



# Focus on Smoking During Pregnancy and Postpartum

Among Maryland Women Giving Birth 2001-2007

**March 2009**

*Research has shown that women's smoking during pregnancy increases the risk of pregnancy complications, premature delivery, low-birth-weight infants, stillbirth, and sudden infant death syndrome (SIDS).*

**U.S. Surgeon General's Report—  
The Health Consequences of Smoking, 2004**

There are thousands of chemicals in tobacco smoke, many of which are known to have toxic effects when inhaled; including tar, benzene, carbon monoxide, and formaldehyde. Cigarette use before, during, and after pregnancy has been found to be responsible for a wide variety of serious health effects for both the mother and infant. Women who smoke prior to conception increase their risk of hypertension, heart disease, and lung disease, all of which can complicate pregnancy. Smoking during pregnancy is linked to increased chance of preterm and low birth weight births. Those who smoke after an infant is born may expose their child to second-hand smoke, which is associated with increased risk of upper-respiratory infections and asthma in children.

The Maryland PRAMS survey includes the following question:

- In the last 3 months of your pregnancy, how many cigarettes did you smoke on an average day? (A pack has 20 cigarettes.)
- 41 cigarettes or more
  - 21 to 40 cigarettes
  - 11 to 20 cigarettes
  - 6 to 10 cigarettes
  - 1 to 5 cigarettes
  - Less than 1 cigarette
  - None (0 cigarettes)

There were additional questions regarding the average number of cigarettes smoked in the 3 months before pregnancy, and at the time of survey completion.

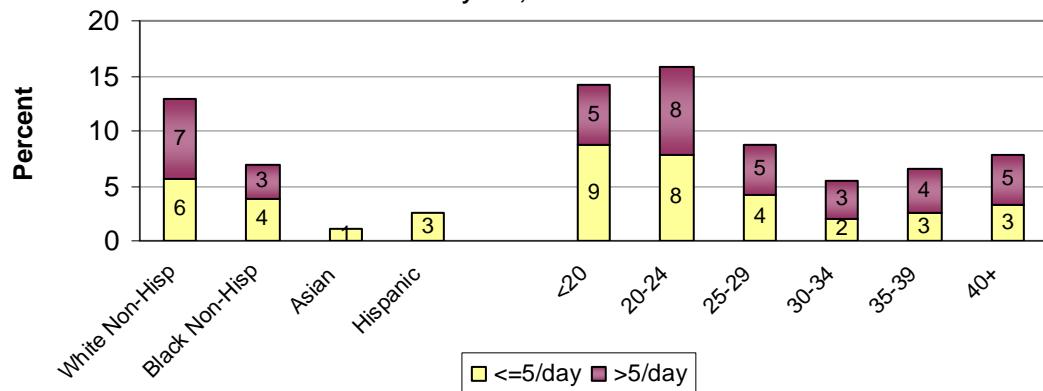
Responses were grouped into two types of categories: smoked/didn't smoke or into 3 levels: Didn't smoke, smoked  $\leq 5$  cigarettes per day (lighter smoker), smoked  $> 5$  cigarettes per day (heavier smoker).

## Prevalence of Smoking During Pregnancy

Over 9% of women surveyed reported smoking during the last 3 months of pregnancy. Smoking was most prevalent among White non-Hispanic and younger mothers. Among mothers over the age of 19, those with more than a 12th grade education were four times less likely to smoke than those

