Why Should We Care About Health Disparities in Infant Mortality?

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## Indiana Infant Mortality by Race

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>7.9</td>
<td>7.5</td>
<td>7.7</td>
</tr>
<tr>
<td><strong>RACE ETHNICITY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Non Latino</td>
<td>6.4</td>
<td>6.0</td>
<td>6.9</td>
</tr>
<tr>
<td>Black/Non Latino</td>
<td>18.1</td>
<td>14.7</td>
<td>12.3</td>
</tr>
<tr>
<td>Latino</td>
<td>5.2</td>
<td>8.6</td>
<td>6.5</td>
</tr>
<tr>
<td>Other Race/Ethnicity</td>
<td>8.1</td>
<td>7.4</td>
<td>7.8</td>
</tr>
</tbody>
</table>
Rate of SIDS* by Race, Indiana, 2005-2011

* Sudden infant death syndrome (R95)
Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team
Rate of Suffocation Deaths* by Race, Indiana, 2005-2011

*Accidental suffocation and strangulation in bed (W75)
Source: Indiana State Department of Health, PHPC, ERC, Data Analysis Team
6,000 African-American infant deaths a year could be prevented if the IMR of African-Americans was lowered to the level of Whites.

It generally takes the B-IMR 20 years to “catch up” to the W-IMR.

\[
20 \text{ years} \times 6,000 \text{ “excess deaths”/year} = 120,000 \text{ “excess deaths”}
\]
### Black and White Infant Mortality for College Educated Parents

<table>
<thead>
<tr>
<th></th>
<th>Black</th>
<th>White</th>
<th>O.R./R.R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>10.2</td>
<td>5.4</td>
<td>1.82</td>
</tr>
<tr>
<td>LBW (&lt;2500g)</td>
<td>7%</td>
<td>3%</td>
<td>2.12</td>
</tr>
<tr>
<td>VLBW (&lt;1500g)</td>
<td>1.5%</td>
<td>0.52%</td>
<td>3.13</td>
</tr>
<tr>
<td>&gt;2500g</td>
<td>92.9%</td>
<td>96.9%</td>
<td>0.96</td>
</tr>
</tbody>
</table>

Schoendorf. NEJM 1992:326:1522-6
## Disparities in Perinatal Risk Factors

<table>
<thead>
<tr>
<th>Live Births with Reported Outcomes (Percent)</th>
<th>Total</th>
<th>White</th>
<th>Black</th>
<th>Non-Hispanic</th>
<th>Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoked During Pregnancy</td>
<td>16.6</td>
<td>17.9</td>
<td>13.3</td>
<td>17.8</td>
<td>5.1</td>
</tr>
<tr>
<td>Unmarried Parents</td>
<td>42.7</td>
<td>37.8</td>
<td>79.9</td>
<td>42.0</td>
<td>48.6</td>
</tr>
<tr>
<td>Mothers under 20 years old</td>
<td>9.6</td>
<td>8.8</td>
<td>15.9</td>
<td>9.4</td>
<td>10.9</td>
</tr>
<tr>
<td>Breastfeeding upon Discharge</td>
<td>74.0</td>
<td>76.0</td>
<td>57.8</td>
<td>73.5</td>
<td>80.0</td>
</tr>
</tbody>
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Data Source: Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team.
## Disparities in Perinatal Risk Factors

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</thead>
<tbody>
<tr>
<td>Low Birthweight</td>
<td>8.1</td>
<td>7.4</td>
<td>13.3</td>
<td>8.1</td>
<td>8.1</td>
</tr>
<tr>
<td>Very Low Birthweight</td>
<td>1.5</td>
<td>1.3</td>
<td>3.0</td>
<td>1.4</td>
<td>1.9</td>
</tr>
<tr>
<td>Preterm*</td>
<td>10.0</td>
<td>9.6</td>
<td>13.5</td>
<td>9.9</td>
<td>10.5</td>
</tr>
<tr>
<td>PNC** First Trimester</td>
<td>68.1</td>
<td>70.3</td>
<td>56.1</td>
<td>69.3</td>
<td>57.3</td>
</tr>
</tbody>
</table>

*Preterm: Less than 37 weeks gestation  
**PNC: Prenatal Care

Data Source: Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team.
Factors Increasing Vulnerability of Black Women to Prematurity

- Biology, Genetics
- Social
- Economic
- Behavioral
- Environmental
- Medical
Causes of Health Disparities

- Inequities in income, housing, safety, education and job opportunities

- Health care – system level, patient level and provider level factors
Preterm PROM
So what’s the problem?

- Incidence 2-3% of all pregnancies
  - 20% of all perinatal deaths

- 120,000 pregnancies in the US per year

- 30-40% of all preterm neonates are result of PPROM
Specific Hypotheses on Stress and Prematurity

- Preterm birth will occur more commonly in women with perceived stress, who have biological markers of stress and of altered inflammation.

- These women will more commonly be African American and will more commonly have pro-inflammatory polymorphisms.

- African American women w/PTD will have evidence of stress & altered inflammation.
Chronic Stress has been shown to:

- ↑ susceptibility / severity of infections
- Decrease response to vaccines
- Alter wound healing
- Increase reactivation of herpesviruses
- Alter # & function of WBC’s
- Increase IL-6 & decrease IL-10
- Associated with BV in pregnancy

Factors Accounting for Prematurity Differences in Low Risk Whites and Blacks

- Current health status
- Childhood and adolescent health history
- Stresses
- Nutrition
- Parents and/or grandparents socioeconomic status
- Quality of medical care during pregnancy

Source: Kleinman JEM 317;749;1987
Unanswered Research Questions
(US-born Female Descendants of African-born Women)

- Cultural changes across generations?
- Lifestyle and nutritional changes across generations?
- Familial and social support systems across generations?
- Chronic and acute stressors across generations?
- Bacterial infections across generations?
- Environmental exposures across generations?