



GUIDANCE ON CARDIOVASCULAR DISEASE AND PREGNANCY

National Academies of Sciences, Engineering, and Medicine (NASEM) – National
Academies Consensus Study
May 12, 2025

Nancy O'Reilly, MHS
Vice President, Clinical Guidance and Programs

Disclosures and Conflict of Interest

- None to disclose

ACOG Overview

Member association for obstetricians and gynecologists focused on:

- Practice guidelines for health care professionals and educational materials for patients
- Programs and initiatives to improve women's health,
- Advocacy for members and patients

More than 60,000 members

- Includes more than 95% of eligible ob-gyns in the US,
- 12 Districts represent various regions, countries, territories, and states in North and South America



ACOG Guidance Documents

Clinical Practice Guidelines

Evidence-based clinical recommendations

Follow modified GRADE process	Comprehensive literature searches	Evaluation of quality of evidence	Standardize recommendation language	Methods update to Practice Bulletins	Additional document types
<ul style="list-style-type: none">• PICO, Covidence, RoB, Evidence tables and maps, internal peer review	<ul style="list-style-type: none">• PubMed and other relevant databases	<ul style="list-style-type: none">• Assessment of the benefits and harms of alternative care options	<ul style="list-style-type: none">• Classified by strength and evidence quality• Good Practice Points included	<ul style="list-style-type: none">• All current documents routinely reviewed	<ul style="list-style-type: none">• Clinical Consensus• Committee Statements

ACOG GUIDANCE

“Pregnancy and Heart Disease”

Practice Bulletin #212

2019 (Reaffirmed 2025)

- Developed in partnership with numerous stakeholder organizations and experts
- Part of ACOG Presidential Initiative



The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 212

Presidential Task Force on Pregnancy and Heart Disease

Committee on Practice Bulletins—Obstetrics. This Practice Bulletin was developed by the American College of Obstetricians and Gynecologists' Committee on Practice Bulletins—Obstetrics in collaboration with the Presidential Task Force on Pregnancy and Heart Disease members Lisa M. Hollier, MD, James N. Martin Jr., MD, Heidi Connolly, MD, Mark Turrentine, MD, Afshan Hameed, MD, Katherine W. Arendt, MD, Octavia Cannon, DO, Lastascia Coleman, ARNP, CNM, Uri Elkayam, MD, Anthony Gregg, MD, MBA, Alison Haddock, MD, Stacy M. Higgins, MD, FACP, Sue Kendig, JD, Robyn Liu, MD, MPH, FAAFP, Stephanie R. Martin, DO, Dennis McNamara, MD, Wanda Nicholson, MD, Patrick S. Ramsey, MD, MSPH, Laura Riley, MD, Elizabeth Rochin, PhD, RN, NE-BC, Stacey E. Rosen, MD, Rachel G. Sinkey, MD, Graeme Smith, MD, PhD, Calondra Tibbs, MPH, Eleni Z. Tsigas, Rachel Villanueva, MD, Janet Wei, MD, and Carolyn Zelop, MD.

Pregnancy and Heart Disease

Maternal heart disease has emerged as a major threat to safe motherhood and women's long-term cardiovascular health. In the United States, disease and dysfunction of the heart and vascular system as “cardiovascular disease” is

Pregnancy and heart disease. ACOG Practice Bulletin No. 212.
American College of Obstetricians and Gynecologists. Obstet Gynecol
2019;133:e320–56.

Framing the Issue

CVD is leading cause of maternal mortality in US with significant racial disparities.

Cardiomyopathy is leading cause of maternal deaths, (23% of deaths in late postpartum)

Has guidance for screening, diagnosis, and management prepregnancy to postpartum

Addresses acquired heart conditions, often develop silently and acutely during or after pregnancy.

