OB in the ED:
Hemorrhage ECHO

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Disclosures

No financial interests or relationships to disclose.

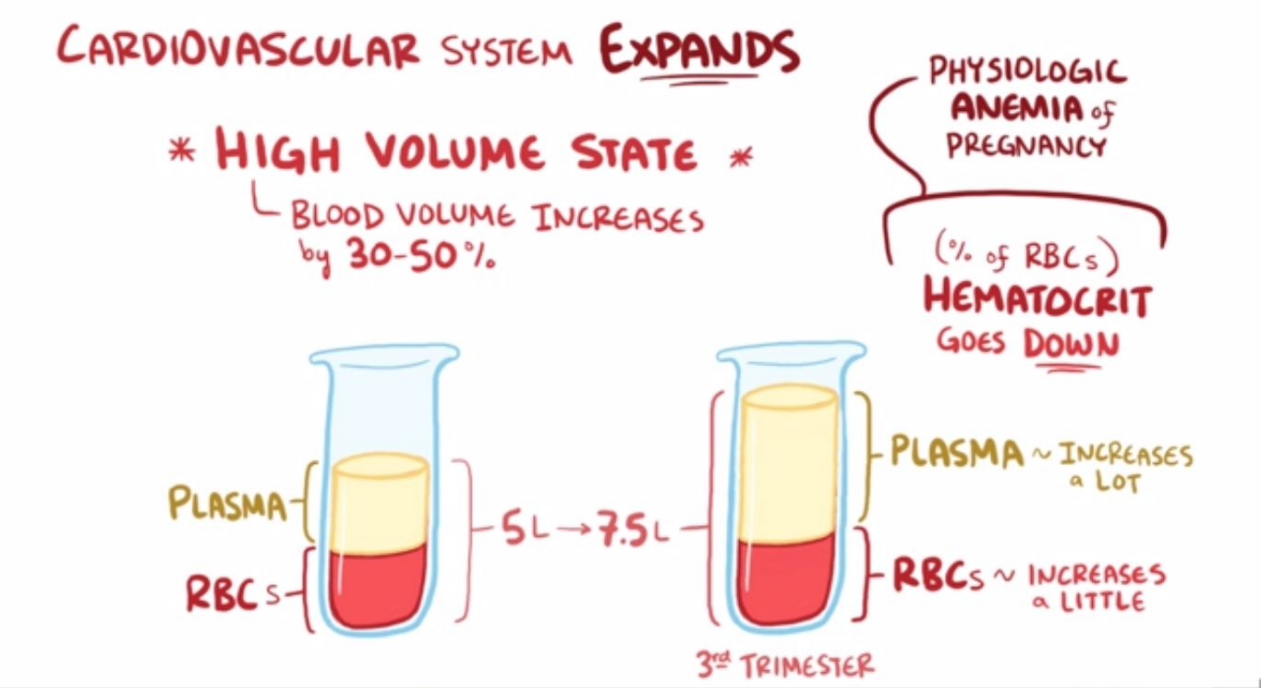
Objectives

1. Recognize different types of hemorrhage in the obstetric patient presenting to the ED
2. Become more comfortable with management of a hemorrhaging OB patient in the ED
3. An update on COVID-19 in pregnancy

Hemorrhage

- What is it?
  - Current definition: >1000cc blood loss **OR** blood loss with signs/sxs hypovolemia
- When can it happen?
  - Antepartum/intrapartum
  - Postpartum:
    - Primary <24hrs from delivery
    - Secondary >24hrs and up to 12 weeks postpartum
- Why do we care?
  - PPH accounts for 11% of maternal deaths in the US, of which up to 93% are preventable

Physiologic changes of pregnancy



- Normal signs/symptoms of blood loss may not present as quickly in a postpartum patient
- Hypotension + tachycardia postpartum - assume patient lost at least 25% of her blood volume

What does 1000cc of blood look like?