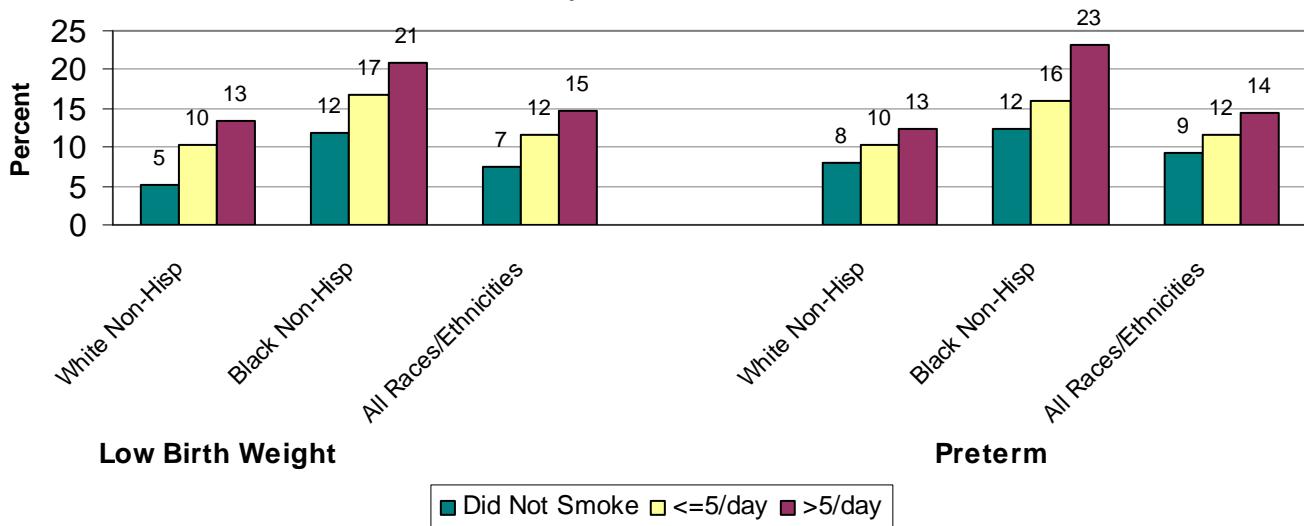
with less education (4% vs. 17%). Prevalence was significantly higher among mothers with a delivery paid by Medicaid compared to those with private insurance (14% vs. 7%). Smoking prevalence was especially high among White non-Hispanics with a Medicaid delivery (33%).

**Figure 1. Percentage of Births to Women Reporting Smoking During Last 3 Months of Pregnancy by Number of Cigarettes Smoked, Maryland, 2001-2007**



## Birth Outcomes Associated with Smoking

**Figure 2. Percentage of Low Birth Weight (<2500g) and Preterm (<37 wks) Births by Smoking Status During Last 3 Months of Pregnancy, Maryland, 2001-2007**



**"And don't smoke, drink or do drugs when pregnant. The babies' lives are at risk."**

**PRAMS Mother**



**"They asked me if I smoked and I could have lied to them and then I wouldn't have known the extent of what smoking would do."**

**PRAMS Mother**

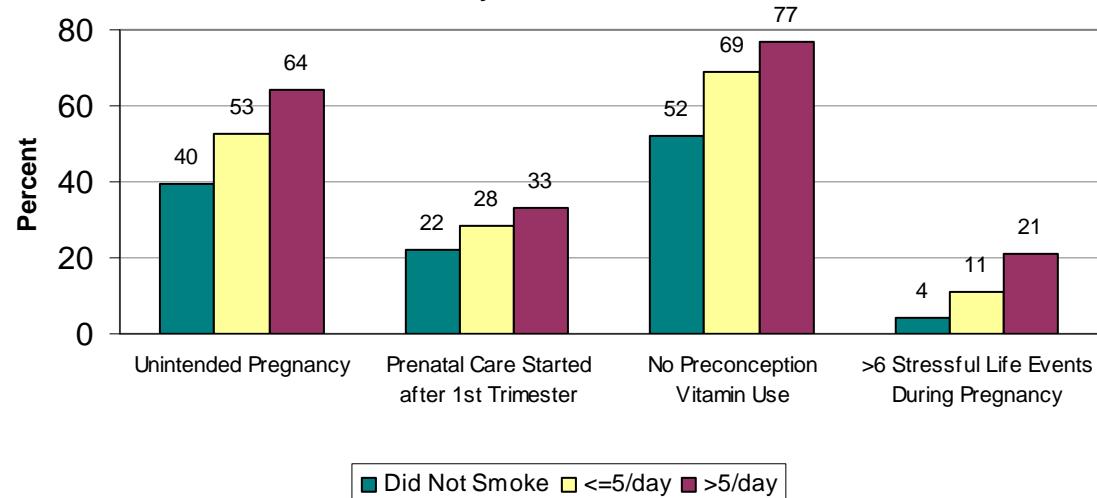
Smoking is associated with increased risk for low birth weight and preterm births. Prevalence of these poor birth outcomes increases with the number of cigarettes smoked, and is highest among Black non-Hispanic mothers.

