



findings brief

key findings

- Increased cigarette excise taxes were associated with increased quitting by the last three months of pregnancy and sustained quitting at four months after delivery.
- A 10 percent increase in cigarette taxes is associated with 0.7 percent increase in quitting.
- Full smoking bans in private workplaces were associated with an increase in smoking cessation by the third trimester, especially in younger women.

Reducing Prenatal Smoking: The Role of State Policies

Background

Despite the evidence linking smoking with poor birth outcomes and long term negative health effects for both mothers and children, pregnant women continue to smoke. One goal of the federally-supported Healthy People 2020 is to reduce the prevalence of cigarette smoking during pregnancy to 1 percent. While most states have instituted more restrictive smoking policies during the past several years, the challenge for policymakers is to identify the right mix of strategies to achieve significant and lasting results.

In an HCFO-funded study, E. Kathleen Adams and colleagues at Emory University examined the role that state policies have played in reducing prenatal smoking. The researchers focused their analysis on three policies: cigarette taxes and prices, indoor smoking bans, and state spending on tobacco control. They concluded that a combination of policies is likely needed to achieve long term success. Findings from their study

were published in the July 2012 issue of the *American Journal of Preventive Medicine*.¹

“The goal of the study was to test whether there were significant and independent effects of changes in state’s tobacco control policies on smoking during pregnancy in a recent time period. We wanted to assess not only the association of policies with women’s smoking behavior but the magnitude of these effects and whether they varied from pre-pregnancy to post delivery or by age of the mother,” says Adams.

Data and Methods

Adams and colleagues analyzed surveillance data for the period 2000 through 2005 from the Pregnancy Risk Assessment Monitoring System (PRAMS), a joint project of the Centers for Disease Control (CDC) and state health departments. Data in the PRAMS are collected by self-administered questionnaire or phone. The survey examines attitudes and experiences before, during, and



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immediately after pregnancy. The research team excluded women who did not report smoking pre-pregnancy, resulting in a study sample of 225,445 women with live births over the study period. Smoking behavior, captured through PRAMS, was assessed in three ways: smoked pre-pregnancy, quit by the last three months of pregnancy, and sustained quitting.

Data on state smoking policies covered 29 states and the District of Columbia. The researchers hypothesized that the higher taxes and resulting higher prices, as well as the indoor smoking bans were most likely to promote a reduction in prenatal smoking. The likely impact of increased state spending for controlling tobacco was less clear.

The sample was divided and analyzed by age groups, as younger women report higher rates of smoking pre-pregnancy and they have shown to be more price-sensitive when making decisions regarding smoking.

Results

The researchers found white, less-educated, single women, and those who have a history of physical abuse and other life stressors, reported higher rates of maternal smoking. Insurance status often shifted during the course of pregnancy. Thirty-eight percent of women who smoked pre-pregnancy were uninsured. However, by delivery, 58 percent were covered under Medicaid. State tobacco control policies also changed over the course of the study period. Real cigarette taxes increased on average by \$0.63 per pack (from \$0.47 per pack in 2000 to \$1.10 per pack in 2005); real average prices increased by \$0.84 per pack (from \$3.69 per pack in 2000 to \$4.53 per pack in 2005); real tobacco control spending per capita increased by \$4.75 (from \$2.61 in 2000 to \$7.44 in 2005); and smoke-free indoor air policies increased generally in all study states.

Study findings showed mixed results on the impact of policies. The researchers found that none of the three types of state

tobacco control policies affect pre-pregnancy smoking levels. Similarly, increases in tobacco control spending were not associated with changes in smoking behavior at any point before, during, or after pregnancy. However, increasing cigarette excise taxes by \$1.00 was associated with a 4.8 percent increase in quitting by the last three months of pregnancy (the first “quit measure”), and a 4.2 percent increase in sustained quitting at four months after delivery (the second “quit measure”). In additional analysis, the researchers determined that a 10 percent increase in cigarette taxes is associated with 0.7 percent increase in quitting. The implementation of full smoking bans in private workplaces was associated with approximately 4.5 percent increase in smoking cessation by the third trimester. Smoking bans in the workplace were not seen to affect sustained quitting four months after delivery.

In the age group analysis, the researchers found that younger women (aged <20 years) were most affected by a ban on smoking in the workplace (13 percent increase in quitting by the third trimester). This was also found for a ban on smoking in restaurants. An increase in tobacco control spending was found to increase the probability of sustained quitting only for women aged >34 years.

Limitations

Smoking levels were determined by self-report and were not biochemically verified. It is possible that pregnant women under-reported smoking habits.

Policy Implications

As policymakers continue to explore strategies to reduce the prevalence of smoking during pregnancy, the findings of this study offer evidence of the strengths and limitations of individual policies and combinations of policies. The results demonstrate that increased state and federal excise taxes are associated with higher rates of quitting among pregnant women and have an impact on sustaining quitting after giving birth.

While we know that smoking cessation is associated with better health for women and children, increased taxes on cigarettes can also generate revenue at the state level. In fact, since this study period (2000 – 2005), eight states, the District of Columbia, and New York City have increased their cigarette excise taxes by more than \$1.00. However, it is important to consider the regressive nature of tobacco taxes. In order to not place an undue burden on the poor, policymakers should consider other policies, such as the exemption of groceries from sales taxes, as a potential solution.

Policies with encouraging results are smoke-free indoor air laws. According to Adams and her team, between 54 and 65 percent of pregnant women are active in the workforce, and are impacted by smoking bans in these locations. In fact, only bans on smoking in private workplaces was shown to affect rates of quitting smoking during pregnancy and sustained quitting after delivery (as opposed to broad spectrum smoke-free indoor air laws). Bans on smoking in the workplace are especially effective in increasing quit rates among younger pregnant women, or at the least, reducing the amount of smoking.

Finally, the results did not indicate that tobacco control spending impacts smoking before, during, or after pregnancy, except on sustained quitting for women over 34. However, these results do not suggest that there is no value in tobacco control spending, as previous research has shown it to be effective. The researchers hypothesize that tobacco control spending may be ineffective unless it reaches a minimum level suggested by the CDC in most states. State policymakers should consider this minimum threshold in calculating investments in tobacco control.

“Our results indicate that states can achieve sizeable reductions in smoking among pregnant women by combining policies regarding cigarette excise taxes and

smoke free indoor air laws. Given the different responses of women to policies during, versus prior to pregnancy and by age of the mother, states will move closer to Healthy People 2020 goals by implementing a range of restrictive tobacco control policies,” says Adams.

Conclusion

In order to meet the goal set forth by Healthy People 2020, more work is needed to reduce the rate of prenatal smoking.

Policies to date show promising but mixed results. It is likely that more targeted interventions and more combinations of tobacco control policies are needed to make significant progress.

For more information

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Endnotes

1 For complete findings see Adams EK, Markowitz S, Kannan V, Dietz PM, Tong VT, and AM Malarcher. Reducing prenatal smoking: the role of state policies. *Am J Prev Med.* July 2012; XX(X): pp. XX-XXX.