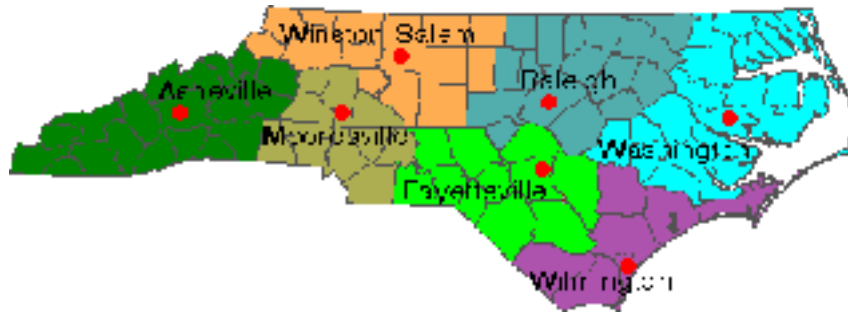


# Pregnancy Nutrition



1997

# Surveillance



**North Carolina Public Health**



**Nutrition Services Section  
Division of Women's and Children's Health  
Department of Health and Human Services**

# NORTH CAROLINA

---

# PREGNANCY NUTRITION SURVEILLANCE SYSTEM

---

# 1997 REPORT

Najmul Chowdhury, MBBS, MPH  
Public Health Epidemiologist



Department of Health and Human Services  
Division of Women's and Children's Health  
Nutrition Services Section  
P.O. Box 10008, Raleigh, NC 27605-0008

# Highlights

The following highlights pertain to 53,847 low-income pregnant women in North Carolina who delivered during 1997.

- ❑ More than one-half of all mothers in the 1997 PNSS were unmarried.
- ❑ Forty-four percent of women in the 1997 PNSS were new mothers.
- ❑ More than one-third of all mothers in the 1997 PNSS had less than a high school education.
- ❑ Short interpregnancy interval among adolescent pregnant women has declined from 68% to 62%.
- ❑ The proportion of enrollment in the WIC program by Hispanic pregnant women has increased.
- ❑ Hispanic adolescents had the highest rates of inadequate prenatal care.
- ❑ White adolescents under 18 years were about five times more likely to smoke cigarettes during their pregnancies than black adolescents.
- ❑ Whites and Native Americans had very high rates of smoking (38% and 36%), while Asians and Hispanics had relatively low rates of smoking (8% and 4%).
- ❑ The proportion of overweight women aged 35 years or older in the 1997 PNSS has further increased.
- ❑ The prevalence of breastfeeding at the WIC postpartum visit *increased from 17% in 1991 to 29% in 1997*. The incidence of breastfeeding in women under 18 years has doubled since 1991 (from 7% to 17%).
- ❑ Women underweight prior to pregnancy has slightly *declined (17%)* but Women overweight prior to pregnancy *further increased to 39%*.
- ❑ Women in the *Washington Region* were least likely to smoke cigarettes during pregnancy than any other region in the state.
- ❑ Women in the *Asheville Region* were most likely to be breastfeeding at their WIC postpartum visit than any other region.

# Table of Contents

<b>State Profile</b> .....	page 1
<b>Introduction</b> .....	page 2
<b>Pregnancy Risk Factors and Outcomes</b> .....	page 3
Maternal Cigarette Smoking .....	page 3
Late or Inadequate Prenatal Care .....	page 4
Late WIC Enrollment.....	page 5
Short Interpregnancy Interval .....	page 5
Maternal Underweight and Overweight .....	page 6
Maternal Iron-Deficiency Anemia .....	page 7
Low Birthweight.....	page 7
Breastfeeding.....	page 8
<b>Regional Profiles</b> .....	page 9
Asheville .....	page 9
Mooresville.....	page 10
Winston-Salem .....	page 11
Raleigh.....	page 12
Fayetteville.....	page 13
Washington.....	page 14
Wilmington .....	page 15
<b>Regional Comparisons</b> .....	page 16
Maternal Age.....	page 16
Maternal Education .....	page 16
Maternal Cigarette Smoking .....	page 17
Maternal Prepregnancy Weight.....	page 17
Adequacy of Prenatal Care .....	page 18
Trimester of WIC Enrollment .....	page 19
Infant Birthweight.....	page 19
Breastfeeding.....	page 19
<b>Discussion and Recommendations</b> .....	page 20
<b>Methods and Definitions</b> .....	page 23
<b>References</b> .....	page 25

# List of Figures, Maps and Tables

## Figures

1. Demographic Background
2. Pregnancy History
3. Nutritional and Health Care Profile
4. Pregnancy Outcome Profile
5. Percent of Mothers Who Smoked During Pregnancy For Each Maternal Age Group
6. Percent of Mothers Who Smoked During Pregnancy For Each Maternal Ethnic Group
7. Percent of Mothers Who Smoked During Pregnancy For Each Maternal Education Group
8. Trimester of First Prenatal Visit
9. Trimester of WIC Certification
10. Distribution of Infant Birthweights
11. Percent of Infants With Low Birthweight For Each Maternal Age Group
12. Percent of Infants With Low Birthweight For Each Maternal Ethnic Group
13. Percent of Infants With Low Birthweight For Each Maternal Prepregnancy Weight Group
14. Percent of Infants With Low Birthweight By Maternal Smoking During Pregnancy
15. Percent of Infants With Low Birthweight by Maternal Prepregnancy Weight and Smoking During Pregnancy
16. Percent of Women with Interpregnancy Interval less than 12 Months for Each Maternal Age Group
17. Percent of Women who were Underweight or Overweight Before Pregnancy By Age
18. Percent of Women with Inadequate Prenatal Care For Each Maternal Ethnic Group
19. Percent of Women with Iron-Deficiency Anemia For Each Maternal Age Group
20. Percent of Women with Iron-Deficiency Anemia For Each Maternal Ethnic Group

## Maps

1. Mothers Who Smoked During Pregnancy
2. Percent of Infants with Low Birthweight
3. Prevalence of Breastfeeding at WIC Postpartum Visit

## Tables

1. Maternal Smoking During Pregnancy By Ethnicity and Age
2. Maternal Smoking During Pregnancy By Ethnicity and Education
3. Trimester of First Prenatal Visit By Maternal Age, Ethnicity and Education
4. Trimester of WIC Certification by Maternal Age, Ethnicity, and Education
5. Birthweight Distribution by Maternal Age, Ethnicity, and Education
6. Birthweight Distribution by Maternal Prepregnancy Weight and Smoking Status During Pregnancy
7. Breastfeeding at Maternal Postpartum WIC Visit by Maternal Ethnicity and Age
8. Breastfeeding at Maternal Postpartum WIC Visit by Maternal Ethnicity and Education
9. Interpregnancy Interval By Ethnicity and Maternal Age
10. Interpregnancy Interval By Ethnicity and Maternal Education
11. Prepregnancy Weight By Ethnicity and Maternal Age
12. Prepregnancy Weight By Ethnicity and Maternal Education
13. Five Minute Apgar Score By Ethnicity and Maternal Age
14. Five Minute Apgar Score By Ethnicity and Maternal Education
15. Adequacy of Prenatal Care By Ethnicity and Maternal Age
16. Adequacy of Prenatal Care By Ethnicity and Maternal Education
17. Trimester of Prenatal WIC Enrollment and First Prenatal Care Visit
18. Iron-Deficiency Anemia By Ethnicity and Maternal Age
19. Regional Comparison of Maternal Age by Ethnicity
20. Regional Comparison of Maternal Education by Ethnicity
21. Regional Comparison of Maternal Smoking During Pregnancy By Ethnicity
22. Regional Comparison of Maternal Prepregnancy Weight By Ethnicity
23. Regional Comparison of Adequacy of Prenatal Care By Ethnicity
24. Regional Comparison of Trimester of WIC Enrollment By Ethnicity
25. Regional Comparison of Infant Birthweight By Ethnicity
26. Regional Comparison of Prevalence of Breastfeeding at WIC Postpartum Visit By Ethnicity

# State Profile - North Carolina

## **Program Profile**

	<b>Number</b>	<b>Percent</b>
Participants in WIC only	43596	81
Participants in both WIC and HSIS	9640	18
Participants in HSIS only	611	1
Total participants	53847	100

## **Demographic Background**

	<b>Number</b>	<b>Percent</b>
Mothers under 18 years of age	5230	10
Mothers over 35 years of age	2704	5
Unmarried mothers	28199	53
Mothers not completing high school	18852	35
White mothers	25586	48
Black mothers	21360	40
Native American mothers	1277	2
Hispanic mothers	4813	9
Asian mothers	795	1

## **Pregnancy History**

	<b>Number</b>	<b>Percent</b>
Mothers with no previous live births	23553	44
Mothers with 3 or more previous live births	5125	10
Mothers with 12 months or less between pregnancies	9339	29

## **Nutritional and Health Care Profile**

	<b>Number</b>	<b>Percent</b>
Mothers who smoked during pregnancy	13400	25
Mothers underweight prior to pregnancy *	4227	17
Mothers overweight prior to pregnancy *	9496	39
Mothers with iron-deficiency anemia *	4638	12
Mothers with no prenatal care	581	1
Mothers with inadequate prenatal care	2880	5
WIC mothers enrolling in WIC in 3 <sup>rd</sup> trimester *	8001	19

## **Pregnancy Outcome Profile**

	<b>Number</b>	<b>Percent</b>
Babies with very low birthweight (under 1500 grams)	1127	2
Babies with low birthweight (under 2500 grams)	5247	10
Babies with high birthweight (over 4500 grams)	625	1
Babies with low 5 minute Apgar scores, (values less than 7)	1117	2
Fetal deaths	350	1
Twins or Triplets	1480	3
Mothers breastfeeding at postpartum visit*	13248	29

\*Includes only mothers enrolled in WIC.

## Introduction

This Pregnancy Nutrition Surveillance report provides data on maternal nutrition, access to health care, pregnancy history and pregnancy outcome for about 54,000 low-income North Carolina women who delivered their babies during calendar year 1997. The majority of these women were served by the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) during either the prenatal or postpartum period. WIC targets low-income women who are at nutritional risk for poor pregnancy outcome and provides supplemental food, nutrition education, and referrals to prenatal care.

Compared to 1996 the number of women clients in WIC increased by 1,509 women in 1997. The program profile and demographic background of the low-income pregnant women covered by this report were almost similar to the report in 1996 (State Profile). Adolescents who were less than 18 years of age at the time of delivery comprised 10% of total participants, and women aged 35 years and older comprised 5% of total participants in 1996. **Fifty-three percent of low-income women who gave birth in 1996 were unmarried.** The racial distribution of low-income births was similar to the preceding years with the exception of **hispanic mothers which continued to show an increase in North Carolina WIC program.** In 1997, 48% of women in the PNSS were white, 40% black, 2% Native American, 9% hispanic and 1% asian. The proportion of white women was lower and the proportion of black women was higher in the 1997 PNSS than in the general population of North Carolina who gave birth in 1997 (71% white and 26% black). **The proportion of women who had not completed a high school education remained unchanged since 1994 at 35%.**

The pregnancy histories of the low-income women who delivered in 1997 were similar to those low-income women who delivered in 1996. **Forty-four percent of women had no previous live births** and 10% had three or more previous live births. The interval between a previous birth and conception of the current pregnancy was less than 12 months for 29% of those women who had at least one previous live birth.

We did not observe any significant improvements in the nutritional and health care profile of low-income pregnant women between 1996 and 1997. The prevalence of smoking during pregnancy remained the same as in the preceding years (25%). The prevalence of iron-deficiency anemia also remained the same (12%). The prevalence of prepregnancy underweight declined from 18% to 17% whereas the prevalence of prepregnancy overweight increased to 39% in 1997 from 38% in 1996. Approximately one percent of low-income women received no prenatal care in 1997 (n=581). The proportion of women receiving inadequate prenatal care has remained the same at 5% since 1996. Third trimester enrollment in the WIC program has remained stable at 19% for several years.



The incidence of low birthweight among the low-income population of North Carolina had continued to remain steady at 10% in 1997. The prevalence of twins and triplets had been stable since 1991 at 3%. ***The prevalence of breastfeeding at the WIC postpartum visit continue to increase (29% in 1997).***

The remainder of this report consists of detailed graphs, tables and maps which provide an in-depth description of the pregnancy histories, nutritional status, access to health care and pregnancy outcomes of low-income women in North Carolina. Variation in pregnancy risk factors and outcomes among seven regions within the state is also presented. Interpretation and discussion of the report findings are included in the text of the report, concluding with public health strategies to improve maternal and infant health in North Carolina.

## **Pregnancy Risk Factors and Outcomes**

### **Maternal Cigarette Smoking**

Maternal cigarette smoking during pregnancy is one of the most important risk factors for low birthweight and infant mortality. Carbon monoxide in cigarette smoke binds to hemoglobin and limits the availability of oxygen to the developing fetus. Lack of oxygen causes fetal growth retardation. Maternal smoking during pregnancy doubles the risk of delivering a low birthweight infant and is a contributing factor to 20% to 40% of low-birthweight infants born in the United States <sup>(1)</sup>. In North Carolina smoking among low-income pregnant women who gave birth in 1997 is still high (25%).

Smoking by women over 25 years of age is associated with higher incidence of preterm delivery, when compared with smoking by women aged 25 years or younger <sup>(2)</sup>. Women aged 35 years of age and older had the highest rate of smoking (32%), as shown in Figure 5. Very young women under 18 years old were the least likely to smoke, although the prevalence of smoking in this group was still significant (21%). There were dramatic differences in prevalence of smoking by ethnicity (Figure 6). ***Whites and Native Americans had very high rates of smoking (38% and 36%, respectively), while Asians and Hispanics had relatively low rates of smoking (8% and 4%, respectively).*** Black women had an intermediate prevalence of smoking (14%). Compared with 1996, smoking rates in 1997 have remained essentially the same among all ethnic groups. Figure 7 shows the prevalence of cigarette smoking by level of education. Women with less than a high school education had a high prevalence of smoking (32%) and were over twice more likely to smoke than women with more than 12 years of school (15%).

The pattern of higher smoking rates among older women varied noticeably by ethnicity (Table 1). Among whites and Native Americans, the prevalence of smoking was high for all ages. ***White women under age 18 had a high rate of smoking***

**(38%). In contrast, only 8% of Black women under age 18 smoked during their pregnancies.** However, the rate of smoking among Blacks increased dramatically with age. Black women aged 35 years and older were over three times more likely to smoke than Black adolescents (28% vs. 8%).

Level of education was a strong predictor of cigarette smoking (Table 2). Among all ethnic groups except the Hispanics, women who had completed more than 12 years of school had the lowest rates of smoking. A large proportion of white women (51%) and Native American women (45%) with less than a high school education smoked during their pregnancies. Twenty-one percent of Black women with less than a high school education smoked.

Overall, women who smoked cigarettes during pregnancy were more likely to give birth to a low birthweight baby compared with non-smokers (12% vs. 9%), as shown in Figure 14. Maternal cigarette smoking and prepregnancy underweight each had independent effects on the risk of low birthweight (Figure 15). Infants of underweight smokers had the highest incidence of low birthweight (16%), and infants of overweight non-smokers had the lowest incidence (8%).

## **Late or Inadequate Prenatal Care**

Early and comprehensive prenatal care has been shown to positively affect pregnancy outcomes among low-income women. Figure 8 shows the trimester of first prenatal visits as recorded on the birth certificate. According to this data, 1% of low-income women received no prenatal care, over 3% began prenatal care in their third trimester, and about 19% began care in their second trimester. The majority of women (76%) reported their first prenatal visit in the first trimester. However, many women may have reported their first visit earlier than it actually occurred, so a higher percentage of women may not have received care until their second or third trimester.

Women aged less than 18 years were least likely to receive prenatal care in the first trimester (66%) than women in other age groups. Consequently this group was most likely to begin prenatal care in the third trimester (6%) than women in other age groups, as shown in Table 3. White were more likely to begin prenatal care earlier than any other race. Level of education was positively associated with first prenatal visit in the first trimester. Women with more than a high school education had the highest rate of early prenatal care (84%).

Prenatal care was considered inadequate when a woman's first prenatal visit was in the second or third trimester and she had too few prenatal care visits. Overall, 5% of women received inadequate prenatal care (see State Profile). The percent of women with inadequate prenatal care for each maternal ethnic group is presented in Figure 18. White women had the lowest rate of inadequate prenatal care (3%) and **Hispanic women were the most likely to have received inadequate prenatal care (10%).** Within each ethnic group, women aged less than 18 years were more likely than older women to have received inadequate prenatal (Table 15) but black adolescents and Hispanic adolescents had the highest rates of inadequate prenatal

care (10% and 15%). Level of education was also associated with inadequate prenatal care in every ethnic group (Table 16). Women with less than a high school education were more likely to have received inadequate prenatal care than women with at least 12 years of school. Among Hispanic women, 12% of those with less than a high school education received inadequate prenatal care.

## Late WIC Enrollment

Prenatal participation in the WIC program has been shown to positively affect pregnancy outcomes among low-income women. However, the majority of low-income women who gave birth in 1996 did not enroll in WIC until their second (39%) or third (19%) trimester (Figure 9). The majority of adolescents aged less than 18 enrolled in WIC during their second trimester (43%), and adolescents were least likely to enroll in WIC during their third trimester (Table 4). There were also ethnic differences in trimester of WIC enrollment. White and Native American women were more likely to enroll in WIC during their first trimester (47% and 49%) compared with Black (37%), Hispanic (34%) and Asian (26%) women. A significant proportion of Asian (27%) and Hispanic (21%) women did not enroll in WIC until their third trimester. Level of education had little impact on trimester of WIC enrollment. Table 17 presents data comparing the trimester of first prenatal visit and the trimester of WIC enrollment. Again, many women may have reported their first prenatal visit earlier than it actually occurred.

## Short Interpregnancy Interval

Women with short interpregnancy intervals (less than 12 months from the birth of one child to conception of the next) are at risk for poor pregnancy outcomes. Overall, 29% of women who had at least one previous birth had a short interpregnancy interval (see State Profile). Figure 16 shows the percent of women with an interpregnancy interval of less than 12 months for each maternal age group. Only data on women who had a previous birth were included in this graph. ***The most striking finding was that 62% of the 779 adolescent women included had short interpregnancy intervals.*** Among the 18-24 year old women, 36% had conceived within 12 months of giving birth. A smaller but still significant proportion (16% - 23%) of women 25 years and older had short interpregnancy intervals.

Differences in interpregnancy interval by ethnicity, age and education are presented in Tables 9 and 10. The data in these tables were calculated differently from the data in Figure 16. In the tables, all women were included and categorized into three groups: (1) first birth, (2) less than 12 months between pregnancies and (3) more than 12 months between pregnancies. For example, the percent of adolescent women with an interpregnancy interval less than 12 months shown in Table 9 (9%) represents the percent of all adolescent women who had a short interpregnancy interval, not just

the percent of those adolescent women with a previous birth who had a short interpregnancy interval.

Among women of all ages, Asian Americans (21%) were slightly more likely to have a short interpregnancy interval than any other ethnic group (Table 9). Also Asian American women 18-24 years of age had the highest rate of short interpregnancy interval (25%) than any age group and race. Women with higher education had slightly lower rates of short interpregnancy interval: 16% vs. 18% (Table 10). The ethnic group which showed the largest effect of education were Asian women. Asian women with less than a high school education were much more likely to have a short interpregnancy interval than Asian women with more than 12 years of school (26% vs. 16%).

## Maternal Underweight and Overweight

Maternal prepregnancy weight has a strong effect on pregnancy outcome, especially infant birthweight. Women who are underweight before pregnancy are more likely to be anemic, may be undernourished and are more likely to deliver a low birthweight infant <sup>(3)</sup>. Overall, 17% of low-income women were underweight prior to pregnancy (State Profile). Women who are overweight before pregnancy are more likely to develop gestational diabetes, may also be poorly nourished, and are more likely to deliver a macrosomic infant. Overall, women who were overweight prior to pregnancy comprised 39% of the total group. Figure 17 shows the proportion of women who were either underweight or overweight before pregnancy for three age groups: (1) less than 18, (2) 18-34 years old, and (3) 35 and over. The prevalence of underweight was highest among young women, and the prevalence of overweight was highest among older women. Among adolescents under age 18, 26% were underweight, and 21% were overweight. **Among women over 35 years old, 10% were underweight and 55% were overweight.**

Asian women and white women were more likely than other ethnic groups to be underweight, while Black women and Native American women were more likely than other ethnic groups to be overweight (Table 11). White and Native American adolescents under age 18 had a prevalence of 31% and 37%, respectively, for underweight. For each ethnic group, the prevalence of underweight was greater among young women and the prevalence of overweight was greater among older women. Sixty-four percent of Black women aged 35 and older were overweight prior to pregnancy.

White, Black and Native American women with less than a high school education were all more likely to be underweight than women with a high school education or more (Table 12). Among Hispanic and Asian women, education was not strongly related to prevalence of underweight. Prevalence of overweight was higher among more educated women for all ethnic groups except Asians and Hispanics. Asian women with more than a high school education had a lower prevalence of overweight than those with less than a high school education.

Maternal prepregnancy weight was a strong predictor of incidence of low birthweight (Figure 13). Underweight women gave birth to infants who were more likely to be low birthweight (12%) than the infants of overweight women (8%). Maternal prepregnancy underweight and cigarette smoking each had independent effects on the risk of low birthweight (Table 6). Infants of underweight smokers had the highest incidence of low birthweight (16%), and infants of overweight non-smokers had the lowest incidence (9%). Infant macrosomia (birthweight greater than 4500 grams) was most prevalent among the overweight group.

## Maternal Iron-Deficiency Anemia

Maternal iron-deficiency anemia has negative consequences for maternal health, pregnancy outcome, and adequacy of infant iron stores. Iron-deficiency anemia during the first two trimesters of pregnancy has been associated with inadequate gestational weight gain, a twofold risk for preterm delivery, and a threefold risk for delivering a low-birthweight infant <sup>(4)</sup>. The overall prevalence of iron-deficiency anemia among low-income women who gave birth in 1997 was 12% (State Profile). Figure 19 shows that there was little difference in prevalence of anemia by age group, with older pregnant women 35 years of age and older were slightly more likely to be anemic (14%). In contrast, there were strong ethnic differences in prevalence of iron-deficiency anemia (Figure 20). Black women had a prevalence of anemia (19%) which was more than twice as high as the prevalence among white women (7%), Native American women (9%), Asian women (10%) and Hispanic women (10%). Table 18 shows that the higher prevalence of anemia among older women was found only among Black women (21%).

