



# HEALTHY BIRTH SPACING: THE ROLE OF THE PRENATAL CONTRACEPTIVE PLAN AND POSTPARTUM BIRTH PLAN

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# DISCLOSURES

- I have no conflicts of interest.

# LEARNING OBJECTIVES:

1. Case review.
2. Describe the association between birth spacing and pregnancy outcomes.
3. Discuss how a prenatal contraceptive plan influences contraceptive uptake postpartum.
4. Outline how a postnatal birth plan might affect obstetric outcomes in the next pregnancy.

## CASE: DR. ALEXIS BRIDGES

- 23 year-old G2P0100 at 9 weeks gestation
- Short inter-pregnancy interval (12 weeks)
- Preceding pregnancy complicated by early onset fetal hydrops with PPRM/PTB at 35 weeks
- Subsequent neonatal demise
- Autopsy revealed gestational alloimmune liver disease

# GALD

- **G**estational **A**lloimmune **L**iver **D**isease
- Previously known as neonatal hemochromatosis
- Characterized by liver disease and accumulation of iron in the liver and outside the liver
- No longer known as neonatal hemochromatosis as the pathophysiology is unrelated to hereditary hemochromatosis

# GALD

- Caused by maternal alloimmunization
- First pregnancy may be affected
- Maternal IgG antibody forms, is passed through the placenta, and activates fetal complement cascade to produce a membrane attack complex (C5b-9) that targets the fetal liver
- Recurrence risk is very high- 80-95%

# GALD

- Neonatal treatment relies on exchange transfusion, IVIG, and sometimes liver transplantation
- Treatment with IVIG during pregnancy dramatically decreases recurrence risk and risk of fetal loss
  - 1g/kg body weight every week beginning between 14-18 weeks gestation

# QUESTION

- How does short inter-pregnancy interval affect this pregnancy?
  - Preterm birth
  - GALD



# INTERPREGNANCY INTERVAL

- Interpregnancy interval (IPI), also referred to as birth to pregnancy (BTP) interval, is defined as the spacing between a live birth and the beginning of the following pregnancy
  - Adverse pregnancy outcomes have been associated with both short and long IPI
  - Bulk of risk is with short IPI

# INTERPREGNANCY INTERVAL

- Short interpregnancy interval (IPI)
  - One commonly used definition is <18 months
    - *What percentage of U.S. women have short IPI?*
      - 10%
      - 30%
      - 50%
      - 80%

# INTERPREGNANCY INTERVAL

- Long interpregnancy interval (IPI)
  - Usually defined as IPI longer than 60 months

# INTERPREGNANCY INTERVAL

- Why is interpregnancy interval related to obstetric outcomes?
  - Short IPI
    - Maternal depletion hypothesis
    - Residual inflammation of the genital tract
    - Incomplete healing

# INTERPREGNANCY INTERVAL

- Why is interpregnancy interval related to obstetric outcomes?
  - Long IPI
    - Women who take longer to conceive are more likely to have chronic illness or subfertility – both of which are associated with higher risk
      - Side Note: Women who get pregnant rapidly after miscarriage may actually be at LOWER risk of complication than those who have a longer interval

# IPI AND PREGNANCY OUTCOMES

	Short IPI	Long IPI
Small for gestational age	↑	
Preterm premature rupture of membranes	↑	
Preterm birth	↑	
Congenital anomalies	↑	↑
Autism	↑	
Miscarriage	↓ or →	
Stillbirth	↑	
Neonatal death	↑	

# IPI AND PREGNANCY OUTCOMES

	Short IPI	Long IPI
Maternal anemia	↑	
Preeclampsia	↑	↑
Uterine rupture in TOLAC	↑	
Maternal death	↑ or →	

# SHORT IPI INCREASES RISK OF PRETERM BIRTH

- IPI < 6 months
  - Risk of PTB ↑ by 40-70% (OR 1.4-1.7)
  - Risk of spontaneous preterm birth may be even higher (OR >3)
  - Significant but lesser effect for longer intervals

1. Effect of interval between pregnancies on perinatal outcomes. Zhu et al. NEJM 1999.
2. Interpregnancy interval and the risk of premature infants. Fuentes-Afllick et al. Obstet Gynecol 2000.
3. Interpregnancy interval and risk of preterm birth and neonatal death: retrospective cohort study. Smith et al. BMJ 2003.
4. Birth spacing and risk of adverse perinatal outcomes: a meta-analysis. Conde-Agudelo et al. JAMA 2006.
5. Interpregnancy interval after live birth or pregnancy termination and estimated risk of preterm birth: a retrospective cohort study. Shachar et al. BJOG 2009.



# SHORT IPI INCREASES RISK OF PRETERM BIRTH

- IPI < 6 months
  - Effect may be magnified if the preceding pregnancy was complicated by preterm birth!

