

Evaluation of Alabama Medicaid's Maternity Smoking Harms Education Initiative

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Between November 1, 2008 and January 31, 2009 the Alabama's Medicaid Maternity Program undertook the 5 A's Smoking Cessation Counseling Program. This educational intervention for pregnant women was designed to highlight the harms associated with maternal smoking and with second hand smoke.

At each Medicaid pre-natal clinic around the state pregnant women were asked to complete a 20 item paper survey asking questions about the potential harms from smoking and how to get help in quitting smoking. Women arriving at the clinic were assigned alternately to the treatment group or the control group. Those patients in the treatment group were counseled during three encounters either face to face in the clinic or by phone. Those in the control group received usual care. At the conclusion of the third visit, all participants were asked to again complete the smoking harms survey. Both the pre and post surveys were conducted anonymously in that no names or other identifiers were included on the surveys and none were included in the electronic coding of the survey responses.

The evaluation of the effectiveness of the educational intervention was measured using the percentage of correct answers for the 18 smoking related questions and, in addition, the percentage of correct answers for the 5 questions making up the subsection of the questionnaire dealing with second hand smoking. A minimum of 15 of the 18 questions had to have a response to include the survey in the analysis of overall smoking harms. All 5 questions on the dangers of second hand smoke had to have responses to include the survey in that analysis.

Based upon the response to Question 1 we categorized respondents as "smokers" or "nonsmokers." Question 1 asked:

1. Please circle the response that best describes you:
 - A. I have NEVER smoked, or I have smoked less than 100 cigarettes in my life time.
 - B. I stopped smoking BEFORE I found out I was pregnant, and I am not smoking now.
 - C. I stopped smoking AFTER I found out I was pregnant, and I am not smoking now.
 - D. I smoke some now, but I cut down on the number of cigarettes I smoke SINCE I found out I was pregnant.
 - E. I smoke regularly now, about the same as BEFORE I found out I was pregnant.

Nonsmokers were defined as those responding A, or B and smokers were defined as those responding C, D or E.

The evaluation consisted of comparing the differences in the mean score in the pre- and post-care scores for those in the treatment with the pre- and post-care differences in the control group. This design is referred to as a differences-in-differences analysis. We undertook this analysis for all respondents. We also undertook an analysis of the effects of secondary smoke only for the non-smokers because information on these dangers may be particularly useful to them. Table 1 presents the number of completed surveys in each cell of the study.

Table 1
Number of Completed Surveys by Study Arm

	Pre-Survey	Post-Survey
Smokers		
Treatment	795	411
Control	794	409
Total	1,589	820
Nonsmokers		
Treatment	1,993	945
Control	2,132	1,125
Total	4,125	2,070
All		
Treatment	2,788	1,356
Control	2,926	1,534
Total	5,714	2,890

Table 2 reports the evaluation results of the counseling intervention for the smokers in the study. Those receiving the smoking cessation counseling program, on average, correctly answered 85.2% of the questions in the survey prior to the commencement of the intervention. After the three counseling sessions, on average, they improved their scores by 5.9 percentage points. Those in the control group, who did not receive the counseling, improved their scores by 2.8 percentage points. This improvement may have resulted from information they received through regular prenatal care or from other sources such as family, friends or from the media. The improvement in the control group is regarded as a measure of other influences affecting the treatment group as well. Thus, the difference in scores attributable to the counseling program is the difference in the differences between the treatment and the control groups. There was a 3.1 percentage point increase in knowledge among smokers of smoking harms attributable to the counseling program.

Table 2
Mean Scores of Smokers on Smoking Harms Survey

	Pre	Post	
Treatment	85.2	90.8	5.9*
Control	87.5	90.3	2.8*
Difference-in-Difference			3.1#
* indicates that the difference between pre and post is statistically significant at the 99% confidence level.			
# indicates that the difference between the differences is statistically significant at the 99% confidence level.			

Table 3 reports the analogous findings for the nonsmokers in the study. Among nonsmokers the counseling program had an almost identical effect in increasing knowledge of the harms of smoking.

Table 3
Mean Scores of Nonsmokers on Smoking Harms Survey

	Pre	Post	
Treatment	84.9	90.6	5.7*
Control	86.2	88.7	2.5*
Difference-in-Difference			3.2#
* indicates that the difference between pre and post is statistically significant at the 99% confidence level. # indicates that the difference between the differences is statistically significant at the 99% confidence level.			

It may be more useful to examine the effects of the counseling program on the identification of the risks of second hand smoke among nonsmokers. Table 4 replicates the analysis for nonsmokers described above, but only analyzes the scores on the 5 questions dealing with second hand smoke. Here too, an improvement in the knowledge of second hand smoking harms of 3.1 percentage points can be attributed to the program.

Table 4
Mean Scores of Nonsmokers on Second Hand Smoke Questions

	Pre	Post	
Treatment	79.0	85.3	6.3*
Control	81.6	84.8	3.2*
Difference-in-Difference			3.1#
* indicates that the difference between pre and post is statistically significant at the 99% confidence level. # indicates that the difference between the differences is statistically significant at the 99% confidence level.			

The anonymous nature of the surveys precluded a direct comparison of the pre and post experience of individual participants. Thus, the study design focused on the differences in the average effects across the groups of women completing the surveys before and after the counseling program. From this perspective the program was modestly successful in increasing awareness of the harms of smoking and exposure to second hand smoke while pregnant.

The evaluation of the program could be strengthened if future efforts included an encrypted patient identifier that would allow evaluators to compare the same women before and after the intervention and more importantly could be linked to other Medicaid data to identify low-birth weight and other maternal outcomes that could potentially be reduced by the intervention.