

## Education and Health Promotion during Prenatal Care in South Carolina, 2004-2008

### Introduction

Much of the published literature assessing prenatal care in the United States centers on prenatal care utilization. Most measures of prenatal care utilization focus on the timing of the first prenatal care visit, number of total prenatal care visits, and length of gestation.

Several researchers have questioned the use of measures of prenatal care utilization as proxy measures of the overall quality of prenatal care.<sup>1-5</sup> These researchers argue that quantity and timing of visits does not imply quality care and that further study of measures of the overall quality of prenatal care are necessary.

In 1989, an Expert Panel on the Content of Prenatal Care from the United States Public Health Service (USPHS) issued a guide for clinical services, documentation, education, and health promotion during prenatal care.<sup>1</sup> This guide recommended screenings, procedures, educational counseling, and other services to be performed at each recommended prenatal care visit. These recommendations were based largely on a comprehensive literature review; however, some of the recommendations were based on the expertise of the panel due to a lack of conclusive evidence from the literature.

In their 1989 recommendations, the USPHS Expert Panel grouped recommended education and health promotion topics into three categories: 1) education to support and promote healthy behaviors, 2) education on specific clinical conditions, and 3) education regarding general pregnancy and parenting knowledge.

In 2006, Gregory et al. reviewed the research that had been done on the content of prenatal care since the USPHS Expert Panel issued their recommendations.<sup>2</sup> With respect to education and health promotion, Gregory et al. found that education to support and promote healthy behaviors, such as smoking and alcohol cessation, has been well studied, while the prevalence of education regarding general

pregnancy and parenting knowledge has not been studied as thoroughly. Furthermore, they note that some of the recommendations for education on specific clinical conditions from the 1989 USPHS Expert Panel's report are outdated due to advances in technology and the emergence of genetic counseling.

Gregory et al. conclude that education and health promotion in the three categories identified by the USPHS

### What is S.C. PRAMS?

The South Carolina Pregnancy Risk Assessment Monitoring System (S.C. PRAMS) is an ongoing population-based surveillance system of maternal behaviors and experiences before, during and after pregnancy. About 2,300 mothers are randomly sampled from the state's live birth registry each year.

The data presented in this newsletter reflect live births to South Carolina mothers occurring in South Carolina during the years of 2004 -2008. The overall response rate for these three years was 67.2 percent.

Expert Panel in 1989 should remain an essential component of quality prenatal care.<sup>2</sup> As such, continued research focusing on these three recommended categories of education and health promotion during prenatal care remains important, especially given that the prevalence of educational counseling and referral for education and health promotion from prenatal care providers is lower than desired.<sup>6,7</sup>

This is the first in a series of three reports on the topic of education and health promotion during prenatal care. In this report we will examine the prevalence of mothers' receipt of education in the three categories recommended by the USPHS Expert Panel using data from the South Carolina (SC) Pregnancy Risk Assessment Monitoring System (PRAMS) survey from 2004 to 2008.

## Methods

Women who are SC residents delivering live born infants in SC are eligible to be selected for participation in the PRAMS project. All PRAMS participants are selected through a random sampling of the SC live birth registry, stratified by birth weight. Selected mothers are sent up to three PRAMS surveys through the mail and mail non-respondents are followed up through a telephone phase. All participating mothers provide informed consent.

From 2004-2008, 7,673 mothers completed the S.C. PRAMS survey (weighted response rate: 67.2%). For the analyses presented in this report, mothers with missing information for any of the education and health promotion topics were excluded (n=301). This resulted in a total analytic sample of 7,372 mothers.

Each mother's responses to SC PRAMS questions 20 a.-j. (Figure 1) and 67 a.-b. (Figure 2) were used to determine whether or not she received education on topics reported in the SC PRAMS survey, grouped into the following categories: support and promotion of healthy behaviors, education on specific clinical conditions, and education regarding general pregnancy and parenting knowledge. Education and health promotion topics reported in PRAMS were grouped into these categories as displayed in Table 1, based on the USPHS Expert Panel's recommendations in their 1989 report.