Diagnostic Challenge of CVD in Pregnancy

- Physiologic Changes in Pregnancy:
 - Hemodynamic
 - Structural heart changes
 - Hematologic, Coagulation and Metabolic changes
- Pregnancy symptoms overlapping with signs and symptoms of heart disease
- Impact on CVD diagnostic tests
- Predispose to adverse outcomes in those with underlying CV disease

Table 2. How to Differentiate Common Signs and Symptoms of Normal Pregnancy Versus Those That Are Abnormal and Indicative of Underlying Cardiac Disease

	ROUTINE CARE	CAUTION*†	STOP†‡
	Reassurance	Nonemergent Evaluation	Prompt Evaluation Pregnancy Heart Team
History of CVD	None	None	Yes
Self-reported symptoms	None or mild	Yes	Yes
Shortness of breath	No interference with activities of daily living; with heavy exertion only	With moderate exertion, new-onset asthma, persistent cough, or moderate or severe OSA§	At rest; paroxysmal nocturnal dyspnea or orthopnea; bilateral chest infiltrates on CXR or refractory pneumonia
Chest pain	Reflux related that resolves with treatment	Atypical	At rest or with minimal exertion
Palpitations	Few seconds, self-limited	Brief, self-limited episodes; no lightheadedness or syncope	Associated with near syncope

Selected Recommendations

All women be assessed for CVD in the prenatal and postpartum period.

Women with known heart disease should see a cardiologist prior to pregnancy

Patients with moderate and high-risk CVD should be managed during pregnancy, delivery, and postpartum in a medical center able to provide a higher level of care

Multidisciplinary Pregnancy Heart Team should include obstetric providers, maternal-fetal medicine specialists, and cardiologists and anesthesiologists.

Recommend a comprehensive, cardiovascular postpartum visit at three months, to develop discuss plan for yearly follow-up and future pregnancy intentions.

Is Clinical Management Guidance Enough?

Gaps in evidence:

- Self Management of Blood Pressure – promising but limited data on outcomes
- Alternative measures of blood pressure – e.g. digital tools

Gaps in Implementation:

- Awareness for patients
- Increased provider knowledge
- Large proportion of CVD deaths are >42 days postpartum
- Outside of obstetric setting
- “Have you been pregnant in the past year?”

ACOG Clinician Education

Heart Health for the Pregnant Patient (7 CME course)



ACOG | Online Learning

- Describe the physiology of normal pregnancy and recognize signs and symptoms of heart disease
- Assess risk of congenital heart disease and acquired heart disease
- Discuss management in congenital heart disease and acquired heart disease, including peripartum cardiomyopathy
- Recognize the association of adverse pregnancy outcomes on future long-term cardiovascular risk

Quality Improvement Initiative: Alliance for Innovation on Maternal Health (AIM)

ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

A quality improvement initiative to support best practices that make birth safer, improve maternal health outcomes and save lives.

[Learn More About AIM](#)



AIM National Team develops resources and provides technical assistance to all entities participating in AIM.

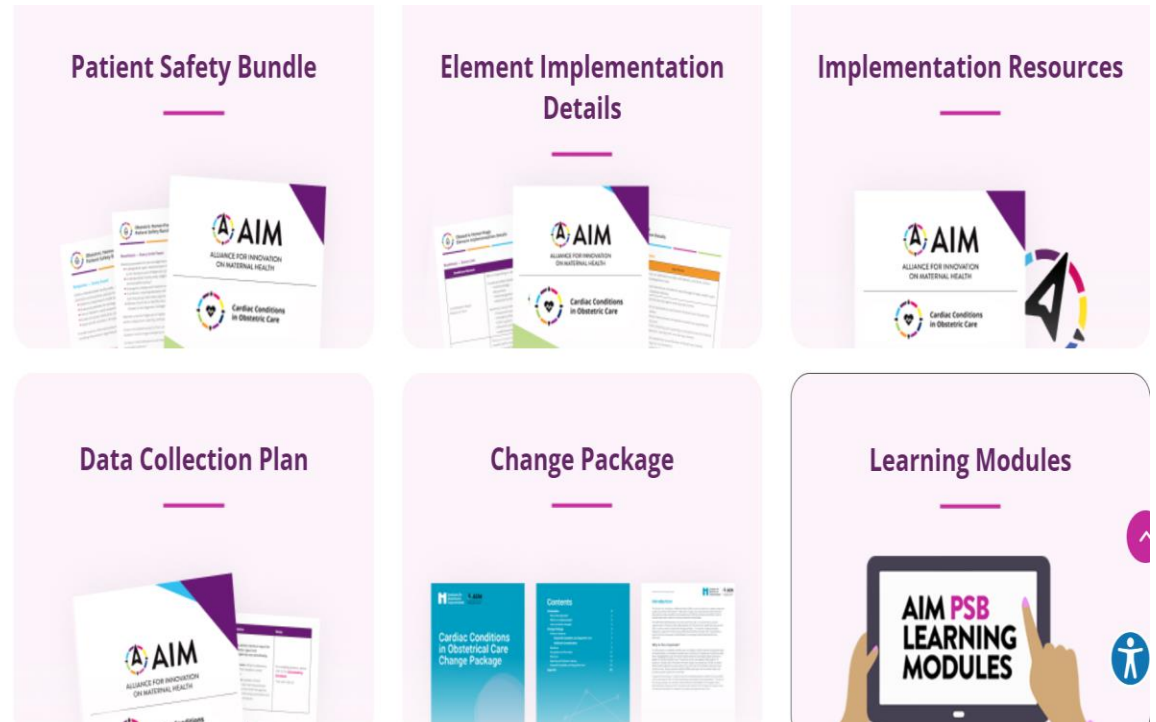
Currently 75% of Birthing Facilities Participate with AIM State & Jurisdiction Teams