## Low Birthweight

Low birthweight (<2,500 grams or 5.5 lbs) is the single most important factor affecting neonatal mortality and is a determinant of postneonatal mortality <sup>(5)</sup>. Low birthweight and prematurity are the leading precursors of infant mortality in North Carolina. Infants weighing 2,500 grams or less are almost 40 times more likely to die during their first month of life than are infants of normal birthweight. In addition, infants with low birthweight are more likely to experience developmental delays and disabilities than infants with normal birthweight <sup>(6)</sup>. The birthweight distribution of infants born in 1997 to low-income women is presented in Figure 10. Overall, 10% of these infants weighed less than 2500 grams at birth. In addition, 1% of these infants weighed more than 4500 grams at birth. High birthweight, or *macrosomia*, is also associated with higher rates of infant mortality.

The incidence of low birthweight was highest among infants of women aged 35 years and older (14%), as shown in Figure 11. Women aged 30-34 years old had the next highest incidence of low birthweight (12%). Women 25 years and older had the highest incidence of high birthweight (2%), as shown in Table 5. Figure 12 shows incidence of low birthweight for each maternal ethnic group. The lowest rates of low

birthweight were found among infants of Hispanic (6%), Asian (7%) and White (8%) women. Infants of Black women had the highest rate of low birthweight (13%). The low birthweight rates for infants of Native American women was 9%. Table 5 shows that women with less than a high school education were more likely to give birth to a low birthweight infant than women with at least 12 years of school.

As described above, both maternal cigarette smoking and prepregnancy underweight were strong predictors of low birthweight. Underweight women gave birth to infants who were two-thirds more likely to be low birthweight (12%) than the infants of overweight women (8%) (Figure 13). Women who smoked cigarettes during pregnancy were also more likely to give birth to a low birthweight baby compared with non-smokers (12% vs. 9%), as shown in Figure 14. Infants of underweight smokers had the highest incidence of low birthweight (16%), and infants of overweight non-smokers had the lowest incidence of low birthweight (8%) (Figure 15).

## **Breastfeeding**

The prevalence of breastfeeding among low-income women in North Carolina at the time of their postpartum WIC visit has been increasing steadily since 1991. It increased from 27% in 1996 to 29% in 1997, as shown in the State Profile. There was significant variation in prevalence of breastfeeding by ethnicity, age and education. Table 7 presents data on the prevalence of breastfeeding at the WIC postpartum visit by maternal ethnicity and age. The breastfeeding rate was 31% among white women, 20% among black women, 25% among Native American women and 31% among Asian women. The highest breastfeeding rate was among the Hispanic women (60%). Older women were more likely to breastfeed than younger women. Adolescents under age 18 had a very low rate of breastfeeding (17%). Overall, the highest prevalence of breastfeeding was among women 35 years and older (35%).

As shown in Table 8, women with more than 12 years of education were much more likely to breastfeed than women who had not completed high school (42% vs. 23%). Among Black women, those with less than a high school education had a breastfeeding prevalence of only 10%, while those with more than a high school education were more than three times as likely to breastfeed (34%). The difference in breastfeeding among the education groups was also pronounced among white women. White women with more than 12-years of education were over twice as likely to breastfeed than white women with less than a high school education (47% vs. 20%). The effect of education on breastfeeding was least noticed among the Hispanics (60% vs. 62%). The higher breastfeeding rates in Hispanics could probably be attributed to their culture norm.

## Regional Profile - North Carolina Region I (Asheville)

<b>Program Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Participants in WIC only	4414	83	81
Participants in both WIC and HSIS	880	16	18
Participants in HSIS only	48	1	1
Total participants	5342	100	100

<b>Demographic Background</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers under 18 years of age	484	9	10
Mothers over 35 years of age	267	5	5
Unmarried mothers	2206	41	53
Mothers not completing high school	1921	36	35
White mothers	4410	83	48
Black mothers	478	9	40
Native American mothers	136	3	2
Hispanic mothers	227	4	9
Asian mothers	88	2	1

<b>Pregnancy History</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers with no previous live births	2428	45	44
Mothers with 3 or more previous live births	397	7	10
Mothers with 12 months or less between pregnancies	848	27	29

<b>Nutritional and Health Care Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers who smoked during pregnancy	1900	36	25
Mothers underweight prior to pregnancy *	440	20	17
Mothers overweight prior to pregnancy *	845	38	39
Mothers with iron - deficiency anemia *	262	6	12
Mothers with no prenatal care	23	0	1
Mothers with inadequate prenatal care	185	3	5
WIC mothers enrolling in WIC in 3rd trimester *	538	12	19

<b>Pregnancy Outcome Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Babies with very low birthweight (under 1500 grams)	110	2	2
Babies with low birthweight (under 2500 grams)	495	9	10
Babies with high birthweight (over 4500 grams)	84	2	1
Babies with low 5 minute Apgar scores, (values less than 7)	115	2	2
Fetal deaths	24	0	1
Twins or Triplets	163	3	3
Mothers breastfeeding at postpartum visit *	1777	37	29

\* *Includes only mothers enrolled in WIC.*

## Regional Profile - North Carolina Region II (Mooreville)

<b>Program Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Participants in WIC only	7251	75	81
Participants in both WIC and HSIS	2200	23	18
Participants in HSIS only	163	2	1
Total participants	9614	100	100

<b>Demographic Background</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers under 18 years of age	1103	11	10
Mothers over 35 years of age	482	5	5
Unmarried mothers	5586	58	53
Mothers not completing high school	3917	41	35
White mothers	4661	48	48
Black mothers	3786	39	40
Native American mothers	38	0	2
Hispanic mothers	881	9	9
Asian mothers	247	3	1

<b>Pregnancy History</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers with no previous live births	4118	43	44
Mothers with 3 or more previous live births	1023	11	10
Mothers with 12 months or less between pregnancies	1675	29	29

<b>Nutritional and Health Care Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers who smoked during pregnancy	2523	26	25
Mothers underweight prior to pregnancy *	776	19	17
Mothers overweight prior to pregnancy *	1481	36	39
Mothers with iron - deficiency anemia *	927	14	12
Mothers with no prenatal care	123	1	1
Mothers with inadequate prenatal care	525	5	5
WIC mothers enrolling in WIC in 3rd trimester *	1588	21	19

<b>Pregnancy Outcome Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Babies with very low birthweight (under 1500 grams)	168	2	2
Babies with low birthweight (under 2500 grams)	951	10	10
Babies with high birthweight (over 4500 grams)	86	1	1
Babies with low 5 minute Apgar scores, (values less than 7)	173	2	2
Fetal deaths	56	1	1
Twins or Triplets	282	3	3
Mothers breastfeeding at postpartum visit *	2087	25	29

\* *Includes only mothers enrolled in WIC.*



## Regional Profile - North Carolina Region III (Winston-Salem)

<b>Program Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Participants in WIC only	8170	86	81
Participants in both WIC and HSIS	1249	13	18
Participants in HSIS only	69	1	1
Total participants	9488	100	100
<b>Demographic Background</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers under 18 years of age	912	10	10
Mothers over 35 years of age	443	5	5
Unmarried mothers	4961	53	53
Mothers not completing high school	3772	40	35
White mothers	5026	53	48
Black mothers	3330	35	40
Native American mothers	40	0	2
Hispanic mothers	935	10	9
Asian mothers	152	2	1
<b>Pregnancy History</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers with no previous live births	4238	45	44
Mothers with 3 or more previous live births	855	9	10
Mothers with 12 months or less between pregnancies	1726	30	29
<b>Nutritional and Health Care Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers who smoked during pregnancy	2808	30	25
Mothers underweight prior to pregnancy *	849	18	17
Mothers overweight prior to pregnancy *	1904	40	39
Mothers with iron - deficiency anemia *	795	13	12
Mothers with no prenatal care	107	1	1
Mothers with inadequate prenatal care	428	5	5
WIC mothers enrolling in WIC in 3rd trimester *	1262	17	19
<b>Pregnancy Outcome Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Babies with very low birthweight (under 1500 grams)	222	2	2
Babies with low birthweight (under 2500 grams)	956	10	10
Babies with high birthweight (over 4500 grams)	93	1	1
Babies with low 5 minute Apgar scores, (values less than 7)	181	2	2
Fetal deaths	69	1	1
Twins or Triplets	284	3	3
Mothers breastfeeding at postpartum visit *	2667	33	29

\* *Includes only mothers enrolled in WIC.*

## Regional Profile - North Carolina Region IV (Raleigh)

<b>Program Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Participants in WIC only	6869	71	81
Participants in both WIC and HSIS	2626	27	18
Participants in HSIS only	153	2	1
Total participants	9648	100	100

<b>Demographic Background</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers under 18 years of age	983	10	10
Mothers over 35 years of age	557	6	5
Unmarried mothers	5809	61	53
Mothers not completing high school	3480	36	35
White mothers	2754	29	48
Black mothers	5569	58	40
Native American mothers	69	1	2
Hispanic mothers	1158	12	9
Asian mothers	97	1	1

<b>Pregnancy History</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers with no previous live births	4203	44	44
Mothers with 3 or more previous live births	1068	11	10
Mothers with 12 months or less between pregnancies	1601	27	29

<b>Nutritional and Health Care Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers who smoked during pregnancy	1873	19	25
Mothers underweight prior to pregnancy *	788	16	17
Mothers overweight prior to pregnancy *	1964	41	39
Mothers with iron - deficiency anemia *	934	14	12
Mothers with no prenatal care	119	1	1
Mothers with inadequate prenatal care	658	7	5
WIC mothers enrolling in WIC in 3rd trimester *	1469	19	19

<b>Pregnancy Outcome Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Babies with very low birthweight (under 1500 grams)	239	2	2
Babies with low birthweight (under 2500 grams)	996	10	10
Babies with high birthweight (over 4500 grams)	108	1	1
Babies with low 5 minute Apgar scores, (values less than 7)	264	3	2
Fetal deaths	85	1	1
Twins or Triplets	280	3	3
Mothers breastfeeding at postpartum visit *	2229	29	29

\* Includes only mothers enrolled in WIC.

## Regional Profile - North Carolina Region V (Fayetteville)

<b>Program Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Participants in WIC only	7949	91	81
Participants in both WIC and HSIS	778	9	18
Participants in HSIS only	42	0	1
Total participants	8769	100	100
<b>Demographic Background</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers under 18 years of age	798	9	10
Mothers over 35 years of age	370	4	5
Unmarried mothers	4466	51	53
Mothers not completing high school	2571	29	35
White mothers	3355	38	48
Black mothers	3614	41	40
Native American mothers	925	11	2
Hispanic mothers	776	9	9
Asian mothers	94	1	1
<b>Pregnancy History</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers with no previous live births	3631	41	44
Mothers with 3 or more previous live births	832	9	10
Mothers with 12 months or less between pregnancies	1624	29	29
<b>Nutritional and Health Care Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers who smoked during pregnancy	1938	22	25
Mothers underweight prior to pregnancy *	721	16	17
Mothers overweight prior to pregnancy *	1735	40	39
Mothers with iron - deficiency anemia *	792	12	12
Mothers with no prenatal care	113	1	1
Mothers with inadequate prenatal care	498	6	5
WIC mothers enrolling in WIC in 3rd trimester *	1456	21	19
<b>Pregnancy Outcome Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Babies with very low birthweight (under 1500 grams)	156	2	2
Babies with low birthweight (under 2500 grams)	812	9	10
Babies with high birthweight (over 4500 grams)	111	1	1
Babies with low 5 minute Apgar scores, (values less than 7)	161	2	2
Fetal deaths	57	1	1
Twins or Triplets	210	2	3
Mothers breastfeeding at postpartum visit *	2141	28	29

\* Includes only mothers enrolled in WIC.

## Regional Profile - North Carolina Region VI (Washington)

<b>Program Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Participants in WIC only	4441	79	81
Participants in both WIC and HSIS	1132	20	18
Participants in HSIS only	80	1	1
Total participants	5653	100	100
<b>Demographic Background</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers under 18 years of age	564	10	10
Mothers over 35 years of age	351	6	5
Unmarried mothers	3151	56	53
Mothers not completing high school	1778	31	35
White mothers	2211	39	48
Black mothers	3005	53	40
Native American mothers	26	0	2
Hispanic mothers	366	6	9
Asian mothers	44	1	1
<b>Pregnancy History</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers with no previous live births	2503	44	44
Mothers with 3 or more previous live births	519	9	10
Mothers with 12 months or less between pregnancies	944	28	29
<b>Nutritional and Health Care Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers who smoked during pregnancy	1099	19	25
Mothers underweight prior to pregnancy *	193	14	17
Mothers overweight prior to pregnancy *	682	48	39
Mothers with iron - deficiency anemia *	599	13	12
Mothers with no prenatal care	60	1	1
Mothers with inadequate prenatal care	354	6	5
WIC mothers enrolling in WIC in 3rd trimester *	807	18	19
<b>Pregnancy Outcome Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Babies with very low birthweight (under 1500 grams)	133	2	2
Babies with low birthweight (under 2500 grams)	570	10	10
Babies with high birthweight (over 4500 grams)	63	1	1
Babies with low 5 minute Apgar scores, (values less than 7)	151	3	2
Fetal deaths	39	1	1
Twins or Triplets	144	3	3
Mothers breastfeeding at postpartum visit *	1010	22	29

\* Includes only mothers enrolled in WIC.

## Regional Profile - North Carolina Region VII (Wilmington)

<b>Program Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Participants in WIC only	4474	84	81
Participants in both WIC and HSIS	767	14	18
Participants in HSIS only	54	1	1
Total participants	5295	100	100
<b>Demographic Background</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers under 18 years of age	384	7	10
Mothers over 35 years of age	233	4	5
Unmarried mothers	2001	38	53
Mothers not completing high school	1401	26	35
White mothers	3147	59	48
Black mothers	1566	30	40
Native American mothers	43	1	2
Hispanic mothers	466	9	9
Asian mothers	73	1	1
<b>Pregnancy History</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers with no previous live births	2411	46	44
Mothers with 3 or more previous live births	428	8	10
Mothers with 12 months or less between pregnancies	916	29	29
<b>Nutritional and Health Care Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Mothers who smoked during pregnancy	1249	24	25
Mothers underweight prior to pregnancy *	458	18	17
Mothers overweight prior to pregnancy *	880	35	39
Mothers with iron - deficiency anemia *	327	8	12
Mothers with no prenatal care	36	1	1
Mothers with inadequate prenatal care	230	4	5
WIC mothers enrolling in WIC in 3rd trimester *	872	21	19
<b>Pregnancy Outcome Profile</b>	<b>Number</b>	<b>Percent</b>	<b>State %</b>
Babies with very low birthweight (under 1500 grams)	99	2	2
Babies with low birthweight (under 2500 grams)	465	9	10
Babies with high birthweight (over 4500 grams)	78	1	1
Babies with low 5 minute Apgar scores, (values less than 7)	72	1	2
Fetal deaths	19	0	1
Twins or Triplets	117	2	3
Mothers breastfeeding at postpartum visit *	1329	28	29

\* Includes only mothers enrolled in WIC.

## Regional Comparisons

There were significant geographic variations in the prevalence of important nutritional risk factors and pregnancy outcomes across the state of North Carolina in 1997. This section will provide a detailed summary of the report findings for each of the seven regions. Three maps illustrate the location of the seven regions and the broad differences in the prevalence of cigarette smoking during pregnancy (Map 1), incidence of low birthweight (Map 2) and prevalence of breastfeeding (Map 3) among the low-income population of North Carolina.

### Maternal Age - Regional Comparison

Adolescents who are younger than 18 years old when they give birth are at higher risk for some risk factors which can lead to poor pregnancy outcomes, including prepregnancy underweight, inadequate pregnancy weight gain, and low education. Most importantly, pregnancies among adolescents are more likely to be unplanned or unwanted. Overall, in 1997 the Mooresville region had the highest percentage of low-income births occurring among adolescents (11%) (Table 19). As in the preceding years the Wilmington region had the lowest percent of births to adolescents (7%) in 1997.

Overall, both Hispanics and Asians had the lowest percents (8%) of births to adolescents. This relationship was true for most regions. The proportion of adolescent pregnancies was higher among Blacks compared with whites in every region, but the difference between the two groups varied by region. In the Mooresville region the percent of low-income births to adolescents was high among both Blacks (13%) and whites (11%). In contrast, in the Washington region the proportion of Black births to adolescents was twice as high as the proportion of white births to adolescents (13% vs. 7%). In the Fayetteville regions, the percent of adolescent pregnancies among Native American (11% was slightly higher than the percent of adolescent pregnancies among whites (7%).

### Maternal Education - Regional Comparison

Maternal education is strongly related to many pregnancy risk factors and to the risk for poor pregnancy outcomes. Low-income women with less than a high school education are more likely to be underweight prior to pregnancy, to smoke during pregnancy, to receive inadequate prenatal care, to give birth to a low birthweight infant, to not breastfeed, and to have short interpregnancy intervals. There was strong geographic variation in level of maternal education among the low-income population of North Carolina in 1997 (Table 20). In general, pregnant women in Eastern North Carolina were better educated than pregnant women in Western North Carolina. The highest proportions of low-income pregnant women with less than a high school education were found in the Mooresville (41%) and Winston-Salem (40%) regions. The

lowest proportions of low-income pregnant women with less than a high school education were found in the Wilmington (26%) and Fayetteville (29%) regions.

Among all low-income pregnant women, Black women were the best educated, with only 30% having less than a high school education. In comparison, 34% of white women, 38% of Native American women and 65% of Hispanic women had less than a high school education. Among regions, the percent of Black women with less than a high school education ranged from 35% in the Mooresville regions to 27% in the Wilmington region. The differences among regions in the educational attainment of white women were much greater, ranging from 42% with less than a high school education in the Mooresville region to 24% in the Wilmington regions. A much higher proportion of low-income pregnant hispanic women in the Raleigh region and Winston-Salem region had less than a high school education (74% and 76%, respectively).

### **Maternal Cigarette Smoking - Regional Comparison**

Cigarette smoking during pregnancy is one of the most important risk factors for low birthweight and other poor pregnancy outcomes. The prevalence of smoking which was stable at 25% among low-income pregnant women in 1997 was still a significant determinant to the health of this population. The prevalence of cigarette smoking among low-income pregnant women in North Carolina during 1997 varied from 19% in the Washington region to 36% in the Asheville region (Table 21 and Map 1). In all regions, whites were over twice more likely to smoke during pregnancy than Blacks. Western regions, which had predominantly white populations, had higher prevalences of smoking than Eastern regions with proportionally larger Black populations.

There was some geographic variation in the prevalence of smoking within each of the ethnic groups. Among low-income whites, the prevalence of smoking during pregnancy varied from 42% in the Winston-Salem regions to 31% in the Washington region. Among low-income Blacks, the prevalence of smoking during pregnancy was also highest in the Winston-Salem region (19%) and lowest in the Fayetteville and Washington regions (12%). Native Americans had higher prevalence of smoking in the Mooresville (47%), Asheville (44%) and Winston-Salem (45%) regions. The prevalence of smoking among both Asians and Hispanics was low in all regions.

### **Maternal Prepregnancy Weight - Regional Comparison**

Both prepregnancy underweight and prepregnancy overweight are risk factors for poor pregnancy outcome. Underweight women are more likely to deliver low birthweight infants who are at higher risk of infant mortality. Overweight women are more likely to suffer medical complications of pregnancy, such as gestational diabetes and gestational hypertension, and their infants are at higher risk of perinatal death. The regional variation in prevalence of both underweight and overweight is shown in Table 22.

While the overall prevalence of underweight slightly varied by region, from 14% in the Washington region to 20% in the Asheville region, this variation was mainly

attributable to differences among ethnic groups. Overall, the highest prevalences of prepregnancy underweight were among Asian and whites. Among whites, the prevalence of prepregnancy underweight ranged from 18% in the Washington region to 21% in other regions. Among Blacks, the prevalence of underweight was 12% to 16% across the seven regions. There was a significant difference in the prevalence of prepregnancy underweight among Native Americans between the Asheville region (9%) and the Mooresville region (50%).

The prevalence of prepregnancy overweight was highest among Blacks and Native Americans. Among low-income Black women, there was some regional variation in the prevalence of overweight. Only 39% of Black women in the Asheville region were overweight before pregnancy, while 53% of Black women in the Washington region were overweight before pregnancy. Among low-income white women, there was only a small difference in prevalence of overweight among the seven regions, ranging from 32% to 37%. About one-half of the Native American women in the Asheville region were overweight before pregnancy (55%) and over a third (40%) in the Fayetteville region.

## **Adequacy of Prenatal Care - Regional Comparison**

Adequate prenatal care, defined as medical care beginning in the first trimester of pregnancy with sufficient medical visits throughout gestation, has been shown to positively affect both maternal health and infant outcomes. There was significant variation in adequacy of prenatal care by both geographic region and ethnic group among low-income women in North Carolina during 1997 (Table 23). Overall, low-income women in the Asheville region were most likely to receive adequate prenatal care (80%), while women in the Washington region were least likely to receive adequate prenatal care (67%). In all regions, Blacks and Hispanics were least likely to receive adequate prenatal care, while whites were most likely to receive adequate prenatal care.

Only 65% of low-income pregnant Black women in the Raleigh region who gave birth in 1997 received adequate prenatal care, while 73% of Black women in the Asheville and Winston-Salem regions received adequate prenatal care. Similarly, 75% of low-income pregnant white women in the Raleigh region received adequate prenatal care, while 83% of white women in the Asheville region received adequate prenatal care. Native American women in the Mooresville region were more likely to receive adequate prenatal care than Native American women in the Fayetteville region (77% vs. 64%).



