PPOR Categories of Risk Definitions

- **Maternal Health and Prematurity:** Fetal or Infant death in which the babies weighed from 500 to 1,499 grams. Risk factors relate to the health of the mother in general irrespective of her pregnancy.

- **Maternal Care:** deaths occurring before delivery to fetuses weighing 1500 grams or more and generally in the third trimester of gestation.

- **Newborn Care:** deaths to infants weighing more than or equal to 1,500 grams and occurring before the infant is 28 days old. Most occur before the baby is discharged from the hospital.

- **Infant Care:** Infant deaths that occur to infants born at least 1,500 grams and occurring after the first 27 days of life to end of first year of life. The majority of these deaths occur after the baby leaves the hospital.
Reference Group

• Relevant standard population that experiences good prenatal birth outcomes.
• The reference group is used as comparison for all other populations.
• The outcomes experienced by the Reference group should be realistic for achievement by the community.

White, 20 years or over, at least a high-school education
Excess Death Rate

Death rate for the whole population or sub-population that is ABOVE that of the reference group.

Calculation:
Death rate of Population Studied - Death Rate of Reference = EXCESS DEATH RATE
Introduction

Goal:

• The overall Excess Death Rate for all mothers delivering in PBC and the Excess Death Rate within each PPOR category is close to 0.

• The overall Excess Death Rate for Black mothers delivering in PBC and the Excess Death Rate within each PPOR category is close to 0.
**Perinatal Periods of Risk Model:**

**All Palm Beach County Infant/Fetal Deaths** from 2016 through 2019 (based on 2016 through 2018 births) by Weight and Age at Death: Infant/Fetal Death Rate: (6.3 deaths per 1,000 live births/stillborns*)

<table>
<thead>
<tr>
<th>Birthweight at Delivery</th>
<th>Fetal</th>
<th>Neonatal</th>
<th>Post-neonatal</th>
<th>Total= 94 (33%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1499 grams</td>
<td>Maternal Health: 48</td>
<td>Maternal Health: 39</td>
<td>Maternal Health: 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500 or more grams</td>
<td>Maternal Care: 92 (33%)</td>
<td>Newborn Care: 45 (16%)</td>
<td>Infant Health: 51 (18%)</td>
<td></td>
</tr>
</tbody>
</table>

Total Fetal and Infant Deaths over 500 Grams and 24 or more weeks gestation: 282

*Based on births, fetal deaths, and infant deaths meeting PPOR criteria. Due to rounding percentages may total over 100%.
### Perinatal Periods of Risk Model:

**All Palm Beach County Infant/Fetal Deaths** from 2013 through 2016 (based on 2013 through 2015 births) by Weight and Age at Death: Infant/Fetal Death Rate: (7.1 deaths per 1,000 live births/stillborns*)

<table>
<thead>
<tr>
<th>Birthweight at Delivery</th>
<th>Fetal</th>
<th>Neonatal</th>
<th>Post-neonatal</th>
<th>Total= 106 (34%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1499 grams</td>
<td>Maternal Health: 53</td>
<td>Maternal Health:41</td>
<td>Maternal Health: 12</td>
<td>Maternal Health:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500 or more grams</td>
<td>Maternal Care: 107 (35%)</td>
<td>Newborn Care: 45 (15%)</td>
<td>Infant Health: 50 (16%)</td>
<td></td>
</tr>
</tbody>
</table>

Total Fetal and Infant Deaths over 500 Grams and over 24 week gestation: 308

*Based on births, fetal deaths, and infant deaths meeting PPOR criteria. Due to rounding percentages may total over 100%.
**Perinatal Periods of Risk Model:**

**Black Infant/Fetal Deaths Palm Beach County** from 2016 through 2019 (based on 2016 through 2018 births) by Weight and Age at Death: Black Infant/Fetal Death Rate: (9.0 deaths per 1,000 live births/stillborns*)

<table>
<thead>
<tr>
<th>Birthweight at Delivery</th>
<th>Fetal Health</th>
<th>Neonatal Health</th>
<th>Post-neonatal Health</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1499 grams</td>
<td>Maternal 24</td>
<td>Maternal 18</td>
<td>Maternal 4</td>
<td>46 (40%)</td>
</tr>
<tr>
<td>1500 or more grams</td>
<td>Maternal Care: 31 (27%)</td>
<td>Newborn Care: 19 (16.5%)</td>
<td>Infant Health: 19 (16.5%)</td>
<td></td>
</tr>
</tbody>
</table>

