

## Introduction and Methods

The Centers for Disease Control and Prevention (CDC) recommends flu vaccination for all women who are or will be pregnant during flu season (early October to late March)<sup>1</sup>. In South Carolina (SC), the Pregnancy Risk Assessment Monitoring System (PRAMS) is used to examine and understand women's behaviors and attitudes before, during and after pregnancy. PRAMS has been collecting data in SC since 1992<sup>2</sup>.

PRAMS surveys are mailed to a sample of women who have recently given birth in SC. New versions of the survey are released every three to four years. The most recent survey included the following questions regarding flu vaccination<sup>2</sup>:

- During the 12 months *before the delivery* of your new baby, did a doctor, nurse or other health care worker *offer* you a flu shot or *tell* you to get one?
  - No
  - Yes
- During the 12 months *before the delivery* of your new baby, did you *get* a flu shot?
  - No
  - Yes, before my pregnancy
  - Yes, during my pregnancy

This report examines the most recent data available about flu vaccination during pregnancy in SC (years 2012-2013; n=1,569). Additionally, sub-populations were investigated to see where interventions may be most effective. The following demographics were examined: maternal age group; maternal education; maternal race/ethnicity; pregnancy intention; and annual household income. SAS 9.2 software<sup>3</sup> was utilized to obtain prevalence estimates and 95% confidence intervals (CIs) via survey analysis procedures.

## Results

### During the 12 months *before the delivery* of your new baby, did a provider *offer* you a flu shot or *tell* you to get one?

Approximately 26% of women in SC reported that they were not offered or told to get a flu shot by a health care provider during the 12 months before the delivery of their most recent baby.

Among women who reported they were told to get a flu shot, significantly more had higher educational attainment and a higher annual household income than those who reported not being told to get a flu shot. (Table 1)

There were no significant differences by age group, race/ethnicity or pregnancy intention in regards to being offered or told to get a flu shot by a provider in the 12 months before delivery. (Table 1)

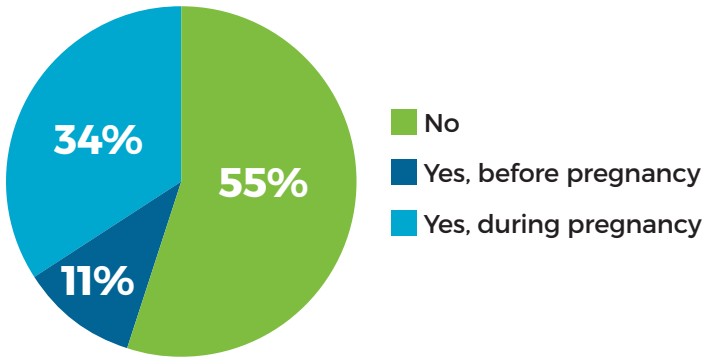
**Table 1.** Demographic distribution of responses to the question, “During the 12 months before the delivery of your new baby, did a doctor, nurse or other health care worker *offer* you a flu shot or *tell* you to get one?” (PRAMS 2012-2013)

	No % (95% CI)	Yes % (95% CI)
<b>AGE GROUP</b>		
<20	13.9 (6.5-21.4)	9.3 (5.9-12.7)
20-29	55.1 (45.9-64.3)	54.3 (48.9-59.7)
30-39	29.6 (21.2-38.0)	34.0 (29.0-39.0)
40+	1.4 (0.0-2.8)	2.4 (0.9-3.9)
<b>EDUCATION</b>		
<High school	26.0 (17.6-34.5)	11.8 (8.1-15.5)
HS/GED	23.8 (15.5-23.2)	23.9 (19.0-28.8)
Some college	31.7 (23.3-40.2)	31.9 (26.9-36.8)
<b>College graduate</b>	<b>18.4 (12.1-24.7)</b>	<b>32.5 (27.6-37.3)</b>
<b>RACE/ETHNICITY*</b>		
NH White	59.6 (50.5-68.7)	61.8 (56.4-67.1)
NH Black	28.2 (19.7-36.7)	28.1 (23.1-33.1)
Other	12.2 (6.2-18.1)	10.1 (6.8-13.5)
<b>PREGNANCY INTENT</b>		
Intended	43.0 (33.7-52.3)	47.6 (42.2-53.0)
Unintended	57.0 (47.7-66.3)	52.4 (47.0-57.8)
<b>ANNUAL HOUSEHOLD INCOME</b>		
<b>\$52,000 or less</b>	<b>81.8 (75.1-88.4)</b>	<b>65.9 (60.8-71.0)</b>
<b>More than \$52,000</b>	<b>18.2 (11.6-24.9)</b>	<b>34.1 (29.0-39.2)</b>

