VERMONT
DEPARTMENT OF HEALTH

Tobacco Use Before, During & After Pregnancy: Vermont PRAMS 2009-2011, Part 2

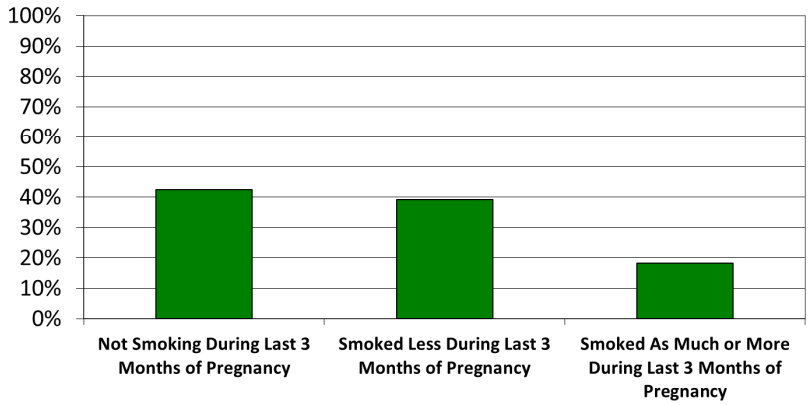
This is a report on the Pregnancy Risk Assessment Monitoring System (PRAMS), a survey conducted on a sample of Vermont women with recent live births since 2001. This report presents information about cigarette smoking cessation during pregnancy for Vermont births in the years 2009 through 2011, as well as trends over the years 2002-2011.

Changes in Smoking During Pregnancy

The PRAMS survey asks about cigarette smoking during the three months before pregnancy and during the final three months of pregnancy. From 2009 to 2011, among those who had been smoking during the three months before pregnancy:

- 42.5% were not smoking during the last three months of pregnancy;
- 39.3% were smoking fewer cigarettes per day than they were before pregnancy;
- 18.2% were smoking as many or more cigarettes per day.

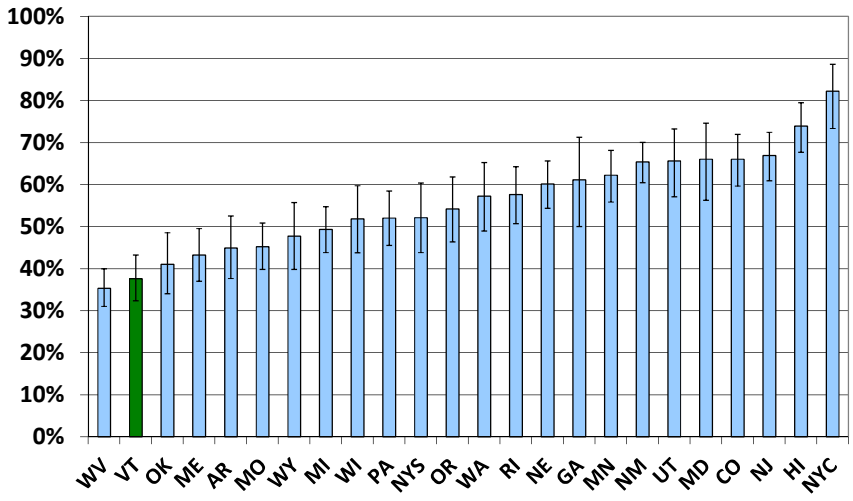
Changes in Smoking by Last 3 Months of Pregnancy Among Preconception Smokers Vermont PRAMS 2009-2011



Smoking Cessation in Vermont Compared with Other PRAMS States, 2011

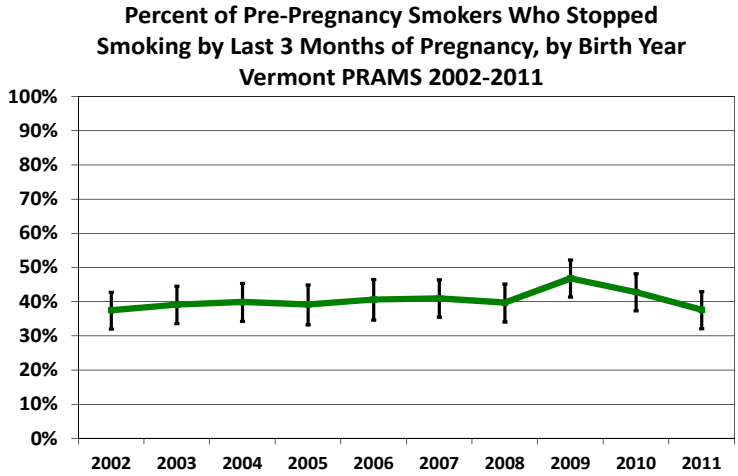
For 2011 births, Vermont had a low rate of smoking cessation relative to other PRAMS states, with only West Virginia seeing a lower proportion of preconception smokers abstain from smoking during the final three months of pregnancy.

Cessation Rate for Last 3 Months of Pregnancy Among Preconception Smokers, 2011 PRAMS States



Cessation Rates over Time

As with the rate of smoking, the rate of smoking cessation has remained stable over the last 10 years of available Vermont PRAMS data, with no statistically significant trends in overall smoking cessation during pregnancy.



What Makes a Smoker Likely to Quit During Pregnancy?

There were significant differences in the rate of smoking cessation based on several demographic and behavioral characteristics. A logistic regression analysis was performed to determine which characteristics were associated with quitting smoking before the final three months of pregnancy (see appendix, below). Factors with a statistically significant relationship to smoking cessation before the final three months of pregnancy were:

- how many cigarettes per day were smoked before pregnancy;
- whether or not the smoker was aware that folic acid prevents birth defects;
- whether or not she had ever previously given birth;
- having a household income at or above the federal poverty level;
- whether or not she drank alcohol before her pregnancy;
- marital or civil union status.

