



Findings from the
Snohomish County
Pregnancy Risk Assessment
Monitoring System (PRAMS)
1996 - 2003



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Mission Statement:

To improve the health of individuals, families, and communities through disease prevention, health promotion, and protection from environmental threats.

The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing population-based surveillance system sponsored by the Centers for Disease Control and Prevention (CDC). PRAMS was initiated to provide information not otherwise available about maternal attitudes and experiences prior to, during, and immediately following pregnancy. Maternal behaviors and experiences during pregnancy and after delivery can influence infant health outcomes. The goal of PRAMS is to improve the health of mothers and infants by identifying groups at high risk for health problems and monitoring changes in health status. Agencies and organizations can use this information for planning and assessing health programs aimed at reducing health problems among mothers and infants.

In December 2000, Snohomish Health District published a report summarizing information collected from mothers who delivered from 1993-1998¹. Results for mothers in Snohomish County were presented and compared with Washington State.

This report provides a descriptive review of maternal and infant health, behaviors, and experiences in Snohomish County and Washington State from 1996 to 2003. In order to have a sample size large enough for analysis, eight years of data were combined. This report uses responses from 1,369 Snohomish County women and 14,124 women statewide. The PRAMS survey response rate averaged 72% during this time period, both for Snohomish County and Washington State.

Snohomish County Key Findings, 1996 - 2003

Before Pregnancy

- In Snohomish County, approximately 39% of births were from unintended pregnancies.
- Among women who had an unintended pregnancy, an estimated 52% were not using any form of birth control when they became pregnant.

During Pregnancy

- In Snohomish County, approximately 83% of women started their prenatal care in the first trimester of pregnancy, a significantly greater percentage than the Washington State rate of 78.7%.
- Eleven percent of women smoked during their pregnancy, and approximately 7% of women drank alcohol during their pregnancy.
- Approximately 4% of women were physically abused during their pregnancy. The majority of abuse was from the husband or partner.
- Eleven percent of women reported 5 or more stressful life events the 12 months before the birth of their infant. The most common stressful life event was moving to a new address, followed by having a lot of bills that could not be paid.

¹ Snohomish Health District (December 2000)

The Health of Mothers and Infants in Snohomish County: The Findings of the Pregnancy Risk Assessment Monitoring Survey (PRAMS) 1993-1998, available at www.snohd.org/hlthstats/1999_PRAMS_Report.pdf.

Executive Summary Cont.

Postpartum Period

- In Snohomish County, approximately 89% of women initiated breastfeeding after the birth of their baby. By two months, 64% of women were breastfeeding.
- Eighty-nine percent of new mothers used postpartum birth control.
- Approximately 40% of new mothers reported being a little depressed, and 15% reported being moderately or very depressed after the birth of their infant. The percentage of women that reported being moderately or very depressed significantly decreased in Snohomish County between 2000 and 2003.
- Seventy-two percent of women usually put their infant to sleep on their back, which is significantly higher than the state rate of 67.1%. This percentage significantly increased in Snohomish County from 41.5% in 1996 to 83.1% in 2003.
- Thirty percent of new mothers reported that their infant always or almost always sleeps with them or someone else.
- Four percent of women reported that their infant was exposed to tobacco smoke every day. This percentage significantly decreased from 7.7% in 1996 to 1.1% in 2003.

Report Layout and Analysis

This report includes thirteen chapters that cover topics relating to the period before, during, and after pregnancy. Each chapter includes the PRAMS survey question, a comparison of Snohomish County and Washington State responses, and trend analysis for Snohomish County and Washington State.

Analyses by demographic factors, including age, race, ethnicity, marital status, education, and poverty level of the mother, are presented in Table 1 of each chapter. A p value less than 0.05 represents a significant difference between the reference group and the group being examined. The p -values in the table represent crude analyses that do not adjust for potential confounders.

Multivariate analysis results are also included in each chapter. Compared with crude or unadjusted analysis, multivariate analysis provides a clearer understanding of the relationship between the topic of interest and maternal characteristic. For example, when data are not adjusted, both being in poverty and being unmarried (in addition to other characteristics) are associated with not receiving prenatal care in the first trimester of pregnancy. However, being in poverty and being unmarried are also typically associated with each other. After multivariate analysis, poverty remained associated with not receiving first trimester prenatal care, but being unmarried was no longer associated. This final multivariate analysis results reflected the true association between topic of interest (prenatal care) and maternal characteristic (poverty), while the characteristic that was not directly associated (marital status) was no longer statistically significant.

I. Pregnancy Intention

I. Pregnancy Intention¹

PRAMS Question

Thinking back to *just before* you got pregnant, how did you feel about becoming pregnant?

- I wanted to be pregnant sooner
- I wanted to be pregnant later
- I wanted to be pregnant then
- I didn't want to be pregnant then or at any time in the future

Snohomish County and Washington State, 1996 - 2003

In Snohomish County, 38.6% (95% CI, 34.8%, 42.6%) of births were from unintended pregnancies. This percentage was not significantly different than the Washington rate of 38.3% (95% CI, 37.1%, 39.6%) ($p = 0.87$) (Figure 1).

The Healthy People 2010 goal is that 70% of pregnancies are intended. However, in Healthy People 2010 abortions are included in the estimation of unintended pregnancy. When abortion is included, approximately 52% of all pregnancies in Snohomish County were intended in 2003.

Trend

Between 1996 and 2003 there was no significant increase or decrease in the percentage of births from unintended pregnancies in either Snohomish County ($p = 0.60$) or Washington State ($p = 0.10$) (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

Figure 1: Pregnancy Intention Among Women Giving Birth Snohomish County and Washington State PRAMS, 1996 - 2003

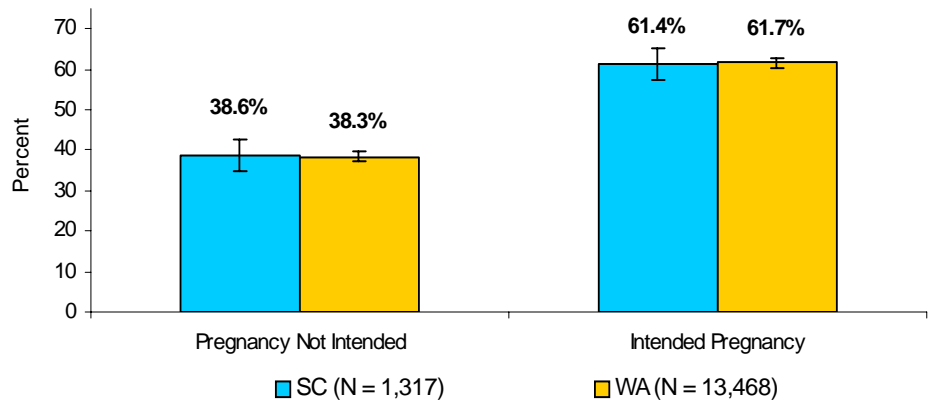
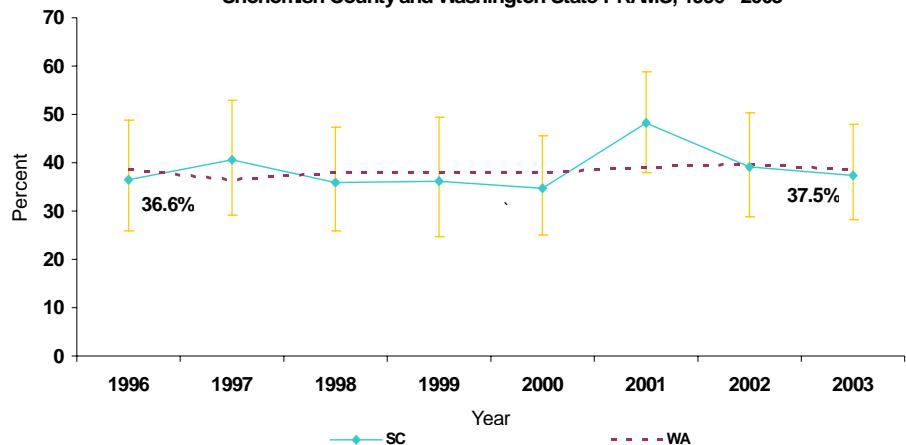


Figure 2: Births from Unintended Pregnancy Snohomish County and Washington State PRAMS, 1996 - 2003



¹ For this report, unintended pregnancy was defined as a pregnancy that was mistimed or unwanted at the time of conception ('wanted later' or 'did not want') that resulted in a live born birth. When induced abortion is taken into account, an estimated 52.1% of all pregnancies in 2003 in Snohomish County were unintended, and approximately one half of these unintended pregnancies ended in abortion.

I. Pregnancy Intention

Snohomish County Demographic Factors, 1996 - 2003

When examining maternal characteristics, pregnancy intention varied significantly by age, race, education, marital status, and poverty level of the mother (Table 1):

- Women younger than age 20 ($p < 0.001$) and those age 20-24 ($p < 0.001$) were more likely to have an unintended pregnancy compared with women age 25-34.
- Native American women were more likely to have an unintended pregnancy ($p < 0.001$) compared with White women.
- Unmarried women ($p < 0.001$) and women who were below the 185% federal poverty level ($p < 0.001$) were more likely to have an unintended pregnancy compared with their counterparts.
- Compared with women who had more than 12 years of education, those who had either 12 years ($p < 0.001$) or less than 12 years ($p < 0.001$) of education were more likely to have an unintended pregnancy.

In multivariate analysis when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, being unmarried, below 185% of the federal poverty level, or younger than age 20 continued to be significantly associated with having an unintended pregnancy. Being between age 20-24, being Native American, and having 12 or less years of education did not remain statistically significant.

**Table 1: Pregnancy Intention Among Women Giving Birth
Snohomish County PRAMS, 1996-2003 (N = 1,317)**

| Maternal Characteristics ^a | % ^b Unintended (n = 532) | 95% CI ^c | p value ^d |
|---------------------------------------|--|---------------------|------------------------|
| All Women | 38.6 | 34.8, 42.6 | - |
| Age Group (years) | | | |
| <20 | 79.6 | 67.6, 87.9 | $p < 0.001$ |
| 20-24 | 53.0 | 44.3, 61.6 | $p < 0.002$ |
| 25-34 | 31.3 | 26.6, 36.4 | reference ^e |
| >34 | 24.3 | 16.5, 34.3 | $p = 0.20$ |
| Race | | | |
| White | 39.0 | 34.4, 43.8 | reference ^e |
| Black | 47.2 | 38.0, 56.5 | $p = 0.12$ |
| Native American | 54.5 | 47.4, 61.5 | $p < 0.001$ |
| Asian/Pacific Islander | 35.5 | 30.3, 41.0 | $p = 0.33$ |
| Ethnicity | | | |
| Hispanic | 36.1 | 29.5, 43.2 | $p = 0.47$ |
| non-Hispanic | 39.1 | 34.9, 43.5 | reference ^e |
| Marital Status | | | |
| Unmarried | 73.3 | 65.5, 79.9 | $p < 0.001$ |
| Married | 29.8 | 25.9, 34.1 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 66.5 | 56.2, 75.5 | $p < 0.001$ |
| 12 | 46.3 | 38.7, 54.0 | $p < 0.001$ |
| >12 | 28.2 | 23.6, 33.2 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 61.5 | 55.7, 66.9 | $p < 0.001$ |
| >185% FPL | 23.1 | 18.7, 28.1 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

2. Birth Control Use at Time of Conception

2. Birth Control Use at Time of Conception¹

PRAMS Question

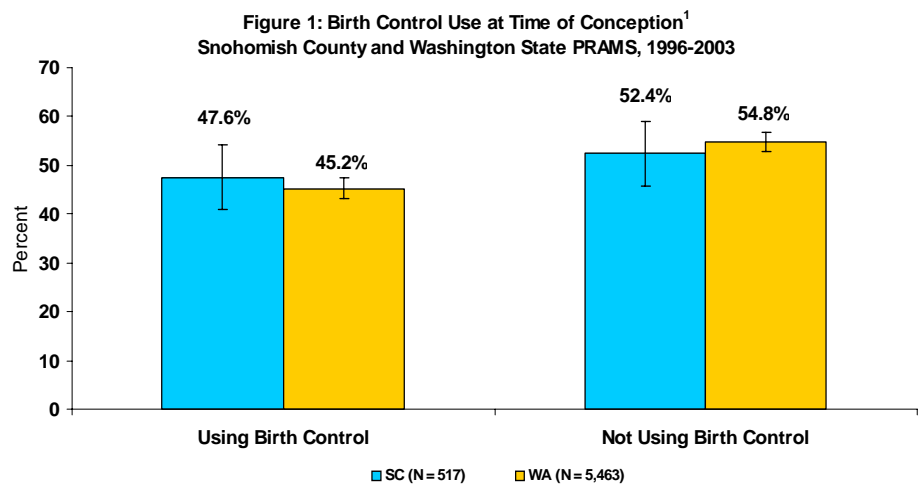
When you got pregnant with your new baby, were you or your husband or partner doing anything to keep from getting pregnant? (Some things people do to keep from getting pregnant include not having sex at certain time [rhythm], and using birth control methods such as the pill, Norplant®, shots [Depo-Provera®], condoms, diaphragm, foam, IUD, having their tubes tied, or their partner having a vasectomy.)