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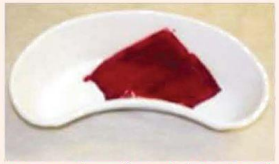
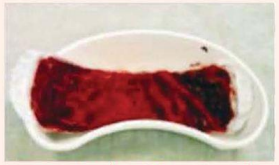
- ➔ Inaccurate estimates of blood loss are the leading cause of delayed care in PPH
- ➔ Quantitative methods are more accurate than visual estimation, but frequently not available in emergent settings

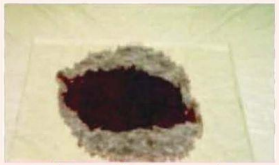
soiled sanitary towel
30ml



saturated small swab (10x10cm)
60 ml

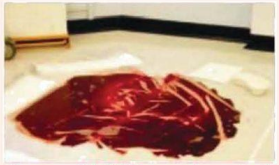


saturated sanitary towel
100 ml

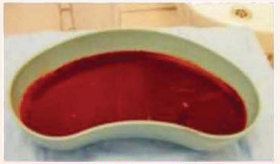


incontinence pad
250 ml

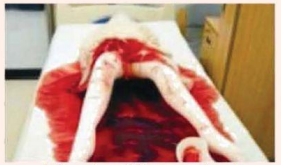
saturated swab (45x45cm)
350 ml



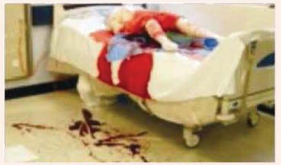
floor spill (100cm diameter)
500 ml



full kidney dish
500 ml



blood spilling on bed
1000 ml



blood spilling to floor
2000 ml

Pathfinder International

https://www.pathfinder.org/wp-content/uploads/2016/10/Wall-Chart-Estimating-Blood-Loss.jpg

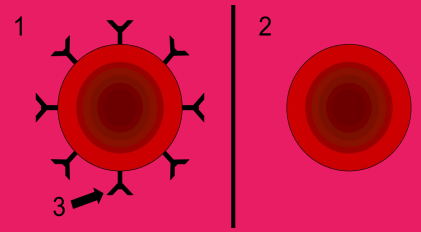
The still pregnant patient

26yo G2P1 at 30w gestation and history of 1 prior cesarean section presents with vaginal bleeding.

VS: BP 100/70, HR 110, SpO2 99%, RR 18

Exam: Saturated pad, gravid abdomen, non-tender

What do you need?
What do you do?



1. Call for help
2. Stabilize mom
3. Check on baby

Antepartum Hemorrhage Algorithm

Identify

Pregnant patient

+ Significant bleeding

or Hemodynamic instability

Call for help

Lines: VS, IV access, IVF

Labs: CBC, Coags, T&S, T&C

Baby: US for FHR/Movement

Mom

- Transfuse as needed
- Rhogam if Rh-
- If bleeding persistent or need for delivery, transfer or consult

Baby

Fetal distress? FHR <110

- Inform Peds & OB & OR
- **OR** Transfer immediately to higher level of care for delivery

