



# FPQC POSTPARTUM CONDITIONS MANAGEMENT GUIDE FOR EMERGENCY ROOMS



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**Florida Perinatal Quality Collaborative**

# GLOSSARY

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# Postpartum Hemorrhage (PPH)

## Key Points

1. **Stabilize and transfer if necessary**
2. Quantify blood loss and monitor vital signs for hypovolemia
3. Infuse crystalloids and blood products **immediately**
4. Consider OB consultation
5. Identify and treat the cause

## Synopsis

Postpartum Hemorrhage (PPH) is divided into primary or early PPH and secondary or delayed PPH. With primary PPH, the onset is within the first 24 hours after delivery. In contrast, delayed PPH occurs from 24 hours to 12 weeks postpartum. Both consider the quantity of bleeding and the signs and symptoms of hypovolemia. The American College of Obstetricians and Gynecologists (ACOG) defines PPH as the cumulative blood loss of 1000mL or more or signs/symptoms of hypovolemia, regardless of the route of delivery. Additional guidelines come from the California Maternal Quality Care Collaboratives staging system and the Advanced Trauma Life Support classification of hemorrhage. Remember young, otherwise healthy postpartum patients will tolerate large volume blood loss before showing signs of hypovolemia and then deteriorate quickly.

## Etiology

Top 6 causes of PPH include **SITTTT**:

- Subinvolution of the placenta
- Infection
- Tone: Uterine atony
- Trauma: Lacerations
- Thrombin: Coagulopathy or platelet dysfunction
- Tissue: Retained products of conception, accreta spectrum disorders

## Management

1. Unstable: stabilize or transfer to a venue capable of surgical intervention
  - a. Two large bore IVs
  - b. Activate Massive Transfusion Protocol
  - c. Alert the obstetrics team immediately for possible surgical intervention
2. Stable: evaluation can proceed
  - a. History: obstetric, route of birth, complications, coagulopathy
  - b. Medications: anticoagulants, platelet inhibitors, uterine relaxants
  - c. Labs: CBC + coags (fibrinogen, prothrombin time, activated partial thrombin time)
    - i. hCG to evaluate choriocarcinoma, retained POCs, or new pregnancy
    - ii. A fibrinogen level less than 200mg/dL is an excellent predictor of severe PPH and needs multiple units of blood and blood products to a goal fibrinogen level above 300mg/dL. **Cryoprecipitate is key to fibrinogen correction.**

- iii. Considerations for administration of whole blood and of activation of Massive Transfusion Protocol for rapid correction of volume loss.
  - d. Imaging: ultrasound of pelvis
    - i. Vascularity is key for retained products of conception (POCs)
    - ii. Lack of vascularity consistent with a blood clot
    - iii. Hypoechoic tortuous vessels seen along the inner third of the myometrium are suspicious for subinvolution of the placenta
- 3. Consider OB consultation.
- 4. Treatment: all patients should receive a crystalloid infusion until blood products are available. Tranexamic acid can reduce the risk of death due to bleeding and **should be administered early.**
- 5. Atony: uterotonics, balloon tamponade, uterine artery embolization, laparotomy
- 6. Lacerations: evaluate and repair
- 7. Retained POCs: dilation and curettage
- 8. Subinvolution of the placental site: administer uterotonic agents such as Methergine, Hemabate, and Oxytocin. Also, consider Tranexamic Acid and surgical D&C
- 9. Endometritis: broad-spectrum antibiotics
- 10. Thrombin: Coagulopathy or platelet dysfunction correction

