



# Pharmacy Grand Rounds

200 First Street SW  
Rochester, Minnesota 55905  
<https://ce.mayo.edu/pharmacy-grandrounds2023>

## Lost in the ECMO Chamber: Pharmacokinetics in Critical Illness

**Session Date:** 06/06/2023

**Session Time:** 11:00 – 11:45 AM (CST)

### Target Audience

This continuing education (CE) session was planned to meet the needs of professional staff who deal with the selection and monitoring of medication(s) as part of their patient care duties, including pharmacists, RNs, APRNs, PAs, MDs.

### Activity Overview

Venovenous extracorporeal membrane oxygenation (ECMO) may provide life-saving respiratory support in patients with refractory pulmonary failure. However, ECMO is a complex, invasive therapeutic modality with both benefits and drawbacks, warranting careful consideration of which patients are indicated for this intervention. Moreover, pharmacokinetic parameters are altered by the ECMO circuit, which may necessitate a change in the management of key medications such as sedatives and antimicrobials. This presentation will review primary literature and pragmatic tools to guide patient selection in ECMO, highlight key pharmacokinetic properties that affect medication dosing in ECMO, and discuss potential dosing strategies based on existing literature.

### Learning Objectives

At the conclusion of this knowledge-based CE session, participants should be able to:

1. Identify patients who may benefit from venovenous extracorporeal membrane oxygenation (VV ECMO)
2. Describe pharmacokinetic properties that affect medication dosing in ECMO
3. Select appropriate dosing strategies for sedatives and antibiotics in patients receiving ECMO

### Faculty Information

Ming May Zhang, PharmD  
PGY1 Pharmacy Resident  
Mayo Clinic Hospital - Rochester, MN

Dr. Zhang received her Doctor of Pharmacy degree from the University of Connecticut School of Pharmacy and is a current PGY1 pharmacy resident at the Mayo Clinic Hospital in Rochester. Her practice interests include critical care, emergency medicine, infectious disease, and cardiology.



## Approved Provider Statement



JOINT ACCREDITATION™  
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, this activity is planned and implemented by Mayo Clinic College of Medicine and Science. Mayo Clinic College of Medicine and Science 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.

### Credit Statements

#### AMA

Mayo Clinic College of Medicine and Science designates this live activity for a maximum of 0.75 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

#### ACPE



**ACPE Universal Activity Number (UAN):** JA0000238-0000-23-007-L01-P

Mayo Clinic College of Medicine and Science designates this educational activity for a maximum of 0.75 ACPE Knowledge-based contact hours. Participants should claim only the credit commensurate with the extent of their participation in the activity

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#### AAPA



Mayo Clinic College of Medicine and Science 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 0.75 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.

## Educational Format and CE Requirements

This CE session is available as a live presentation, including live webcast.

Participants must complete the following to record attendance and obtain CE credit:

1. Attend the entire session.
2. Text the session code to 507-200-3010 within 48 hours of the live presentation to record attendance.
  - a. This number is only used for receiving text messages related to tracking attendance
  - b. Employees are encouraged to create a contact in their mobile phone, as the same number is used to record attendance for every session
3. Complete the online evaluation for the respective session within 2 weeks of live presentation.

Pharmacist CE credit is electronically transferred to the National Association of Boards of Pharmacy CPE Monitor. To track CE, please go to [NABP CPE Monitor](#).

Non-pharmacist attendees can print out a record of attendance at [ce.mayo.edu](http://ce.mayo.edu) after completing the evaluation and claiming credit.

Live attendance: Rochester, Saint Mary's Campus, ALF\_MN\_459

Live virtual attendance via [Zoom link](#)

## Disclosure Summary

As a provider accredited by Joint Accreditation for Interprofessional Continuing Education, Mayo Clinic College of Medicine and Science must ensure balance, independence, objectivity and scientific rigor in its educational activities. All who are in a position to control the content are required to disclose all financial relationships with any ineligible company. Faculty will also identify any off-label and/or investigational use of pharmaceuticals or instruments discussed in their content for FDA compliance.

Listed below are individuals with control of the content of this program:

The faculty report the following relationships:

- Ming May Zhang, PharmD
  - Declares no financial relationship(s) pertinent to this session
  - Declares off-label use of medications will not be discussed during this presentation

Course Director and Planning Committee Members declare no relevant financial relationship(s) pertinent to this session. Members include:

- Jennifer Elmer, DNP, APRN, CCNS
- Andrew Herber, PA-C
- Sarah Jane Kotval, BSW
- Scott Nei, PharmD, BCPS, BCCCP, FCCM, FMSHP
- Wayne Nicholson, MD, PharmD, BCPS
- Garrett Schramm, PharmD, FASHP, FCCP

All relevant financial relationships have been mitigated.

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## System and Technical Requirements

For participants viewing the webcast, sessions are delivered via Mayo Clinic intranet web browser and Adobe® PDF. For participants viewing outside the Mayo Clinic firewall, a VPN connection is required for remote access. Recommended web browser includes Google Chrome. This session is planned and coordinated by **the Department of Pharmacy, Mayo Clinic.**