Those Oh Boy oh Boy OB calls: Precipitous Delivery in the Field

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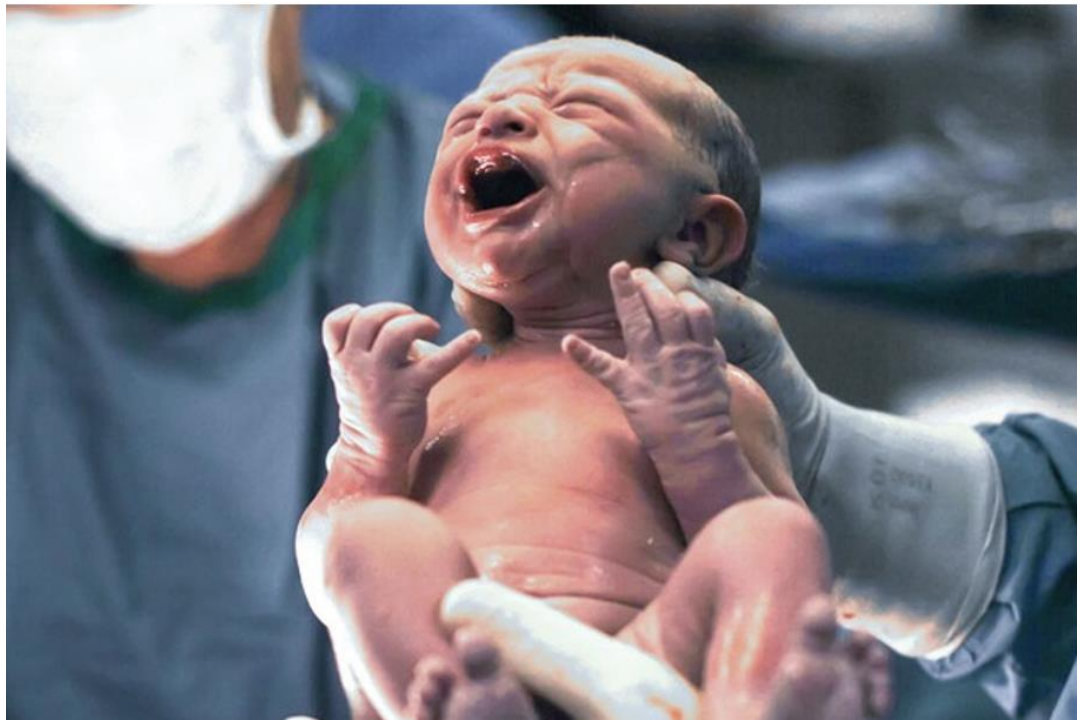
Ambulance Delivery

- Rare
- Most will go just fine!
- Issues do occur



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“Normal” Delivery

- Confirm presentation
- Digital stretching of the perineum
  - Particularly posteriorly
- Controlled expulsion
- Gentle downward traction on the head
  - Subsequent upward motion
- Suction the mouth and nose
- Clamp and cut the cord
- Dry and stimulate the infant

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Biggest Issues

- Breach
  - Most common
    - 4%
- Shoulder dystocia
    - 3%
- Prolapsed cord
    - Less the 0.2%

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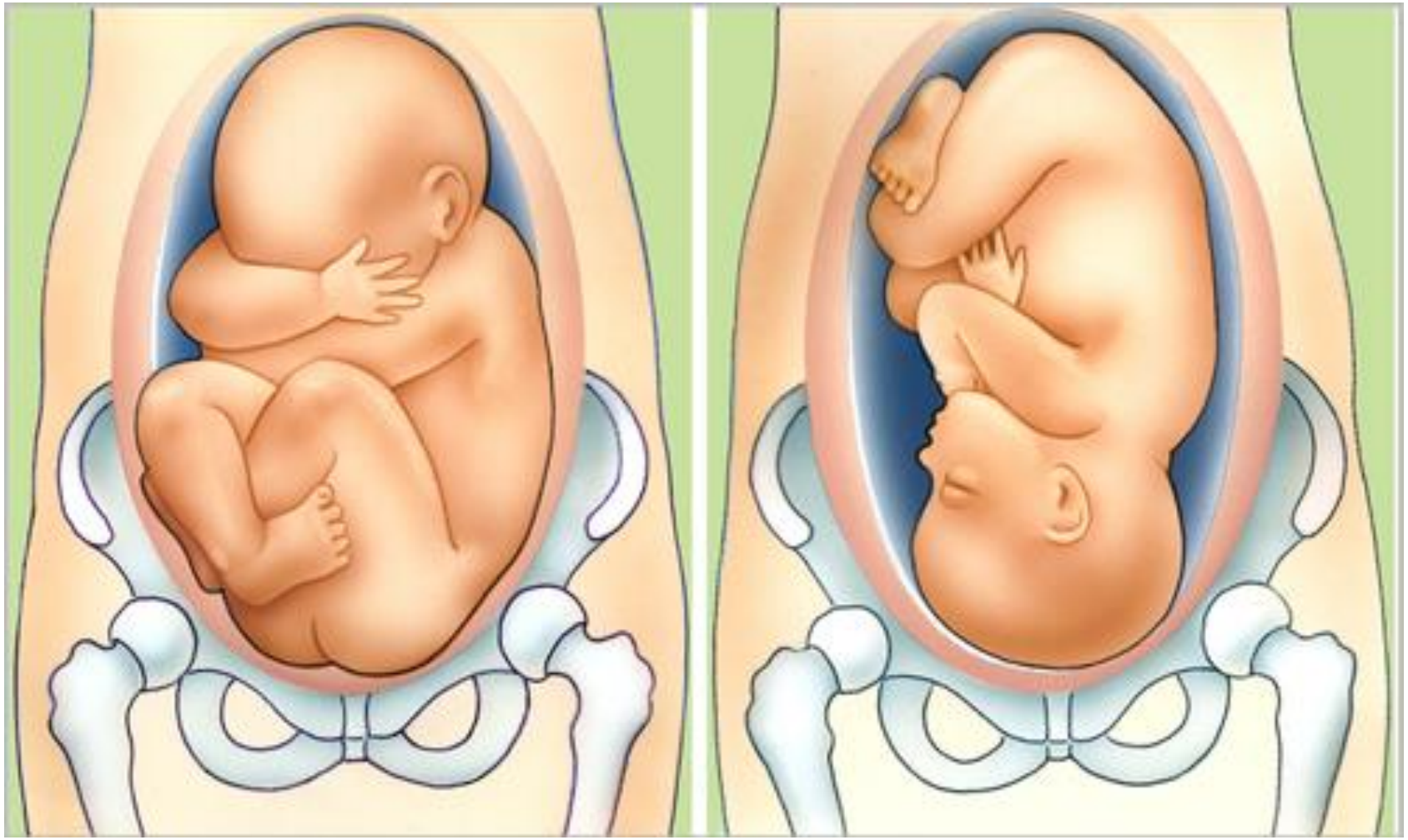
Breech Presentation



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Breach Delivery

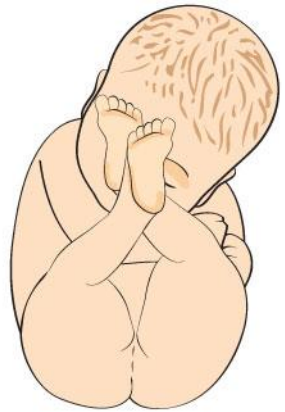
- Three types
  - Complete
  - Incomplete
    - Footling
  - Frank
- Diagnosis
  - Physical exam
  - Ultrasound

Complete breech

Legs folded with feet at the level of the baby's bottom.