RECIPE for “obstetrical badness”

Preterm birth + short IPI =



# WHAT DO WE RECOMMEND?

- Best data suggests, from an obstetrical standpoint, that an IPI  $> 18$  months and  $< 5$  years is optimal
- IPI  $> 18$  months is especially critical in women with pregnancy complications like preterm delivery

# PRETERM BIRTH

- **1 in 10 U.S. births is preterm**
- Defined as birth prior to 37 completed wks
- Leading cause of infant mortality and long-term morbidity
- Costs us ‘gobs’ of money (>\$26 billion / yr)
- Unsolved problem

# PRETERM BIRTH PREVENTION

- The best predictor of preterm birth is a history of preterm birth
  - Predicting the first preterm birth is very difficult (maybe impossible at present)
  - After the first preterm birth, optimizing IPI becomes a key strategy to reduce the risk of recurrent preterm birth

# WHAT CAN WE DO TO INFLUENCE IPI?

- Prenatal contraceptive plan
- Postpartum birth plan
  
- Think about these terms...oxymorons?

# Prenatal Contraceptive Plan

# PRENATAL CONTRACEPTIVE PLAN

- Antenatal counseling
  - Our experience suggests that contraceptive counseling during pregnancy improves postpartum contraceptive uptake
  - RCT of enhanced postpartum contraceptive counseling in women with preterm birth
    - Strongest predictor of LARC use at 3 months postpartum was having an antenatal plan in place

Increasing IUD and Implant Use Among Those at Risk of a Subsequent Preterm Birth: A Randomized Controlled Trial of Postpartum Contraceptive Counseling. LN Torres et al. Women's Health Issues, 2018.

# PRENATAL CONTRACEPTIVE PLAN

- What tools can help us?
  - Electronic medical record



# PRENATAL CONTRACEPTIVE PLAN

**Pregnancy Checklist**

Add a set of tasks
+ Add

Add a single task
+ Add

Show:  Completed

First Trimester	Tasks: 15		
Second Trimester	Tasks: 7		
Early Third Trimester	Tasks: 7		
Late Third Trimester	Tasks: 7		
	Date Added	Completed	Completed/Removed
GBS	3/8/2018	10/3/2018	Erin A S Clark
Contraceptive Counseling	3/8/2018	10/3/2018	Erin A S Clark
Birth Plan/Pain Relief	3/8/2018	10/3/2018	Erin A S Clark
Pediatrician	3/8/2018	10/3/2018	Erin A S Clark
Hospital Care of the Neonate	3/8/2018	10/3/2018	Erin A S Clark
Breastfeeding	3/8/2018	10/3/2018	Erin A S Clark
Late 3rd Trimester Handouts	3/8/2018	10/3/2018	Erin A S Clark

# PRENATAL CONTRACEPTIVE PLAN

**Contraceptive Plan - Contraceptive Plan** ↑ ↓

Time taken:   Show:  Row Info  Last Filed  All Choices

Values By [+ Create Note](#)

▼ **Contraceptive Plan**

Method

Contraceptive plan to be initiated

Comments

# PRENATAL CONTRACEPTIVE PLAN

- Contraceptive plan flows automatically into the admission H&P, progress notes
- Also visible at the postpartum visit

# PRENATAL CONTRACEPTIVE PLAN

- Optimize the chances that

Prenatal contraceptive plan



**Postnatal contraceptive reality**

# Postpartum Birth Plan

# POSTPARTUM BIRTH PLAN - COMPONENTS

## 1. Evaluation of prior birth outcome – diagnosis, etiology, recurrence risk

### – Example:

- Diagnosis: 24 week spontaneous preterm birth
- Etiology: PPRM followed by labor, no evidence of infection or cervical insufficiency
- Recurrence risk: 30%

# POSTPARTUM BIRTH PLAN - COMPONENTS

## 2. Identification of risk reduction strategies

### – Example:

- IPI of at least 18 months
- Recommendation for Long-Acting Reversible Contraception (LARC)
- Weight loss
- Smoking cessation
- Planned pregnancy, early prenatal care
- Initiation of 17P at 16-20 weeks gestation

# PRETERM BIRTH PREVENTION- 17P

- 17 alpha hydroxyprogesterone acetate (17P)
  - Indication
    - Treatment of women with history of spontaneous preterm birth (labor or PPROM)
      - 250 mg IM weekly, 16-36 weeks gestation
      - Reduces risk of recurrent spontaneous birth by 1/3
      - Expensive- requires pre-authorization, need lead time!
      - We have no other pharmacologic options to prevent recurrent preterm birth



# POSTPARTUM BIRTH PLAN - COMPONENTS

## 3. Postpartum contraceptive counseling

– Compared to women with term births, women with preterm birth are

1. More likely

or

2. Less likely

to use contraception.

# POSTPARTUM BIRTH PLAN

## 3. Postpartum contraceptive counseling

- Women with preterm birth may actually be **LESS likely** to use contraception than women with term births
  - Pregnancy Risk Assessment Monitoring System (PRAMS) data showed women with recent extreme preterm birth were:
    - Half as likely to use contraception (31% vs. 15%)
    - Half as likely as to use highly or moderately effective methods (aOR 0.5)

# POSTPARTUM BIRTH PLAN

## 3. Postpartum contraceptive counseling

- Women with preterm birth may actually be **LESS likely** to use contraception than women with term births
  - Focus on baby
  - High stress, “a lot on their plate”
  - Lack of awareness regarding recurrence risk and effect of short IPI
  - Desire for another pregnancy

# POSTPARTUM BIRTH PLAN

- In a very high risk group of women with history of early preterm birth attending a neonatal follow-up program...

