

Post Partum Hemorrhage, Preeclampsia, & Eclampsia

Petter Overton-Harris, DO
UNM Department of Emergency Medicine
Center for Rural and Tribal EMS

Agenda

- A little A&P as a reminder
- Pre-Eclampsia
- Eclampsia
- Normal post partum timeline
- Abnormal post partum hemorrhaging
 - TONE
- Resources for later

What we are NOT going to talk about today

- The actual childbirth
- Any delivery techniques
 - Including difficult delivery
- Neonatal Resuscitation
- Neonatal Care: Other than “they’re handled”







Believe in
Yourself.

be 
CONFIDENT


Normal Physiologic changes in pregnancy



Normal Physiologic changes in pregnancy



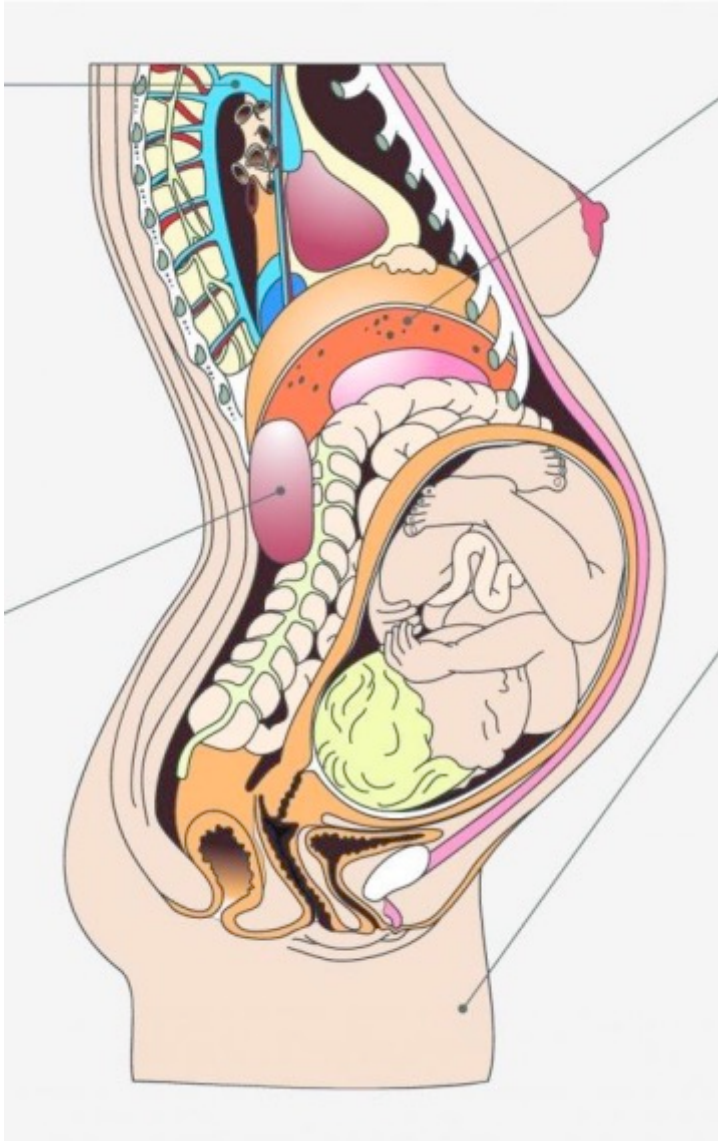
- **Cardiac:**
 - Cardiac output increases
 - Blood Volume increases:
 - 40- 50%
 - Clotting factors increase