This report presents the prevalence of mothers who

Figure 1: Question 20 in the SC PRAMS Phase V survey.

**20. During any of your prenatal care visits, did a doctor, nurse, or other health care worker talk with you about any of the things listed below? Please count only discussions, not reading materials or videos. For each item, circle Y (Yes) if someone talked with you about it or circle N (No) if no one talked with you about it.**

|   | No | Yes |
|---|----|-----|
| a. How smoking during pregnancy could affect my baby . . . . .                        | .N | Y   |
| b. Breastfeeding my baby . . . . .  | .N | Y   |
| c. How drinking alcohol during pregnancy could affect my baby . . . . .               | .N | Y   |
| d. Using a seat belt during my pregnancy. . . . .                                     | .N | Y   |
| e. Birth control methods to use after my pregnancy . . . . .                          | .N | Y   |
| f. Medicines that are safe to take during my pregnancy. . . . .                       | .N | Y   |
| g. How using illegal drugs could affect my baby . . . . .                             | .N | Y   |
| h. Doing tests to screen for birth defects or diseases that run in my family. . . . . | .N | Y   |
| i. What to do if my labor starts early . . . . .                                      | .N | Y   |
| j. Getting tested for HIV (the virus that causes AIDS) . . . . .                      | .N | Y   |
| k. Physical abuse to women by their husbands or partners . . . . .                    | .N | Y   |

Figure 2: Question 67 in the SC PRAMS Phase V survey.

**67. During your most recent pregnancy, did you receive any of the following services? For each one, circle Y (Yes) if you received the service or N (No) if you did not receive the service.**

**Did you receive—**

|   | No | Yes |
|---|----|-----|
| a. Childbirth classes. . . . .                                      | .N | Y   |
| b. Parenting classes . . . . .                                      | .N | Y   |
| c. Help with an alcohol or drug problem . . . . .                   | .N | Y   |
| d. Help to reduce violence in your home . . . . .                   | .N | Y   |
| e. Counseling information for family and personal problems. . . . . | .N | Y   |
| f. Help to quit smoking . . . . .                                   | .N | Y   |
| g. Help with or information about breastfeeding . . . . .           | .N | Y   |
| h. Other . . . . .  | .N | Y   |

Please tell us:

Table 1: Education and health promotion topics reported in the SC PRAMS survey and corresponding categories from the USPHS Expert Panel recommendations on the content of prenatal care.

| Education/Health Promotion Topic              | SC PRAMS Question Number | Education/Health Promotion Category        |
|---|--------------------------|--|
| Smoking during pregnancy                      | 20 a.                    | Support and promotion of healthy behaviors |
| Drinking alcohol during pregnancy             | 20 c.                    |  |
| Using a seat belt during pregnancy            | 20 d.                    |  |
| Birth control methods for after pregnancy     | 20 e.                    |  |
| Safe medication during pregnancy              | 20 f.                    |  |
| Illegal drug use during pregnancy             | 20 g.                    |  |
| Testing for birth defects or genetic diseases | 20 h.                    | Specific clinical conditions               |
| What to do if labor starts early              | 20 i.                    |  |
| Getting tested for HIV                        | 20 j.                    |  |
| Breastfeeding after pregnancy                 | 20 b.                    | General pregnancy and parenting knowledge  |
| Childbirth classes                            | 67 a.                    |  |
| Parenting classes                             | 67 b.                    |  |

reported receiving all of the education or health promotion information for each category. The populations receiving all of the information in each of the categories were also described and compared to those not receiving all of the information for each category. All data management was done with SAS 9.2, and all analyses were conducted with SAS-callable SUDAAN 10.0.1.

## Results

The 7,372 mothers included in these analyses were weighted to represent approximately 273,199 SC women who delivered a live-born infant during 2004-2008. Overall, 43.3% of these mothers reported receipt of all education on all topics that support and promote healthy behaviors, 63.5% reported receiving all education on specific clinical conditions, and 10.5% reported receiving all education or classes on general pregnancy and parenting knowledge.

