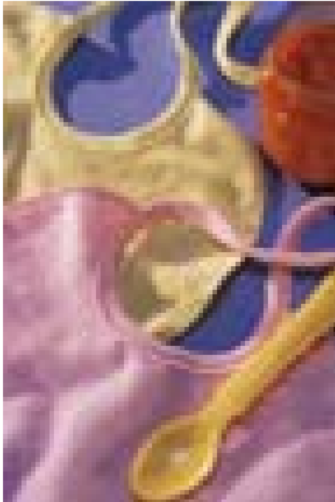
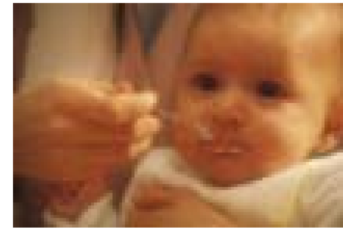
Georgia WIC Program Nutrition Risk Factor Summary 2005





Georgia Department of Human Resources
Division of Public Health

Georgia WIC Program

Nutrition Risk Factor Summary
Federal Fiscal Year 2005

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Introduction

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), which is administered by the Food and Nutrition Service (FNS) of the United States Department of Agriculture (USDA), has been an important source of nutrition education, supplemental food, and health care referrals for low-income women during and after pregnancy and for infants and children up to age 5 in the United States, since its inception in 1972.[1] One of the early objectives of WIC was to counteract the detrimental effects of poverty on prenatal and pediatric health.[1] By intervening during the prenatal period, WIC seeks to improve fetal development and reduce the occurrence of fetal death, low birth weight, inadequate prenatal care and preterm labor.

WIC provides three basic services to its participants: supplemental food, nutrition education and access to health care and to related programs. The primary objectives of the Georgia WIC program are to improve pregnancy outcome, reduce infant mortality, and give children a healthy start in life by helping to provide nutritious food supplements and nutrition education.[2] Another early objective of the WIC Program was breastfeeding promotion and support. Today, most prenatal and post-partum WIC clients are encouraged to breastfeed their infants since breast milk is an ideal source of nutritional support for infants.

Before participants can become eligible for the WIC Program, they must undergo a variety of nutrition screenings performed by a health professional to determine eligibility. These assessments include residential and income eligibility screenings. In addition, since the WIC Program serves a significant number of children younger than 5 years, it is often called on to assess immunization status and screen for child health problems. WIC participants must be residents of GA at nutritional risk with a family income at or below 185 percent of the federal poverty level.[2]

The Georgia WIC Program is the seventh largest in the nation and second largest in the southeast.[2] It was established in 1975 to help ameliorate the nutritional needs of low-income pregnant women, infants and children.[2] Currently, Georgia's WIC Program is comprised of 20 local agencies, 285 local clinics and 1,727 retail grocers that sell WIC approved items.[2] WIC services are available in all 159 of Georgia's counties.[2]

This report contains analyses conducted to assess the top 10 nutritional risk status of the Georgia WIC Program participants during Federal Fiscal Year (FFY) 2005. Further analysis was conducted to determine the proportion of high priority risk factors identified. Information contained in this report was obtained from WIC clients during their initial WIC certification during the FFY and reflects the top 10 primary nutritional risks reported for each WIC type. There are five WIC types: Women are categorized as either Prenatal, Postpartum Breastfeeding or Postpartum Non-Breastfeeding. The other types are Infants and Children.

Overview

According to the Legal Handbook for Program Planners, nutritional risk is defined as (1) detrimental or abnormal nutritional conditions detectable by biochemical or anthropometric measures; (2) other documented nutritionally related medical conditions; (3) dietary deficiencies that impair or endanger health; or (4) conditions that predispose persons to inadequate nutritional patterns or nutritionally related medical conditions, including but not limited to , alcoholism and drug addiction.[3] Some conditions that could qualify as a basis for a nutritional risk determination include anemia, being overweight, being underweight, abnormal patterns of weight gain in a pregnant woman and low birth weight in an infant.[3]

Adequate maternal nutrition during pregnancy is a necessary component to the successful growth and development of the fetus. According to an experiment done by Harding (2003), maternal under nutrition in late pregnancy in humans is associated with reduced birth weight and increased postnatal risk of diabetes. However maternal under nutrition around conception is associated with other risks including obesity, heart disease and reduced birth weight in the second generation.[7]

Given the detrimental effects which poor maternal nutrition may have on fetal and birth outcome, much emphasis has been placed on improving access to adequate nutrition for low-income women in the United States. In 1972, the Special Supplemental Food Program for Women, Infants, and Children (WIC), was developed to help ameliorate differential access to adequate nutrition among low-income pregnant women. Several investigators have questioned the benefit of the WIC Program and whether it has accomplished its objectives in helping to improve birth outcome through improved maternal nutrition.

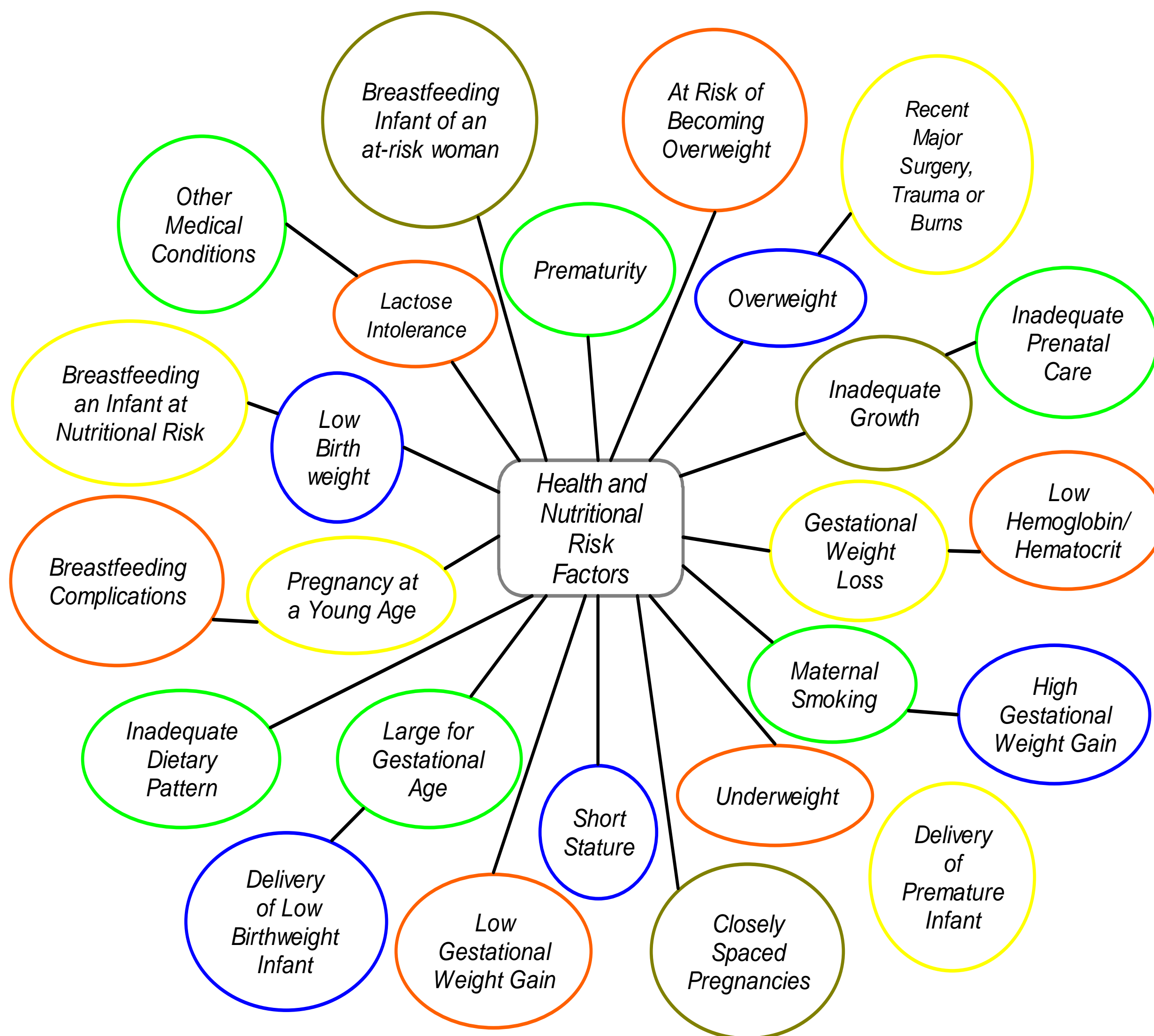
Adequate nutrition is essential for the successful growth and development of infants and children. Both scientific and clinical evidence suggest that essential nutrients during the first years of life can determine one’s viability during adult years.

Not only does the WIC Program provide nutrition education, counseling and support, but it also provides first line referral to other primary care services, such as immunization, and social service programs such as the Food Stamp Program and Medicaid. As a result, the WIC Program has become important in helping to foster food security and improving access to health care services for some of the most vulnerable members of our society.

Recently the GA WIC Program has included the Farmer’s Market Nutrition Program (FMNP). This program allows for WIC participants to receive fresh fruits and vegetables from farmer’s markets. This program helps to promote a healthy diet for the WIC participants.

