



PREGNANCY RISK ASSESSMENT MONITORING SYSTEM
A survey for healthier babies in New Jersey

Tobacco Use and Adverse Birth Outcomes, 2014-2020 (April 2022)

NJ PRAMS is a joint project of the New Jersey Department of Health (NJDOH) and the Centers for Disease Control and Prevention (CDC). Information from PRAMS is used to help plan better health programs for NJ mothers and infants. One out of every 50 mothers are sampled each month, when newborns are 2-6 months old. Survey questions address their feelings and experiences before, during, and after pregnancy. The PRAMS sample design oversamples smokers and minorities. Data are weighted to give representative estimates of proportions in specific categories and of actual persons. Approximately 30,000 mothers are included between 2002-2020 with an average response rate of 70%.

KEY RECOMMENDATIONS

Obstetrical practices are encouraged to screen patients for nicotine use postpartum.

Obstetrical and gynecological practices are encouraged to have a staff person assigned to provide tobacco cessation trainings to at-risk pregnant people prone to relapse during the postpartum period.

Every practice should maintain an up-to-date list of community supports and resources for tobacco cessation treatment and counseling that can be distributed to interested individuals.

Background

Research has shown that maternal tobacco use has adverse impacts on birth outcomes before, during, and after pregnancy.¹ Tobacco use increases the risk of pregnancy complications and can cause harm to infants before and after birth. Preterm birth, which is a leading cause of death and disability among infants, is more likely to occur among mothers who smoke tobacco.¹ Additionally, nearly 20% of mothers who used tobacco during pregnancy gave birth to infants with low birthweight (<2,499 grams or 5 pounds and 8 ounces).² Other adverse birth defects as a result of tobacco use include lip and mouth birth defects (e.g. cleft palate and lip), reduced oxygen supply to the fetus, and an increased risk of sudden infant death syndrome (SIDS).¹

According to the Centers for Disease Control and Prevention (CDC), in 2016, the prevalence of tobacco use during pregnancy was 7.6% and highest among women aged 20-24 (10.7%) and women who completed high school (12.2%). Women with less than a high school education also had the second-highest tobacco use during pregnancy during this time period (11.7%).³ Tobacco use prevalence decreased as both age and educational attainment increased. By race and ethnic origin, tobacco use prevalence was highest among non-Hispanic (NH) American Indian or Alaska Native women (16.7%), followed by NH White women (10.5%).³ When assessing tobacco use during pregnancy across the United States, New Jersey had one of the lowest prevalence rates, alongside New York, Connecticut, and D.C. (less than 5.0%).³

This data brief analyzed NJ PRAMS data from 2014-2020 to assess associations between tobacco use before, during, and after pregnancy and risk of adverse birth outcomes (low birthweight, preterm birth, and NICU admission).

Prevalence

When assessing tobacco use before, during, and after pregnancy, tobacco use prevalence was highest among women who smoked tobacco in the 3 months before pregnancy (11.6%). Black, non-Hispanic (NH) women had the highest prevalence of tobacco use before pregnancy (15.6%), while Asian, NH women had the lowest (3.3%). In addition, smoking in the 3 months before pregnancy was highest among women under the age of 24 (16.4%), women with a high

school graduate education (18.8%), and those on Medicaid prior to pregnancy (20.5%). Overall prevalence of smoking during pregnancy was 3.7% and was also highest among Black, NH women (5.4%), women under the age of 24 (5.7%), women with a high school graduate education (7.4%), and those on Medicaid during pregnancy (7.8%). Overall tobacco use in the 3 months after pregnancy was 6.5%. Black, NH women also had the highest prevalence (11.0%), while Asian, NH women had the lowest prevalence (0.9%). 14.8% of women on Medicaid also reported using tobacco in the 3 months after pregnancy. Women who relapsed after pregnancy was also assessed. From 2014-2020, 35.8% had relapsed after their pregnancy and was highest among Black, NH women (53.1%), women with less than a high school education (46.5%), and those on Medicaid insurance after pregnancy (49.8%) (Table 1).