Total Fetal and Infant Deaths over 500 Grams and over 24 week gestation: 115

*Based on births, fetal deaths, and infant deaths meeting PPOR criteria
Black includes Haitian
Black Infant/Fetal Deaths Palm Beach County from 2013 through 2016 (based on 2013 through 2015 births) by Weight and Age at Death: Black Infant/Fetal Death Rate: (11.6 deaths per 1,000 live births/stillbirths*)

<table>
<thead>
<tr>
<th>Birthweight at Delivery</th>
<th>Fetal</th>
<th>Neonatal</th>
<th>Post-neonatal</th>
<th>Total= 57 (40%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1499 grams</td>
<td>Maternal Health: 27</td>
<td>Maternal Health: 21</td>
<td>Maternal Health: 9</td>
<td></td>
</tr>
<tr>
<td>1500 or more grams</td>
<td>Maternal Care: 45 (31%)</td>
<td>Newborn Care: 17 (12%)</td>
<td>Infant Health: 25 (17%)</td>
<td></td>
</tr>
</tbody>
</table>

Total Fetal and Infant Deaths over 500 Grams and over 24 week gestation: 144

*Based on births, fetal deaths, and infant deaths meeting PPOR criteria
Black includes Haitian
## Perinatal Periods of Risk Model:

**Reference Group*/Fetal Deaths Palm Beach County** from 2016 through 2019 (based on 2016-2018 births) by Weight and Age at Death: Reference/Fetal Death Rate: (4.1 deaths per 1,000 live births/stillborns*)

<table>
<thead>
<tr>
<th>Birthweight at Delivery</th>
<th>Fetal Health</th>
<th>Neonatal Health</th>
<th>Post-neonatal Health</th>
<th>Total=17 (29%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1499 grams</td>
<td>Maternal: 12</td>
<td>Maternal: 5</td>
<td>Maternal: 0</td>
<td></td>
</tr>
<tr>
<td>1500 or more grams</td>
<td>Maternal Care: 22 (37%)</td>
<td>Newborn Care: 7 (12%)</td>
<td>Infant Health: 13 (22%)</td>
<td></td>
</tr>
</tbody>
</table>

Total Fetal and Infant Deaths over 500 Grams and over 24 week gestation: 59

*Based on births, fetal deaths, and infant deaths meeting PPOR criteria

** Reference Group consists of Mothers who are White, 20 years old or older, High School Education or above.
**Perinatal Periods of Risk Model:**

**Reference Group*/Fetal Deaths Palm Beach County from 2013 through 2016 (based on 2013 through 2015 births) by Weight and Age at Death: Reference/Fetal Death Rate: 4.6 deaths per 1,000 live births/stillborns*)

<table>
<thead>
<tr>
<th>Birthweight at Delivery</th>
<th>Fetal</th>
<th>Neonatal</th>
<th>Post-neonatal</th>
<th>Total=30 (29%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1499 grams</td>
<td>Maternal Health: 14</td>
<td>Maternal Health: 14</td>
<td>Maternal Health:3</td>
<td></td>
</tr>
<tr>
<td>1500 or more grams</td>
<td>Maternal Care: 41 (39%)</td>
<td>Newborn Care: 17 (16%)</td>
<td>Infant Health: 16 (15%)</td>
<td></td>
</tr>
</tbody>
</table>

Total Fetal and Infant Deaths over 500 Grams and over 24 week gestation: 104

*Based on births, fetal deaths, and infant deaths meeting PPOR criteria

** Reference Group consists of Mothers who are White, 20 years old or older, High School Education or above.
Infant/Fetal Death Rates

(per 1,000 live/births/stillborns*)
Non-Reference Group vs. Reference Group
2016 through 2018 Births

**Maternal Health**
Non-Reference Group: 2.5
Reference Group: 1.2
Excess Death Rate: 1.3

**Maternal Care**
Non-Reference Group: 2.3
Reference Group: 1.5
Excess Death Rate: 0.8

**New Born Care**
Non-Reference Group: 1.2
Reference Group: 0.5
Excess Death Rate: 0.7

**Infant Care**
Non-Reference Group: 1.2
Reference Group: 0.9
Excess Death Rate: 0.3

Total Infant/Fetal Mortality: Reference Group: 4.1; Non-Reference Group: 7.2
Excess Death Rate: 3.1

* Based on births, fetal deaths, and infant deaths meeting PPOR criteria
Infant/Fetal Death Rates

(Per 1,000 live/births/stillborns*)
Non-Reference Group vs. Reference Group
2013-2016 Births