Footling breech

One or both feet point down so the legs would emerge first.



Frank breech

Legs point up with feet by the baby's head so the bottom emerges first.

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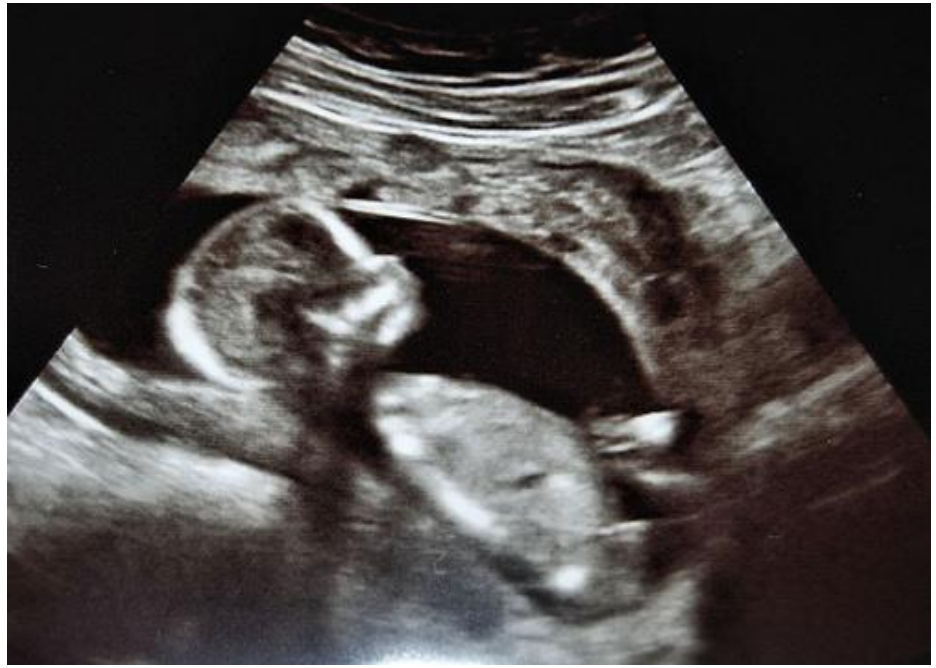
Breech Delivery

- Don’t pull!
- Hands off until fetal umbilicus is visualized
  - Allows better cervical dilation
- Then you can assist delivery
  - Arms
  - Head in flexed position



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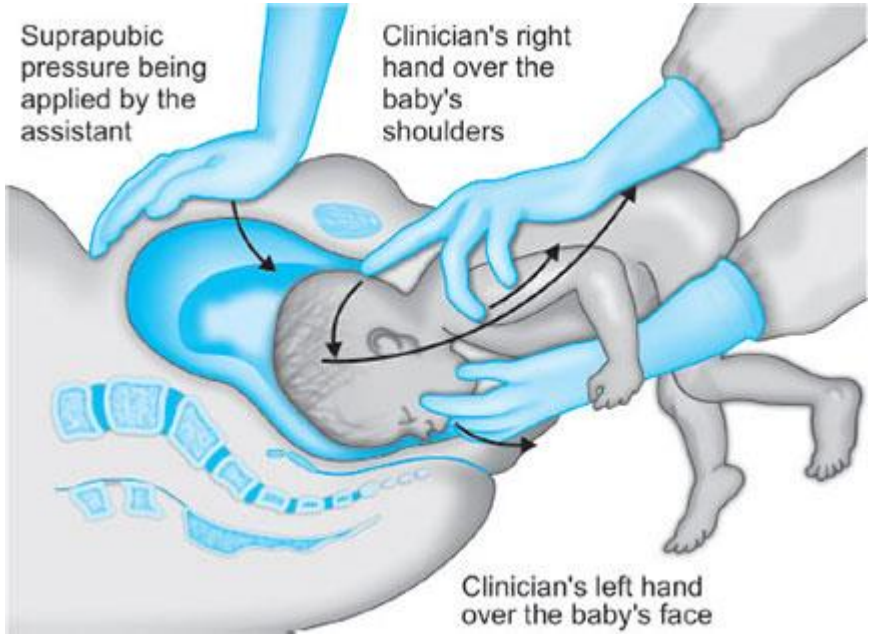
Breech Delivery

- Mauriceau maneuver
  - Uses the fetal oral aperture to flex the fetal neck and draw in the chin
    - Should be done after delivery of the elbows



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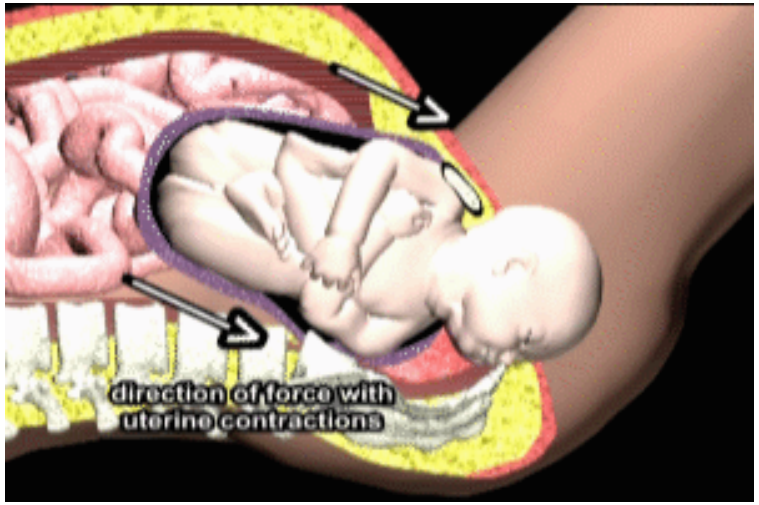
Shoulder Dystocia

- 3% of vaginal deliveries
- Turtle sign
  - Retraction of baby's head back into the perineum between contractions
- Several maneuvers
  - 30 seconds each



