



All times listed are CENTRAL time zone

Day 4 – Saturday, August 29	
6:45-7:45 am	Breakfast Provided
7:45-8:00 am	Overview/Announcements – <i>Lee T. Dresang, MD</i>
8:00 – 8:45 am	Labor Induction Update – Post-ARRIVE, Osmotic Dilators, Outpatient – <i>Lawrence M. Leeman, MD, MPH</i>
8:45-9:30 am	Medicolegal Lessons for Obstetric Providers: Neonatal Neurologic Injury – <i>Benjamin J. F. Huntley, MD, FAAFP</i>
9:30-9:45 am	Q&A 9
9:45-10:00 am	Break
10:00-10:45 am	Mastitis Spectrum: Not Just Another ‘-Itis’ – <i>Sarah M. Tiggelaar, MD, CLC, FAAFP</i>
10:45-11:30 am	<i>Dyad Care in the Fourth Trimester – Narges Farahi, MD, FAAFP</i>
11:30-11:45 am	Q&A 10
11:45 am-12:00 pm	Family-Centered Pregnancy Care Reflection Session – Day 4 – <i>Lee T. Dresang, MD</i>
12:00 pm	Adjourn



Labor Induction Update -- Post-ARRIVE, Osmotic Dilators, Outpatient

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Disclosure Statement

It is the policy of the AAFP that all individuals in a position to control CME content disclose any relationships with ineligible companies upon nomination/invitation of participation. Disclosure documents are reviewed for potential relevant financial relationships. If relevant financial relationships are identified, mitigation strategies are agreed to prior to confirmation of participation. Only those participants who had no relevant financial relationships or who agreed to an identified mitigation process prior to their participation were involved in this CME activity.

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Learning Objectives

1. Counsel patients regarding the risks and benefits regarding elective 39-week induction in the post-ARRIVE era.
2. Counsel patients and place osmotic dilators for labor induction.
3. Review and explain to patients the evidence regarding outpatient labor induction.



Labor Induction: Frequency and Indications

Labor Induction Common Indications

Maternal

- Hypertensive Disorders of pregnancy
- Preterm Rupture of Membranes >34 weeks
- Cholestasis of Pregnancy
- Diabetes

Fetal

- Multiple gestation
- Non-reassuring fetal surveillance/oligohydramnios
- Fetal Growth Restriction
- Alloimmunization
- Post-term pregnancy

ARS Question



Question 1

Labor induction at 37 weeks is indicated for which of the following indication

- A. Fetal Growth restriction with EFW < 3%
- B. Well controlled controlled type 1 diabetes
- C. Placenta Previa
- D. Gestational hypertension without end organ injury

Timing of Medically Indicated Late Preterm and Early Term Deliveries for Hypertensive Disorders

Condition	Timing	Gestational age Range
Chronic isolated hypertension controlled without medications	Early term/Full term	38 0/7-39 6/7 weeks
Chronic isolated hypertension controlled on medications	Early term/Full term	37 0/7-39 6/7 weeks
Chronic hypertension difficult to control (requiring frequent medication changes)	Late preterm/early term	36 0/7-33 6/7 weeks
Gestational hypertension without severe range blood pressures	Early term	
Gestational hypertension severe range blood pressures	Late Preterm	
Preeclampsia without severe features	Early Term	
Preeclampsia with severe features, stable maternal and fetal condition after fetal viability (includes Superimposed)	Late Preterm	
Preeclampsia with severe features, unstable or complicated after fetal viability (includes Superimposed and HELLP)	Soon after maternal stabilization	

Timing of Medically Indicated Late Preterm and Early Term Deliveries for Medical Conditions

Condition	Timing	Gestational Age range
Pregestational diabetes well controlled	Full term	39 0/7-39 6/7 weeks
Pregestational diabetes not well controlled , vascular complications or prior still birth	Late preterm, early term	
Gestational Diabetes well controlled no medications	Full term	39 0/7-40 6/7 weeks
Gestational Diabetes well controlled on medications	Full term	39 0/7-39 6/7 weeks
Gestational diabetes poorly controlled	Late preterm, early term	Individualized
HIV Intact membranes and viral load >1000 copies/ml	Early term cesarean delivery	38 0/7 weeks gestation
HIV Viral load <u>< 1000 copies/ml with antiretroviral therapy</u>	Full term I early term birth not indicated)	39 07 weeks or later
Intrahepatic cholestasis of pregnancy. Total bile acids <100 micromol/L	Late preterm, early term	36 0/7-39 0/7 weeks or at diagnose if diagnosed later
Intrahepatic cholestasis of pregnancy. Total bile acids $\geq$ 100 micromol/L	Late preterm	36 0/7 weeks or at diagnose if diagnosed later

Timing of Medically Indicated Late Preterm/Early Term Deliveries: Obstetric/Placental Conditions

Condition	Timing	Gestational age range
Preterm PROM	Late preterm	34 0/7 weeks of gestation or at diagnosis if diagnosed later
PROM (37 weeks and beyond)	Usually at diagnosis	Usually at diagnosis
Previous still birth	Full term (early term birth not routinely recommended)	Individualized
Placenta Previa	Late preterm/early term	36 0/7-37 6/7 weeks
Suspected accreta, increta, or percreta	Late preterm	34 0/7 -35 6/7 weeks
Vasa Previa	Late preterm/early term	34 0/7 -37 0/7 weeks
Prior classical cesarean	Late preterm/early term	36 0/7-37 0/7 weeks
Prior myomectomy requiring cesarean as entered uterine cavity	Early term (individualize)	37 0/7-38 6/7 weeks
Previous uterine rupture	Late preterm/early term	36 0/7 -37 0/7 weeks

Timing of Medically Indicated Late Preterm/Early Term Deliveries: Fetal growth/amniotic fluid

Condition	Timing	Gestational age range
Uncomplicated FGR EFW between 3-10%	Early term/full term	38 0/7-39 0/7 weeks
Severe FGR EFW <3 rd percentile	Early term	37 0/7 weeks or at diagnosis if diagnosed later
FGR with decreased end diastolic flow w/o absent flow umbilical artery	Early term	37 0/7 weeks or at diagnosis if diagnosed later
FGR with absent end diastolic flow on umbilical artery	Preterm/late preterm	33 0/7-34 0/7 weeks or at diagnosis if diagnosed later
FGR With reverse end diastolic flow umbilical artery	preterm	30 0/7-32 0/7 weeks or at diagnosis if diagnosed later
FGR with concurrent conditions	Late preterm /early term	34 0/7-37 6/7 weeks
Oligohydramnios (deepest vertical pocket <2 cm)	Late preterm/early term	36 0/7- 37 0/7 weeks or at diagnosis if diagnosed later
Polyhydramnios (mild idiopathic)	Full term	39 0/7-39 6/7 week

Timing of Medically Indicated Late Preterm and Early Term Deliveries

Condition	General Timing	Suggested Specific Timing
Placental/Uterine Conditions		
Placenta previa [†]	Late preterm/early term	36 0/7–37 6/7 weeks of gestation
Suspected accreta, increta, or percreta [†]	Late preterm	34 0/7–35 6/7 weeks of gestation
Vasa previa	Late preterm/early term	34 0/7–37 0/7 weeks of gestation
Prior classical cesarean	Late preterm/early term	36 0/7–37 0/7 weeks of gestation
Prior myomectomy requiring cesarean delivery [†]	Early term (individualize)	37 0/7–38 6/7 weeks of gestation
Previous uterine rupture	Late preterm/early term	36 0/7–37 0/7 weeks gestation
Fetal Conditions		
Oligohydramnios (isolated or otherwise uncomplicated [deepest vertical pocket less than 2 cm])	Late preterm/early term	36 0/7–37 6/7 weeks of gestation or at diagnosis if diagnosed later
Polyhydramnios (mild, idiopathic) [†]	Full term	39 0/7–39 6/7 weeks of gestation
Growth restriction (singleton)		
Otherwise uncomplicated, no concurrent findings, EFW between 3rd and 10th percentile	Early term/full term	38 0/7–39 0/7 weeks of gestation
Otherwise uncomplicated, no concurrent findings, EFW <3rd percentile	Early term	37 0/7 weeks of gestation or at diagnosis if diagnosed later
Abnormal umbilical artery dopplers: decreased end diastolic flow without absent end diastolic flow	Early term	37 0/7 weeks of gestation or at diagnosis if diagnosed later
Abnormal umbilical artery dopplers: absent end diastolic flow	Preterm/late preterm	33 0/7–34 0/7 weeks of gestation or at diagnosis if diagnosed later ^s
Abnormal umbilical artery dopplers: reversed end diastolic flow	Preterm	30 0/7–32 0/7 weeks of gestation or at diagnosis if diagnosed later ^s
Concurrent conditions (oligohydramnios, maternal co-morbidity [eg, preeclampsia, chronic hypertension])	Late preterm/early term	34 0/7–37 6/7 weeks of gestation
Multiple gestations—uncomplicated		
Dichorionic-diamniotic twins	Early term	38 0/7–38 6/7 weeks of gestation
Monochorionic-diamniotic twins	Late preterm/early term	34 0/7–37 6/7 weeks of gestation
Monochorionic-monoamniotic twins	Preterm/late preterm	32 0/7–34 0/7 weeks of gestation
Triplet and higher order multiples	Preterm/late preterm	Individualized
Alloimmunization		
At-risk pregnancy not requiring intrauterine transfusion	Early term	37 0/7–38 6/7 weeks of gestation
Requiring intrauterine transfusion	Late preterm or early term	Individualized



ARRIVE Trial of Labor Induction in Low Risk Nulliparous at 39 Weeks

ARS Question



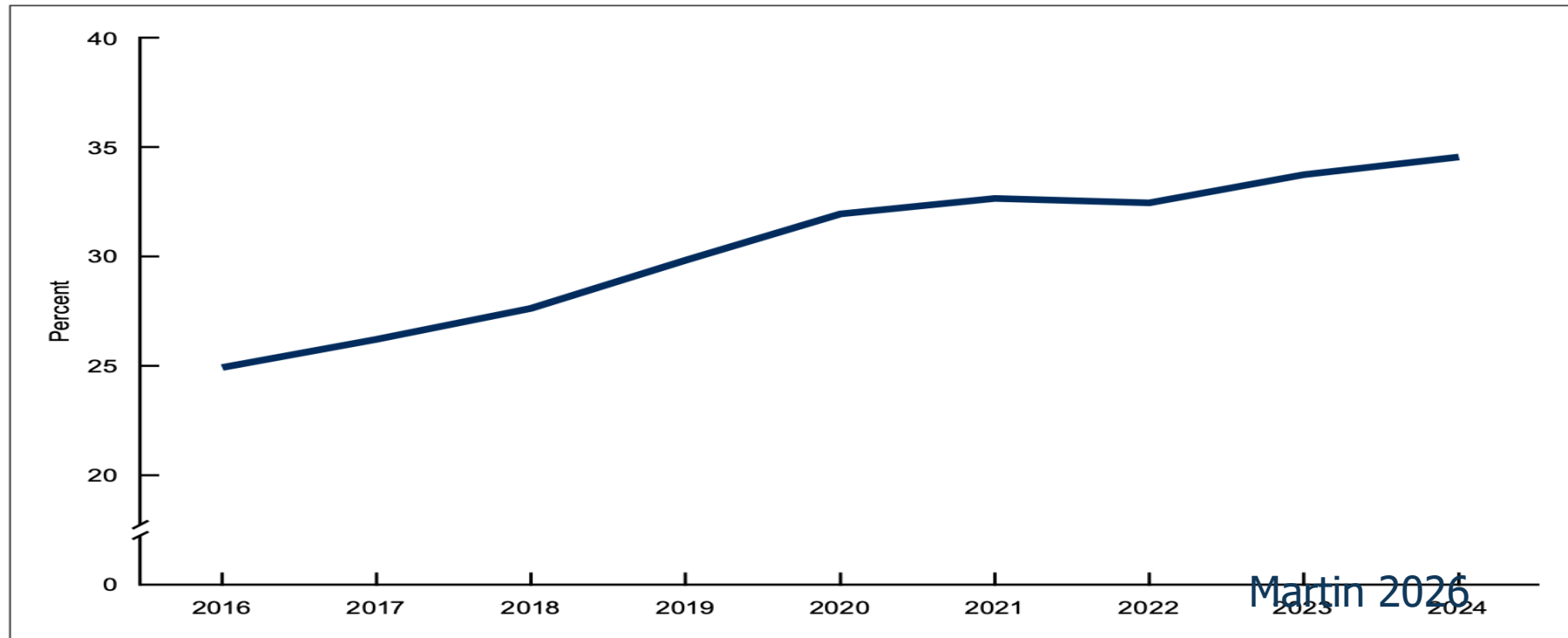
Question 2

Induction of labor at 39 weeks in a healthy low risk nulliparous patient without medical indication for labor and with a Bishop score of 3 has been shown in published randomized trials to:

- A. Increase their risk of a cesarean delivery compared to expectant management
- B. Increase their satisfaction with labor care
- C. Reduce their infant's likelihood of NICU admission
- D. Reduce their chance of developing gestational hypertension/pre-eclampsia
- E. Reduce the average number of hours in labor and delivery

Increasing Rate of Labor Induction Prior to the ARRIVE Trial

Figure 1. Induction of labor rate: United States, 2016 to 2024



NOTES: Significantly increasing trend from 2016 to 2024 ($p < 0.05$) with different rates of change. Singleton births only.
SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

1990: 9.6% to 2018 27.1%

Overview of ARRIVE TRIAL

- Multicenter RCT of labor induction vs expectant management in low-risk nulliparous women
- Primary outcomes was composite of perinatal death and severe neonatal complications
- Secondary maternal outcomes were rate of cesarean delivery and likelihood of developing hypertensive disorders of pregnancy

Arrive Trial Primary Neonatal and Secondary Maternal Outcomes

Primary Composite Neonatal Outcomes

4.3% in induction group and 5.4% in expectant management group

Perinatal death
Respiratory support
Apgar score ≤3 at 5 min
Hypoxic–ischemic encephalopathy
Seizure
Infection
Meconium aspiration syndrome
Birth trauma
Intracranial or subgaleal hemorrhage
Hypotension requiring vasopressor support

Secondary Maternal outcomes

Maternal Condition	Induced	Expectant	Odds Ratio	P value
Cesarean delivery	18.6%	22.2%	0.84(0.76-0.93)	<0.001
Operative vaginal	7.3%	8.5%	0.85 (0.72-1.01)	0.07
Hypertensive disorder of pregnancy	9.1%	14.1%	0.64 (0.56-0.74)	<0.001

Limitations/Critiques

- Only applies to low-risk nulliparous women
- Study population is women willing to be randomized to induction
- 96% physician care and 4% midwifery care
- Lacked cost analysis
- Did not address strain on nursing staffing with longer hospital stays

Impact of Arrive on Stillbirth and Induction Rates

- U.S Live birth and Infant Death Vital Statistics data before and after ARRIVE from 2016 -2018 to 2019 to 2020
- Primary outcome: Still birth
- Secondary outcomes: induction of labor; perinatal mortality
- Adjusted relative risk of induction at 39 weeks was 1.37 (95% CI 1.37-1.38)
- No significant effect on stillbirth or perinatal mortality at 39 or 40 week

Counseling Women Based on ARRIVE Trial

- Appropriate to discuss with all nulliparous women
- With regard to preventing cesarean there are other ways to decrease cesarean rates in including use of
Doulas, site and providers with low cesarean rates
- Duration of stay in labor and delivery: median 20 hours with induction vs 14 hours expectant
- Medicalization vs. spontaneous delivery
- Per CMQCC: Does birth unit have 'Strict guidelines for defining failed induction and guidelines for management of active phase and fetal monitoring abnormalities



Emerging Indication Induction at 38 Weeks for Macrosomia

Is there a Role for Induction for Fetal Macrosomia?

- Historical answer has been no except perhaps in diabetes where indication gets confounded by issues of poor control
- Limited accuracy of US for EFW is an issue as fetal macrosomia may not be reflected in neonatal macrosomia
- What is the goal of induction?
 - Decrease shoulder dystocia?
 - Decrease brachial plexus palsy? Too rare an outcome to power studies?
 - Decrease cesarean ?
- Potential risks from prematurity if deliver before 39 weeks?

The Big Baby Trial: Outcomes

- Multicenter British Study n=2893
- EFW >90% between 35 0/7 and 38 0/7 weeks
- Gestational diabetes or drug treated diabetes
- Primary Outcome shoulder dystocia: 2.3 vs. 3.1 % NS in intention to treat and in the “per protocol” analysis : 2.3% vs 3.7% (RR 0.62; 95% CI)(0.41-0.97)
- Incidental cost to prevent one shoulder dystocia as 11,879 pounds

Macrosomia Meta-analysis

- 5 RCTS of induction vs labor management at 38 weeks for macrosomic fetuses
- Most induced at 38 weeks “38 0/7-38 4/7” in Big Baby Trial
- Significantly decreased risk of cesarean delivery
27.9% vs 31.9% RR 0.87 (95 % CI 0.79 to 0.96)



Balloon Dilators for Cervical Ripening: Foley Catheters and Double Balloon Cook Catheter

Balloon Options for Cervical Ripening and Labor Induction

- Single balloon for Foley catheter being least expensive; 26 gauge is common
- Double balloon with Cook being best known. May have advantage of less likely to fall out and better effect due to dual compression from inside and outside

Single vs Double Balloon Intracervical Catheters

- Similar effectiveness based on cesarean rates and intervention to delivery time
- Double balloon catheter is more expensive

Place with Speculum or Digitally?

Systemic review and meta-analysis of 4 studies

- Digital overall less pain and more acceptable
- Speculum allows visualization of passing through cervix
- No RCTS comparing success rates

6 vs. 12 Hours of Balloon Placement

- Studies designs vary based on parity, cervical dilation, obstetric history
- Overall removal at 6 hours and proceeding with next intervention associated with faster delivery time
- Tugging on catheter not shown beneficial
- Removal at 6 hrs. may be associated with increased need to replace
- Using six hours as standard appears reasonable however if adding misoprostol or using with oxytocin may not be an advantage
- Timing may also depend on urgency of delivery: May leave in at 6 hours if 2 am if routine postdates and patient sleeping, but if have pree with severe features may be best to remove and AROM

Simultaneous or Sequential Use of Oxytocin and Balloon: Systematic Review and Meta-analysis

8 studies 1315 nulliparous and multiparous women with unripe cervix.