Delayed initiation of prenatal care and inadequate consumption of preconception vitamin supplements are also associated with smoking. Smokers are significantly more likely to report an unintended pregnancy than nonsmokers.

Smokers (especially Black non-Hispanic, heavier smokers) are also significantly more likely to report experiencing such stressful life events as homelessness and physical fights with a partner than nonsmokers.

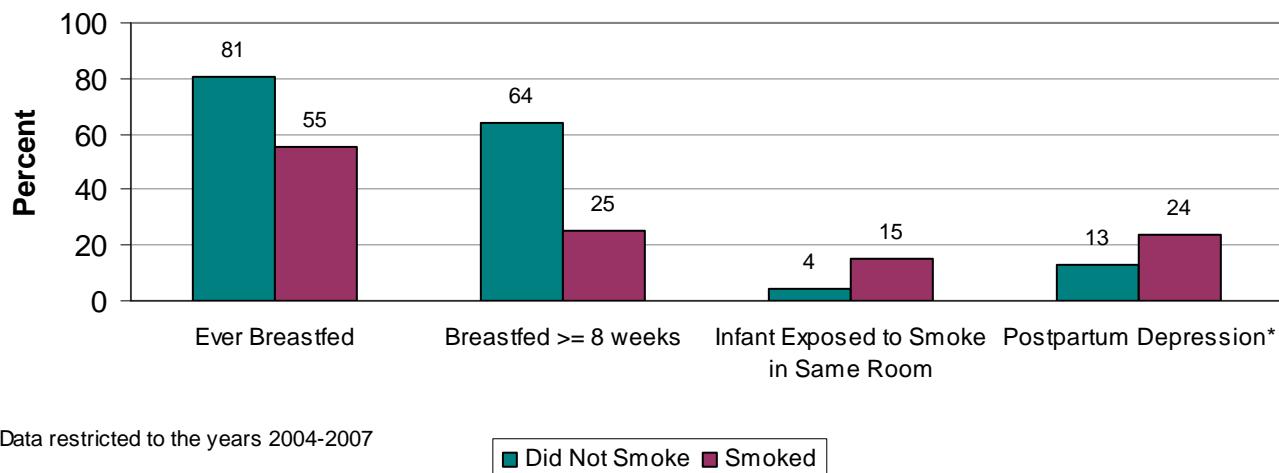
The CDC estimates that \$366 million in annual neonatal healthcare costs can be attributed to maternal smoking.

**Figure 3. Percentage of Births to Women Reporting Risk Factors for Poor Birth Outcomes by Smoking Status During Last 3 Months of Pregnancy, Maryland, 2001-2007**



## Postpartum Factors

**Figure 4. Percentage of Births to Women Reporting Risk Factors by Postpartum Smoking Status, Maryland, 2001-2007**



Smoking after delivery is associated with decreased prevalence of breastfeeding initiation, and with decreased longer term breastfeeding. While it is known that chemicals from cigarette smoke are found in breast milk, smokers are nevertheless encouraged to breastfeed their infants due to the many beneficial effects of breast milk.

Smokers, especially White non-Hispanic smokers, are nearly 4 times more likely to report having their infants in the same room when someone is smoking. This expo-

sure to secondhand smoke increases their risk of respiratory infections, disease, and SIDS.