Mothers with no previous live births had a statistically significantly higher prevalence of receipt of education in all three categories, compared to mothers with one or more previous live birth (Figure 3). Because of these differences, all other results in this report are presented stratified by parity (0 previous live births vs.  $\geq 1$  previous live births).

Among mothers with no previous live births, non-Hispanic blacks were significantly more likely to receive education on healthy behaviors and specific

clinical conditions than non-Hispanic white mothers or mothers that were Hispanic or of a race other than white or black. No statistically significant difference in the prevalence of receipt of general pregnancy and parenting education was observed by race and ethnicity among women with no previous live births (Figure 4a). Similarly, among mothers with one or more previous live births, the prevalence of receipt of education about healthy behaviors and specific clinical conditions was significantly higher for non-Hispanic black mothers than non-Hispanic white mothers or mothers that were Hispanic or of other races. Non-Hispanic white mothers were significantly less likely than non-Hispanic black or other mothers to receive general pregnancy and parenting education (Figure 4b).

Among mothers with no previous live births, mothers whose prenatal care was paid by Medicaid were significantly more likely to receive education on healthy behaviors, compared to women whose prenatal care was not paid by Medicaid. However, no significant difference was observed between women on Medicaid and those whose prenatal care was paid by another source in the prevalence of specific clinical conditions or general pregnancy and parenting education (Figure 5a). Among mothers with one or more previous live births, mothers whose prenatal care was paid by Medicaid were significantly more likely to receive education in all three categories during prenatal care (Figure 5b).

Figure 3: Prevalence of education during prenatal care by parity.

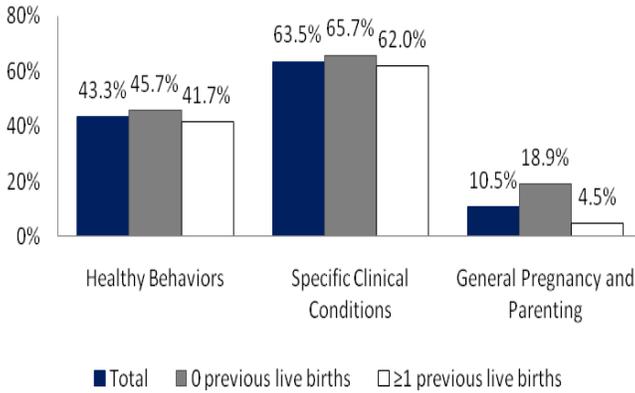


Figure 4a: Prevalence of education during prenatal care among mothers with no previous live births by race/ethnicity.

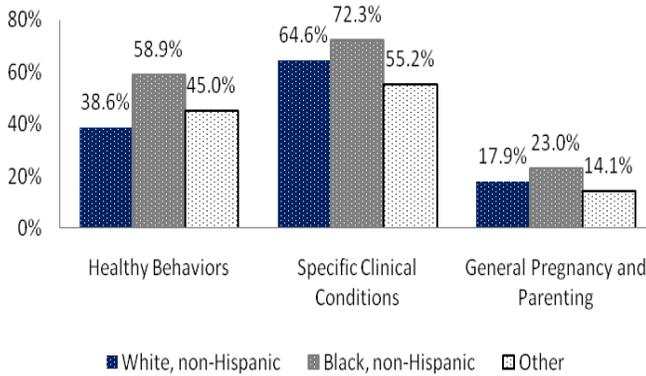
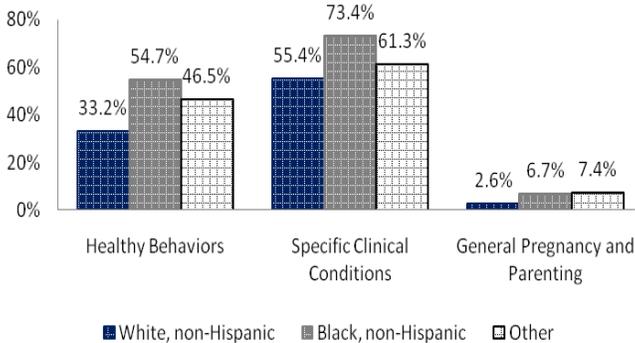