## **Trimester of WIC Enrollment - Regional Comparison**

Prenatal participation in the WIC program has been shown to improve pregnancy outcomes within low-income populations. Enrollment in WIC during the first trimester ensures maximum food and nutrition education benefits. Regional variation in trimester of WIC enrollment for low-income women who gave birth during 1997 is shown in Table 24. Most of the regions had a rate similar to the state average of 42% first trimester WIC enrollment. Low-income pregnant women in the Fayetteville region were less likely to be enrolled in WIC during the first trimester (38%), than women in the Asheville region (58%).

Differences in trimester of WIC enrollment within ethnic groups also varied by region. Overall, white and Native American women were most likely to be enrolled in WIC during their first trimester. However, Native American women in the Fayetteville region were less likely to be enrolled in WIC during the first trimester than Native American women in the Asheville region (42% vs. 62%). Among low-income Black women, those living in the Fayetteville region were least likely to be enrolled in WIC during the first trimester (36%), and those living in the Asheville region were most likely to be enrolled in WIC during the first trimester (45%). Among low-income white women, those living in the Asheville region were most likely to be enrolled in WIC during the first trimester (61%).

## **Infant Birth Weight - Regional Comparison**

There were not large regional differences in the prevalence of low birth weight (LBW) among low-income women who gave birth during 1997 (Table 25). Overall, the lowest prevalence of LBW was found in the Asheville, Fayetteville, and Wilmington regions (9%), and the highest prevalences of LBW in the other four regions (10%). In all regions, Blacks had a higher prevalence of LBW than whites. Among low-income Blacks, the lowest prevalence of LBW was found in the Fayetteville region (12%). Low-income white women living in the Raleigh, Washington, and Wilmington regions had the lowest prevalence of low birth weight compared with other regions (7%).

## **Breastfeeding - Regional Comparison**

Breastfeeding provides many health benefits to infants and children. There was significant regional variation in the prevalence of breastfeeding at the WIC postpartum visit among low-income North Carolina women who gave birth during 1997 (Table 26). Overall, the highest proportion of post-partum women breastfeeding was found in the Asheville region (37%). The lowest prevalence of breastfeeding was found in the Mooresville region (25%). Among all regions combined, Hispanics were the most likely to be breastfeeding at the WIC postpartum visit (59%). The prevalence of breastfeeding was higher among low-income white women than among low-income Black women in every region.

Within each ethnic group, there was also significant regional variation in the prevalence of breastfeeding at the WIC postpartum visit. Among low-income Black women, the prevalence of breastfeeding was highest in the Winston-Salem (26%) region, and lowest in the Washington region (13%). White women in the Mooresville region were less likely to be breastfeeding at the WIC postpartum visit (25%) than women in all other regions. The highest prevalences of breastfeeding among low-income white women were found in the Asheville (37%) region. Native American women in the Asheville region were over three times more likely to be breastfeeding at the WIC postpartum visit compared with Native American women in the Fayetteville region (55% vs. 19%).

## Discussion and Recommendations

Nutrition surveillance data is most useful for describing the needs or problems of the target population. Surveillance data, because it is collected continuously in the same format is particularly useful for outcome evaluation. Maternal health behaviors, including nutrition practices contribute to pregnancy outcome and maternal and infant well being. Nutrition-related factors that affect maternal and infant health include quality of maternal diet, prepregnancy weight, weight gain during pregnancy, anemia, and infant-feeding method. Other influential behavioral factors include alcohol use, tobacco use, and time of entry to prenatal care. The findings of this report on the nutritional and health status of low-income pregnant women in North Carolina during 1997 reflect both the successes of past public health efforts and the urgency of continued public health prevention efforts in several areas. Many of the problem areas identified in this report will not be overcome without a state-wide commitment to provide, in addition to medical care, the economic and social support poor families need to be able to improve their standard of living and their health.

One way to reduce the incidence of low birthweight is to identify women at risk of bearing low-birthweight infants and provide these women with preventive and therapeutic services. Factors associated with low birthweight include sociodemographic characteristics such as race or ethnicity, age, marital status, and income, as well as nutritional and behavioral factors such as weight gain, smoking, and alcohol consumption <sup>(7)</sup>.

The reported prevalence of cigarette use among low-income pregnant women remained almost unchanged since 1991. Prevalence of smoking rates are still very high, especially among white women and women with less than a high school education. Cigarette smoking is one of the most significant risk factors for low birthweight, and cessation of smoking at any point during pregnancy has a positive impact on maternal well-being and infant birthweight. Low-income pregnant women should be provided with health education about the toxic effects of cigarette smoke on the developing infant, and about methods of smoking cessation which have proven to

be effective. Support for smoking cessation should be provided by all health professionals.

About 17% of low-income pregnant women in North Carolina were underweight before pregnancy and about 39% were overweight before pregnancy in 1997. Prevalence of overweight in pregnant women has increased since 1991. The prevention of these problems necessitates a long-term community-wide approach. Health education efforts to modify individual eating behaviors must be accompanied by community efforts to improve the availability and affordability of healthy nutritious foods in neighborhood stores, schools and workplaces. Preconception nutrition care should be integrated into primary care, to address prepregnancy nutritional risks such as underweight, obesity, and anemia.

The importance of lifetime physical fitness activity in maintaining a healthy weight should also be promoted by community, school, workplace and health education efforts. Nutrition counseling for pregnant women should emphasize the benefits of regular, appropriate exercise. Low-income women who were underweight before pregnancy must be strongly encouraged to gain adequate weight during pregnancy to lower their risk of delivering a low birthweight infant. Innovative strategies should be implemented to reverse the rising trend of overweight among women, including the prevention of overweight before reproductive age and the reduction of postpartum weight retention among overweight women.

Efforts to improve access to prenatal care and WIC program benefits for low-income pregnant women are reflected in the lower rates of inadequate prenatal care and late WIC enrollment seen for 1997, compared with the preceding years. However, much progress still needs to be made to reach the goal of having all eligible women receiving prenatal care and WIC benefits in the first trimester. Community outreach efforts should be made to inform eligible pregnant women of the services available to them.

Special breastfeeding promotion efforts across the state, many funded by the WIC program, have contributed to the increase in the prevalence of breastfeeding at the WIC postpartum visit from 17% in 1991 to 29% in 1997. Most low-income women are aware of the benefits of breastfeeding, but they are less likely to breastfeed because of cultural norms, lack of social support few role models, and economic barriers which include early return to work or school. Community-wide changes in school and workplace policies, and the knowledge and attitudes of mothers, families and health professionals will be necessary to make breastfeeding the best choice for all mothers.

The urgent need for expanded family planning services for low-income women is illustrated by several findings from this report. First, 5,230 low-income pregnant women were under the age of 18 when they delivered in 1997. This represented 10% of all low-income births. Adolescent pregnancies are often unplanned and mistimed. In addition, a short interpregnancy interval among women of all ages who had a previous birth was very common. A short interpregnancy interval can result in a

serious drain not only on maternal nutrition and health, but also on family economic resources.

The educational status of women in North Carolina is a vital key to improving maternal and child health. Thirty-five percent of low-income pregnant women in 1997 had less than a high school education is an improvement over the 40% observed five years ago. Inadequate education was associated with higher levels of most risk factors presented in this report. Women with more education smoked less, had higher birthweight babies and were more likely to breastfeed. However, despite the importance of education for low-income women, poverty itself continues to be the most damaging and intractable risk factor for poor maternal and infant health in North Carolina. Low-income pregnant women represented about 45% of all women who gave birth statewide in 1997. The direct effects of poverty on the nutritional status of women and children have been well-documented. In addition to lack of reliable and sufficient economic resources to purchase nutritious food for their families, poor women also must often contend with poor availability of nutritious food in nearby community stores and lack of transportation to reach other neighborhoods or towns. Communities which provide women with both education and economic opportunity will be rewarded with fewer poor families and healthier mothers and children.

## Methods and Definitions

The Pregnancy Nutrition Surveillance System (PNSS) collects pregnancy risk factor and outcome data on low-income North Carolina women. Data is collected through three sources: the WIC automated data processing system, the Health Services Information System (HSIS), which provides data from public maternal health clinics, and infant birth certificates or fetal death reports. Records for pregnant women from each of these three sources are linked together to provide a complete picture of pregnancy risk factors and infant outcomes for each woman. An explanation of the definitions and data sources for all of the risk factors and outcomes presented in this report appears below.

<b>Age:</b>	Each woman's age at the time of delivery. <u>Source:</u> Birth certificate/fetal death report
<b>Marital status:</b>	Whether each woman was married at the time of delivery. <u>Source:</u> Birth certificate/fetal death report
<b>Education:</b>	Number of years of school each woman had completed at the time of Delivery. <u>Source:</u> Birth certificate/fetal death report
<b>Ethnicity:</b>	Woman's race or ethnic background. <u>Source:</u> WIC system/birth certificate/fetal death report
<b>Parity:</b>	Number of previous live births each woman had had. <u>Source:</u> Birth certificate/fetal death report
<b>Interpregnancy Interval:</b>	Number of months between delivery of the previous pregnancy and conception of the current pregnancy. Short interpregnancy interval was defined as less than 12 months. <u>Source:</u> Birth certificate/fetal death report
<b>Smoking:</b>	Women who smoked at least one cigarette per day during their pregnancy were considered smokers. <u>Source:</u> WIC system/birth certificate/fetal death report
<b>Prepregnancy Weight:</b>	A body mass index (BMI) figure for each woman was calculated based on prepregnancy weight and height. Each woman's BMI was compared to the definitions provided in the 1990 Institute of Medicine report on <u>Weight Gain During Pregnancy</u>

to determine if she was underweight, normal weight or overweight. Source: WIC system/HSIS system

**Iron-Deficiency Anemia:** Each woman's hematocrit or hemoglobin measurement from her prenatal WIC certification visit was compared to the definitions established by the Centers for Disease Control to determine if she was anemic. The definitions are specific for trimester of measurement and number of cigarettes smoked per day.  
Source: WIC system/HSIS system

**Adequacy of Prenatal Care:** The trimester of first prenatal visit and the total number of prenatal care visits were used to classify the care that each woman received as adequate, intermediate or inadequate, based on the Kessner Index.  
Source: Birth certificate/fetal death report

**Trimester of WIC Enrollment:** The WIC action date for prenatal WIC certification was used to calculate the trimester of WIC enrollment for each woman who participated in WIC during her pregnancy.  
Source: WIC system/birth certificate/fetal death report

**Apgar score:** Apgar score represents an assessment of the newborn's clinical condition. The score is based on heart rate, respiratory effort, muscle tone, reflex irritability, and color. Scores can range from 0 to 10. Low five-minute Apgar score was defined as a value less than 7. Data was presented for live births only.  
Source: Birth certificate

**Breastfeeding:** Whether each woman was currently breastfeeding was determined at the postpartum WIC certification visit. The timing of this visit varies for each woman; the usual time is six weeks postpartum. This data is only available for women who were enrolled in WIC during the postpartum period.  
Source: WIC system

## References

1. Cogswell ME, Yip R: The influence of fetal and maternal factors on the distribution of birthweight. *Semin Perinatol* 1995;19:222-240.
2. Wen SW, Goldenberg RL, Cutter GR, et al: Smoking, maternal age, fetal growth and gestational age. *Am J Obstet Gynecol* 1990;162:53-58.
3. Abrams BF, Laros RK: Prepregnancy weight, weight gain and birthweight. *Am J Obstet Gynecol* 1986;154:503-509.
4. Scholl TO, Heidiger ML, Eischer RL, Sheaer JW: Anemia vs. iron deficiency: increased risk of preterm delivery in a prospective study. *Am J Clin Nutr* 1992;55:985-988
5. Ventura SJ, Kimberly MA, Martin JA, et al; Births and deaths: United States, 1996; preliminary data. *Monthly vital statistics report*; vol 46(1), supp. 2. Hyattsville, MD:National Center for Health Statistics, September 11,1997.
6. Paneth KA: The Problem of Low Birth Weight. *The Future of Children* 1995;5:19-34.
7. National Academy of Sciences: Preventing low birthweight: report of the Committee to Study the Prevention of Low Birthweight. Washington, DC: National Academy of Sciences, 1985.

Figure 1  
**Demographic Background**  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**

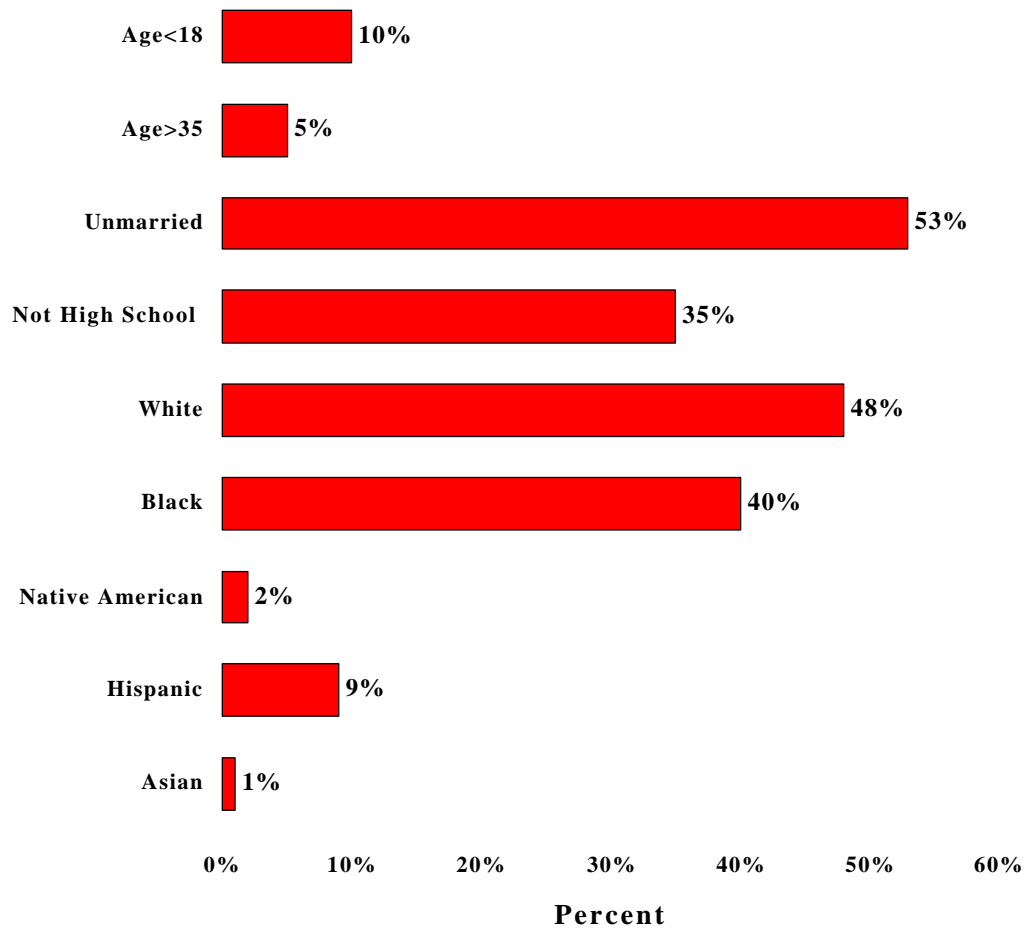
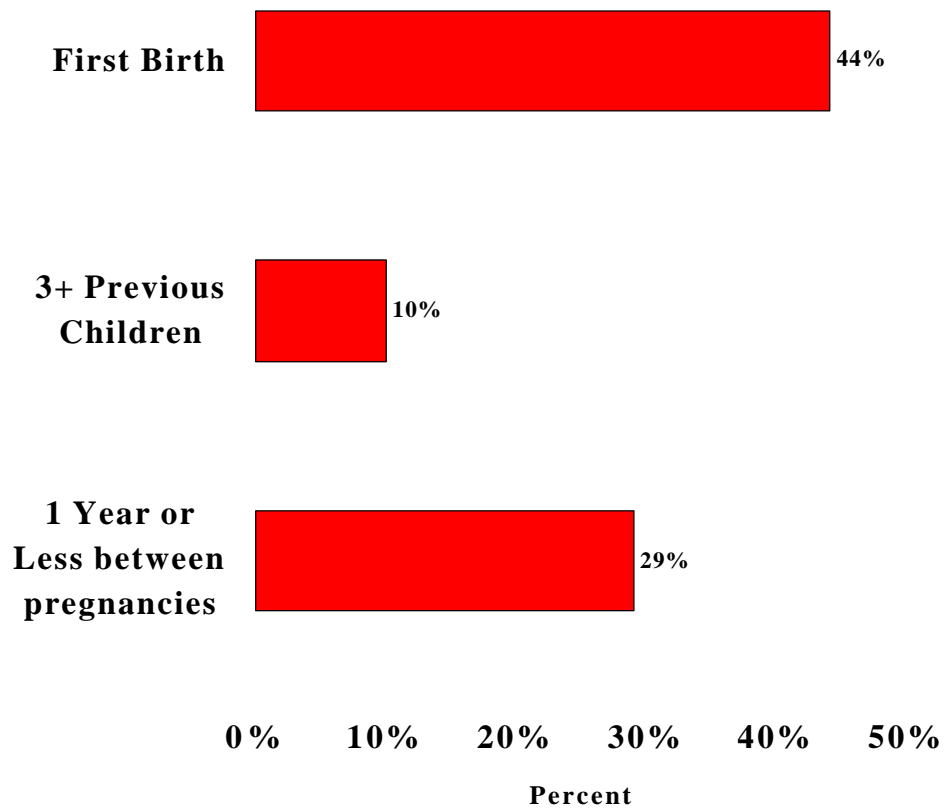
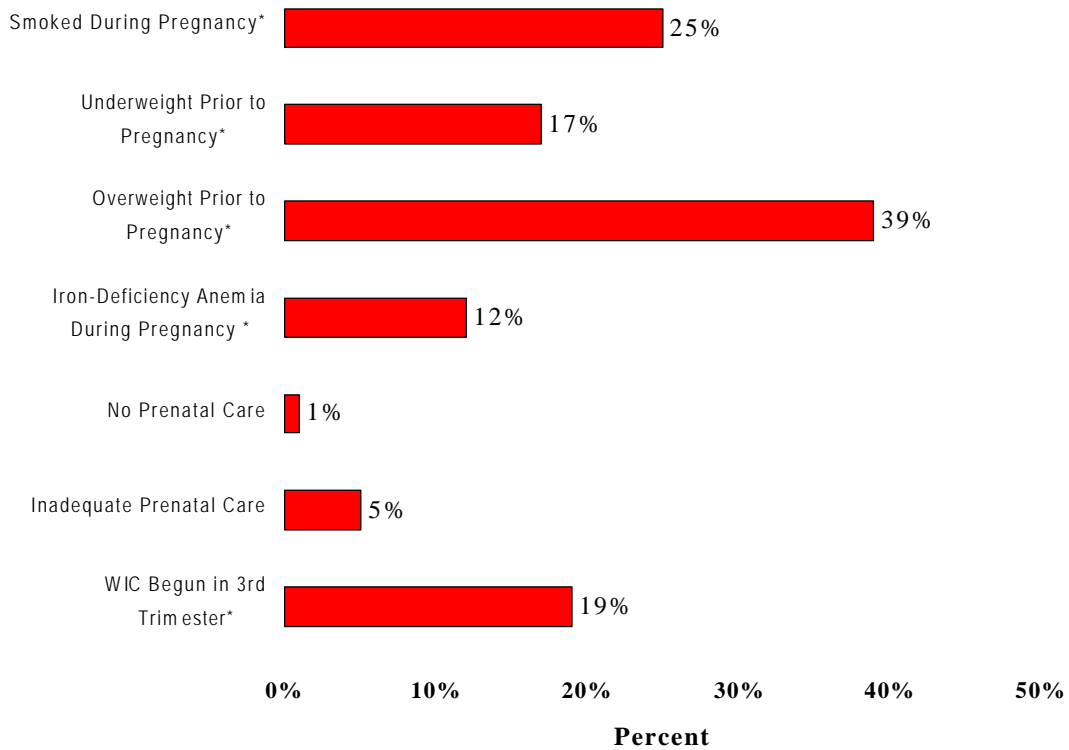




Figure 2  
**Pregnancy History**  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**

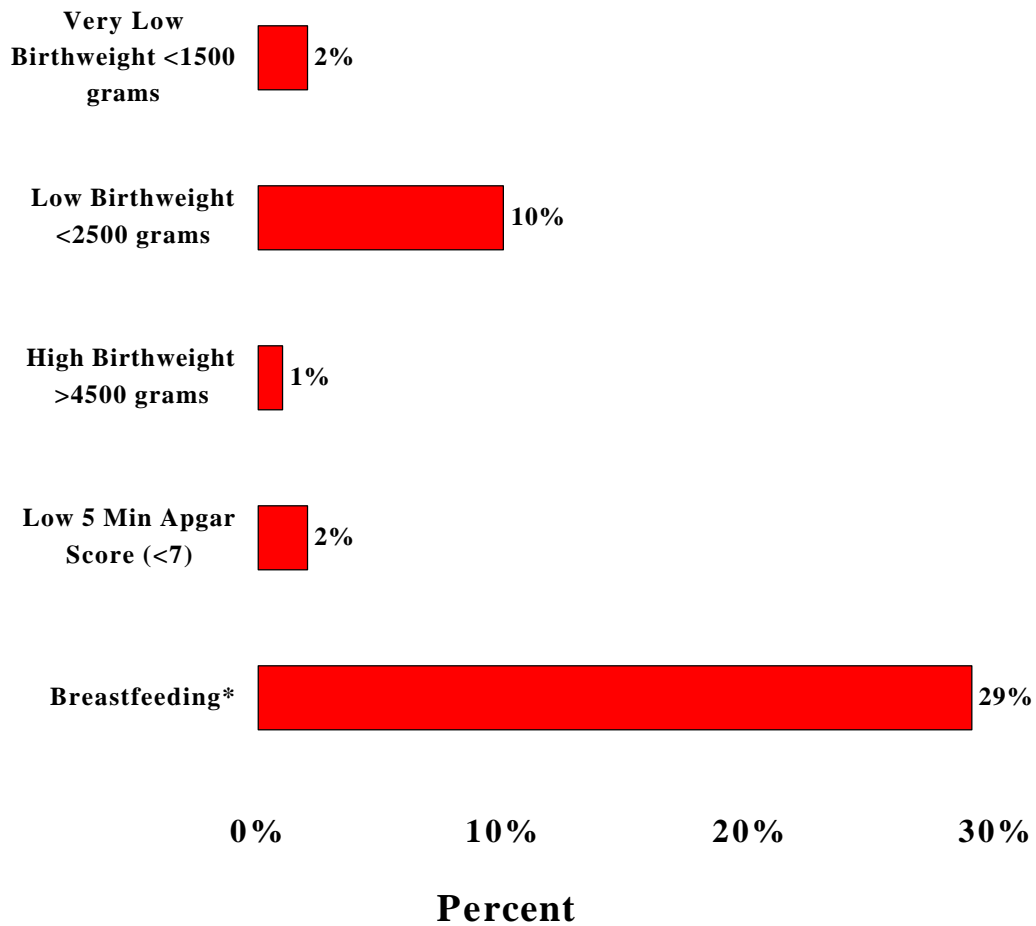


**Figure 3**  
**Nutrition and Health Care Profile**  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**



\*Includes only mothers enrolled in WIC

Figure 4  
**Pregnancy Outcome Profile**  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**