Across adverse birth outcomes, 13.0% of the NJ PRAMS sample had mothers who delivered a baby with a low birthweight. When assessing low birthweight across smoking status, 15.3% of women who had a baby with a low birthweight had smoked in the 3 months prior to their pregnancy, 18.2% during their pregnancy, and 15.3% in the 3 months after their pregnancy. Overall prevalence of preterm births in the NJ PRAMS sample from 2014-2020 was 8.8%. 17.7% of women who smoked before pregnancy, 22.3% of women who smoked during pregnancy, and 18.0% of women who smoked after pregnancy experienced a preterm birth. In addition, 18.9% of women who smoked before pregnancy, 23.2% of women who smoked during pregnancy, and 20.3% of women who smoked after pregnancy had a baby who was admitted to the NICU, compared to an overall prevalence of 13.8% (Table 2).

Table 1. Prevalence of tobacco use before, during, and after pregnancy in NJ PRAMS, 2014-2020.

| | PRAMS (%) | Smoking Status | | | |
|--------------------------------|-----------|---------------------------------|----------------------|---------------------|---------------------|
| | | 3 Months Prior to Pregnancy (%) | During Pregnancy (%) | After Pregnancy (%) | Smoking Relapse (%) |
| All | | 11.6 | 3.7 | 6.5 | 35.8 |
| Race/Ethnicity | | | | | |
| White, NH | 44.9 | 14.6 | 4.8 | 7.7 | 28.7 |
| Black, NH | 13.7 | 15.6 | 5.4 | 11.0 | 53.1 |
| Hispanic | 30.2 | 7.8 | 2.3 | 4.2 | 37.8 |
| Asian, NH | 11.2 | 3.3 | 0.7 | 0.9 | 22.2 |
| Marital Status | | | | | |
| Married | 67.8 | 7.1 | 1.5 | 3.2 | 30.7 |
| Not married | 32.2 | 20.9 | 8.3 | 13.4 | 40.6 |
| Age, years | | | | | |
| <24 | 15.6 | 16.4 | 5.7 | 10.9 | 48.3 |
| 25-34 | 60.0 | 11.2 | 3.6 | 6.0 | 32.8 |
| 35+ | 24.5 | 9.4 | 2.7 | 4.6 | 31.4 |
| Education | | | | | |
| Some high school or less | 10.5 | 10.9 | 4.6 | 8.1 | 46.5 |
| High school graduate | 24.1 | 18.8 | 7.4 | 12.1 | 42.9 |
| Some college or above | 65.4 | 8.8 | 2.1 | 4.0 | 29.8 |
| Pre-pregnancy Insurance | | | | | |
| Medicaid | 19.5 | 20.5 | 9.5 | 15.6 | 54.8 |
| Private | 63.2 | 9.1 | 1.9 | 4.1 | 29.1 |
| Uninsured | 17.3 | 10.4 | 3.7 | 4.9 | 26.6 |
| Prenatal Care Insurance | | | | | |
| Medicaid | 29.3 | 18.5 | 7.8 | 13.1 | 49.0 |
| Private | 62.8 | 9.2 | 1.8 | 4.0 | 28.7 |
| Uninsured | 7.9 | 4.6 | 2.4 | 2.4 | 21.1 |

| Insurance After Pregnancy | | | | | |
|---------------------------|------|------|-----|------|------|
| Medicaid | 29.3 | 21.3 | 8.9 | 14.8 | 49.8 |
| Private | 62.8 | 8.6 | 1.8 | 3.7 | 27.3 |
| Uninsured | 7.9 | 7.6 | 3.1 | 4.3 | 34.9 |