Simultaneous has advantages:

- Higher rate of delivery within 24h in nulliparas
(RR = 1.30, 95%CI:1.04, 1.63, $p = 0.02$)
- Higher rate of vaginal delivery within 24h in multiparas
(RR = 1.32, 95%CI:1.15,1.51, $p < 0.00001$)
- No change in cesarean rate or adverse outcomes

Questions Regarding Use of Balloon Dilators

- Is single or double balloon preferred?
- How to place-speculum or digital?
- Number of hours in place before removing and proceeding to other methods, oxytocin or AROM
- Sequential use of balloon and oxytocin vs simultaneous use
- Simultaneous use of balloon and misoprostol
- Use after rupture of membranes?



Misoprostol with Foley Catheter for Labor Induction

Misoprostol with Foley Bulb vs. Misoprostol Alone

- RCT of simultaneous use: time to delivery in misoprostol-transcervical Foley group: 15.0 (11.0–21.8) hours (median [interquartile range]) vs 19.0 (14.0–27.3) hours in the misoprostol-only group ($P=.001$) Al-Ibraheemi 2018
- RCT of sequential use: Sequential use increased the probability of vaginal delivery compared to misoprostol alone (77.5% vs 69.5%; adjusted RR=1.16; 95% CI: 1.04-1.29; $P=.009$) and decreased the total dose of misoprostol required in the sequential group from 8 to 6 ($P<.001$). Issenova 2025

Single Balloon Catheter with Concomitant Vaginal Misoprosol Meta-analysis

- Compared wide range of induction methods in meta-analysis using 207 RCTS and 40,854 participants
- Single-balloon catheter with misoprostol was the most effective in reducing the odds of cesarean delivery and vaginal birth >24 hours (surface under the cumulative ranking curve of 0.9 for each).
- Low-dose vaginal misoprostol was the most effective in reducing the odds of cesarean delivery
- High-dose vaginal misoprostol was the most effective in achieving vaginal delivery within 24 hours



Outpatient Cervical Ripening and Labor Induction

Outpatient Cervical Ripening and Labor Induction: Systematic Review Network Meta-analysis

42 RCTs with 6093 participants

- Vaginal misoprostol 25 ug was most effective in shortening time to delivery
- Did not increase cesarean delivery, need for additional ripening , low APGAR score, or hyper stimulation
- Authors call for additional outpatient research with concomitant misoprostol and foley catheter

Outpatient vs. Inpatient Multicenter RCT with Double Balloon (Cook) Catheter

359 people with uncomplicated pregnancy planning risk induction

(post-term, macrosomia and patient request)

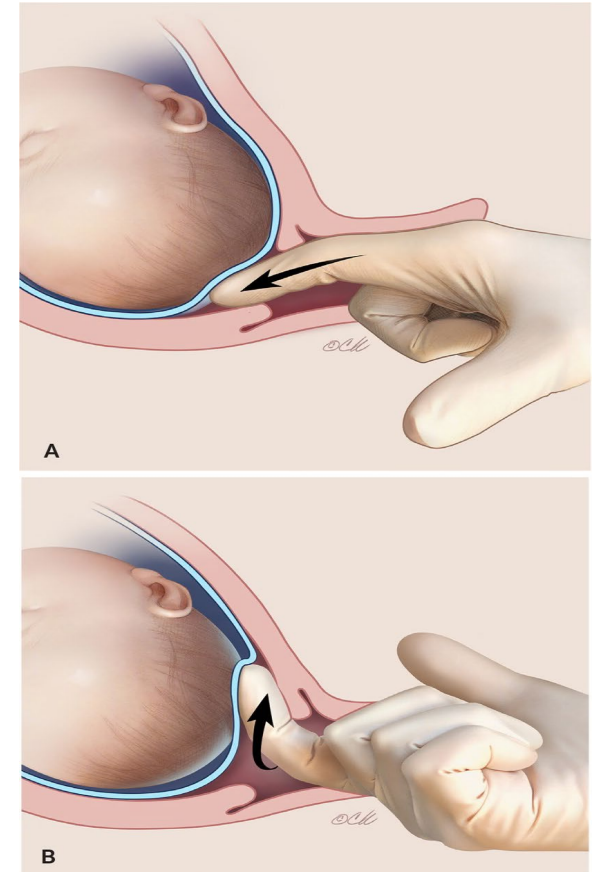
- Primary outcome was “suboptimal CTG rate”: No increase in concerning fetal tracings
- **Higher patient satisfaction in outpatient group:**
 - 42.3% in OP vs 27.8% in IP felt induction: “didn’t take too long”
 - More people in OP (62%) would recommend same method future pregnancy

Outpatient vs. Inpatient Multicenter RCT Norway

- 283 were randomized
- Primary outcome maternal satisfaction
- Sent home with 12 tablets of 25 mcg oral misoprostol to use q 2 hour up to 6 times a day for up to 48 hour and pause at 10 pm
- Call hospital if painful regular contractions, ROM or bleeding
- CEQ scores slightly increased in outpatient 3.1 vs 3.0 mean difference 0.14, 95% CI (0.02–0.25), $p = 0.02$
- 89% in outpatient would recommend same IOL compared to 71% in inpatient
- No adverse outcomes

Membrane Sweeping in Term Pregnancy: Systemic Review and Meta-analysis

- Desired outcomes spontaneous labor and preventing labor induction
- 34 RCTs with 6335 pregnant women
- Membrane sweeping from 40 weeks to 40 weeks 6 day
- Promoted spontaneous labor RR 1.18 (CI 1.16-1.41)
- Reduced formal induction RR 0.66 (CI 0.51-0.85)
- Limitation Significant heterogeneity



Answers

1. C
2. D

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Practice Recommendations SORT Ratings

1. Induction before 39 weeks should only occur for accepted medical indications nationally agreed on recommendations SORT B
2. Based on ARRIVE trial offer option of 39 weeks labor induction to nulliparous women to decrease cesarean rate however support patient choice SORT A
3. Offer labor induction with simultaneous balloon catheter and misoprostol or oxytocin to shorten time to delivery if no contraindication especially when accelerated timing is important such as preeclampsia with severe features SORT B
4. Offer outpatient placement of a Foley catheter for cervical ripening in selected patients nulliparous patients with an unfavorable cervix SORT B

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Thank you



Medicolegal Lessons for Obstetric Providers: Neonatal Neurologic Injury

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Disclosure Statement

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Learning Objectives

1. Identify the high-risk clinical scenarios and medicolegal vulnerabilities associated with neonatal neurologic injury.
2. Differentiate the mechanisms, clinical indicators, and outcomes of neonatal neurologic injuries—including brachial plexus palsy and injuries related to shoulder dystocia.
3. Apply evidence-based documentation and clinical decision-making strategies that reduce medicolegal exposure in obstetric practice.
4. Explain the pathway, responsibilities, and ethical obligations involved in serving as a medical malpractice expert witness.
5. Implement risk-reduction strategies that enhance patient safety and minimize litigation related to obstetric neurologic injury.



Why This Topic Matters

- Obstetrics among the **highest liability specialties** (Glover, 2020)
- Neonatal neurologic injury → **highest severity payouts** (MPL, 2021)
- Long statute of limitations for minors
- Impact on family physicians providing obstetrics



The Case

The Case

- A 32-year-old G2 P1 presents in spontaneous labor at 39 weeks. Her pregnancy has been uncomplicated. Estimated fetal weight at her 38-week visit was about 3800 grams. Her first baby weighed 8 pounds 6 ounces and delivered vaginally without difficulty.
- Labor progresses slowly but she eventually enters 2nd stage.
- After two hours of pushing, the fetal head delivers... but the shoulders do not follow.

The Case

- Shoulder dystocia declared
- Initial maneuvers
 - McRoberts
 - Suprapubic pressure
- 1min later
 - Rubin maneuver
 - Attempted delivery of posterior arm
- After several minutes, delivery is facilitated with “Hook and Roll”

The Case

- Newborn is limp
- APGARs 5, 6, 8
- Arterial cord pH 7.0
- Neonatal resuscitation and NICU admission
- Over the next days:
 - Weak moving of the right arm
 - Neurology confirms brachial plexus injury

Litigation Framing

- Three years later, the parents file a lawsuit
- The allegations:
 - The baby was too large for vaginal delivery
 - A cesarean should have been recommended
 - Excessive traction caused the brachial plexus injury
 - The dystocia lasted too long before successful delivery
- An expert witness testifies:
 - “A properly managed shoulder dystocia should resolve within 1-2 minutes”

Relevance

- Shoulder dystocia cases represent one of the most common causes of obstetric malpractice litigation.
- Not because the complication itself is rare — but because **the events unfold quickly, documentation is often incomplete, and the injury can be lifelong.**
- Most obstetric malpractice cases don't arise from reckless care. They arise from **ordinary clinical uncertainty, documentation gaps, and the way decisions are interpreted years later by people who were never in the room.**
- Today we'll walk through how these cases unfold — and more importantly, what clinicians can do **today** to reduce medicolegal risk.



Evidence-Based ARS Questions



ARS Question



Question 1

Can you predict if a Brachial Plexus Palsy will result when a shoulder dystocia occurs?

- A. Yes
- B. No

Predictors of Neonatal Brachial Plexus Palsy Subsequent to Resolution of Shoulder Dystocia

- Retrospective review: 1,137 SDs
- 93.5% no BPP, 6.5% BPP

Factor	OR	95% CI
Any Diabetes	5.45	3.23–9.19
VAVD/FAVD	2.01	1.07–3.78
BW* > 4000	2.59	1.60–4.18
≥3 maneuvers	2.36	1.47 3.80
Duration >120 sec	5.64	3.35 9.53
Apgar <5 at 5 min	23.3	6.42 84.5

- Knowable before birth, unavoidable
- Knowable at birth, unavoidable
- Unknowable
- Unknowable
- Unknowable
- Unknowable

*"In conclusion, while several risk factors associated with NBPP after shoulder dystocia are discernable, they are **insufficient to predict** which newborn will have NBPP"*

*EFW not predictive

ARS Question



Question 2

Does the order of shoulder dystocia maneuvers matter?

- A. Yes
- B. No

Shoulder Dystocia Maneuvers

Shoulder Dystocia	
HELPER ⁴	
H	Call for H elp!
E	E valuate and E xplain the clinical situation
L	L egs — McRoberts maneuver
P	Suprapubic P ressure
E	E nter the birth canal posteriorly and assess the need for an E pisiotomy
R⁴	R emove the posterior arm R otational maneuvers R oll the patient to hands and knees R epeat

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ALSO 10th Edition:

“HELPER⁴ provides various options to manage SD”

“order is flexible”

“use the maneuver most likely to result in successful delivery”

“**84.4%** of deliveries had successful resolution of SD when delivery of the posterior shoulder was attempted”

“Because the risk of neonatal injury increases as the number of additional maneuvers required, choosing the best single internal maneuver to effect the delivery has led to a recommendation that **removal of the posterior arm should be the first one attempted**”

ARS Question



Question 3

Does the number of shoulder dystocia maneuvers required to deliver matter?

- A. Yes
- B. No



Neonatal and Maternal Outcomes following Shoulder Dystocia Resolution Utilizing $\geq$ vs $<$ 3 Maneuvers

- Secondary Analysis of APEX trial: 115,000 deliveries at 25 Hospitals
- **P:** singleton vertex nonanomalous $>$ 34wk with shoulder dystocia
- **I:** $\geq$ 3 maneuvers
- **C:** 1 or 2 maneuvers
- **O:** Composite NNAO*
 - APGAR $<$ 5 at 5 minutes*
 - Fetal fractures
 - Intracranial hemorrhage
 - Brachial plexus palsy*
 - Facial nerve palsy
 - Hypotension treated
 - Hypoxic-ischemic encephalopathy*
 - Neonatal death

- Results:

Primary Composite*:
 ≥ 3 maneuvers = 15.1%
 < 3 maneuvers = 6.5%

- "Conclusion: ***SD relieved by ≥ 3 maneuvers, compared with < 3 , was associated with a 2-fold-increased risk for the composite neonatal adverse outcome***"

* significantly more likely

What drove the higher rate of neonatal brachial plexus palsy?

Used 3 or more maneuvers

More severe dystocia



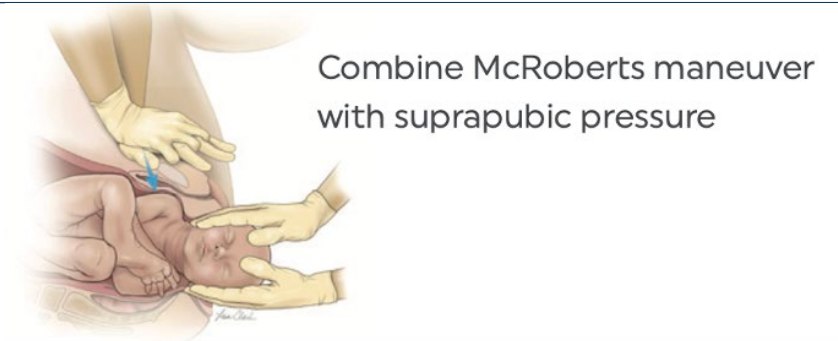
ARS Question



Question 4

My first-line maneuver after McRoberts with suprapubic pressure is...

- A. Posterior Arm
- B. Internal Rotational Maneuvers
- C. Gaskin
- D. Posterior Axillary Sling Technique
- E. Menticoglou maneuver
- F. Holman maneuver
- G. Schramm maneuver
- H. Shoulder shrug maneuver
- I. Something else



Remove the posterior arm:



Follow the posterior arm to the elbow.



Flex the arm at the elbow.



Sweep the forearm across the chest and out of the vagina.

Rotational maneuvers:



Rubin II



Rubin II + Woods Screw



Reverse Woods Screw

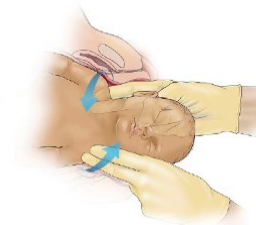
Rubin II

Rubin II + Woods Screw

Roll the patient:



Reverse Woods Screw

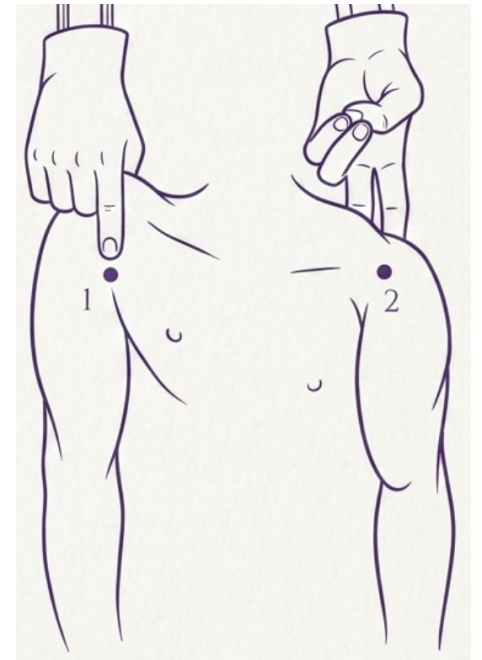


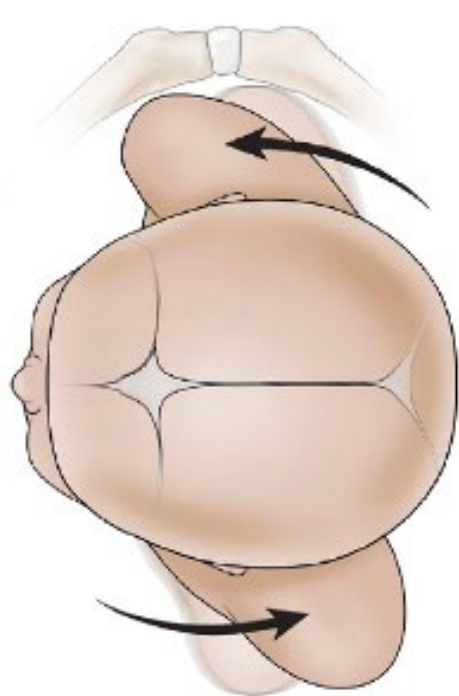
New Technique: The Hook & Roll Maneuver for Resolution of Shoulder Dystocia

- Posterior axilla traction + rotation of the anterior shoulder
- **Observational**: 53/54 successful (98.1% effective)
- 0/16 neonatal injuries when used as first line

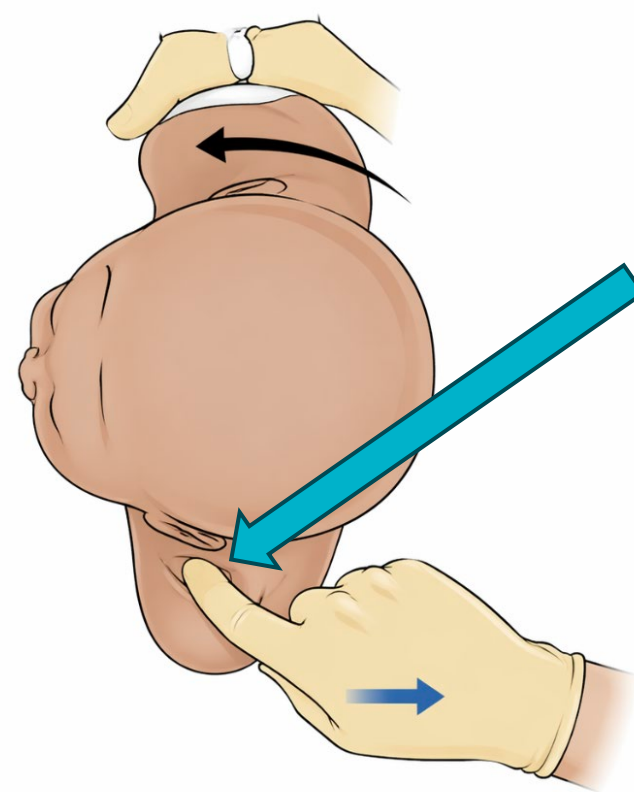


"...used as the primary internal maneuver after the McRoberts maneuver and suprapubic pressure..."



