



During Pregnancy or Postpartum:

Women should go to the hospital if they cannot breathe or have severe shortness of breath because they could have Peripartum Cardiomyopathy (PPCM).

Urgent Maternal Mortality Message to Providers

Consider echocardiogram in pregnant or postpartum patients with persistent moderate or severe respiratory symptoms. Initial presentation of PPCM can be mistaken for upper respiratory illnesses. Pregnancy Associated Mortality Review (PAMR) findings.

Florida PAMR Findings:^{1, 8}

1999–2017: 10.4% of pregnancy-related deaths in Florida were due to cardiomyopathy

1999–2017: 75.5% of pregnancy-related **deaths occurred** during the **postpartum** period

From 2009–2017:

- The percent of pregnancy-related deaths due to cardiomyopathy for non-Hispanic black women was 62.8% versus 26.9% for non-Hispanic white women
- 80.6% of women who died from pregnancy-related cardiomyopathy were either overweight or obese (BMI > 25)

Providers:

Peripartum cardiomyopathy is the development of heart failure in the last month of pregnancy or within 5 months postpartum in the absence of prior heart failure with no identifiable cause and echocardiogram indicative of left ventricular(LV) dysfunction.²

SIGNS/SYMPTOMS—ONSET CAN BE EASILY MISSED³

- Marked limitation of physical activity; comfortable at rest; less than ordinary activity causes **fatigue, palpitation or dyspnea**⁴
- Unable to carry on any physical activity without symptoms of heart failure at rest; if any physical activity is undertaken, discomfort increases⁴
- Arrhythmia/Cardiac Arrest
- Women with PPCM most commonly have dyspnea, dizziness, chest pain, cough, neck vein distention, fatigue and peripheral edema³

PPCM CRITERIA⁵

- Idiopathic (no other cause) heart failure characterized by left ventricular (LV) systolic dysfunction
- At the end of pregnancy or during the postpartum period (spectrum of timing)
- Diagnosis of exclusion
- Ejection fraction (EF) generally below 45%
- Left ventricular (LV) dilation not required

RISK FACTORS^{1, 5, 7}

- **Social:** Advanced maternal age, smoking, malnutrition, increased risk for African-American race
- **Medical:** Hypertension, diabetes, family history, sleep apnea, obesity
- **Obstetric:** Gravidity and parity, number of children, labor inducing medications, multiple gestation, family history, preeclampsia

continued

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Urgent Maternal Mortality Message to Providers

DIAGNOSIS

- Early diagnosis is essential—watch for early signs and symptoms and a decline in function
- Echocardiogram, the primary diagnostic test, to identify left ventricular systolic dysfunction⁴
- Differential Diagnosis: myocardial infarction, amniotic fluid embolism, severe preeclampsia, pericarditis, pulmonary thromboembolism, myocarditis, sepsis, drug toxicity, metabolic disorders, and aortic dissection^{6,9}
- Postpartum patient with cough, shortness of breath, hypoxemia, and if risk factors raise suspicion, perform a careful physical examination and consider an echocardiogram
- For patients presenting with dyspnea, orthopnea, tachypnea, palpitations, syncope, and chest pain, consider obtaining an EKG and a brain natriuretic peptide (BNP)^{6,7}

PAMR Recommendations:

Importance of identifying barriers for participation in treatment for non-compliant patients.

MANAGEMENT³

- Similar to standard treatment for other forms of heart failure
- Avoid routine use of ACE-inhibitors or angiotensin receptor blockers (ARBs) during pregnancy
- Collaboration between cardiologists, obstetricians, perinatologists, neonatologists and anesthesiologists is essential

- Consider transfer to high risk perinatal center and potential for early delivery
- Consider prophylactic anticoagulation during pregnancy and immediate postpartum period

PAMR Recommendations:

Important to provide preconception and interconception care for patients with co-morbidities.

DISCHARGE

- Ensure follow-up appointment in one week and consider more frequent follow-up care if history of cardiac symptoms.
- Patient and family should be counseled to return immediately to emergency room or L&D triage if showing any signs or symptoms
- Educate on the importance of long-acting reversible contraceptives (LARCs), interconception care and risks of future pregnancies
- Women with chronic heart disease should see a cardiologist before becoming pregnant
- Providers should consider referral to community resources to assist women having difficulty accessing cardiac prescriptions

1. Florida Department of Health, Florida Pregnancy-Associated Mortality Review (PAMR) data. Deaths due to cardiomyopathy 1999–2017 data request.

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3. Johnson-Coyle, L., Jensen, L., Sobey, A. Peripartum Cardiomyopathy: Review and Practice Guidelines. American Journal of Critical Care. <http://ajcc.aacnjournals.org/content/21/2/89.full>

4. American Heart Association. Classes of Heart Failure <https://www.heart.org/en/health-topics/heart-failure/what-is-heart-failure/classes-of-heart-failure>

5. Sliwa, K., Hilfiker-Kleiner, D., Petrie, MC, Mebazaa, A., Pieske, B., Buchmann, E., McMurray, JJ. (2010). Current state of knowledge on etiology, diagnosis, management, and therapy of peripartum cardiomyopathy: a position statement from the Heart Failure Association of the European Society of Cardiology Working Group on peripartum cardiomyopathy. European Journal of Heart Failure, 12, 767-778. <https://doi.org/10.1093/eurjhf/hfq120>

6. American College of Obstetricians and Gynecologists. ACOG Practice Bulletin Number 212, Pregnancy and heart disease. *Obstetrics & Gynecology*. 2019. 133(5): e320-e356.

7. Cunningham, F., Byrne, J., Nelson, D. Peripartum cardiomyopathy. *Obstetrics & Gynecology*. 2019. 133(1):167-179.

8. Florida Department of Health. Florida's Pregnancy-Associated Mortality Review 2017 Update. <http://www.floridahealth.gov/statistics-and-data/PAMR/index.html>

9. Peripartum Cardiomyopathy. Okeke, T., Ezenyeaku, C., Ikeako, L. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3793431/>