\*Includes only mothers enrolled in WIC

Figure 5  
**Percent of Mothers Who Smoked During  
Pregnancy For Each Maternal Age Group  
North Carolina  
Pregnancy Nutrition Surveillance 1997**

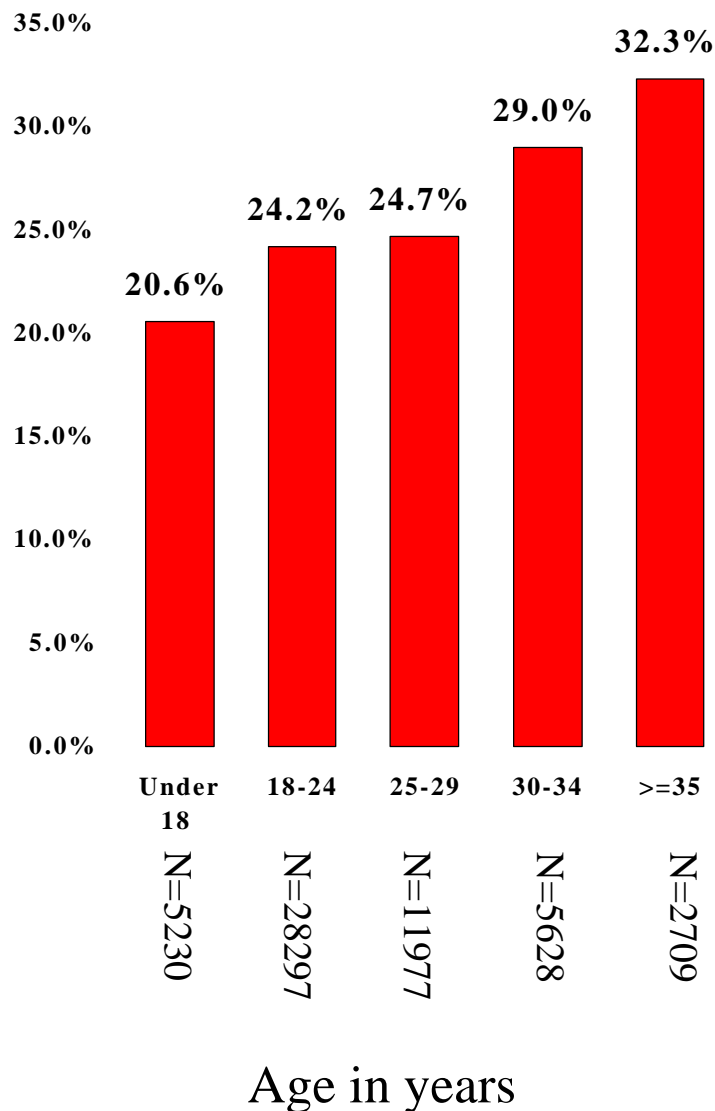


Figure 6  
**Percent of Mothers Who Smoked During  
Pregnancy For Each Maternal Ethnic Group  
North Carolina  
Pregnancy Nutrition Surveillance 1997**

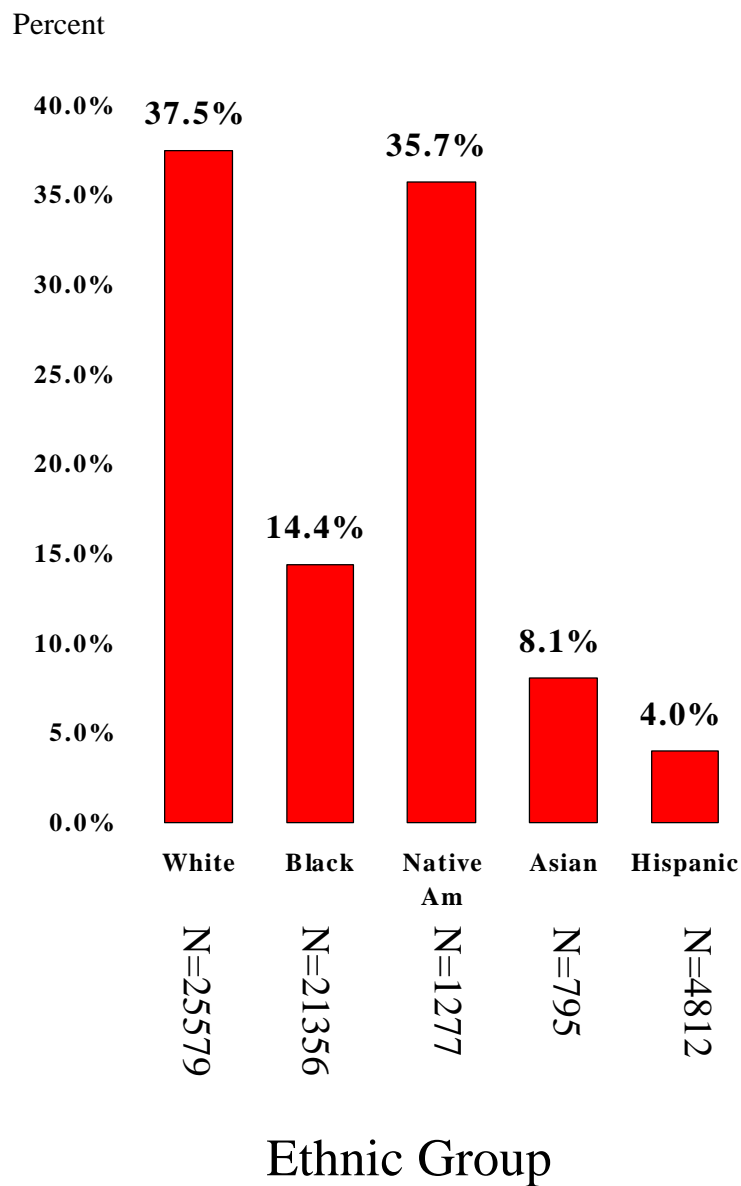


Figure 7  
**Percent of Mothers Who Smoked During  
Pregnancy For Each Maternal Education Group  
North Carolina  
Pregnancy Nutrition Surveillance 1997**

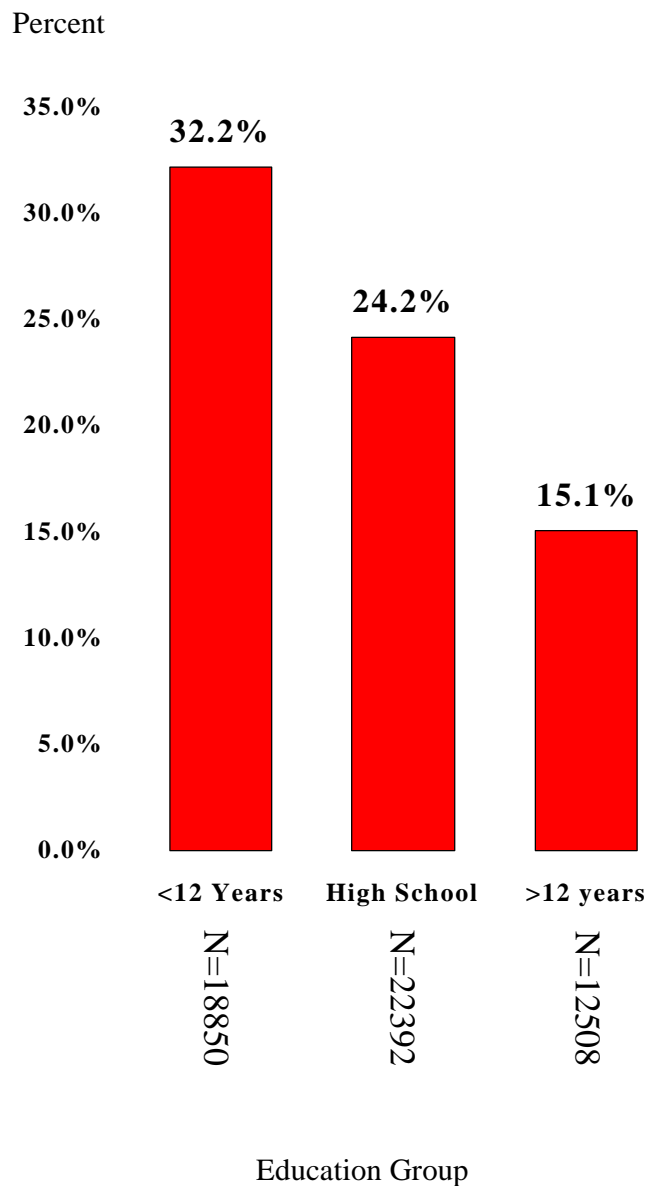


Figure 8  
Trimester of First Prenatal Visit  
North Carolina  
Pregnancy Nutrition Surveillance 1997

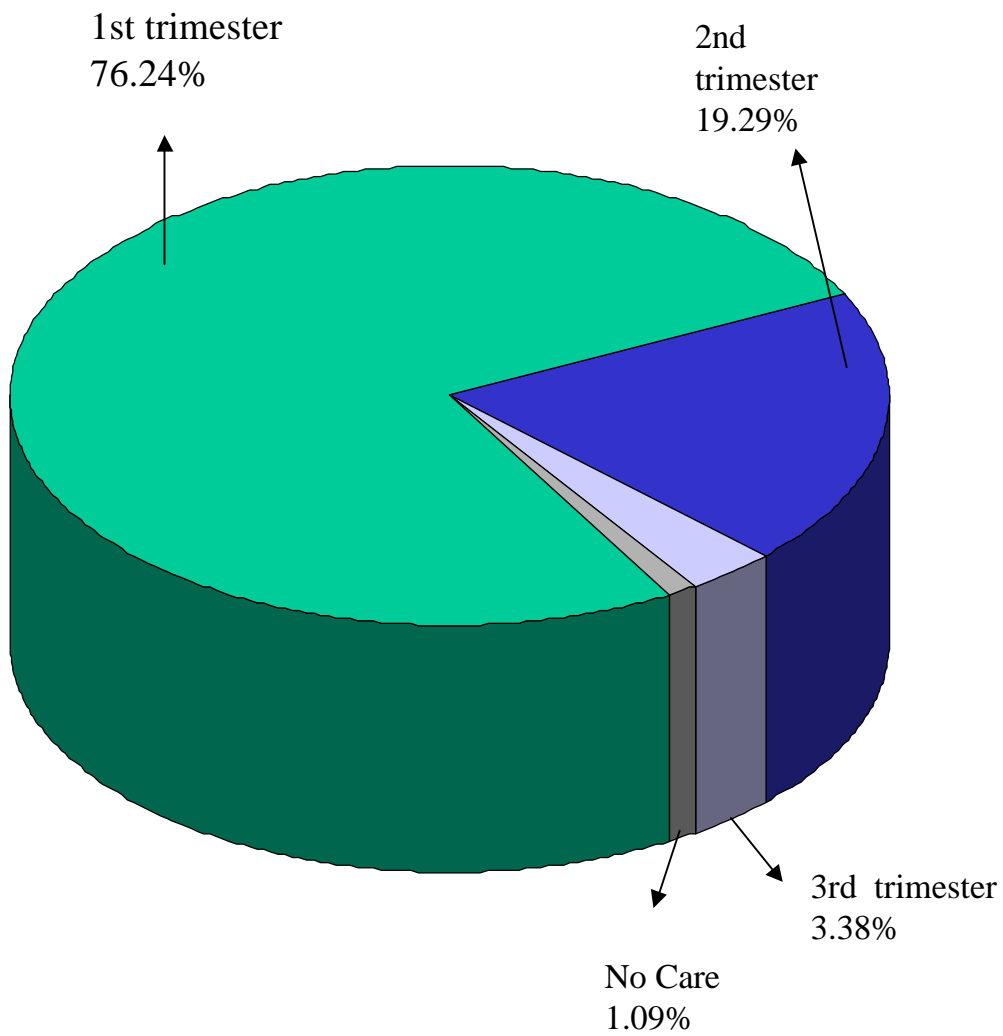


Figure 9  
Trimester of WIC Certification  
North Carolina  
Pregnancy Nutrition Surveillance 1997

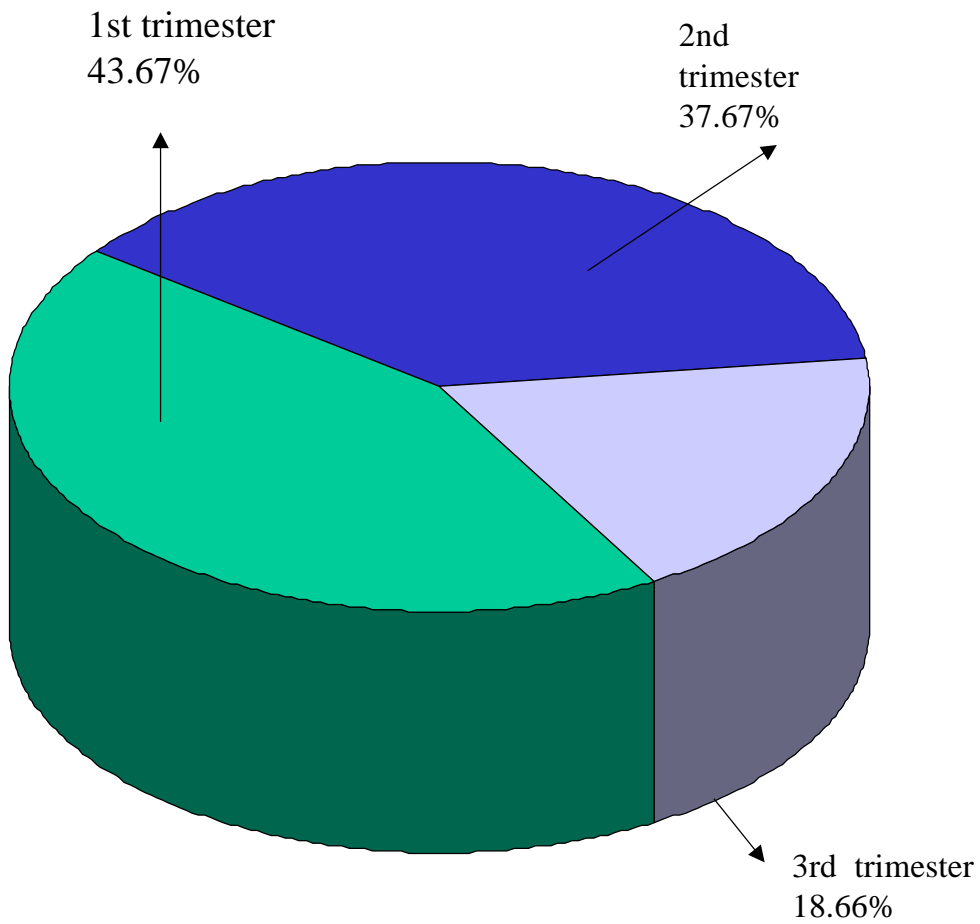




Figure 10  
**Distribution of Infant Birthweights**  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**

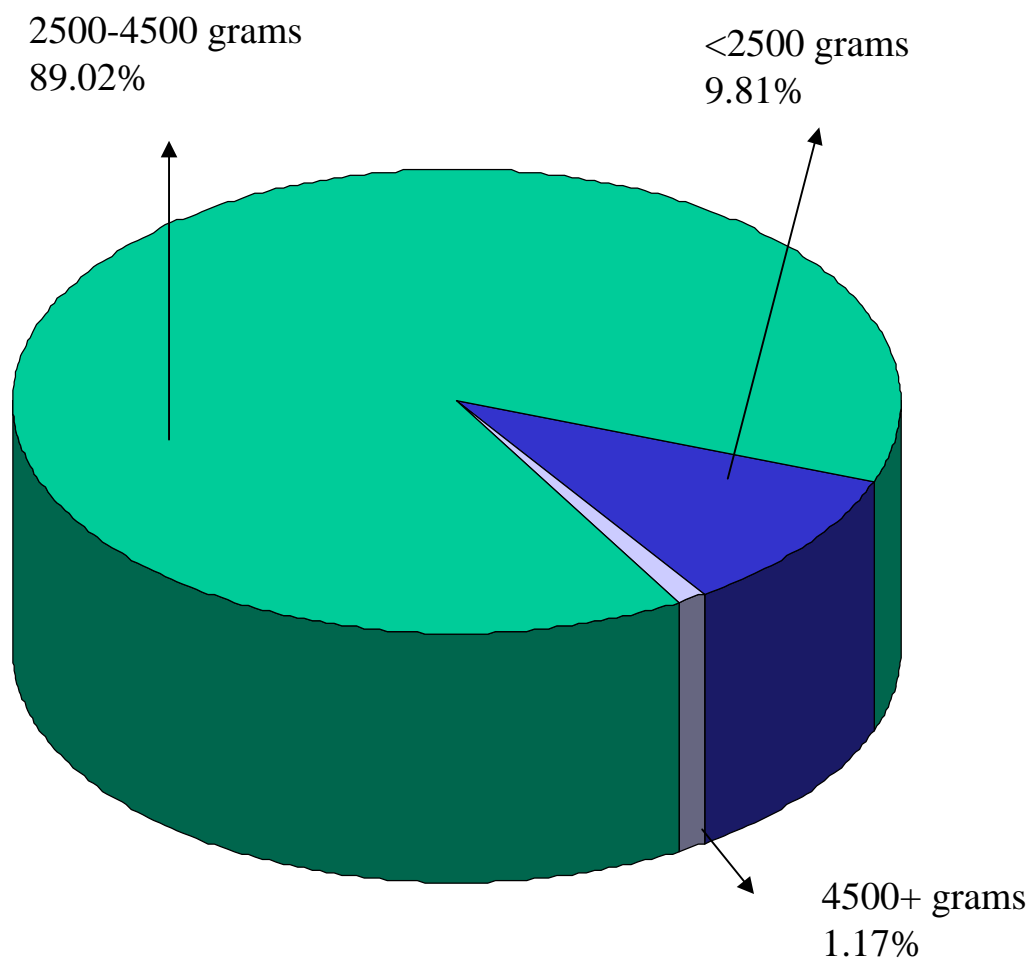
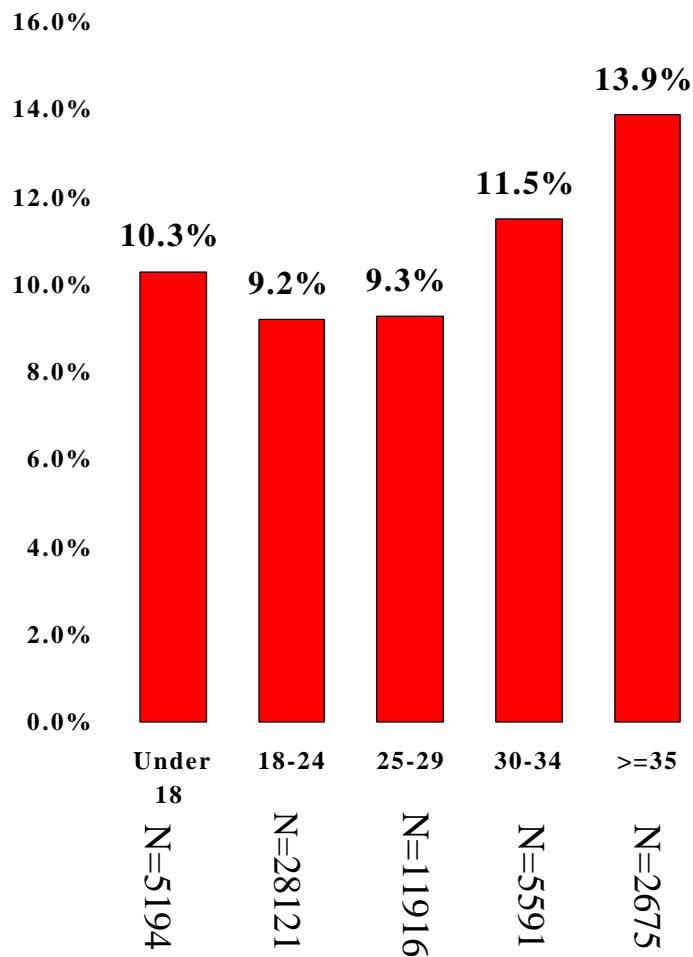


Figure 11  
**Percent of Infants With Low Birthweight  
 For Each Maternal Age Group  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997**

Percent



Age in years

Figure 12  
Percent of Infants With Low Birthweight  
For Each Maternal Ethnic Group  
North Carolina  
Pregnancy Nutrition Surveillance 1997