State of Georgia, FFY 2005

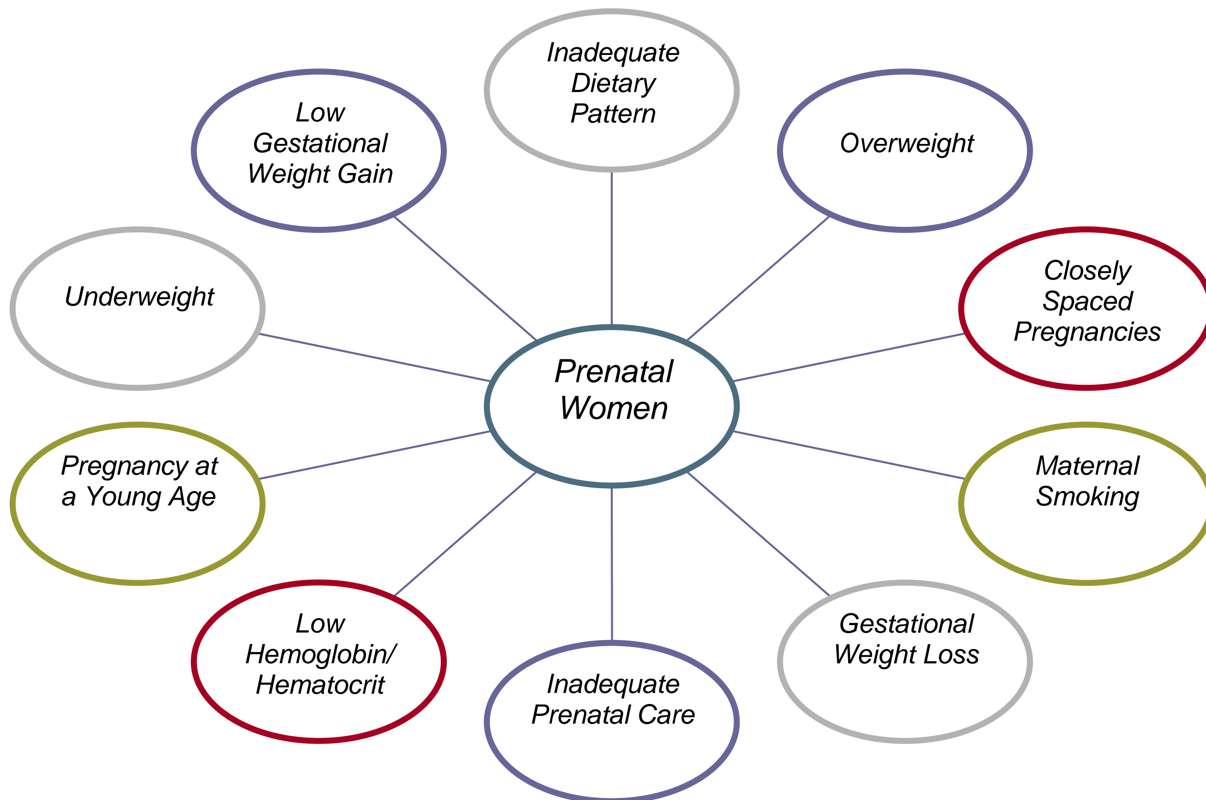
Health and Nutrition Risk Indicators



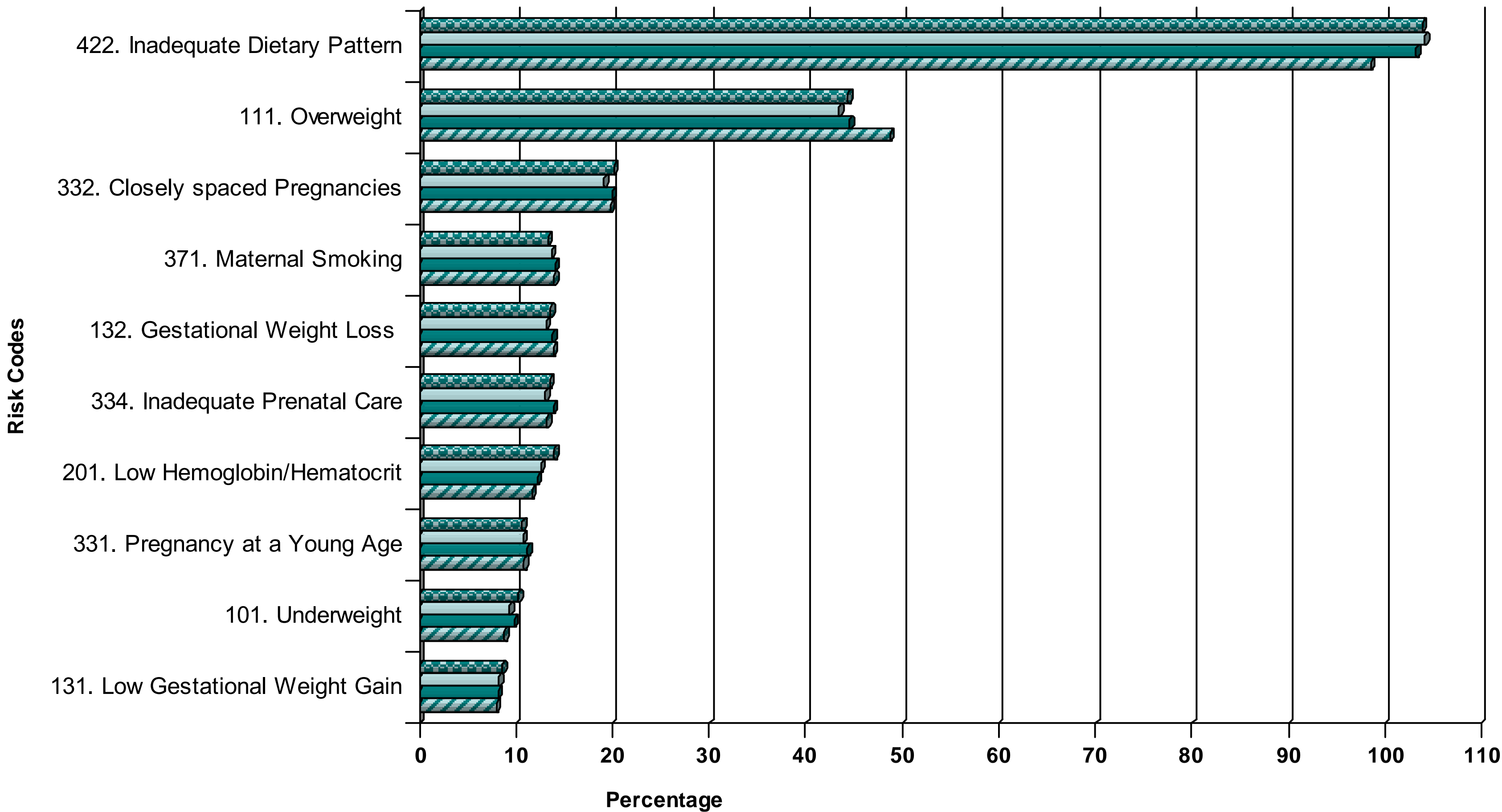
Prenatal Women

During FFY 2005, 46,849 pregnant women were enrolled in the GA WIC Program. A large percentage of prenatal women were reported as having an inadequate dietary pattern and being overweight. Some other risk codes that were reported as being highly associated with prenatal women were closely spaced pregnancies, maternal smoking, gestational weight loss, inadequate prenatal care, and low hemoglobin/ hematocrit counts.

Below you will find a chart of the top 10 Risk Code Indicators for Prenatal Women enrolled in the GA WIC program during FFY 2005 and a graph showing the trends of these risk codes from FFY 2002-2005. When we look at the risk codes from FFY 2002-2005, we see that the proportions in the number of prenatal women have varied only slightly throughout the last four years. Since 2002, Inadequate Dietary Pattern has shown a slight increase in the percentage of prenatal women enrolled and Overweight has shown a slight decrease.



Top Ten Risk Code Indicators for Prenatal Women Enrolled in WIC

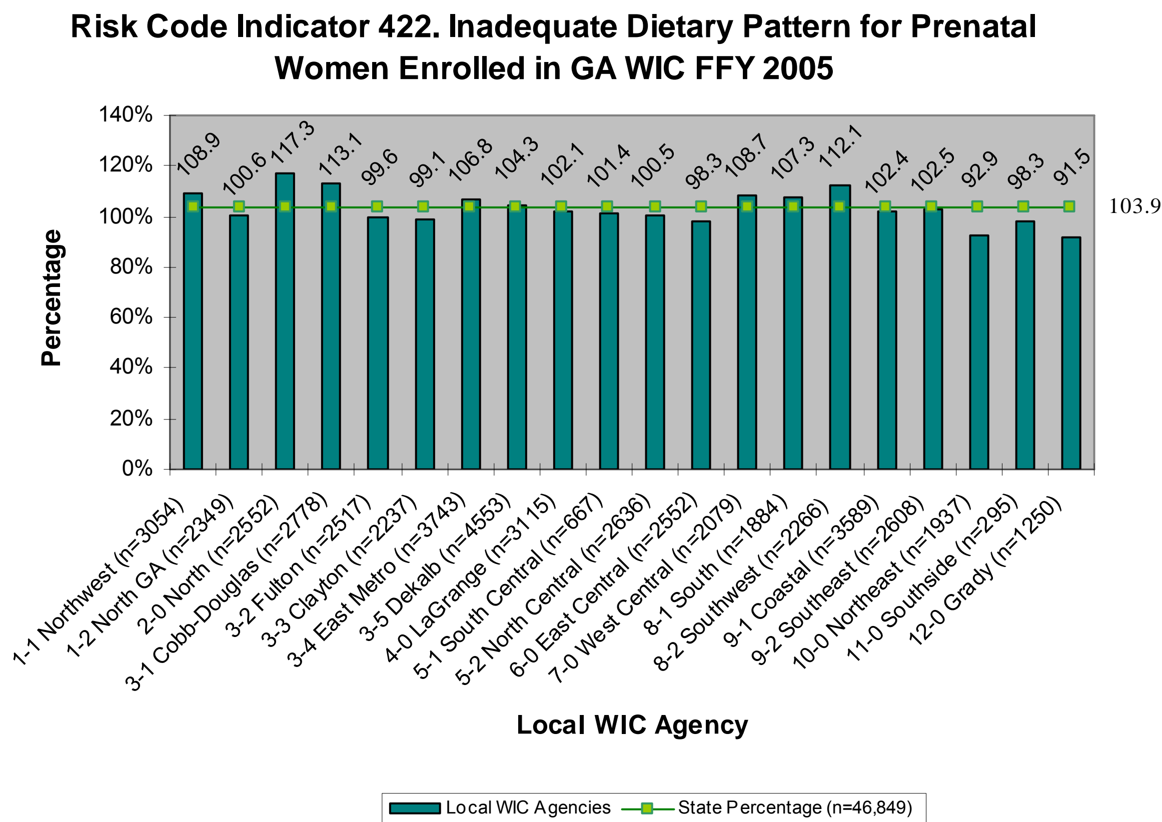


I. Inadequate Dietary Pattern

Inadequate Dietary Pattern among Prenatal women is considered to be any food group missing based on the Recommended Daily Servings Chart; failure to meet the recommended number of servings for two food groups; practice of two inappropriate food practices (based on the Inappropriate Food Practices List); and the practice of one inappropriate food practice and the failure to meet the recommended number of servings for one food group.

This risk factor has been shown to have both short and long term effects on behavior, cognitive development, physical growth, and general health status.[12]

In FFY 2005, the prevalence proportion of Inadequate Dietary Pattern among Prenatal Women enrolled in the Georgia WIC program was 103.9% The North District showed the highest percentage at 117.3% and Grady district showed the lowest percentage at 91.5% Most of the percentages from the counties were over 100% showing some error in the collection of data or use of the risk code indicator in the districts which is causing the state percentage to be above 100% also.