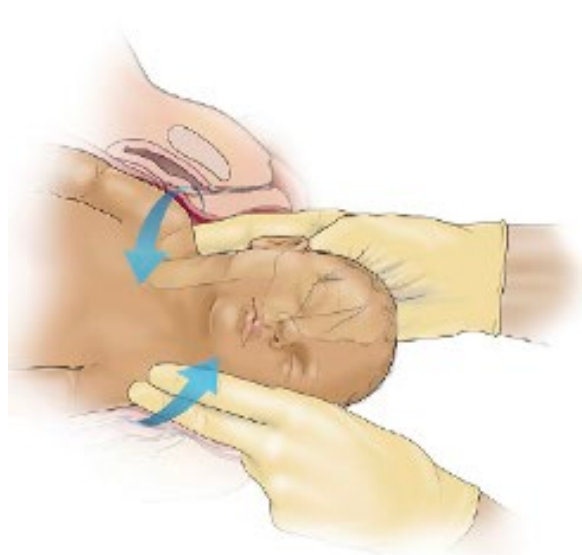


Rubin II + Woodscrew



Finger should
be in axilla –
please forgive
chatGPT

Hook and Roll







Shoulder Dystocia and Neonatal Brachial Plexus Palsy

Shoulder Dystocia + Brachial Plexus Palsy

- **Definitions / Incidence:**

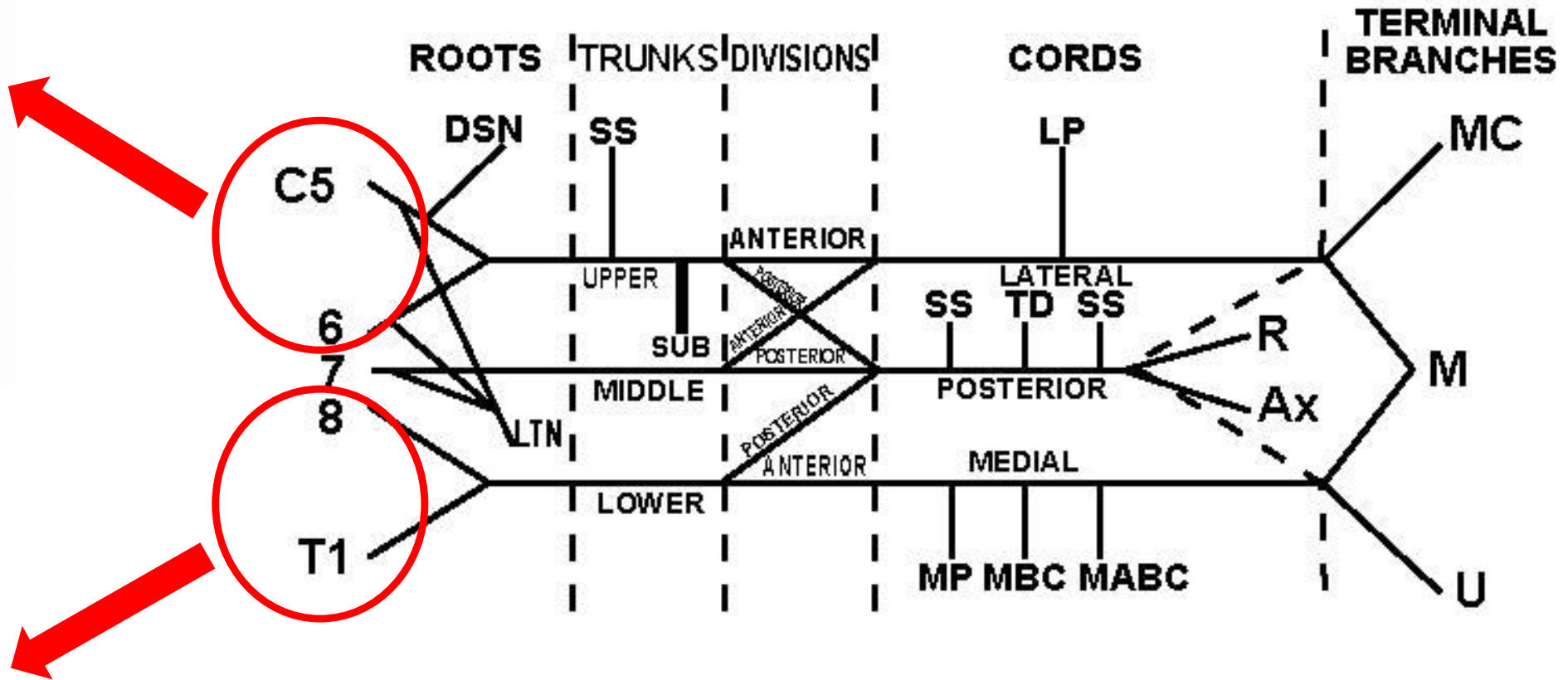
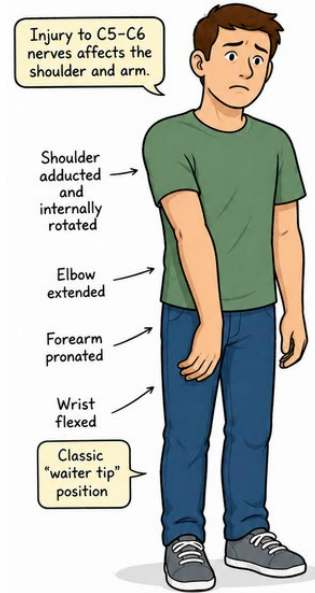
- Shoulder Dystocia (SD): additional maneuvers required beyond gentle downward traction on the fetal head; incidence $_{SD} = 2$ to 30 per 1,000 vaginal deliveries.
- Neonatal complications occur $\sim 5\%$ of SD (clavicular and humeral fractures, brachial plexus injury, hypoxic ischemic encephalopathy and death)
- Neonatal Brachial Plexus Palsy (NBPP): a weakness or paralysis of the arm caused by an injury to the **brachial plexus**; incidence $_{NBPP}$: 1.5 per 1,000 births (both transient and persistent), 1.1–2.2 per 10,000 births (permanent)

Shoulder Dystocia + Brachial Plexus Palsy

- **Pathophysiology:**

- Endogenous (uterine contractions + maternal pushing) and exogenous (clinician-applied downward) forces result in strain on brachial plexus when fetal shoulders are trapped behind narrowed space between maternal symphysis pubis and sacral promontory- impaction of the fetus' anterior shoulder behind the pubic symphysis

Brachial Plexus Palsy



Shoulder Dystocia + Brachial Plexus Palsy

- **Risk factors:**

- Fetal malposition, labor induction, labor abnormalities, operative vaginal delivery, fetal macrosomia, and shoulder dystocia not shown to be statistically significant or clinically useful predictors for the occurrence of NBPP (greater than 80% NBPP occur without known risk factors)

- **Prediction:**

- Risk factors are **not reliable** predictors for SD or NBPP

- **Prevention:**

- **No intervention** has been identified that will prevent all or even most cases of NBPP or clinically apparent shoulder dystocia
- Three clinical situations to consider altering usual management to reduce the risk of shoulder dystocia and brachial plexus injury:
 - 1) EFW $\geq 5\text{kg}$ without diabetes or $\geq 4.5\text{kg}$ with diabetes
 - 2) H/o shoulder dystocia (especially with severe neonatal injury)
 - 3) Midpelvic operative vaginal delivery with fetal birth weight more than 4kg
- Even then, rate of NBPP is low
- Shoulder dystocia simulation ↓ rate of NBPP per SD case but increases SD dx and rate of CD

Brachial Plexus Palsy

- **Management strategies:**

- The primary objective during shoulder dystocia = delivery before hypoxic–ischemic injury
- Ancillary maneuvers increase strain on fetal brachial plexus
- Any intervention pits risk of NBPP vs HIE
- Once NBPP is suspected, prioritize early referral to a specialty care center
 - Occupational and physical therapy can support spontaneous recovery of function and minimize musculoskeletal comorbidities
 - Surgical nerve reconstruction for panplexopathy and preganglionic nerve root lesions

- **Prognosis:**

- Short term: overall, infants who sustain NBPP have a good prognosis, with the majority recovering adequate functional use of the affected arm without surgical intervention (many recover spontaneously)
- Long term: 10-18% permanent NBPP (>12mo) (Chauhan, 2014)
- Implication for future pregnancies: recurrence rate of shoulder dystocia 7.2% (Jeppegaard, 2024); limited data on recurrence rate of NBPP

“In addition to research within the obstetric community, the pediatric, orthopedic, and neurologic literature now stress that the existence of NBPP following birth does not a priori indicate that exogenous forces are the cause of this injury.”



Legal Aspects

Why Neonatal Injury Cases Are So High-Risk

- Lifelong disability
- Massive economic damages
- Emotional jury response
- Retrospective interpretation of fetal tracings

What Plaintiffs Must Prove

- Duty
- Breach of standard of care
- Causation
- Damages

Most cases hinge on **breach and causation arguments about fetal monitoring and timing of delivery.**

The Retrospective Bias Problem

- **Hindsight bias.**
- What clinicians see: evolving uncertainty
- What juries see: an “obvious” missed opportunity

Fetal monitoring is interpreted **very differently in court than in the delivery room.**

Common Allegations in Litigation

- Typical claims include:
 - Failure to perform timely cesarean
 - Misinterpretation of fetal heart tracings
 - Failure to escalate care
 - Poor communication with consultants
 - Inadequate documentation

The Reality: Shoulder Dystocia & Predictability

- Foreseeable $\neq$ Preventable
- Most shoulder dystocia is unpredictable
- Most macrosomic infants deliver without dystocia
- Ultrasound EFW has meaningful error margins
- Risk factors increase probability, not certainty

Neonatal Brachial Plexus Palsy: uncommon, unpredictable, and unpreventable

Communication Failures

Examples:

- delay calling for help
- unclear team roles
- failure to notify pediatrician / neonatal resuscitation
- failure to involve patient in decision

Communication breakdowns frequently become **the narrative of negligence.**

Documentation: What You Write Determines What They Argue

- Common chart vulnerabilities:
 - Charting after the fact
 - Failure to document patient discussions (and consent)
 - Emotional language
 - Missing rationale for decisions
 - Lack of reassessment documentation
 - Inconsistent nursing/physician notes
 - Overly brief dystocia description

If the reasoning is not documented, the reasoning legally **did not occur.**

Documentation Tips/Tricks:

H&P / Labor Progress notes:

- Estimated Fetal Weight
- h/o Shoulder Dystocia
- Prolonged labor
- RBAI of operative vaginal delivery
- Discussion of risk factors with patient/nursing prior to delivery

Delivery note:

- ~~"Shoulder dystocia resolved"~~
- Time head delivered
- Time shoulders delivered
- Maneuvers in sequence
- Personnel present
- No fundal pressure used
- Neonatal status at birth
- Discussion with patient post-event

Obstetric Factors Associated with Litigation for NBPP:

- 51 consecutive families whose children were treated for NBPP
- Litigated vs Not: no differences in demographics, peripartum characteristics, operative versus spontaneous vaginal birth, shoulder dystocia or birth weight > 9 lbs
- 1/2 cases associated with concomitant litigation
- The only factor associated with litigation was having brachial nerve surgery



The “Anatomy” of a Malpractice Case

(Proving Duty -> Breach -> Causation -> Damages)

1. Acute Obstetric Event + dyad mngt – hours, minutes, days
2. Early post-event period
 - Days – months: subspecialty referrals
 - Months– years: medical records reviewed by family/attorneys
3. Case Preparation (pre-suit)
 - 1-6 months: initial expert review: assess likelihood of malpractice criteria
4. Lawsuit filed
 - 1-3yr after delivery (typical): complaint filed in civil court -> defendants served with lawsuit (within days) -> defendant response (answer to complaint within 20-30 days after service)

(This does not include the totality of the statute of limitations)

The “Anatomy” of a Malpractice Case

5. Discovery Phase

- Typical duration 12-24mo
- Written discovery: interrogatories and document requests
- Medical record exchange and review
- Fact witness depositions
- Plaintiff deposition
- Defendant deposition
- Expert witness disclosures -> expert witness depositions

6. Pre-Trial motions

- Summary judgment motions 1-3mo before trial
- Daubert/Fryte hearings (expert admissibility) weeks to months before trial
- Settlement negotiations / mediations (1-3yr after filing; many cases settle here)

The “Anatomy” of a Malpractice Case

7. Trial (if not settled)

- Jury selection 1-3d
- Opening statements 1d
- Plaintiff case presentation (fact witnesses, expert testimony) 3-7d
- Defense case presentation 3-7d
- Closing arguments (0.5 – 1d)
- Jury deliberation (hours to days)

Typical malpractice trial length: 1-3wk

8. Verdict and Damages

- Jury verdict: Liability decision and Damages determination
- Damages: economic (medical care), non-economic (pain and suffering), lifetime care costs (often large in birth injury cases)

The “Anatomy” of a Malpractice Case

9. Post-Trial

- Post-trial motions: 1-3mo
- Appeal: 1-3yr
- Payment / settlement of judgment: months after final ruling

Typical Overall Timeline from event to final resolution:

- Early settlement: 2-4yr
- Full trial: 3-6yr
- Trial + appeal: 4-8yr

(This does not include the totality of the statute of limitations)

Fetal Monitoring in the Courtroom

- Fetal tracings:
 - experts reinterpret strips years later
 - selective strip segments shown
 - variability in expert opinions

Courts often assume fetal monitoring is more precise than it is.

Returning to the Case

- Quick review of opening case:
 - Labor course - unremarkable
 - Tracing evolution - unremarkable
 - Clinical decisions
- Where do you think the lawsuit focuses?

What It Actually Means to Be an Expert Witness

- Objectivity, not advocacy
- Define standard of care
- Case review process
- Depositions & trial
- Ethical boundaries

<u>Services:</u>	<u>Rate:</u>
<u>Case Review and Preparation:</u>	
Initial file review - Review medical records, depositions, imaging, and literature research	\$500.00/hour
Report generation - Drafting and finalizing Rule 26 reports or affidavits	\$500.00/hour
Consultation - Includes meetings or phone calls with retaining counsel	\$650.00/hour
<u>Testimony (Deposition and Trial):</u>	
Deposition Testimony - Minimum 2-hour charge applies	\$650.00/hour
Trial Testimony - Minimum one full day	\$4000.00 / full day
	\$2500.00 / additional 0.5d
<u>Travel and expenses:</u>	
Travel time	\$250.00/hour
Travel expenses - Airfare (Business Class for flights >3 hours), lodging, meals, ground transport	Reimbursed at actual cost
Mileage	Reimbursed at current IRS standard mileage rate
<u>Retainer and Administrative Fees:</u>	
Initial Retainer (Non-refundable):	\$2000.00
Expedited Review - Applied to cases requiring a report within 72 hours	\$1000.00
<u>Cancellation Policy:</u>	
Depositions - Cancellations made fewer than 2 business days in advance	\$1000.00
Trial - Cancellations made fewer than 5 business days in advance	\$2000.00

Practical Risk-Reduction Strategies

Examples:

- **1. Document decision making**
 - Instead of: "Tracing reviewed"
 - Document: interpretation, differential, plan
- **2. Reassess frequently**
 - Chart evolving thought process.
- **3. Escalate early**
 - Document when help was called.
- **4. Shared decision making**
 - Document patient counseling when appropriate.

Risk Mitigation: The 4D Strategy

- 1. Discuss**
- 2. Decide**
- 3. Do**
- 4. Describe**

Risk Mitigation: The 4D Strategy

1. Discuss

- **Meaning:** Engage in **anticipatory counseling and shared decision-making** before a complication occurs (discuss risks of fetal macrosomia, shoulder dystocia, operative delivery, cesarean vs vaginal delivery)
- **Why it matters** legally:
 - Many lawsuits arise when families say: “No one told us this could happen”
 - Even if shoulder dystocia is unpredictable, documentation that risks were discussed demonstrates that the patient **participated in the decision-making process**.
- **Examples in practice**
 - Counseling about delivery options with suspected macrosomia
 - Documenting risk discussion when EFW is large
 - Explaining risks of operative vaginal delivery
 - Discussing plan if labor stalls

Example documentation:

“Discussed increased risk of shoulder dystocia given estimated fetal weight. Reviewed risks of vaginal delivery vs cesarean. Patient prefers trial of labor.”

Evidence for Shared Decision-making?

“Can shared decision-making reduce medical malpractice litigation? A systematic review”

- 6562 titles/abstracts -> 19 full text reviewed -> 5 articles included
- Conclusion: “Given the lack of empirical data, there is **insufficient evidence** to determine whether or not **shared decision-making** and the use of decision support interventions can **reduce medical malpractice litigation**. Further investigation is required”

Risk Mitigation: The 4D Strategy

2. Decide

- **Meaning:** Make **timely, reasoned clinical decisions** and document the thought process. In litigation, physicians often lose cases not because the decision was wrong—but because **the reasoning behind the decision was never recorded.**
- **Why it matters** legally:
 - Years later experts review the chart at ask:
 - Why wasn't a cesarean done?
 - Why was a vacuum used?
 - Why did pushing continue?
 - If the reasoning isn't documented, it appears as though **no reasoning occurred.**
- **Examples in practice**
 - Decision to continue pushing
 - Decision to attempt operative delivery
 - Decision to proceed with vaginal delivery despite macrosomia risk
 - Decision to call for help during dystocia

Example documentation:

“Tracing reassuring with moderate variability. Patient progressing. Risks of cesarean vs continued labor reviewed; plan to continue pushing.”

Risk Mitigation: The 4D Strategy

3. Do

- **Meaning:** Perform **appropriate clinical actions promptly and according to accepted practice**. In Shoulder Dystocia this includes: Recognizing the dystocia quickly, calling for help, performing appropriate maneuvers, avoiding excessive traction, following recommended maneuver sequence
- **Why it matters** legally:
 - Experts evaluate whether the clinician:
 - recognized the emergency quickly
 - followed accepted obstetric maneuvers
 - escalated appropriately
 - Failure to act promptly/appropriately becomes the alleged **breach of standard of care**.
- **Examples in practice**
 - HELPERR mnemonic
 - Hook and Roll
 - Activating neonatal team, coordinating roles, documenting times

Example documentation:
Dot phrase HELPERR mnemonic

Risk Mitigation: The 4D Strategy

4. Describe

- **Meaning: Clearly document what happened, why it happened, and how it was managed.** This is arguably the **most important medicolegal protection.** In shoulder dystocia cases, documentation is often the biggest vulnerability.
- **Why it matters** legally:
 - Courts reconstruct the entire event from the chart.
 - A vague note like: “shoulder dystocia managed.” is risky
 - A detailed note shows **organized, competent management.**

Key elements to document:

- Time head delivered
- Recognition of shoulder dystocia
- Maneuvers used and sequence
- Personnel present
- Time interval until delivery
- Neonatal condition
- Communication with family

Risk Mitigation: The 4D Strategy

Shoulder dystocia litigation typically focuses on three allegations:

- **The dystocia should have been predicted**
- **Excessive traction caused the brachial plexus injury**
- **The dystocia lasted too long**

The 4Ds address each vulnerability:

Risk:

Failure to counsel

Poor Decision Rationale

Improper Maneuvers

Incomplete Documentation

4D Protection:

Discuss

Decide

Do

Describe

What Juries Find Persuasive

- Protective factors:
 - clear reasoning
 - timely reassessment
 - teamwork
 - documentation of uncertainty
- Jurors are often evaluating:
 - Was this physician **thoughtful and careful**, or **passive and inattentive**?