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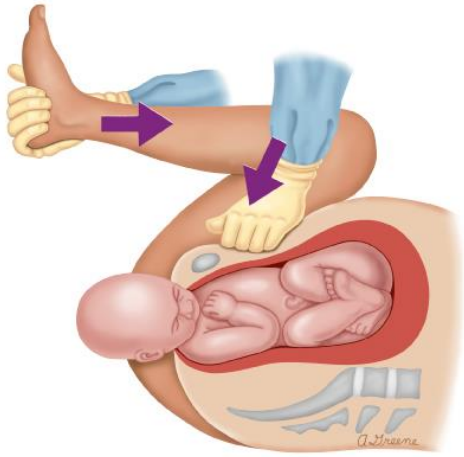
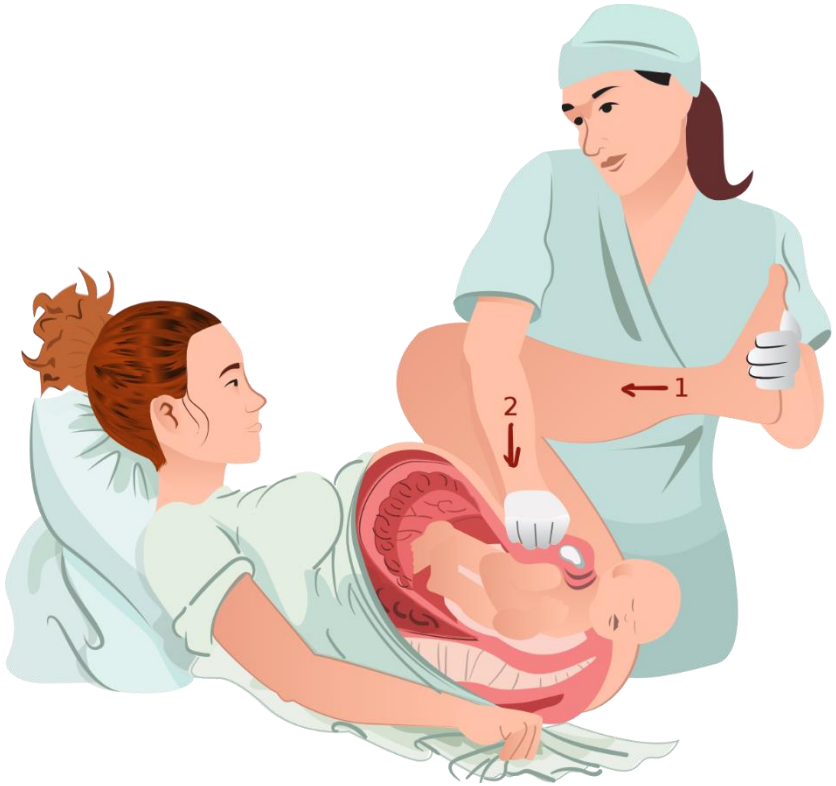
Shoulder Dystocia

- McRoberts
  - Hyperflexion of the thighs
  - Back flat
  - Pressure over the pubic synthesis
    - Not fundal pressure
- Relieves 50% of dystocias





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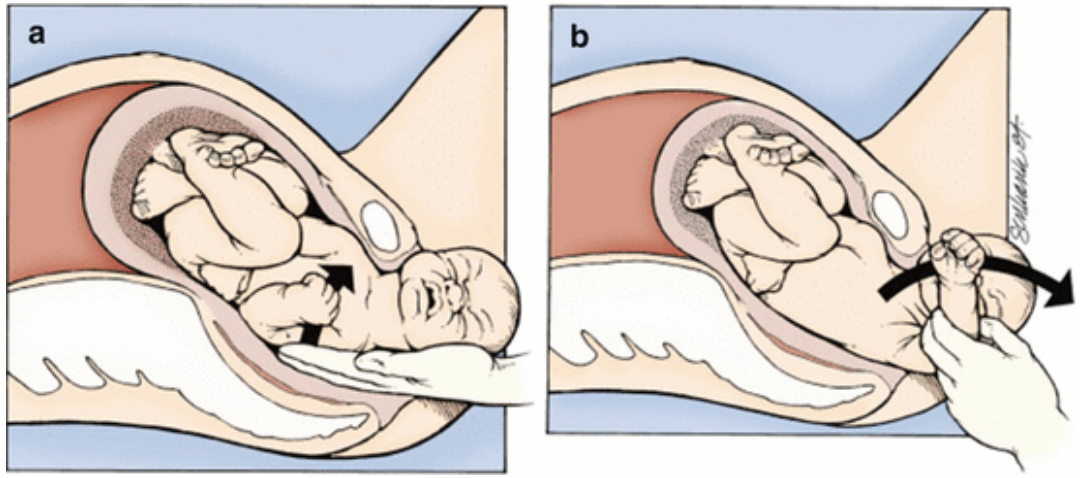
Shoulder Dystocia

- Delivery of the posterior shoulder
  - Insert your hand and locate the posterior elbow
    - Flex the elbow and sweep the forearm across the chest and face



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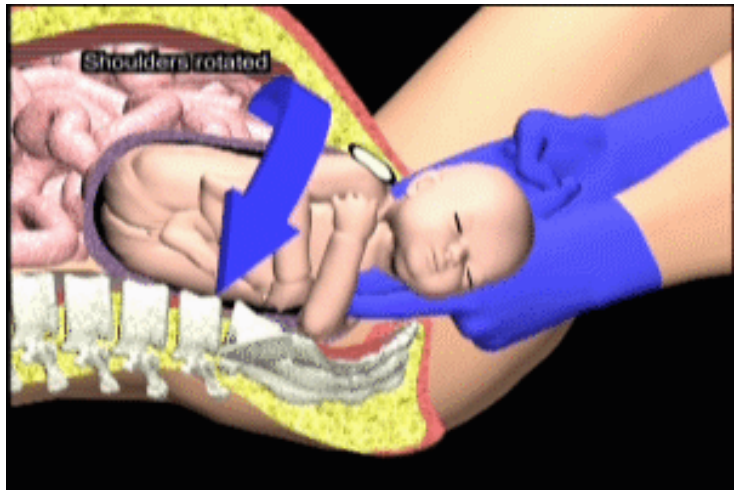
Shoulder Dystocia

- Wood's corkscrew maneuver
  - 2 fingers behind the anterior shoulder and 2 fingers in front of the posterior shoulder
- Reverse Wood's corkscrew maneuver



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Shoulder Dystocia

- Gaskin maneuver
  - Roll to “all fours”
  - Act of turning the mother may be most useful
    - Can get an extra 10-20 mm of the pelvic outlet