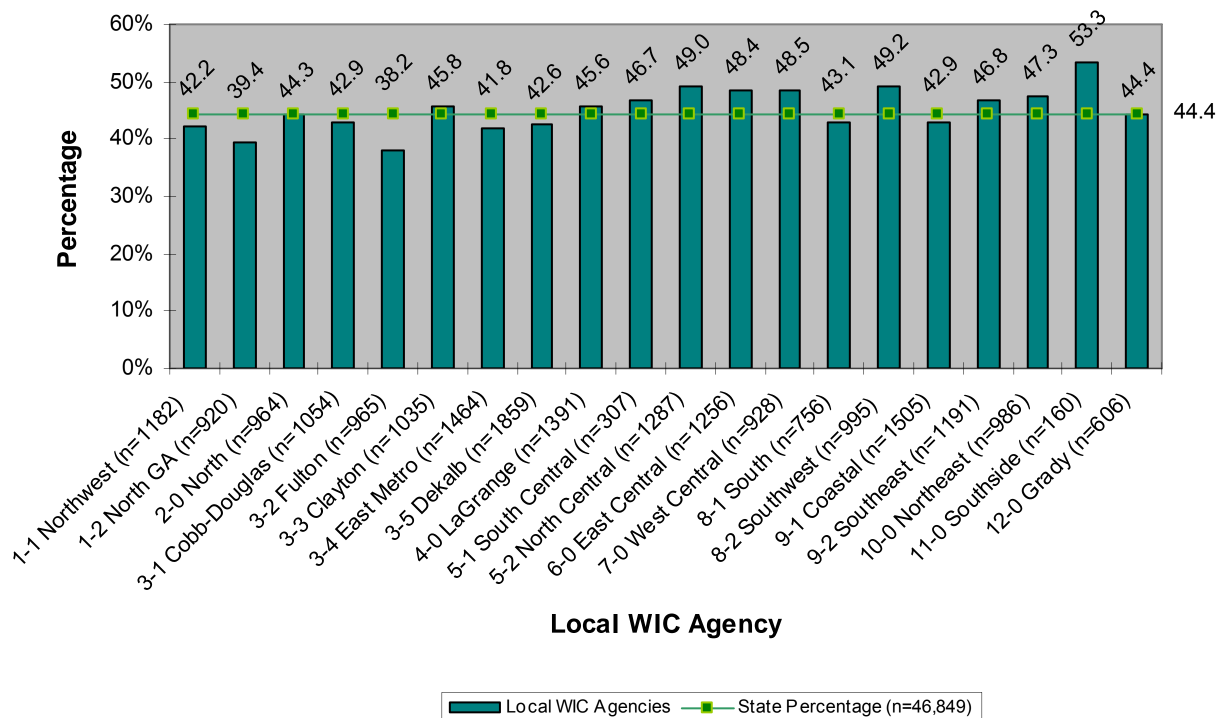


II. Overweight

An overweight Prenatal woman is defined to have a pre-pregnancy weight that is equal to a Body Mass Index of 26.1-29k/m^2. A woman is considered Obese if her BMI is over 29 k/m^2.

Overweight women should gain no more than 15 to 25 pounds during their pregnancy. Obese women with lower weight gains can have successful pregnancies and healthy babies. It is recommended that their gestational gain be limited to no more than 15 pounds.[13]

In FFY 2005, the prevalence proportion of prenatal women who were overweight during the pre-pregnancy period enrolled in the Georgia WIC program was 44.4%. Southside district showed the highest percentage at 53.3% and Fulton showed the lowest percentage at 38.2% All of the districts' percentages were within 10% greater than or less than the state percentage.

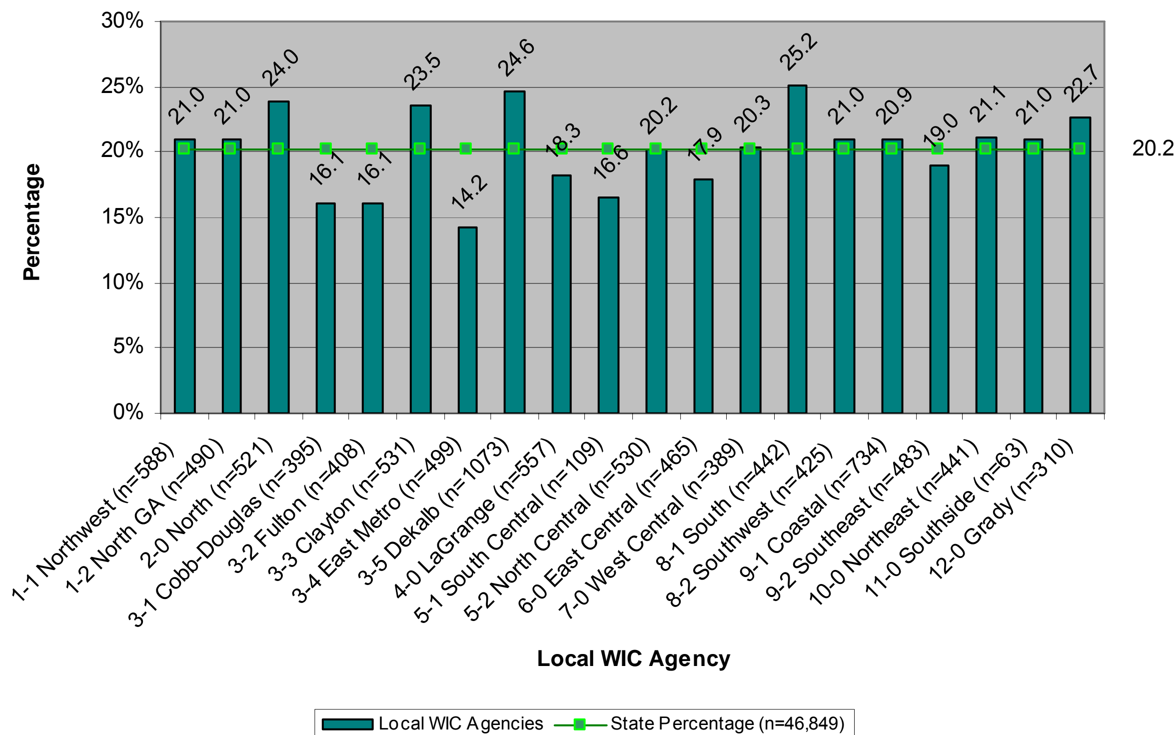


III. Closely Spaced Pregnancies

Closely Spaced Pregnancies are considered when the prenatal women's Expected Date of Confinement or Delivery (EDC) is less than 25 months after the termination of the last pregnancy.

The evidence on child mortality suggests that conceptions less than 6 months after a birth are detrimental to the survival of the second child.[7]

In FFY 2005, the prevalence proportion of prenatal women who had Closely Spaced Pregnancies enrolled in the Georgia WIC program was 20.2%. The South district showed the highest percentage of 25.2% and the East Metro District showed the lowest percentage at 14.2%.

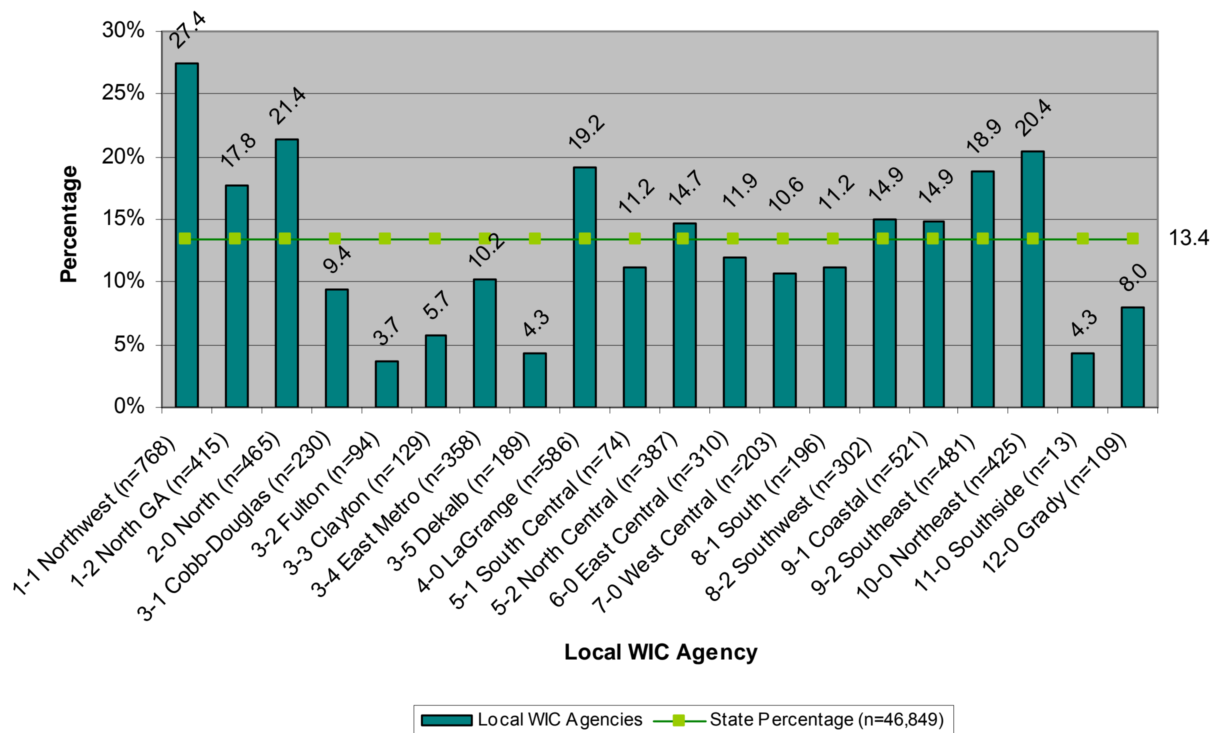


IV. Maternal Smoking

Smoking while pregnant is the daily smoking of cigarettes, pipes or cigars.

