



Pharmacy Grand Rounds

200 First Street SW
Rochester, Minnesota 55905
<https://ce.mayo.edu/pharmacy-grandrounds-2025>

Seizing Control: Ketamine's Role in Treating Refractory Status Epilepticus

Session Date: 09/30/2025

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

While first- and second-line therapies for status epilepticus (SE) are well-established, treatment strategies for refractory status epilepticus (RSE) and super-refractory status epilepticus (SRSE) remain less defined. Current treatment algorithms for RSE and SRSE lack consensus beyond initial therapies, with most protocols relying on continuous infusions of anesthetics. Ketamine, a noncompetitive NMDA receptor antagonist, has demonstrated both antiepileptic and neuroprotective effects, and has emerged as a promising therapeutic option in this setting due to its unique mechanism targeting glutamate-mediated excitotoxicity and pharmacoresistance mechanisms associated with prolonged seizure activity. This presentation will explore the potential role of ketamine in treating RSE and SRSE by reviewing current treatment recommendations, examining mechanisms of pharmacoresistance in SE, and evaluating available evidence on the safety and efficacy of ketamine in this context.

Learning Objectives

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

1. Summarize the stages of status epilepticus and current treatment recommendations.
2. Describe pharmacoresistance mechanisms that support NMDA receptor antagonism with ketamine in refractory status epilepticus.
3. Apply current clinical evidence and patient-specific factors to guide the use of ketamine in the management of refractory and super-refractory status epilepticus.

Faculty Information

Amanda Capaul, PharmD
PGY2 Emergency Medicine Pharmacy Resident
Mayo Clinic Health System – Eau Claire, WI

Amanda received a Doctor of Pharmacy degree from Ohio Northern University's Rudolph H. Raabe College of Pharmacy and is a current PGY2 emergency medicine pharmacy resident at Mayo Clinic Health System – Eau Claire. Her practice interests include emergency medicine and critical care.



Approved Provider Statement



In support of improving patient care, 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): JA0000238-0000-25-035-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

ANCC

Mayo Clinic College of Medicine and Science designates this activity for a maximum of 0.75 ANCC contact hours. Nurses should claim only the credit commensurate with the extent of their participation in the activity.

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 after completing the evaluation and claiming credit.

[Live Webcast](#) – Register from the Education SharePoint site

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 who have disclosed:

The faculty report the following relationships:

- Amanda Capaul, PharmD
 - Declares no financial relationship(s) pertinent to this session
 - Will discuss the off-label use of ketamine for refractory and super-refractory status epilepticus

Course Director and Planning Committee Members declare the following relevant financial relationship(s) pertinent to this session.

- No relevant financial relationship(s) with ineligible companies:
 - Jennifer Elmer, DNP, APRN, CCNS
 - Andrew Herber, PA-C
 - Sarah Jane Kotval, BSW, RSS Coordinator
 - Scott Nei, PharmD, BCPS, BCCCP, FCCM, FMSHP
 - Sara Thompson, PharmD, MEd, BCACP
- Relevant financial relationship(s) with ineligible companies:
 - Wayne Nicholson, MD, PharmD, BCPS - Intellectual Property - Anivive Lifesciences, Inc.

All relevant financial relationships have been mitigated.

For additional disclosure information regarding Mayo Clinic School of Continuous Professional Development accreditation review committee members visit ce.mayo.edu, About Us, Disclosures - or - <https://ce.mayo.edu/content/disclosures>

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.**