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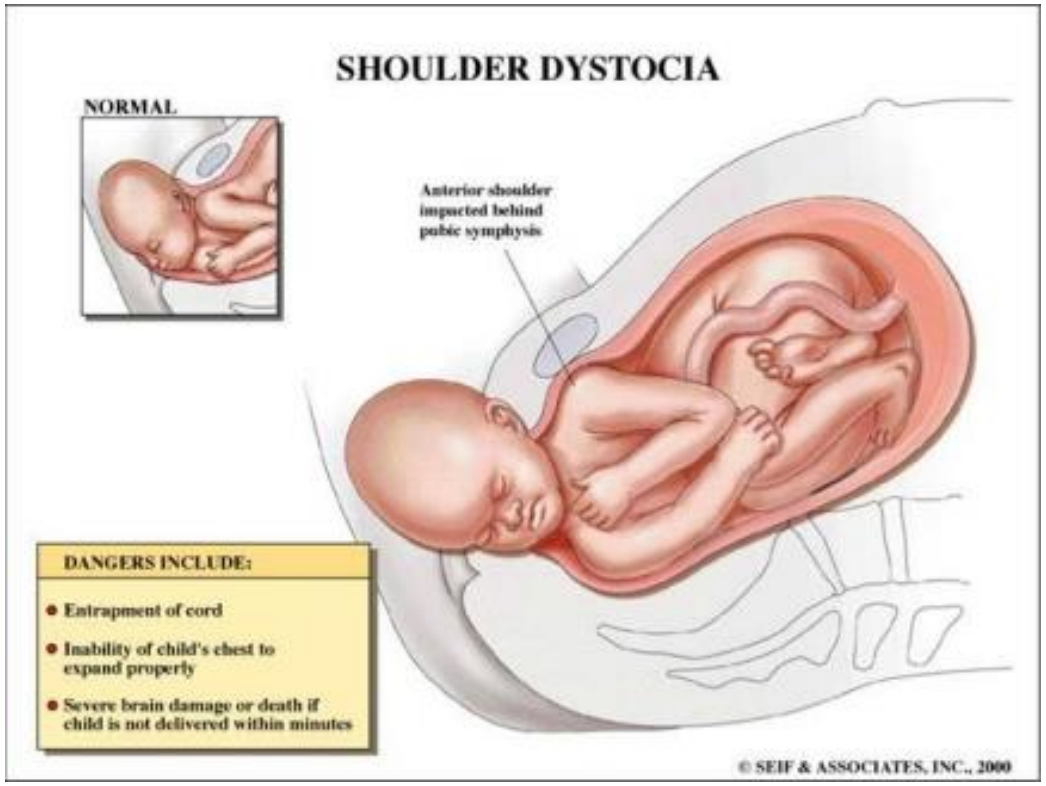
Shoulder Dystocia

- HELPER
  - Help
  - Episiotomy
  - Legs flexed
    - McRoberts'
  - Pressure
    - Suprapubic
  - Enter
    - Vagina
  - Remove
    - Posterior arm



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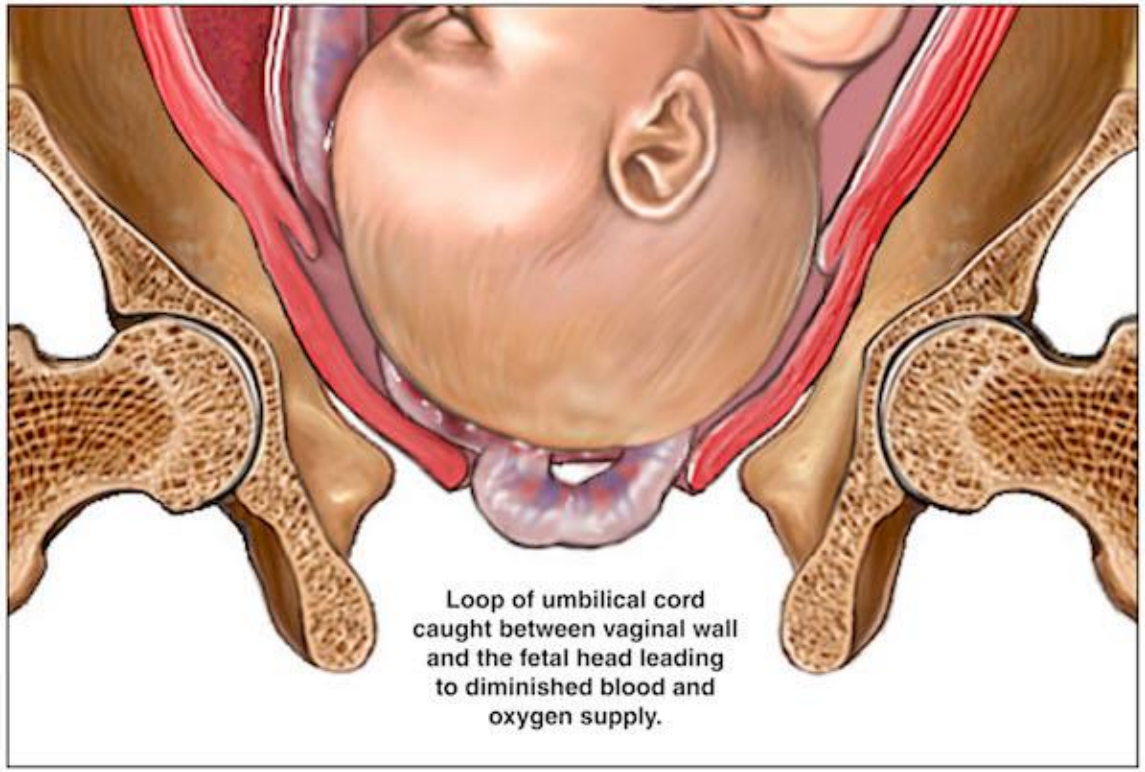
Umbilical Cord Prolapse



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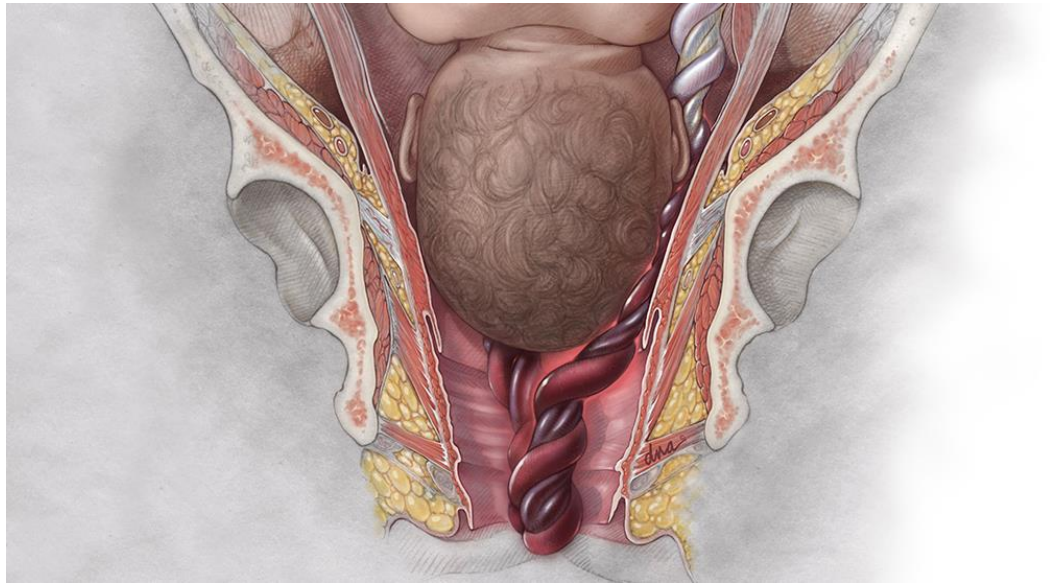
Prolapsed Cord

- Cord slides past the presenting part
  - Cord compression
    - Hypoxia, acidosis
- Diagnosis
  - Palpation of the umbilical cord on vaginal examination or
  - Visualization of the cord protruding through the introitus



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Prolapsed Cord

- Manually lift up presenting fetal part
  - Relieving pressure on the umbilical cord
  - Maintain presenting part away from prolapsed cord
- Prepare for emergency delivery while maintaining presenting part off the cord

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Summary

- Think about this before it happens
- If one maneuver is not working, move to another
  - 30 seconds
- Don’t forget post-delivery care

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What is the role of EMS in Identifying and aggressively treating Hypertension in Pregnancy ?