Smoking while pregnant could cause a miscarriage, a still born baby to be born, or delivery of a low birth weight baby. Sudden Infant Syndrome (SIDS) occurs twice as often in children born to mothers who smoke during pregnancy. Cigarette smoking can increase the risk of a wide variety of pregnancy complications including premature rupture of membranes, vaginal bleeding, and premature placental detachment. The chemicals from smoking can cause your baby's heart rate to increase and can decrease your baby's supply of nutrients.[25]

In FFY 2005, the prevalence proportion of Maternal Smoking among prenatal women enrolled in the Georgia WIC program was 13.4%. The Northwest district showed the highest percentage of 27.4% and Fulton showed the lowest percentage of 3.7%. There is a great range in percentages for the districts from 3.7 to 27.4. This may result from more health education offered in reference to maternal smoking in one district than the other. More than half of the district percentages fall below the state percentage of 13.4%.

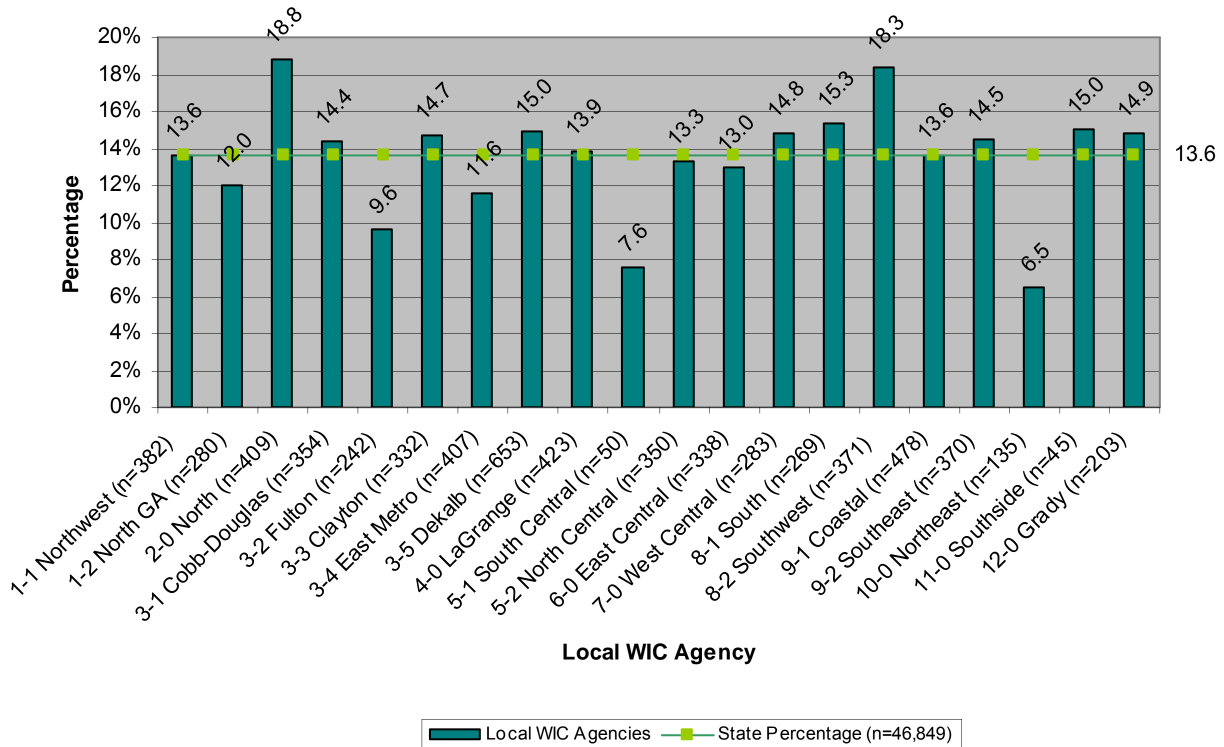


V. Gestational Weight Loss

Gestational Weight Loss during pregnancy in the 1st trimester (0-13 weeks) is considered to be any weight loss below pregravid weight. This is based on pregravid weight and current weight. During the second and third trimesters (14-40 weeks gestation), it is considered to be a weight loss ≥ 2lbs. This is based on two weight measures recorded at 14 weeks gestation or later.

Slight weight losses are normal during the first trimester; however, 2 to 8 pounds of weight gain is typical. If weight loss persists, the baby could be born with a low birth weight or a miscarriage could occur.[15]

In FFY 2005, the prevalence proportion of gestational weight loss among prenatal women enrolled in the GA WIC program was 13.6%. The percentages of the 20 districts range from North district at 18.8% to Northeast district at 6.5%. More than half of the districts' percentages fall above the state percentage of 13.6%.

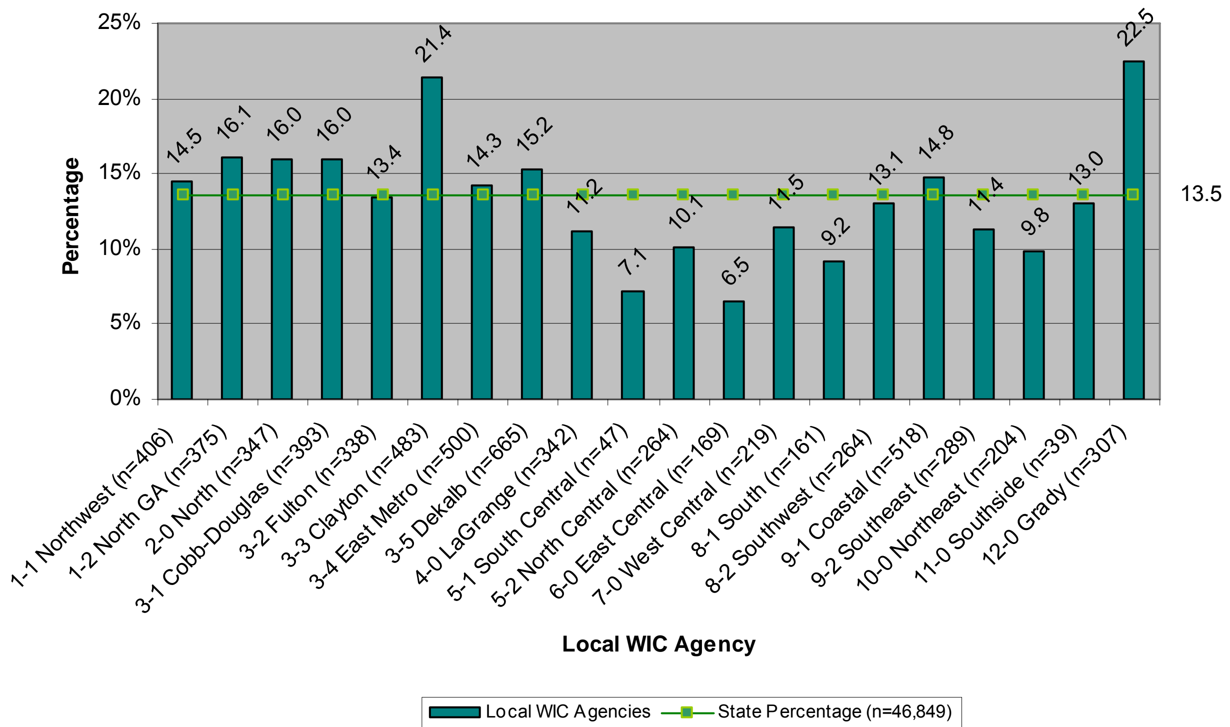


VI. Inadequate Prenatal Care

Inadequate Prenatal Care is considered to be Prenatal Care beginning after the 1st trimester (0-13 weeks).

This risk factor results in low birth weights.

In FFY 2005, the prevalence proportion of inadequate prenatal care among pregnant women enrolled in the Georgia WIC Program was 13.5%. The district percentages range from Grady at 22.5% to East Central at 6.5%. Half of the district percentages fall below the state percentage and the other half fall above the state percentage. Since the highest district percentage is still less than 25%, it seems as though most prenatal women are receiving the adequate prenatal medical attention that is recommended during their pregnancy.

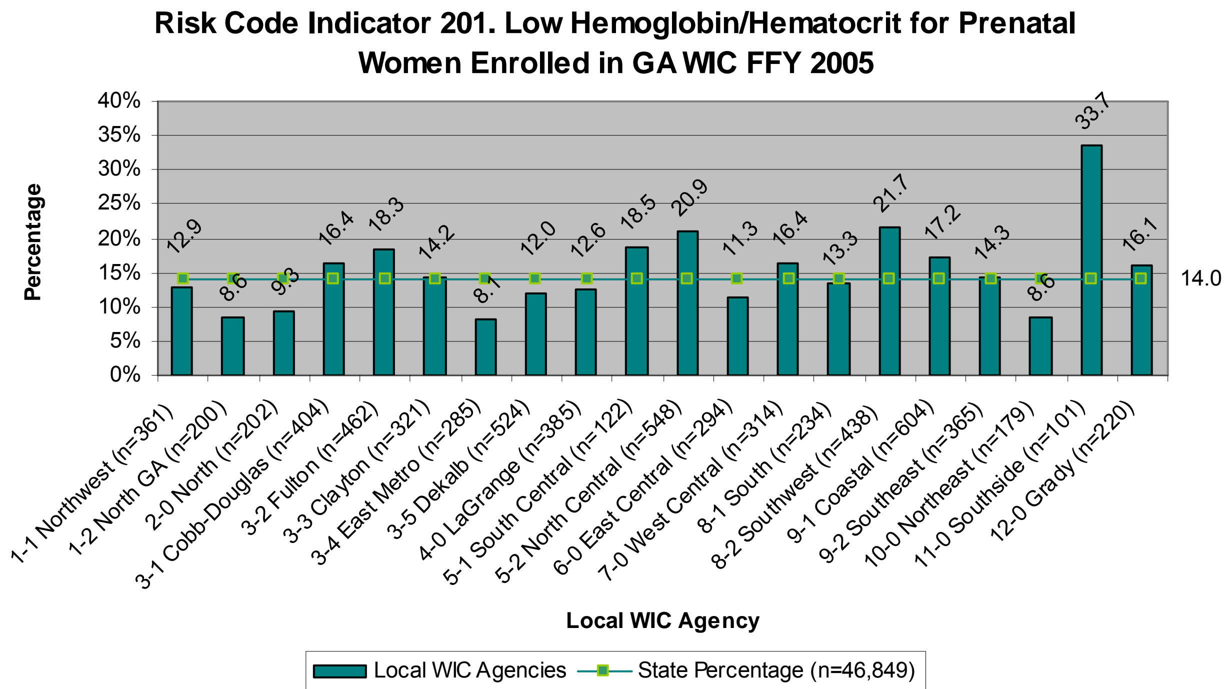


VII. Low Hemoglobin/Hematocrit

1st Trimester (0-13 wks):	Hemoglobin	Hematocrit
Non-Smokers	10.9 gm or lower	32.9% or lower
Smokers	11.2 gm or lower	33.9% or lower
2nd Trimester (14-26 wks):		
Non-Smokers	10.4 gm or lower	31.9% or lower
Smokers	10.7gm or lower	32.9% or lower
3rd Trimester (27-40 wks):		
Non-Smokers	10.9gm or lower	32.9% or lower
Smokers	11.2 gm or lower	33.9% or lower

Hemoglobin and hematocrit values are normally lower in pregnant than in nonpregnant women, and they reach the lowest values during the second trimester of pregnancy. Anemia occurs when you have a below-normal level of hemoglobin or hematocrit counts.[14,18]

In FFY 2005, the prevalence proportion of Low Hemoglobin/ Hematocrit counts among prenatal women enrolled in the Georgia WIC Program was 14.0%. Southside district shows the highest percentage of 33.7% and East Metro district shows the lowest percentage at 8.1%. The second highest percentage among the districts is 21.7 at Southwest district which is more than 10% less than Southside district. Southside district percentage is more than double the state percentage.