<https://saferbirth.org/>

AIM Patient Safety Bundle: Cardiac Conditions in Obstetric Care

Implementation tools

- Evidence informed best practices for pregnant and postpartum people
- Adaptable to variety of facilities and resource levels
- Standard protocols with checklists and escalation policies
- Coordinate transitions of care including discharge from birthing facility to home and transition from postpartum care to ongoing primary and specialty care.



<https://saferbirth.org/psbs/cardiac-conditions-in-obstetric-care/>

Obstetric Emergencies in Nonobstetric Settings

- Increase awareness of the critical role of non-OB providers in care of patients experiencing obstetric emergencies
- Improve identification of patients who are pregnant or have been pregnant in the last 12 months
- Enhance readiness among non-OB providers to identify and stabilize or treat a patient with an obstetric emergency

Released January 21, 2022

Commitment to Action: Eliminating Preventable Maternal Mortality

APA | AAENP | AAFP | ACC | ACEP | ACNM | ACP
APA | ASAM | APAOG | AWHONN | CUCM | ENA
NAEMT | NPWH | NRHA | SMFM | SEMPA

MATERNAL HEALTH AWARENESS DAY



Identifying and Managing

Created algorithms and guidelines on hypertension, eclampsia, CVD, and hemorrhage for:

- Emergency department
- Emergency medical services
- Urgent care

Cardiovascular Disease (CVD) in Pregnancy & Postpartum

Ask your patient:
"Are you pregnant or have you been pregnant in the last 6 weeks?"
 If yes, symptoms may be related to pregnancy and can occur up to 6 weeks postpartum.

Red Flags for Cardiovascular Disease

- Shortness of breath at rest
- Chest pain at rest, with minimal exertion or ripping/tearing in quality
- Palpitations associated with near syncope
- Severe orthopnea
- Resting HR ≥ 120 bpm
- Resting systolic BP ≥ 160 or < 90
- Resting RR ≥ 25
- Oxygen saturation $\leq 94\%$, with or without personal history of CVD
- Loud systolic murmur, diastolic murmur S3, or S4
- Wheezing, crackles on lung exam
- Distended neck veins

Consider in your differential diagnosis:

Myocardial infarction (including spontaneous coronary artery dissection), peripartum cardiomyopathy, congestive heart failure, arrhythmia, aortic dissection

Key Work-up

EKG, BNP, chest X-ray, and troponin

If testing is abnormal, CVD is a possible diagnosis:

- Obtain echocardiogram, consider transferring patient to obtain if not available at your facility
- Consult with cardiology and obstetrics or maternal-fetal medicine, if available
- Consider treatment and admission or transfer as clinically indicated

