ER experience
What have we done in ER?

- Grand Rounds / Education / M&M format → SMI
- Nursing meetings, Departmental meetings, Hospitalists, EMT conference.
  - Definitions
  - Take home message
  - Posters
  - Ask if pregnant or recently pregnant
**POST-DISCHARGE EVALUATION:**

**ELEVATED BP AT HOME, IN OFFICE, IN TRIAGE**

Postpartum triggers:
- SBP ≥ 160 or DBP ≥ 110 or
- SBP ≥ 140-159 or DBP ≥ 90-109 with any of the following:
  - unremitting headaches
  - visual disturbances
  - epigastric/RUQ pain

Emergency Department treatment (with OB /MICU consultation as needed); antihypertensive therapy is suggested for women with persistent postpartum hypertension, SBP > 150 or DBP > 100 on at least two occasions that are at least 4 hours apart. Persistent SBP > 160 or DBP > 110 should be treated within 1 hour.

Good response to antihypertensive treatment and asymptomatic

Admit for further observation and management (e.g., L&D, ICU, unit with telemetry)

Signs and symptoms of eclampsia, abnormal neurological evaluation, congestive heart failure, renal failure, coagulopathy, poor response to antihypertensive treatment

Recommend emergency consultation for further evaluation with a specialist (e.g., MFM, internal medicine, OB anesthesiology, critical care)
EMERGENCY DEPARTMENT:
POSTPARTUM PREECLAMPSIA CHECKLIST

Triage patients less than 6 weeks postpartum as follows.

[ ] Core evaluation and assessment
[ ] If BP ≥ 160/110 or 140/90 with:
   - Unremitting headaches
   - Visual disturbance
   - Epigastric pain
[ ] Begin stabilization
[ ] Call for Obstetric consult immediately
[ ] OBS contact documented
[ ] Call MFM/MICU consult immediately for refractory blood pressure

More testing

[ ] Labs should include:
   - CBC
   - PT
   - PTT
   - Fibrinogen
   - CMP
   - Uric Acid
   - Hepatic function panel
   - Type and Screen
[ ] Initiate Intravenous Access

Slide 4
Initial medications
[ ] Load 4-6 grams of 10% magnesium sulfate in 100 ml solution IV over 20 minutes
[ ] Magnesium sulfate on infusion pump
[ ] Magnesium sulfate and pump labeled
[ ] Magnesium sulfate 10 grams of 50% solution IM (5 grams in each buttock) if no IV access
[ ] Magnesium sulfate maintenance 1-2 g/hour continuous infusion
Contraindications: pulmonary edema, renal failure, myasthenia gravis

Antihypertensive medications  (see relevant algorithm in intrapartum section)
– Labetalol (20, 40, 80, 80 mg IV* over 2 minutes, escalating doses, repeat every 10 minutes or 200 mg orally if no IV access); avoid in asthma or heart failure, can cause neonatal bradycardia
– Hydralazine (5-10 mg IV* over 2 minutes, repeat in 20 minutes until target blood pressure is reached)
– Repeat blood pressure every 10 minutes during administration
  * Maximum cumulative IV administered doses should not exceed 25 mg hydralazine; 220 mg labetalol in 24 hours.
AGENTS TO USE: NO IV ACCESS

If intravenous access is not yet obtained in a pregnant or postpartum woman with severe hypertension, administer:

• 200 mg of labetalol orally or
• 10 mg of nifedipine orally (not for sublingual use)
• Repeat in 30 minutes if systolic blood pressure remains ≥ 160 or diastolic blood pressure ≥ 110 and intravenous access still unavailable
ER Question for Triage

- **Language Assistance**
  - Is the patient's primary language English?
  - Yes / No

- **Ebola Risk**
  - Has the patient traveled to any of the following areas: Guinea, Liberia, or Sierra Leone or been in contact with someone with Ebola?
  - No / Yes

- **Safe Motherhood Initiative**
  - Are you pregnant now or have you been pregnant in the last 6 weeks?
  - Yes / No