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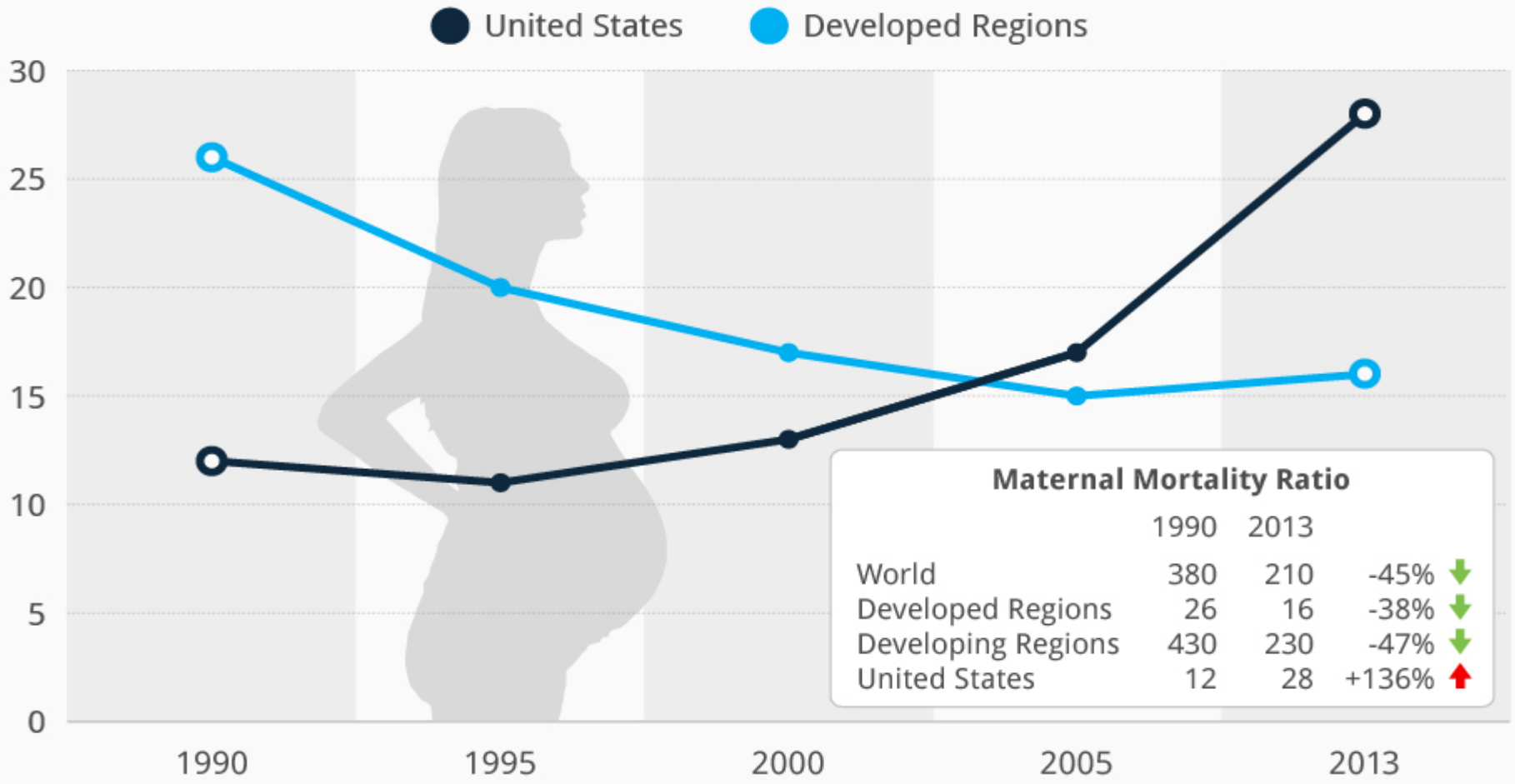
Maternal Deaths in the U.S. Are on the Rise

Maternal mortality ratio (number of maternal deaths per 100,000 live births)



Maternal Mortality Ratio

	1990	2013	
World	380	210	-45% ↓
Developed Regions	26	16	-38% ↓
Developing Regions	430	230	-47% ↓
United States	12	28	+136% ↑

Source: World Health Organization

Mashable statista

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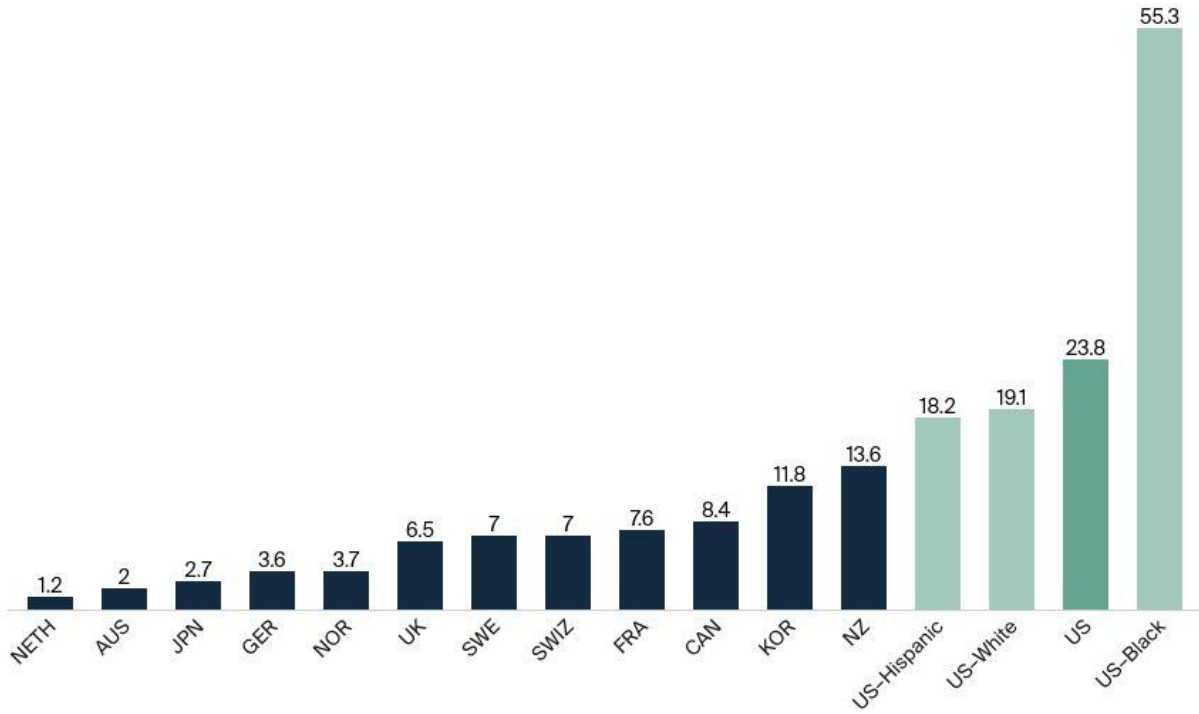
New Data Shows U.S. Maternal Mortality Rate Exceeds That in Other High-Income Countries