- No
- Yes

Snohomish County and Washington State, 1996 - 2003

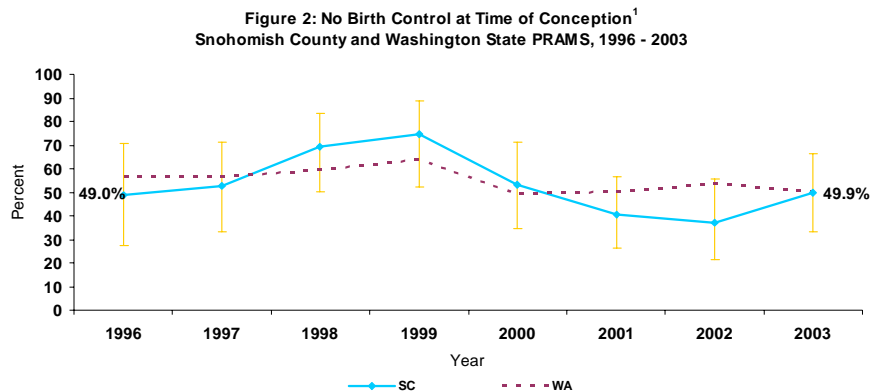
Among women in Snohomish County who had an unintended pregnancy, 52.4% (95% CI, 45.9%, 58.9%) were not using any form of birth control when they became pregnant. This percentage was similar to the Washington State rate of 54.8% (95% CI, 52.7%, 56.8%) ($p = 0.46$) (Figure 1).

The Healthy People 2010 goal is to increase contraception use to 93% for females at risk of unintended pregnancy. However, PRAMS data cannot tell us the percentage of women in the population who used contraception. It instead tells us that among those who delivered an infant from an intended pregnancy, 53% were not using contraception.



Trend

Overall, the rate of contraception use at time of conception has not significantly changed in Snohomish County ($p = 0.22$) or Washington State ($p = 0.11$) between 1996 and 2003 (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.



¹ Results were limited to women whose pregnancies were unintended, which is approximately 39% of births in Snohomish County. See Chapter 1 for more information on unintended pregnancy.

2. Birth Control Use at Time of Conception

Snohomish County Demographic Factors, 1996 - 2003

When examining maternal demographic characteristics, birth control use at the time of conception varied by marital status and education (Table 1):

- Unmarried women were less likely to use birth control at the time of conception than married women ($p < 0.01$).
- Compared with women who had more than 12 years of education, those with less than 12 years of education ($p = 0.05$) and those with 12 years of education ($p = 0.01$) were less likely to use birth control at the time of conception.

In multivariate analysis when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, no single characteristic was a statistically significant determinant of birth control use at the time of conception. These results may indicate that there were no differences by demographic factors. However, it is more likely that these results were due to the small sample size.

| Maternal Characteristics ^a | % ^b Not Using Birth Control (n = 272) | 95% CI ^c | p value ^d |
|---------------------------------------|---|---------------------|------------------------|
| All Women | 52.4 | 45.9,58.9 | - |
| Age Group (years) | | | |
| <20 | 69.3 | 53.2,81.8 | $p = 0.02$ |
| 20-24 | 52.1 | 39.8,64.1 | $p = 0.57$ |
| 25-34 | 47.5 | 38.0,57.3 | reference ^e |
| >34 | 47.6 | 28.1,67.8 | $p = 0.99$ |
| Race | | | |
| White | 52.7 | 44.9,60.3 | reference ^e |
| Black | 43.4 | 29.9,58.0 | $p = 0.27$ |
| Native American | 55.3 | 45.7,64.6 | $p = 0.67$ |
| Asian/Pacific Islander | 53.8 | 44.0,63.3 | $p = 0.86$ |
| Ethnicity | | | |
| Hispanic | 52.2 | 42.5,61.7 | $p = 0.89$ |
| non-Hispanic | 53.1 | 46.0,60.0 | reference ^e |
| Marital Status | | | |
| Unmarried | 65.1 | 54.5,74.4 | $p < 0.01$ |
| Married | 44.5 | 36.5,52.8 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 58.3 | 43.8,71.5 | $p = 0.05$ |
| 12 | 60.4 | 49.0,70.8 | $p = 0.01$ |
| >12 | 40.5 | 30.9,50.8 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 57.5 | 49.5,65.1 | $p = 0.05$ |
| >185% FPL | 43.1 | 32.2,54.8 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

2. Birth Control Use at Time of Conception

Reasons For Not Using Birth Control at Time of Conception, 1996 - 2003

The three top reasons that women reported not using birth control at the time of conception were that they had been having side effects from birth control (17.4%), did not think they were going to have sex (16.2%), and did not want to use birth control (13.0%) (Table 2).

**Table 2: Reasons For Not Using Birth Control at Time of Conception^a
Snohomish County PRAMS, 1996 - 2003**

| | n | % ^b | 95% CI ^c |
|--|----|----------------|---------------------|
| I had been having side effects from birth control ^{d,e} | 45 | 17.4 | 11.4,25.9 |
| I didn't think I was going to have sex ^d | 13 | 16.2 | 8.2,29.7 |
| I didn't want to use birth control ^d | 21 | 13.0 | 6.5,24.3 |
| My husband/partner did not want to use anything ^{d,e} | 45 | 11.4 | 6.8,18.3 |
| Thought husband/partner or I was infertile ^e | 8 | 8.7 | 3.2,21.3 |
| I had problems getting birth control when I needed it ^e | 12 | 5.1 | 1.8,14.1 |

^a Respondents could check all that applied.

^b Percentages are weighted to Washington State birth population.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d From the 1996-1999 PRAMS survey.

^e From the 2000-2003 PRAMS survey.

3.Smoking During Pregnancy

3. Smoking During Pregnancy

PRAMS Question

In the *last 3 months* of your pregnancy, how many cigarettes or packs of cigarettes did you smoke on an average day? ¹

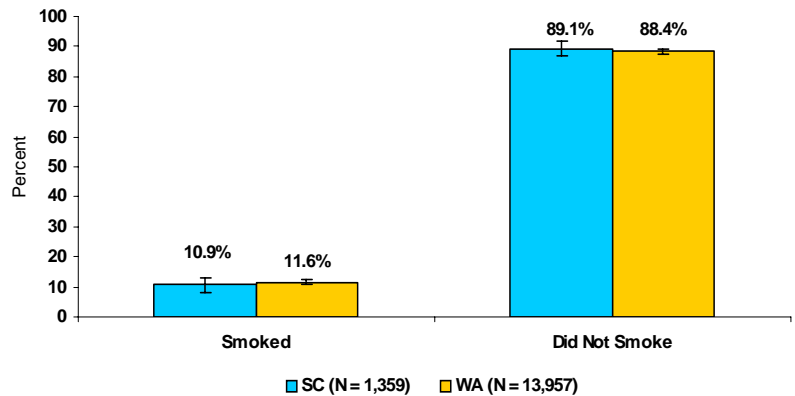
- _____ Cigarettes **OR** _____ Packs
- Less than 1 cigarette a day
 - I didn't smoke
 - I don't know

Snohomish County and Washington State, 1996 - 2003

In Snohomish County, 10.9% (95% CI, 8.5%, 13.8%) of women smoked during the last three months of their pregnancy. This percentage was not significantly different than the Washington State rate of 11.6% (95% CI, 10.7%, 12.4%) ($p = 0.59$) (Figure 1).

The Healthy People 2010 goal is that in the past month, 99% of pregnant women do not smoke at any time during pregnancy. Snohomish County and Washington State have not reached this goal.

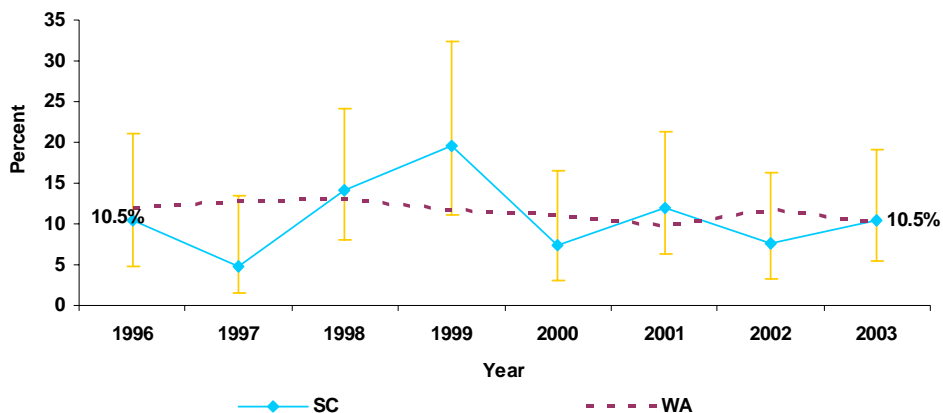
Figure 1: Smoked During Last Three Months of Pregnancy
Snohomish County and Washington State PRAMS, 1996 - 2003



Trend

Overall, the percentage of women in Snohomish County who smoked during the last three months of their pregnancy did not significantly change between 1996 and 2003 ($p = 0.73$). However, the Washington State rate of women smoking during pregnancy did significantly decrease ($p = 0.04$) (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

Figure 2: Smoked During Last Three Months of Pregnancy
Snohomish County and Washington State PRAMS, 1996 - 2003



¹ The smoking question changed between the 1996-1999 PRAMS survey and PRAMS survey starting in 2000. Between 1996 and 1999, those who reported having smoked at least 100 cigarettes in their lifetime answered the smoking question. Starting in 2000, only those who reported having smoked at least 100 cigarettes in the past 2 years answered the smoking question. This change does not appear to have affected the percentage that reported smoking during pregnancy; therefore, all data between 1996 and 2003 have been used in the analyses.

3.Smoking During Pregnancy

Snohomish County Demographic Factors, 1996 - 2003

When examining maternal characteristics, smoking during the last three months of pregnancy varied significantly by age, race, ethnicity, marital status, education, and poverty level (Table 1):

- Women under the age of 20 ($p < 0.001$) and between the ages of 20 and 24 ($p = 0.02$) were more likely to smoke during pregnancy compared with women age 25-34.
- Native American women were more likely to smoke during pregnancy ($p < 0.001$) and Asian/Pacific Islander women were less likely to smoke during pregnancy ($p < 0.001$) compared with White women.
- Hispanic women were less likely to smoke during pregnancy than non-Hispanic women ($p < 0.01$).
- Unmarried women ($p < 0.001$) and those below the 185% federal poverty level ($p < 0.001$) were more likely to smoke during pregnancy compared with their counterparts.
- Compared with women with more than 12 years of education, those with 12 years of education ($p < 0.01$) and less than 12 years of education ($p < 0.001$) were more likely to smoke during pregnancy.

In multivariate analysis when the effects of age, education, race, ethnicity, poverty level, and marital status were simultaneously taken into consideration, Hispanic and Asian/Pacific Islander women were significantly less likely to smoke during the last three months of pregnancy. Women who were unmarried or below 185% of the federal poverty level were significantly more likely to smoke during the last three months of pregnancy. Being Native American, having 12 years or less than 12 years of education, being younger than age 20, or being between the ages of 20 and 24 were no longer significant determinants of smoking during the last three months of pregnancy.

**Table 1: Smoked During Last Three Months of Pregnancy
Snohomish County PRAMS, 1996 - 2003 (N = 1,213)**

| Maternal Characteristics ^a | % ^b Smoked (n = 146) | 95% CI ^c | p value ^d |
|---------------------------------------|------------------------------------|---------------------|------------------------|
| All Women | 10.9 | 8.5, 13.8 | - |
| Age Group (years) | | | |
| <20 | 32.9 | 20.6, 48.1 | $p < 0.001$ |
| 20-24 | 14.3 | 9.1, 21.9 | $p = 0.02$ |
| 25-34 | 6.8 | 4.4, 10.2 | reference ^e |
| >34 | 9.8 | 5.1, 18.2 | $p = 0.35$ |
| Race | | | |
| White | 11.8 | 9.0, 15.4 | reference ^e |
| Black | 13.5 | 8.3, 21.2 | $p = 0.63$ |
| Native American | 25.8 | 20.4, 32.1 | $p < 0.001$ |
| Asian/Pacific Islander | 2.7 | 1.3, 5.5 | $p < 0.001$ |
| Ethnicity | | | |
| Hispanic | 3.4 | 1.5, 7.3 | $p < 0.01$ |
| non-Hispanic | 11.4 | 8.8, 14.6 | reference ^e |
| Marital Status | | | |
| Unmarried | 25.6 | 18.5, 34.2 | $p < 0.001$ |
| Married | 7.0 | 4.9, 9.9 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 21.0 | 12.8, 32.6 | $p < 0.001$ |
| 12 | 15.2 | 10.3, 21.9 | $p < 0.01$ |
| >12 | 5.9 | 3.8, 9.1 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 19.4 | 14.9, 25.0 | $p < 0.001$ |
| >185% FPL | 4.9 | 2.9, 8.0 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

3. Smoking During Pregnancy

Smoking and Prenatal Care, Snohomish County, 1996 - 2003

Non-smokers were more likely than smokers to report that they were asked by their prenatal care provider if they smoked cigarettes ($p = 0.04$). Approximately 93% of non-smokers were asked if they smoked cigarettes, and 82% of smokers were asked.

Prenatal care providers were significantly more likely to discuss with their smoking clients how smoking could affect the fetus than with their non-smoking clients ($p < 0.01$). Of the women who smoked during the last three months of pregnancy, approximately 91% of them reported their prenatal care provider discussed how smoking could affect their infant. Out of non-smokers, 73% reported this discussion with their prenatal care provider.

Help to Quit Smoking,² Snohomish County, 2000 - 2003

Of the women who smoked during the last three months of pregnancy, approximately 45% reported needing services to help them quit smoking. Of these, approximately 45% received services to help them quit smoking.