Percent

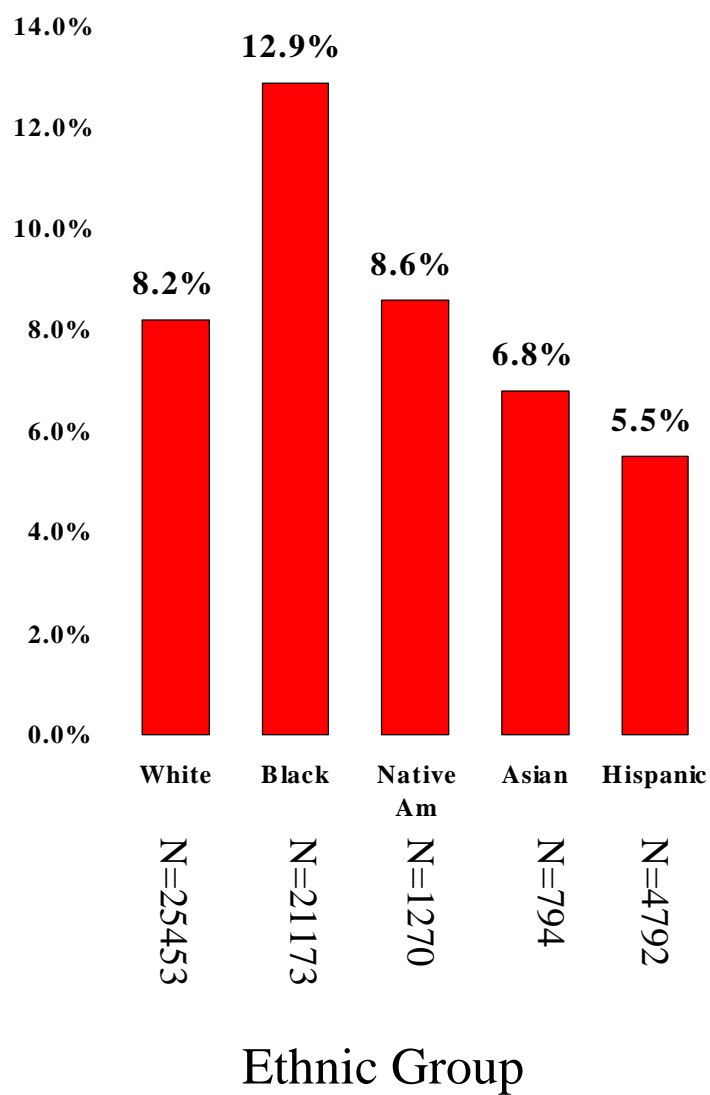
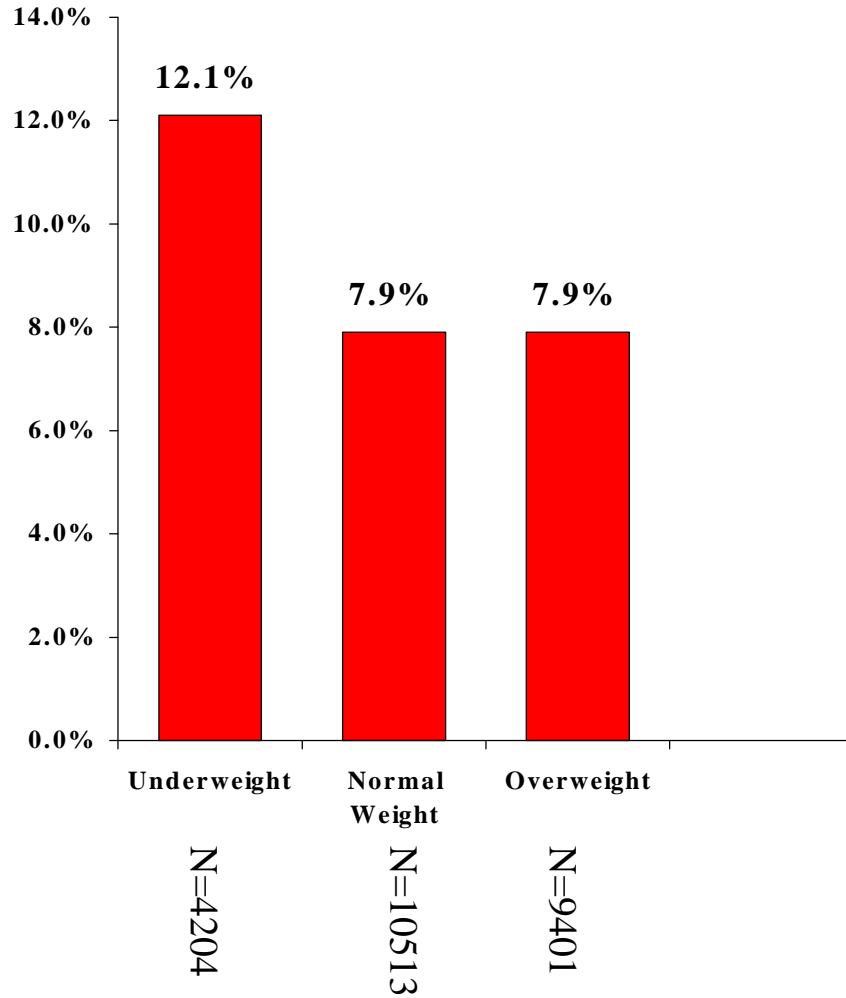


Figure 13  
**Percent of Infants With Low Birthweight  
For Each Maternal Prepregnancy Weight Group \***  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**

Percent



\*Includes only mothers enrolled in WIC

Figure 14  
**Percent of Infants With Low Birthweight  
By Maternal Smoking During Pregnancy  
North Carolina  
Pregnancy Nutrition Surveillance 1997**

Percent

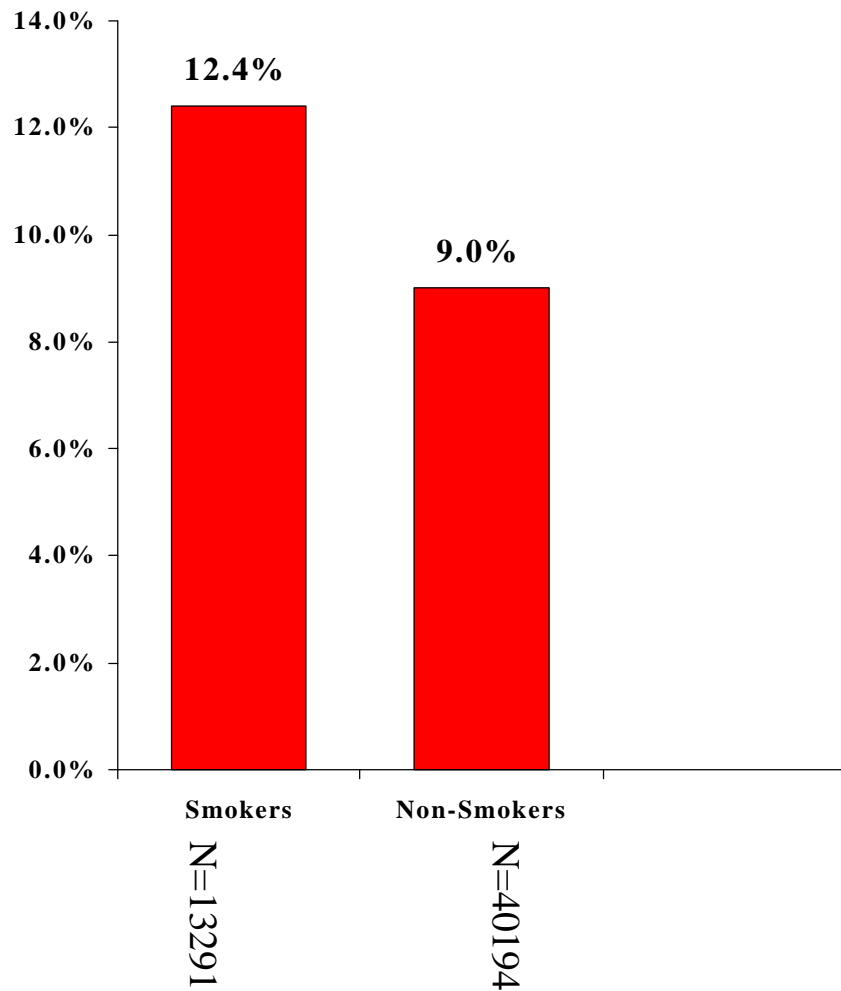
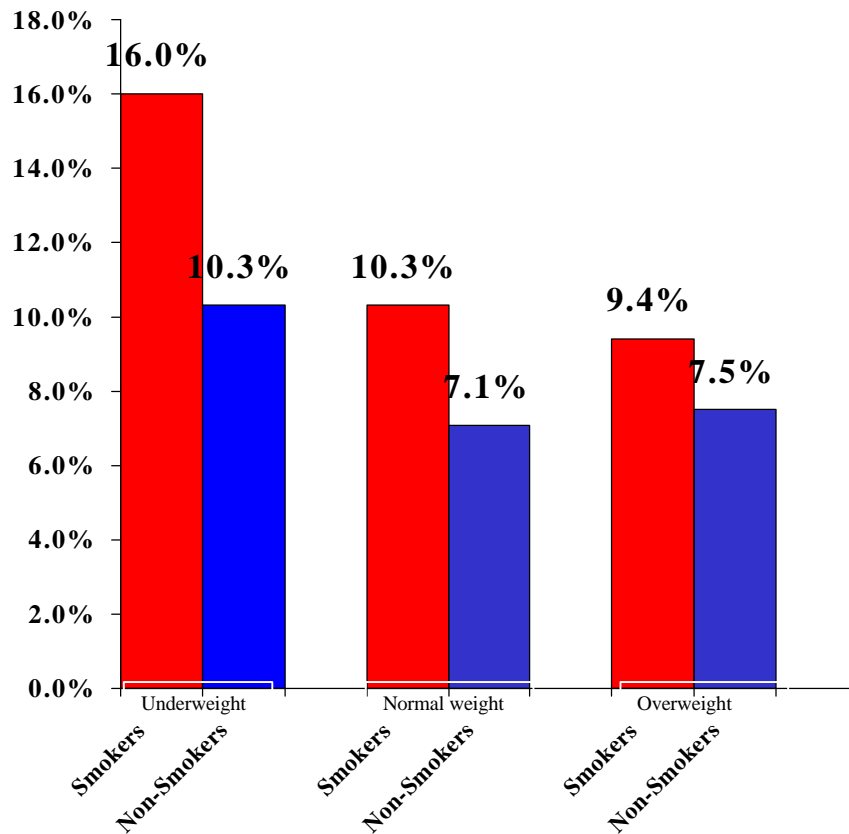


Figure 15  
**Percent of Infants With Low Birthweight  
 For Each Maternal Prepregnancy Weight and  
 Smoking During Pregnancy \***  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**

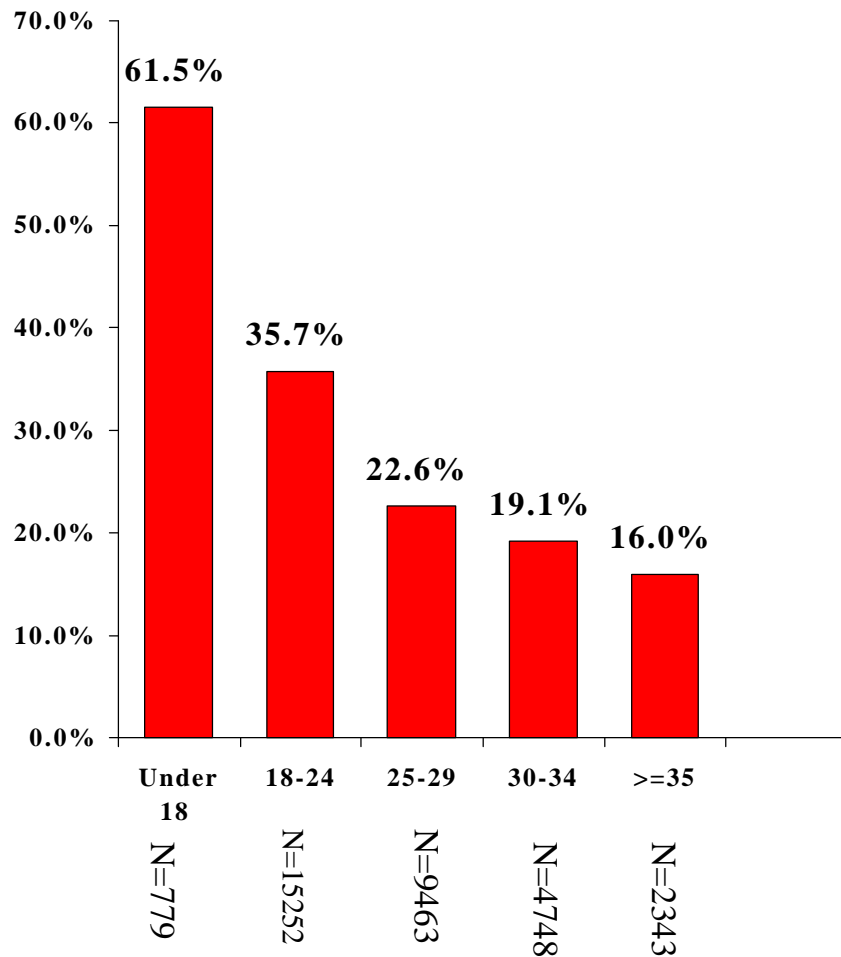
Percent



\*Includes only mothers enrolled in WIC

Figure 16  
**Percent of Mothers With Interpregnancy Interval \*  
 less than 12 Months For Each Maternal Age Group  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997**

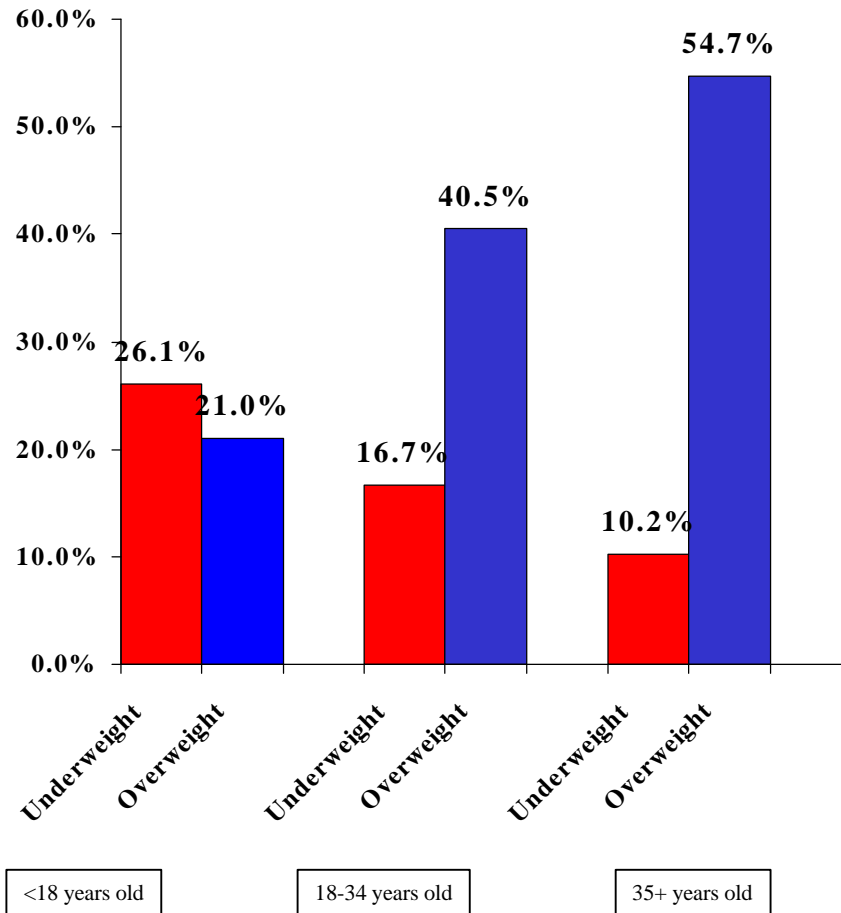
Percent



\*Includes only mothers with atleast one previous pregnancy

Figure 17  
**Percent of Women who were Underweight or  
 Overweight Before Pregnancy \* by Age  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997**

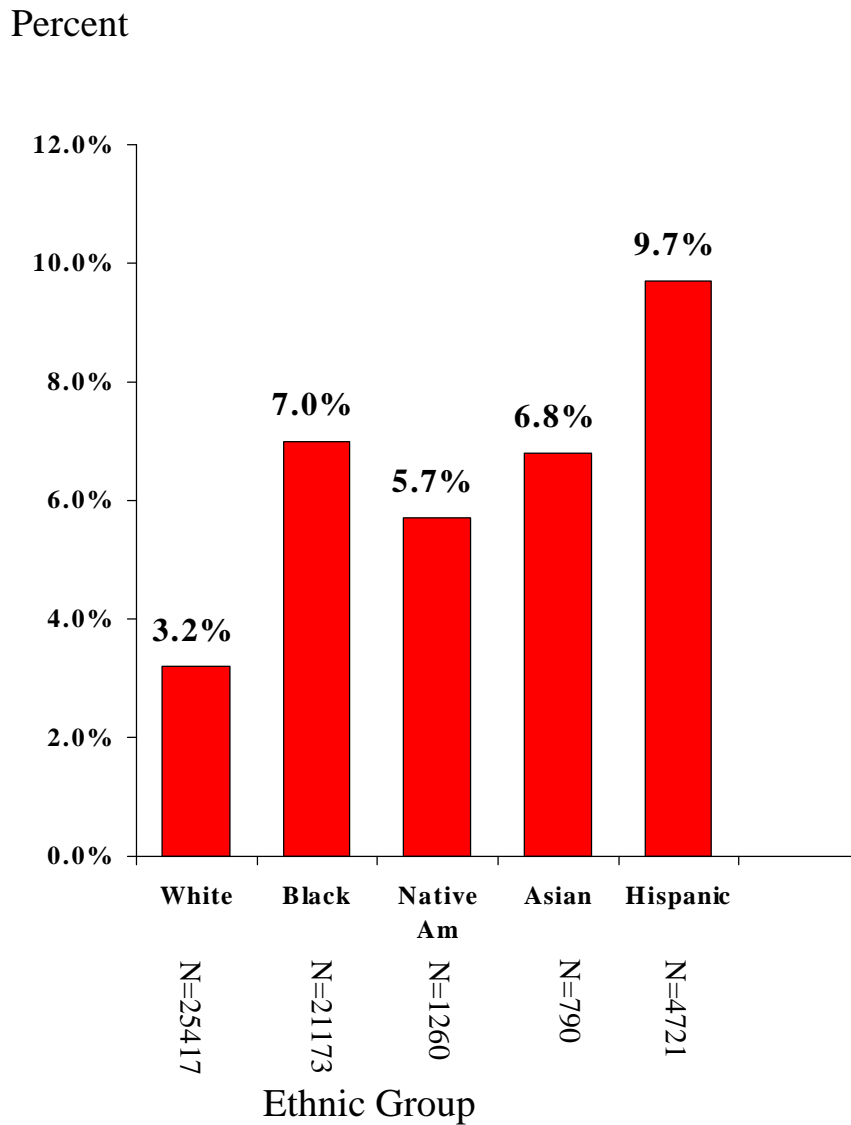
Percent



\* Based on self-reported weight and height



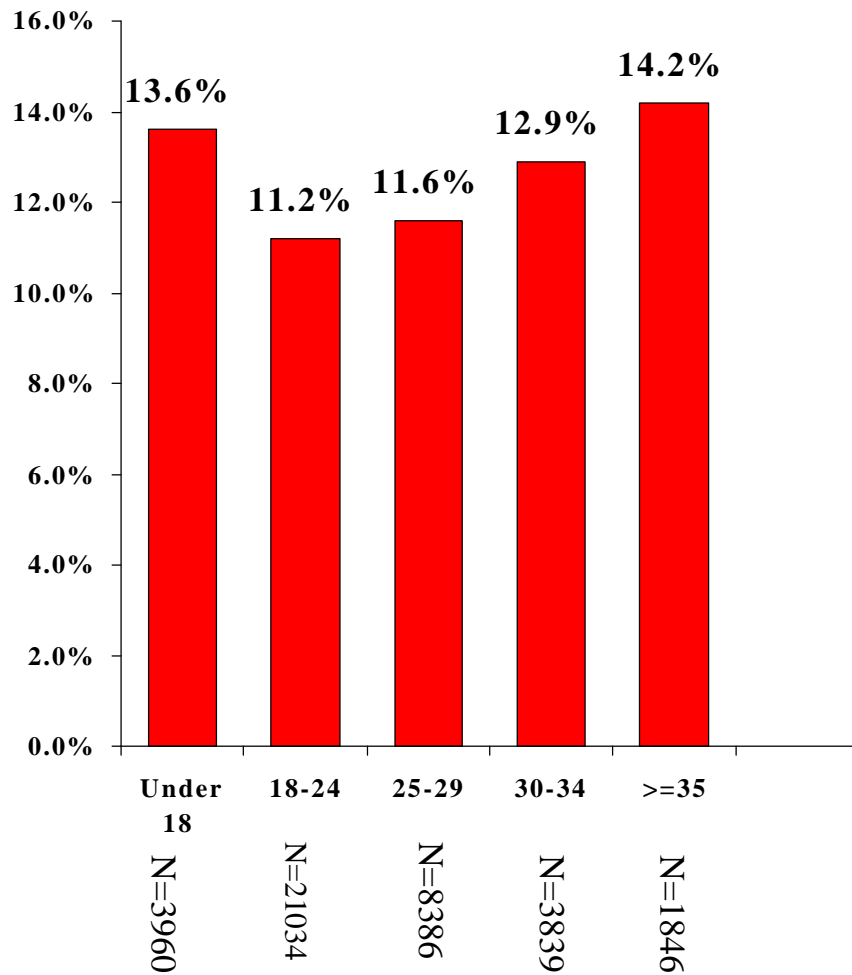
**Figure 18**  
**Percent of Infants With Inadequate Prenatal Care\***  
**For Each Maternal Ethnic Group**  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**



\* Based on Kessner Index of adequacy of prenatal care.