Deaths per 100,000 live births



Download data

Notes: The maternal mortality ratio is defined by the World Health Organization as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. 2015 data for FRA; 2017 data for UK; 2018 data for NZ; 2019 data for SWIZ; 2020 data for AUS, CAN, GER, JAP, KOR, NETH, NOR, SWE, and US.

Data: Data for all countries except US from OECD Health Statistics 2022. Data for US from Donna L. Hoyert, *Maternal Mortality Rates in the United States, 2020* (National Center for Health Statistics, Feb. 2022).

Source: Munira Z. Gunja, Evan D. Gumas, and Reginald D. Williams II, "The U.S. Maternal Mortality Crisis Continues to Worsen: An International Comparison," To the Point (blog), Commonwealth Fund, Dec. 1, 2022. https://doi.org/10.26099/8vem-fc65

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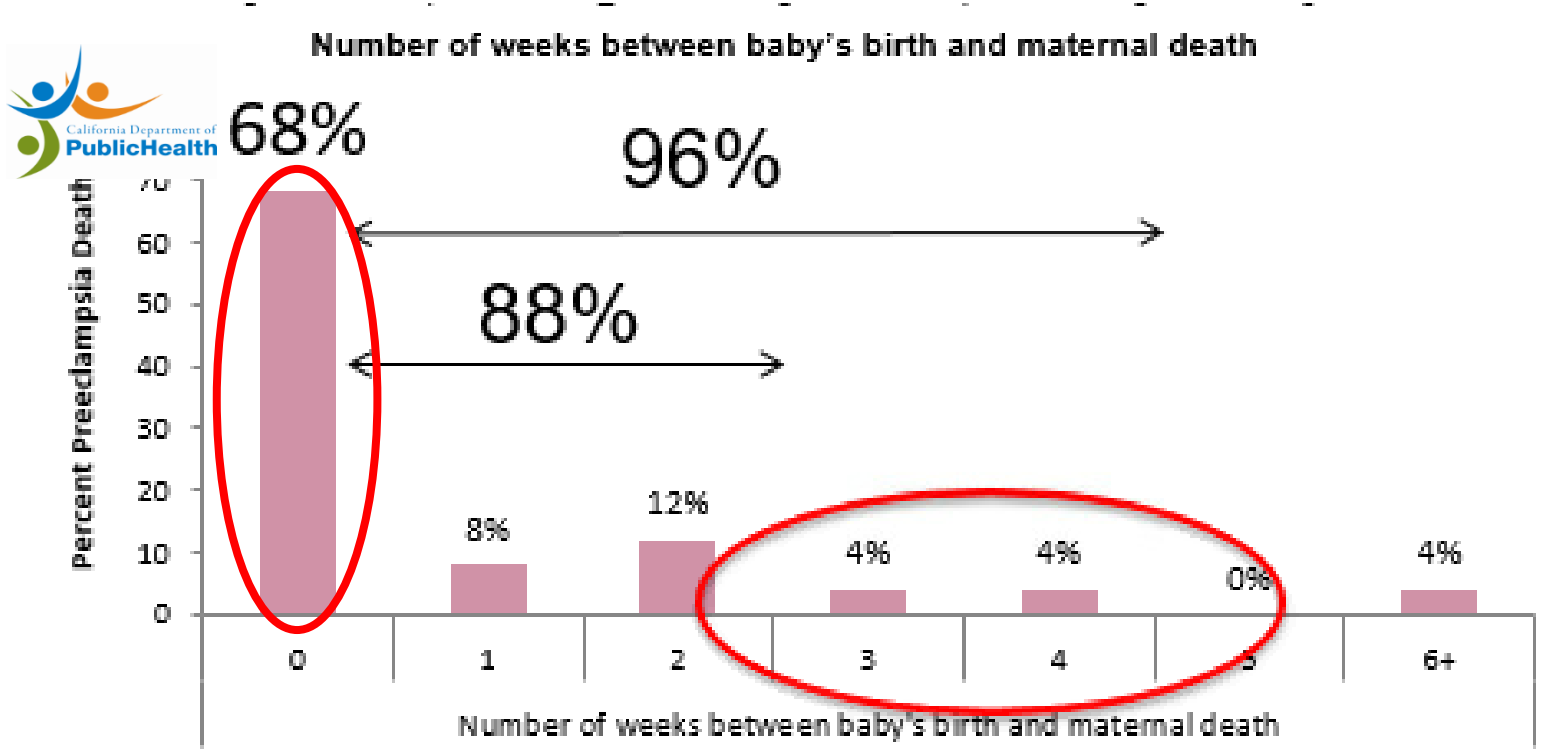

Preeclampsia Deaths (n=25)

Timing of Pregnancy-Related Deaths, CA-PAMR, 2002 to 2004

Risk factors for Pre-Eclamsia

- 1st Pregnancy
- Pre-Eclampsia before (8xrisk)
- Age >40 or teenager
- Family Hx Pre-Eclampsia
- Diabetes
- Obesity
- Twins-Triplets
- Minority Ethnic Group
- Chronic HTN or Renal Disease
- Auto Immune disorders
- Vascular disorders
- New Male Partner
  (less immune sys exposure)
- In Vitro fertilization
- Sleep Apnea
- PTSD

