

# High-Risk Pregnancy

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1



**I have no actual or potential conflict  
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2

## Preterm Births (PTB)



- Births between 20 and 37 weeks of gestation
- Occurs in 5 to 18 % of births worldwide
- Accounts for one third (1/3) of all infant deaths in the US
  - Infants born at or before 25 weeks of gestation have a 50% mortality rate
  - If they survive, they are at increased risk for severe impairment

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3

3

## Degrees of Prematurity



- Gestational Age
- Birth weight

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4

4

## Gestational Age (GA)



- Extreme preterm < 28 weeks
- Very preterm 28 weeks to < 32 weeks
- Moderate preterm 32 weeks to <34 weeks
- Late Preterm 34 weeks to <37 weeks
  
- In The USA (2014)
  - 9.57 % < 37 weeks GA
  - 2.7 % < 34 weeks GA

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5

5

## Birth weight



- Extremely low birth weight < 1000 g /2.2 lbs.
- Very low birth weight 1001 to < 1500 g /2-2 to < 3.31lbs
- Low birth weight 1501 to <2500 g/ 3.31 to < 5.51lbs
  
- In the USA
- LBW infants accounted for 8.1% of live births (2015)

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6

6

## Strategies



- Ideal Early identification of risk factors before conception or in early pregnancy
- Few interventions have been shown to be effective in prolonging PTB
- Difficult to affect change
  - 2/3 of PTB's occur to women with no identified risk factors
  - Difficult to prove causality
  - No adequate animal models

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7

7

## Prior Ob History



- Prior PTB
- Prior cervical surgery
- Multiple dilatations and evacuations after first trimester
- Uterine Abnormalities

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8

8

## Maternal demographics



- Age < 17 or >35 years of age
- Lower education level <12<sup>th</sup> grade
- Single marital status
- Lower socioeconomic status
- Short interpregnancy interval < 6 months
- Social factors
  - Poor access to medical care
  - Physical abuse
  - Acculturation

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9

9

## Nutritional status/physical activity



- BMI < 19kg/m<sup>2</sup>, or  
pre-pregnancy weight < 50 kg (110 lbs.)
- Poor nutritional status
- Long working hours > 80 hours/week
- Hard physical labor Shift work/ standing > 8 hours
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10

10

## Maternal/ Pregnancy



- Assisted conception IVF
- Multiple gestation
- Fetal disorders chromosome or structural abnormality, growth restriction, death
- Vaginal bleeding 1<sup>st</sup> and 2<sup>nd</sup> trimester, placenta previa or abruption
- Poly-/oligohydramnios
- Chronic conditions hypertension, diabetes, thyroid disease, asthma
- Surgery while pregnant
- Behavioral Stress, depression
- Substance usage Smoking, heavy alcohol, cocaine and/or heroin

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11

11

## Maternal/Pregnancy- cont.



- Infections
  - STD's Bacterial vaginosis, trichomoniasis, chlamydia, gonorrhea, syphilis
  - UTI's
  - Severe viral infections
  - Intrauterine
  - Periodontal disease –lack of causality
  - Malaria- prevention
- Short uterine length between 15 to 28 weeks GA
- Positive Fetal fibronectin test (fFN) between 22 to 34 weeks
- Uterine contractions

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12

12

## Previous PTB history



- A major risk factor for recurrence
  - Recurrences often occur at the same gestational age
  - Women at highest risk
    - No term pregnancy between since the previous spontaneous PTB
    - A history of multiple spontaneous PTB's
- Frequency of recurrence after one spontaneous PTB is 15 to 30 %
- Higher frequency with multiple spontaneous PTB's
- Term birth decrease the risk of PTB
- Approximately 5% of women with a history of ELBW deliver another ELBW infant
- There may be genetic factors- mother's who were born prematurely

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13

13

## Interventions for previous PTB



- Progesterone appears to reduce the risk of PTB by 30% with a singleton pregnancy and a history of spontaneous PTB
- Sonographic measurement of cervical length and identify of women with short cervixes are candidates for cerclage
- The March of Dimes encourages women to space pregnancies by at least 18 months

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14

14

## Genetics



- In the USA, non-Hispanic Black women have a consistently higher rate for PTB
  - Maybe related to both genetic and environmental factors
  - Higher risk for subsequent PTB
- Age                      Maternal age < 17 years old/ > 35 years old

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15

15

## Chronic Medical Conditions



- Early identification
- Depression and serotonin intake inhibitors are associated with increased risks for PTB
- Multifetal gestations are 2 to 3 % of all births but 17 % of births before 37 weeks GTA and 23 % of births before 32 weeks GTA
  - Progesterone supplementation, a pessary, cerclage and or bedrest do not prolong gestation

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16

16



## Predicting Risk for PTB



- No effective risk scoring system for the prediction of PTB
- Biomarkers
  - Fetal fibronectin (fFN) can predict PTB within the 7 -14 days for women with contractions and mild cervical dilatation and effacement  
fFN > 50ng/ml between 22 to 26 weeks-6 days has 55.5 sensitivity  
Not useful in asymptomatic nulliparous women

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17

17

## Promising Interventions



- Low dose aspirin
  - Shouldn't be used in attempt to prevent spontaneous PTB
  - Should be considered for women with high risk factors for preeclampsia

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18

18

## Morbidity/Mortality



- Women who deliver preterm have an increased risk for cardiovascular m and m
  - Fatal and non-fatal ischemic heart disease
  - Fatal and non-fatal stroke
  - Fatal and non-fatal overall cardiovascular disease

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19

19

## Ethnicity Infant Mortality



- Infant mortality rates per 1000 live births for GA < 32 weeks
 

- Overall	182.5
- White	168.4
- Black	216.2
- Asian or Pacific Islander	173.2
- Infant mortality rates per 1000 live births for birth weights < 1500 gm
 

- Overall	244.5
- White	231.9
- Black	274
- Asian or Pacific Islander	222.7

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20

20

## UHC-TX CASEMANAGEMENT



- Healthy First Steps
  - Job Aids
  - Interventions are based on both National and state protocols
  - Wellhop
- Collaborations
  - March of Dimes

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21

21



## Questions and Answers

22