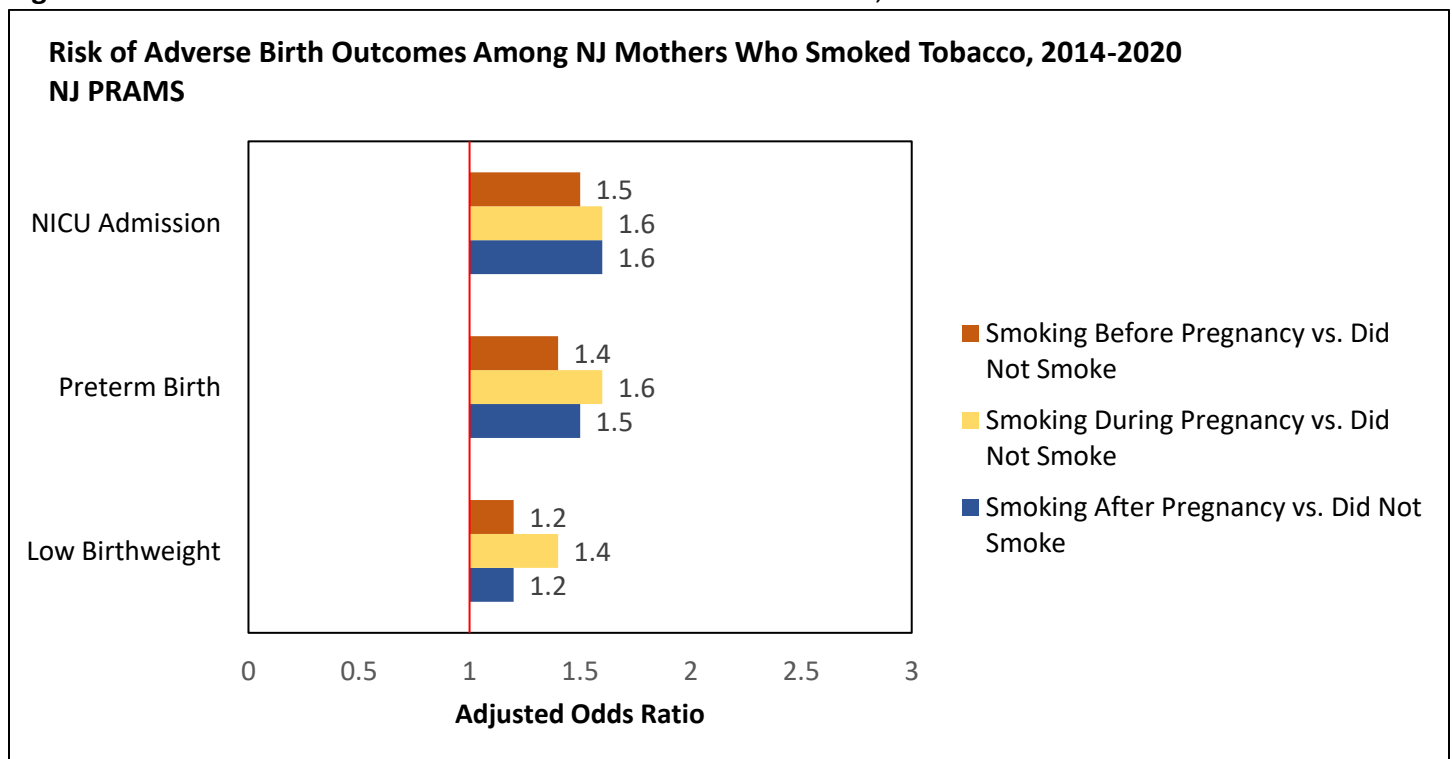
Table 2. Prevalence of adverse birth outcomes across tobacco use in NJ, 2014-2020.