Changes in Smoking Status: Before, During, and After Pregnancy, Snohomish County, 1996 - 2003

Before becoming pregnant, approximately 21% of women reported they were smokers. After becoming pregnant, approximately 50% of the smokers quit for the duration of their pregnancy, decreasing the smoking rate during the last three months of pregnancy to 10.9%. Unfortunately, after birth, 42% of the women who quit smoking during pregnancy began smoking again, increasing the smoking rate to 15% postpartum.

² This question was added in 2000 to the PRAMS survey.

4. Alcohol Use During Pregnancy

4. Alcohol Use During Pregnancy

PRAMS Question

During the *last 3 months* of your pregnancy, how many alcoholic drinks did you have in an average week?

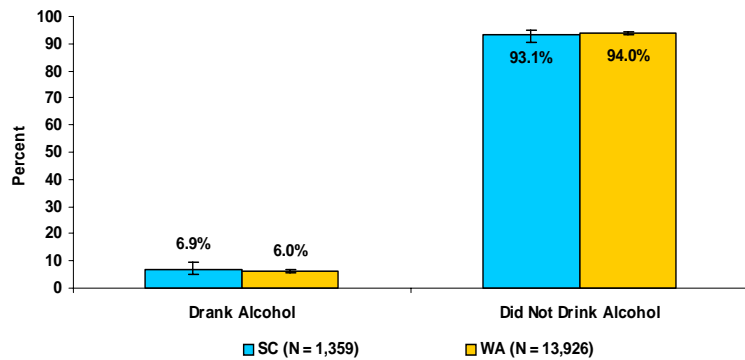
- I didn't drink then
- Less than 1 drink a week
- 1 to 3 drinks a week
- 4 to 6 drinks a week
- 7 to 13 drinks a week
- 14 drinks or more a week
- I don't know

Snohomish County and Washington State, 1996 - 2003

In Snohomish County, 6.9% (95% CI, 5.1%, 9.3%) of women drank alcohol during the last three months of pregnancy. This percentage was not significantly different than the Washington State rate of 6.0% (95% CI, 5.4%, 6.7%) ($p = 0.36$) (Figure 1).

The Healthy People 2010 goal is that 94% of pregnant women do not drink alcohol in the past month. Washington State has met this goal and Snohomish County is very close to this goal.

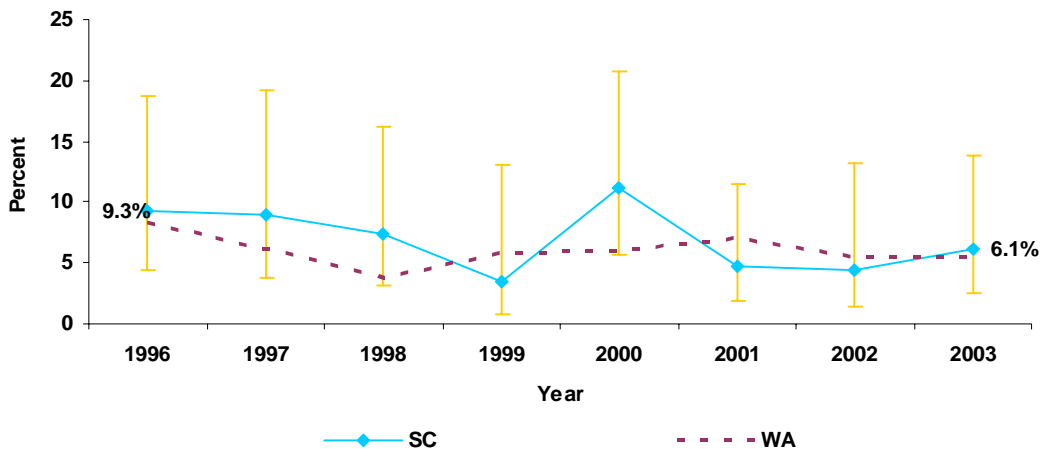
Figure 1: Alcohol Use During the Last Three Months of Pregnancy
Snohomish County and Washington State PRAMS, 1996 - 2003



Trend

Between 1996 and 2003, there were no significant increases or decreases in the percentage of women who drank alcohol during the last three months of pregnancy in Snohomish County ($p = 0.25$) or Washington State ($p = 0.76$) (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

Figure 2: Alcohol Use During the Last Three Months of Pregnancy
Snohomish County and Washington State PRAMS, 1996 - 2003



4. Alcohol Use During Pregnancy

Snohomish County Demographic Factors, 1996 - 2003

When examining maternal characteristics, alcohol use during the last three months of pregnancy varied significantly by race, Hispanic ethnicity, and education (Table 1):

- Asian/Pacific Islander women ($p < 0.01$) and Native American women ($p = 0.03$) were less likely to drink alcohol during pregnancy compared with White women.
- Hispanic women were less likely to drink alcohol during pregnancy than non-Hispanic women ($p < 0.01$).
- Compared with women who had more than 12 years of education, those who had less than 12 years of education were less likely to drink alcohol during pregnancy ($p < 0.001$).

In multivariate analysis, when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, Asian/Pacific Islander women, Hispanic women, and women with less than 12 years of education were significantly less likely to drink alcohol. Native American women were no longer significantly less likely to drink alcohol during the last three months of pregnancy.

**Table 1: Alcohol Use During the Last Three Months of Pregnancy
Snohomish County PRAMS, 1996 - 2003 (N =1,359)**

| Maternal Characteristics ^a | % ^b Used Alcohol | | |
|---------------------------------------|-----------------------------|---------------------|------------------------|
| | (n = 67) | 95% CI ^c | p value ^d |
| All Women | 6.9 | 5.1, 9.3 | - |
| Age Group (years) | | | |
| <20 | 3.2 | 0.6, 1.6 | $p = 0.42$ |
| 20-24 | 6.6 | 3.3, 12.6 | $p = 0.99$ |
| 25-34 | 6.6 | 4.3, 9.9 | reference ^e |
| >34 | 10.3 | 5.4, 18.8 | $p = 0.25$ |
| Race | | | |
| White | 8.0 | 5.8, 11.0 | reference ^e |
| Black | 5.0 | 2.3, 10.7 | $p = 0.27$ |
| Native American | 4.0 | 2.3, 6.9 | $p = 0.03$ |
| Asian/Pacific Islander | 2.6 | 1.4, 4.7 | $p < 0.01$ |
| Ethnicity | | | |
| Hispanic | 1.3 | 0.4, 4.1 | $p < 0.01$ |
| non-Hispanic | 7.7 | 5.7, 10.4 | reference ^e |
| Marital Status | | | |
| Unmarried | 5.8 | 2.7, 11.8 | $p = 0.60$ |
| Married | 7.2 | 5.1, 10.0 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 0.6 | 0.2, 2.1 | $p < 0.001$ |
| 12 | 7.3 | 4.1, 12.8 | $p = 0.66$ |
| >12 | 8.5 | 5.9, 12.2 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 6.0 | 3.7, 9.7 | $p = 0.90$ |
| >185% FPL | 6.3 | 4.0, 9.7 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

4. Alcohol Use During Pregnancy

Alcohol Use and Prenatal Care, Snohomish County 1996 - 2003

Drinkers and non-drinker were equally likely to be asked by their prenatal care provider if they drank alcohol ($p = 0.40$). An estimated 85.6% of non-drinkers were asked if they drank alcohol, and 92.4% of drinkers were asked. An equal percentage of drinkers (77.5%) and non-drinkers (76.5%) were told by their prenatal providers how alcohol could affect the fetus ($p = 0.89$).

Help with Alcohol or Drug Problem,¹ Snohomish County, 2000 - 2003

An estimated 1.1% of women reported needing services during their pregnancy to help them with a drug or alcohol problem. Of those women, only 19.2% received help.

¹ This question was added in 2000 to the PRAMS survey.

5. Prenatal Care

5. Prenatal Care

PRAMS Question

How many weeks or months pregnant were you when you had your first visit for prenatal care? (Don't count a visit that was only for a pregnancy test or only for WIC [the special Supplemental Nutrition Program for Women, Infants, and Children].)

_____ Weeks **OR** _____ Months

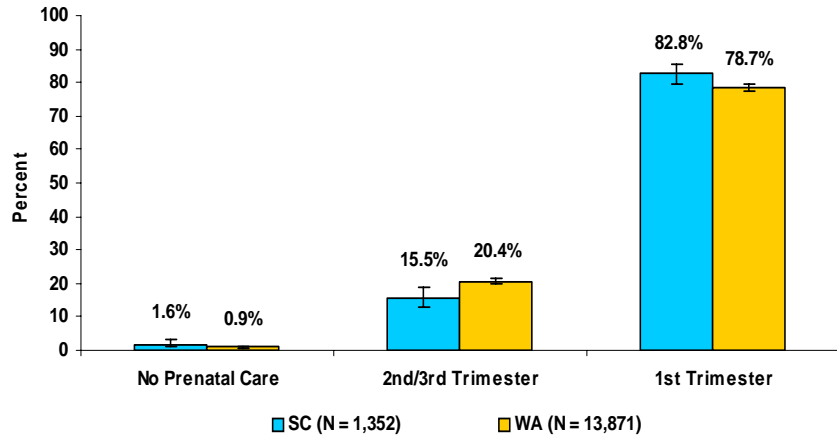
I didn't go for prenatal care

Snohomish County and Washington State, 1996 - 2003

In Snohomish County, 82.8% (95% CI, 79.7%, 85.6%) of women started their prenatal care in the first trimester of pregnancy. This percentage was significantly higher than the Washington State rate of 78.7% (95% CI, 77.7%, 79.7%) ($p = 0.02$) (Figure 1).

The Healthy People 2010 goal is that 90% of pregnant women start prenatal care in the first trimester of pregnancy. Snohomish County and Washington State have not reached this goal.

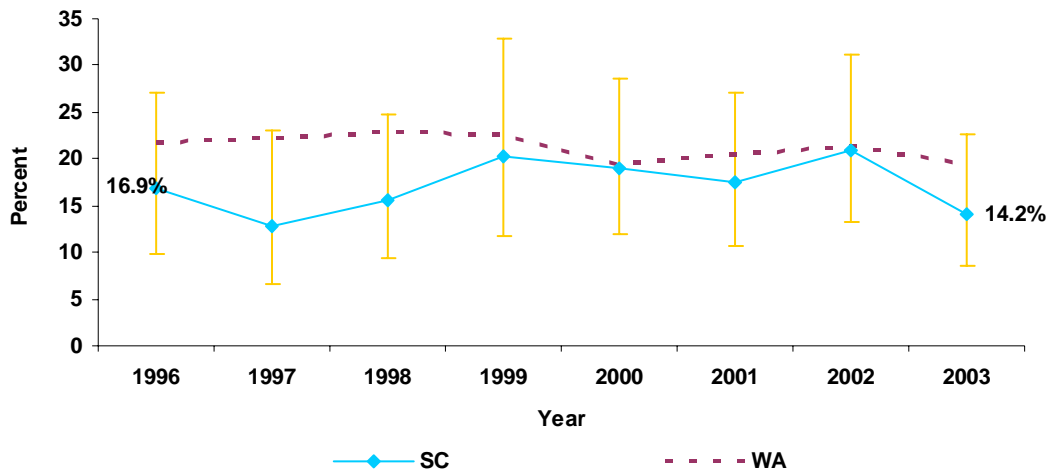
Figure 1: Start of Prenatal Care
Snohomish County and Washington State PRAMS, 1996-2003



Trend

Overall, the percentage of women who did not receive first trimester prenatal care did not significantly change in Snohomish County ($p = 0.67$) or Washington State ($p = 0.06$) between 1996 and 2003 (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

Figure 2: Women Without First Trimester Prenatal Care in First Trimester
Snohomish County and Washington State PRAMS, 1996 - 2003



Snohomish County Demographic Factors, 1996 - 2003

Starting prenatal care in the first trimester varied significantly by age, race, Hispanic ethnicity, marital status, education, and poverty level (Table 1):

- Compared with women age 25-34, those age 20-24 ($p = 0.02$) and younger than age 20 ($p < 0.001$) were less likely to start prenatal care in the first trimester.
- Native American women were less likely to start prenatal care in the first trimester ($p < 0.01$), as well as Asian/Pacific Islander women ($p = 0.04$) and Black women ($p = 0.04$) compared with White women.
- Hispanic women were less likely to start prenatal care in the first trimester than non-Hispanic women ($p < 0.01$).
- Unmarried women ($p < 0.001$) and women who were below the 185% federal poverty level ($p < 0.001$) were less likely to start prenatal care in the first trimester compared with their counterparts.
- Compared with women who had more than 12 years of education, those who had 12 years ($p < 0.01$) or fewer than 12 years ($p < 0.01$) of education were less likely to start prenatal care in the first trimester.

In multivariate analysis when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, age, race, education and poverty level remained significant determinants of starting prenatal care in the first trimester. Asian/Pacific Islander women, women under the age of 20, women with 12 years of education, and women below the 185% federal poverty level were significantly less likely to start prenatal care in the first trimester. Being Native American, Hispanic, unmarried, age 20 to 24, and having fewer than 12 years of education were no longer significant determinants of starting prenatal care in the first trimester.