Normal Physiologic changes in pregnancy

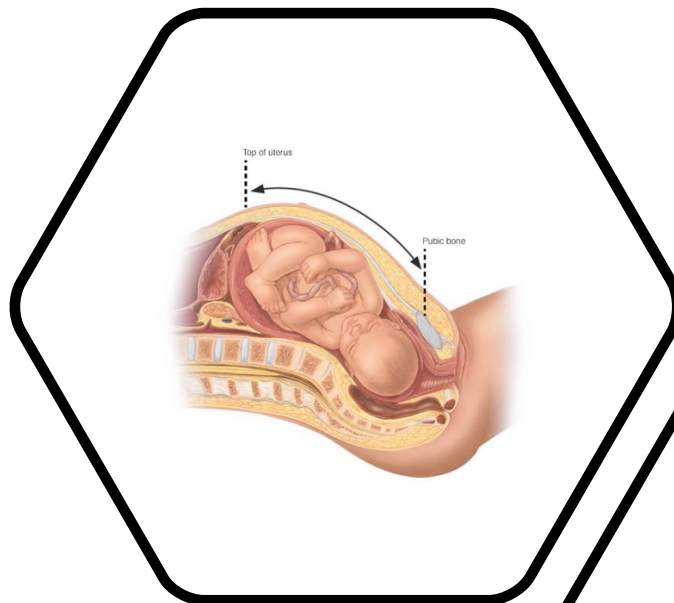
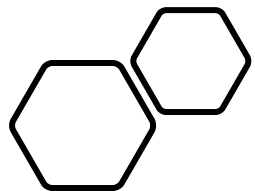


- **Cardiac:**
 - Cardiac output increases
 - Blood Volume increases:
 - 40- 50%
 - Clotting factors increase
- **Lungs:**
 - Increased needs
 - Less space for expansion

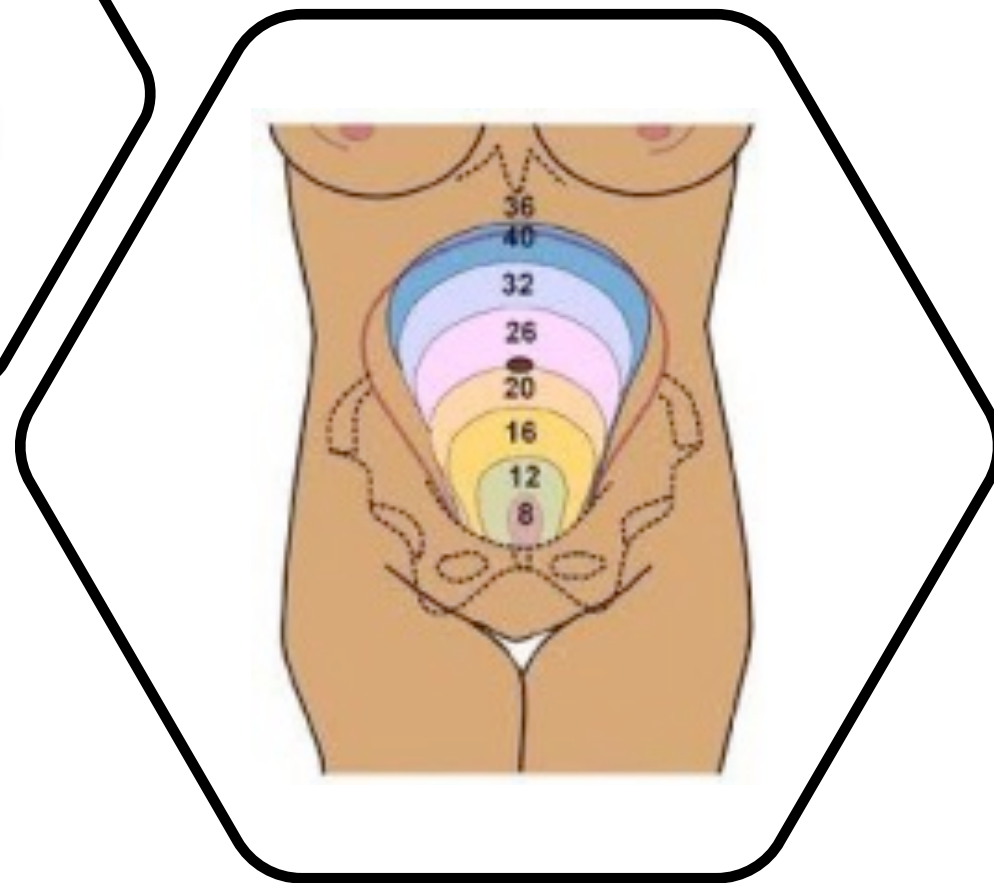
Normal Physiologic changes in pregnancy



- **Renal:**
 - Increased glomerular filtration
 - Frequent urination
- **Metabolism:**
 - 20% increase in oxygen demand
 - 15% increase in metabolic rate
 - Increased Fe and Folate requirements
- **GI:**
 - Decreased gastric emptying
 - Slowed gastric motility
 - Relaxed esophageal sphincter




Fundal height can be an estimate of gestational age









A circular inset on the left side of the slide shows a microscopic view of numerous red blood cells. The cells are biconcave discs, appearing as reddish-orange spheres with a darker center, set against a dark background.