Key Take-Home Rules

- **Document reasoning, not just events.**
- **Escalate earlier than feels necessary.**
- **Reassess fetal tracings explicitly.**
- **Close the communication loop.**



Closing

- Most malpractice cases are not about bad doctors.
- They are about **ordinary clinicians navigating uncertainty** in environments where decisions are later judged with perfect hindsight.
- Then reinforce:
- The goal is not to eliminate risk —
but to make sure your care **still makes sense five years later in a courtroom.**

Practice Recommendations

Recommendation	SORT
• Try to resolve a shoulder dystocia with as few maneuvers as possible	B
• Consider the Hook and Roll technique for shoulder dystocia	B

Answers

1. B (no)
2. No right answer (maybe A: yes)
3. A (yes)
4. No right answer



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Questions? Contact me

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Thank you



Supplemental Slides

- AI-generated mock deposition

Deposition Slides

**IN THE SUPERIOR COURT OF THE STATE OF
MISSOURI**

COUNTY OF ST LOUIS

**JANE DOE, as Parent and Natural Guardian of
BABY DOE,**

Plaintiff,

v.

DOCTOR and METRO GENERAL HOSPITAL,

Defendants.

DEPOSITION OF WITNESS: YOUR NAME, M.D.

DATE: APRIL 21, 2026

APPEARANCES:

For the Plaintiff: Ms. Sarah Jenkins, Esq.

For the Defendant: Mr. Robert Sterling, Esq.

LAWYER: Doctor, we are here to discuss the delivery of Baby Doe on January 15. You've testified that you diagnosed a shoulder dystocia after the head delivered and the chin retracted against the perineum—the "turtle sign"—correct?

DOCTOR: That is correct.

LAWYER: Now, once you realize the anterior shoulder is impacted behind the pubic bone, time is of the essence, isn't it?

DOCTOR: It is a medical emergency, yes.

LAWYER: Because every second the baby is stuck, the umbilical cord can be compressed, leading to a lack of oxygen to the brain?

DOCTOR: That is one of the primary risks we manage.

LAWYER: And in this case, Baby Doe was eventually diagnosed with Hypoxic-Ischemic Encephalopathy (HIE), which led to cerebral palsy. That's a result of oxygen deprivation during those minutes of impaction, right?

Deposition Slides

DOCTOR: It is one factor. There are many variables in fetal distress.

LAWYER: Let's talk about your maneuvers. Your notes say you applied "downward traction" to the head to attempt to dislodge the shoulder. How much force did you use?

DOCTOR: I used standard, steady traction. Not excessive force.

LAWYER: Doctor, isn't it true that the brachial plexus—the network of nerves in the neck—is stretched when you pull on the head while the shoulder is stuck?

DOCTOR: Stretching can occur, yes.

LAWYER: And Baby Doe's right arm is now permanently paralyzed due to an avulsion—a literal tearing away of those nerves from the spinal cord. That doesn't happen from "standard" traction, does it?

(DOCTOR'S LAWYER): Objection. Calls for a medical conclusion and is argumentative.

DOCTOR: Nerve injuries can occur even with proper

technique due to the maternal expulsive forces.

LAWYER: You've blamed the mother's pushing?

DOCTOR: I am saying the forces of labor themselves can cause these injuries.

LAWYER: Let's look at the timeline. Your delivery note says the dystocia was diagnosed at 08:02. The baby was not delivered until 08:11. That's nine minutes, correct?

DOCTOR: Yes.

LAWYER: During those nine minutes, did you attempt the McRoberts maneuver—bringing the mother's knees to her chest?

DOCTOR: We did.

LAWYER: Did you apply suprapubic pressure?

DOCTOR: Yes.

LAWYER: Did you ever apply **fundal pressure**—pushing on the top of the uterus?

Deposition Slides

DOCTOR: (Pauses) I believe the nurse may have assisted with pressure.

LAWYER: Doctor, fundal pressure is strictly contraindicated in a shoulder dystocia, isn't it? It further wedges the shoulder into the bone and increases the risk of both nerve damage and uterine rupture. Why was it allowed?

DOCTOR: In the heat of the moment, with a bradycardic fetal heart rate, we were trying to save the child's life.

LAWYER: By utilizing a maneuver that you know, per the ACOG guidelines, increases the likelihood of the exact injuries this child now suffers from?

DOCTOR' LAWYER: Objection.

LAWYER: At 08:06, four minutes in, you still hadn't delivered the posterior arm. Why didn't you move to a

Woods' Screw or Gaskin maneuver sooner?

DOCTOR: I was attempting to rotate the baby. The baby was deeply impacted.

LAWYER: And while you were "attempting," the pH level of this baby's blood was dropping, and his nerves were being stretched to the point of snapping. If you had performed a Zavanelli maneuver or a prompt episiotomy to create room for internal rotation at minute three, we wouldn't be here, would we?

DOCTOR: That is speculative. We followed the emergency protocol as we saw fit in a life-threatening situation.

LAWYER: No further questions for this segment.



Mastitis Spectrum: Not Just Another '-Itis'

Sarah M. Tiggelaar, MD, CLC, FAAFP

Disclosure Statement

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Learning Objectives

1. Differentiate conditions along the mastitis spectrum from one another and from other clinical conditions that mimic mastitis in pregnant and postpartum individuals.
2. Treat conditions on the mastitis spectrum in pregnant and postpartum individuals by applying the latest evidence-based guidelines.
3. Recognize and evaluate social, cultural, and systemic factors that contribute to disparities in successful human lactation and the management of common lactation challenges, including mastitis.



The Mastitis Spectrum

ARS Question



Question 1

Do you/your patients have access to lactation specialists?

- A. In the hospital only
- B. In the clinic only
- C. In both the hospital and clinic
- D. As a specialty referral in your community or institution
- E. All of the above

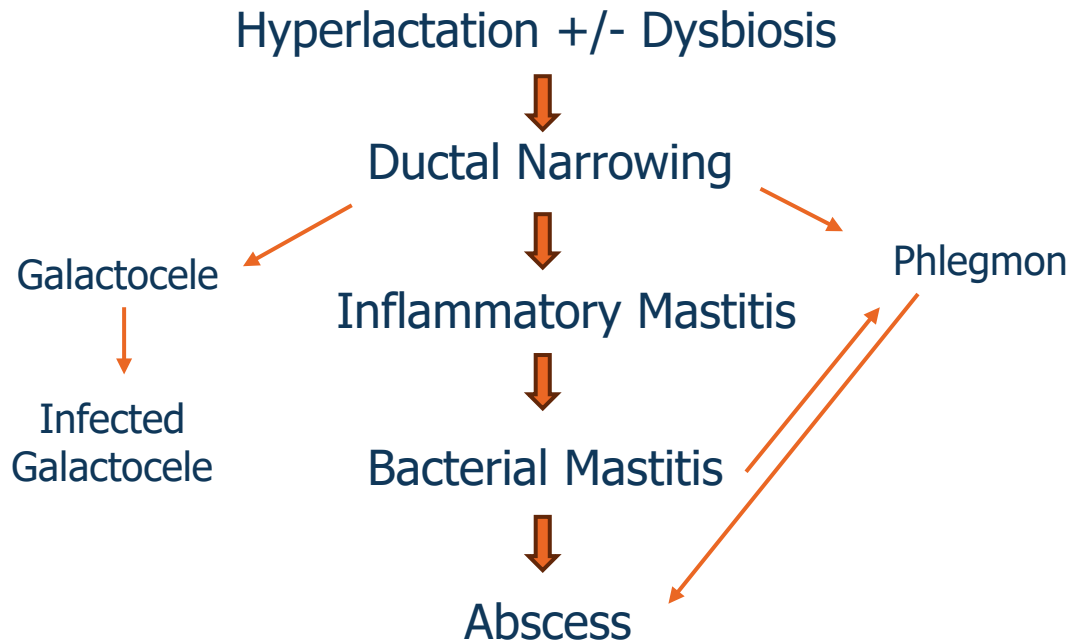
Common Mastitis Misconceptions

- Mastitis is always a pathological infection which can quickly become life or breast-threatening
- All mastitis needs immediate antibiotic treatment
- Milk stasis is the only causative factor for mastitis
- Aggressive pumping can help prevent worsening
- People with mastitis should not breastfeed or pump 'to empty'
- There are specific foods that cause mastitis or make it worse
- People with mastitis have poor body or breast pump hygiene



Mastitis requiring antibiotics

Its Not So Easy...

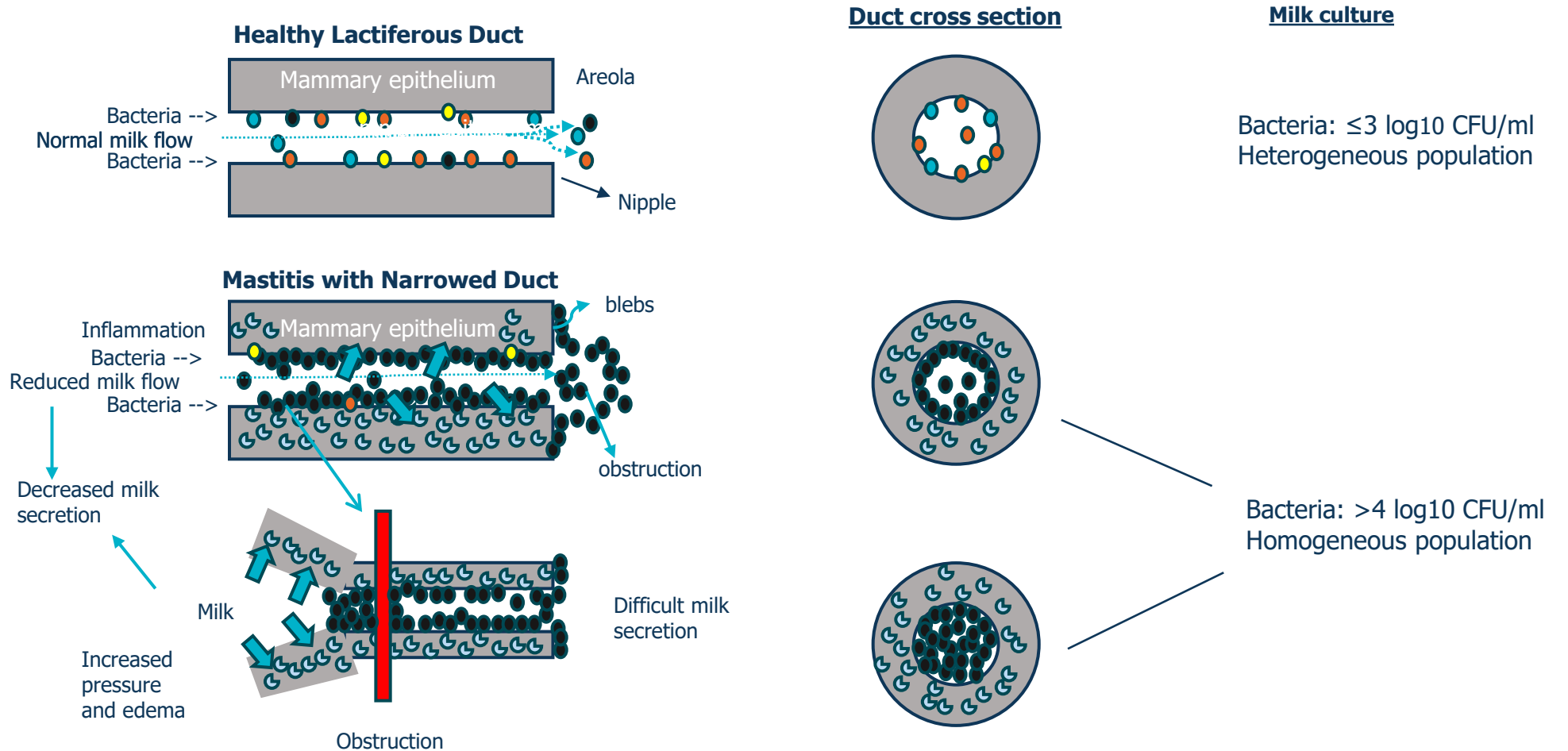


- Recent data suggest we have been thinking about mastitis all wrong!
- Academy of Breastfeeding Medicine Protocol update in 2022 - represents a dramatic change in the approach to mastitis prevention and treatment
- **Mastitis is best thought of as a *spectrum* resulting from ductal inflammation and stromal edema**

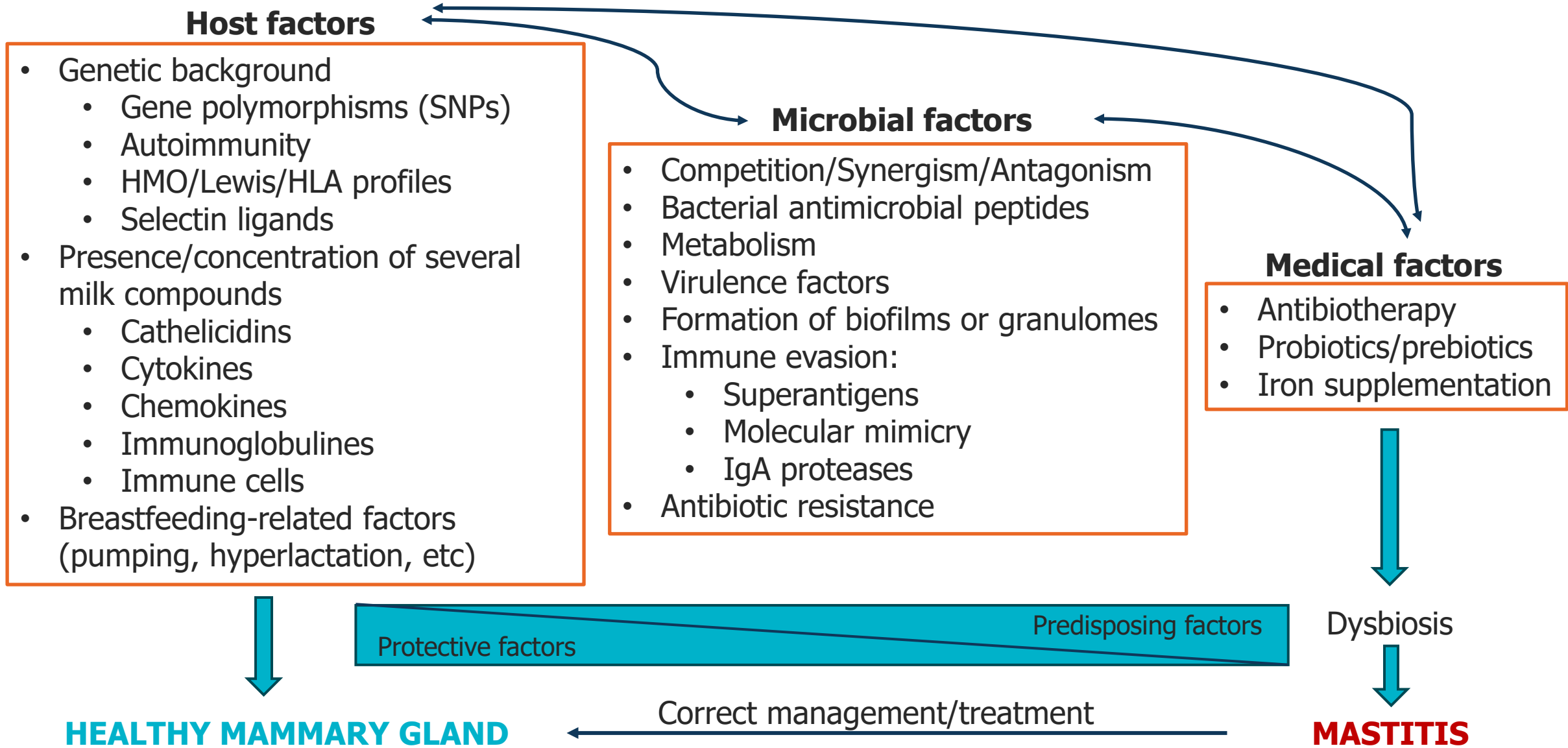
Definitions

- Mastitis – inflammation of the mammary gland that most often presents in a segmental distribution of ducts, alveoli, and surrounding connective tissue
- Ductal lumen narrowing – milk ducts have less area for milk flow
 - Can be due to:
 - Hyperlactation causing edema and hyperemia
 - Mammary dysbiosis
- Mammary dysbiosis – disruption of the mammary microbiome
 - Can be due to complex interplay of:
 - Maternal genetics
 - Maternal medical conditions
 - Antibiotic exposure
 - Probiotic use
 - Breast pump use
 - Cesarean birth
- Hyperlactation – Making more milk than the baby needs

Healthy Lactiferous Duct vs Ductal Inflammation

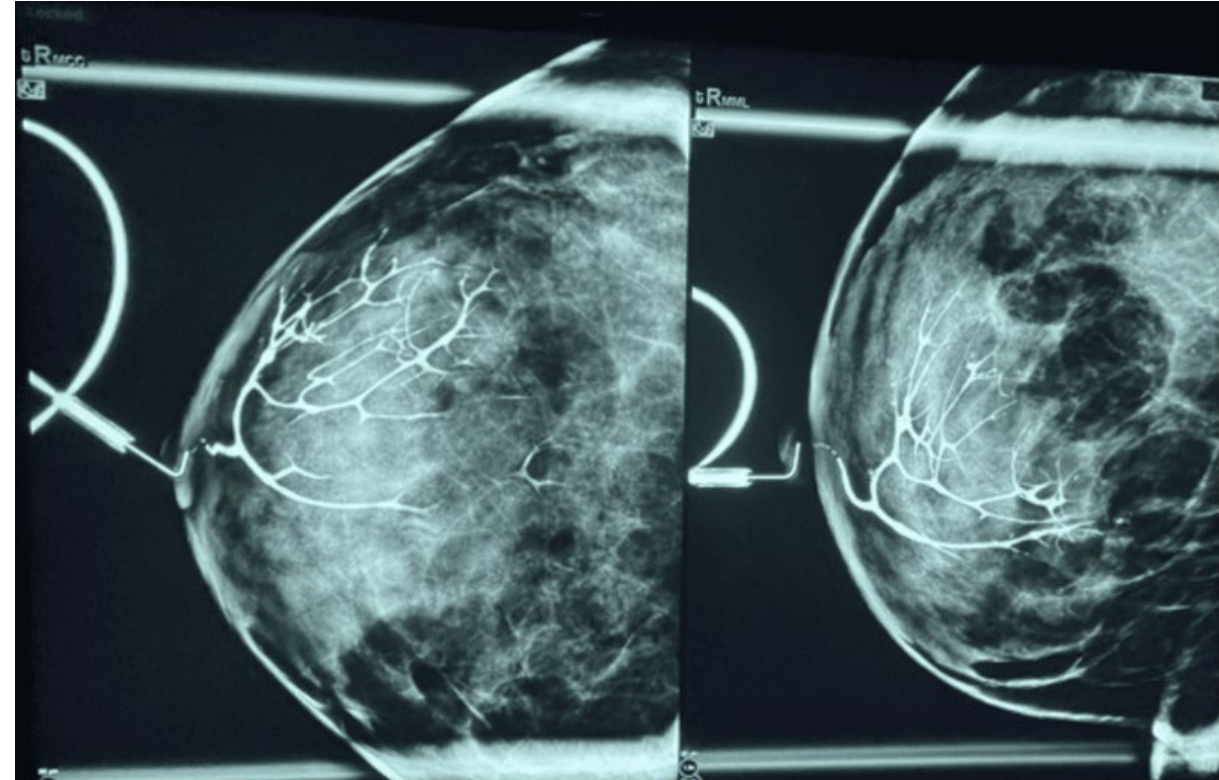


Factors in Mastitis Predisposition and Development



The Spectrum: Ductal Narrowing →

- Ductal narrowing – microscopic inflammation and dysbiosis causing narrowing of milk ducts
 - Macroscopic “plugging” not physiologically possible since ducts are innumerable and interlacing
- Focal area of induration OR more global congestion
- May have mild erythema (from lymphatic congestion and alveolar edema)
- No systemic symptoms
- Repeated feeding can actually exacerbate
 - Suppresses Feedback inhibitor of lactation (FIL) and increases milk production → increases inflammation → worsens ductal narrowing
- Aggressive squeezing and massage will just traumatize the breast



Ductogram of the breast demonstrating innumerable interlacing small ducts and ductules.