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Resolve

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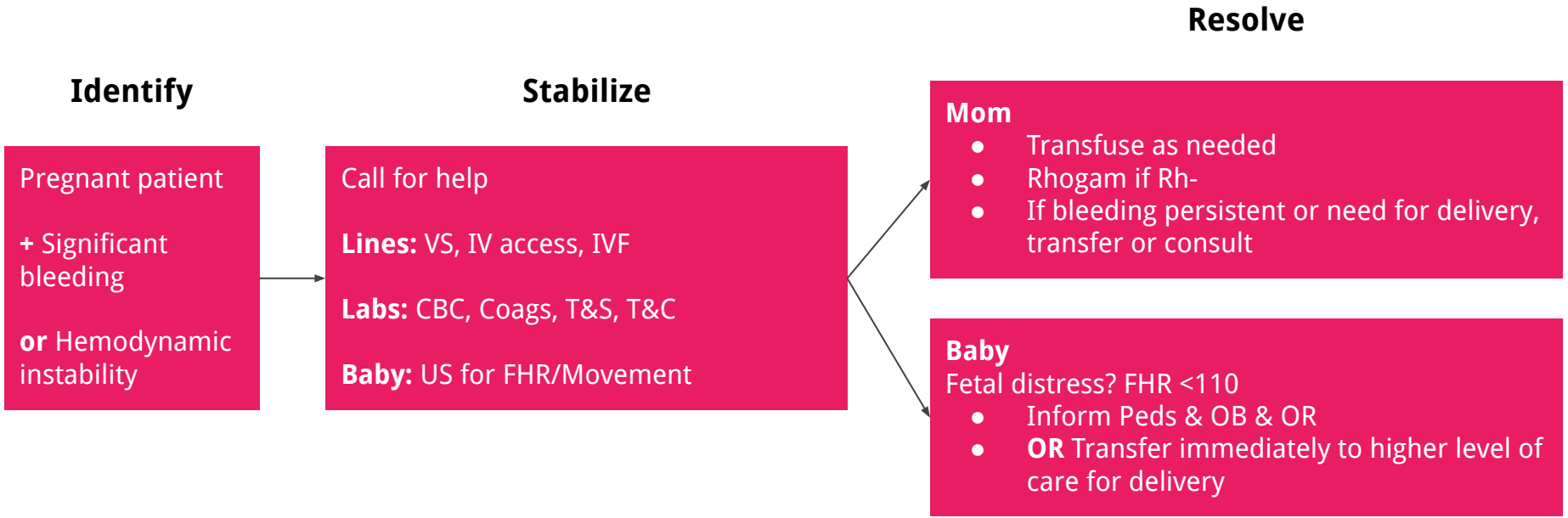
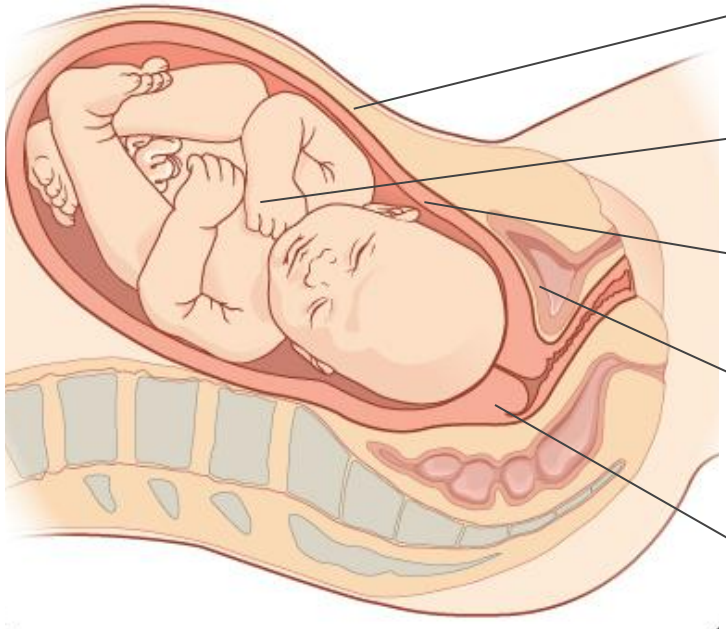


Reasons for hemorrhage while pregnant



- Adnexa → Ectopic
- Baby → Vasa previa
- Placenta
  - Low-lying
  - Previa
  - Accreta spectrum
- Uterus → Rupture
- Cervix → Neoplasia

Questions?

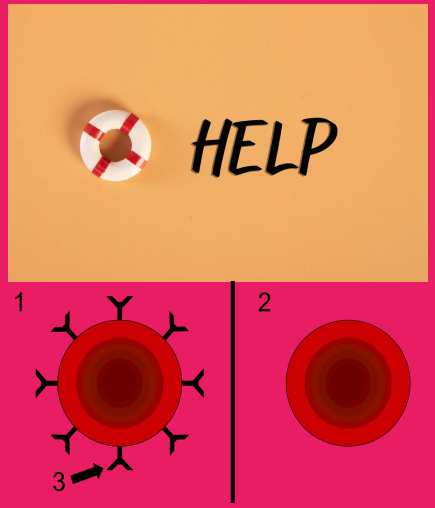
The postpartum patient

32yo G6P6 s/p NSVD 2 days ago presenting with diffuse vaginal bleeding.

VS: BP 80/40, HR 124, SpO2 94%, RR 20

Exam: drowsy, fundus not palpated, lying on chuck soaked with blood/through patient's pants

What do you need?
What do you do?



1. Call for help
2. Stabilize mom
3. Stop the bleed

Hemorrhage Algorithm

Identify

>1000cc EBL

or Ongoing significant bleeding

or Hemodynamic instability

Call for help

Lines: VS, IV access, IVF

Labs: CBC, Coags, T&S, T&C

Meds:

- Oxytocin: 10IU IM OR 10-40IU/1000ml continuous
- Consider TXA

Bimanual massage

Empty bladder

Tone (atony)

- Bimanual massage
- Uterotonics: Oxytocin, Methylergonovine, Carboprost, Misoprostol
- Consider tamponade

Trauma (lacerations)

- Inspect cervix and perineum
- Pack or repair

Tissue (retained placenta)