**Table 1: Women Without Prenatal Care in First Trimester
Snohomish County PRAMS, 1996 - 2003 (N = 1,352)**

| Maternal Characteristics ^a | % ^b No Prenatal Care First Trimester (n = 286) | 95% CI ^c | p value ^d |
|---------------------------------------|---|---------------------|------------------------|
| All Women | 17.2 | 14.4, 20.3 | - |
| Age Group (years) | | | |
| <20 | 37.9 | 25.4, 52.2 | $p < 0.001$ |
| 20-24 | 22.4 | 15.8, 30.6 | $p = 0.02$ |
| 25-34 | 13.3 | 10.2, 17.2 | reference ^e |
| >34 | 13.4 | 7.8, 22.0 | $p = 0.99$ |
| Race | | | |
| White | 15.7 | 12.5, 19.5 | reference ^e |
| Black | 23.6 | 17.2, 31.5 | $p = 0.04$ |
| Native American | 27.1 | 21.3, 33.8 | $p < 0.01$ |
| Asian/Pacific Islander | 21.7 | 17.4, 21.7 | $p = 0.04$ |
| Ethnicity | | | |
| Hispanic | 24.7 | 19.1, 31.3 | $p < 0.01$ |
| non-Hispanic | 15.7 | 12.8, 19.2 | reference ^e |
| Marital Status | | | |
| Unmarried | 32.1 | 24.5, 40.8 | $p < 0.001$ |
| Married | 13.3 | 10.6, 16.5 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 31.7 | 22.3, 42.9 | $p < 0.001$ |
| 12 | 21.7 | 16.1, 28.4 | $p < 0.01$ |
| >12 | 12.3 | 9.2, 16.3 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 28.2 | 23.1, 33.8 | $p < 0.001$ |
| >185% FPL | 9.3 | 6.6, 13.1 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

5. Prenatal Care

Starting Prenatal Care as Early as Wanted, 1996 - 2003

Most women were able to start prenatal care as early as they wanted. Of those who started prenatal care in the first trimester, 86% reported they were able to start prenatal care as early as they wanted. Of those who started after the first trimester, 53% reported they started prenatal care as early as they wanted.

Reasons for Not Starting Prenatal Care as Early as Wanted, 1996 - 2003

There are many reasons why women were unable to start prenatal care as early as they wanted. The three top reasons included not having enough money or insurance (32.6%), being unable to get an appointment (31.7%), and not knowing that they were pregnant (26.1%) (Table 2).

Source of Payment for Prenatal Care, 1996 - 2003

Health insurance or HMO was the most common source of payment for prenatal care (73.9%), followed by Medicaid (23.0%) and personal income (12.8%)(Table 3).

**Table 3: Source of Payment for Prenatal Care^a
Snohomish County PRAMS, 1996-2003**

| | n | % ^b | 95% CI |
|-----------------------------------|-----|----------------|------------|
| Health Insurance/HMO ^d | 459 | 73.9 | 69.2, 78.1 |
| Medicaid ^{c,d} | 413 | 23.0 | 19.9, 26.4 |
| Personal Income ^{c,d} | 150 | 12.8 | 10.4, 15.8 |
| Still owe ^{c,d} | 76 | 6.2 | 4.5, 8.5 |
| Other ^{c,d} | 87 | 4.0 | 2.7, 6.7 |
| Military ^{c,d} | 55 | 2.4 | 1.5, 3.8 |

^a Respondents could check all that applied.

^b Percentages were weighted to the Washington State birth population.

^c From the 1996-1999 PRAMS survey.

^d From the 2000-2003 PRAMS survey.

6. Physical Abuse During Pregnancy

6. Physical Abuse During Pregnancy

PRAMS Question

During your most recent pregnancy, did any of these people physically abuse you?¹

- My husband or partner
- A family or household member other than my husband or partner
- A friend
- Someone else
- No one physically abused me during my pregnancy

Snohomish County and Washington State, 1996 - 2003

In Snohomish County, 3.8% (95% CI, 2.6, 5.7) of women reported physical abuse during their pregnancy. This percentage is similar to the Washington State rate of approximately 3.9% (95% CI, 3.5, 4.4) ($p = 0.93$).

Trend

Between 1996 and 2003 there were no significant changes in the percentage of women who reported physical abuse during pregnancy in either Snohomish County ($p = 0.86$) or Washington State ($p = 0.28$) (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

Figure 1: Physical Abuse During Pregnancy
Snohomish County and Washington State PRAMS, 1996 - 2003

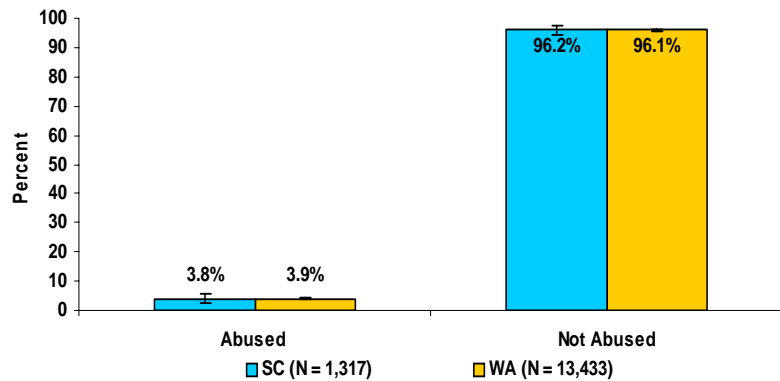
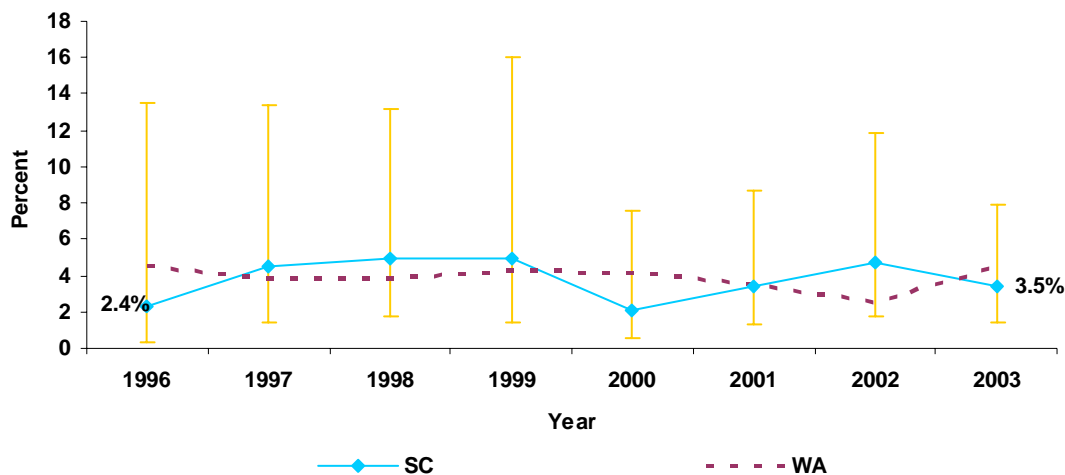


Figure 2: Physical Abuse During Pregnancy
Snohomish County and Washington State PRAMS, 1996 - 2003



¹ This question is from the 1996-1999 PRAMS survey. The question was changed slightly in 2000. Because wording changes do not seem to have altered the percent that report physical abuse, responses from both surveys were included in this analysis.

6. Physical Abuse During Pregnancy

Snohomish County Demographic Factors, 1996 - 2003

When examining maternal characteristics, physical abuse during pregnancy varied significantly by race, marital status, education, and poverty level (Table 1):

- Women younger than age 20 were more likely to report physical abuse during pregnancy ($p < 0.05$) compared with women age 25-34.
- Native American women were more likely to report physical abuse during pregnancy ($p < 0.01$) compared with White women.
- Compared with women who had more than 12 years of education, those who had less than 12 years of education were more likely to report physical abuse during pregnancy ($p = 0.04$).
- Unmarried women ($p < 0.01$) and women who were below the 185% of the federal poverty level ($p < 0.01$) were more likely to report physical abuse during pregnancy compared with their counterparts.

In multivariate analysis when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, no particular maternal characteristic was significantly associated with physical abuse during pregnancy. The lack of statistical difference may be because there are no actual differences or because of the small sample size and small number of women reporting physical abuse.

Perpetrator of Physical Abuse, Snohomish County, 1996 – 2003

Of the women in Snohomish County who were abused during pregnancy, 82.5% were abused by their husband or partner. An estimated 17.5% were abused by family, a friend, or someone else.

**Table 1: Physical Abuse During Pregnancy
Snohomish County PRAMS, 1996 - 2003 (N = 1,317)**

| Maternal Characteristics ^a | % ^b Abused | | |
|---------------------------------------|-----------------------|---------------------|------------------------|
| | (n = 68) | 95% CI ^c | p value ^d |
| All Women | 3.8 | 2.6, 5.7 | - |
| Age Group (years) | | | |
| <20 | 8.6 | 3.1, 21.8 | $p = 0.05$ |
| 20-24 | 5.8 | 3.2, 10.4 | $p = 0.08$ |
| 25-34 | 2.5 | 1.2, 5.1 | reference ^e |
| >34 | 3.3 | 1.1, 9.5 | $p = 0.66$ |
| Race | | | |
| White | 3.0 | 1.7, 5.1 | reference ^e |
| Black | 5.7 | 2.7, 11.9 | $p = 0.17$ |
| Native American | 11.2 | 7.6, 16.1 | $p < 0.01$ |
| Asian/Pacific Islander | 3.7 | 2.0, 6.7 | $p = 0.62$ |
| Ethnicity | | | |
| Hispanic | 5.1 | 2.9, 9.1 | $p = 0.29$ |
| non-Hispanic | 3.4 | 2.1, 5.4 | reference ^e |
| Marital Status | | | |
| Unmarried | 9.1 | 5.0, 15.9 | $p < 0.01$ |
| Married | 2.4 | 1.4, 4.1 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 8.5 | 3.8, 17.7 | $p = 0.04$ |
| 12 | 2.9 | 1.5, 5.8 | $p = 0.90$ |
| >12 | 2.8 | 1.4, 5.4 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 6.4 | 4.0, 10.1 | $p < 0.01$ |
| >185% FPL | 2.0 | 0.9, 4.2 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

7. Stressful Life Events During Pregnancy

7. Stressful Life Events During Pregnancy

| Stressful Life Events the Year Before Delivery Snohomish County and Washington State PRAMS, 1996-2003 | | | |
|--|----------------------|--------------|------------|
| | Snohomish County (%) | WA State (%) | p value |
| You moved to a new address | 41.7 | 41.6 | $p = 0.99$ |
| You had a lot of bills you couldn't pay | 26.9 | 25.6 | $p = 0.45$ |
| A close family member was very sick and had to go into the hospital | 23.8 | 23.7 | $p = 0.97$ |
| You argued with your husband or partner more than usual | 23.3 | 25.9 | $p = 0.13$ |
| Someone very close to you died | 15.0 | 16.9 | $p = 0.21$ |
| Your husband or partner lost his job | 14.3 | 14.2 | $p = 0.90$ |
| Someone very close to you had a bad problem with drinking or drugs | 13.8 | 15.0 | $p = 0.37$ |
| Your husband or partner said he didn't want you to be pregnant | 10.9 | 10.2 | $p = 0.59$ |
| You lost your job even though you wanted to go on working | 10.1 | 9.9 | $p = 0.81$ |
| You got separated or divorced from your husband or partner | 8.0 | 10.0 | $p = 0.09$ |
| You were homeless | 4.0 | 5.7 | $p = 0.03$ |
| You were in a physical fight | 3.4 | 4.2 | $p = 0.50$ |
| You or your partner went to jail | 3.2 | 4.6 | $p = 0.08$ |

Snohomish County and Washington State, 1996 - 2003

For new mothers in Snohomish County, moving to a new residence was the most commonly reported stressful life event (41.7%) occurring during the 12 months before birth. Other commonly reported stressful life events included having a lot of bills that could not be paid (26.9%), having a very sick close family member who had to be hospitalized (23.8%), and arguing with their husband/partner more than usual (23.3%). These percentages were similar to those reported in Washington State.

In Snohomish County, 11.0% (95% CI, 8.7%, 13.9%) of women report having 5 or more stressful life events during the 12 months before the birth of their infant. This percentage was similar to Washington State rate of 12.1% (95% CI, 11.3%, 12.9%) ($p = 0.41$) (Figure 1).