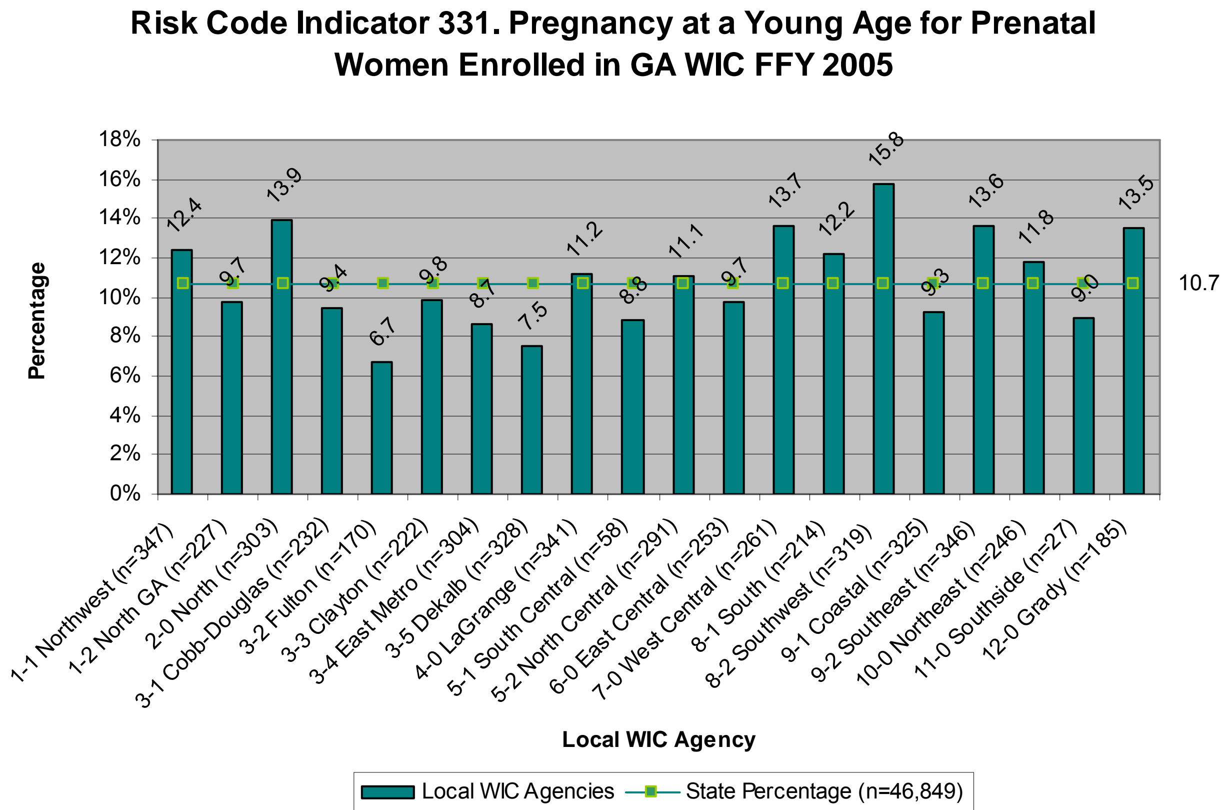


VIII. Pregnancy at a Young Age

Pregnancy at a young age consists of having an Expected Date of Confinement or Delivery (EDC) at less than 18 years and 10 months of age.

A third of pregnant teens receive inadequate prenatal care. Babies born to young mothers are more likely to be born with a low birth weight, to have childhood health problems and to be hospitalized more than those born to older mothers.[17]

In FFY 2005, the prevalence proportion of pregnancy at a young age among prenatal women enrolled in the Georgia WIC program was 10.7%. The district percentages range from 15.8% at Southwest district to 6.7% at Fulton district. The state percentage represents the midpoint for all of the district percentages.

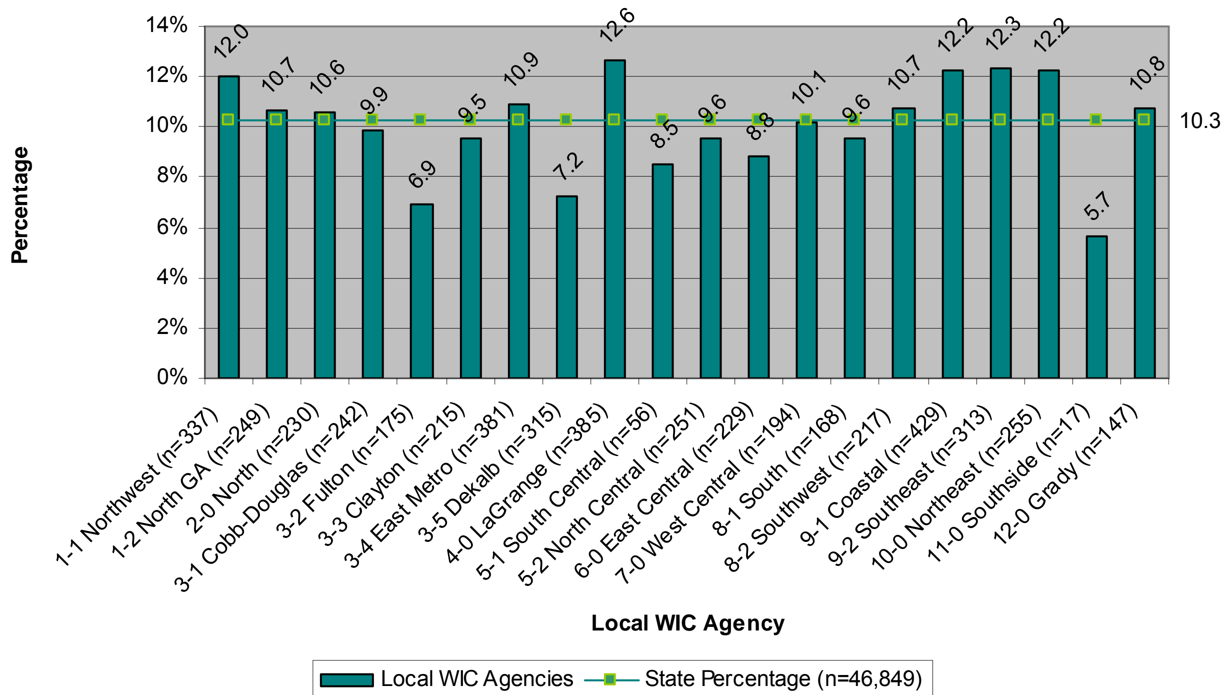


IX. Underweight

A pregnant woman is considered underweight when her pre-pregnancy weight is equal to a Body Mass Index (BMI) of <19.8.

Women who begin their pregnancy underweight are advised to gain between 28 and 40 pounds. An expectant mother that doesn't gain enough weight is at risk of giving birth prematurely and the baby may be considered small for gestational age. This could suggest that the baby was malnourished during the pregnancy.[19,20]

In FFY 2005, the prevalence proportion of underweight among prenatal women enrolled in the Georgia WIC program was 10.3%. The district percentages range from 12.6% for LaGrange to 5.7% for Southside. All of the districts' percentages are less than 15%. This shows that there is a low prevalence of underweight among prenatal women who are enrolled in the GA WIC program.

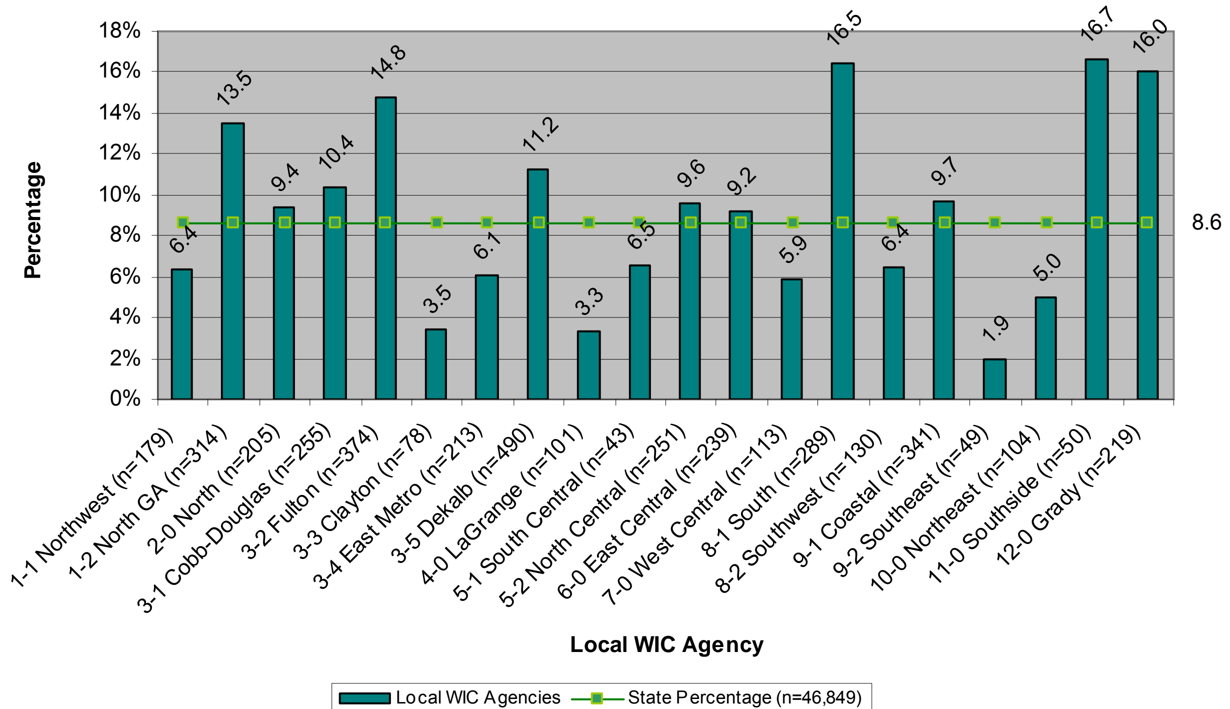


X. Low Gestational Weight Gain

Low Gestational weight gain is considered when a prenatal woman in her second (14-26 weeks) or third (27-40 weeks) trimester has a weight that plots at any point beneath the bottom (solid) line of the recommended weight range, on the appropriate Prenatal Weight Gain Grid.