- **Vital Signs**
  - Temp
  - Temp Source: Oral / Tympanic
  - Heart Rate
  - Heart Rate Source: Monitor / Apical
  - Resp
  - O2 Device: None (Room air) / Nasal can / Ventilator
  - Pulse Oximetry Type: Intermittent / Continuous / Rest
  - BP: 180/90
  - BP Location: Right upper arm / Right lower arm

- **Prearrival Information**
  - Arrival mode

- **Best Practice Advisory - Newpt, Cpep**
  - Safe Motherhood
    - If BP systolic >= 160 or diastolic >= 110, transfer to L&D. Patient cannot go to the Waiting Room. Contact L&D to arrange transfer.
    - BP: 180/90 mmHg
    - Acknowledge reason: Notified Provider
Case Presentation: 09:50 ED

- 27 yo obese African American female, NO Prenatal care, arrives in ER with pain.
- PMHx:
  - G10, P7, last 3 pregnancies delivered via CS
  - HTN, no meds
- HPI: Presented with 1 day increasing pain, a HA, and swelling.
  - Unknown gestational age, she thinks about 36 weeks along
  - She describes hemorrhage and transfusion with the last pregnancy
  - She describes something with her placenta growing “too much”
  - Last 4 pregnancies taken by CPS
- Vitals:
  - 10:29: P128, BP 155/105
  - 10:40: T 97.9, P110, RR20, BP 150/108, O2Sat 98% RA.
- PE: unremarkable except for edema and headaches.
The Safe Motherhood Initiative

Hypertension

Chronic Hypertension:
Women who have high blood pressure (≥ 140/90) before pregnancy, early in pregnancy (before 20 weeks), or carry it on after delivery.

Gestational Hypertension:
High blood pressure (≥140/90) that develops after week 20 in pregnancy and goes away after delivery.

Severe Hypertension:
Systolic blood pressure = 160 mm Hg or Diastolic blood pressure = 110 mm Hg that persists for >15 minutes requires immediate treatment.

Severe hypertension can occur during antepartum, intrapartum or postpartum period.

Signs and symptoms include: persistent and/or severe headache, blurred vision, photophobia, temporary blindness, upper abdominal or epigastric pain, nausea, vomiting, AMS.

Our goal is to save lives of women faced with severe complications related to pregnancy and childbirth.

Initial Medications:
- Load 4-6 grams 10% magnesium sulfate in 100ml solution over 20 minutes
- Magnesium sulfate 10 grams of 50% solution IM (5 grams in each buttock) if no IV access
- Magnesium sulfate maintenance 1-2 grams/hours continuous infusion

Antihypertensive medications:
- Labetalol: (20, 40, 80, 80 mg IV over 2 minutes, escalating dose, repeat every 10 minutes or 200 mg orally if no IV access); avoid in asthma or heart failure, can cause neonatal bradycardia
- Hydralazine: (5-10 mg over 2 minutes, repeat in 20 minutes until target blood pressure is reached)

Repeat blood pressure every 10 minutes during administration.

If BP ≥ systolic 160 OR diastolic ≥ 110, or 140/90 with:
- With unremitting headaches
- Visual disturbances
- Epigastric pain

Begin stabilization
Call for OB consult immediately (448-5550)
Initiate intravenous access and administer magnesium and antihypertensive medications.
The Safe Motherhood Initiative

Our goal is to save lives of women faced with severe complications related to pregnancy and childbirth.

Facts:

- 1986 - CDC initiated national surveillance of pregnancy related deaths because more clinical information was needed to close the gaps about causes of maternal death.
- 1987 - The World Health Organization (WHO) launched the global Safe Motherhood Initiative, an international effort to raise awareness of maternal mortality.
- 2001 - ACOG District II and the New York State Department of Health have collaborated on the SMI, which was formed in response to the alarming rate of pregnancy-related deaths (also known as maternal mortalities) in the state.
- 2014 - close to 99% of nearly 250,000 live births in NYS result in the discharge of a mother and her baby, yet, there are mothers who die or suffer severe permanent harm. In fact, NYS currently ranks 47th in the country for its maternal mortality rate.