The strongest association with smoking cessation was the number of cigarettes smoked per day before pregnancy. Those who smoked fewer than 6 cigarettes per day before their pregnancies were approximately 9 times more likely to be non-smokers by the end of their pregnancies than those who smoked 6 or more cigarettes per day.

In a model that included the same variables, but which considered whether or not the mother smoked 11 or more cigarettes per day prior to pregnancy, those who smoked fewer than 11 cigarettes per day were approximately 6.5 times more likely to be non-smokers in the final three months of pregnancy.

The factors with the next-highest relationship to smoking cessation by the final three months of pregnancy was whether or not the mother had previously given birth, whether or not she was aware that folic acid can prevent birth defects, whether or not she drank alcohol before pregnancy, household income relative to the federal poverty level, and marital status.

Each of these relationships persisted when controlling for age, education, number of cigarettes smoked per day before pregnancy, number of stressors experienced in the year leading up to delivery, adequacy of prenatal care, intendedness of pregnancy, pre-pregnancy BMI, and marijuana use before pregnancy:

- Smokers who were first-time mothers were around 3 times more likely to no longer smoke in the final three months of pregnancy than those who had previously had a baby.
- Those who were aware that folic acid can prevent birth defects were about twice as likely to quit smoking as those who were unaware, even when education (as well as the other variables mentioned in this brief) was included. Knowledge of folic acid had an unexpectedly strong association with smoking cessation, and may indicate a general knowledge of prenatal development.
- Smokers who also drank alcohol before pregnancy were about twice as likely to stop smoking before the last three months of pregnancy as smokers who were non-drinkers. This was an unexpected finding, one that suggests that the relatively small population of smokers who did not drink alcohol (only 28.1% of those who smoked before pregnancy were non-drinkers) might differ from the general population in ways not reflected in the PRAMS survey.
- Smokers living in households with incomes at or above the federal poverty line were almost twice as likely to quit compared to households with incomes below the poverty line.
- Smokers who were married or in civil unions were slightly more likely to quit smoking before the final three months of their pregnancies than smokers who were neither married nor in a civil union.

Appendix: Odds ratios and regression analyses used in this brief

Table 1 – Cigarettes/day before pregnancy and odds of quitting smoking for last 3 months of pregnancy

	Odds Ratio	95% Confidence interval
Smoking fewer than 6 cigarettes per day versus smoking 6 or more	9.318	6.067-14.311
Smoking fewer than 11 cigarettes per day versus smoking 11 or more	6.768	4.542-10.085
Included in regression model: Age group, level of education, previous history of live birth, alcohol and marijuana use before pregnancy, pre-pregnancy BMI, marital/civil union status, adequacy of prenatal care, intendedness of pregnancy, number of stressors in the 12 months leading up to delivery, income level, and knowledge that folic acid can prevent birth defects.		

Table 2 – Other Factors associated with Smoking Cessation

	Odds ratio	95% CI		Odds ratio	95% CI
No previous live birth	2.902	1.865-4.514	Knowledge that folic acid can prevent birth defects	2.482	1.561-3.945
Drank alcohol before pregnancy	2.077	1.288-3.350	Household income at or above federal poverty level	1.855	1.176-2.926
Married or in civil union	1.752	1.131-2.274			
Included in regression model: Age group, cigarettes per day smoked in the 3 months before pregnancy, level of education, previous history of live birth, alcohol and marijuana use before pregnancy, pre-pregnancy BMI marital status, adequacy of prenatal care, intendedness of pregnancy, number of stressors experienced in the 12 months leading up to delivery, income level, and knowledge that folic acid can prevent birth defects.					

The following PRAMS questions were used for this data brief:

In the *3 months before* you got pregnant, how many cigarettes did you smoke on an average day?

- 41 cigarettes or more
- 21 to 40 cigarettes
- 11 to 20 cigarettes
- 6 to 10 cigarettes
- 1 to 5 cigarettes
- Less than 1 cigarette
- I didn't smoke then

In the *last 3 months* of your pregnancy, how many cigarettes did you smoke on an average day?

- 41 cigarettes or more
- 21 to 40 cigarettes
- 11 to 20 cigarettes
- 6 to 10 cigarettes
- 1 to 5 cigarettes
- Less than 1 cigarette
- I didn't smoke then

During the 3 months before you got pregnant, how many alcoholic drinks did you have in an average week?

- 14 drinks or more a week
- 7 to 13 drinks a week
- 4 to 6 drinks a week
- 1 to 3 drinks a week
- Less than 1 drink a week
- I didn't drink then

***Before* you got pregnant with your new baby, did you ever have any other babies who were born alive?**

- No
- Yes

Have you ever heard or read that taking a vitamin with folic acid can help prevent some birth defects?

- No
- Yes

During the *12 months before* your new baby was born, what was your yearly total household income before taxes? Include your income, your husband's or partner's income, and any other income you may have received. (All information will be kept private and will not affect any services you are now getting.)

2011 PRAMS Sites (as abbreviated in above charts):

AR = Arkansas; CO = Colorado; GA = Georgia; HI = Hawaii; MD = Maryland; ME = Maine; MI = Michigan; MN = Minnesota; MO = Missouri; NE = Nebraska; NJ = New Jersey; NM = New Mexico; NYC = New York City; NYS = New York (excluding NYC); OK = Oklahoma; OR = Oregon; PA = Pennsylvania; RI = Rhode Island; UT = Utah; VT = Vermont; WA = Washington; WI = Wisconsin; WV = West Virginia; WY = Wyoming.

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