Women who do not gain enough weight during pregnancy may deliver a low birth weight baby. Low educational level, severe nausea/vomiting, excessive dieting and eating disorders have been associated with insufficient gestational weight gain.[15]

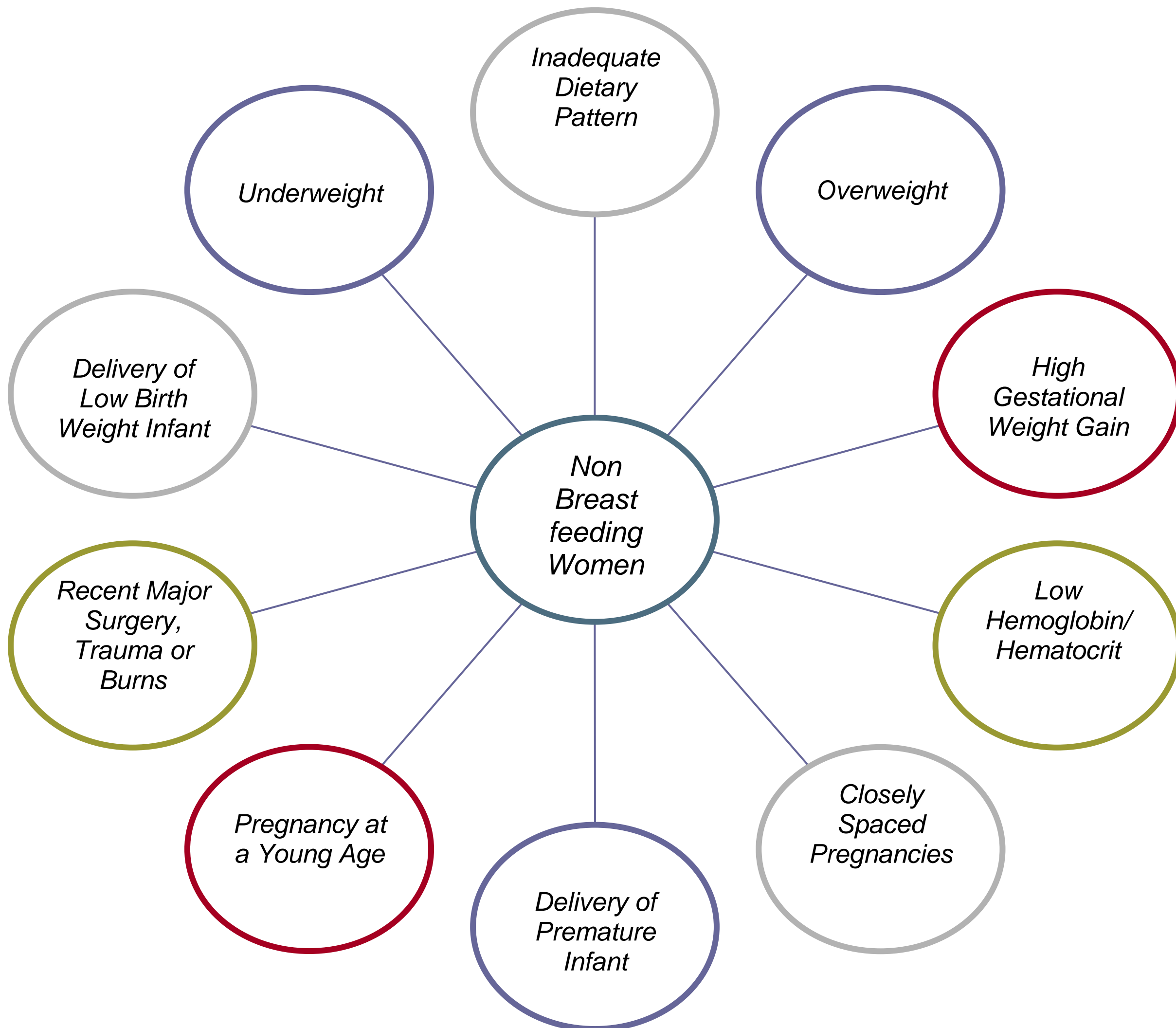
In FFY 2005, the prevalence proportion of low gestational weight gain among prenatal women enrolled in the Georgia WIC program was 8.6%. The district percentages range from 16.7% at Southside district to 1.9% at Southeast district. A little more than half of the districts have a percentage slightly higher than the state percentage.



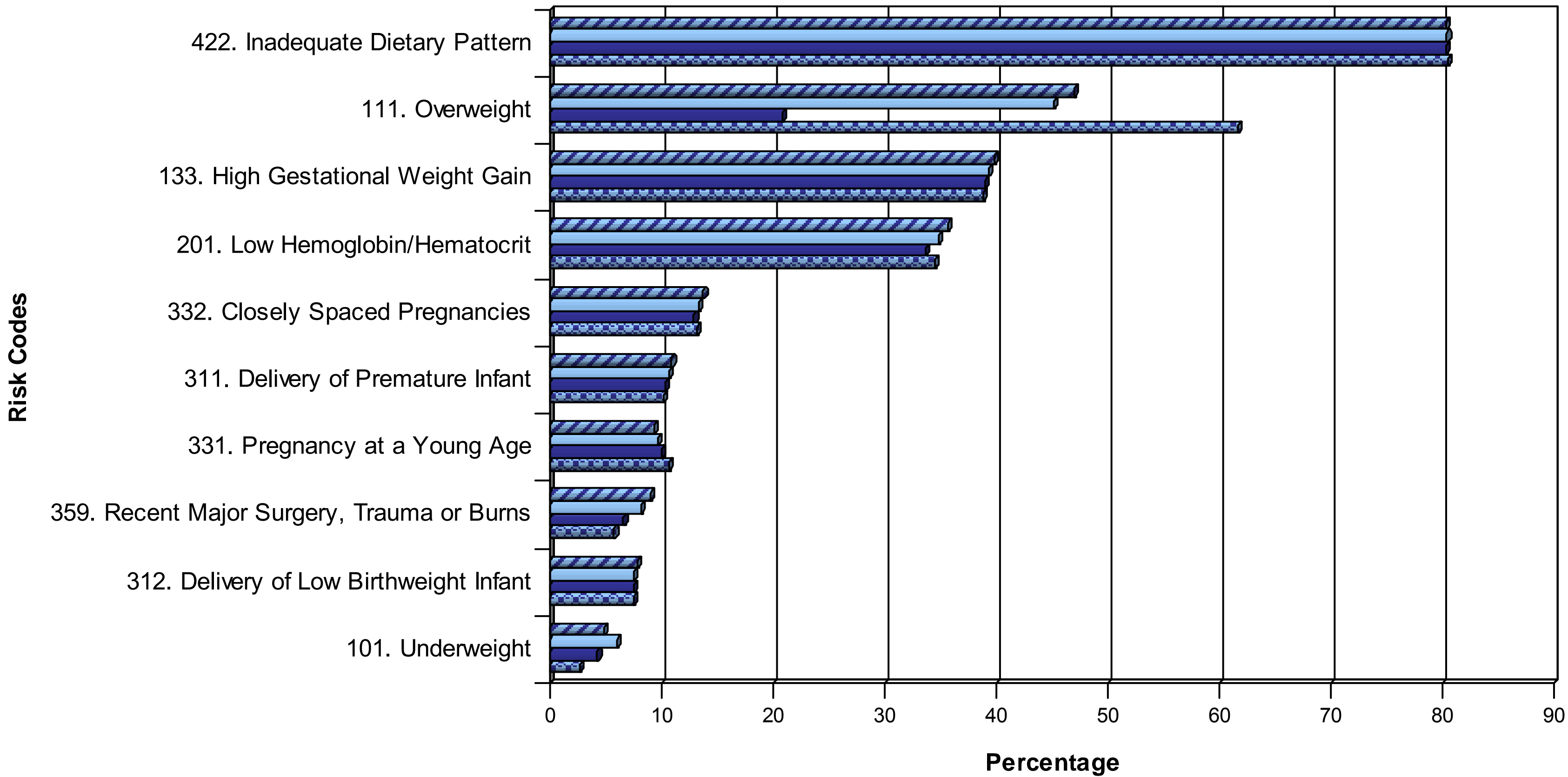
Non-Breastfeeding Women

During FFY 2005, 53,387 Non-breastfeeding women were enrolled in the GA WIC Program. A large percentage of non-breastfeeding women were reported as having an inadequate dietary pattern, being overweight, having high gestational weight gain, and low hemoglobin/hematocrit counts.

Below you will find a chart of the top 10 Risk Code Indicators for Non-breastfeeding Women enrolled in the GA WIC program during FFY 2005 and a graph showing the trends of these risk codes from FFY 2002-2005. When we look at the risk codes from FFY 2002-2005, we see that the proportions in the number of non-breastfeeding women for each risk code have varied only slightly throughout the last four years. Since 2002, Overweight has shown a decrease in the percentage of non-breastfeeding women enrolled and Underweight has shown a slight increase.