→ Inflammatory Mastitis →

- Ductal narrowing persists and worsens AND
- Surrounding inflammation progresses →
- Increasingly erythematous, edematous, painful region
- Systemic signs and symptoms:
 - Fever, chills, tachycardia
 - Doesn't mean infection!



↓ With appropriate management



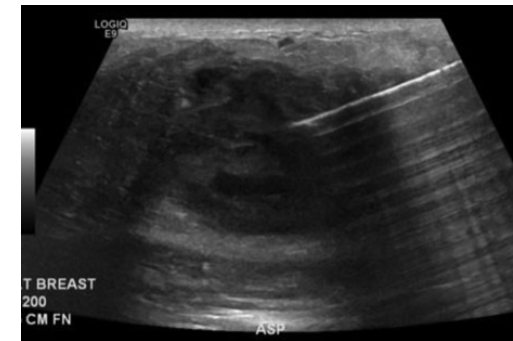
→ Bacterial Mastitis →

- Cellulitis in a specific region that may spread to other quadrants
- Progression from ductal narrowing and inflammation to entity requiring antibiotics or probiotics to resolve
 - Common organisms: *Staphylococcus* species
 - (*S. aureus*, *S. epidermidis*, *S. lugdunensis*, *S. hominis*)
 - *Streptococcus* species
 - (*S. mitis*, *S. Salivarius*, *S. pyogenes*)
- Not contagious, no risk to infant
- NO evidence to support poor hygiene
- NOT caused by retrograde spread of pathogenic bacteria from visible nipple trauma
- Many factors impact the severity of disease, not just specific bacterial strains
- Medical evaluation indicated if persistent systemic symptoms >24 hours
- CBC, CRP are NOT helpful as they are markers of inflammation not specifically infection



→ Phlegmon → Abscess

- Phlegmon:
 - Heterogeneous, complex, ill-defined fluid collection
 - Can be confirmed on ultrasound
 - Often caused by excessive deep tissue massage
- Abscess:
 - Infected fluid collection necessitating drainage
 - Progressive erythema, induration, often palpable fluid collection in specific area of the breast
 - 3-11% of people with mastitis
 - Systemic symptoms can resolve and then recur



Recurrent Mastitis

- No consensus definition of what “recurrent” means
- Symptoms such as fever, breast redness, pain, or swelling that recur every 2-4 weeks, or less often
- Risk factors:
 - Dysbiosis
 - Inadequately treated prior mastitis
 - Failure to address the cause of previous episodes
 - Waxing and waning episodes of hyperlactation



Mastitis Prevention and Management

ARS Question



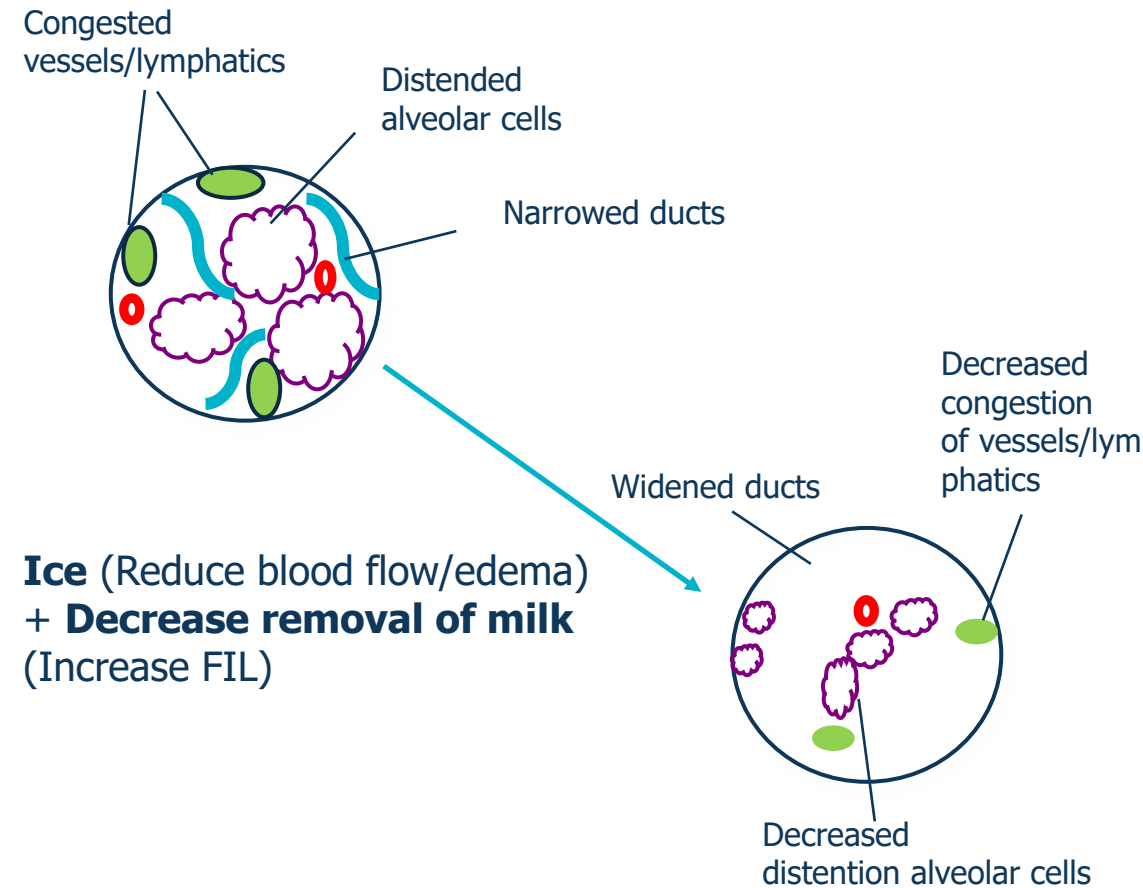
Question 2:

Which of the following statements is correct about the treatment of mastitis?

- A. Any suspected or confirmed mastitis should be treated with antibiotics.
- B. A breast with mastitis should be emptied as often as possible.
- C. Aggressive breast massage can help prevent milk stasis, one of the main causes of mastitis.
- D. Most cases of mastitis can be managed with ice, breast rest, and NSAIDs.

Spectrum-wide Behavioral Interventions

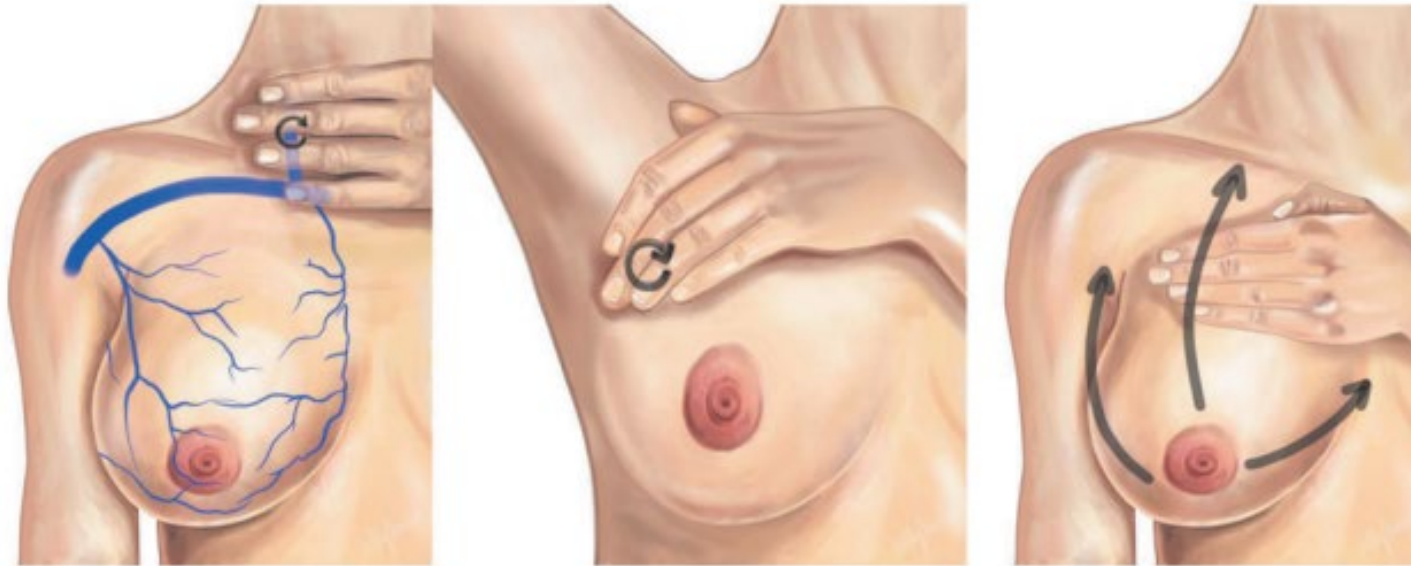
- Anticipatory guidance and behavioral interventions
 - Most cases of mastitis will resolve with conservative measures
- Educate patients about normal breast anatomy and postpartum physiology
 - Lactating breasts can feel 'lumpy' and even painful at times
 - Low-estrogen state can lead to hot flashes and sweating
 - Infection doesn't develop in short periods (ie overnight)
- Feed the infant on-demand – do not aim to 'empty' the breasts
 - Overfeeding perpetuates hyperlactation and is major risk factor for worsening edema and inflammation
 - Sometimes, stopping feeding from the breast is necessary to allow inflammation to subside



More Behavioral Interventions

- Minimize breast pump usage
 - No bacterial exchange with baby → increased risk of dysbiosis
 - Breast and nipple-areolar complex trauma risk
 - Only express milk at frequency and volume that mimics physiologic breastfeeding
- Avoid nipple shields
 - Safety and effectiveness have not been demonstrated
- Wear appropriately fitting supportive bra
- Avoid deep massage
 - Can cause increased edema, inflammation, microvascular injury
 - Some evidence that massage can reduce pain – but requires extensive training to master atraumatic approach (Anderson 2019)
 - Light sweeping – “manual lymphatic drainage” is ok
- Avoid saline soaks, castor oil, other topicals
- Avoid routine sterilization of pumps and other household items
 - Clean pump parts after each use with soap and water
 - Ascending infection is not supported

Lymphatic Drainage



Images used with permission from
Physician Guide to Breastfeeding

Reduces swelling by assisting movement of lymph fluid, decreasing edema, softening fibrosis

Technique:

- Very gentle soft touch – “like petting a cat”
- Ten small circles at IJ and subclavian junction
- Ten small circles in axilla
- Light touch massage from nipple towards clavicle and axilla

Can use in pregnancy for pain from breast growth, and postpartum for engorgement

Spectrum-wide Medical Interventions

- Decrease inflammation and pain
 - Ice
 - NSAIDs
 - Soy/sunflower lecithin 5-10g/day
- Treat associated nipple blebs and avoid unroofing
 - Blebs – ductal inflammatory cells propagating to the surface and lodging
 - Unroofing/stabbing the bleb causes trauma and further inflammation
 - Try oral lecithin
 - Topical moderate-potency steroid cream

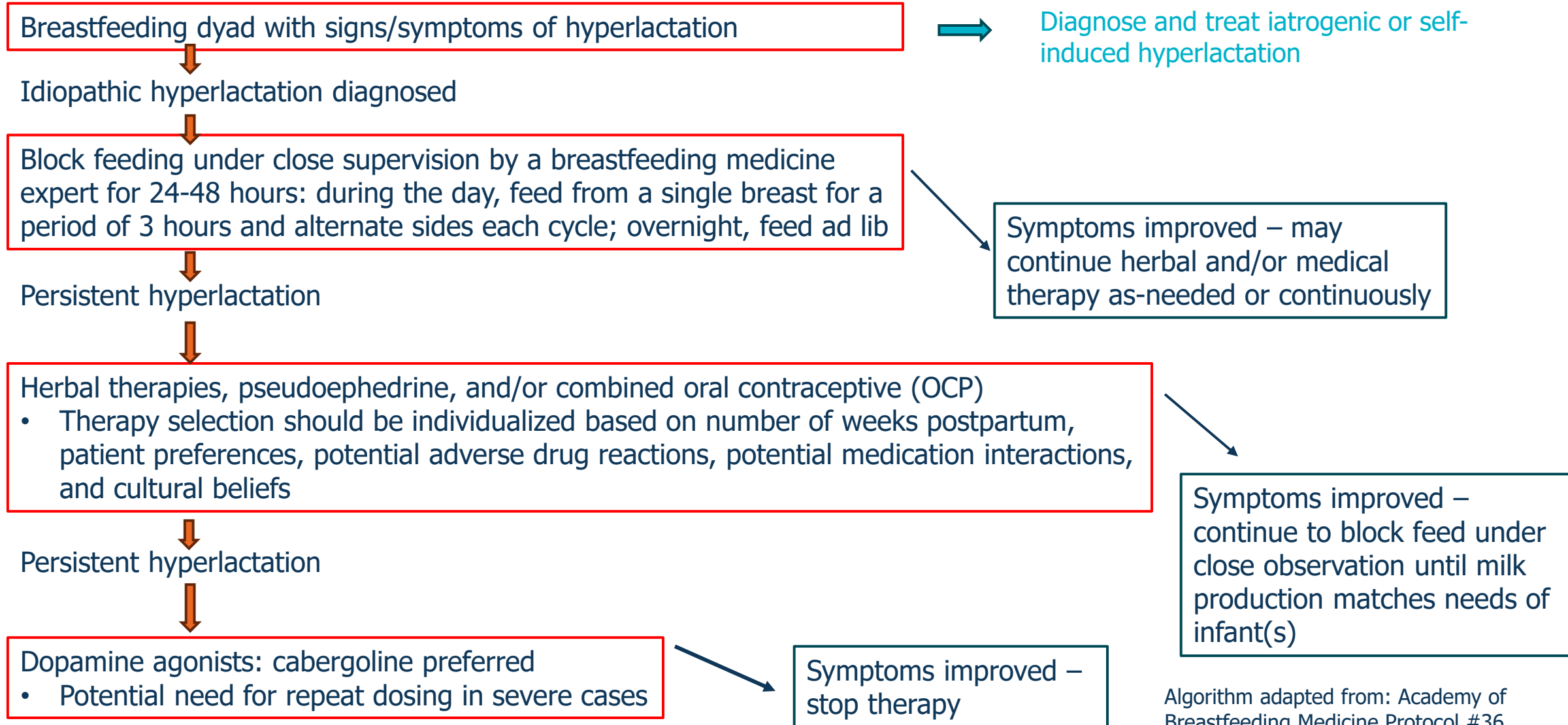


Nipple blebs

Medical Interventions Continued

- Treat hyperlactation
- Utilize therapeutic ultrasound
- Save antibiotics for true cases of bacterial mastitis
 - Disrupt the microbiome
 - Cause resistance
 - Have anti-inflammatory properties so can seem like they're working
- Consider probiotics
 - Studies very limited
 - *Limosilactobacillus fermentum* or *ligilactobacillus salivarius*
- Evaluate for perinatal mood and anxiety disorders (PMADs)
 - People with history of PMADs have higher rates of mastitis
 - Significant worry about recurrence, inability to stop pumping → consider anxiety
 - Extreme pain out of proportion to exam

Hyperlactation Management Algorithm



Hyperlactation Medication Management

- Block feeding – Feeding/expressing from one breast only during each 3-hour period
 - Alternate breasts each cycle
 - Ad lib from both breasts overnight
 - Physician monitoring encouraged
- Herbal options have mixed/little evidence
 - Sage
 - Chasteberry
 - Peppermint oil
 - Jasmine
- Medication options
 - Pseudoephedrine 10-30 mg
 - Diphenhydramine 25-50 mg
 - COC with 20-35 mcg estrogen after 6 weeks postpartum
 - Consider stopping after 1 week if milk production has dropped
 - Cabergoline – single dose 0.25 mg
 - Repeat after 72 hours
 - If not effect, increase to 0.5 mg 72 hours later



Microsoft stock image

Therapeutic Ultrasound

- Deep-heating using an alternating electrical current to convert electrical energy into acoustic energy and transmitting to soft tissue
- Thought to work for engorgement and mastitis by facilitating milk letdown → decreases pain and firmness
- Frequency of 1 MHz, Intensity 2.0 W/cm², 5-6 minutes on treatment area 2-3x the size of the radiating head



Bacterial Mastitis Treatment

- First line: Dicloxacillin or flucloxacillin 500 mg QID for 10-14 days
 - Alternatives:
 - Cloxacillin, but lower oral bioavailability
 - Cephalexin 500 mg QID 10-14 days
 - More gram negative coverage
- Second line:
 - Clindamycin 300 mg QID 10-14 days
 - Trimethoprim-sulfamethoxazole DS BID 10-14 days
 - Not recommended in G6PD deficiency
 - Not ideal for premature infants or hyperbilirubinemia
- Continue breastfeeding is safe
- Routine hospital admission and IV antibiotics not necessary
- Consider milk culture if no improvement >48 hrs and proceed to broadened empiric therapy



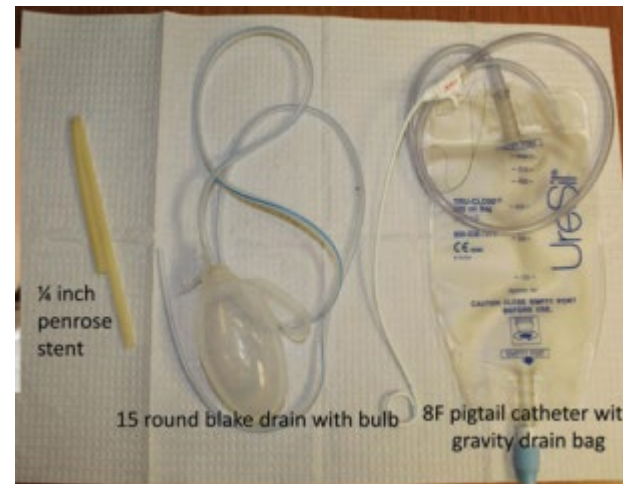
Infectious mastitis (cellulitis with redness, skin changes, boggy texture)

Phlegmon and Abscess Treatment

- Phlegmon:
 - May require extended antibiotic therapy
 - Not drainable yet but monitoring is required in case fluid coalesces
- Abscess
 - Drainage required for source control
 - Consider drain placement to avoid recurrent aspirations
 - Remove drain 3-5 days
 - Aspirating often doesn't work as milk is thick and sticky
 - Avoid vacuum-assisted wound devices
 - Breastfeeding can continue
 - May take several weeks to resolve



Phlegmon with no drainable fluid collection



Abscess

Recurrent Mastitis Treatment

- Examine patients and obtain milk for culture – no empiric treatment
 - Culture can identify and provide sensitivities for uncommon pathogens
- Ensure resolution with follow-up exam
- Evaluate breastfeeding for risk factors for recurrence
- Consider daily probiotic use
- Do NOT prescribe prophylactic antibiotics
 - May select antibiotic-resistant strains
- Multiple recurrences in the same location warrants radiological evaluation

How to perform a sterile milk culture:

1. Clean the nipple and areola
 - No evidence bw topical antiseptic vs soap/water
2. Use sterile gloves to express milk
3. Collect 5-10 cc in a sterile container
4. No contact between nipple and sterile container
5. Send as “body fluid culture” NOT “wound culture”



Mastitis Mimics

ARS Question



Question 3:

What is this painful condition?