Figure 1: Stressful Life Events the Year Before Delivery
Snohomish County and Washington State PRAMS, 1996 - 2003

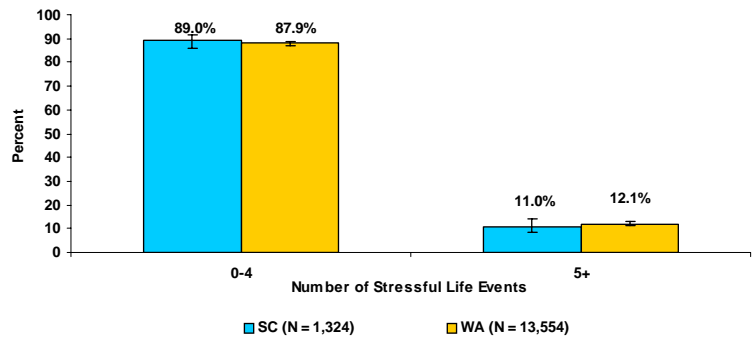
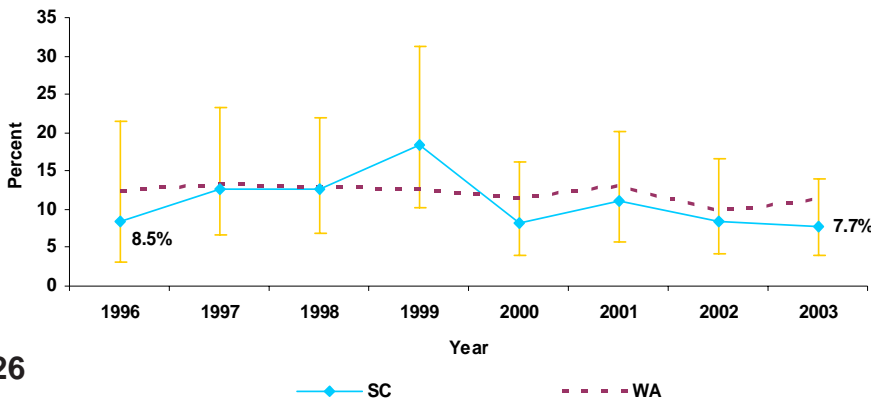


Figure 2: Women with 5+ Stressful Life Events the Year Before Delivery
Snohomish County and Washington State PRAMS, 1996 - 2003



Trend

Overall, the percentage of women with five or more stressful life events has not significantly changed in Snohomish County ($p = 0.20$) or Washington State ($p = 0.08$) between 1996 and 2003 (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

7. Stressful Life Events During Pregnancy

Snohomish County Demographic Factors, 1996 - 2003

When examining maternal demographic characteristics, having a high number of stressful life events (5 or more) significantly varied by maternal age, race, marital status, education and poverty level (Table 1):

- Women age 20-24 ($p = 0.01$) and those younger than 20 ($p < 0.01$) were more likely to report a high number of stressful life events compared with women age 25-34.
- Native American women ($p < 0.001$) and Black women ($p = 0.04$) were more likely to report a high number of stressful life events. Asian/Pacific Islander were less likely to report a high number of stressful life events ($p < 0.01$) compared with White women.
- Unmarried women were more likely to report a high number of stressful life events ($p < 0.001$) compared with married women.
- Women who had 12 years of education ($p < 0.001$) or had less than 12 years of education ($p = 0.01$) were more likely to report a high number of stressful life events compared with women with more than 12 years of education.
- Women below the 185% of the federal poverty level were more likely to report a high number of stressful life events ($p < 0.001$) compared with women above 185% of the federal poverty level.

In multivariate analysis, when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, poverty level or not being married remained significant determinants of having a high number of stressful life events. In addition, Asian/Pacific Islander women were significantly less likely to report a high level of stressful life events. Being Native American, being younger than age 25, or having 12 or fewer years of education were no longer significant determinants of having a high number of stressful life events.

**Table 1. Stressful Life Events the Year Before Delivery
Snohomish County PRAMS, 1996 - 2003 (N =1,324)**

| Maternal Characteristics ^a | % ^b 5+ Events (n = 175) | 95% CI ^c | p value ^d |
|---------------------------------------|---------------------------------------|---------------------|------------------------|
| All Women | | | - |
| Age Group (years) | | | |
| <20 | 24.9 | 14.7, 38.9 | $p < 0.01$ |
| 20-24 | 15.8 | 10.4, 23.3 | $p = 0.01$ |
| 25-34 | 7.7 | 5.1, 11.3 | reference ^e |
| >34 | 8.7 | 4.3, 16.9 | $p = 0.75$ |
| Race | | | |
| White | 11.1 | 8.4, 14.7 | reference ^e |
| Black | 18.3 | 12.6, 25.9 | $p = 0.04$ |
| Native American | 27.4 | 21.8, 33.7 | $p < 0.001$ |
| Asian/Pacific Islander | 4.4 | 2.6, 7.5 | $p < 0.01$ |
| Ethnicity | | | |
| Hispanic | 9.2 | 5.9, 14.0 | $p = 0.53$ |
| non-Hispanic | 10.8 | 8.3, 13.9 | reference ^e |
| Marital Status | | | |
| Unmarried | 29.2 | 21.7, 38.0 | $p < 0.001$ |
| Married | 6.1 | 4.3, 8.7 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 22.4 | 14.0, 33.9 | $p < 0.001$ |
| 12 | 14.5 | 9.9, 20.7 | $p = 0.01$ |
| >12 | 6.9 | 4.5, 10.4 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 21.6 | 16.9, 27.2 | $p < 0.001$ |
| >185% FPL | 3.2 | 1.7, 5.8 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

7. Stressful Life Events During Pregnancy

Social Support, Snohomish County 1996 - 2003

Based on the four questions below, approximately 10% to 16% of women reported lacking support during their pregnancy (Table 2).

| Table 2: Social Support^a Snohomish County PRAMS, 1996-2003 | n | % Without Support^b | 95% CI^c |
|--|----------|--------------------------------------|---------------------------|
| Someone to loan me \$50 | 315 | 15.8 | 13.4, 18.7 |
| Someone to help me if I were sick and needed to be in bed | 234 | 14.0 | 11.6, 16.9 |
| Someone to talk with about my problems | 247 | 12.4 | 10.2, 15.1 |
| Someone to take me to the clinic or doctor's office if I needed a ride | 193 | 10.0 | 8.1, 12.5 |

^a Respondents could check all that applied.

^b Percentages were weighted to the Washington State birth population.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

8. Breastfeeding

8. Breastfeeding

PRAMS Question

For how many weeks did you breastfeed your new baby?¹

Snohomish County and Washington State, 1996 - 2003

In Snohomish County, 89.3% (95% CI, 84.6%, 91.7%) of women initiated breastfeeding after the birth of their baby. At one month, 72.3% (95% CI, 68.4%, 75.8%) of women were breastfeeding, and at two months this percentage decreased to 64.9% (95% CI, 60.9%, 68.8%). There were no significant differences between the Snohomish County and Washington State rates (Figure 1) ($p = 0.85$).

The Healthy People 2010 objectives are that at least 75% of women breastfeed their infants in the early postpartum period, 50% are breastfeeding at 6 months, and 25% are breastfeeding at one year. If the early postpartum period is defined as one or two months, it is clear that Washington State and Snohomish County have not reached the goal of 75% breastfeeding goals for the early postpartum period. Six month and one year breastfeeding data are not available.

Trend

Between 1996 and 2003 there was no significant increase or decrease in the percentage of women who did not breastfeed after the birth of their baby in Snohomish County ($p = 0.86$). However, the Washington State rate of women who did not breastfeed significantly decreased during this period ($p < 0.001$) (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

Figure 1: Breastfeeding Initiation and Duration
Snohomish County and Washington State PRAMS, 1996 - 2003

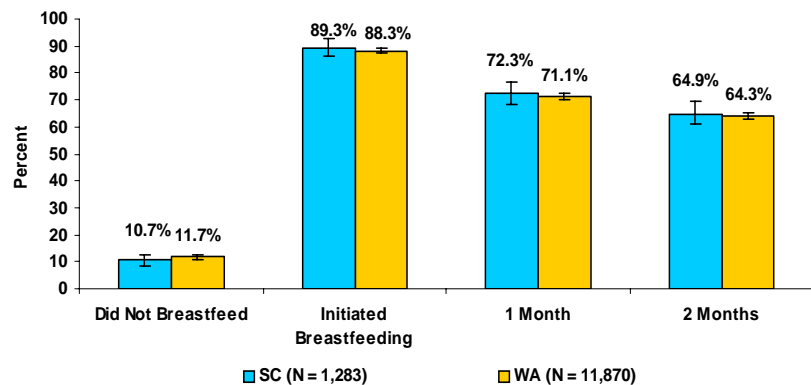
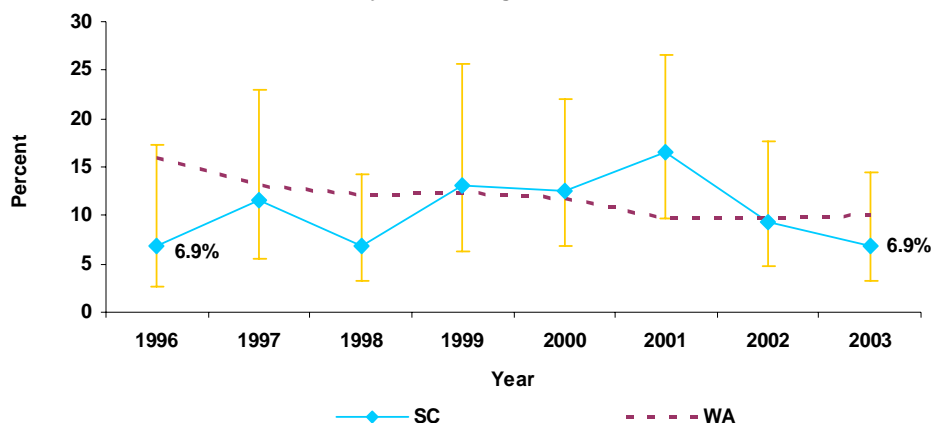


Figure 2: New Mothers that did not Breastfeed
Snohomish County and Washington State PRAMS, 1996 - 2003



¹ This question is from the 1996-1999 PRAMS survey. In 2000 the question changed slightly. This change in question wording does not seem to have altered the responses. Data from both surveys were used in this analysis.

Snohomish County Demographic Factors

When examining maternal demographic characteristics, breastfeeding varied significantly by age, marital status, education, and poverty level (Table 1):

- Compared with women age 25-34, those younger than age 20 ($p < 0.03$) were less likely to breastfeed.
- Women who had 12 years of education ($p < 0.01$) were less likely to breastfeed compared with those who had greater than 12 years of education.
- Women below the 185% of the federal poverty level were less likely to breastfeed compared with those above 185% of the federal poverty level ($p < 0.001$).

In multivariate analysis when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, having 12 or fewer years of education or being below 185% of the federal poverty level remained significant determinants of not breastfeeding. Young age and marital status were no longer significant determinants of not breastfeeding.

Table 1: Breastfeeding
Snohomish County PRAMS, 1996 - 2003 (N = 1,283)

| | % ^b Did Not Breastfeed | | |
|---------------------------------------|-----------------------------------|---------------------|------------------------|
| Maternal Characteristics ^a | (n = 133) | 95% CI ^c | p value ^d |
| All Women | 10.7 | 8.4 , 13.6 | - |
| Age Group (years) | | | |
| <20 | 20.4 | 10.7 , 35.4 | $p = 0.03$ |
| 20-24 | 12.8 | 7.8 , 20.3 | $p = 0.26$ |
| 25-34 | 9.1 | 6.3 , 12.8 | reference ^e |
| >34 | 8.2 | 4.1 , 15.9 | $p = 0.80$ |
| Race | | | |
| White | 11.0 | 8.2 , 14.6 | reference ^e |
| Black | 16.1 | 10.5 , 23.9 | $p = 0.14$ |
| Native American | 11.2 | 7.5 , 16.3 | $p = 0.94$ |
| Asian/Pacific Islander | 9.5 | 6.6 , 13.5 | $p = 0.52$ |
| Ethnicity | | | |
| Hispanic | 8.9 | 5.7 , 13.5 | $p = 0.37$ |
| non-Hispanic | 11.2 | 8.6 , 14.4 | reference ^e |
| Marital Status | | | |
| Unmarried | 15.7 | 10.0 , 23.7 | $p = 0.06$ |
| Married | 9.4 | 7.0 , 12.5 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 13.1 | 7.3 , 22.5 | $p = 0.07$ |
| 12 | 17.8 | 12.4 , 24.9 | $p < 0.01$ |
| >12 | 6.6 | 4.2 , 10.1 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 16.7 | 12.4 , 22.0 | $p < 0.001$ |
| >185% FPL | 6.3 | 4.0 , 9.7 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

8. Breastfeeding

Breastfeeding and Prenatal Care, Snohomish County, 1996 - 2003

Having a prenatal care discussion about breastfeeding did not seem to influence the rate of breastfeeding. Among the women in Snohomish County who received prenatal care (approximately 99%) and breastfed their infant, 90% reported that their prenatal care provider discussed breastfeeding with them. Of those that did not breastfeed, approximately 87% of the women reported that their prenatal care provider discussed breastfeeding with them. These percentages were not significantly different ($p = 0.57$) from each other.

Breastfeeding Information and Services, Snohomish County, 1996 - 2003

Breastfeeding services and information are important, even after a woman has initiated breastfeeding. Of the women who breastfed their infants, approximately 42% report needing help with or information about breastfeeding. Of those, approximately 84% received help or information.

9. Postpartum Birth Control Use

9. Postpartum Birth Control Use

PRAMS Question¹

Are you or your husband or partner doing anything *now* to keep from getting pregnant? (Some things people do to keep from getting pregnant include having their tubes tied, or their partner having a vasectomy, using birth control methods like the pill, Norplant®, shots [Depo-Provera®], condoms, diaphragm, foam, IUD, and not having sex at certain times [rhythm].)¹

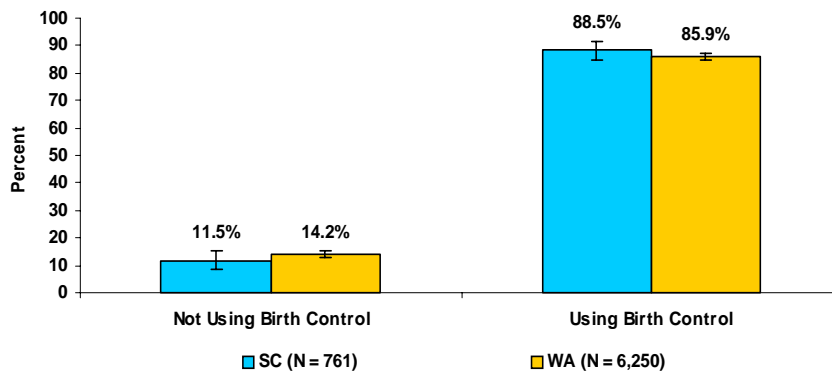
- No
- Yes

Snohomish County and Washington State, 2000 - 2003

In Snohomish County, 88.5% (95% CI, 84.9%, 91.3%) of new mothers were using postpartum birth control at the time they were surveyed (approximately 2-4 months after birth). This percentage was not significantly different than the Washington State rate of 85.9% (95% CI, 84.6%, 87.0%) ($p = 0.12$) (Figure 1).