**Nearly 1 in 5 women reported all 3:**

- ✓ sexual activity
- ✓ desire to avoid pregnancy
- ✓ no current contraception use

Prevention of recurrent preterm birth: role of the neonatal follow-up program. EA Clark et al. Matern Child Health J 2014.

# POSTPARTUM BIRTH PLAN

- In a very high risk group of women with history of early preterm birth attending a neonatal follow-up program...

**Nearly 1 in 5 women reported all 3:  
*Reproductive hat trick  
for imminent unintended pregnancy risk!***

Prevention of recurrent preterm birth: role of the neonatal follow-up program. EA Clark et al. Matern Child Health J 2014.

# POSTPARTUM BIRTH PLAN

## 3. Postpartum contraceptive counseling

### – **RCT of enhanced postpartum contraceptive counseling in women with preterm birth**

- Intervention associated with significantly increased use of LARC at 3 months postpartum (51% vs. 31%)
- While we lack long-term follow-up data, we know from other studies that LARC reduces unintended pregnancies and promotes optimal pregnancy spacing

Increasing IUD and Implant Use Among Those at Risk of a Subsequent Preterm Birth: A Randomized Controlled Trial of Postpartum Contraceptive Counseling. LN Torres et al. Women's Health Issues 2018.

# POSTPARTUM BIRTH PLAN

- **Counseling should ideally happen during the birth hospitalization**
  - Don't wait! At least 1/3 of women don't follow-up postpartum - women with more risk factors have lower follow-up rates
  - Hospital team can most accurately assess and make recommendations
    - (Was it concerning for cervical insufficiency?)
  - How do you know it was done and what did they say??

# IN-HOSPITAL COUNSELING: THE PRETERM BIRTH ASSESSMENT

**Preterm Birth Assessment**

PRETERM BIRTH ASSESSMENT

Episodes

PTB Assessment

Contraceptive Plan

Problem List

Progress Note

Additional DC Inst...

+ Add Row + Add Group Values By + Create Note

Preterm Birth Assessment

Preterm birth reasons

preterm labor;preterm premature rupture of membranes (PPROM);

cervical insufficiency preterm labor preterm premature rupture of membranes (PPROM) ^

physician's decision to deliver - Pregnancy complication physician's decision to deliver - Maternal medical complication

physician's decision to deliver - Fetal concern

Additional reasons for preterm birth include

Recurrence Risk (%) 30

Preterm Birth Recommendations & Comments

Additional recommendations include

uterine imaging before next pregnancy 17P beginning by 16 weeks in next pregnancy cervical cerclage in next pregnancy

cervical length assessment in the mid-trimester of next pregnancy start a daily baby aspirin (81 mg) before or early in next pregnancy

Additional comments

**\*\*Best Practice Alert Triggered with ALL Preterm Births\*\***



# PRETERM BIRTH ASSESSMENT

## Maternal Fetal Medicine - Preterm Birth Assessment

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**Patient Name:** Stephanie Eardley    **MRN:** 20671184    **Date of Birth:** 10/2/1987

Preterm birth occurred at 39w1d because of preterm labor;preterm premature rupture of membranes (PPROM).

Recurrence risk is estimated to be 30 %.

We recommend consultation with Maternal-Fetal Medicine physician prior to your next pregnancy as well as 18 months before considering another pregnancy. This allows time for the body to heal and reduces the risk of another preterm birth. Use of highly effective contraception (IUD or implant) is encouraged.

Contraceptive plan -

Method: IUD

Contraceptive plan to be initiated: At postpartum follow-up

Additional recommendations include: 17P beginning by 16 weeks in next pregnancy;cervical length assessment in the mid-trimester of next pregnancy.

Erin A. S. Clark, MD

10/10/2018

12:12 AM

# POSTPARTUM BIRTH PLAN

- **Counseling should be repeated as an outpatient ‘preconception’ consultation**
  - Poor retention of initial counseling information
  - Another opportunity for contraception
  - Consider repeating again before they decide to get pregnant (recommendations may change!)

# TAKE HOME POINTS

- Interpregnancy interval less  $<6$  months is associated with the highest risk of pregnancy complications, including PTB
  - Risk is critical if adverse outcome in preceding pregnancy
- Optimal interpregnancy interval is  $>18$  months

# TAKE HOME POINTS

- Prenatal contraceptive plan increases postpartum contraception uptake and LARC uptake
- Postpartum birth plan that includes evidence-based risk reduction strategies and contraceptive counseling may reduce the risk of recurrent pregnancy complications

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# QUESTIONS

- How does short inter-pregnancy interval affect her risk of recurrent preterm birth?
- How does short inter-pregnancy interval affect her risk of GALD?
- Was the GALD associated with her preterm birth?
- What do we recommend for this pregnancy?

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