- Manual removal
- US if available

Thrombin (coagulopathy)

- Serial labs
- Replace blood products as able

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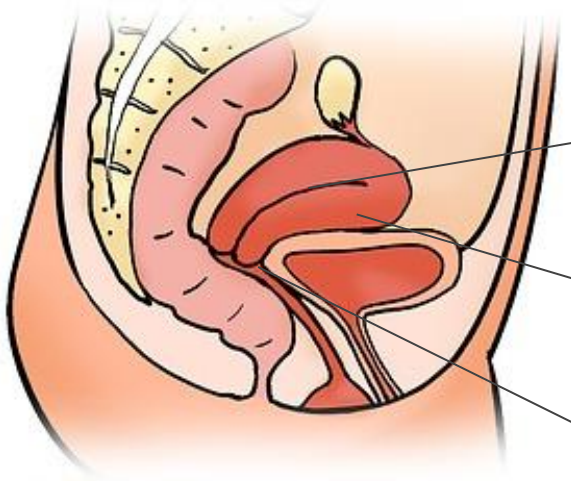
Causes of PPH: the 4T's

	Tone	Trauma	Tissue	Thrombin
Identifying	Fundus feels soft/boggy (common, 70%)	Exam with lacerations to cervix or vagina	Persistent atony despite interventions Heterogeneous material on US	No other identifiable cause Oozing from multiple sites (vagina, IV)
Initial management	Uterotonics Uterine balloon tamponade Jada suction	Repair Pack	Manual removal Uterotonics	Products Uterotonics/resolve atony
Definitive management	Hysterectomy	Repair under anesthesia	D&C	Products! 1:1 PRBC to FFP 1 Plt + Cryo every 4-6u

Reasons for hemorrhage postpartum



		Primary	Secondary
Coagulopathy	→	Defect	Inherited
Placenta	→	Retained	Retained
		Adherent	Subinvolution
Uterus	→	Atony	Infection
		Inversion	
Cervix	→	Laceration	

Medications for PPH: the “Uterotonics”

	Oxytocin	Methylergonovine	Carboprost	Misoprostol
Dose & Route	IM: 10IU IV: 10-40U per ~1000cc	IM: 0.2mg q2-4h	IM: 0.25mg q15 min (max 8 doses)	PR/SL: 1000 mcg
Contraindications		Hypertension PEC CVD	Asthma	
Side effects	Overdose > hyponatremia	Hypertension +/- GI	Diarrhea Bronchospasm	Fever +/- GI

A note on balloon tamponade...

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New WHO context-specific statement:

- Uterine balloon tamponade (UBT) should ONLY be used in settings where immediate access to surgery + blood is available; first line treatments are available; other causes can be excluded; maternal condition can be monitored; trained personnel are available
- Data that without these things UBT can be harmful (increased bleeding, surgery, death)

A note on “suction”...

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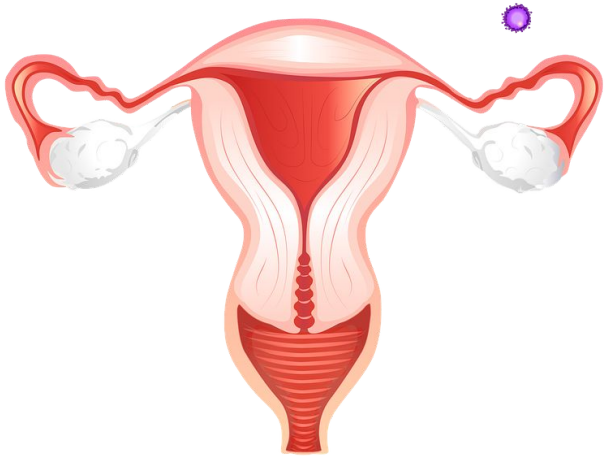
- Emerging data that intrauterine vacuum-induced suction devices may be more effective than balloon-tamponade
- Help restore functional anatomy in hemorrhage



Questions?