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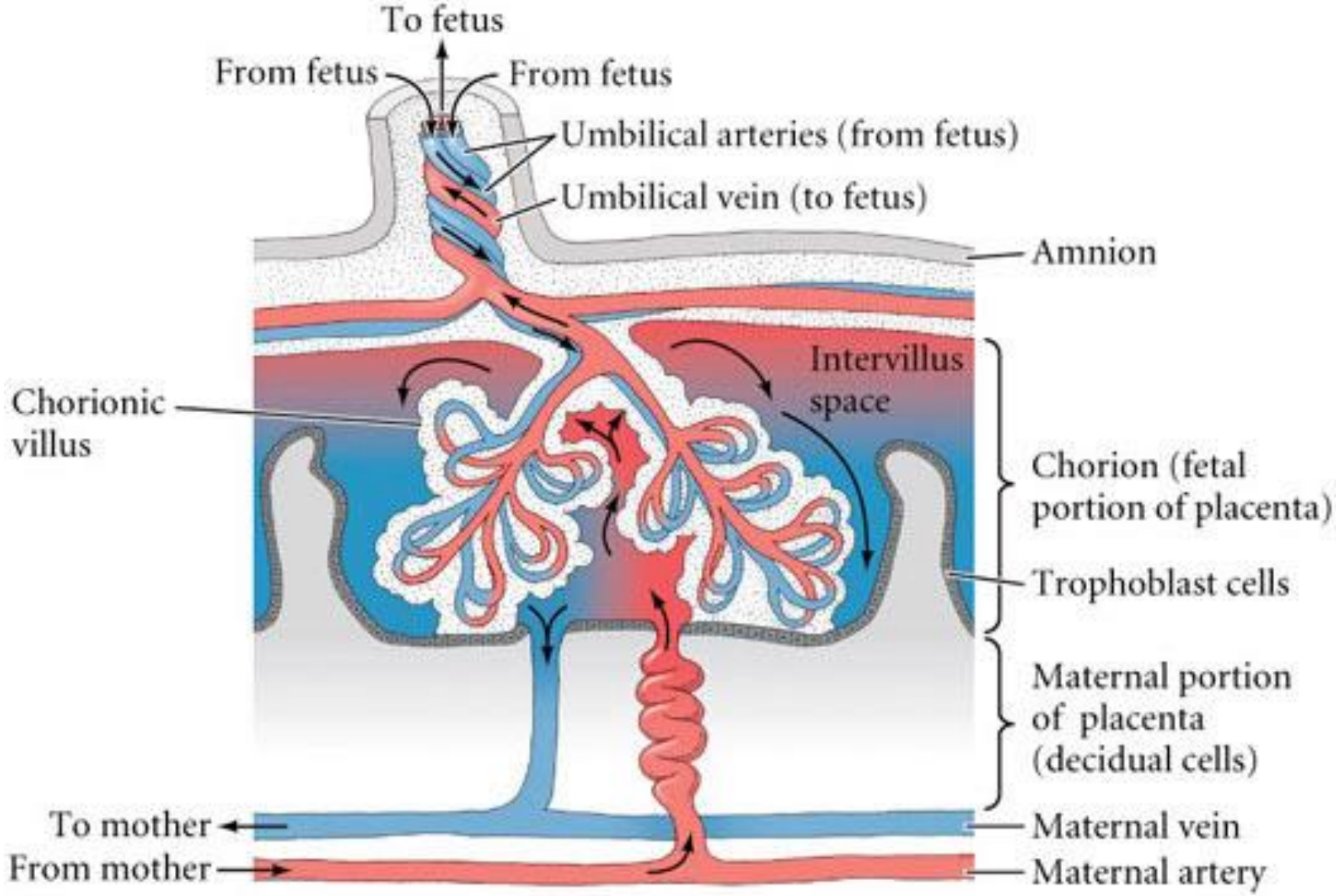

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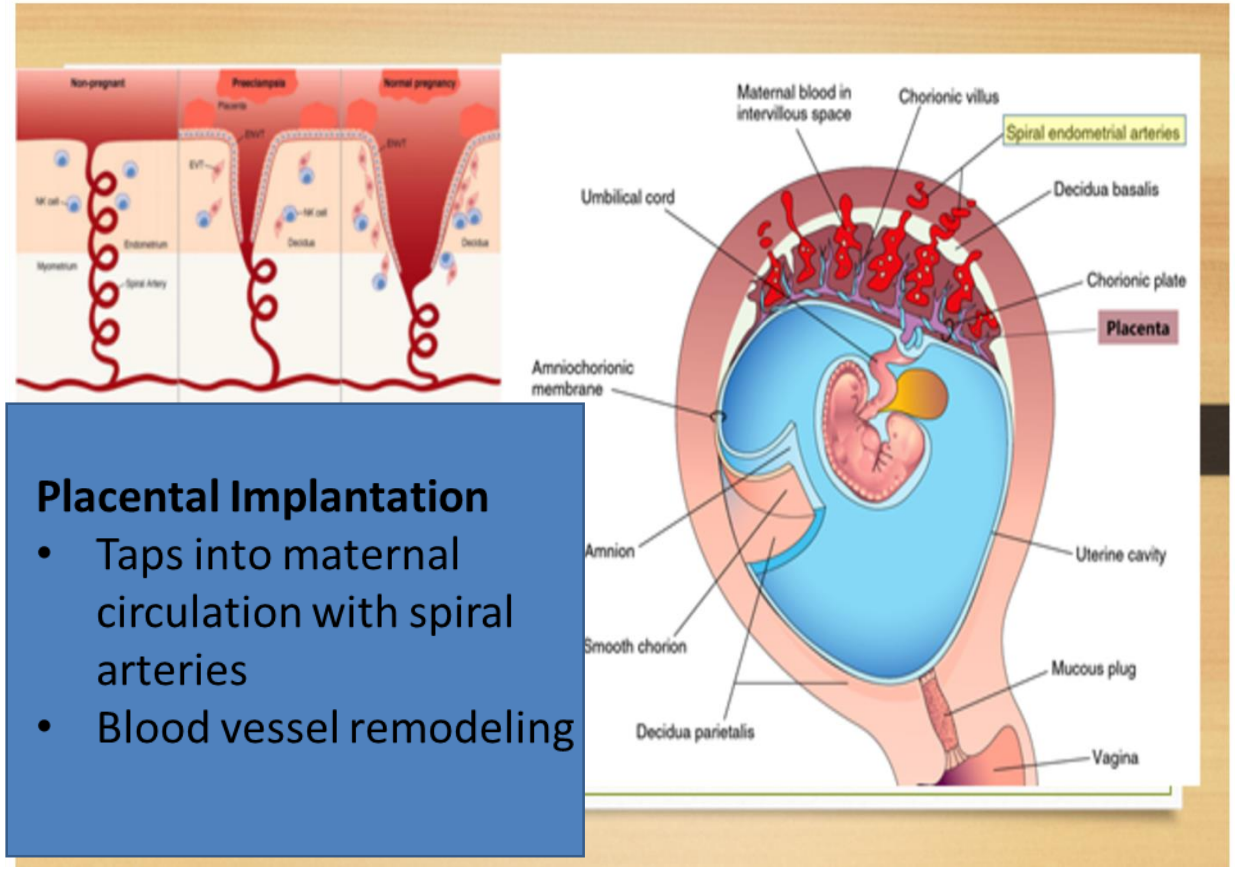
Pathophysiology of Preeclampsia

- “A disorder of widespread endothelial malfunction and vasospasm”



Placental Implantation

- Taps into maternal circulation with spiral arteries
- Blood vessel remodeling

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Characterization of Symptoms Immediately Preceding Eclampsia

- 3,267 deliveries and 46 cases of eclampsia (1.4%)
- Most common prodromal neurological symptoms (regardless of the degree of hypertension OR whether the seizure occurred antepartum or postpartum):
  - Headaches (80%)
  - Visual disturbance (45%),

  BUT Hold ON ……

- **20% of women** with eclampsia reported **no neurologic symptoms before the seizure**

Cooray SD, Edmonds SM, Tong S, et al. Characterization of Symptoms Immediately Preceding Eclampsia. Obstetrics & Gynecology, Vol 118(5):1000-1004, November 2011.