Treatment

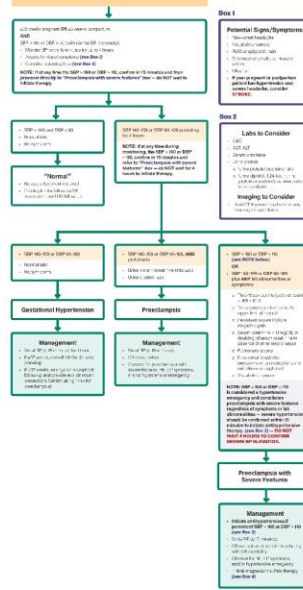
Most medications for the treatment of cardiovascular emergencies do not have robust data surrounding their use in pregnancy and breastfeeding. These medications should **not** be withheld from a pregnant or breastfeeding patient in a life-threatening emergency if they are otherwise indicated. However, long-term use of certain medications may be avoided or may be contraindicated in pregnant or lactating patients; consult a pharmaceutical reference, obstetrics, or cardiology for further considerations.



©2023 American College of Obstetricians and Gynecologists
 This information is designed as an educational resource to aid clinicians in providing care, and use of this information is voluntary. This information should not be used as a statement of the standard of care. This information does not represent ACOG clinical guidance. It is not intended to substitute for the independent judgment of the clinician. Visit www.acog.org/OBemergencies-disclaimer.

Acute Hypertension in Pregnancy & Postpartum Algorithm

Ask the patient:
"Are you pregnant or have you been pregnant in the last 6 weeks?"
 If yes, these symptoms may be related to pregnancy and can occur up to 6 weeks postpartum.



Eclampsia Algorithm

Known or suspected pregnancy
 Possible pregnancy within the last 6 weeks

Initial Intervention: Presumed Eclamptic Seizure
 • Perform rescue seizure protocol
 • If pregnant, try to position patient in left lateral decubitus position, head of bed down
 • Prepare to initiate medical therapy
 • Request immediate obstetric consultation

Administer Magnesium Sulfate
 First-line therapy for suspected eclamptic seizure

Magnesium Initial Treatment
 1) Loading dose: 4 g IV over 20-30 minutes, then oral maintenance dose
 2) Maintenance dose: 1-2 g q4h

Persistent or recurrent seizure after magnesium loading dose
 Continued magnesium sulfate infusion if seizure recurs, administer one of the following bolus doses, and prepare for possible intubation

Preferred next medication class:
 • Lorazepam 4 mg IV over 2-5 minutes, then oral maintenance dose
 • Diazepam 5-10 mg IV slowly
 • If IV access, can administer midazolam 5 mg IV

Resolution of Seizure
 1) Assess BP – if BP ≥ 160 or ≥ 110 , initiate Acute Hypertension Algorithm
 2) OB evaluation ASAP
 3) If patient responds to magnesium sulfate and the patient is maintained on magnesium sulfate level stable to safely transported to an obstetric unit for further evaluation and treatment

4) Continue magnesium sulfate infusion at 1-2 g/h
 5) Monitor serum magnesium levels every 4 hours (first level at 4 hours, after therapy initiated) – therapeutic range 4.0-8.0 mg/dL
 6) Observe for possible toxicity (see Box 4)
 7) Monitor magnesium sulfate infusion for at least 24-48 hours after the last seizure or after delivery, whichever is later

Box 1
 Serum Magnesium Concentration

Range (mg/dL)	Effect
4.0-4.5	Therapeutic range for eclamptic prophylaxis
8.0-12.0	Loss of deep tendon reflexes
12.0-16.0	Respiratory paralysis
16.0-20.0	Altered cardiac conduction
>20.0	Cardiac arrest

Data from Chau AT. Magnesium toxicity. In: Miller MD, Fumar MD, editors. Advanced intensive critical care management. Oxford Academic, 2017; p. 405-5.



©2023 American College of Obstetricians and Gynecologists
 This information is designed as an educational resource to aid clinicians in providing care, and use of this information is voluntary. This information should not be used as a statement of the standard of care. This information does not represent ACOG clinical guidance. It is not intended to substitute for the independent judgment of the clinician. Visit www.acog.org/OBemergencies-disclaimer.



Summary

- Clinical guidance for management of heart disease in pregnancy is data-supported but gaps exist
- Prevention of SMM relies in part on identifying patients who are pregnant or postpartum
- Outcomes data is needed to evaluate tools to identify at risk pregnant and postpartum patients.

Thank you!

Questions?