The Healthy People 2010 goal is to increase contraception use to 93% for females at risk of unintended pregnancy. Snohomish County and Washington State have not reached this goal, at least among postpartum women. In addition, Healthy People 2010 includes an objective to increase intended pregnancies to 70%. Birth control access and use are important components of this goal.

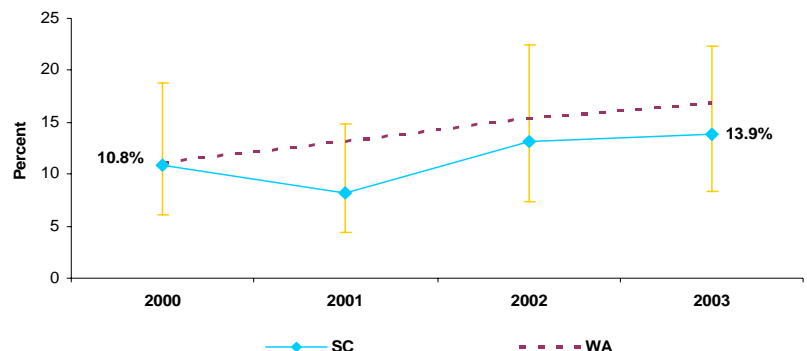
Figure 1: Postpartum Birth Control Use
Snohomish County and Washington State PRAMS, 2000 - 2003



Trend

Overall, the percentage of women in Snohomish County who were not using postpartum birth control did not significantly change between 2000 and 2003 ($p = 0.34$). However, the Washington State rates of women who were not using postpartum birth control significantly increased ($p < 0.01$) (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

Figure 2: Women Not Using Postpartum Birth Control
Snohomish County and Washington State PRAMS, 2000 - 2003



¹ This question is from the 2000 PRAMS survey. Due to substantial changes in question wording from the 1996 – 1999 survey, analysis was limited to 2000-2003 respondents.

9. Postpartum Birth Control Use

Snohomish County Demographic Factors, 2000 - 2003

When examining maternal characteristics, postpartum birth control use varied significantly by age, race, and education (Table1):

- Women 34 years of age or older were less likely to use postpartum birth control ($p = 0.02$) compared with women age 25-34.
- Black women ($p < 0.01$) and Asian women ($p < 0.01$) were less likely to use postpartum birth control compared with White women.
- Compared with women who had more than 12 years education, those who had 12 years education were more likely to use used postpartum birth control ($p = 0.05$).

In multivariate analysis, when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, education, race and age continued to be significant determinants of postpartum birth control use. Women over age 34, Black women, or Asian/Pacific Islander women were less likely to use postpartum birth control compared with their counterparts. Women with 12 years of education were more likely to use postpartum birth control compared with their counterparts.

**Table 1: Postpartum Birth Control Use
Snohomish County PRAMS, 2000 - 2003 (N = 761)**

| Maternal Characteristics ^a | (n =112) | 95% CI ^c | p value ^d |
|--|----------|---------------------|------------------------|
| %^b Not Using Birth Control | | | |
| All Women | | | - |
| Age Group (years) | | | |
| <20 | 13.0 | 5.2, 28.7 | $p = 0.58$ |
| 20-24 | 7.1 | 3.1, 15.4 | $p = 0.48$ |
| 25-34 | 9.8 | 6.5, 14.7 | reference ^e |
| >34 | 21.2 | 12.8, 32.9 | $p = 0.02$ |
| Race | | | |
| White | 10.1 | 6.7, 14.8 | reference ^e |
| Black | 26.1 | 16.9, 38.0 | $p < 0.01$ |
| Native American | 15.2 | 10.1, 22.1 | $p = 0.15$ |
| Asian/Pacific Islander | 20.7 | 15.3, 27.4 | $p < 0.01$ |
| Ethnicity | | | |
| Hispanic | 8.6 | 4.9, 14.7 | $p = 0.29$ |
| non-Hispanic | 12.0 | 8.8, 16.1 | reference ^e |
| Marital Status | | | |
| Unmarried | 11.2 | 6.4, 18.9 | $p = 0.91$ |
| Married | 11.6 | 8.3, 15.8 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 11.5 | 6.1, 20.6 | $p = 0.64$ |
| 12 | 6.1 | 2.8, 12.7 | $p = 0.05$ |
| >12 | 13.6 | 9.5, 19.1 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 11.0 | 7.3, 16.3 | $p = 0.76$ |
| >185% FPL | 12.0 | 8.1, 17.4 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

9. Postpartum Birth Control Use

| Table 2: Reasons for Not Using Postpartum Birth Control^a Snohomish County PRAMS, 2000-2003 | n | %^b | 95% CI^c |
|--|----------|----------------------|---------------------------|
| I am not having sex | 110 | 39.8 | 50.7, 69.0 |
| I don't want to use birth control | 51 | 14.1 | 9.1, 21.1 |
| I want to get pregnant | 23 | 10.8 | 5.9, 19.0 |
| I don't think I can get pregnant | 13 | 7.1 | 3.3, 14.9 |
| My husband or partner doesn't want to use birth control | 18 | 5.5 | 2.6, 11.1 |
| I can't pay for birth control | 5 | 5.2 | 2.0, 12.5 |
| I am pregnant now | 1 | 0.2 | 0, 1.4 |
| Other | 80 | 34.4 | 25.8, 44.2 |

^a Respondents could check all that applied.

^b Percentages were weighted to Washington State birth population.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

Thirty-four percent of the women listed “other” reasons they were not using postpartum birth control. Some of these reasons included:

- “ I don't know.”*
- “Just haven't gone to Doctor.”*
- “My tubs are tied now!”*
- “Too busy with baby now.”*
- “Waiting to have vasectomy.”*
- “We might be pregnant again.”*
- “We want to get pregnant soon.”*
- “Husband out of port.”*
- “Husband sterile.”*
- “Leaving it in God's hands.”*

10. Depression

10. Depression

PRAMS Question

In the months after your delivery, would you say that you were¹

- not depressed at all
- a little depressed
- moderately depressed
- very depressed
- very depressed and had to get help

Snohomish County and Washington State, 2000 - 2003

In Snohomish County, 45.3% (95% CI, 40.0%, 50.6%) of women reported having no depression in the months following delivery. An estimated 39.6% (95% CI, 34.5%, 45.0%) reported being a little depressed, and 15.1% (95% CI, 11.7%, 19.2%) reported being moderately or very depressed. These percentages were similar to Washington State (Figure 1) ($p = 0.12$).

The Healthy People 2010 has acknowledged the importance of monitoring maternal postpartum depression. At this time, Healthy People 2010 has a developmental postpartum depression objective. Developmental objectives are topics that currently have no national data source or specific objectives, but are recognized as topics of significant national importance.

Trend

In Snohomish County, the percentage of moderately or very depressed new mothers significantly decreased from 17.9% to 10.1% between 2000 and 2003 ($p = 0.05$). The Washington State rate did not significantly change ($p = 0.38$) (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

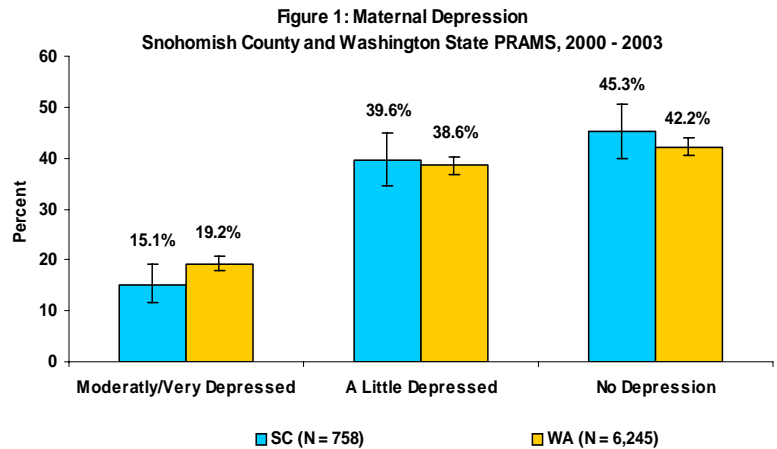
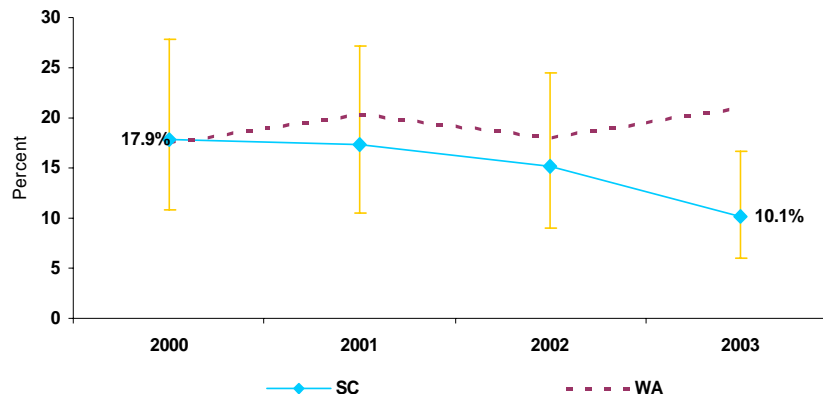


Figure 2: New Mothers That Were Moderately or Very Depressed
Snohomish County and Washington State PRAMS, 2000 - 2003



¹ The question about depression was added in 2000 to the PRAMS survey.

Snohomish County Demographic Factors, 2000 - 2003

When examining maternal demographic characteristics, depression did not significantly vary by age, race, ethnicity, marital status, education, or poverty level (Table 1). The lack of statistical difference by demographic factors may be because there are no actual differences or because of the small sample size.

**Table 1: Maternal Depression
Snohomish County PRAMS, 2000 - 2003 (N = 758)**

| Maternal Characteristics ^a | % ^b Moderately or Very Depressed (n = 131) | 95% CI ^c | p value ^d |
|---------------------------------------|--|---------------------|------------------------|
| All Women | 15.1 | 11.7, 19.2 | - |
| Age Group (years) | | | |
| <20 | 17.5 | 7.9, 34.5 | p = 0.36 |
| 20-24 | 20.6 | 12.8, 31.6 | p = 0.07 |
| 25-34 | 11.7 | 7.8, 17.1 | reference ^e |
| >34 | 17.9 | 10.2, 29.5 | p = 0.22 |
| Race | | | |
| White | 14.5 | 10.4, 19.8 | reference ^e |
| Black | 18.4 | 10.8, 29.6 | p = 0.45 |
| Native American | 22.4 | 15.3, 31.6 | p = 0.08 |
| Asian/Pacific Islander | 17.3 | 12.3, 23.7 | p = 0.46 |
| Ethnicity | | | |
| Hispanic | 18.8 | 13.1, 26.1 | p = 0.26 |
| non-Hispanic | 14.5 | 10.8, 19.2 | reference ^e |
| Marital Status | | | |
| Unmarried | 17.9 | 10.9, 28.1 | p = 0.44 |
| Married | 14.4 | 10.7, 19.1 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 17.3 | 9.0, 30.8 | p = 0.38 |
| 12 | 19.7 | 12.5, 29.7 | p = 0.12 |
| >12 | 12.5 | 8.6, 17.8 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 16.9 | 12.0, 23.3 | p = 0.38 |
| >185% FPL | 13.5 | 9.2, 19.4 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

I I. Infant Sleep Position

I I. Infant Sleep Position

PRAMS Question

How do you *most often* lay your baby down to sleep now?

- On his or her side
- On his or her back
- On his or her stomach

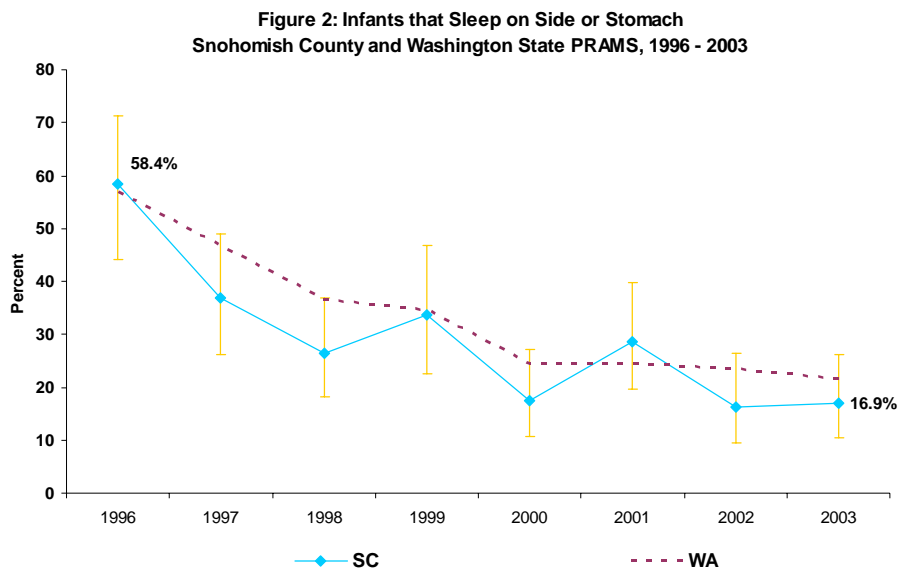
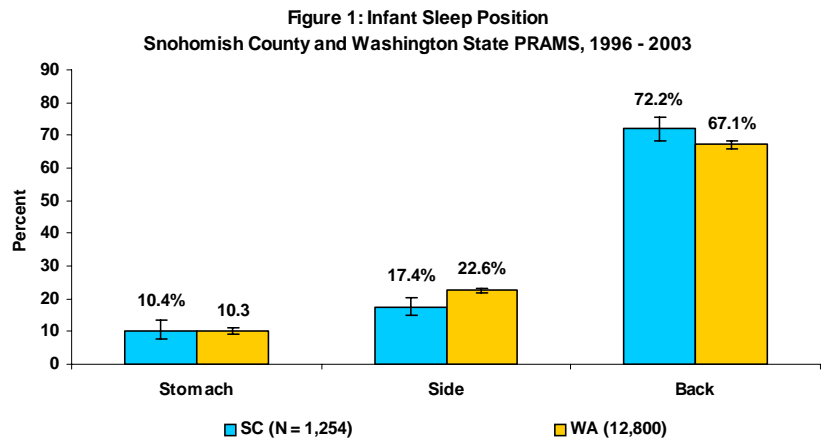
Snohomish County and Washington State, 1996 - 2003

In Snohomish County, 72.2% (95% CI, 68.4%, 75.7%) of women reported they usually put their infant to sleep on their back. This percentage was higher than the statewide percentage of 67.1% (95% CI, 65.9%, 68.2%) ($p < 0.01$) (Figure 1).

