Chronic Disease and the Risk of Preterm Births

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PMCH QI BACKGROUND

• Licensed Maternal Child Health Consortia
  ○ Perinatal and Pediatric planning
  ○ Regional Quality Improvement
  ○ Professional and Consumer Education
  ○ Regional Transport System

• Serves eight counties in NJ
  ○ Bergen, Essex, Hudson, Morris, Passaic, Union, Warren, and Sussex

• About 50% of all NJ births
• Does having chronic diseases increase the risk of premature births in Northern NJ moms?

• Variables of interest:
  ○ Diabetes
  ○ Hypertension
  ○ Cardiac Conditions
  ○ Obesity
  ○ Asthma
• Premature Labor & Preterm Births
  ◦ Indicators of adverse maternal health
  ◦ Indicators of poor infant & early childhood development

• Chronic Conditions
  ◦ Maternal health conditions --> influence occurrence of preterm birth and impede early childhood development
• Web-based system for birth registration, prenatal and antenatal data
• Over 650 fields of health and demographic information
• Administered by NJDOH Office of Vital Statistics (OVSR)
• Includes national birth certificate data fields defined by National Center for Health Statistics (NCHS) & NJ-specific fields
METHODS

Retrospective Study

• Birth record data from NJ's Vital Events Registration and Information Platform

• All live births occurring in Bergen, Essex, Hudson, Morris, Passaic, Sussex, Union, and Warren counties

• Births between 2016-2022

• Odds ratios for 46,541 mothers in 2020
RESULTS: CHRONIC CONDITIONS

<table>
<thead>
<tr>
<th>Chronic Condition</th>
<th>Increased Odds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>2.55</td>
</tr>
<tr>
<td>Pre-pregnancy Diabetes</td>
<td>1.53</td>
</tr>
<tr>
<td>Cardiac Conditions</td>
<td>1.17</td>
</tr>
<tr>
<td>Asthma</td>
<td>1.24</td>
</tr>
<tr>
<td>Obesity</td>
<td>1.39</td>
</tr>
<tr>
<td>Any Condition</td>
<td>1.47</td>
</tr>
</tbody>
</table>
### RESULTS: RACIAL DISPARITIES AND PRETERM BIRTHS

<table>
<thead>
<tr>
<th>Mothers Race Ethnicity</th>
<th>Pre-Term</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian, non-Hispanic</td>
<td>8.68%</td>
<td>-15.09%</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>14.24%</td>
<td>29.85%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10.73%</td>
<td>6.90%</td>
</tr>
<tr>
<td>Other Race</td>
<td>10.06%</td>
<td>0.70%</td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>8.02%</td>
<td>-24.56%</td>
</tr>
<tr>
<td>Mothers Race Ethnicity</td>
<td>No Chronic Condition</td>
<td>Chronic Condition</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Asian, non-Hispanic</td>
<td>92.26%</td>
<td>7.74%</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>72.03%</td>
<td>28.06%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>81.17%</td>
<td>18.89%</td>
</tr>
<tr>
<td>Other Race</td>
<td>83.08%</td>
<td>16.92%</td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>86.03%</td>
<td>14.00%</td>
</tr>
</tbody>
</table>
• Pre-pregnancy chronic conditions increase odds of preterm birth
  Hypertension, Pre-pregnancy Diabetes, and Obesity have the highest increased risk

• White non-Hispanic and Asian non-Hispanic mothers lowest rates of pre-term births

• Black non-Hispanic mothers highest rates of pre-term births

• Racial Disparities exist in pre-pregnancy chronic conditions
PUBLIC HEALTH IMPLICATIONS

• Importance of management of chronic conditions in preconception and prenatal care

• Providers should be aware of additional risks to patients with chronic conditions

• Association exists between chronic conditions and prematurity
  ○ Indicative of future health issues
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