Top Ten Risk Code Indicators for Non-Breastfeeding Women Enrolled in WIC

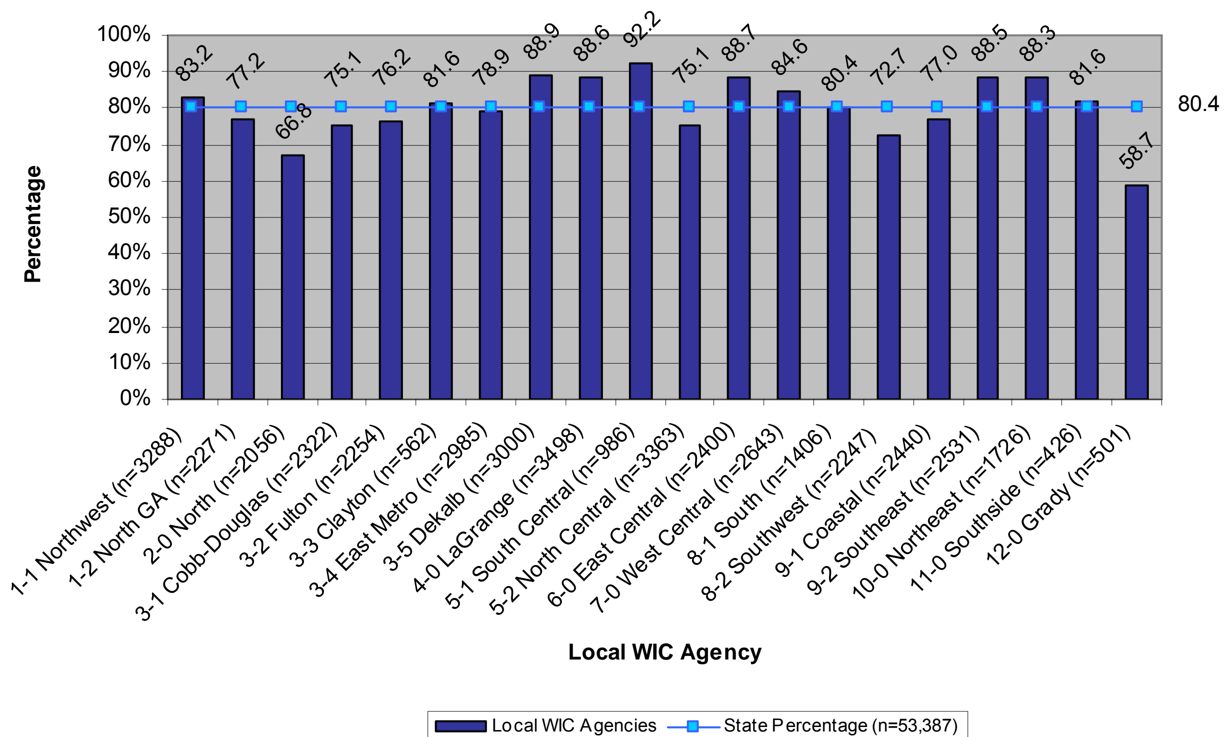


I. Inadequate Dietary Pattern

Inadequate Dietary Pattern among non-breastfeeding women is considered to be any food group missing based on the Recommended Daily Servings Chart; failure to meet the recommended number of servings for two food groups; practice of two inappropriate food practices (based on the Inappropriate Food Practices List); and the practice of one inappropriate food practice and the failure to meet the recommended number of servings for one food group.

This risk factor has been shown to have both short and long term effects on behavior, cognitive development, physical growth, and general health status.[12]

In FFY 2005, the prevalence proportion of inadequate dietary pattern among non-breastfeeding women was 80.4%. South Central District showed the highest percentage of 92.2 and Grady showed the lowest of 58.7. All of the districts range within 12% of the state average.

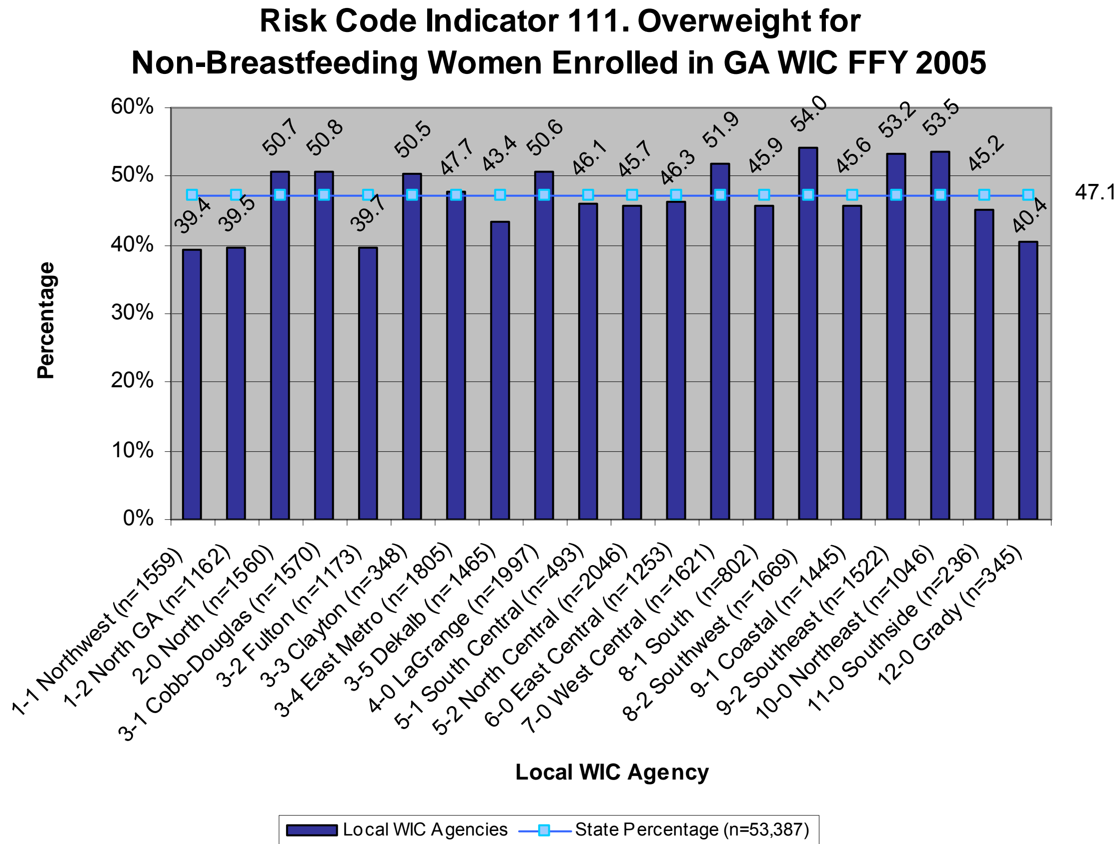


II. Overweight

Overweight among non-breastfeeding women is a pre-pregnancy weight that is equal to a Body Mass Index (BMI) of >24.9.

Overweight women should gain no more than 15 to 25 pounds during their pregnancy. Obese women with lower weight gains can have successful pregnancies and healthy babies. It is recommended that their gestational gain be limited to no more than 15 pounds.[13]

In FFY 2005, the prevalence proportion of overweight among non-breastfeeding women was 47.1%. Southwest district showed the highest percentage of 54.0 and Northwest district showed the lowest of 39.4. All of the districts' percentages came within 8% of the state's percentage.

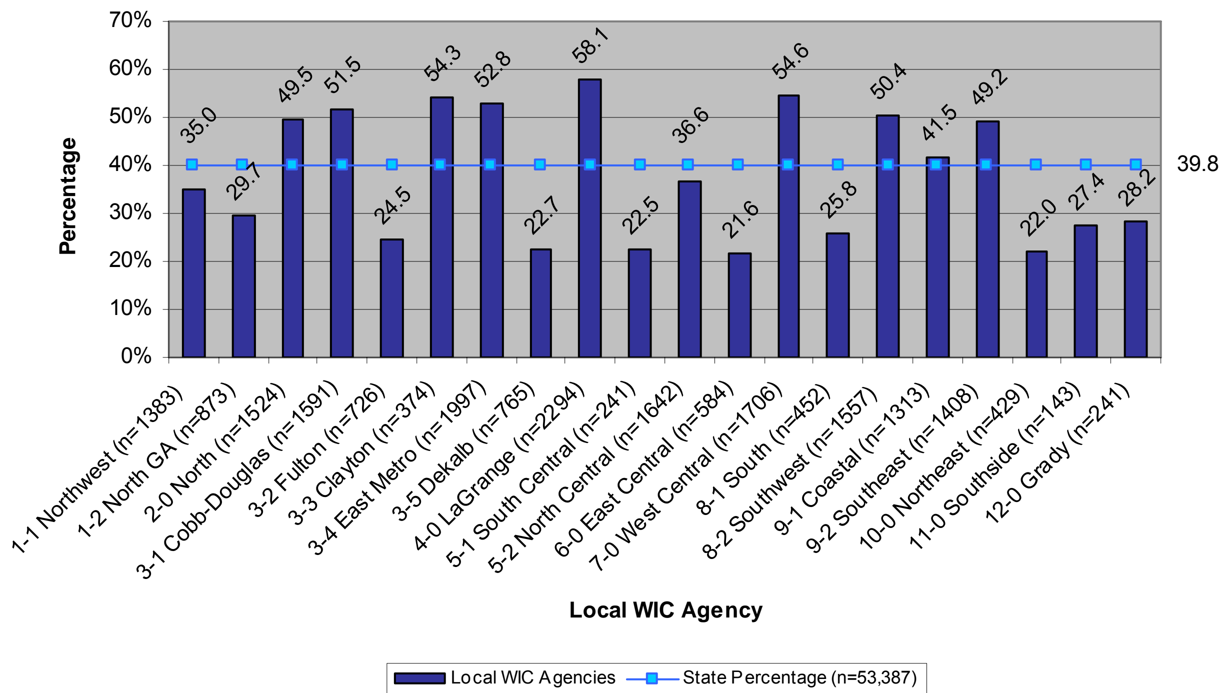


III. High Gestational Weight Gain

High gestational weight gain of non-breastfeeding women refers to the total gestational weight gain exceeding the upper limit of the recommended range based on pre-pregnancy weight for height or pre-pregnancy BMI. This applies to the most recent pregnancy only.

Excessive gestational weight gain may be associated with high birth weight. The consequences of high birth weight include prolonged labour and birth, birth trauma, birth asphyxia, caesarean birth and increased risk of perinatal mortality.[15]

In FFY 2005, the prevalence proportion of high gestational weight gain among non-breastfeeding women was 39.8%. LaGrange showed the highest percentage of 58.1 and East Central showed the lowest percentage of 21.6. There is a wide range of percentages throughout the districts for this risk code indicator, which are approximately 18% higher or lower than the state average.