The Healthy People 2010 goal is to increase the percentage of healthy full-term infants who are put down to sleep on their backs to 70%. Snohomish County has reached this goal.

Trend

Between 1996 and 2003 the sleep position of infants in both Snohomish County and Washington State significantly changed. In Snohomish County, the percentage of infants that sleep on their back or side significantly decreased from 58.4% to 16.9% ($p = 0.02$). In Washington State, the percentage significantly decreased between 1996 and 2000 ($p = 0.01$), but the change between 2000 and 2003 was not significant ($p = 0.64$) (Figure 2).



I I. Infant Sleep Position

Snohomish County Demographic Factors, 1996 - 2003

When examining maternal characteristics, infant sleep position varied significantly by education (Table 1):

- Compared with women who had more than 12 years of education, those who had less than 12 years of education were less likely to put their infant to sleep on their back ($p = 0.03$).

In multivariate analysis, when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, education was no longer a significant predictor of infant sleep position.

**Table 1: Infant Sleep Position
Snohomish County PRAMS, 1996 - 2003 (N = 1,253)**

| Maternal Characteristics ^a | % ^b Stomach or Side (n = 382) | 95% CI ^c | p value ^d |
|---------------------------------------|---|---------------------|------------------------|
| All Women | 27.8 | 24.3, 31.6 | - |
| Age Group (years) | | | |
| <20 | 35.4 | 22.8, 50.4 | $p = 0.22$ |
| 20-24 | 31.3 | 23.5, 40.4 | $p = 0.32$ |
| 25-34 | 26.4 | 22.0, 31.4 | reference ^e |
| >34 | 23.9 | 16.2, 33.9 | $p = 0.63$ |
| Race | | | |
| White | 27.8 | 23.7, 32.3 | reference ^e |
| Black | 33.4 | 25.9, 41.8 | $p = 0.22$ |
| Native American | 27.5 | 22.0, 33.9 | $p = 0.94$ |
| Asian/Pacific Islander | 30.7 | 25.8, 36.1 | $p = 0.39$ |
| Ethnicity | | | |
| Hispanic | 32.1 | 25.9, 39.0 | $p = 0.16$ |
| non-Hispanic | 26.7 | 23.0, 30.8 | reference ^e |
| Marital Status | | | |
| Unmarried | 30.4 | 22.8, 39.2 | $p = 0.48$ |
| Married | 27.2 | 23.4, 31.3 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 37.9 | 27.3, 49.8 | $p = 0.03$ |
| 12 | 26.7 | 20.5, 34.1 | $p = 0.59$ |
| >12 | 24.5 | 20.2, 29.4 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 30.9 | 25.6, 36.7 | $p = 0.17$ |
| >185% FPL | 25.6 | 21.0, 30.8 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

I2. Infant Bed Sharing

12. Infant Bed Sharing

PRAMS Question

How often does your new baby sleep in the same bed with you or anyone else?¹

- Always
- Almost always
- Sometimes
- Rarely
- Never

Snohomish County and Washington State, 2000 - 2003

In Snohomish County, 45.9% (95% CI, 40.6%, 51.2%) of women reported never or rarely having their infant sleep with them or anyone else. Twenty-four percent (95% CI, 19.7%, 28.9%) reported their infant sleeps with them or anyone else sometimes, and 30.1% (95% CI, 25.6%, 35.0%) reported their infant sleeps with them or anyone else always or almost always. These percentages were similar to Washington State ($p = 0.08$) (Figure 1).

Trend

The percentage of women who reported infant bed sharing always or almost always did not significantly change in Snohomish County ($p = 0.84$) or Washington State ($p = 0.81$) between 2000 and 2003 (Figure 2).

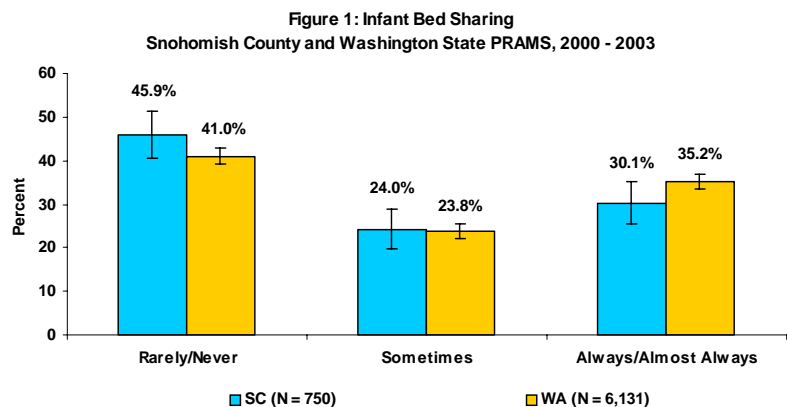
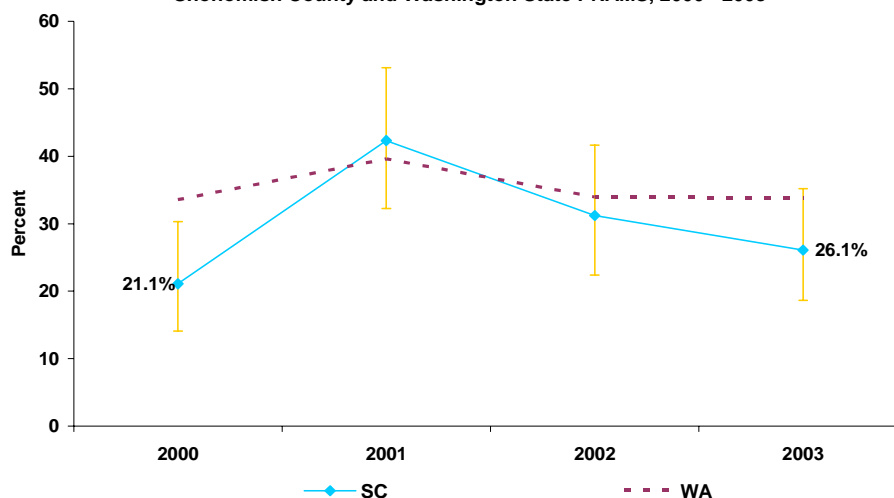


Figure 2: Infants that Always or Almost Always Bed Shared
Snohomish County and Washington State PRAMS, 2000 - 2003



¹ The question about infant bed sharing was added in 2000 to the PRAMS survey.

12. Infant Bed Sharing

Snohomish County Demographic Factors, 2000 - 2003

When examining maternal demographic characteristics, infant bed sharing significantly varied by age, race, Hispanic ethnicity, and education (Table 1):

- Women who were less than age 20 ($p = 0.04$) or between the ages of 20 to 24 ($p = 0.01$) were more likely to have an infant bed share always or almost always compared with women age 25-34.
- Compared with White women, infants of Asian/Pacific Islander women bed shared more often ($p = 0.01$).
- Infants of Hispanic women bed shared more often than infants of non-Hispanic women ($p < 0.001$).
- Women who have less than 12 years of education were more likely to have their infants bed share ($p = 0.03$) compared with women who have more than 12 years of education.

In multivariate analysis, when the effects of age, education, race, Hispanic ethnicity, poverty level, and marital status were simultaneously taken into consideration, age, race and Hispanic ethnicity remained significant determinants of infant bed sharing. Infants of women age 20-24, Asian/Pacific Islander women and Hispanic women were more likely to have infants that bed shared compared with their counterparts. In addition, women 35 years and older were more likely to have an infant who bed shared compared with women age 25-34. Education and being younger than age 20 were no longer significant predictors of infant bed sharing.

**Table 1: Infant Bed Sharing
Snohomish County PRAMS, 2000 - 2003 (N = 750)**

| Maternal Characteristics ^a | % ^b Always/Almost Always Bed Shared (n = 286) | 95% CI ^c | p value ^d |
|---------------------------------------|---|---------------------|------------------------|
| All Women | 30.1 | 25.6, 35.0 | - |
| Age Group (years) | | | |
| <20 | 41.8 | 25.4, 60.3 | $p = 0.04$ |
| 20-24 | 38.9 | 28.5, 50.5 | $p = 0.01$ |
| 25-34 | 23.5 | 18.2, 29.7 | reference ^e |
| >34 | 35.0 | 23.8, 48.3 | $p = 0.08$ |
| Race | | | |
| White | 29.2 | 23.8, 35.4 | reference ^e |
| Black | 35.8 | 25.3, 47.9 | $p = 0.30$ |
| Native American | 40.1 | 31.7, 49.3 | $p = 0.04$ |
| Asian/Pacific Islander | 42.5 | 35.3, 50.1 | $p = 0.01$ |
| Ethnicity | | | |
| Hispanic | 52.8 | 44.4, 61.0 | $p < 0.001$ |
| non-Hispanic | 29.1 | 24.1, 34.6 | reference ^e |
| Marital Status | | | |
| Unmarried | 38.1 | 28.0, 49.3 | $p = 0.09$ |
| Married | 28.2 | 23.4, 33.6 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 40.3 | 28.7, 53.1 | $p = 0.03$ |
| 12 | 34.2 | 25.0, 44.8 | $p = 0.16$ |
| >12 | 25.9 | 20.3, 32.4 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 34.2 | 27.5, 41.4 | $p = 0.15$ |
| >185% FPL | 27.0 | 21.1, 33.8 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

13. Infant Exposure to Tobacco Smoke

13. Infant Exposure to Tobacco Smoke

PRAMS Question

About how many hours a day, on average, is your new baby in the same room with someone who is smoking?¹

_____ Hours

- Less than one hour a day
- My baby is never in the same room with someone who is smoking

Snohomish County and Washington State, 1996 - 2003

In Snohomish County, 4.2% (95% CI, 2.8%, 6.3%) of women reported their infant was exposed to tobacco smoke every day. This percentage was not significantly different than the Washington State rate of 5.1% (95% CI, 4.5%, 5.7%) (Figure 1) ($p = 0.33$).

Trend

The percentage of women who reported that their infant was exposed to tobacco smoke every day significantly decreased in Snohomish County ($p < 0.01$) and Washington State ($p = 0.03$) between 1996 and 2003 (Figure 2). Because of the small sample size for Snohomish County, the confidence intervals were large.

Figure 1: Infant Exposure to Tobacco Smoke
Snohomish County and Washington State PRAMS, 1996 - 2003

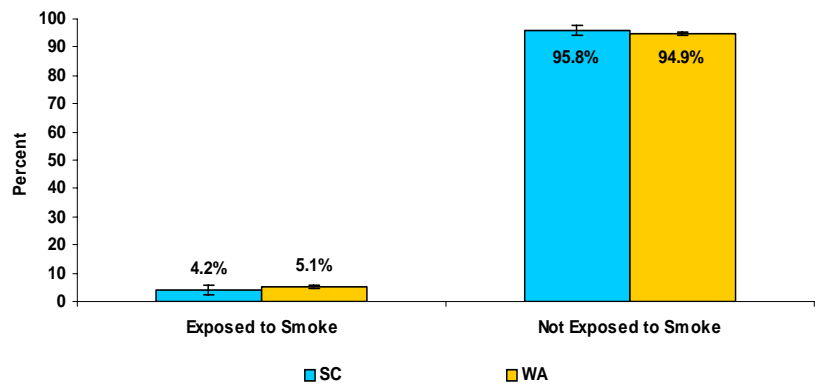
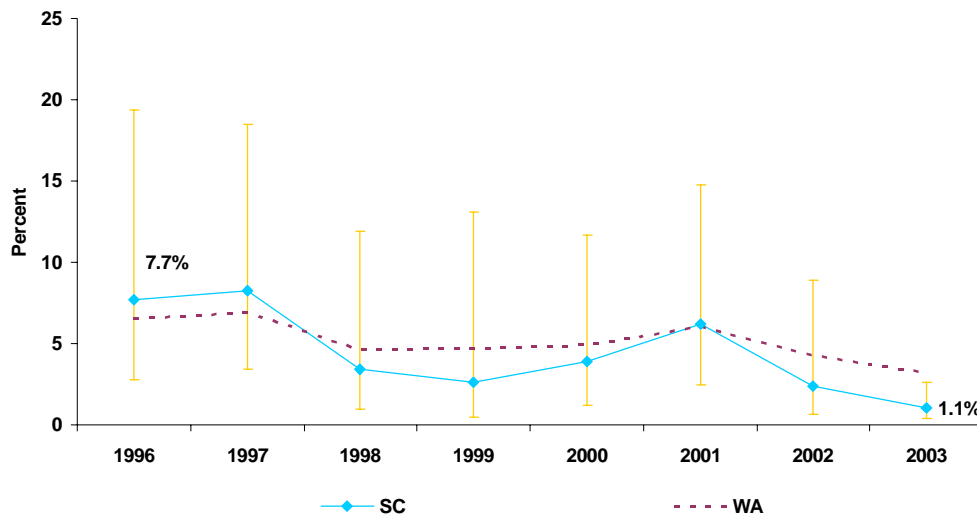


Figure 2: Infants that were Exposed to Tobacco Smoke
Snohomish County and Washington State PRAMS, 1996 - 2003



¹ This question is from the survey that started in 2000. Before 2000, the question was slightly different. Data from both surveys were used in this analysis.

