



# Pharmacy Grand Rounds

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

## Resistance is Futile: Pharmacologic Management of Resistant Hypertension

**Session Date:** 02/25/2025

**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

The 2018 American Heart Association guidelines currently classify resistant hypertension as consistently elevated BP  $\geq 130/80$  mmHg despite being on three antihypertensives, namely an angiotensin-converting enzyme inhibitor, angiotensin II receptor blocker, calcium channel blocker, and loop or thiazide diuretic. Fourth-line options may include mineralocorticoid receptor antagonists, hydralazine, minoxidil, nitrates, etc. Unfortunately, many of these “fourth-line” options come with significant side effects for patients who are often predisposed to resistant hypertension due to other comorbidities. New in class, aprocitantan, is a potential fourth-line agent that has shown to reduce BP with a relatively safe side effect profile. This presentation will review hypertension subtypes, literature supporting fourth-line pharmacotherapy options for resistant hypertension, and recommendations to guide appropriate pharmacotherapy selection.

### Learning Objectives

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

1. Discuss important differences in hypertension subtypes.
2. Summarize guideline recommendations for appropriate resistant hypertension pharmacotherapy options.
3. Develop a treatment plan for patients with resistant hypertension requiring fourth-line pharmacotherapy.

### Faculty Information

Karlee Andry, PharmD, MPH  
PGY1 Pharmacy Resident  
Mayo Clinic Health System - Mankato, MN

Karlee received a Doctor of Pharmacy degree from University of Iowa College of Pharmacy and is a current PGY1 pharmacy resident at Mayo Clinic Health System – Mankato. Her practice interests include ambulatory care, infectious diseases, and internal medicine.



## 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):** JA0000238-0000-25-035-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](http://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:

- Karlee Andry, PharmD, MPH
  - 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 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](http://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**.