# Hypertensive Disorders of Pregnancy

## Key Points

1. **Stabilize and transfer if necessary.**
2. Blood pressure ranges greater than or equal to 140-159 systolic OR 90-109 diastolic are considered abnormal in pregnancy and postpartum.
3. Severe blood pressure ranges greater than or equal to 160 systolic or 110 diastolic require immediate intervention.
4. Signs of Preeclampsia with severe features include
  - a. unrelenting headache,
  - b. visual disturbances like scotomata,
  - c. right upper quadrant pain,
  - d. thrombocytopenia (<100k),
  - e. elevated transaminases,
  - f. elevated creatinine above 1.1,
  - g. and pulmonary edema
5. Eclampsia is usually self-limiting. Magnesium sulfate (6-gram bolus over 30 minutes) is started to prevent recurring seizures.
6. Consider OB consultation.
7. Controlling blood pressure ranges is key to preventing stroke and other end-organ damage. IV labetalol, IV hydralazine, and PO immediate release nifedipine are first-line.

## Synopsis

Hypertensive disorders of pregnancy are one of the leading causes of maternal morbidity and mortality. It is a spectrum of disorders divided into the following categories: Gestational Hypertension (GHTN), Preeclampsia (with and without severe features), Eclampsia, and Chronic Hypertension with Superimposed Preeclampsia. The distinguishing feature between GHTN and preeclampsia is the lack of proteinuria with GHTN. Proteinuria is defined as a protein/creatinine ratio of 0.3 or greater, a 24-hour urine protein of 300mg/dl or greater or protein dipstick of 2+ or more (clean catch urine specimens are not accurate in the postpartum period due to lochia). Eclampsia presents with seizures. Preeclampsia/eclampsia can present for the first time or worsen in the postpartum period.

Preeclampsia with severe features is diagnosed if the blood pressure is greater than or equal to 160 systolic or 110 diastolic OR blood pressure greater than or equal to 140 systolic or 90 diastolic plus one or more of the following:

- a. unrelenting headache,
- b. visual disturbances like scotomata,
- c. right upper quadrant pain,
- d. thrombocytopenia (<100k),
- e. elevated transaminases,
- f. elevated creatinine above 1.1,
- g. pulmonary edema

Proteinuria is not necessary for the diagnosis if the above conditions are present or if postpartum.

Initial management includes antihypertensive medications which can be oral medications, if the values are in the mild range ( $\geq 140/90$ ), or intravenous if the values are in the severe range ( $\geq 160/110$ ). Common antihypertensive medications utilized include Labetalol, Hydralazine, and Nifedipine, which are compatible with breastfeeding. Seizure prophylaxis with magnesium sulfate is started when the blood pressure range is severe, or if the range is mild plus a severe sign/symptom.

### Management

1. Antihypertensives for severe range BPs:
  - a. Treatment options:

	Initial dose	Onset	Repeat if needed	Maximum dose	Side effects
Labetalol IV	20mg	1-2 minutes	Q10 minutes (40, 80)	300mg then switch to another agent	Avoid with asthma, bradycardia, heart block
Hydralazine IV or IM	5-10mg	10-20 minutes	10mg	20mg then switch to another agent	Hypotension, headache
Nifedipine PO immediate release	10-20mg	5-10 minutes	Q20 min	180mg/day, but consider switching to another agent if uncontrolled after 50-60mg initial dose	Tachycardia, headache

- b. Once BP is  $< 160/110$  switch to longer-acting agents below
    - c. For mild ranges or longer-term therapy, start Labetalol PO (Start at 200mg BID, Max 2400mg/day) or Nifedipine XL (Start at 30mg daily, Max 120 mg/day)
  2. Consider OB consultation
  3. Magnesium sulfate for seizure prophylaxis:
    - a. Severe range BPs or severe features
    - b. 4-gram loading dose, followed by 2g maintenance dose per hour
  4. Admission and observation of BP control

# Venous Thromboembolism

## Key Points

1. **Stabilize and transfer if necessary**
2. Virchow's triad is present in pregnancy and postpartum
3. High suspicion is essential. Monitor signs and symptoms, including unilateral leg pain, swelling, shortness of breath, and low O2 saturation
4. **D-dimer is NOT reliable in pregnancy or postpartum.**
5. Imaging: lower extremity venous doppler, V/Q scan, CT angiogram
6. Treatment: Heparin (low molecular weight, unfractionated)