Update:
COVID in Pregnancy

- Counseling patients
- Vaccines
- Monoclonal antibodies
- TXA & Hemabate

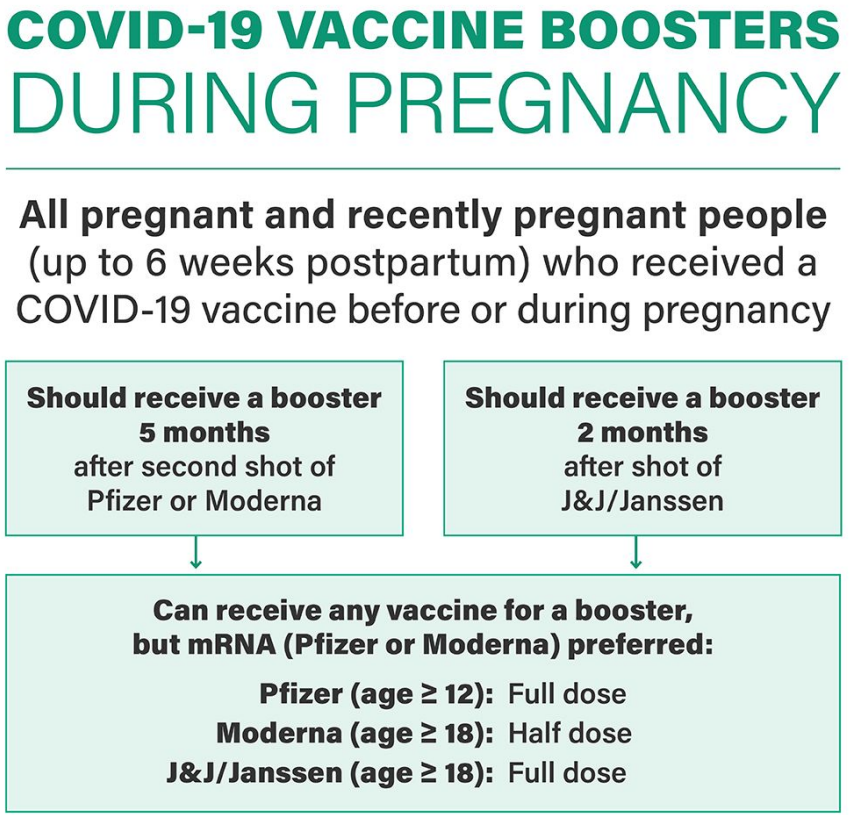
Counseling

What does COVID-19 do in pregnancy?

- Increased risk of ventilation, severe illness, ICU, and death
  - Especially true in patients with underlying health issues
- Increased risk of preterm delivery, likely also stillbirth

Vaccines

- Strongly recommended for all pregnant individuals by SMFM & ACOG
- mRNA vaccines preferred and OK to administer simultaneously w/ others
- NO evidence of adverse maternal/fetal effects from vaccination
- Antibodies go to fetus and likely offer protection



https://www.acog.org/covid-19/covid-19-vaccines-tools-for-your-practice-and-your-patients/boosters-during-pregnancy

Monoclonal antibodies

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- Supported by ACOG for outpatient use in those with mild to moderate disease at risk for progression **OR** PEP if eligible
- Lactation not a contraindication

TXA & Hemabate

- Consider withholding TXA given increased thrombosis risk with COVID
- Do not need to withhold hemabate in COVID patient with respiratory symptoms during a PPH

Resources

- Safe Motherhood Initiative App
  - https://www.acog.org/community/districts-and-sections/district-ii/programs-and-resources/safe-motherhood-initiative
- ACOG
  - Committee Opinion No. 794: Quantitative blood loss in the obstetric hemorrhage.
  - Practice Bulletin No. 183: Postpartum Hemorrhage
  - COVID-19 Guide https://www.acog.org/covid-19/covid-19-vaccines-and-pregnancy-conversation-guide-for-clinicians
- OBG Project
  - https://www.obgproject.com/2020/04/07/acog-covid-19-faqs-for-obstetrical-care/?mc_cid=7764c987e1&mc_eid=e841c1517c
  - https://www.obgproject.com/2017/03/29/postpartum-hemorrhage-medications-treat-uterine-atony/?mc_cid=ed23e1e4aa&mc_eid=e841c1517c
- Weeks, A et. al. World Health Organization Recommendation for Using Uterine Balloon Tamponade to Treat Postpartum Hemorrhage, Obstetrics & Gynecology: February 3, 2022 - Volume - Issue - 10.1097/AOG.0000000000004674
- D'Alton, M et. al. Intrauterine Vacuum-Induced Hemorrhage-Control Device for Rapid Treatment of Postpartum Hemorrhage, Obstetrics & Gynecology: November 2020 - Volume 136 - Issue 5 - p 882-891, doi: 10.1097/AOG.0000000000004138

Thank you!