**Figure 19**  
**Percent of Mothers With Iron-Deficiency Anemia \***  
**For Each Maternal Age Group**  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**

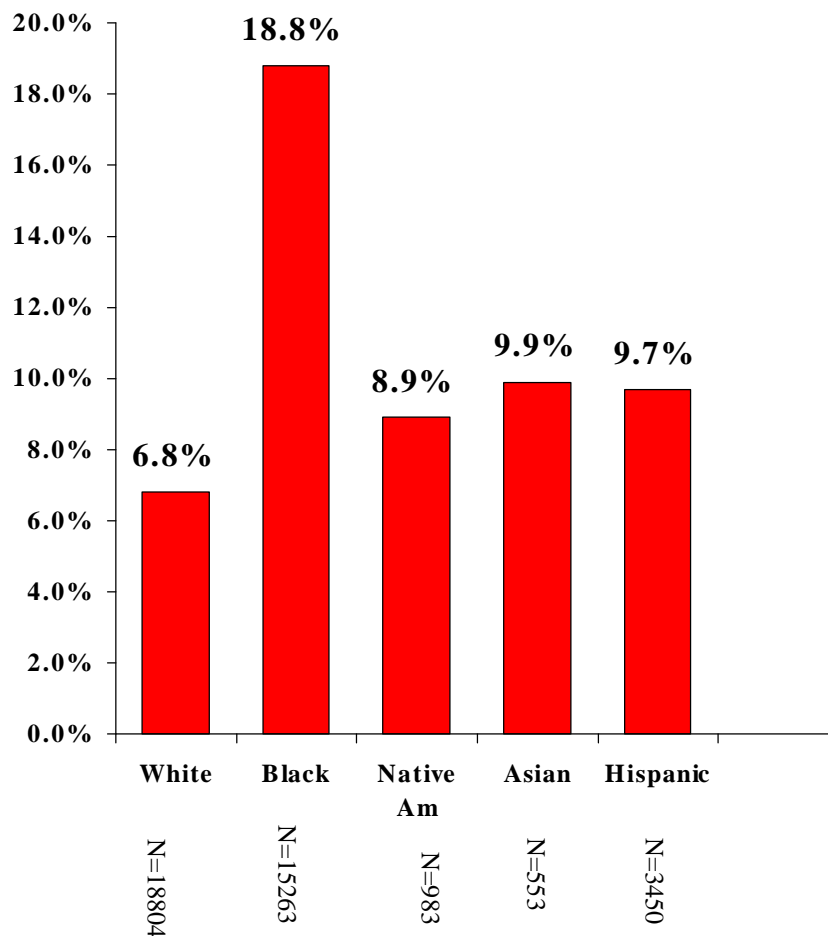
Percent



\*Includes only mothers enrolled in WIC

**Figure 20**  
**Percent of Mothers With Iron-Deficiency Anemia \***  
**For Each Maternal Ethnic Group**  
**North Carolina**  
**Pregnancy Nutrition Surveillance 1997**

Percent



\*Includes only mothers enrolled in WIC

Map 1

### North Carolina Regions Mothers Who Smoked During Pregnancy \* Pregnancy Nutrition Surveillance 1997



\* Includes only mothers enrolled in WIC.

Map 2

### North Carolina Regions Percent of Infants with Low Birthweight (< 2500 grams) Pregnancy Nutrition Surveillance 1997



Map 3

### North Carolina Regions Prevalence of Breastfeeding at WIC Postpartum Visit Pregnancy Nutrition Surveillance 1997



\* Includes only mothers enrolled in WIC.

Table 1  
 Maternal Smoking During Pregnancy  
 By Ethnicity and Age  
 North Carolina  
 Pregnancy Nutrition Surveillance System 1997

ETHNICITY BY AGE		SMOKING					
		Smokers		Non-smokers		<<TOTAL>>	
		Count	%	Count	%	Count	%
White	<18 years	834	38	1373	62	2207	100
	18-24 years	5141	37	8812	63	13953	100
	25-29 years	2100	37	3571	63	5671	100
	30-34 years	1031	40	1545	60	2576	100
	35 + years	494	42	678	58	1172	100
	<SUBTOTAL>	9600	38	15979	62	25579	100
Black	<18 years	185	8	2276	92	2461	100
	18-24 years	1351	12	9497	88	10848	100
	25-29 years	696	15	3878	85	4574	100
	30-34 years	516	22	1778	78	2294	100
	35 + years	336	28	843	72	1179	100
	<SUBTOTAL>	3084	14	18272	86	21356	100
Native American	<18 years	36	26	103	74	139	100
	18-24 years	248	35	454	65	702	100
	25-29 years	99	37	172	63	271	100
	30-34 years	55	48	60	52	115	100
	35 + years	18	36	32	64	50	100
	<SUBTOTAL>	456	36	821	64	1277	100
Asian	<18 years	5	8	55	92	60	100
	18-24 years	26	8	280	92	306	100
	25-29 years	15	6	216	94	231	100

(CONTINUED)

Table 1  
Maternal Smoking During Pregnancy  
By Ethnicity and Age  
North Carolina  
Pregnancy Nutrition Surveillance System 1997

ETHNICITY BY AGE		SMOKING					
		Smokers		Non-smokers		<<TOTAL>>	
		Count	%	Count	%	Count	%
Asian	30-34 years	11	9	118	91	129	100
	35 + years	7	10	62	90	69	100
	<SUBTOTAL>	64	8	731	92	795	100
Hispanic	<18 years	16	4	346	96	362	100
	18-24 years	93	4	2385	96	2478	100
	25-29 years	44	4	1182	96	1226	100
	30-34 years	21	4	492	96	513	100
	35 + years	19	8	214	92	233	100
	<SUBTOTAL>	193	4	4619	96	4812	100
All Races	<18 years	1076	21	4153	79	5229	100
	18-24 years	6859	24	21428	76	28287	100
	25-29 years	2954	25	9019	75	11973	100
	30-34 years	1634	29	3993	71	5627	100
	35 + years	874	32	1829	68	2703	100
	<SUBTOTAL>	13397	25	40422	75	53819	100



Table 2  
 Maternal Smoking During Pregnancy  
 By Ethnicity and Education  
 North Carolina  
 Pregnancy Nutrition Surveillance System 1995

ETHNICITY BY EDUCATION		SMOKING					
		Smokers		Non-smokers		<<TOTAL>>	
		Count	%	Count	%	Count	%
White	<12 years	4384	51	4226	49	8610	100
	High School Graduate	3893	35	7177	65	11070	100
	>12 years	1317	22	4565	78	5882	100
	<SUBTOTAL>	9594	38	15968	62	25562	100
Black	<12 years	1346	21	5003	79	6349	100
	High School Graduate	1252	13	8145	87	9397	100
	>12 years	484	9	5114	91	5598	100
	<SUBTOTAL>	3082	14	18262	86	21344	100
Native American	<12 years	219	45	269	55	488	100
	High School Graduate	181	34	354	66	535	100
	>12 years	56	22	198	78	254	100
	<SUBTOTAL>	456	36	821	64	1277	100
Asian	<12 years	19	7	266	93	285	100
	High School Graduate	33	12	247	88	280	100
	>12 years	12	5	215	95	227	100
	<SUBTOTAL>	64	8	728	92	792	100

(CONTINUED)

Table 2  
Maternal Smoking During Pregnancy  
By Ethnicity and Education  
North Carolina  
Pregnancy Nutrition Surveillance System 1995

ETHNICITY BY EDUCATION		SMOKING					
		Smokers		Non-smokers		<<TOTAL>>	
		Count	%	Count	%	Count	%
Hispanic	<12 years	100	3	3011	97	3111	100
	High School Graduate	69	6	1036	94	1105	100
	>12 years	23	4	521	96	544	100
Hispanic	<SUBTOTAL>	192	4	4568	96	4760	100
All Races	<12 years	6068	32	12775	68	18843	100
	High School Graduate	5428	24	16959	76	22387	100
	>12 years	1892	15	10613	85	12505	100
	<SUBTOTAL>	13388	25	40347	75	53735	100

Table 3  
 Trimester of First Prenatal Visit  
 by Maternal Age, Ethnicity, and Education  
 North Carolina  
 Pregnancy Nutrition Surveillance System 1997

	TRIMESTER OF FIRST PRENATAL VISIT							
	1st Trimester		2nd Trimester		3rd Trimester		<<TOTAL>>	
	Count	%	Count	%	Count	%	Count	%
AGE								
<18 years	3339	66	1440	28	303	6	5082	100
18-24 years	21279	77	5584	20	941	3	27804	100
25-29 years	9544	81	1903	16	311	3	11758	100
30-34 years	4460	81	891	16	144	3	5495	100
35 + years	2053	78	466	18	100	4	2619	100
ETHNICITY								
White	20959	83	3796	15	529	2	25284	100
Black	15072	72	4853	23	894	4	20819	100
Native American	898	72	297	24	51	4	1246	100
Asian	544	69	209	27	31	4	784	100
Hispanic	3202	69	1129	24	294	6	4625	100
EDUCATION								
<12 years	12893	70	4525	25	952	5	18370	100
High School Graduate	17364	79	4030	18	618	3	22012	100
>12 years	10418	84	1729	14	229	2	12376	100
<<TOTAL>>	40675	77	10284	19	1799	3	52758	100

Table 4  
 Trimester of WIC Certification  
 by Maternal Age, Ethnicity, and Education \*  
 North Carolina  
 Pregnancy Nutrition Surveillance System 1997

	TRIMESTER OF WIC CERTIFICATION							
	1st Trimester		2nd Trimester		3rd Trimester		<<TOTAL>>	
	Count	%	Count	%	Count	%	Count	%
AGE								
<18 years	1915	43	1777	40	731	17	4423	100
18-24 years	10222	44	8521	37	4239	18	22982	100
25-29 years	3943	43	3383	37	1813	20	9139	100
30-34 years	1791	42	1614	38	816	19	4221	100
35 + years	820	40	826	41	385	19	2031	100
ETHNICITY								
White	9901	49	6783	34	3508	17	20192	100
Black	6675	39	6978	41	3380	20	17033	100
Native American	468	45	413	40	154	15	1035	100
Asian	149	25	297	50	145	25	591	100
Hispanic	1498	38	1650	42	797	20	3945	100
EDUCATION								
<12 years	7090	45	5931	38	2568	16	15589	100
High School Graduate	7856	44	6609	37	3355	19	17820	100
>12 years	3745	40	3581	38	2061	22	9387	100
<<TOTAL>>	18691	44	16121	38	7984	19	42796	100

\* Includes only mothers enrolled in WIC.

Table 5  
 Birthweight Distribution  
 by Maternal Age, Ethnicity, and Education  
 North Carolina  
 Pregnancy Nutrition Surveillance System 1997

	BIRTHWEIGHT							
	<2500 grams		2500-4500 grams		4500+ grams		<<TOTAL>>	
	Count	%	Count	%	Count	%	Count	%
AGE								
<18 years	535	10	4624	89	27	1	5186	100
18-24 years	2580	9	25231	90	270	1	28081	100
25-29 years	1113	9	10590	89	189	2	11892	100
30-34 years	641	11	4851	87	89	2	5581	100
35 + years	372	14	2248	84	50	2	2670	100
ETHNICITY								
White	2097	8	22976	90	368	1	25441	100
Black	2719	13	18284	86	163	1	21166	100
Native American	109	9	1144	90	17	1	1270	100
Asian	54	7	730	92	7	1	791	100
Hispanic	262	6	4410	93	70	1	4742	100
EDUCATION								
<12 years	1954	10	16607	89	155	1	18716	100
High School Graduate	2130	10	19843	89	273	1	22246	100
>12 years	1157	9	11094	89	197	2	12448	100
<<TOTAL>>	5241	10	47544	89	625	1	53410	100

Table 6  
 Birthweight Distribution by Maternal Prepregnancy Weight  
 and Smoking Status During Pregnancy \*  
 North Carolina  
 Pregnancy Nutrition Surveillance System 1997

PREPREGNANCY WEIGHT BY SMOKING		BIRTHWEIGHT							
		<2500 grams		2500-4500 grams		4500+ grams		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Underweight	Smokers	215	16	1124	84	2	0	1341	100
	Non-smokers	295	10	2558	89	10	0	2863	100
	<SUBTOTAL>	510	12	3682	88	12	0	4204	100
Normal weight	Smokers	269	10	2317	89	18	1	2604	100
	Non-smokers	560	7	7280	92	69	1	7909	100
	<SUBTOTAL>	829	8	9597	91	87	1	10513	100
Overweight	Smokers	201	9	1925	90	15	1	2141	100
	Non-smokers	541	7	6557	90	162	2	7260	100
	<SUBTOTAL>	742	8	8482	90	177	2	9401	100
All Weights	Smokers	685	11	5366	88	35	1	6086	100
	Non-smokers	1396	8	16395	91	241	1	18032	100
	<SUBTOTAL>	2081	9	21761	90	276	1	24118	100

\* Includes only mothers enrolled in WIC.

Table 7  
Breastfeeding at Maternal Postpartum WIC Visit  
by Maternal Ethnicity and Age \*  
North Carolina  
Pregnancy Nutrition Surveillance System 1997

ETHNICITY BY AGE		BREASTFEEDING					
		Yes		No		<<TOTAL>>	
		Count	%	Count	%	Count	%
White	<18 years	393	21	1482	79	1875	100
	18-24 years	3348	28	8584	72	11932	100
	25-29 years	1742	35	3186	65	4928	100
	30-34 years	845	38	1399	62	2244	100
	35 + years	437	43	577	57	1014	100
	<SUBTOTAL>	6765	31	15228	69	21993	100
Black	<18 years	214	10	1861	90	2075	100
	18-24 years	1608	18	7464	82	9072	100
	25-29 years	971	25	2937	75	3908	100
	30-34 years	522	26	1463	74	1985	100
	35 + years	228	22	790	78	1018	100
	<SUBTOTAL>	3543	20	14515	80	18058	100
Native American	<18 years	18	14	110	86	128	100
	18-24 years	148	24	457	76	605	100
	25-29 years	69	30	163	70	232	100
	30-34 years	31	30	72	70	103	100
	35 + years	11	26	31	74	42	100
	<SUBTOTAL>	277	25	833	75	1110	100
Asian	<18 years	7	13	47	87	54	100

\* Includes only mothers enrolled in WIC.

(CONTINUED)

Table 7  
Breastfeeding at Maternal Postpartum WIC Visit  
by Maternal Ethnicity and Age \*  
North Carolina  
Pregnancy Nutrition Surveillance System 1997

ETHNICITY BY AGE		BREASTFEEDING					
		Yes		No		<<TOTAL>>	
		Count	%	Count	%	Count	%
Asian	18-24 years	76	29	189	71	265	100
	25-29 years	62	32	132	68	194	100
	30-34 years	50	45	60	55	110	100
	35 + years	20	33	41	67	61	100
	<SUBTOTAL>	215	31	469	69	684	100
Hispanic	<18 years	127	43	166	57	293	100
	18-24 years	1212	58	867	42	2079	100
	25-29 years	690	64	380	36	1070	100
	30-34 years	285	63	166	37	451	100
	35 + years	127	61	82	39	209	100
<SUBTOTAL>	2441	60	1661	40	4102	100	
All Races	<18 years	759	17	3666	83	4425	100
	18-24 years	6392	27	17561	73	23953	100
	25-29 years	3534	34	6798	66	10332	100
	30-34 years	1733	35	3160	65	4893	100
	35 + years	823	35	1521	65	2344	100
<SUBTOTAL>	13241	29	32706	71	45947	100	

\* Includes only mothers enrolled in WIC.



Table 8  
Breastfeeding at Maternal Postpartum WIC Visit  
by Maternal Ethnicity and Education \*  
North Carolina  
Pregnancy Nutrition Surveillance System 1997

ETHNICITY BY EDUCATION		BREASTFEEDING					
		Yes		No		<<TOTAL>>	
		Count	%	Count	%	Count	%
White	<12 years	1475	20	5871	80	7346	100
	High School Graduate	2920	31	6651	69	9571	100
	>12 years	2366	47	2700	53	5066	100
	<SUBTOTAL>	6761	31	15222	69	21983	100
Black	<12 years	538	10	4744	90	5282	100
	High School Graduate	1365	17	6617	83	7982	100
	>12 years	1639	34	3148	66	4787	100
	<SUBTOTAL>	3542	20	14509	80	18051	100
Native American	<12 years	73	17	357	83	430	100
	High School Graduate	108	24	348	76	456	100
	>12 years	96	43	128	57	224	100
	<SUBTOTAL>	277	25	833	75	1110	100
Asian	<12 years	36	15	211	85	247	100
	High School Graduate	75	31	170	69	245	100
	>12 years	103	54	86	46	189	100
	<SUBTOTAL>	214	31	467	69	681	100
Hispanic	<12 years	1581	60	1047	40	2628	100

\*Includes only mothers enrolled in WIC.

(CONTINUED)

Table 8  
Breastfeeding at Maternal Postpartum WIC Visit  
by Maternal Ethnicity and Education \*  
North Carolina  
Pregnancy Nutrition Surveillance System 1997

ETHNICITY BY EDUCATION		BREASTFEEDING					
		Yes		No		<<TOTAL>>	
		Count	%	Count	%	Count	%
		-----	---	-----	---	-----	---
Hispanic	High School Graduate	540	56	426	44	966	100
	>12 years	289	62	177	38	466	100
	<SUBTOTAL>	2410	59	1650	41	4060	100
All Races	<12 years	3703	23	12230	77	15933	100
	High School Graduate	5008	26	14212	74	19220	100
	>12 years	4493	42	6239	58	10732	100
	<SUBTOTAL>	13204	29	32681	71	45885	100

\* Includes only mothers enrolled in WIC.

Table 9  
 Interpregnancy Interval \*  
 By Ethnicity and Maternal Age  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		INTERPREGNANCY INTERVAL							
		First Birth		<12 months between pregnancies		12+ months between pregnancies		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
White	<18 years	1935	88	186	8	83	4	2204	100
	18-24 years	6790	49	2579	18	4585	33	13954	100
	25-29 years	1314	23	997	18	3356	59	5667	100
	30-34 years	430	17	428	17	1718	67	2576	100
	35 + years	158	14	178	15	832	71	1168	100
	<SUBTOTAL>	10627	42	4368	17	10574	41	25569	100
Black	<18 years	2048	83	229	9	184	7	2461	100
	18-24 years	4573	42	2222	20	4049	37	10844	100
	25-29 years	827	18	879	19	2865	63	4571	100
	30-34 years	349	15	360	16	1583	69	2292	100
	35 + years	160	14	144	12	876	74	1180	100
	<SUBTOTAL>	7957	37	3834	18	9557	45	21348	100
Native American	<18 years	123	88	11	8	5	4	139	100
	18-24 years	287	41	149	21	266	38	702	100
	25-29 years	41	15	43	16	187	69	271	100
	30-34 years	10	9	19	17	86	75	115	100
	35 + years	3	6	8	16	39	78	50	100
	<SUBTOTAL>	464	36	230	18	583	46	1277	100

\* Interpregnancy interval is the number of months from the end of the last pregnancy to conception of the current pregnancy

(CONTINUED)

Table 9  
Interpregnancy Interval \*  
By Ethnicity and Maternal Age  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		INTERPREGNANCY INTERVAL							
		First Birth		<12 months between pregnancies		12+ months between pregnancies		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Asian	<18 years	43	72	14	23	3	5	60	100
	18-24 years	140	46	76	25	89	29	305	100
	25-29 years	74	32	43	19	114	49	231	100
	30-34 years	29	23	22	17	77	60	128	100
	35 + years	9	13	15	22	44	65	68	100
	<SUBTOTAL>	295	37	170	21	327	41	792	100
Hispanic	<18 years	294	82	38	11	25	7	357	100
	18-24 years	1240	51	409	17	805	33	2454	100
	25-29 years	251	21	175	14	785	65	1211	100
	30-34 years	59	12	74	15	374	74	507	100
	35 + years	28	12	29	13	175	75	232	100
	<SUBTOTAL>	1872	39	725	15	2164	45	4761	100
All Races	<18 years	4443	85	478	9	300	6	5221	100
	18-24 years	13030	46	5435	19	9794	35	28259	100
	25-29 years	2507	21	2137	18	7307	61	11951	100
	30-34 years	877	16	903	16	3838	68	5618	100
	35 + years	358	13	374	14	1966	73	2698	100
	<<TOTAL>>	21215	39	9327	17	23205	43	53747	100

\* Interpregnancy interval is the number of months from the end of the last pregnancy to conception of the current pregnancy

Table 10  
 Interpregnancy Interval \*  
 By Ethnicity and Maternal Education  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY EDUCATION		INTERPREGNANCY INTERVAL							
		First Birth		<12 months between pregnancies		12+ months between pregnancies		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
White	<12 years	3819	44	1585	18	3207	37	8611	100
	High School Graduate	4423	40	1836	17	4815	43	11074	100
	>12 years	2385	41	947	16	2552	43	5884	100
	<SUBTOTAL>	10627	42	4368	17	10574	41	25569	100
Black	<12 years	2972	47	1197	19	2180	34	6349	100
	High School Graduate	3063	33	1737	18	4600	49	9400	100
	>12 years	1922	34	900	16	2777	50	5599	100
	<SUBTOTAL>	7957	37	3834	18	9557	45	21348	100
Native American	<12 years	214	44	103	21	171	35	488	100
	High School Graduate	166	31	89	17	280	52	535	100
	>12 years	84	33	38	15	132	52	254	100
	<SUBTOTAL>	464	36	230	18	583	46	1277	100
Asian	<12 years	93	33	73	26	119	42	285	100
	High School Graduate	102	36	61	22	117	42	280	100
	>12 years	100	44	36	16	91	40	227	100
	<SUBTOTAL>	295	37	170	21	327	41	792	100

\* Interpregnancy interval is the number of months from the end of the last pregnancy to conception of the current pregnancy

(CONTINUED)

Table 10  
 Interpregnancy Interval \*  
 By Ethnicity and Maternal Education  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY EDUCATION		INTERPREGNANCY INTERVAL							
		First Birth		<12 months between pregnancies		12+ months between pregnancies		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Hispanic	<12 years	1203	39	472	15	1437	46	3112	100
	High School Graduate	451	41	168	15	486	44	1105	100
	>12 years	218	40	85	16	241	44	544	100
	<SUBTOTAL>	1872	39	725	15	2164	45	4761	100
All Races	<12 years	8301	44	3430	18	7114	38	18845	100
	High School Graduate	8205	37	3891	17	10298	46	22394	100
	>12 years	4709	38	2006	16	5793	46	12508	100
	<SUBTOTAL>	21215	39	9327	17	23205	43	53747	100
<<TOTAL>>		21215	39	9327	17	23205	43	53747	100

\* Interpregnancy interval is the number of months from the end of the last pregnancy to conception of the current pregnancy

Table 11  
 Prepregnancy Weight \*  
 By Ethnicity and Maternal Age  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		PREPREGNANCY WEIGHT							
		Underweight		Normal weight		Overweight		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
White	<18 years	334	31	546	51	188	18	1068	100
	18-24 years	1418	22	2880	44	2202	34	6500	100
	25-29 years	362	16	928	40	1005	44	2295	100
	30-34 years	140	14	402	40	462	46	1004	100
	35 + years	54	14	160	40	185	46	399	100
	<SUBTOTAL>	2308	20	4916	44	4042	36	11266	100
Black	<18 years	250	21	626	53	298	25	1174	100
	18-24 years	766	15	2068	42	2109	43	4943	100
	25-29 years	209	11	704	36	1062	54	1975	100
	30-34 years	78	8	316	34	540	58	934	100
	35 + years	39	8	136	28	307	64	482	100
	<SUBTOTAL>	1342	14	3850	40	4316	45	9508	100
Native American	<18 years	31	37	38	45	15	18	84	100
	18-24 years	79	20	169	43	147	37	395	100
	25-29 years	23	14	61	37	83	50	167	100
	30-34 years	5	8	21	34	35	57	61	100
	35 + years	1	3	7	24	21	72	29	100
	<SUBTOTAL>	139	19	296	40	301	41	736	100

\* Based on self-reported weight and height.

