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Wei Bai

Bonny Specker

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This report summarizes the 2006-2015 preterm deliveries among singleton gestations using birth certificate data from South Dakota Vital Records. Preterm deliveries were limited to births from 24 to 36 weeks of gestation. Preterm deliveries were divided into three types: (1) spontaneous labor with intact membranes (spontaneous preterm birth), (2) preterm premature rupture of the membranes (PPROM), and (3) labor induction or caesarean delivery for maternal or fetal indications (medically indicated).

General Trends
- Preterm birth rates (all types combined) among singleton gestations decreased significantly from 8.4% in 2006 to 7.5% in 2015.
  - Medically indicated and PPROM preterm deliveries had significant downward trends (p<0.001 and p=0.03, respectively).
  - Spontaneous preterm birth showed significant upward trend (p=0.01).

- 55% of singleton preterm deliveries were medically indicated, followed by spontaneous preterm birth (36%) and PPROM (9%).
**Demographic Characteristics**

- Older *maternal age* was associated with higher rate of medically indicated preterm deliveries (p<0.001), but lower rates of spontaneous preterm birth and PPROM (both, p<0.001).

- *American Indian mothers* had higher rates of spontaneous preterm birth, PPROM, and medically indicated preterm birth than White mothers. There has been a significant downward trend in medically indicated preterm birth and PPROM (both, p<0.001) among White mothers, upward trend in PPROM among IN mothers (p=0.008).
- **Unmarried mothers** had higher rates of spontaneous preterm birth, PPROM and medically indicated than married mothers (all, p<0.01).

- Higher **maternal education** was associated with lower spontaneous preterm birth and PPROM (both, p<0.001).

- Higher **paternal education** was associated with lower spontaneous preterm birth, PPROM, and medically indicated preterm birth (all, p<0.01).
• There were **geographic differences** in the rates of spontaneous preterm birth, PPROM, and medically indicated preterm birth.

![Bar chart showing geographic differences in preterm birth rates](chart1)

- **First time mothers** (primigravidae) had a higher PPROM and Spontaneous preterm birth rates than non-primigravidae mothers (both, p<0.01) and lower medically indicated rate (p<0.05).

![Bar chart showing primigravidae vs. non-primigravidae](chart2)

**NOTE:** Among primigravidae, White mothers had a higher rate of medically indicted preterm births than American Indian mothers, while American Indian mothers had a higher rate of spontaneous preterm birth rate. Among non-primigravidae, American Indian mothers had higher rates of spontaneous preterm birth, PPROM, and medically indicated preterm birth.

**Maternal Health**

• Previous **preterm birth** was associated with increased risk of spontaneous preterm birth, PPROM, and medically indicated preterm birth (all, p<0.001).
• **Infertility treatment** was associated with increased the risk of spontaneous preterm birth and medically indicated preterm birth (both, p<0.001). **Assisted reproductive technology** was associated with increased the risk of medically indicated preterm birth only (p<0.001). The rate of pregnancies resulting from fertility treatment and assisted reproductive technology increased from 2009 to 2015 (both, p<0.01).

![Graph showing preterm birth rates for different conditions](image)

• **Pre-pregnancy diabetes** and **gestational diabetes** were associated with higher rates of medically indicated preterm delivery (both, p<0.001).

![Graph showing preterm birth rates for different conditions](image)
• Pre-pregnancy hypertension and gestational hypertension were associated with a higher rate of medically indicated preterm delivery (both, p<0.001). Gestational hypertension was associated with lower risks of PPROM and spontaneous preterm birth (both, p<0.01).

### Modifiable Risk Factors

• Beginning prenatal care between 3 and 4 months gestation resulted in the lowest rates of PPROM, and medically indicated preterm birth.
- Adequate *prenatal care*, defined as attending 80%-109% of scheduled prenatal visits, had the lowest rates of spontaneous preterm birth, PPROM, and medically indicated preterm birth.

- *Smoking* during pregnancy was associated with higher rates of spontaneous preterm birth, PPROM, and medically indicated preterm birth.

- Higher *pre-pregnancy BMI* was associated with higher medically indicated preterm birth (*p*<0.001), and lower spontaneous preterm birth and PPROM (both, *p*<0.001).
Mothers who had recommended gestational weight gains (GWG) had lower medically indicated preterm birth rates (p<0.01) and higher PPROM than mothers who did not meet recommendations.

Authors: Wei Bai, Ph.D. & Bonny Specker, Ph.D., South Dakota State University