## Synopsis

The risk of venous thromboembolism (VTE) increases during pregnancy and postpartum. A deep vein thrombosis (DVT) often presents with unilateral extremity swelling or pain and the skin may be erythematous and warm to palpation. Approximately 75-80% of pulmonary embolisms are caused by DVT. Symptoms include shortness of breath, chest pain that worsens with deep inspiration, hemoptysis, and palpitations. On evaluation, tachycardia and lowered oxygen saturation can be seen. Clinicians need to have a high index of suspicion. **D-dimer is NOT reliable in pregnancy or postpartum.** Workup includes a venous duplex ultrasound of the affected area, a ventilation-perfusion (v/q) scan, or a CT angiogram. Once the VTE is confirmed or highly suspected, unfractionated heparin should be started per protocol.

## Management

Heparin	Dose Level	Dose
LMW heparin	Therapeutic	Enoxaparin 1 mg/kg SC every 12 hours
		Dalteparin 100 units/kg SC every 12 hours
Unfractionated heparin	Therapeutic	Can be given as a continuous IV infusion or an SC dose every 12 hours. Titrated to keep the aPTT in the therapeutic range.

1. Baseline labs include a Complete Blood Count, Creatinine, and PT/PTT/INR/ Fibrinogen.
2. Complications: Protamine Sulfate can reverse unfractionated heparin and potentially reverse the bleeding effect with LMW heparin

3. Complications: new-onset thrombocytopenia with the initiation of heparin can be due to Heparin Induced Thrombocytopenia (HIT). Workup includes laboratory assessment for Heparin PF4 Antibody testing, trending platelets, and monitoring for signs of thrombosis and bleeding. Discontinue the heparin and switch to a non-heparin anticoagulant. Consider mechanical prophylaxis.

# Sepsis

## Key Points

1. **Stabilize and transfer if necessary;**
2. Maternal Early Warning Criteria
  - Systolic BP <90 or >160 mmHg
  - Diastolic BP >100 mmHg
  - Heart rate <50 or >120 beats per minute
  - Respiratory rate <10 or >30 breaths per minute
  - Temperature (oral) <36C (96.8F) or >38C (100.4F)
  - Oxygen saturation on room air, at sea level, <95%
  - Oliguria, <35mL/hr for greater than or equal to 2 hours
  - Maternal agitation, confusion, unresponsiveness
  - Pain out of proportion to patient presentation
3. Leading causes of maternal sepsis include:
  - Septic abortion
  - Intraamniotic infection/chorioamnionitis/endometritis
  - pneumonia/influenza
  - Urosepsis
  - Appendicitis
  - Wound infection/necrotizing fasciitis
  - Cholecystitis
  - Episiotomy
4. Consider OB consultation
5. Antibiotics should be administered within an hour of arrival.
6. Tests to evaluate
  - CBC with differential
  - Coagulation status
  - Comprehensive metabolic panel
  - Venous lactic acid
  - Blood cultures: two sets for anaerobes and aerobes within 3 hours of diagnosis
  - Urine output (foley catheter with urometer)
  - Pulse oximetry
  - Mental status assessment

## Synopsis

Sepsis is understood as a “life-threatening organ dysfunction caused by a dysregulated host response to infection” (JAMA 2016; 315: 801– 10). Newer definitions specify sepsis as infection with organ dysfunction, while septic shock is a subset in patients who require vasopressor support to maintain a mean arterial pressure greater than 65 mmHg and have serum lactate greater than 2mmol/L after adequate fluid resuscitation.