(CONTINUED)

Table 11  
Prepregnancy Weight \*  
By Ethnicity and Maternal Age  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		PREPREGNANCY WEIGHT							
		Underweight		Normal weight		Overweight		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Asian	<18 years	11	34	15	47	6	19	32	100
	18-24 years	49	34	68	47	29	20	146	100
	25-29 years	38	38	49	49	14	14	101	100
	30-34 years	16	29	35	63	5	9	56	100
	35 + years	8	27	14	47	8	27	30	100
	<SUBTOTAL>	122	33	181	50	62	17	365	100
Hispanic	<18 years	35	20	110	64	26	15	171	100
	18-24 years	191	15	737	59	330	26	1258	100
	25-29 years	64	11	317	54	208	35	589	100
	30-34 years	15	6	104	41	132	53	251	100
	35 + years	6	5	54	46	58	49	118	100
	<SUBTOTAL>	311	13	1322	55	754	32	2387	100
All Races	<18 years	661	26	1335	53	533	21	2529	100
	18-24 years	2503	19	5922	45	4817	36	13242	100
	25-29 years	696	14	2059	40	2372	46	5127	100
	30-34 years	254	11	878	38	1174	51	2306	100
	35 + years	108	10	371	35	579	55	1058	100
	<SUBTOTAL>	4222	17	10565	44	9475	39	24262	100
<<TOTAL>>	4222	17	10565	44	9475	39	24262	100	

\* Based on self-reported weight and height.

Table 12  
Prepregnancy Weight \*  
By Ethnicity and Maternal Education  
North Carolina  
Pregnancy Nutrition Surveillance 1997



ETHNICITY BY EDUCATION

PREPREGNANCY WEIGHT

		Underweight		Normal weight		Overweight		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
White	<12 years	1003	25	1796	44	1242	31	4041	100
	High School Graduate	949	19	2093	42	1885	38	4927	100
	>12 years	356	15	1027	45	915	40	2298	100
	<SUBTOTAL>	2308	20	4916	44	4042	36	11266	100
Black	<12 years	500	17	1272	44	1146	39	2918	100
	High School Graduate	561	13	1682	40	1968	47	4211	100
	>12 years	281	12	896	38	1202	51	2379	100
	<SUBTOTAL>	1342	14	3850	40	4316	45	9508	100
Native American	<12 years	66	24	111	41	94	35	271	100
	High School Graduate	60	18	133	40	137	42	330	100
	>12 years	13	10	52	39	70	52	135	100
	<SUBTOTAL>	139	19	296	40	301	41	736	100
Asian	<12 years	49	35	64	45	28	20	141	100
	High School Graduate	38	30	72	57	16	13	126	100
	>12 years	35	36	45	46	18	18	98	100
	<SUBTOTAL>	122	33	181	50	62	17	365	100

(CONTINUED)

\* Based on self-reported weight and height.

Table 12  
 Prepregnancy Weight \*  
 By Ethnicity and Maternal Education  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY EDUCATION		PREPREGNANCY WEIGHT							
		Underweight		Normal weight		Overweight		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Hispanic	<12 years	187	12	866	56	507	33	1560	100
	High School Graduate	90	16	305	54	174	31	569	100
	>12 years	34	13	151	59	73	28	258	100
	<SUBTOTAL>	311	13	1322	55	754	32	2387	100
All Races	<12 years	1805	20	4109	46	3017	34	8931	100
	High School Graduate	1698	17	4285	42	4180	41	10163	100
	>12 years	719	14	2171	42	2278	44	5168	100
	<SUBTOTAL>	4222	17	10565	44	9475	39	24262	100
<<TOTAL>>		4222	17	10565	44	9475	39	24262	100

\* Based on self-reported weight and height.

Table 13  
 Five Minute Apgar Score  
 By Ethnicity and Maternal Age  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		APGAR SCORE					
		Apgar score <7		Apgar Score 7+		<<TOTAL>>	
		Count	%	Count	%	Count	%
White	<18 years	54	2	2150	98	2204	100
	18-24 years	271	2	13683	98	13954	100
	25-29 years	92	2	5575	98	5667	100
	30-34 years	72	3	2504	97	2576	100
	35 + years	40	3	1128	97	1168	100
	<SUBTOTAL>	529	2	25040	98	25569	100
Black	<18 years	80	3	2381	97	2461	100
	18-24 years	364	3	10480	97	10844	100
	25-29 years	165	4	4406	96	4571	100
	30-34 years	107	5	2185	95	2292	100
	35 + years	66	6	1114	94	1180	100
	<SUBTOTAL>	782	4	20566	96	21348	100
Native American	<18 years	1	1	138	99	139	100
	18-24 years	25	4	677	96	702	100
	25-29 years	8	3	263	97	271	100
	30-34 years	7	6	108	94	115	100
	35 + years	2	4	48	96	50	100
	<SUBTOTAL>	43	3	1234	97	1277	100

(CONTINUED)

Table 13  
Five Minute Apgar Score  
By Ethnicity and Maternal Age  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		APGAR SCORE					
		Apgar score <7		Apgar Score 7+		<<TOTAL>>	
		Count	%	Count	%	Count	%
Asian	<18 years	.	.	60	100	60	100
	18-24 years	4	1	301	99	305	100
	25-29 years	5	2	226	98	231	100
	30-34 years	4	3	124	97	128	100
	35 + years	.	.	68	100	68	100
	<SUBTOTAL>		13	2	779	98	792
Hispanic	<18 years	10	3	347	97	357	100
	18-24 years	43	2	2411	98	2454	100
	25-29 years	20	2	1191	98	1211	100
	30-34 years	7	1	500	99	507	100
	35 + years	4	2	228	98	232	100
	<SUBTOTAL>		84	2	4677	98	4761
All Races	<18 years	145	3	5076	97	5221	100
	18-24 years	707	3	27552	97	28259	100
	25-29 years	290	2	11661	98	11951	100
	30-34 years	197	4	5421	96	5618	100
	35 + years	112	4	2586	96	2698	100
	<SUBTOTAL>		1451	3	52296	97	53747
<<TOTAL>>		1451	3	52296	97	53747	100

Table 14  
 Five Minute Apgar Score  
 By Ethnicity and Maternal Education  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY EDUCATION		APGAR SCORE					
		Apgar score <7		Apgar Score 7+		<<TOTAL>>	
		Count	%	Count	%	Count	%
White	<12 years	206	2	8405	98	8611	100
	High School Graduate	218	2	10856	98	11074	100
	>12 years	105	2	5779	98	5884	100
	<SUBTOTAL>	529	2	25040	98	25569	100
Black	<12 years	224	4	6125	96	6349	100
	High School Graduate	358	4	9042	96	9400	100
	>12 years	200	4	5399	96	5599	100
	<SUBTOTAL>	782	4	20566	96	21348	100
Native American	<12 years	17	3	471	97	488	100
	High School Graduate	18	3	517	97	535	100
	>12 years	8	3	246	97	254	100
	<SUBTOTAL>	43	3	1234	97	1277	100
Asian	<12 years	6	2	279	98	285	100
	High School Graduate	3	1	277	99	280	100
	>12 years	4	2	223	98	227	100
	<SUBTOTAL>	13	2	779	98	792	100

(CONTINUED)

Table 14  
Five Minute Apgar Score  
By Ethnicity and Maternal Education  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY EDUCATION		APGAR SCORE					
		Apgar score <7		Apgar Score 7+		<<TOTAL>>	
		Count	%	Count	%	Count	%
Hispanic	<12 years	60	2	3052	98	3112	100
	High School Graduate	21	2	1084	98	1105	100
	>12 years	3	1	541	99	544	100
	<SUBTOTAL>	84	2	4677	98	4761	100
All Races	<12 years	513	3	18332	97	18845	100
	High School Graduate	618	3	21776	97	22394	100
	>12 years	320	3	12188	97	12508	100
	<SUBTOTAL>	1451	3	52296	97	53747	100
<<TOTAL>>		1451	3	52296	97	53747	100

Table 15  
 Adequacy of Prenatal Care \*  
 By Ethnicity and Maternal Age  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		PRENATAL CARE ADEQUACY							
		Adequate		Intermediate		Inadequate		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
White	<18 years	1512	70	522	24	132	6	2166	100
	18-24 years	10718	78	2639	19	436	3	13793	100
	25-29 years	4644	83	836	15	134	2	5614	100
	30-34 years	2083	82	381	15	73	3	2537	100
	35 + years	907	79	187	16	49	4	1143	100
	<SUBTOTAL>	19864	79	4565	18	824	3	25253	100
Black	<18 years	1259	53	879	37	236	10	2374	100
	18-24 years	6926	65	2907	27	753	7	10586	100
	25-29 years	3238	73	952	21	273	6	4463	100
	30-34 years	1616	73	475	21	130	6	2221	100
	35 + years	811	72	241	21	78	7	1130	100
	<SUBTOTAL>	13850	67	5454	26	1470	7	20774	100
Native American	<18 years	78	58	44	33	12	9	134	100
	18-24 years	449	66	199	29	37	5	685	100
	25-29 years	188	72	57	22	16	6	261	100

\* Based on Kessner Index of Adequacy of Prenatal Care.

(CONTINUED)

Table 15  
 Adequacy of Prenatal Care \*  
 By Ethnicity and Maternal Age  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		PRENATAL CARE ADEQUACY							
		Adequate		Intermediate		Inadequate		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Native American	30-34 years	85	75	23	20	5	4	113	100
	35 + years	30	61	17	35	2	4	49	100
	<SUBTOTAL>	830	67	340	27	72	6	1242	100
Asian	<18 years	28	47	26	44	5	8	59	100
	18-24 years	184	61	96	32	20	7	300	100
	25-29 years	152	66	65	28	14	6	231	100
	30-34 years	88	69	28	22	11	9	127	100
	35 + years	40	61	22	33	4	6	66	100
	<SUBTOTAL>	492	63	237	30	54	7	783	100
Hispanic	<18 years	183	54	106	31	51	15	340	100
	18-24 years	1423	60	710	30	255	11	2388	100
	25-29 years	758	64	330	28	88	7	1176	100
	30-34 years	319	65	134	27	37	8	490	100
	35 + years	138	61	66	29	21	9	225	100
	<SUBTOTAL>	2821	61	1346	29	452	10	4619	100

\* Based on Kessner Index of Adequacy of Prenatal Care.



(CONTINUED)

Table 15  
 Adequacy of Prenatal Care \*  
 By Ethnicity and Maternal Age  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE	PRENATAL CARE ADEQUACY							
	Adequate		Intermediate		Inadequate		<<TOTAL>>	
	Count	%	Count	%	Count	%	Count	%
All Races <18 years	3060	60	1577	31	436	9	5073	100
18-24 years	19700	71	6551	24	1501	5	27752	100
25-29 years	8980	76	2240	19	525	4	11745	100
30-34 years	4191	76	1041	19	256	5	5488	100
35 + years	1926	74	533	20	154	6	2613	100
<SUBTOTAL>	37857	72	11942	23	2872	5	52671	100
<<TOTAL>>	37857	72	11942	23	2872	5	52671	100

\* Based on Kessner Index of Adequacy of Prenatal Care.

Table 16  
 Adequacy of Prenatal Care \*  
 By Ethnicity and Maternal Education  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY EDUCATION		PRENATAL CARE ADEQUACY							
		Adequate		Intermediate		Inadequate		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
White	<12 years	6131	72	1925	23	420	5	8476	100
	High School Graduate	8794	80	1840	17	303	3	10937	100
	>12 years	4939	85	800	14	101	2	5840	100
	<SUBTOTAL>	19864	79	4565	18	824	3	25253	100
Black	<12 years	3481	57	1996	33	639	10	6116	100
	High School Graduate	6172	67	2372	26	604	7	9148	100
	>12 years	4197	76	1086	20	227	4	5510	100
	<SUBTOTAL>	13850	67	5454	26	1470	7	20774	100
Native American	<12 years	279	59	153	33	38	8	470	100
	High School Graduate	361	69	140	27	20	4	521	100
	>12 years	190	76	47	19	14	6	251	100
	<SUBTOTAL>	830	67	340	27	72	6	1242	100
Asian	<12 years	153	55	102	36	25	9	280	100
	High School Graduate	175	63	81	29	21	8	277	100
	>12 years	164	73	54	24	8	4	226	100

\* Based on Kessner Index of Adequacy of Prenatal Care.

(CONTINUED)

Table 16  
Adequacy of Prenatal Care \*  
By Ethnicity and Maternal Education  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY EDUCATION	PRENATAL CARE ADEQUACY							
	Adequate		Intermediate		Inadequate		<<TOTAL>>	
	Count	%	Count	%	Count	%	Count	%
Asian <SUBTOTAL>	492	63	237	30	54	7	783	100
Hispanic <12 years	1622	54	995	33	371	12	2988	100
High School Graduate	765	70	263	24	64	6	1092	100
>12 years	434	81	88	16	17	3	539	100
<SUBTOTAL>	2821	61	1346	29	452	10	4619	100
All Races <12 years	11666	64	5171	28	1493	8	18330	100
High School Graduate	16267	74	4696	21	1012	5	21975	100
>12 years	9924	80	2075	17	367	3	12366	100
<SUBTOTAL>	37857	72	11942	23	2872	5	52671	100
<<TOTAL>>	37857	72	11942	23	2872	5	52671	100

\* Based on Kessner Index of Adequacy of Prenatal Care.

Table 17  
 Trimester of Prenatal WIC Enrollment  
 And First Prenatal Care Visit  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

	TRIMESTER OF WIC ENROLLMENT							
	1st Trimester		2nd Trimester		3rd Trimester		<<TOTAL>>	
	Count	%	Count	%	Count	%	Count	%
TRIMESTER OF FIRST PRENATAL VISIT								
No Care	29	19	54	36	67	45	150	100
1st Trimester	16964	52	10799	33	5046	15	32809	100
2nd Trimester	1533	18	4884	59	1903	23	8320	100
3rd Trimester	106	8	300	23	908	69	1314	100
<<TOTAL>>	18632	44	16037	38	7924	19	42593	100

\* Includes mothers who enrolled in WIC postpartum as well as mothers who were not enrolled in WIC.

Table 18  
 Iron-Deficiency Anemia  
 By Ethnicity and Maternal Age  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		IRON-DEFICIENCY ANEMIA					
		Yes		No		<<TOTAL>>	
		Count	%	Count	%	Count	%
White	<18 years	119	7	1594	93	1713	100
	18-24 years	692	7	9901	93	10593	100
	25-29 years	274	7	3658	93	3932	100
	30-34 years	130	7	1635	93	1765	100
	35 + years	68	8	733	92	801	100
	<SUBTOTAL>	1283	7	17521	93	18804	100
Black	<18 years	362	20	1459	80	1821	100
	18-24 years	1434	18	6466	82	7900	100
	25-29 years	588	18	2618	82	3206	100
	30-34 years	324	21	1215	79	1539	100
	35 + years	169	21	628	79	797	100
	<SUBTOTAL>	2877	19	12386	81	15263	100
Native American	<18 years	12	10	106	90	118	100
	18-24 years	46	9	490	91	536	100
	25-29 years	19	9	192	91	211	100
	30-34 years	5	6	77	94	82	100
	35 + years	5	14	31	86	36	100
	<SUBTOTAL>	87	9	896	91	983	100

(CONTINUED)

Table 18  
Iron-Deficiency Anemia  
By Ethnicity and Maternal Age  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY AGE		IRON-DEFICIENCY ANEMIA					
		Yes		No		<<TOTAL>>	
		Count	%	Count	%	Count	%
Asian	<18 years	8	18	37	82	45	100
	18-24 years	21	10	193	90	214	100
	25-29 years	17	11	141	89	158	100
	30-34 years	5	6	84	94	89	100
	35 + years	4	9	43	91	47	100
	<SUBTOTAL>	55	10	498	90	553	100
Hispanic	<18 years	38	15	224	85	262	100
	18-24 years	171	10	1613	90	1784	100
	25-29 years	77	9	798	91	875	100
	30-34 years	31	9	333	91	364	100
	35 + years	17	10	148	90	165	100
	<SUBTOTAL>	334	10	3116	90	3450	100
All Races	<18 years	539	14	3420	86	3959	100
	18-24 years	2364	11	18663	89	21027	100
	25-29 years	975	12	7407	88	8382	100
	30-34 years	495	13	3344	87	3839	100
	35 + years	263	14	1583	86	1846	100
	<SUBTOTAL>	4636	12	34417	88	39053	100

Table 19  
Regional Comparison of Maternal Age by Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		AGE GROUP					
		Mothers under 18		Mothers 18+		<<TOTAL>>	
		Count	%	Count	%	Count	%
Asheville	White	401	9	4009	91	4410	100
	Black	37	8	441	92	478	100
	Native American	14	10	122	90	136	100
	Asian	15	17	73	83	88	100
	Hispanic	16	7	211	93	227	100
	<ALL RACES>	483	9	4856	91	5339	100
Mooresville	White	494	11	4167	89	4661	100
	Black	506	13	3280	87	3786	100
	Native American	5	13	33	87	38	100
	Asian	30	12	217	88	247	100
	Hispanic	68	8	813	92	881	100
	<ALL RACES>	1103	11	8510	89	9613	100
Winston-Salem	White	492	10	4534	90	5026	100
	Black	352	11	2978	89	3330	100
	Native American	4	10	36	90	40	100
	Asian	8	5	144	95	152	100
	Hispanic	56	6	879	94	935	100
	<ALL RACES>	912	10	8571	90	9483	100
Raleigh	White	245	9	2509	91	2754	100

(CONTINUED)

Table 19  
Regional Comparison of Maternal Age by Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		AGE GROUP					
		Mothers under 18		Mothers 18+		<<TOTAL>>	
		Count	%	Count	%	Count	%
Raleigh	Black	632	11	4937	89	5569	100
	Native American	8	12	61	88	69	100
	Asian	2	2	95	98	97	100
	Hispanic	96	8	1062	92	1158	100
	<ALL RACES>	983	10	8664	90	9647	100
Fayetteville	White	240	7	3115	93	3355	100
	Black	394	11	3220	89	3614	100
	Native American	103	11	822	89	925	100
	Asian	2	2	92	98	94	100
	Hispanic	59	8	717	92	776	100
	<ALL RACES>	798	9	7966	91	8764	100
Washington	White	151	7	2060	93	2211	100
	Black	380	13	2625	87	3005	100
	Native American	2	8	24	92	26	100
	Asian	.	.	44	100	44	100
	Hispanic	31	8	335	92	366	100
	<ALL RACES>	564	10	5088	90	5652	100
Wilmington	White	182	6	2965	94	3147	100
	Black	160	10	1406	90	1566	100



(CONTINUED)

Table 19  
Regional Comparison of Maternal Age by Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		AGE GROUP					
		Mothers under 18		Mothers 18+		<<TOTAL>>	
		Count	%	Count	%	Count	%
Wilmington	Native American	3	7	40	93	43	100
	Asian	3	4	70	96	73	100
	Hispanic	36	8	430	92	466	100
	<ALL RACES>	384	7	4911	93	5295	100
ALL REGIONS	White	2205	9	23359	91	25564	100
	Black	2461	12	18887	88	21348	100
	Native American	139	11	1138	89	1277	100
	Asian	60	8	735	92	795	100
	Hispanic	362	8	4447	92	4809	100
	<ALL RACES>	5227	10	48566	90	53793	100

Table 20  
Regional Comparison of Maternal Education by Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		EDUCATION					
		<12 years		12+ years		<<TOTAL>>	
		Count	%	Count	%	Count	%
Asheville	White	1526	35	2883	65	4409	100
	Black	136	29	341	71	477	100
	Native American	63	46	73	54	136	100
	Asian	44	50	44	50	88	100
	Hispanic	149	67	72	33	221	100
	<ALL RACES>	1918	36	3413	64	5331	100
Mooresville	White	1977	42	2682	58	4659	100
	Black	1244	33	2540	67	3784	100
	Native American	15	39	23	61	38	100
	Asian	119	48	127	52	246	100
	Hispanic	561	64	314	36	875	100
	<ALL RACES>	3916	41	5686	59	9602	100
Winston-Salem	White	2013	40	3009	60	5022	100
	Black	966	29	2362	71	3328	100
	Native American	15	38	25	63	40	100
	Asian	74	49	77	51	151	100
	Hispanic	703	76	222	24	925	100
	<ALL RACES>	3771	40	5695	60	9466	100
Raleigh	White	856	31	1894	69	2750	100

(CONTINUED)