- A. s/p Breast augmentation
- B. Postpartum engorgement
- C. Bilateral inflammatory mastitis
- D. Bilateral bacterial mastitis



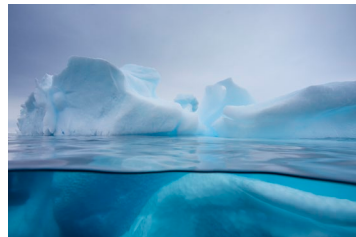
Postpartum Engorgement

- Bilateral breast pain, firmness, swelling
- Usually between days 3-5 postpartum
 - Can be as late as 9-10 days, especially s/p Cesarean section
- Managed appropriately, should NOT progress to other conditions on the spectrum



Postpartum Engorgement Prevention and Treatment

- Minimize IV fluids during labor
- Promote “rooming-in” for physiologic breastfeeding and pumping avoidance
- Teach postpartum patients how to hand express milk
 - Perform reverse-pressure softening of the areola or hand expression to facilitate infant latch
- Consider lymphatic drainage
- Ice – no cabbage
 - Listeria – eek!



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Galactocele

- Ductal narrowing → milk flow obstruction → significant volume of obstructed milk collects in a cyst-like cavity
- Can be 1-2 cm or as large as 10-12 cm
- Present as a moderately-firm mass, can gradually or rapidly increase in size over time
 - Uncomfortable but not overtly painful
 - No erythema or systemic symptoms unless it becomes infected
- Drainage is recommended for symptom relief, confirmation of diagnosis, and to decrease mass effect to facilitate latch
 - Drain placement preferred over aspiration
 - If infected, drainage AND antibiotics required
 - Breast or general surgeon, family physician, ED



Subacute Mastitis

- Chronic mammary dysbiosis → Increase in pathogenic bacteria lining the mammary ducts → thicker biofilms inside ducts → chronic ductal narrowing
 - Coagulase-negative Staph and *Strep viridans* are the normal biofilm
 - These do not produce toxins responsible for acute bacterial mastitis
 - Systemic symptoms uncommon
 - Local breast symptoms milder
- Present with needle-like, burning breast pain, nipple blebs, recurrent areas of induration or congestion, possibly unresolved hyperlactation
- Patients may have a history of previous treated acute bacterial mastitis, history of C/S, exclusive pumping, nipple shield use, other circumstances that alter the microbiome
- Can consider macrolides and/or probiotics for treatment if necessary

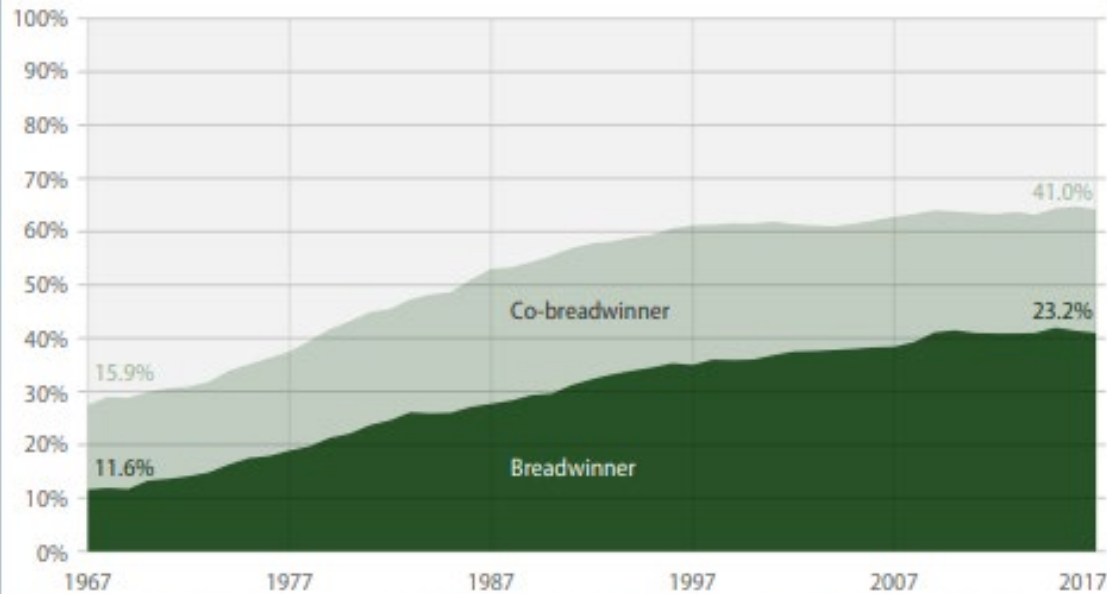


Disparities in Human Lactation

People Who Have Borne Children in the Workforce

FIGURE 1
The share of breadwinning or co-breadwinning mothers has more than doubled since 1967

Share of all mothers who are breadwinners or co-breadwinners, 1967 to 2017

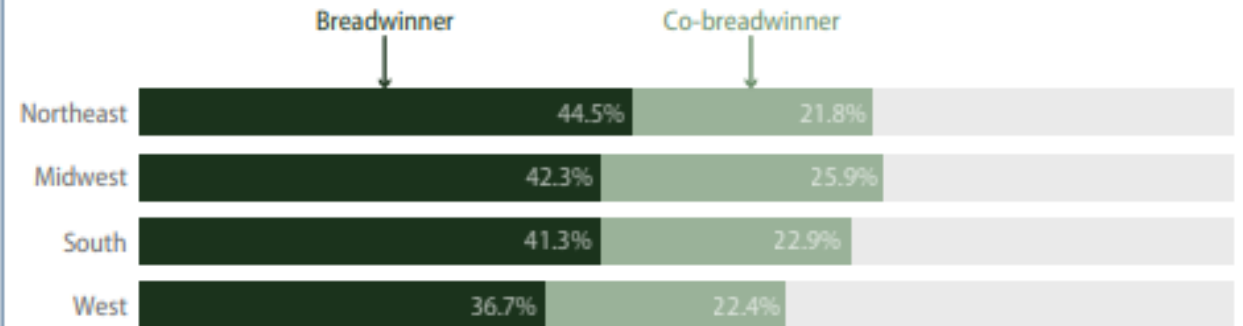


Note: Breadwinning mothers are either unmarried working mothers or married mothers who outearn their partners. Co-breadwinning mothers are married mothers who bring home at least 25 percent of their household's income through their wages.

Source: Author and Jeff Chapman's analysis of Steven Ruggles and others, "Integrated Public Use Microdata Series, Current Population Survey Data for Social, Economic, and Health Research: Version 6.0 [dataset]" (Minneapolis: Minnesota Population Center, 2018), available at <https://cps.ipums.org/cps/>.

FIGURE 2
The share of breadwinning mothers differs across U.S. regions

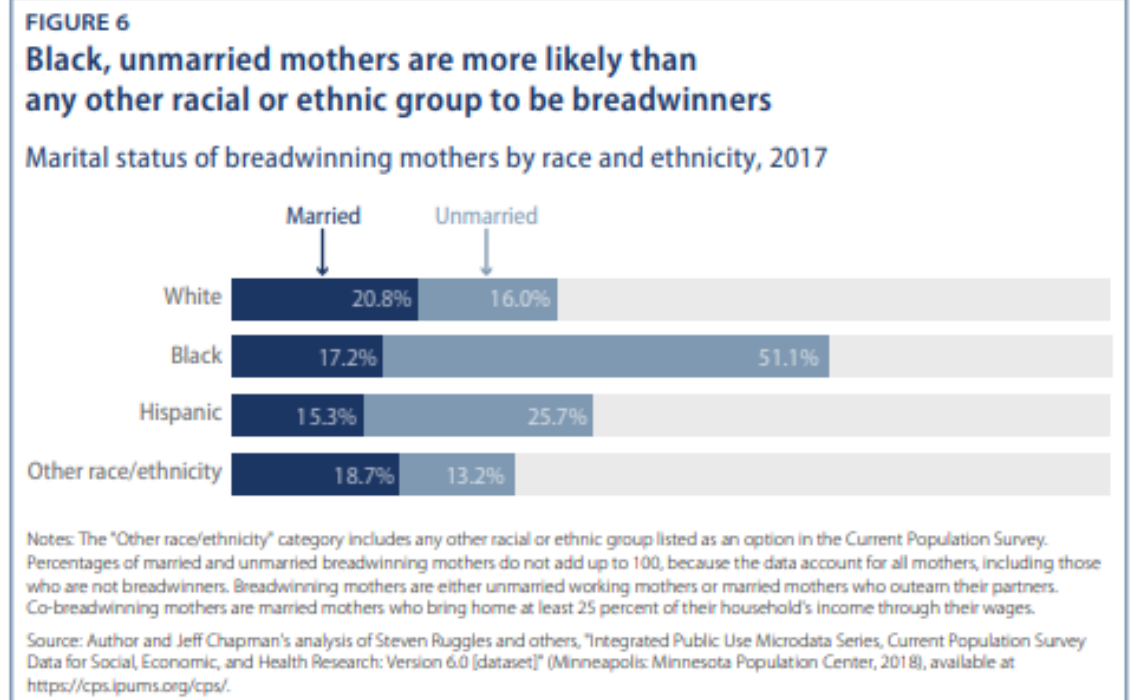
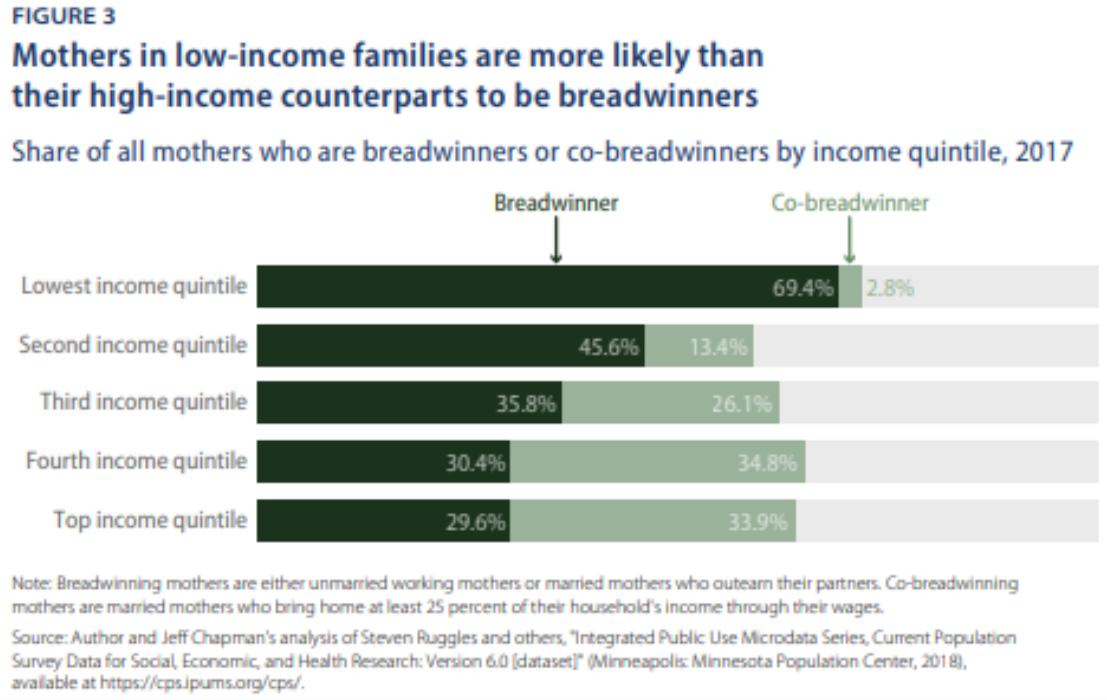
Share of all mothers who are breadwinners or co-breadwinners by U.S. region, 2017



Note: Breadwinning mothers are either unmarried working mothers or married mothers who outearn their partners. Co-breadwinning mothers are married mothers who bring home at least 25 percent of their household's income through their wages.

Source: Author and Jeff Chapman's analysis of Steven Ruggles and others, "Integrated Public Use Microdata Series, Current Population Survey Data for Social, Economic, and Health Research: Version 6.0 [dataset]" (Minneapolis: Minnesota Population Center, 2018), available at <https://cps.ipums.org/cps/>.

Racial and Income Disparities



Gender Pay Gap

Gender pay gap in U.S. is narrower among young workers than workers overall

Median hourly earnings of U.S. women as percentage of men's median earnings among ...

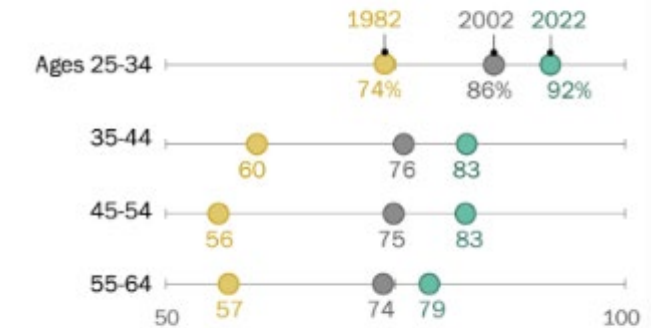


Note: Estimates are for civilian, noninstitutionalized full- or part-time employed workers with positive earnings, excluding the self-employed.
Source: Pew Research Center analysis of the Current Population Survey outgoing rotation group files (IPUMS).

PEW RESEARCH CENTER

Women's pay relative to men's drops most sharply around ages 35 to 44

Median hourly earnings of women in the U.S. as a % of the median hourly earnings of men, by age



Note: Samples include employed workers ages 25 to 64 with positive earnings, working full time or part time, excluding the self-employed.

Source: Pew Research Center analysis of the Current Population Survey outgoing rotation group files (IPUMS).

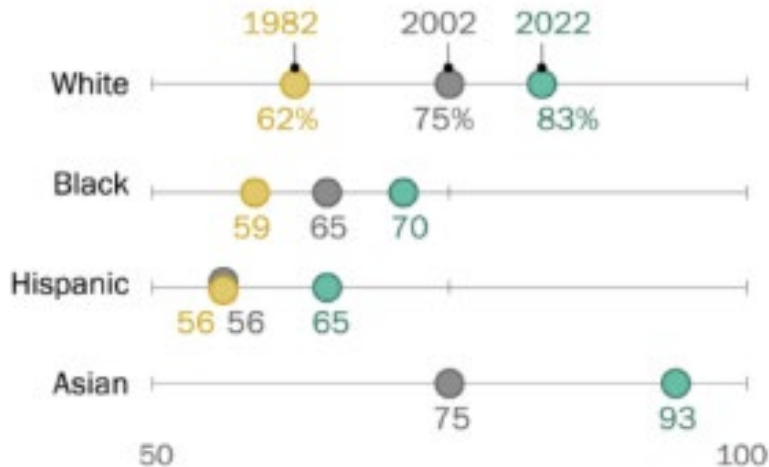
PEW RESEARCH CENTER

Women earn about 85% of what men do – and it drops around the time of childbearing