\*NH = Non-Hispanic; Other includes: Hispanic, American Indian, Chinese, Japanese, Filipino, Other Asian, Hawaiian, Alaska Native, Other race, Multi-racial; **Bold: significantly different**

**During the 12 months before the delivery of your new baby, did you get a flu shot?**

Approximately 55% of women in SC did not receive a flu shot within the 12 months before delivering their most recent baby. (Figure 1)



**Figure 1.** Distribution of responses to the question, “During the 12 months before the delivery of your new baby, did you get a flu shot?” (PRAMS 2012-2013)

Among those who reported receiving a flu shot before or during their most recent pregnancy, significantly more women had an intended pregnancy, higher educational attainment, and a higher annual household income than those who reported not getting one before or during pregnancy. There were no significant differences by age group and race/ethnicity in regards to receiving a flu shot before or during pregnancy. (Table 2)

For all women who were told to get a flu shot during the 12 months before delivery of their baby, 95% of them reported ever receiving one. Of those that reported they were never told to get a flu shot, only 5% of them received one. (Table 2)

# SOUTH CAROLINA PRAMS

**References**

<sup>1</sup> Guidelines for Vaccinating Pregnant Women. CDC. <http://www.cdc.gov/vaccines/pubs/preg-guide.html>

<sup>2</sup> SC PRAMS. 2012-2013. Division of Surveillance, Office of Public Health Statistics and Information Services, SC Department of Health and Environmental Control.

<sup>3</sup> SAS 9.2. SAS Institute Inc., Cary, NC, USA.

**Table 2.** Demographic distribution of responses to the question, “During the 12 months before the delivery of your new baby, did you get a flu shot?” (PRAMS 2012-2013)

	No % (95% CI)	Yes, before or during % (95% CI)
<b>TOLD TO GET A FLU SHOT</b>		
<b>Yes</b>	<b>55.8 (49.3-62.1)</b>	<b>95.3 (92.5-98.1)</b>
<b>No</b>	<b>44.3 (37.9-50.7)</b>	<b>4.7 (1.9-7.5)</b>
<b>AGE GROUP</b>		
<20	12.1 (7.4-16.7)	9.0 (4.7-13.3)
20-29	57.7 (51.4-64.0)	50.0 (43.2-56.8)
30-39	28.7 (23.0-34.3)	38.2 (31.7-44.6)
40+	1.6 (0.4-2.7)	2.8 (0.6-5.0)
<b>EDUCATION</b>		
<High school	18.3 (13.2-23.4)	11.9 (7.1-16.8)
HS/GED	26.8 (20.9-32.7)	20.3 (14.2-26.3)
Some college	33.6 (27.7-39.5)	29.7 (23.6-35.7)
<b>College graduate</b>	<b>21.3 (16.5-26.1)</b>	<b>38.1 (31.7-44.6)</b>
<b>RACE/ETHNICITY*</b>		
NH White	57.8 (51.5-64.0)	65.1 (58.3-71.9)
NH Black	32.8 (26.7-38.9)	22.2 (16.3-28.2)
Other	9.4 (6.1-12.7)	12.6 (7.6-17.7)
<b>PREGNANCY INTENT</b>		
<b>Intended</b>	<b>39.8 (33.6-46.1)</b>	<b>54.8 (47.8-61.7)</b>
<b>Unintended</b>	<b>60.2 (53.9-66.4)</b>	<b>45.2 (38.3-52.2)</b>
<b>ANNUAL HOUSEHOLD INCOME</b>		
<b>\$52,000 or less</b>	<b>81.2 (76.4-85.9)</b>	<b>56.8 (49.9-63.7)</b>
<b>More than \$52,000</b>	<b>18.9 (14.1-23.6)</b>	<b>43.2 (36.3-50.1)</b>

\*NH = Non-Hispanic; Other includes: Hispanic, American Indian, Chinese, Japanese, Filipino, Other Asian, Hawaiian, Alaska Native, Other race, Multi-racial; **Bold: significantly different**

## Conclusions

In general, significantly less women with lower educational attainment and lower annual household income reported knowing about or getting a flu shot within the 12 months before delivery, compared to those with higher educational attainment and higher annual household income. These two populations generally overlapped; approximately 96% of those with less than a high school education in this sample had an annual household income of \$52,000 or less, compared to approximately 25% of college graduates.

The importance of flu vaccination during pregnancy should be stressed within school, work and prenatal care settings. Selected vaccines, including flu vaccine, are available in SC DHEC health departments at no cost to adults over 19 years old who are uninsured or underinsured. For more information, please see: [www.scdhec.gov/Health/Vaccinations/DHECVaccineEligibility](http://www.scdhec.gov/Health/Vaccinations/DHECVaccineEligibility) for more information.