I 3. Infant Exposure to Tobacco Smoke

Snohomish County Demographic Factors

When examining maternal characteristics, infant exposure to tobacco smoke varied significantly by age, race, Hispanic ethnicity, marital status, education, and poverty level (Table 1):

- Women who were less than age 20 ($p < 0.001$) or between the ages of 20 to 24 ($p = 0.05$) were more likely to report infant exposure to tobacco smoke compared with women age 25-34. Women over age 34 were less likely to report infant exposure to tobacco smoke ($p = 0.04$) compared with women age 25-34.
- Compared with White women, infants of Black women ($p = 0.05$) and Native American women ($p = 0.05$) more likely to report infant exposure to tobacco smoke.
- Hispanic women were less likely to report infant exposure to tobacco smoke than non-Hispanic women ($p = 0.03$).
- Unmarried women were more likely to report infant exposure to tobacco smoke compared with married women ($p = 0.04$).
- Compared with women who had more than 12 years of education, those who had either 12 years ($p < 0.01$) or less than 12 years ($p = 0.02$) of education were more likely to report infant exposure to tobacco smoke.
- Women who were below 185% of the federal poverty level were more likely to report infant exposure to tobacco smoke ($p < 0.01$) compared with women above 185% of the federal poverty level.

In multivariate analysis, when the effects of age, race, Hispanic ethnicity, marital status, education, and poverty level were simultaneously taken into consideration, being less than age 20 and being below 185% of the federal poverty level remained significant determinants of infant exposure to tobacco smoke. Hispanic ethnicity continued to be associated with a lower likelihood of infant exposure to smoke. Being between age 20 to 24, being Black, Native American, or unmarried, or having 12 or less years of education

Maternal Smoking After Pregnancy and Infant Exposure, Snohomish County, 1996 - 2003

Women who reported smoking cigarettes after pregnancy were more likely to report their infant was exposed to cigarette smoke. Of those women that smoke, 17.7% of infants were exposed compared with 1.6% of infants of non-smoking mothers.

**Table 1: Infant Exposure to Tobacco Smoke
Snohomish County PRAMS, 1996 - 2003 (N = 1,290)**

| Maternal Characteristics ^a | % ^b Infants Exposed to Tobacco Smoke (n = 55) | 95% CI ^c | p value ^d |
|---------------------------------------|--|---------------------|------------------------|
| All Women | 4.2 | 2.8, 6.3 | - |
| Age Group (years) | | | |
| <20 | 18.8 | 9.5, 33.9 | $p < 0.001$ |
| 20-24 | 6.2 | 3.0, 12.2 | $p = 0.05$ |
| 25-34 | 2.3 | 1.1, 4.6 | reference ^e |
| >34 | 0.6 | 0.2, 1.7 | $p = 0.04$ |
| Race | | | |
| White | 4.5 | 2.8, 7.1 | reference ^e |
| Black | 9.7 | 5.1, 17.5 | $p = 0.05$ |
| Native American | 9.3 | 5.3, 15.7 | $p = 0.05$ |
| Asian/Pacific Islander | 2.8 | 1.4, 5.3 | $p = 0.25$ |
| Ethnicity | | | |
| Hispanic | 0.5 | 0.0, 3.5 | $p = 0.03$ |
| non-Hispanic | 4.8 | 3.2, 7.1 | reference ^e |
| Marital Status | | | |
| Unmarried | 7.9 | 4.0, 14.9 | $p = 0.04$ |
| Married | 3.3 | 2.0, 5.4 | reference ^e |
| Maternal Education (years) | | | |
| <12 | 11.2 | 5.3, 22.0 | $p < 0.01$ |
| 12 | 6.2 | 3.3, 11.3 | $p = 0.02$ |
| >12 | 2.0 | 1.0, 4.1 | reference ^e |
| Poverty | | | |
| ≤ 185% FPL | 7.7 | 4.9, 11.9 | $p < 0.01$ |
| >185% FPL | 1.7 | 0.7, 3.9 | reference ^e |

^a Data on age, race, ethnicity, marital status, and education for PRAMS respondents were obtained from the Washington State Birth Certificates (birth certificate and PRAMS data were linked). Poverty level was calculated using a combination of PRAMS questions about WIC, Medicaid before pregnancy, number in household, and household income.

^b Percentages were weighted to the Washington State birth population. Percentages may not add up to 100% due to rounding.

^c A confidence interval is a range of values in which the measured rate is expected to fall with a given probability. The probability chosen for this report is 95%, meaning that the actual value of the quantity being measured is expected to fall within this range 19 out of 20 times.

^d A p value of less than 0.05 is statistically significant. The results presented in this table did not control for other variables.

^e The reference group was used as a comparison for all other groups. Reference groups tend to constitute the largest proportion of the population.

Appendix

Survey Methodology

The Washington State Department of Health has been collecting PRAMS data since 1993. Each month new mothers are randomly selected from all Washington State resident registered births. Packets containing an explanatory letter and the PRAMS questionnaire are mailed to the sampled mothers at two to six months postpartum. A reminder letter that serves as a thank you note is mailed ten days later. Mothers who do not respond are sent a second packet mailed two weeks after the reminder letter. Mothers who do not respond to the second mailing are contacted by Washington State PRAMS staff who attempt to conduct a telephone interview in either English or Spanish.

Results from survey respondents are matched with the infant's birth certificate to provide additional information. The number of respondents for each question may vary due to missing information, refusal to answer a question, or if the question did not apply.

The sample selected to receive the survey is stratified by race using the self-designated race noted in the state birth certificate files. Non-White strata are over-sampled allowing for large enough samples of minority women to measure differences in maternal experiences of mothers of different racial/ethnic backgrounds. Five sampling strata based on race and ethnicity are defined as White/Other, Black, Native American, Asian/Pacific Islander, and Hispanic as an ethnicity (may be of any race). For the combined year analyses, the analysis stratum was defined by both the year and race.

Survey Population

Snohomish County women who participated in the 1996 – 2003 PRAMS surveys were fairly representative of women who gave birth in Snohomish County (Table 1). However, PRAMS respondents included a significantly higher proportion of women who were unmarried ($p = 0.03$) compared with women who gave birth in Snohomish County during the same time period. There were no significant differences between Snohomish County births and Snohomish County PRAMS respondents by maternal age, race, Hispanic ethnicity, and education.

Weighting Process

The results of PRAMS are meant to be generalized to the entire population of mothers. Weighting is a statistical method used to compensate for sampling inequities in order to make the sample resemble the population.

PRAMS data were weighted to adjust for three factors that can influence or change the representativeness of the sample compared with the county population of women giving birth: sampling, non-response differences, and non-coverage or births not sampled due to administrative issues. The following describes the adjustment methods for these three factors and how these are used to create a final weight.

Sampling Weight

One of the goals of PRAMS in Washington State was to look at variation by race and ethnicity. However, this requires large enough sample sizes for each of the racial or ethnic groups in order to have the ability to detect statistical differences. Each race or ethnic group requires a different sampling fraction for a given year. "Sampling fraction" is the fraction of the actual population within each racial or ethnic group selected to receive the survey. To increase the sample size of races with smaller proportions in the population, a larger sampling fraction was needed, i.e., they were over-sampled. In order to accommodate this increase the larger racial or ethnic groups (such as Whites) would need to have a smaller sampling fraction. For example, in Washington State the sampling fraction ranges from less than 1% for the White population up to 25% for the Native American population. This meant that as many as one in every four Native American women who gave birth in Washington State could be contacted to participate in a given year, but only 1 in 100 White women would be asked to participate. Because of this disproportionate sampling, the survey results need to be adjusted to reflect the actual population by using a sample weight. The sampling weight is the reciprocal of the sampling fraction applied to each stratum.

Non-Response Weight

The non-response weight attempts to compensate for lower response rates among women with certain characteristics, such as being unmarried or having less education. If multivariate regression analyses showed that a certain characteristic was associated with a lower response rate, then an adjustment factor (non-response weight) was calculated. The non-response weight was the ratio of the sample size in a sub-group (e.g. the group with less than 12 years of education) to the number of respondents in that group.

The non-response weight assumed that non-respondents, on average, provided similar answers to those respondents with the same characteristic. These survey respondents received an increased weight, in order to represent the women who did not respond. For example, if only six out every ten women who did not have a high school diploma responded, the non-response weight was $10/6$ or 1.66. This weight would be applied to all the survey results of all women who did not have a high school diploma in order to adjust for potential non-response bias.

Non-Coverage Weight

A non-coverage weight was calculated to account for the fraction of birth records that are omitted from the sampling frame (i.e. the state birth certificate electronic file) due to late processing. Typically this fraction is about 1 percent to 5 percent of the sampling frame. Since 1994, Washington's weight adjustment for correcting this discrepancy ranged from 1.003 to 1.03. The lower weights correspond to later years when there were fewer missing records. Therefore, application of these weights means that every 1,000 participants in the survey represent 1,003 to 1,030 persons.

Final Analysis Weight

The final analysis weight was the product of the sampling weight multiplied by the non-response weight and by the non-coverage weight. The initial sampling weight (race and ethnic groups) is generally the most influential weight determining the final analysis weight. However, for strata with lower sampling weights (representing fewer members in the general population) the non-response weight becomes very important. Since Snohomish County's sample contained a higher proportion of White respondents, the average sampling weight was generally higher for Snohomish County than the average for all of Washington. The final analysis weight calculates the estimated number of women that a respondent represents, who have the same general characteristics as the respondent with respect to race, ethnicity, education, marital status, maternal age, etc.

Appendix

Analysis Methods

Crude or unadjusted analysis

The first step in the analysis was to examine PRAMS questions (maternal behavior or experience) by five maternal characteristics. These characteristics included maternal age, education, race, ethnicity, and poverty level. The analysis examined the unadjusted association between maternal behavior or experience and demographic characteristics, and did not control for potential confounding. Results were included in Table 1 of each chapter.

Multivariate or adjusted analysis

The second analysis examined the PRAMS questions by demographic factors, while simultaneously taking into account (or controlling for) other demographic characteristics that may influence the relationship. Variables that were statistically significant in the non-adjusted analysis were included in the initial model. After the initial model was created and analyzed using logistic regression, variables that were not statistically significant were removed one at a time. The model was re-evaluated after each variable was removed (backwards elimination). Variables that were not statistically significant were also retained in the model if they changed the odds ratio by 10%, or greater, when removed from the model (10% or greater difference between crude and adjusted odds ratio). The final model included all significant demographic variables and all potential confounders. Multivariate analysis results were included in the text of each chapter.

Both unadjusted and adjusted analyses were completed using logistic regression in Stata 9.0.

Trend Analysis

Trend analysis was done to evaluate if rates were increasing, decreasing, or staying the same over time. A statistically significant trend indicates that the change is not random and that the increase, or decrease, is likely to be occurring in the population. For this analysis, “joinpoint” methodology and software, developed by the National Cancer Institute, was used. Information on this method is available at <http://srab.cancer.gov/joinpoint>.

Definitions of Poverty

185% Federal Poverty Level (FPL) Guidelines for 2003:

| Size of Family Unit | Yearly Income |
|---------------------|---------------|
| 1 | \$ 16,613 |
| 2 | \$ 22,422 |
| 3 | \$ 28,231 |
| 4 | \$ 34,040 |
| 5 | \$ 39,849 |
| 6 | \$ 45,658 |
| 7 | \$ 51,467 |
| 8 | \$ 57,276 |

Poverty calculation for PRAMS report

The 185% federal poverty level criteria used in this report was created using a combination of 1996-2003 Federal Poverty Guidelines (depending on year survey was completed), PRAMS income data, and the number of individuals living in the household. In addition, all PRAMS respondents who reported either receiving Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) or having Medicaid coverage were classified as being under 185% of the federal poverty level.

Limitations

The purpose of this report is to provide a picture of the experiences and behaviors of new mothers in Snohomish County. Public health workers and health care professionals can use this information in their practice and when working with mothers and infants. Data can be used to identify target populations and areas for improvement. The scope of this project does not include investigating new areas of research. For a more concise and scientifically rigorous examination of factors that influence maternal and infant health, a review of the scientific literature is needed.

As with any survey, the results may be biased due to a number of reasons. In general, population segments with a higher socioeconomic status are more likely to respond to surveys. PRAMS response rates are different among various sub-groups of women in Washington State and Snohomish County. In particular, the response rates appear to be lower among unmarried mothers. This can result in misrepresentation of this sub-group of mothers, yielding less accurate estimates of outcomes in this population.

Recall bias may also affect the survey results. Since mothers were contacted two to six months after the birth of their infant, it is possible they may not fully remember all the circumstances surrounding conception and pregnancy. It is, however, not possible to predict how this bias may affect the outcome of these analyses.