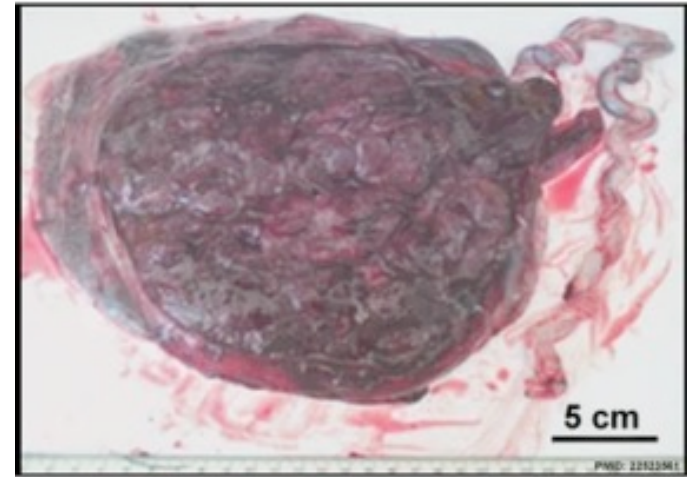
What do we look for with blood loss?

- Vitals
 - Hypotension
 - Tachycardia
 - Mentation
 - Pallor
- Treatment?

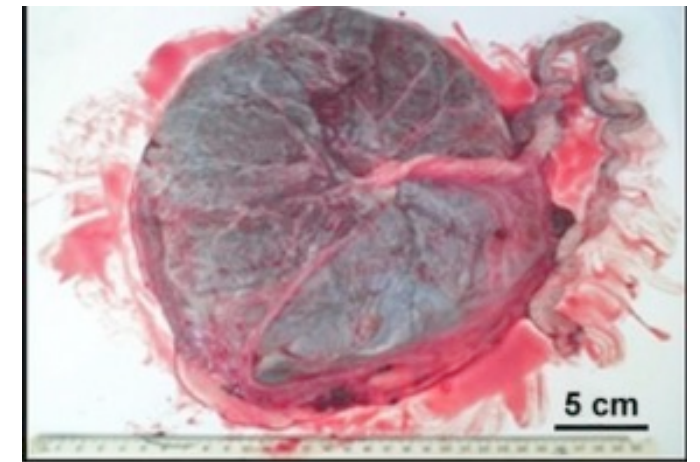


Placental Delivery

- Don't Pull!!!!!!
 - Can take up to 30 minutes to delivery
- Mom will feel more contractions
 - Watch for the cord lengthening
 - Small Gush of blood
- Save the placenta in a bag and send with mom and baby to hospital
- Monitor for continued bleeding