Figure 4b: Prevalence of education during prenatal care among mothers with at least one previous live birth by race/ethnicity.



recommends that women receive childbirth and parenting classes, we have considered mothers that do not receive these classes, for any reason, to not have received all general pregnancy and parenting information. We base the receipt of the classes on the responses to SC PRAMS question 67 (Figure 2). However, the SC PRAMS survey also includes a question that asks mothers whether they *needed* the services listed in Figure 2. Among women that reported needing classes, 67.0% reported receiving childbirth classes and 53.5% reported receiving parenting classes.

If mothers who reported not needing childbirth and/or parenting classes were considered to have “received” this education, then 73.7% of SC

Figure 5a: Prevalence of education during prenatal care among mothers with no previous live births by Medicaid status.

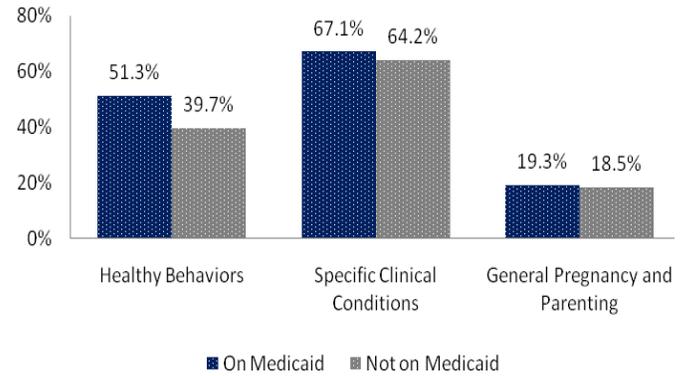
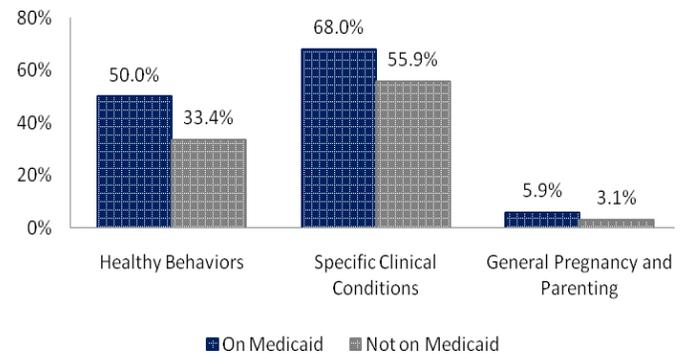


Figure 5b: Prevalence of education during prenatal care among mothers with at least one previous live birth by Medicaid status.



## Discussion

### *Effect of parenting and childbirth classes on receipt of general pregnancy and parenting education*

A very low percentage of mothers in South Carolina are receiving all of the recommended general pregnancy and parenting information reportable in the SC PRAMS survey (10.5%). Because the USPHS Expert Panel report on the content of prenatal care

mothers would have “received” all of the general pregnancy and parenting education. That is, 73.7% of SC mothers received education about breastfeeding and either received or did not need childbirth and parenting classes.

Categorizing mothers who do not feel they needed childbirth and/or parenting classes as though they “received” this education does make intuitive sense. However, we feel that it is more conservative to classify only women reporting

having received childbirth and parenting classes as receiving this education because receipt of these classes is explicitly recommended by the USPHS report.<sup>1</sup> Additionally, categorizing mothers who reported not needing these classes as having “received” the education would make the general pregnancy and parenting education category inconsistent with the other two categories because mothers were not asked if they needed education on any of the healthy behaviors or specific clinical conditions topics. Further discussion within the larger maternal and child health community is necessary to determine how women that do not receive these types of classes because they feel that they do not need them should be classified with regard to education during prenatal care.