## Maternal Early Warning Criteria

- Systolic BP <90 or >160 mmHg

- Diastolic BP >100 mmHg
- Heart rate <50 or >120 beats per minute
- Respiratory rate <10 or >30 breaths per minute
- Temperature (oral) <36C (96.8F) or >38C (100.4F)
- Oxygen saturation on room air, at sea level, <95%
- Oliguria, <35mL/hr for greater than or equal to 2 hours
- Maternal agitation, confusion, unresponsiveness

### **Management**

Management includes a high index of suspicion, adequate fluid resuscitation, and source-directed antibiotic therapy. Norepinephrine is the pressor of choice in pregnancy and is used if MAP is less than 65mmHg and if the patient is unresponsive to intravenous fluids. Dobutamine is recommended for myocardial dysfunction or hypoperfusion intravenous fluids and pressors.

*Key tips include: avoiding hyperglycemia (>180), controlling fever with Tylenol and cooling blankets, considering steroids for fetal lung maturity if 23-36 weeks of pregnancy, and starting VTE prophylaxis.*

# Cardiomyopathy

## Key Points

1. **Stabilize and Transfer if necessary**
2. Assess for peripartum cardiomyopathy (PPCM)
3. Symptoms: shortness of breath, wheezing, palpitations, edema, chest pain, dizziness, or extreme fatigue/exertional intolerance.
4. Signs: may include hypertension (>140/90) or hypotension (<90/50 mm Hg) if presenting with shock, tachycardia (HR>120), rales, +S3, and oxygen saturation <90%
5. Assess: EKG, BNP, troponin, echocardiogram (key for diagnosis), chest x-ray
6. Manage: stabilize, consult MFM/Cardiology, transfer if necessary
7. Presents to the ER multiple times with shortness of breath or other vague symptoms; needs work up including echocardiogram (BNP and troponin when not readily available)

## Synopsis

Cardiomyopathy is one of the leading causes of maternal mortality. Women without pre-existing cardiomyopathy can develop peripartum cardiomyopathy (PPCM) most commonly in the 3<sup>rd</sup> trimester or postpartum in the first 6 weeks following delivery. Risk factors include obesity, Black race, hypertensive disorders of pregnancy, multigestational pregnancies, advanced maternal age, and illicit drug use (methamphetamine, cocaine). Symptoms include shortness of breath, wheezing, palpitations, edema, chest pain, dizziness, or extreme fatigue. Signs may include hypertension (>140/90), tachycardia (>120), rales, +S3, and oxygen saturation <90%. Assessment includes diagnostic tools (EKG, BNP, echocardiogram, chest x-ray). Other etiologies that may clinically present similar to PPCM include pulmonary embolism, pneumonia, ischemic heart disease, valvular heart disease, and postpartum pre-eclampsia with severe features (pulmonary edema). However, PPCM should always be considered as >25% of women are initially misdiagnosed. Treatment includes consultation with cardiology and maternal-fetal medicine, stabilization, and targeting the underlying cause.

## Questions to ask:

- Worsened exercise tolerance
- Unexpected fatigue, difficulty with daily tasks
- Symptoms that are worsening, especially chest pain, palpitations, or dizziness
- New onset of cough or wheezing (adult-onset asthma is rare)
- Lower extremity edema (improving or worsening)
- Orthopnea, how many pillows
- Failure to lose weight or unusual weight gain
- History of cardiopulmonary conditions
- History of substance abuse or cigarette use

## Management

Monitor oxygen saturation, vital signs, and cardiac rhythm. Provide supplemental oxygen and assisted ventilation as needed. Place two intravenous catheters and position the patient upright. Expedited transthoracic echocardiogram (TTE) to assess left ventricular systolic function (EF%)

with consideration of point-of-care (POC) bedside ultrasound to guide management. Provide non-invasive ventilation unless immediate intubation is required. Initiate loop diuretic therapy to relieve congestion/fluid overload (i.e., furosemide). Hemodynamic support with inotropes and vasopressors if required for hypotension and poor cardiac output/perfusion. Follow recommended guidelines for systolic heart failure management. Following delivery, diuretics, ACEi (i.e. enalapril preferred), beta-blockers, and aldosterone antagonists can be used to treat heart failure and are all compatible with lactation. Additionally, arrhythmias can be present with peripartum cardiomyopathy, and consideration of a wearable implantable cardioverter-defibrillator (ICD)) should be considered in the context of severe LV dysfunction (LVEF <35%). Peripartum women are also at high risk from VTE and therapeutic anticoagulation for the prevention of left ventricular thrombus should be considered if LVEF <35%.