Maternal side



Fetal side



BLOOD

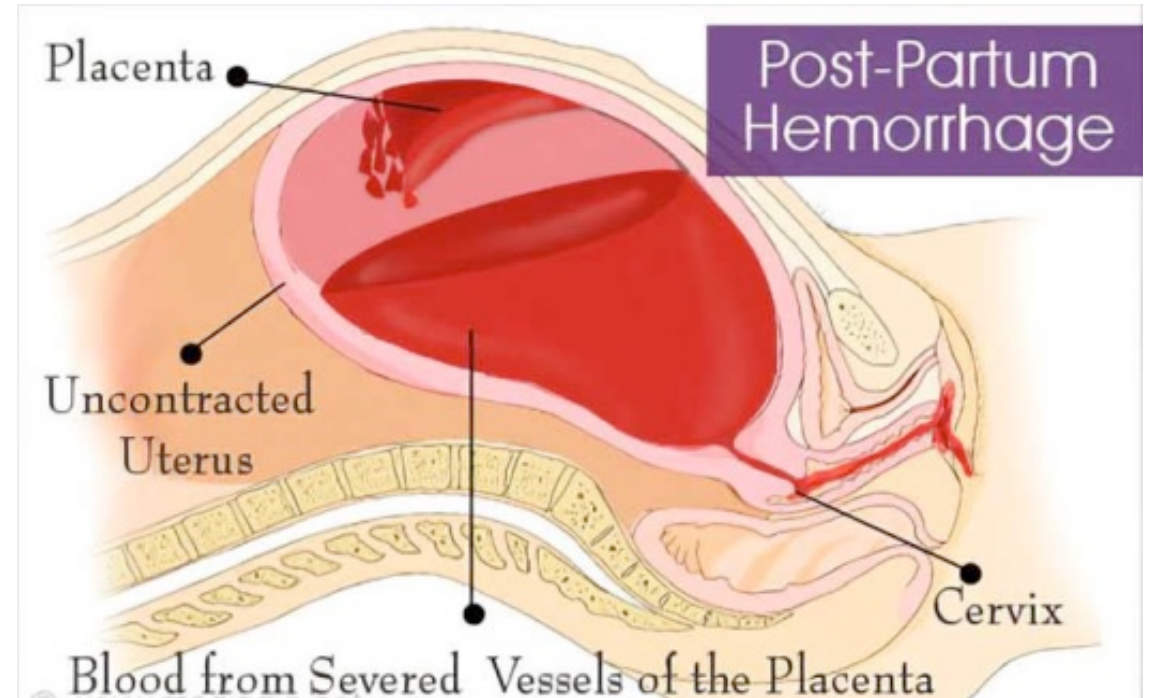
BLOOD EVERYWHERE

makeameme.org

Post Partum Hemorrhage => 500mls

- Tone
- Trauma
- Tissue
- Thrombin

- More meds!



**2 Large Bore IVs, Fluid, Uterine Massage
Encourage Breast Feeding**



GENERAL	<p style="text-align: center;"><u>CHILDBIRTH – POSTPARTUM HEMORRHAGE</u></p> <p style="text-align: center;">[Effective 2/20/2020]</p> <p>➤ Postpartum hemorrhage is the loss of more than 500 mL of blood immediately following vaginal delivery, occurring in about 5% of deliveries. Steps that can be taken during and immediately following delivery that may decrease the risk of postpartum hemorrhage include:</p> <ul style="list-style-type: none"> • Controlled delivery of the head • Administration of Oxytocin within 1 minute of delivery • Controlled, gentle umbilical cord traction until placenta delivers • Firm massage of the uterus after the placenta delivers
ALL PROVIDERS	<p>➤ Reference Primary Management Guideline</p> <p>➤ If perineal lacerations are present, apply direct pressure to perineum with sterile dressings. Do not place dressings inside the vagina</p> <p>➤ Firmly massage the uterine fundus</p> <p>➤ Put baby to breast as this may help the uterus contract</p> <p>➤ Administer high-flow Oxygen to the mother via non-rebreather mask</p>
INTERMEDIATE	<p>➤ Administer a 10 mL/kg bolus of Normal Saline or Lactated Ringers to patients with hemodynamic instability; repeat for persistent hemorrhage, persistent maternal tachycardia, or persistent hypotension</p>
PARAMEDIC	<p>➤ Administer Oxytocin</p> <ul style="list-style-type: none"> • Initial Dose: 10 units IM within 1 minute of delivery of the infant • If hemorrhage persists despite IM Oxytocin, add 10 units to 1 L of Normal Saline or Lactated Ringers and run wide open



PREECLAMPSIA



LIVER

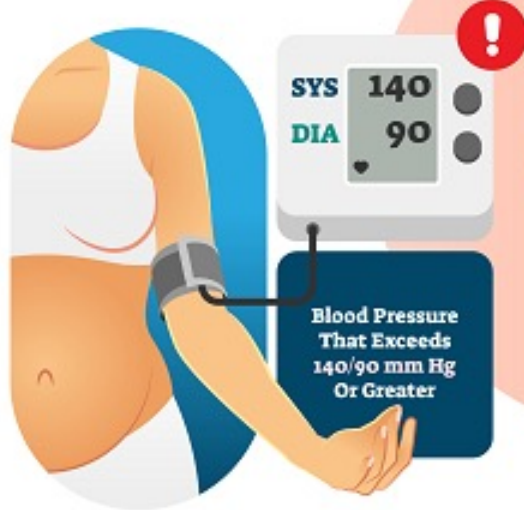
HELLP Syndrome
Breakdown of Red Blood Cells and Complications With Liver

