION ALGORITHM

18 – 70 years old? NO
YES
Cardiac arrest witnessed and CPR within 5 min? NO
YES
Pulseless shockable rhythm and 2 defibrillation attempts? NO
YES
Mechanical chest compression device available for continuous use? NO
YES
Time from cardiac arrest to arrival at ECPR Receiving Center ≤ 45 min? NO
YES

MAKE BASE HOSPITAL CONTACT AND IMMEDIATELY TRANSPORT TO THE NEAREST ECPR RECEIVING CENTER*

MAKE BASE HOSPITAL CONTACT AND TREAT PER S-127

IF PATIENT ACHIEVES ROSC DURING TRANSPORT

- CONTINUE TRANSPORT TO ECPR RECEIVING CENTER
- MAKE BASE HOSPITAL CONTACT
- REFER TO S-127 FOR TREATMENT GUIDELINES

*Bypass non-ECPR STEMI Receiving Centers

7/1/2023

Learning Points for ECPR

- ECPR may improve outcomes for a certain (strict) patient population
  - VT/VF
  - Witnessed arrest with immediate CPR – mechcanical CPR
  - Arrest to ECMO time < 60 minutes
  - Experienced ECMO cannulations and standardized post-care
- Expensive
- Outcomes are relatively poor
- ECPR programs are proliferating

Questions?

Thank you for the opportunity to speak to you all!

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