Table 20  
 Regional Comparison of Maternal Education by Ethnicity  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		EDUCATION					
		<12 years		12+ years		<<TOTAL>>	
		Count	%	Count	%	Count	%
Raleigh	Black	1737	31	3827	69	5564	100
	Native American	27	39	42	61	69	100
	Asian	16	17	80	83	96	100
	Hispanic	843	74	299	26	1142	100
	<ALL RACES>	3479	36	6142	64	9621	100
Fayetteville	White	907	27	2445	73	3352	100
	Black	913	25	2700	75	3613	100
	Native American	350	38	575	62	925	100
	Asian	13	14	81	86	94	100
	Hispanic	387	50	383	50	770	100
	<ALL RACES>	2570	29	6184	71	8754	100
Washington	White	579	26	1630	74	2209	100
	Black	942	31	2062	69	3004	100
	Native American	9	35	17	65	26	100
	Asian	7	16	37	84	44	100
	Hispanic	241	67	121	33	362	100
	<ALL RACES>	1778	31	3867	69	5645	100
Wilmington	White	746	24	2400	76	3146	100
	Black	408	26	1158	74	1566	100

(CONTINUED)

Table 20  
 Regional Comparison of Maternal Education by Ethnicity  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		EDUCATION					
		<12 years		12+ years		<<TOTAL>>	
		Count	%	Count	%	Count	%
Wilmington	Native American	9	21	34	79	43	100
	Asian	12	16	61	84	73	100
	Hispanic	226	49	236	51	462	100
	<ALL RACES>	1401	26	3889	74	5290	100
ALL REGIONS	White	8604	34	16943	66	25547	100
	Black	6346	30	14990	70	21336	100
	Native American	488	38	789	62	1277	100
	Asian	285	36	507	64	792	100
	Hispanic	3110	65	1647	35	4757	100
	<ALL RACES>	18833	35	34876	65	53709	100

Table 21  
Regional Comparison of Maternal Smoking During Pregnancy  
By Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		SMOKING					
		Smokers		Non-Smokers		<<TOTAL>>	
		Count	%	Count	%	Count	%
Asheville	White	1737	39	2668	61	4405	100
	Black	84	18	392	82	476	100
	Native American	60	44	76	56	136	100
	Asian	4	5	84	95	88	100
	Hispanic	15	7	212	93	227	100
	<ALL RACES>	1900	36	3432	64	5332	100
Mooresville	White	1913	41	2747	59	4660	100
	Black	544	14	3242	86	3786	100
	Native American	18	47	20	53	38	100
	Asian	11	4	236	96	247	100
	Hispanic	37	4	844	96	881	100
	<ALL RACES>	2523	26	7089	74	9612	100
Winston-Salem	White	2124	42	2902	58	5026	100
	Black	632	19	2697	81	3329	100
	Native American	18	45	22	55	40	100
	Asian	9	6	143	94	152	100
	Hispanic	25	3	909	97	934	100
	<ALL RACES>	2808	30	6673	70	9481	100
Raleigh	White	1025	37	1729	63	2754	100

(CONTINUED)

Table 21  
Regional Comparison of Maternal Smoking During Pregnancy  
By Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		SMOKING					
		Smokers		Non-Smokers		<<TOTAL>>	
		Count	%	Count	%	Count	%
Raleigh	Black	803	14	4765	86	5568	100
	Native American	18	26	51	74	69	100
	Asian	1	1	96	99	97	100
	Hispanic	25	2	1133	98	1158	100
	<ALL RACES>	1872	19	7774	81	9646	100
Fayetteville	White	1107	33	2248	67	3355	100
	Black	450	12	3164	88	3614	100
	Native American	327	35	598	65	925	100
	Asian	18	19	76	81	94	100
	Hispanic	34	4	742	96	776	100
	<ALL RACES>	1936	22	6828	78	8764	100
Washington	White	696	31	1515	69	2211	100
	Black	369	12	2636	88	3005	100
	Native American	7	27	19	73	26	100
	Asian	9	20	35	80	44	100
	Hispanic	18	5	348	95	366	100
	<ALL RACES>	1099	19	4553	81	5652	100
Wilmington	White	990	31	2156	69	3146	100
	Black	200	13	1366	87	1566	100

(CONTINUED)

Table 21  
Regional Comparison of Maternal Smoking During Pregnancy  
By Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		SMOKING					
		Smokers		Non-Smokers		<<TOTAL>>	
		Count	%	Count	%	Count	%
Wilmington	Native American	8	19	35	81	43	100
	Asian	12	16	61	84	73	100
	Hispanic	39	8	427	92	466	100
	<ALL RACES>	1249	24	4045	76	5294	100
ALL REGIONS	White	9592	38	15965	62	25557	100
	Black	3082	14	18262	86	21344	100
	Native American	456	36	821	64	1277	100
	Asian	64	8	731	92	795	100
	Hispanic	193	4	4615	96	4808	100
	<ALL RACES>	13387	25	40394	75	53781	100

Table 22  
Regional Comparison of Maternal Prepregnancy Weight  
By Ethnicity \*  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		PREPREGNANCY WEIGHT							
		Underweight		Normal weight		Overweight		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Asheville	White	382	21	775	42	676	37	1833	100
	Black	30	16	81	44	72	39	183	100
	Native American	8	9	31	36	48	55	87	100
	Asian	11	22	22	45	16	33	49	100
	Hispanic	9	10	50	55	32	35	91	100
	<ALL RACES>	440	20	959	43	844	38	2243	100
Mooresville	White	437	21	929	45	716	34	2082	100
	Black	236	16	639	43	609	41	1484	100
	Native American	6	50	3	25	3	25	12	100
	Asian	29	29	52	51	20	20	101	100
	Hispanic	68	15	242	55	132	30	442	100
	<ALL RACES>	776	19	1865	45	1480	36	4121	100
Winston-Salem	White	513	20	1071	42	985	38	2569	100
	Black	247	15	681	41	749	45	1677	100
	Native American	4	24	8	47	5	29	17	100
	Asian	37	47	33	42	8	10	78	100
	Hispanic	48	10	263	56	156	33	467	100

\* Includes only mothers enrolled in WIC.



(CONTINUED)

Table 22  
 Regional Comparison of Maternal Prepregnancy Weight  
 By Ethnicity \*  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		PREPREGNANCY WEIGHT							
		Underweight		Normal weight		Overweight		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Winston-Salem	<ALL RACES>	849	18	2056	43	1903	40	4808	100
Raleigh	White	293	23	534	43	424	34	1251	100
	Black	394	14	1141	40	1305	46	2840	100
	Native American	9	30	11	37	10	33	30	100
	Asian	16	41	22	56	1	3	39	100
	Hispanic	76	11	378	56	223	33	677	100
	<ALL RACES>	788	16	2086	43	1963	41	4837	100
Fayetteville	White	304	19	701	44	574	36	1579	100
	Black	234	13	727	41	815	46	1776	100
	Native American	111	20	230	41	225	40	566	100
	Asian	10	22	29	64	6	13	45	100
	Hispanic	61	15	236	57	114	28	411	100
	<ALL RACES>	720	16	1923	44	1734	40	4377	100
Washington	White	79	18	179	40	186	42	444	100
	Black	105	12	301	35	455	53	861	100
	Native American	.	.	1	17	5	83	6	100

\* Includes only mothers enrolled in WIC.

(CONTINUED)

Table 22  
 Regional Comparison of Maternal Prepregnancy Weight  
 By Ethnicity \*  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		PREPREGNANCY WEIGHT							
		Underweight		Normal weight		Overweight		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Washington	Asian	1	13	5	63	2	25	8	100
	Hispanic	8	9	50	55	33	36	91	100
	<ALL RACES>	193	14	536	38	681	48	1410	100
Wilmington	White	301	20	723	48	480	32	1504	100
	Black	96	14	278	41	312	45	686	100
	Native American	1	6	12	67	5	28	18	100
	Asian	18	39	19	41	9	20	46	100
	Hispanic	42	18	117	50	74	32	233	100
	<ALL RACES>	458	18	1149	46	880	35	2487	100
ALL REGIONS	White	2309	21	4912	44	4041	36	11262	100
	Black	1342	14	3848	40	4317	45	9507	100
	Native American	139	19	296	40	301	41	736	100
	Asian	122	33	182	50	62	17	366	100
	Hispanic	312	13	1336	55	764	32	2412	100
	<ALL RACES>	4224	17	10574	44	9485	39	24283	100

\* Includes only mothers enrolled in WIC.

Table 23  
Regional Comparison of Adequacy of Prenatal Care  
By Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

DEHNR REGION BY ETHNICITY		PRENATAL CARE ADEQUACY							
		Adequate		Intermediate		Inadequate		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Asheville	White	3628	83	635	15	112	3	4375	100
	Black	342	73	96	21	29	6	467	100
	Native American	96	72	28	21	10	7	134	100
	Asian	35	40	43	49	10	11	88	100
	Hispanic	144	65	57	26	22	10	223	100
	<ALL RACES>	4245	80	859	16	183	3	5287	100
Mooresville	White	3390	74	1033	22	185	4	4608	100
	Black	2512	68	939	25	251	7	3702	100
	Native American	29	78	7	19	1	3	37	100
	Asian	149	61	76	31	18	7	243	100
	Hispanic	540	63	246	29	69	8	855	100
	<ALL RACES>	6620	70	2301	24	524	6	9445	100
Winston-Salem	White	4015	81	802	16	139	3	4956	100
	Black	2353	73	700	22	192	6	3245	100
	Native American	30	75	9	23	1	3	40	100
	Asian	98	65	42	28	10	7	150	100
	Hispanic	557	62	252	28	86	10	895	100

\* Based on Kessner Index of Adequacy of Prenatal Care.

(CONTINUED)

Table 23  
Regional Comparison of Adequacy of Prenatal Care  
By Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

DEHNR REGION BY ETHNICITY		PRENATAL CARE ADEQUACY							
		Adequate		Intermediate		Inadequate		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Winston-Salem	<ALL RACES>	7053	76	1805	19	428	5	9286	100
Raleigh	White	2045	75	553	20	123	5	2721	100
	Black	3516	65	1497	28	406	7	5419	100
	Native American	50	72	15	22	4	6	69	100
	Asian	64	66	26	27	7	7	97	100
	Hispanic	651	58	358	32	118	10	1127	100
	<ALL RACES>	6326	67	2449	26	658	7	9433	100
Fayetteville	White	2626	79	585	18	105	3	3316	100
	Black	2313	66	945	27	262	7	3520	100
	Native American	575	64	263	29	55	6	893	100
	Asian	68	74	20	22	4	4	92	100
	Hispanic	492	65	198	26	72	9	762	100
	<ALL RACES>	6074	71	2011	23	498	6	8583	100
Washington	White	1624	75	453	21	78	4	2155	100
	Black	1830	63	840	29	223	8	2893	100
	Native American	20	77	5	19	1	4	26	100
	Asian	29	66	12	27	3	7	44	100

\* Based on Kessner Index of Adequacy of Prenatal Care.

(CONTINUED)

Table 23  
Regional Comparison of Adequacy of Prenatal Care  
By Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

DEHNR REGION BY ETHNICITY		PRENATAL CARE ADEQUACY							
		Adequate		Intermediate		Inadequate		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Washington	Hispanic	182	52	116	33	49	14	347	100
	<ALL RACES>	3685	67	1426	26	354	6	5465	100
Wilmington	White	2529	81	506	16	81	3	3116	100
	Black	984	65	435	29	106	7	1525	100
	Native American	30	70	13	30	.	.	43	100
	Asian	49	68	21	29	2	3	72	100
	Hispanic	274	61	136	30	41	9	451	100
	<ALL RACES>	3866	74	1111	21	230	4	5207	100
	ALL REGIONS	White	19857	79	4567	18	823	3	25247
	Black	13850	67	5452	26	1469	7	20771	100
	Native American	830	67	340	27	72	6	1242	100
	Asian	492	63	240	31	54	7	786	100
	Hispanic	2840	61	1363	29	457	10	4660	100
	<ALL RACES>	37869	72	11962	23	2875	5	52706	100

\* Based on Kessner Index of Adequacy of Prenatal Care.

Table 24  
Regional Comparison of Trimester of WIC Enrollment  
By Ethnicity \*  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		TRIMESTER OF WIC ENROLLMENT							
		1st Trimester		2nd Trimester		3rd Trimester		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Asheville	White	2172	61	986	28	421	12	3579	100
	Black	177	45	160	41	53	14	390	100
	Native American	75	62	28	23	18	15	121	100
	Asian	23	34	35	51	10	15	68	100
	Hispanic	87	45	72	37	35	18	194	100
	<ALL RACES>	2534	58	1281	29	537	12	4352	100
Mooresville	White	1714	47	1270	35	693	19	3677	100
	Black	1059	35	1282	42	676	22	3017	100
	Native American	12	43	11	39	5	18	28	100
	Asian	37	19	103	53	56	29	196	100
	Hispanic	258	35	314	43	158	22	730	100
	<ALL RACES>	3080	40	2980	39	1588	21	7648	100
Winston-Salem	White	2127	54	1152	29	638	16	3917	100
	Black	1158	44	995	38	471	18	2624	100
	Native American	13	45	13	45	3	10	29	100
	Asian	24	25	43	45	28	29	95	100
	Hispanic	336	44	299	39	122	16	757	100

\* Includes only mothers enrolled in WIC.

(CONTINUED)

Table 24  
 Regional Comparison of Trimester of WIC Enrollment  
 By Ethnicity \*  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		TRIMESTER OF WIC ENROLLMENT							
		1st Trimester		2nd Trimester		3rd Trimester		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Winston-Salem	<ALL RACES>	3658	49	2502	34	1262	17	7422	100
Raleigh	White	942	44	842	39	379	18	2163	100
	Black	1746	39	1850	41	895	20	4491	100
	Native American	29	54	17	31	8	15	54	100
	Asian	21	30	38	54	11	16	70	100
	Hispanic	374	38	441	45	176	18	991	100
	<ALL RACES>	3112	40	3188	41	1469	19	7769	100
Fayetteville	White	1029	40	992	38	556	22	2577	100
	Black	997	36	1194	43	616	22	2807	100
	Native American	314	42	325	43	111	15	750	100
	Asian	12	17	34	49	24	34	70	100
	Hispanic	216	34	277	43	149	23	642	100
	<ALL RACES>	2568	38	2822	41	1456	21	6846	100
Washington	White	786	45	654	37	318	18	1758	100
	Black	1080	44	954	39	406	17	2440	100
	Native American	9	50	4	22	5	28	18	100

\* Includes only mothers enrolled in WIC.

(CONTINUED)

Table 24  
 Regional Comparison of Trimester of WIC Enrollment  
 By Ethnicity \*  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		TRIMESTER OF WIC ENROLLMENT							
		1st Trimester		2nd Trimester		3rd Trimester		<<TOTAL>>	
		Count	%	Count	%	Count	%	Count	%
Washington	Asian	11	32	17	50	6	18	34	100
	Hispanic	125	41	108	35	72	24	305	100
	<ALL RACES>	2011	44	1737	38	807	18	4555	100
Wilmington	White	1135	45	883	35	500	20	2518	100
	Black	460	36	543	43	261	21	1264	100
	Native American	16	46	15	43	4	11	35	100
	Asian	21	35	28	47	11	18	60	100
	Hispanic	116	32	155	42	96	26	367	100
	<ALL RACES>	1748	41	1624	38	872	21	4244	100
	ALL REGIONS	White	9905	49	6779	34	3505	17	20189
	Black	6677	39	6978	41	3378	20	17033	100
	Native American	468	45	413	40	154	15	1035	100
	Asian	149	25	298	50	146	25	593	100
	Hispanic	1512	38	1666	42	808	20	3986	100
	<ALL RACES>	18711	44	16134	38	7991	19	42836	100

\* Includes only mothers enrolled in WIC.



Table 25  
Regional Comparison of Infant Birthweight  
By Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		BIRTHWEIGHT					
		<2500 grams		2500+ grams		<<TOTAL>>	
		Count	%	Count	%	Count	%
Asheville	White	397	9	3990	91	4387	100
	Black	72	15	406	85	478	100
	Native American	6	4	129	96	135	100
	Asian	8	9	80	91	88	100
	Hispanic	12	5	215	95	227	100
	<ALL RACES>	495	9	4820	91	5315	100
Mooresville	White	404	9	4233	91	4637	100
	Black	480	13	3281	87	3761	100
	Native American	1	3	37	97	38	100
	Asian	18	7	229	93	247	100
	Hispanic	48	5	826	95	874	100
	<ALL RACES>	951	10	8606	90	9557	100
Winston-Salem	White	458	9	4530	91	4988	100
	Black	424	13	2880	87	3304	100
	Native American	4	10	36	90	40	100
	Asian	11	7	140	93	151	100
	Hispanic	59	6	872	94	931	100
	<ALL RACES>	956	10	8458	90	9414	100
Raleigh	White	199	7	2538	93	2737	100

(CONTINUED)

Table 25  
 Regional Comparison of Infant Birthweight  
 By Ethnicity  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		BIRTHWEIGHT					
		<2500 grams		2500+ grams		<<TOTAL>>	
		Count	%	Count	%	Count	%
Raleigh	Black	724	13	4782	87	5506	100
	Native American	9	13	59	87	68	100
	Asian	5	5	92	95	97	100
	Hispanic	59	5	1095	95	1154	100
	<ALL RACES>	996	10	8566	90	9562	100
Fayetteville	White	261	8	3076	92	3337	100
	Black	428	12	3156	88	3584	100
	Native American	85	9	835	91	920	100
	Asian	3	3	91	97	94	100
	Hispanic	35	5	738	95	773	100
	<ALL RACES>	812	9	7896	91	8708	100
Washington	White	154	7	2051	93	2205	100
	Black	391	13	2582	87	2973	100
	Native American	2	8	24	92	26	100
	Asian	3	7	41	93	44	100
	Hispanic	20	5	345	95	365	100
	<ALL RACES>	570	10	5043	90	5613	100
Wilmington	White	226	7	2914	93	3140	100
	Black	200	13	1356	87	1556	100

(CONTINUED)

Table 25  
Regional Comparison of Infant Birthweight  
By Ethnicity  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		BIRTHWEIGHT					
		<2500 grams		2500+ grams		<<TOTAL>>	
		Count	%	Count	%	Count	%
Wilmington	Native American	2	5	41	95	43	100
	Asian	6	8	67	92	73	100
	Hispanic	31	7	433	93	464	100
	<ALL RACES>	465	9	4811	91	5276	100
ALL REGIONS	White	2099	8	23332	92	25431	100
	Black	2719	13	18443	87	21162	100
	Native American	109	9	1161	91	1270	100
	Asian	54	7	740	93	794	100
	Hispanic	264	6	4524	94	4788	100
	<ALL RACES>	5245	10	48200	90	53445	100

Table 26  
Regional Comparison of Prevalence of Breastfeeding  
At WIC Postpartum Visit By Ethnicity \*  
North Carolina  
Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		BREASTFEEDING					
		Yes		No		<<TOTAL>>	
		Count	%	Count	%	Count	%
Asheville	White	1445	36	2515	64	3960	100
	Black	111	25	338	75	449	100
	Native American	61	55	50	45	111	100
	Asian	15	19	63	81	78	100
	Hispanic	145	73	55	28	200	100
	<ALL RACES>	1777	37	3021	63	4798	100
Mooresville	White	1007	25	2976	75	3983	100
	Black	597	19	2619	81	3216	100
	Native American	13	38	21	62	34	100
	Asian	32	15	188	85	220	100
	Hispanic	438	58	318	42	756	100
	<ALL RACES>	2087	25	6122	75	8209	100
Winston-Salem	White	1303	30	3015	70	4318	100
	Black	741	26	2065	74	2806	100
	Native American	8	22	28	78	36	100
	Asian	51	39	79	61	130	100
	Hispanic	561	70	240	30	801	100
	<ALL RACES>	2664	33	5427	67	8091	100
Raleigh	White	654	30	1546	70	2200	100

\* Includes only mothers enrolled in WIC.

(CONTINUED)

Table 26  
 Regional Comparison of Prevalence of Breastfeeding  
 At WIC Postpartum Visit By Ethnicity \*  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		BREASTFEEDING					
		Yes		No		<<TOTAL>>	
		Count	%	Count	%	Count	%
Raleigh	Black	953	21	3551	79	4504	100
	Native American	22	35	40	65	62	100
	Asian	33	49	35	51	68	100
	Hispanic	567	61	360	39	927	100
	<ALL RACES>	2229	29	5532	71	7761	100
Fayetteville	White	978	33	1968	67	2946	100
	Black	586	18	2599	82	3185	100
	Native American	151	19	658	81	809	100
	Asian	39	45	47	55	86	100
	Hispanic	383	55	319	45	702	100
<ALL RACES>	2137	28	5591	72	7728	100	
Washington	White	500	28	1258	72	1758	100
	Black	320	13	2155	87	2475	100
	Native American	9	47	10	53	19	100
	Asian	23	62	14	38	37	100
	Hispanic	158	55	131	45	289	100
<ALL RACES>	1010	22	3568	78	4578	100	
Wilmington	White	873	31	1941	69	2814	100
	Black	235	17	1182	83	1417	100

\* Includes only mothers enrolled in WIC.

(CONTINUED)

Table 26  
 Regional Comparison of Prevalence of Breastfeeding  
 At WIC Postpartum Visit By Ethnicity \*  
 North Carolina  
 Pregnancy Nutrition Surveillance 1997

ETHNICITY BY DEHNR REGION		BREASTFEEDING					
		Yes		No		<<TOTAL>>	
		Count	%	Count	%	Count	%
Wilmington	Native American	13	33	26	67	39	100
	Asian	22	34	43	66	65	100
	Hispanic	186	44	237	56	423	100
	<ALL RACES>	1329	28	3429	72	4758	100
ALL REGIONS	White	6760	31	15219	69	21979	100
	Black	3543	20	14509	80	18052	100
	Native American	277	25	833	75	1110	100
	Asian	215	31	469	69	684	100
	Hispanic	2438	59	1660	41	4098	100
	<ALL RACES>	13233	29	32690	71	45923	100

\* Includes only mothers enrolled in WIC.