3 Leading causes of maternal death today are:

Obstetric Hemorrhage:
- Unusual bleeding since discharge, increasing to more than 1 pad an hour, most likely to happen in the first 2 hours but can occur up to 6 weeks (42 days) postpartum
- Orthostatic changes in blood pressure or pulse are indicative of severe blood loss requiring supportive care and rapid treatment

Venous Thromboembolism:
- This risk is thought to be due to venous stasis of the lower extremities, endothelial injury and the hypercoagulable state that occurs during pregnancy. The incidence VTE is increased throughout all trimesters of pregnancy but is highest during the postpartum period
- Sign and Symptoms include: Headache, blurred vision or floaters in vision, epigastric pain, indigestion, chest pain, swelling in face, hands or feet, and/or nausea, shortness of breath, erythema, warmth and tenderness of the lower extremity, back pain

Severe Hypertension:
- Signs and symptoms include: persistent and/or severe headache, blurred vision, photophobia, temporary blindness, upper abdominal or epigastric pain, nausea, vomiting, altered mental status
- Severe hypertension - systolic blood pressure $\geq$160 mm Hg or diastolic $\geq$110 mm Hg

Trends in Pregnancy-Related Deaths

Since the Pregnancy Mortality Surveillance System was implemented, the number of reported pregnancy-related deaths in the United States steadily increased from 7.2 deaths per 100,000 live births in 1987 to a high of 17.8 deaths per 100,000 live births in 2009 and 2011. The graph below shows trends in pregnancy-related mortality ratios defined as the number of pregnancy-related deaths per 100,000 live births in the United States between 1987 and 2011 (the latest available year of data).

http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/PMSS.html

Immediately Call the L&D Charge Nurse at 448-5550 when any of the above signs or symptoms are recognized in a pregnant or postpartum woman.
Heparin and Lovenox

What holds us back?
Anecdotal Perceptions:

1. My Wound infection / seroma / hematoma rate will increase to an unacceptable rate?

2. My pharmacy won't let me use Motrin or toradol in pts while on Heparin or Lovenox?
**Frequently Asked Questions:**

**Venous Thromboembolism**

1. **What is “routine” administration of prophylaxis?**
   
   Administering prophylaxis to 100% of deliveries.

2. **What form of Heparin should be used in VTE prophylaxis?**
   
   UFH Heparin is used for the vast majority of inpatient indications. There are no specific guidelines related to preservatives.

3. **5,000 units of subcutaneous Heparin every 12 hours is a fairly standard order for prophylaxis postpartum. What is the indication for 10,000 units?**
   
   When considering obese to morbidly obese patients, it would be reasonable to use 10,000 units.

4. **Is it advisable to use Ibuprofen and Lovenox for VTE prophylaxis in post-operative/postpartum patients?**
   
   Yes. NSAIDs, such as Ibuprofen or Toradol, are fine to use in conjunction with LMWH unless there is a specific contraindication.

5. **Should we include air, fluid, and septic data on the VTE data page, or blood clot embolisms only?**
   
   Blood clot embolisms only.
Wound Complications

Impact of heparin and Lovenox on seroma / wound breakdown and infection.
Considerations

1-2% of cesarean sections
wound complications: infection, hematoma, seroma, dehiscence

- Hematomas vs seromas
  - Failure of primary hemostasis
  - Bleeding diatheses
  - Anticoagulation
  - Effect of Obesity BMI > 50 → 30% wound complication
    - 86% dx’d after Discharge
What effect is there using heparin and lovenox post cesarean on our wound complication rates?
## 2014 Hep/Lovenox and Obesity data

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<st-josephs-hospital health center>
Others’ Experience?
Hammad IA, Chauhan SP, Magann EF, Abuhamad AZ

Value of subcutaneous drainage system in obese females undergoing cesarean section using pfannenstiel incision.
Al-Inany H, Youssef G, Abd ElMaguid A, Abdel Hamid M, Naguib A


Pharmacy says I cannot use toradol or ibuprofen for pain control if pt is on heparin / Lovenox?

Theoretical risk / not real / not contraindicated
Start by doing what's necessary; then do what's possible; and suddenly you are doing the impossible.

Francis of Assisi