**Maternal Health**
- Non-Reference Group: 3.7
- Reference Group: 1.3
- Excess Death Rate: 2.4

**Maternal Care**
- Non-Reference Group: 3.2
- Reference Group: 1.8
- Excess Death Rate: 1.4

**New Born Care**
- Non-Reference Group: 1.2
- Reference Group: 0.7
- Excess Death Rate: 0.5

**Infant Care**
- Non-Reference Group: 1.6
- Reference Group: 0.7
- Excess Death Rate: 0.9

Total Infant/Fetal Mortality: Reference Group: 4.6; Non-Reference Group: 9.8
Excess Death Rate: 4.9

* Based on births, fetal deaths, and infant deaths meeting PPOR criteria
Infant/Fetal Death Rates

(per 1,000 live births/stillborns*)
Black Mothers vs. Reference Group
2016 through 2018 Births

Maternal Health
Black Mothers: 3.6
Reference Group: 1.2
Excess Death Rate: 2.4

Maternal Care
Black Mothers: 2.4
Reference Group: 1.5
Excess Death Rate: 0.9

New Born Care
Black Mothers: 1.5
Reference Group: 0.5
Excess Death Rate: 1.0

Infant Care
Black Mothers: 1.5
Reference Group: 0.9
Excess Death Rate: 0.6

Total Infant/Fetal Mortality: Black Mothers: 9.0  Reference Group: 4.1
Excess Death Rate: 4.9

* Based on births, fetal deaths, and infant deaths meeting PPOR criteria
Infant/Fetal Death Rates

(per 1,000 live births/stillborns*)
Black Mothers vs. Reference Group
2013-2015 Births

Maternal Health
Black Mothers: 4.6
Reference Group: 1.3
Excess Death Rate: 3.3

Maternal Care
Black Mothers: 3.6
Reference Group: 1.8
Excess Death Rate: 1.8

New Born Care
Black Mothers: 1.4
Reference Group: 0.7
Excess Death Rate: 0.7

Infant Care
Black Mothers: 2.0
Reference Group: 0.7
Excess Death Rate: 1.3

Total Infant/Fetal Mortality: Black Mothers: 11.6  Reference Group: 4.6
Excess Death Rate: 7.0

* Based on births, fetal deaths, and infant deaths meeting PPOR criteria
Results

• 2016-2019: the non-Reference group had an Excess Death Rate of 3.1 per 1,000 deaths. Based on 30,526 births from 2016 through 2018:
  If the Excess Death Rate was 0 there would have been 98 less fetal/infant deaths for the non-Reference group.

• 2016-2018: Black Mothers had an Excess Death Rate of 4.9 per 1,000 births. Based on 12,773 births to Black mothers from 2016 through 2018
  If the Excess Death Rate was 0, there would have been 63 less fetal/infant deaths to Black babies.

• For the County as a whole the percent of infant/fetal deaths due to Maternal Health and Maternal Care, were about the same with lower percentage of deaths due to New Born Care, and Infant Health. For Black mothers deaths due to Maternal Health is much higher than the other periods of perinatal risk. In the Non-reference Group the percent of fetal/infant deaths was slightly higher in the Maternal Health period then the Maternal Care period. Thus, most of excess deaths occur for these populations before the baby is born.
Factors Related to Maternal Health & Prematurity Deaths

- Unwanted pregnancy and short inter-pregnancy intervals
- Genitourinary tract infections before and during pregnancy
- Maternal nutrition
- Anemia
- Smoking before and during pregnancy
- Pregnancies with late onset of prenatal care
- Inadequate systems for transfer of women in early labor to appropriate facilities
- Inadequate systems for transfer of ill premature newborns to appropriate facilities.
Factors: Maternal Care Fetal Deaths

- Inadequate monitoring during pregnancy
- Inadequate systems for referral of high-risk women in labor to appropriate facilities.
- Delays in obtaining needed Caesarean deliveries
- Pregnancies with late onset of prenatal care or interruptions in care.
- Smoking before and during pregnancy
- Drug and alcohol abuse before and during pregnancy.
Factors: Newborn Care Deaths

- Inadequate systems for referral of high-risk women in labor to appropriate facilities
- Inadequate system of transfer of ill newborns to appropriate facilities
- Neonatal care below standard of care
- Lack of breast-feeding at one month
- Lack of follow-up rate for high risk infants
- Inadequate folate intake by first trimester pregnant women
Factors: Infant Care Deaths

- Low immunization levels against all currently recommended diseases
- Gastroenteritis for infants (including hospitalizations)
- Injuries
- Poisonings
- Exposure to cigarette smoke in home, car and elsewhere
- Alcohol and drug use and mental health status of parents