Prevention of Seizures

Magnesium sulfate

- Reduces the rate of recurrent seizures by one-half to two-thirds
- Reduces the rate of maternal death by one-third

Altman D, Carroli G, Duley L, et al. The Magpie Trial: a randomized placebo-controlled trial; *Lancet* 2002;359:1877–90.

Magnesium Sulfate

Loading dose 4 grams IV over 10 minutes per IV

2 grams/hour maintenance dosing

May repeat dosing during eclamptic siezure

Management

- Control BP if > 160 systolic
- Seizure Prevention-Mag.
- Delivery 34-37 weeks
- Post Partum Surveillance

Emergent Therapy for Acute-Onset, Severe Hypertension

Notify Physician if: Systolic ≥ to 160 mmHg OR if Diastolic is greater than or equal to 110 mmhg administer first line therapy using one of the following:

LABETALOL Monitor BP q 10m	HYDRALAZINE Monitor BP q 20m	ORAL NIFEDIPINE* Monitor BP q 20m
20 mg IV	5-10 mg IV	10 mg orally
40 mg IV	10 mg IV	20 mg orally
80 mg IV	Switch to Labetalol 20mg	20 mg orally
Switch to: Hydralazine 10 mg IV	Labetalol 40 mg	Switch to: 20 mg Labetalol IV

“Treat the Damn Blood Pressure!”

Controlling blood pressure
is the key intervention
to prevent deaths due to stroke
in women with preeclampsia.

Over the last decade, the UK has focused QI efforts on aggressive treatment of both systolic and diastolic blood pressure and has demonstrated a reduction in deaths.

https://static1.squarespace.com/static/595a4df159cc68d0978dfb9e/t/5c5c7442652dea319f3e10fc/1549562956795/Elliott+Main-+PQC+state+and+national+success+Texas.pdf

It Ain't Over Til It's Over

Why Does EMS Always Need to Consider the Potentially Lethal Post-Partum State in Your DDx ?

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If you don't look, you don't see.

>160/110 for 15 minutes

150,000 patients

1,575 pregnant

504 hypertensive

75 severe hypertensive

1 hypertension as chief complaint

Hutchcraft ML, Ola O, McLaughlin EM, Hade EM, Murphy AJ, Frey HA, Larrimore A, Panchal AR. A One-Year Cross Sectional Analysis of Emergency Medical Services Utilization and Its Association with Hypertension in Pregnancy. Prehosp Emerg Care. 2022 Nov-Dec;26(6):838-847.

MEDICAL COLLEGE OF WISCONSIN

MILWAUKEE COUNTY OEM est. 2015

Patient Care Goals:
1. Assess labor and imminent childbirth
2. Recognize and treat OB emergencies & complications
3. Transport patient(s) to appropriate facility

Patient Presentation:
Inclusion Criteria
Maternal age 10 to 60 yrs
Suspected or confirmed OB emergency

Patient Management
Obtain pregnancy history: current and past pregnancies/deliveries, EDA/last menstrual period, current contractions, membrane status

OB Emergency *expedite transport* during delivery prep
All OB emergencies: Apply Shock PG if hypotensive

OB Emergency < 20 wks, consider:
- Ruptured ectopic pregnancy: abdominal pain, hypotension, +/- bleeding

OB Emergency ≥ 20 wks, consider:
- Placenta previa: painless vaginal bleeding
- Placenta abruption: painful vaginal bleeding, usually after trauma (apply Pain Management PG)

OB Emergency ≥ 20 wks up to 6 wks postpartum (PP), consider:
- Postpartum hemorrhage: uncontrolled vaginal bleeding, hypotension
- Severe maternal HTN (SBP≥160 or DBP≥110, either persists for 15 min): increased risk of maternal death
- Pre-eclampsia: HTN (SBP≥140 or DBP≥90), severe headache, vision change, severe epigastric/RUQ pain, pulmonary edema
- Eclampsia: seizures (present up to 6 wks postpartum)
  **Treat with magnesium regardless of seizure history AND whether or not seizure activity has stopped

Medications:
Normal Saline Bolus:
- 20 mL/kg IV/IO

Magnesium
- 4G in 100mL IV/IO infusion over 10 minutes

Midazolam IM Max single IM dose 10 mg
Pt weight 40 Kg or greater: 10 mg
Pt weight LESS than 40 Kg: 0.25 mg/Kg

Midazolam IV/IO/IN Max single IV/IO/IN dose 4 mg
Pt weight 40 Kg or greater: 4 mg
Pt weight LESS than 40 Kg: 0.1 mg/kg

Labetalol
- Initial dose 20 mg IV/IO slow
- Second dose 40 mg IV/IO slow
  if severe HTN continues 10 minutes after initial dose

Patient Safety Considerations:
Symptomatic third trimester patients should be placed in left lateral position
Do not place hand into bleeding vagina except breech delivery or prolapsed cord
Newborns needing resuscitation should be emergently transported to NICU (req second EMS unit for mom)

Quality Improvement:
Key Documentation Elements
1. Vital signs, response to treatment

Paramedic Working Assessment: OB Emergency

Universal Care

Establish gestational age and symptoms
Consult OBGYN Care PG for imminent delivery

Vaginal Bleeding or Hypotension

All:
Shock Practice Guideline
Pain Management

Postpartum hemorrhage:
Fundal massage

Visible perineal injury:
Direct pressure

Hypertension

Gestation ≥ 20 wks to 6 wks PP
- **Pre-eclampsia**
  SBP ≥ 140 or DBP ≥ 90 *plus (any):*
  - Severe headache
  - Vision changes
  - Severe epigastric/RUQ pain
  - Pulmonary edema
- **Severe Maternal HTN**
  SBP ≥ 160 *or* DBP ≥ 110
  persists for 15 minutes

All:
Calm environment
Monitor for seizures
Repeat vitals Q 5 minutes

Severe maternal HTN:
Labetalol
Repeat Labetalol x 1
if severe HTN after 10 mins

Seizure

Gestation ≥ 20 wks to 6 wks PP
- **Eclampsia**
  Seizure
  regardless of seizure history

Magnesium
Seizure, whether active or complete regardless of seizure history

Seizure, if active or recurs
Midazolam
Repeat Midazolam x 1
if seizure recurs

Symptomatic third trimester patients should be placed in left lateral position

Transport to closest appropriate OB facility

Trauma patients pregnant > 20 wks should be transported to Froedtert Hospital or Childrens Hospital

Thank you

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Final words

- **Be aware High Risk groups for Pregnancy Induced Hypertension and pre-eclampsis**
- **<u>A BP >140 IS NOT normal in pregnancy</u>**
- **Be aggressive with transport and Magnesium SZ Prophylaxis**
- **BP Management >160 mmHG**

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