Gender Pay Gap Worst Among Black and Brown People

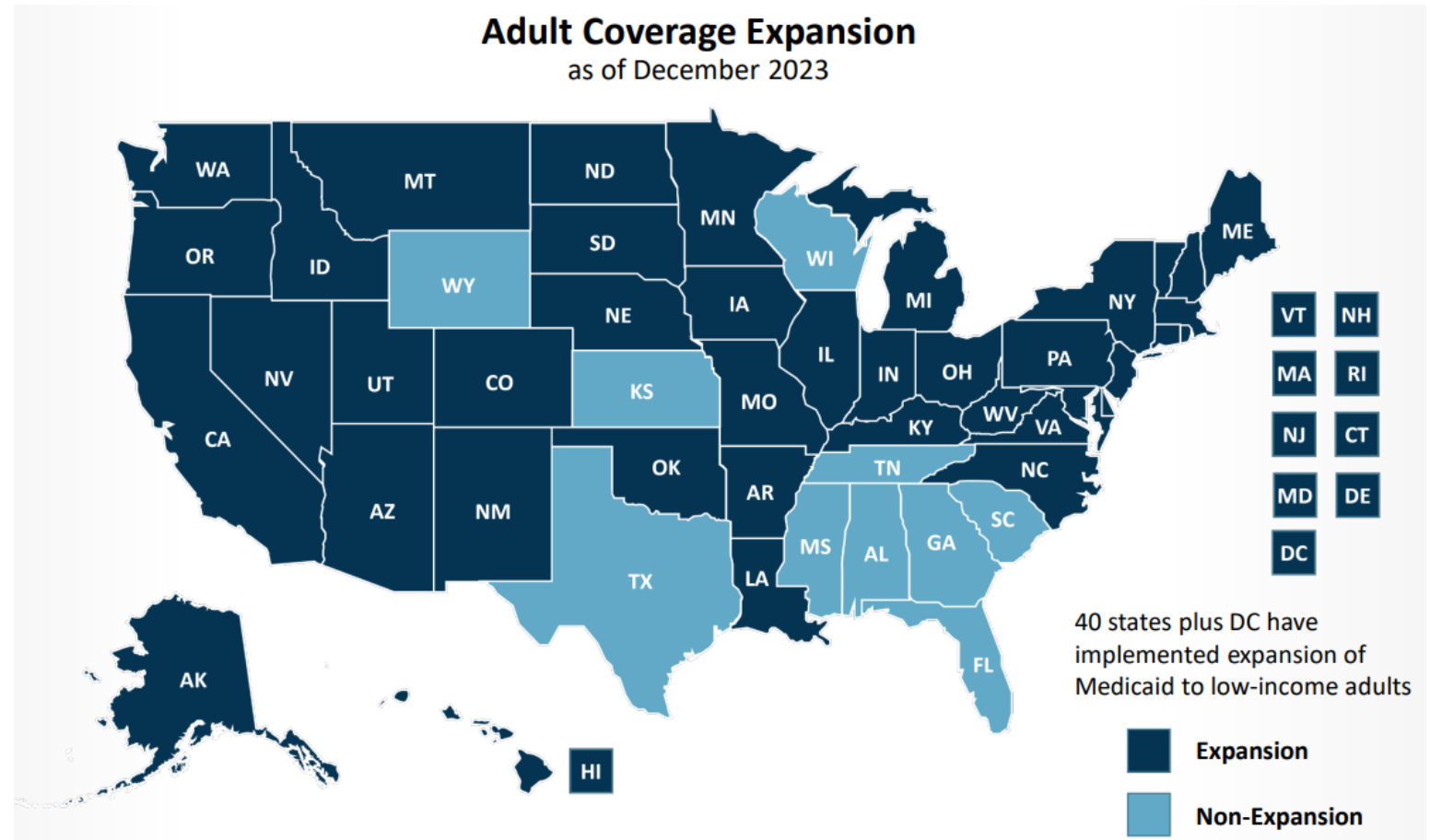
Black and Hispanic women experience the largest gender wage gap

Median hourly earnings of women in the U.S. as a % of the median hourly earnings of White men, by race and ethnicity



Medicaid Coverage

- Medicaid pays for ~40% of births nationally
- Medicaid also covers lactation support but in states without expansion, only covers it when there is a chronic, episodic, or acute condition necessitating medical management
- Those states without expansion have low rates of lactation initiation and sustainability



Paid Leave after Childbearing

The US also ranks very low in breastfeeding initiation and sustainability among developed nations

USA



Chart PF2.1.A. Paid maternity leave

Duration of paid maternity leave and the average payment rate across paid maternity leave for an individual on national average earnings, by employment status, 2025



Note: Striped bars indicate payment rates based on net earnings. See notes to Table PF2.1.A. For countries with voluntary participation in contributory schemes (e.g. Bulgaria, Canada, Czechia, Germany and Poland), it is assumed that individuals have opted in.

Source: See tables PF2.1.C-PF2.1.E.

How Does All This Affect Lactation?

- The pressures felt by women/birthing people to return to work with only brief lapses of time (as little as 1-2 weeks) from delivery are **disproportionately felt by communities of color**.
- More often working **undervalued** jobs that are **inequitable** and **lower** in wage.
- Lowest-wage jobs are also **less likely** to have access to specific benefits that promote lactation establishment and continuation upon return to work - like dedicated lactation rooms and paid family medical leave.
- Family and Medical Leave Act, Fair Labor Standards Act, PUMP Act all provide some protections for lactation and breastfeeding, but **exceptions to the law which allow employers to not provide pumping time/space are more likely to affect birthing people of color in lower wage jobs**.

Other Socio-historical Factors



- Deeply complex intersection of lactation with history of colonialism and slavery
 - Wet nursing
- Collective memories of traumatic experiences persist and can be a barrier for some people and communities
- Important to remember this historical context
- Acknowledging the history of lactation in diverse communities can help to create dialogue and individualized, community-centered support

Back to Mastitis...

- Lactation is hard for people of color in our country → managing complications of lactation will also be harder
 - Access to lactation support
 - Accessible education materials
 - Access to medical care when complications arise
 - Breastfeeding medicine knowledge of medical providers

We can help break the cycle! We can learn, practice, and teach how to recognize and care for common issues and complications of lactation in all patients and decrease disparities in our communities.



Resources and Summary

Mastitis and Other Lactation Resources



Academy of Breastfeeding
Medicine Mastitis Patient
Handout



PHYSICIAN GUIDE
to *breastfeeding*

by Katrina Mitchell MD, IBCLC



ACADEMY OF
**Breastfeeding
Medicine®**

AAFP Breastfeeding
Member Interest Group



IABLE
Institute for the Advancement
of Breastfeeding &
Lactation Education



Healthy Children Project, Inc.
Center for Breastfeeding



DOL Workplace
Rights Handout

Practice Recommendations

1. Remember the mastitis spectrum and avoid treating mastitis with antibiotics unless necessary – most cases are inflammatory in nature and can be treated with ice, NSAIDs, and physiologic breastfeeding. (SORT A)
2. Address hyperlactation and other risk factors for dysbiosis in all lactating patients to prevent mastitis, and in those with mastitis to prevent progression and recurrence. (SORT A)
3. Avoid many traditional mastitis treatments which can cause harm – including aggressive massage and frequent stimulation/emptying. (SORT A)
4. Disparities exist in lactation education, support, and access; awareness is the first step to equity. (SORT A, C)
5. Breastfeeding medicine is well within the wheelhouse of Family Medicine-Obstetrics and learning more can help you help your patients! (SORT C)

Answers

1. No correct answer
2. D
3. C

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Questions? Email me:

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Thank you!



Dyad Care in the Fourth Trimester

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Learning Objectives

1. Provide guideline-concordant and patient-centered postpartum care.
2. Integrate dyad care into clinical practice to improve maternal and infant health outcomes.
3. Discuss innovative models to improve postpartum care uptake and quality.



Guideline-Concordant, Patient-Centered Postpartum Care

Defining the 4th Trimester

"The transition period after childbirth when infants are adjusting to life outside the womb and mothers are adjusting to new parenthood" — a critical period of biological, psychological, and social change.

"There is a fourth trimester of pregnancy, and we neglect it to our peril" - Sheila Kitzinger, 1975

The 4th trimester can be defined by several core concepts:

- **The Postpartum Transition:** A 12-week transitional phase during which the mother heals from the physical trauma of childbirth, navigates significant hormonal changes and severe sleep deprivation, and adapts to a new maternal identity.
- **Infant Needs:** Infants require around the clock care and months of intense, "womblike" nurturing for optimal growth and development
- **Relative Neglect of Maternal Needs:** Society and the medical community focus on the pregnancy and birth and abandon the mother's mental and physical health once the baby is delivered.



Key Health Themes in the 4th Trimester

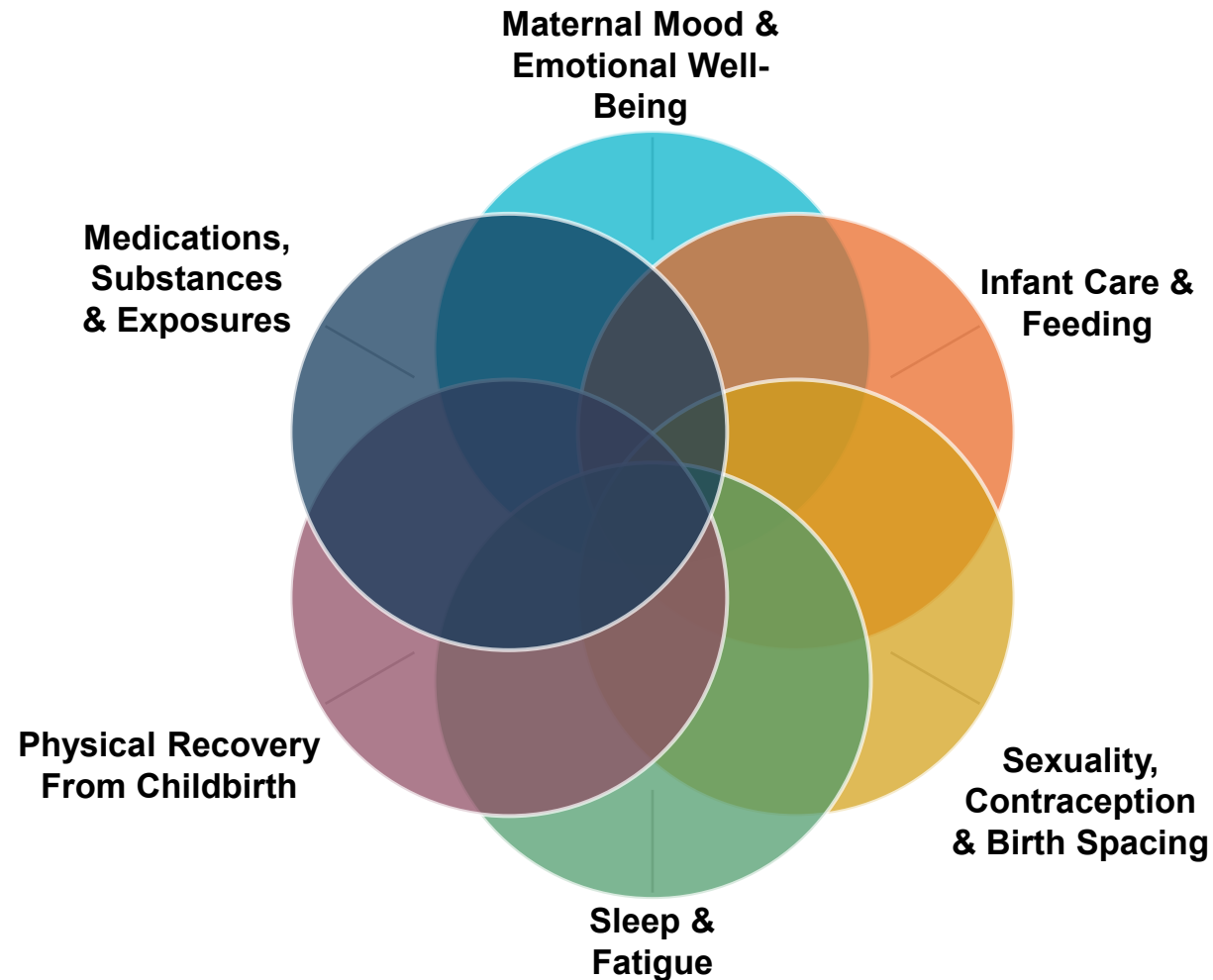
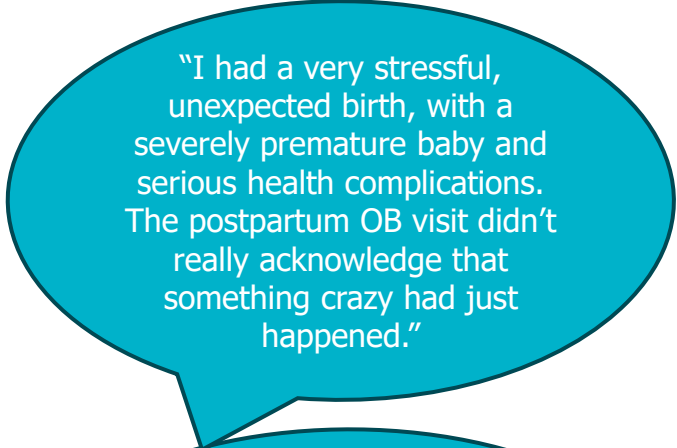


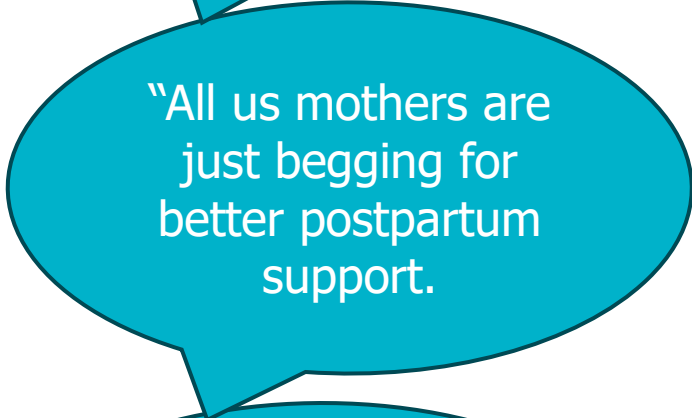
Figure 1 (recreated). Key Health Themes in the 4th Trimester. Adapted from Verbiest, Tully & Stuebe, Zero to Three, 2017.

The Gap: Unmet Health Needs

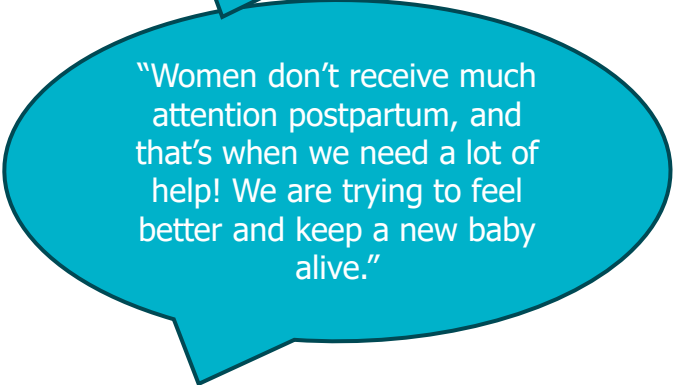
- New Health Needs:
 - Lactation
 - Mental health
 - Pain (perineal, surgical)
 - Urinary or bowel problems
 - Weight management
 - Sexual health
- Pregnancy and childbirth related conditions requiring follow up
- Chronic conditions
- Social needs that impact health



"I had a very stressful, unexpected birth, with a severely premature baby and serious health complications. The postpartum OB visit didn't really acknowledge that something crazy had just happened."



"All us mothers are just begging for better postpartum support."



"Women don't receive much attention postpartum, and that's when we need a lot of help! We are trying to feel better and keep a new baby alive."

ARS Question 1



Question 1

Per the 2018 ACOG Committee Opinion on Optimizing Postpartum Care endorsed by the AAFP, when should all postpartum patients ideally have their first contact with a maternal care provider?

- A. Within 24 hours of hospital discharge
- B. Within 3 weeks postpartum
- C. At the traditional 6-week visit
- D. Only if a complication develops

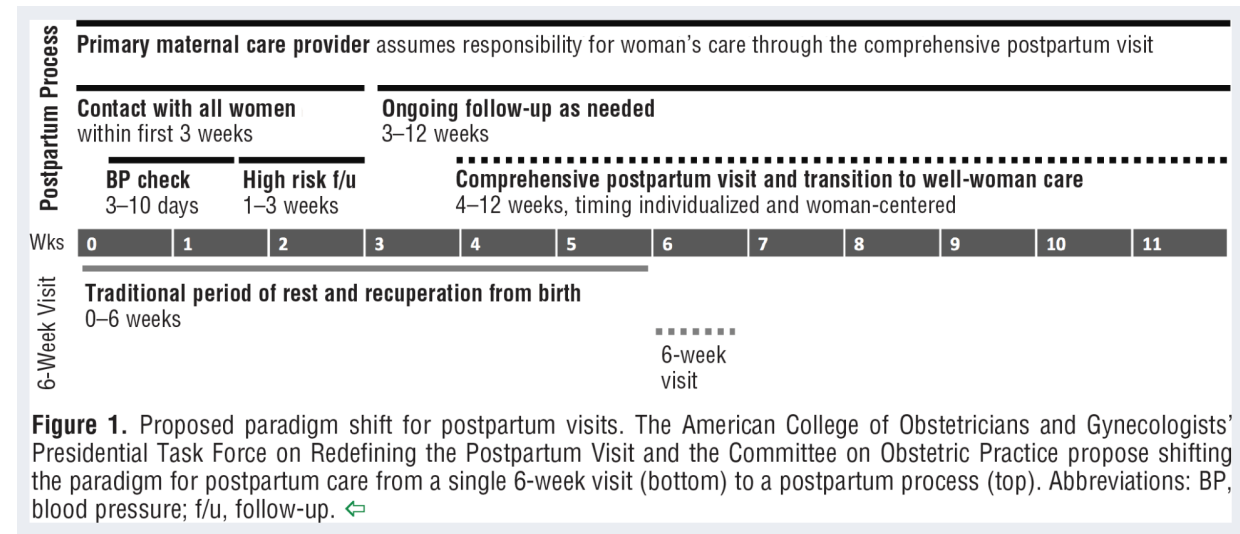
From a Single Visit to an Ongoing Postpartum Process

Traditional Model

- One comprehensive visit at an arbitrary 6-week mark
- Care ends if the patient misses that visit
- Up to 40% of patients nationally attend no visit at all

Guideline Recommended Process

- Initial contact within 3 weeks postpartum
- Individualized, ongoing care tailored to each patient's needs
- Comprehensive visit completed no later than 12 weeks



Building an Individualized Postpartum Care Plan

Proposed elements of postpartum care plan:

- Care team
- Postpartum visits
- Infant feeding plan
- Reproductive life plan and contraception
- Mental health
- Pregnancy complications
- Adverse pregnancy outcomes associated with ASCVD
- Postpartum problems
- Chronic health conditions



- Many patients don't know a phone number to call if they have questions when they leave the hospital after childbirth
- Start the conversation prenatally — set a plan for follow-up timing, warning signs, and support

Guidelines for Postpartum Transitions: The AIM Safety Bundle

- AIM Postpartum Transition Bundle organizes postpartum safety into 5 domains: Readiness, Recognition & Prevention, Response, Reporting & Systems Learning, and Respectful Care
- Key components of the postpartum safety bundle include:
 - Schedule the postpartum visit and any needed specialty follow-up before discharge, or within 24 hours
 - Screen every patient for postpartum risk factors and link to community services prior to discharge
 - Provide a standardized discharge summary and education on warning signs, including mental health
 - Implement standardized, actionable steps for managing medical events that occur during the postpartum period
 - Track postpartum complications and readmission
 - Care teams implement frameworks ensuring patient-centered, culturally safe care that respects individual preferences

The Alliance for Innovation on Maternal Health (AIM) is a national quality-improvement program supported by HRSA, now active in 49 states, D.C., and Puerto Rico.