Heavier postpartum smokers were significantly more likely to report symptoms of postpartum depression than nonsmokers (28% vs. 13%). These women reported often or always feeling down, depressed, hopeless, or having little interest or pleasure in doing things. Black non-Hispanic heavier smokers reported the highest prevalence of postpartum depression symptoms at 36%.

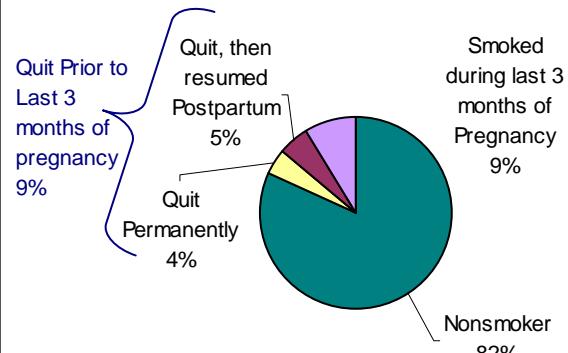
## Summary

**Nearly 18% of mothers reported smoking just before they got pregnant. Nine percent quit smoking before their last 3 months of pregnancy, however, 9% continued smoking cigarettes throughout their pregnancy. Approximately 5% of those who quit smoking during pregnancy resumed smoking after delivery, for a total of 14% of mothers reporting smoking postpartum.**

These Maryland PRAMS results indicate that smoking before, during, and after pregnancy remains a serious problem. Smoking was most prevalent among White non-Hispanic and younger mothers. Smoking was associated with increased risk for low birth weight and preterm births, and this risk increased with higher numbers of cigarettes smoked daily. Prevalence of unintended pregnancy, late initiation of prenatal care, and stressful life events all increased with higher numbers of cigarettes smoked.

Smoking cessation programs designed to reach women prior to conception may have the greatest impact in improving women's and infant's health. Even reducing the number of cigarettes smoked daily may be beneficial during pregnancy. Our data showed that light smoking was associated with better pregnancy outcomes and healthier behaviors than heavier smoking. Finding interventions that will influence the 50% of quitters who resume smoking postpartum to continue their cessation efforts could result in better interconception health and reduced secondhand smoke exposures for infants.

**Figure 5. Percentage of Births to Women by Smoking Status, Maryland, 2001-2007**





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## PRAMS Methodology

Data included in this report were collected through the Pregnancy Risk Assessment Monitoring System (PRAMS), a surveillance system established by the Centers for Disease Control and Prevention (CDC) to obtain information about maternal behaviors and experiences that may be associated with adverse pregnancy outcomes.

In Maryland, the collection of PRAMS data is a collaborative effort of the Department of Health and Mental Hygiene and the CDC.

Each month, a sample of 200 Maryland women who have recently delivered live born infants are surveyed by mail or by telephone, and responses are weighted to make the results representative of all Maryland births.

This report is based on the responses of 10,898 Maryland mothers who delivered live born infants between January 30, 2001 and December 31, 2007 and were surveyed two to six months after delivery.

## Limitations of Report

The Maryland PRAMS report presents only basic associations between maternal risk factors, birth outcomes and maternal race or ethnicity. Unexamined interrelationships among variables are not described and could explain some of the findings described in this report.

PRAMS data are retrospective and there-

fore subject to recall bias. It is also based on the mother's perception of events and may not be completely accurate.

Studies have also shown that surveys of maternal smoking may underestimate the prevalence of smoking during pregnancy by a significant amount, due to factors related to social desirability.

## Resources

### Maryland Tobacco Quitline

[www.SmokingStopsHere.com](http://www.SmokingStopsHere.com)

1-800-QUIT NOW (1-800-784-8669)

### Smoking Cessation in Pregnancy Program (Family Health Administration)

[\(410-767-5300\)](http://www.fha.state.md.us/ohpetup/mch_cestration.cfm)



Maryland Department of Health and Mental Hygiene  
Center for Maternal and Child Health • Vital Statistics Administration

Martin O'Malley, Governor; Anthony G. Brown, Lieutenant Governor; John M. Colmers, Secretary

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