| | All | Smoked Before Pregnancy | Smoked During Pregnancy | Smoked After Pregnancy |
|-----------------|------|-------------------------|-------------------------|------------------------|
| Birth Outcomes | (%) | % | % | % |
| Low birthweight | 13.0 | 15.3 | 18.2 | 15.3 |
| Preterm birth | 8.8 | 17.7 | 22.3 | 18.0 |
| NICU admission | 13.8 | 18.9 | 23.2 | 20.3 |

Assessing Risk for Adverse Birth Outcomes

The risk of adverse birth outcomes was assessed among mothers who smoked before, during, and after pregnancy using mothers who did not smoke as a reference group (Figure 1). Women who smoked in the 3 months before their pregnancy were 20% more likely to have a baby with a low birthweight (OR=1.2, CI: 1.0, 1.5), 40% more likely to experience a preterm birth (OR=1.3, CI: 1.1, 1.6), and 50% more likely to have a baby admitted to the NICU (OR=1.5, CI: 1.3, 1.8). Preterm birth and NICU admission among mothers who smoked in the 3 months before pregnancy were statistically significant, but low birthweight was not. In addition, mothers who smoked tobacco during pregnancy were 40% more likely to have a baby with low birthweight (OR=1.4, CI: 1.1, 1.9) and 60% more likely to experience a preterm birth (OR=1.6, CI: 1.2, 2.1) and NICU admission (OR=1.6, CI: 1.3, 2.0) compared to mothers who did not smoke. Among mothers who smoked in the 3 months after pregnancy, 20% were more likely to have a baby with a low birthweight (OR=1.2, CI: 0.9, 1.5), 50% more likely to have a preterm birth (OR=1.5, CI: 1.1, 1.9), and 60% more likely to have a baby admitted to the NICU (OR=1.6, CI: 1.3, 1.9) (Figure 1).

Figure 1. Risk of Adverse Birth Outcomes Due to Tobacco Use in NJ, 2014-2020.



Agenda for Action

The findings presented in this data brief identify several justifications to work toward reducing tobacco use before, during, and after pregnancy. Ensuring access to adequate clinical care and community-based, tobacco cessation programs is essential to reducing tobacco usage and aligning with national [Healthy People 2030](#) goals to increase abstinence from cigarette smoking among pregnant women and increase the number of successful quit attempts among pregnant women who smoke. While NJ maintains one of the lowest rates for smoking tobacco during pregnancy, nearly 36% of women return to smoking upon the end of pregnancy. Providers can work toward ensuring their pregnant patients have early entry into prenatal care for adequate tobacco use screening and referral to counseling, which can help identify barriers to quitting such as stress, environment, and lack of social support. In addition, community-based resources such as [Mom's Quit Connection](#) and the statewide Perinatal Addiction Prevention Program (PAPP) offered by the Maternal and Child Health Consortia ([Partnership for Maternal and Child Health of Northern New Jersey](#), [Central Jersey Family Health Consortium](#), and the [Southern New Jersey Perinatal Cooperative](#)) serve as local initiatives to help encourage expectant mothers to quit tobacco smoking. The importance of developing targeted approaches and programming for expectant mothers who smoke can make an essential difference in the health outcomes for both a mother and her baby.

Resources

NJ Department of Health
Division of Family Health Services, [Maternal Child Health Services](#)
[NJ Maternal Data Center](#)

Sources

1. Smoking, Pregnancy, and Babies. Centers for Disease Control and Prevention. Updated May 12, 2021. Accessed December 28, 2021. [Smoking, Pregnancy, and Babies | Overviews of Diseases/Conditions | Tips From Former Smokers | CDC](#).
2. Smoking During Pregnancy. Centers for Disease Control and Prevention. Updated April 28, 2020. Accessed December 28, 2021. [Smoking During Pregnancy | Smoking & Tobacco Use | CDC](#).
3. Cigarette Smoking During Pregnancy: United States, 2016. Centers for Disease Control and Prevention. Updated February 28, 2018. Accessed December 28, 2021. [Products - Data Briefs - Number 305 - February 2018 \(cdc.gov\)](#)

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