PREECLAMPSIA is a Pregnancy Complication Characterized by **HIGH BLOOD** Pressure and Signs of **DAMAGE** to Another Organ System, Most Often the **LIVER** and **KIDNEYS**



KIDNEYS

PROTEINURIA
Protein in Urine. The Condition is Often a Sign of Kidney Disease



!

SYS 140
DIA 90

Blood Pressure That Exceeds 140/90 mm Hg Or Greater



!

Water Retention and Swelling

OTHER SYMPTOMS



Severe Headaches



Changes in Vision



Upper Abdominal Pain



Nausea or Vomiting



Decreased Urine Output



Shortness of Breath

Preeclampsia

- Two or more SBPs >160 and/or DBP >110 over 15 mins
- Gestation > 20 weeks

OR

- Elevated blood pressure with any of these accompanying clinical symptoms:
 - Severe headache
 - Blurred Vision
 - RUQ or Epigastric abdominal pain

Preeclampsia Treatment

- Magnesium 4 grams IV/IO infusion over 10 minutes
 - Followed by a maintenance drip of 2 grams per hour





NAVAJO NATION



EMERGENCY

MEDICAL

SERVICE



Spectrum of Disease

HTN

BP \geq 140/90 x 2
 MAP \geq 105 (after 20 wks)

INCREASED RISK FOR:

- ABRUPTIO PLACENTAE
- UTEROPLACENTAL INSUFFICIENCY
- IUGR
- PRETERM BIRTH
- FETAL DEMISE
- PREECLAMPSIA

- Tx**
- α -methyl dopa
 - labetalol
 - nifedipine
 - hydralazine
 - (only DBP \geq 105)
 - (DO NOT USE DIURETICS!!!)

pregnancy complications

PROTEINURIA

DIPSTICK \geq 30 mg/dL (+1)
 24 HR URINE \geq 300 mg
 Protein creatinine \geq 0.3 mg/dL

peripheral vascular resistance

PREECLAMPSIA

ELEVATED BP ON 2 SEPARATE OCCASIONS AFTER 20 WEEKS GESTATION IN PT W. PREVIOUSLY NML BP = PREECLAMPSIA

IN PTS W. PRE-EXISTING HTN, DX PREECLAMPSIA WHEN SBP INCREASE \geq 30 mm Hg or DBP INCREASE \geq 15 mm Hg FROM BASELINE BP

MILD

- DBP < 100
- RISK FACTORS:**
 advanced maternal age, family history, obesity, chronic hypertension, gestational diabetes, nulliparity, renal disease, autoimmune disorders

- HEADACHE (\uparrow ICP)
- VISUAL Δ (PAPILLEDEMA)
- EPIGASTRIC PAIN (LIVER DYSFXN)
- OLIGURIA (\downarrow GFR, \uparrow Creatinine)
- PULMONARY EDEMA (Capillary leakage)
- HYPERREFLEXIA
- HYPERURICEMIA
- UTEROPLACENTAL INSUFFICIENCY (IUGR OLIGOHYDRAMNIOS, placental ischemia)

SEVERE

DBP > 110

Tx
 ◦ Magnesium Sulfate IV (seizure prophylaxis)

GRAND MAL SEIZURE

HELLP SYNDROME + PREECLAMPSIA

HEMOLYSIS (\uparrow LDH)
 ELEVATED LFTs
 LOW PLATELETS

ONLY KNOWN TX:
DELIVERY
 VAGINAL PREFERRED

ECLAMPSIA

MORTALITY \rightarrow CEREBRAL HEMORRHAGE, ARDS

ALL PREGNANT WOMEN BTWN 24 - 34 WEEKS AT RISK OF PRETERM DELIVERY IN NEXT 7 DAYS SHOULD RECEIVE ANTENATAL STEROID TX TO PROMOTE FETAL LUNG MATURATION