## Perinatal Depression

### Key points

1. **Stabilize and transfer as necessary**
2. Utilize the Edinburgh Depression Scale (EPDS) to assess depression. A score of 12 or greater increases the risk of perinatal depression and should be further evaluated. If less than two weeks postpartum, consider “baby blues” as the cause of mood disturbance.
3. A score over 19 and/or a positive Item 10 for suicidal thoughts require immediate follow-up. Determine suicide and infanticide risk early and consider inpatient psychiatric hospitalization.
4. DSM-5 criteria: depressed mood, diminished interest, significant weight change, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or excessive or inappropriate guilt, diminished ability to concentrate (indecisiveness), and recurrent thoughts of death, recurrent suicidal ideations, or a suicide attempt/plan. 5 of the above (one should be depressed mood or anhedonia) for 2 weeks or greater would meet criteria for diagnosis.
5. Management: consultation with social work and psychiatry. Initiate antidepressants or refer for psychotherapy as indicated

### Synopsis

Perinatal depression (PD) is underdiagnosed, underreported, and undertreated, occurring in up to 20% of pregnancies (Vesga-Lopez, 2008). PD involves intense feelings of sadness, anxiety, or despair that prevent a parent from being able to do daily tasks or care for an infant. Symptoms are comparable to features of major depressive episodes outside of the perinatal period. Suicide is one of the leading causes of postpartum death and ranges from 1 to 5 per 100,000 live births. Suicidal ideations occur in approximately 3 percent, but very few of those women had prior active ideation with plans, intent, and access to means. Rarely women can have postpartum psychosis, which occurs in approximately 1-2/1000 births. Symptoms include hallucinations, delusions, and thoughts of self-harm, or harming the infant. Suicide and infanticide can occur in approximately 5% and 4%, respectively, and postpartum psychosis is thus considered a psychiatric emergency. Most times, it is associated with a diagnosis of bipolar disorder.

### Management

“Women with current depression or anxiety, a history of perinatal mood disorders, risk factors for perinatal mood disorders, or suicidal thoughts warrant particularly close monitoring, evaluation, and assessment” <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/11/screening-for-perinatal-depression>

For less severe symptoms, refer for mental health services/therapy, for moderate to severe symptoms consider starting an antidepressant. For severe symptoms, obtain psychiatric consultation and consider inpatient management.

## Resources

### Action Plan for Depression and Anxiety:

[https://www.nichd.nih.gov/sites/default/files/publications/pubs/Documents/ActionPlan\\_DepressionAnxiety.pdf](https://www.nichd.nih.gov/sites/default/files/publications/pubs/Documents/ActionPlan_DepressionAnxiety.pdf)

[1-833-9-HELP4MOMS – National Maternal Mental Health Hotline | MCHB](https://www.1833-9-HELP4MOMS.org)

PSI Helpline 1-800-944-4773 and <https://www.postpartum.net>  
988 Lifeline and <https://988lifeline.org>

In Florida you can also search trained providers at: <https://flmomsmhresources.org>  
Therapy Provider Referrals in Florida: Postpartum Support International Florida Chapter:  
<https://psichapters.com/fl/>

FL BH Impact Tool Kit: <https://flbhimpact.org/toolkits-for-clinicians/>  
Perinatal Mental Health Discussion Tool: [https://www.postpartum.net/wp-content/uploads/2021/05/2021\\_05\\_21-Discussion-Tool-ENGLISH.pdf](https://www.postpartum.net/wp-content/uploads/2021/05/2021_05_21-Discussion-Tool-ENGLISH.pdf)