#### *Differences in receipt of education during prenatal care based on parity*

Women with no previous live births were significantly more likely to report receiving each type of education than mothers with one or more previous live births. This result is reasonable since many women receive care from the same doctor or facility for subsequent live births. Thus, women with previous live births may not receive education on smoking, breastfeeding, or preterm labor if the doctor knows their habits, plans, and knowledge level based on previous pregnancies. It is also possible that women with previous live births may be less likely to recall receiving education than women with no previous live births.

Both non-Hispanic black mothers with no previous live births and non-Hispanic black mothers with one or more previous live births were significantly more likely to receive education about healthy behaviors and specific clinical conditions than other mothers. This result is consistent with previous research.<sup>8</sup> Furthermore, all mothers with prenatal care paid by Medicaid were more likely to receive education on healthy behaviors and mothers on Medicaid with one or more previous live birth were more likely to receive education about specific clinical conditions and general pregnancy and parenting topics, as well. Since a greater proportion of non-Hispanic black mothers were on Medicaid<sup>9</sup>, this result may, at least in part, explain the differences observed by race. The relationships between maternal race, Medicaid status, previous live births, and education during prenatal care will be explored further in a future SC PRAMS Special Delivery Report.

#### *Limitations*

The data presented in this report have several limitations. Not all education and health promotion topics recommended by the USPHS Expert Panel to be covered during prenatal care are assessed by the SC PRAMS survey. Therefore, while the education and health promotion topics used to make up the categories defined in this report (healthy behaviors, specific clinical conditions, and general pregnancy and parenting) are all included in the recommendations by the USPHS Expert Panel, they do not make up all of the education and health promotion recommended for each topic. Certainly, some mothers that reported receiving all education in a given category did not receive information on an unmeasured topic, resulting in the prevalences presented in this report overestimating the true prevalence of receipt of all education for each category. It is unclear, however, how much this lack of information on the presence of education for some topics within each of the three education and health promotion categories biases the results observed in this report. We assume that since the correlation in the receipt of education between the topics within each category is high (data not shown) that the education received for topics that were not assessed by PRAMS would also be highly correlated with the observed topics from the same category.

Another limitation is that the receipt of education for this report is based on self-reported information from the mother, which could lead to inaccurate recall. It is possible, but not certain, that the prevalence of inaccurate recall is different for mothers with no previous live births compared to mothers with one or more previous live births. However, information that is recalled by mothers is most likely to be important in determining their behaviors and decisions during and after pregnancy. Mothers self-reports about discussions with providers during prenatal care have been shown to overestimate, but overall agree highly with discussions taking place in video recorded sessions.<sup>10</sup>

#### **Conclusion**

Maternal and child health professionals should understand the distinction between measures of prenatal care utilization and measures of prenatal care content. Both adequate utilization and content are essential for optimal prenatal care.

Generally in SC, women with no previous live births were more likely to receive education on healthy behaviors, specific clinical conditions, and general pregnancy and parenting topics than women with previous live births. Among women with one or more previous live births, those using Medicaid to pay for their prenatal care were most likely to receive education in all three education and health promotion categories.

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This issue is the *first* in a series of three SC PRAMS Special Delivery Reports focusing on *education and health promotion during prenatal care*.

#### Coming up from SC PRAMS:

- **2008 SC PRAMS Databook**
- **Special Delivery Report: Association between Adequacy of Prenatal Care Utilization and Education during Prenatal Care**
- **Fact Sheet: Snapshot of Low Birthweight Births in SC**
- **Special Delivery Report: Association between Education during Prenatal Care and Pregnancy Outcomes**

**Thank you for your interest in SC PRAMS!**

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##### Authors:

Michael Smith, MSPH, PRAMS Coordinator  
 Kristin Wilkerson, MPA, MSW, PRAMS Operations Manager  
 Kristen Helms, MSPH, Director, Surveillance Unit

South Carolina PRAMS Program  
 Surveillance Unit, Office of Public Health Statistics and Information Services, Department of Health and Environmental Control  
 2600 Bull Street, Columbia, SC 29201

C. Earl Hunter, Commissioner  
 Guang Zhao, PhD, Director, Public Health Statistics and Information Services  
 Shae Sutton, PhD, Director, Division of Biostatistics

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