<u>PREECLAMPSIA</u> <u>Revised 2/8/2022</u>	
GENERAL	<ul style="list-style-type: none"> ➤ Preeclampsia is a hypertensive disorder of pregnancy and is a major cause of both maternal and fetal morbidity and mortality ➤ Preeclampsia develops after 20 weeks' gestation and can occur up to six weeks postpartum ➤ Preeclampsia is defined as a sustained BP of 140/90 mm Hg or higher for two or more measurements at least 4 hours apart in a patient who is at or beyond 20 weeks' gestation ➤ EMS definition of Severe Preeclampsia: <ul style="list-style-type: none"> • Two or more blood pressures of SBP >160 mm Hg and/or DBP >110 mm Hg over 15 minutes in a patient who is at or beyond 20 weeks' gestation <u>OR</u> • Elevated blood pressure with any of these accompanying clinical symptoms: <ul style="list-style-type: none"> ○ Severe headache ○ Blurred vision ○ Right upper quadrant or epigastric abdominal pain
ALL PROVIDERS	<ul style="list-style-type: none"> ➤ Reference Primary Management Guideline ➤ If patient begins seizing, reference Eclampsia Guideline ➤ Apply high-flow Oxygen via non-rebreather mask ➤ Cardiac monitor to capture rhythm ➤ Obtain 12-lead ECG, if available
INTERMEDIATE	<ul style="list-style-type: none"> ➤ Initiate an IV/IO for medication administration
PARAMEDIC	<ul style="list-style-type: none"> ➤ If patient meets EMS Definition of Severe Preeclampsia, administer Magnesium Sulfate 4 grams IV/IO infusion, <u>administer over 10 minutes</u>, followed by an IV/IO maintenance infusion of 2 grams per hour <ul style="list-style-type: none"> • Initial dose of Magnesium Sulfate 4 grams may be given IM if IV access is not readily available • Maintenance infusion of Magnesium Sulfate should be administered via infusion pump if available; reference Infusion Pump Guideline • Initial dose of Magnesium Sulfate 4 grams may be given IM if IV access is not readily available

<u>ECLAMPSIA</u> <u>Revised 2/8/2022</u>	
GENERAL	<ul style="list-style-type: none"> ➤ Eclampsia occurs when a patient with preeclampsia progresses to seizures ➤ Some patients will progress directly into coma without an observed seizure ➤ Most patients who develop eclampsia show marked edema, increased BP and other features of severe pre-eclampsia <u>but up to 30% of eclampsia patients do not have these classic signs and symptoms</u>
ALL PROVIDERS	<ul style="list-style-type: none"> ➤ Reference Primary Management Guideline ➤ Reference Airway Management Guideline ➤ Cardiac monitor to capture rhythm; obtain 12-lead ECG if available
INTERMEDIATE	<ul style="list-style-type: none"> ➤ Initiate an IV/IO for medication administration
PARAMEDIC	<ul style="list-style-type: none"> ➤ Magnesium Sulfate 4 grams IV/IO infusion, <u>administer over 10 minutes</u>, followed by an IV/IO maintenance infusion at a rate of 2 grams per hour <ul style="list-style-type: none"> • Initial dose of Magnesium Sulfate 4 grams may be given IM if IV access is not readily available • Maintenance infusion of Magnesium Sulfate should be administered via infusion pump if available; reference Infusion Pump Guideline • If seizures continue despite administration of Magnesium Sulfate, reference Seizures/Convulsions Guideline

Resources



WHAT WE DO OUR VIDEOS OUR PROJECTS IMPACT NEWS ABOUT US



- https://www.uptodate.com/contents/hypertensive-disorders-in-pregnancy-approach-to-differential-diagnosis?search=eclampsia&source=search_result&selectedTitle=2~150&usage_type=default&display_rank=2
- https://www.uptodate.com/contents/overview-of-postpartum-hemorrhage?search=postpartum%20hemorrhage&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1

Questions?



Contact Info:
Petter O-H
povertonharris@salud.unm.edu