## Substance Use Disorder (SUD)

### Key Points

1. **Identify life-threatening conditions, stabilize, and refer them as needed**
2. High recidivism rate during the postpartum period; most drug-related deaths occur during this time period. In Florida, the leading cause of pregnancy-associated deaths is drug overdose.
3. Initial workup includes a urine drug screen, CBC, LFTs, and STI testing.
4. Validated scales for opioids include OOWS, SOWS, and COWS
5. Signs of opioid intoxication include drooping eyelids, constricted pupils, reduced respiratory rate, scratching, and head nodding.
6. Signs of opioid withdrawal include:
  - o Yawning
  - o Rhinorrhea
  - o Piloerection
  - o Perspiration
  - o Lacrimation
  - o Tremor
  - o Mydriasis
  - o hot/cold flushes
  - o Restlessness
  - o Vomiting
  - o Muscle twitches
  - o Abdominal cramps
  - o Anxiety or irritability
7. Psychosocial needs assessment, supportive counseling, links to existing family support, and referrals to community services.
8. Determine infant status, available childcare, and custody needs.
9. In postpartum women, provide initial management of withdrawal symptoms with loperamide (diarrhea), promethazine (N/V), and ibuprofen (myalgia only if postpartum). Clonidine can be given to reduce blood pressure if postpartum. Pregnant women, in addition to the above, treat with an opioid to ameliorate withdrawal symptoms. Ideally, in women with opioid use disorder, buprenorphine would be utilized.
10. For opioid use disorder, consider starting long-term opioid replacement with Buprenorphine or Methadone. Provide a prescription for Naloxone overdose for overdose prevention.

### Synopsis

Substance use disorder in pregnancy and postpartum continues to be a leading cause of maternal death in the U.S. Even with appropriate treatment during pregnancy, there is a high recidivism rate during the postpartum period; most drug-related deaths occur during this time period. Providing universal screening for substance use disorders, including in the postpartum period, is essential for identification and proper referral for resources and management. Once identified, determining readiness for accepting and acting on available resources will help guide the plan. Life-threatening conditions should be managed first, including overdose and suicidality. Signs of opioid intoxication include drooping eyelids, constricted pupils, reduced respiratory rate, scratching, and head nodding. Signs of withdrawal include:

Yawning

Rhinorrhea

Piloerection

Perspiration

Lacrimation  
Tremor  
Mydriasis  
Restlessness

Vomiting  
Muscle twitches  
Abdominal cramps  
Anxiety or irritability

Then, a psychosocial needs assessment should be started and consultation with an established multidisciplinary care team should be initiated to provide coordinated clinical pathways. Information and a referral to supportive counseling and community-based organizations will aid their next steps, plans of safe care. Shared decision-making regarding treatment settings should be done with the choice of a clinician's practice, intensive outpatient treatment or partial hospitalization program, a residential addiction treatment facility, or an inpatient hospital. Connecting the patient with the setting choice will help with the transition. Also, discuss the readiness to start SUD treatment with the intent of recovering from SUD.

### **Management**

Determine the extent of the substance use disorder and whether it is a mono or polysubstance use situation to better manage the presentation. Initial workup includes and urine drug screen, complete blood count, liver function tests, and sexually transmitted infection screening. Symptomatology can be improved with loperamide (diarrhea), promethazine (N/V), and ibuprofen (myalgia, only if postpartum). Clonidine can be given to reduce blood pressure postpartum. Once any life-threatening conditions are treated and the patient is stabilized, conduct a psychosocial assessment and determine readiness for change. Consult a multidisciplinary team to facilitate all aspects of care including counseling, referrals, medication-assisted treatment (buprenorphine, methadone), and infant needs assessment.