Core Domains of the Comprehensive Postpartum Visit

MOOD & ANXIETY

Screen with EPDS or PHQ-9; initiate treatment or refer per severity

INFANT FEEDING & CARE

Assess feeding method, latch, supply concerns, and newborn care confidence

SLEEP, FATIGUE & RECOVERY

Address perineal/incisional healing, pain, sleep deprivation, and activity

SEXUALITY & CONTRACEPTION

Discuss resumption of intercourse, birth spacing, and contraceptive method

CHRONIC DISEASE & CARDIOMETABOLIC RISK

Reconcile meds; screen for hypertension/diabetes; set a long-term risk plan

High-Risk Conditions: Postpartum Considerations

HYPERTENSIVE DISORDERS

BP check within 72 hours if severe, by 7–10 days for all HDP; BP peaks day 3–7, so home monitoring is key

GESTATIONAL DIABETES

75g 2-hour OGTT at 4–12 weeks postpartum; rescreen every 1–3 years thereafter

CARDIOVASCULAR DISEASE

Hypertensive/diabetic complications predict future ASCVD risk — assess and counsel at the visit

MENTAL HEALTH CONDITIONS

Screen with EPDS/PHQ-9 at every visit; continue safe medications through breastfeeding

SUBSTANCE USE HISTORY

Screen universally and nonpunitively; connect to treatment, naloxone counseling, and a safe care plan

Enhancing Cardiovascular Transitions in the Fourth Trimester

- Perform a comprehensive postpartum CV assessment: review preconception conditions, evaluate for complications, and identify risk factors
- Key risk factors: hypertensive disorders of pregnancy, gestational diabetes, postpartum weight retention, and postpartum depression
- Lactation may be cardioprotective — support breastfeeding as part of risk reduction
- CVD remains a leading cause of maternal death in the U.S. — transition planning should start before delivery

Supporting postpartum cardiovascular health requires a multidisciplinary approach, especially primary care engagement — and planning should start before delivery.

How Are We Doing?

The Guideline-Concordance in Safety-Net Clinics

253

PATIENT COHORT STUDIED

Prenatal patients at 3 North Carolina community health centers serving low-income families

89%

HAD A VISIT

in the first 3 months postpartum

30%

RECEIVED TIMELY CARE

Initial assessment within 3 weeks plus at least one more visit within 3 months

60%

RECEIVED COMPREHENSIVE CARE

Services covering family planning, infant feeding, chronic health, mood, and physical recovery

The only correlate of quality postpartum care defined as receipt of comprehensive services was the number of postpartum visits attended across the first 3 months after delivery.

Screening for Social Determinants of Health

Screening

- Screening is recommended and tools are available:
 - AAFP EveryONE Project tool (11 questions), PRAPARE, or the CMS AHC-HRSN tool
 - Core domains: housing, food, transportation, income/utilities, safety
 - ACOG: screen for intimate partner violence privately at the postpartum checkup
- Screening alone can be insufficient and even harmful
- Patients describe barriers to disclosure
- Screening must be linked with resources and referrals
- **Best practice:** SDoH resource information be accessible to all patients regardless of endorsed needs

"Lead with resources"

Resources & Referral

- Warm hand-off to a person or agency — not just a phone number or website
- Community health workers or care navigators to close the loop on referrals

You are important.

Explore your options for support.

Whether you're thriving or facing challenges during pregnancy or during postpartum, this guide introduces resources.

Social and health challenges are common. You do not need to have a problem or concern to learn about resources. For more information, ask your health care team.



Access to Food and Infant Feeding Support

WIC provides food for eligible mothers during pregnancy and postpartum, as well as providing infant feeding support. SNAP is another source of food for qualifying families. **We can help with applications.** Food pantries provide high-quality food for you and your family. Farmers markets, churches, and community spaces often offer fresh or packaged food. Learn more at [foodbankcenc.org](https://www.foodbankcenc.org) or call 919-875-0707.



Hygiene Products

Diapers, wipes, menstrual pads, and adult incontinence supplies can be expensive. If you have extras, consider donating them. Many programs help distribute these essential products to those in need. Explore www.ncdiaperbank.org/need-help



Safety and Rights

UNC Beacon's Program offers free and confidential services to support the safety of patients and their families. Visit med.unc.edu/beacon or call 984-974-0470. Additionally, legal aid programs are available and you might be eligible for free legal help. To learn more, check out legalaiddnc.org or call 1-866-219-5262.



Mental Health

Everyone should have access to mental health support, regardless of their current situation. Whether it's talking about your feelings, connecting with others, or taking medication if advised, mental health resources are there for you. You do not need a diagnosis to take steps to heal faster and be well. Explore postpartum.net, call 1-800-944-4773, or text "Help" to 800-944-4773. For emergencies, reach out to the Suicide & Crisis Lifeline at 9-8-8.



Paying for Healthcare

Affordable health insurance can be challenging to find. For help, visit ncnavigator.org or call 1-855-733-3711. Many clinics also have financial navigators to help you explore insurance options, set up payment plans, or access discounted healthcare costs. You may be eligible for Medicaid during pregnancy and for 12 month postpartum.



General Resources

Visit nc211.org or call 2-1-1 for free and confidential information. To reach UNC ObGyn Navigators about resources, please call 984-215-6528.

From Compliance to Autonomy: Rethinking Postpartum Counseling

Individual-Focused Framing

- Contraception counseling centers on preventing a future pregnancy
- A standard checklist is applied the same way to every patient
- Structural barriers — racism, poverty — are treated as outside clinical scope

Equity-Centered Framing

- Ask about the patient's own values and goals before presenting options
- Care responds to what the patient and family define as their needs
- Clinicians name and address structural barriers as part of care

Respectful, Equitable, and Supportive Postpartum Care

- Perceived discrimination during the birth hospitalization is linked to lower postpartum visit attendance and less comprehensive care
- Guideline-concordant care alone doesn't address racism, sexism, or classism — equity requires naming structural barriers directly
- Recovery trajectories vary widely — avoid normalizing unaddressed pain or distress as an expected part of postpartum
- The goal: help each birthing parent feel like the protagonist of their own story, not a set of risk factors to manage

Team-Based Care in the Fourth Trimester



It takes a team!

- Lactation consultants (IBCLCs) for feeding support and troubleshooting
- Doulas for continuous, culturally concordant labor and postpartum support
- Pelvic floor physical therapists for incontinence, prolapse, and diastasis recti
- Mental health providers for perinatal mood, anxiety, and trauma-related care
- Community health workers and care navigators to coordinate it all



Defining Dyadic Care and Integrating Care for the Dyad into Practice

ARS Question 2



Question 2

Which of the following best describes “dyad care” or “dyadic care” in the postpartum period?

- A. Care delivered exclusively by a pediatrician
- B. Concurrent medical care that addresses the needs of both mother and infant together
- C. A home-visiting program limited to high-risk infants
- D. Postpartum depression screening performed only at the 6-week ob-gyn visit

Family physicians can lead the way in care of the dyad — one of the only clinicians trained to provide primary care for both parent and infant.

What is Dyadic Care?

"The concurrent provision of care for a birthing person and their infant."

- Treats mother and infant as one care unit instead of two separate patients in two separate systems
- Dyadic care model:
 - Spans two generations, understanding health of the parent and infant as interconnected
 - Looks at a child as part of their family systems
 - Values information and input from caregivers
 - Assists caregivers in viewing concerns from multiple viewpoints, including that of the child



Dyadic Care by the Numbers

40%

MISS THE POSTPARTUM VISIT

Up to 40% of patients nationally never attend a formal postpartum visit

9

MEDIAN VISITS IN YEAR 1

Mother-infant dyads average nine health care visits in the first year after birth

2/3

OCCUR IN PEDIATRIC/ FAMILY MEDICINE SETTINGS

Most of those visits happen at infant well-child checks, not maternal visits

Models of Dyadic Care in Practice

Model	What It Looks Like	Where It Happens	Why It Works
Inpatient Models			
Couplet Care	Mother and newborn cared for together after birth	Postpartum/maternity units	Simplifies discharge teaching and bonding
Care for Birthing Person in NICU	Maternal services delivered alongside infant NICU care	NICU	Supports maternal needs during NICU care
Mother-Baby Psychiatric Units	Joint inpatient admission for maternal mental illness	Perinatal psychiatric units	Preserves attachment during treatment

Models of Dyadic Care in Practice

Model	What It Looks Like	Where It Happens	Why It Works
Outpatient Models			
Maternal Screening at Well-Child Visits	PHQ-9/EPDS and interconception health screening performed at infant checks	Pediatric or family medicine setting	Captures dyads at visits they already attend — ~2 in 3 dyad visits occur here
Shared Medical Visit	One clinician sees mother and infant together in a single encounter	Family medicine clinic	Reduces visit burden and reinforces family-centered, continuous care
Co-located Visits	Maternal and infant visits are scheduled back-to-back	Pediatrics, Family Medicine, Med-Peds, Obstetrics/Gynecology	Cuts travel and childcare burden; can increase access to medical
Group Medical Visits	Cohorts of mother-infant pairs cared for together	Group prenatal/postpartum models	Builds peer support and shared learning
Mobile Clinics	Maternal screening brought to the infant's well-child visit via a mobile health unit	Community-based mobile health vans	Removes transportation barriers; captures visits families already attend
Home visits by medical professionals	Nurse or clinician visits to the dyad	Home-visiting programs	Reaches families who face access barriers, meets people where they are

Fourth Trimester Care for NICU Families: A Distinct Population

NEEDS

- Higher rates of birth trauma, depression, and anxiety than non-NICU mothers
- More likely to have a chronic condition, cesarean birth, or blood transfusion
- Overlooked logistics: parking, food access, and a place to rest
- Spanish-speaking families face compounding isolation and immigration-related fears

GAPS

- NICUs are built to address infant health, not parental postpartum recovery
- Postpartum people forgo their own care to stay at the bedside
- The system splits a dyad whose healing and recovery are interconnected
- FMLA and paid leave do not account for need for parental involvement while child in the NICU and after discharge

OPPORTUNITIES

- \$4M CDC-funded initiative (2023–2026) building postpartum support systems for NICU families nationally
- Clinic-based models addressing unmet maternal needs at the point of infant care
- Reframing mother and newborn as an interconnected dyad in NICU-specific care

Evidence-Based Dyadic Care Models for NICU Families

FAMILY-INTEGRATED CARE (FICARE)

4 pillars: staff education/support, parent education, a nurturing environment, and psychosocial support — the largest neonatal FCC trial to date

CLOSE COLLABORATION WITH PARENTS (CCP)

Centers the partnership between NICU staff and parents in caregiving and clinical decisions

EARLY DYADIC MENTAL HEALTH INTERVENTIONS

Relationship-focused support started during the NICU stay; improves parental mental health and infant neurodevelopment

SKIN-TO-SKIN & KANGAROO CARE

Foundational dyadic practice with established benefits for bonding, breastfeeding, and physiologic stability

STRUCTURED DISCHARGE READINESS

Coordinated transition planning that carries dyadic care forward past NICU discharge

Dyadic Care: The Current State

Dyadic care in family medicine:

- Ideal specialty for shared medical visits; also maternal screening at infant well-checks and group care
- Shared visit can be with the same clinician the dyad already knows and trusts
- Despite this potential, parental and children's care can be fragmented even within the same practice – it requires processes and systems that ensure dyadic visits are the norm

Momentum for dyadic models with co-located models are being developed in Pediatric, Med-Peds, Psychiatry and OB/Gyn settings

- Examples:
 - University of Illinois Two Gen Clinic: internal medicine, pediatrics, psychiatry, lactation co-located and co-scheduled
 - UCSD Fourth Trimester Clinic: mother-baby dyad, pediatrics and OB/Gyn



Innovative Models to Improve Postpartum Uptake and Quality

Improving Timely Care: The IMPLICIT Network 4th Trimester (4TM) Model

- Launched in 2020 in response to ACOG's call for a new postpartum paradigm
- Parent-infant dyad visits before delivery, at ~2 weeks, and at 6 weeks postpartum
- Each visit addresses goals for contraception, feeding modality, and behavioral health
- Paired with an enhanced discharge process and a 1-week nurse phone check-in
- Improved early visit rate and breastfeeding rates

Patients in the 4TM cohort were more likely to complete a postpartum visit within 3 weeks of delivery than those receiving usual care (50% vs. 43%).

ARS Question 3



Question 3

A patient with a hypertensive disorder of pregnancy is being discharged. Which strategy has the strongest evidence for improving early postpartum blood pressure follow-up?

- A. Scheduling a routine visit at 6 weeks
- B. Remote home blood pressure monitoring with a nurse-driven protocol
- C. Mailing an educational pamphlet at discharge
- D. Relying on the patient to self-monitor with no structured follow-up

Telehealth & Remote Monitoring

- Remote home BP monitoring for hypertensive disorders of pregnancy
- Virtual postpartum visits and text-based nurse check-ins
- Multidisciplinary postpartum hypertension clinics combining telehealth with in-person options
- Improves attendance and catches complications earlier, especially for patients facing transportation or childcare barriers

Once offered, telehealth became the dominant visit type in one successful postpartum hypertension program — nearly two-thirds of visits were completed virtually.

Evidence for Telehealth & Remote Monitoring

92%

BP CHECKED WITHIN 10 DAYS

Of patients using text-based remote BP monitoring, vs. 44% with standard care

80%

SHOW RATE FOR VIRTUAL VISITS

At a multidisciplinary postpartum hypertension clinic offering telehealth

66%

OF VISITS DELIVERED VIRTUALLY

In that same program, once telehealth was offered as an option

Community-Based & Group Models

- Group postpartum care models (e.g., CenteringPostpartum)
- Community health worker and home-visiting programs
- Doula and peer-support integration into the care team
- Builds social connection and peer support during an often isolating period

Group prenatal care models have shown some of the largest, most consistently replicated effect sizes of any innovative postpartum delivery model.

Evidence for Community-Based & Group Models

3x

HIGHER VISIT ATTENDANCE

With an integrated group
antenatal/postpartum care
model in one health system

33%

REDUCTION IN PRETERM BIRTH

With CenteringPregnancy
group care in a large multi-
site RCT

50%

LOWER ODDS OF DEPRESSION AT 6 MONTHS

Reduced odds of postpartum
depressive symptoms with
group prenatal care

Mobile Mom-Baby Clinic

Launched during COVID-19 pandemic, the Mother and Infant Mobile Clinic utilizes a retrofitted ambulance to provide dyadic healthcare curbside to patients' residences

- Detected multiple cases of maternal hypertension that would otherwise have been missed (Yale/New Haven mobile clinic during COVID-19)
- Over half of interviewed mothers preferred a mobile/home visit
- Removes transportation barrier (largest single identified barrier) - over half had missed an appointment due to transportation

Resources for Clinicians

Guidelines & Screening Tools

- ACOG Postpartum Toolkit — Committee Opinion 736 (acog.org)
- AIM Patient Safety Bundles — maternal safety QI bundles (saferbirth.org)
- AAFP EveryONE Project — SDOH screening tools and guides (aafp.org/everyone)
- CDC Hear Her Campaign — patient materials on urgent warning signs (cdc.gov/hearher)

Consultation & Technical Assistance

- IMPLICIT Network Toolkits — free ICC and 4TM implementation toolkits (implicitnetwork.org)
- 4th Trimester Project (UNC) — technical assistance for clinics (newmomhealth.com)
- PSI Perinatal Provider Directory — find local referrals (postpartum.net)
- Postpartum Support International — free clinical consultation for providers

Resources for Patients

**NATIONAL MATERNAL MENTAL
HEALTH HOTLINE**

Call or text 1-833-TLC-MAMA (1-833-852-6262) — free, 24/7, English & Spanish

**POSTPARTUM SUPPORT
INTERNATIONAL**

Call or text 1-800-944-4773 for support, resources, and local providers

988 SUICIDE & CRISIS LIFELINE

Call or text 988 for a mental health crisis or safety concern, 24/7

**NATIONAL DOMESTIC VIOLENCE
HOTLINE**

Call 1-800-799-7233 or text START to 88788, 24/7 and confidential

FINDHELP.ORG OR DIAL 211

Free, confidential help with housing, food, transportation, and bills

NEWMOMHEALTH.COM

Free, evidence-based postpartum self-care information hub for new parents (English)

SALUDMADRE.COM

The Spanish-language counterpart to NewMomHealth — the same evidence-based content, en español

PREECLAMPSIA FOUNDATION

Call 1-800-665-9341 or visit preeclampsia.org for education and support on hypertensive disorders of pregnancy

Answers

1. B
2. B
3. B

Practice Recommendations

- Establish a postpartum care plan prenatally; document timing of first contact and the comprehensive visit (SOR C)
- Screen for maternal mood, anxiety, and interconception health needs at every infant well-child visit (SOR B)
- Build at least one dyad care touchpoint into your practice — a shared visit, a screening protocol, or a warm hand-off (SOR C)
- Offer or refer patients with hypertensive disorders of pregnancy to remote blood pressure monitoring (SOR B)
- Connect patients to group care, home visiting, or community health worker programs where available (SOR B)

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Contact Me!



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Thank you



Family-Centered Pregnancy Care Reflection Session

***Translation to Practice* ® (*t2p* ®)**

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Disclosure Statement

It is the policy of the AAFP that all individuals in a position to control CME content disclose any relationships with ineligible companies upon nomination/invitation of participation. Disclosure documents are reviewed for potential relevant financial relationships. If relevant financial relationships are identified, mitigation strategies are agreed to prior to confirmation of participation. Only those participants who had no relevant financial relationships or who agreed to an identified mitigation process prior to their participation were involved in this CME activity.

All individuals in a position to control content for this session have indicated they have no relevant financial relationships to disclose.

Learning Objectives

1. Reflect on the sessions you have attended and determine what information from them you can immediately apply to improve your practice.
2. Utilize the t2p tool to document your plan for practice change.

Translation to Practice® (t2p ®)

- Following this CME session, participants will have the opportunity to earn an additional 2.0 Prescribed Credits for participation in the Translation to Practice® reflective exercise.
- During this session, in addition to your clinical questions, consider how you will use the information to change your practice.
- Following the evaluation for this activity you will see the link to the t2p tool. Write your change into the tool and then at 30 and 90 days you will receive an automated email reminder and link to follow-up with what happened as a result of your change.
- Write your change into the tool and then at 30 and 90 days you will receive an automated email reminder and link to follow-up with what happened as a result of your change.

What's Next?

- How are you going to change your practice?
- Remember to complete the first step in the t2p tool following the evaluation.
- Then, after 30 days and 90 days (reminder) look out for an email with subject line "TIME TO COMPLETE t2p".
 - Contains a link for you to return to complete the t2p activity.
- Receive two additional CME credits!



Thank you