IV. Low Hemoglobin/Hematocrit

Non-smokers:

Hemoglobin: 11.9 gm or lower (≥15 years of age)
11.7 gm or lower (< 15 years of age)

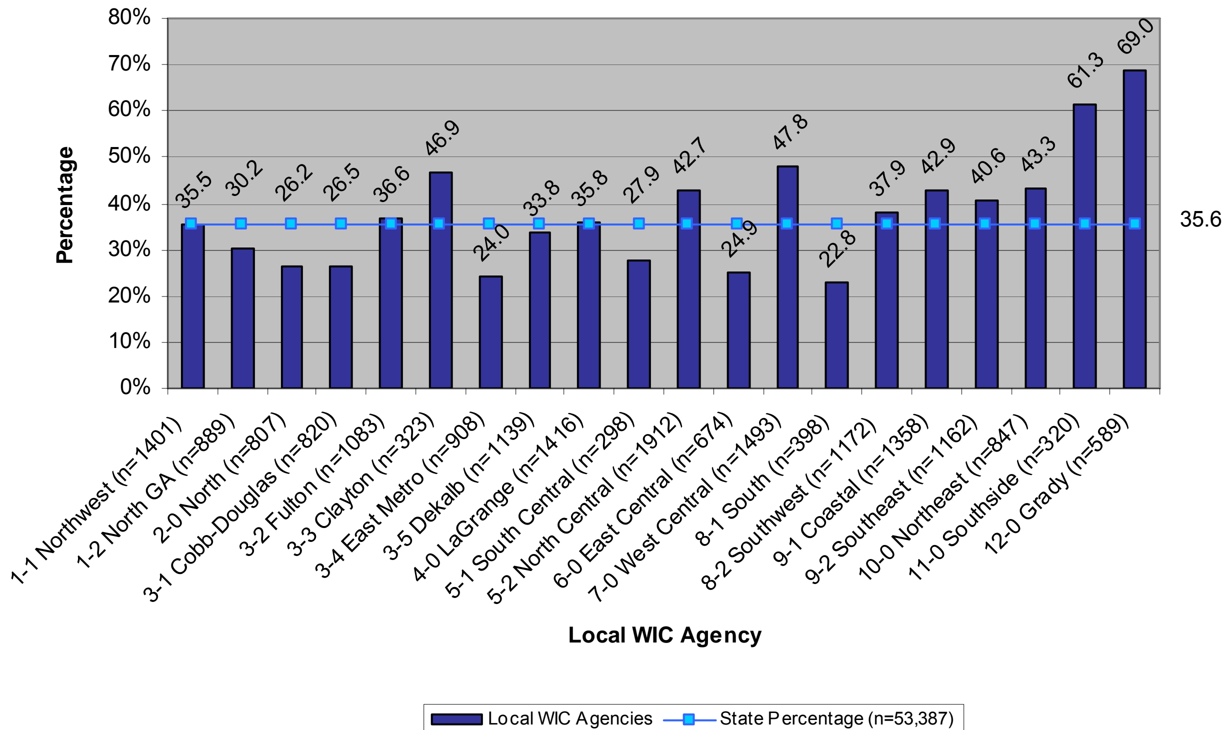
Hematocrit: 35.8% or lower

Smokers: Hemoglobin: 12.2 gm or lower (≥15 years of age)
12.0 gm or lower (< 15 years of age)

Hematocrit: 36.8% or lower

Anemia occurs when you have a below-normal level of hemoglobin or hematocrit counts.[18]

In FFY 2005, the prevalence proportion of low hemoglobin/hematocrit counts among non-breastfeeding women was 35.6%. Grady district showed the highest percentage of 69.0 and South district showed the lowest of 22.8. More than half of the districts' percentages were higher than the state average.

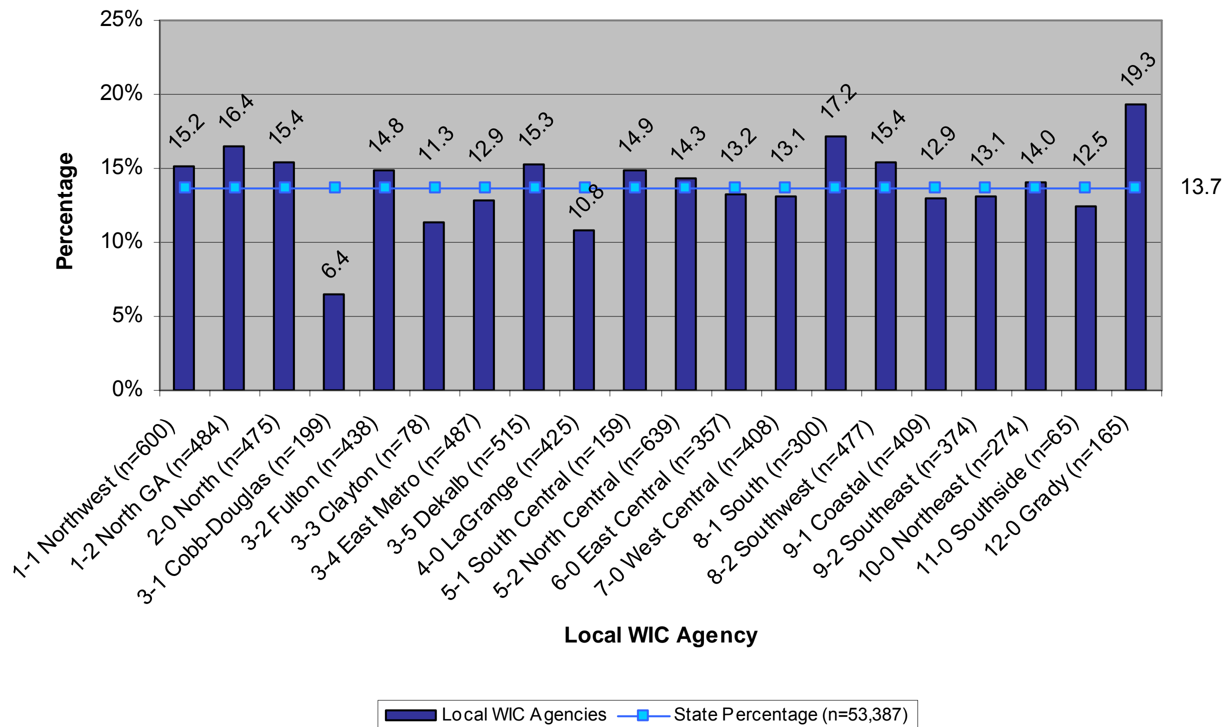


V. Closely Spaced Pregnancies

Closely spaced pregnancies among non-breastfeeding women are considered when the delivery date occurred less than 25 months after termination of the last pregnancy. This applies to the most recent delivery only.

The evidence on child mortality suggests that conceptions less than 6 months after a birth are detrimental to the survival of the second child.[7]

In FFY 2005, the prevalence proportion of closely spaced pregnancies among non-breastfeeding women was 13.7%. Grady district showed the highest percentage of 19.3 and Cobb-Douglas showed the lowest percentage of 6.4. All of the districts' percentages were less than 20%, showing a low percentage of closely spaced pregnancies throughout the GA WIC Program.

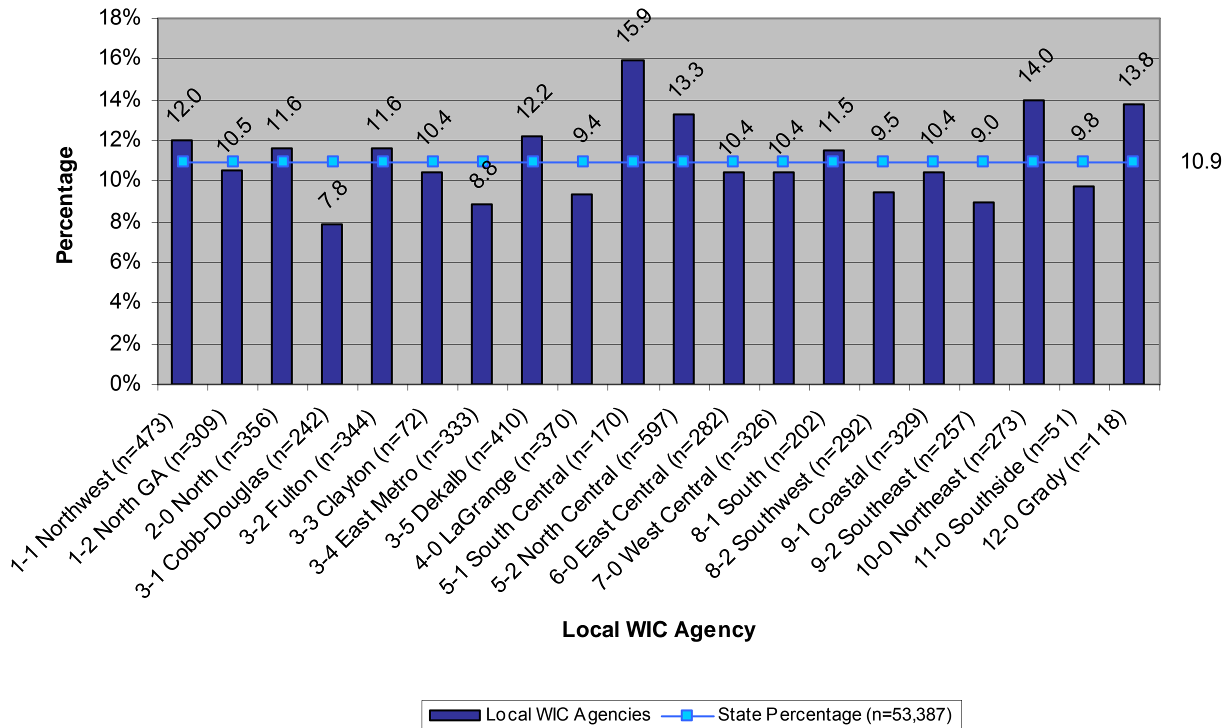


VI. Delivery of Premature Infant

Delivery of premature infants among non-breastfeeding women is considered when a woman has delivered one or more infants at 37 weeks gestation or less. This applies to the most recent pregnancy only.

The most common causes of preterm labor include:
- Placenta problems
- Pregnancy with twins or more
- Infection in the mother
- Problems with the uterus or cervix
- Drug or alcohol use during pregnancy[28]

In FFY 2005, the prevalence proportion of delivery of premature infant among non-breastfeeding women was 10.9%. South Central district showed the highest percentage of 15.9 while Cobb-Douglas showed the lowest percentage of 7.8. All of the districts show a percentage lower than 16% which shows a very low number of premature infants delivered throughout the Georgia WIC Program among non-breastfeeding women.

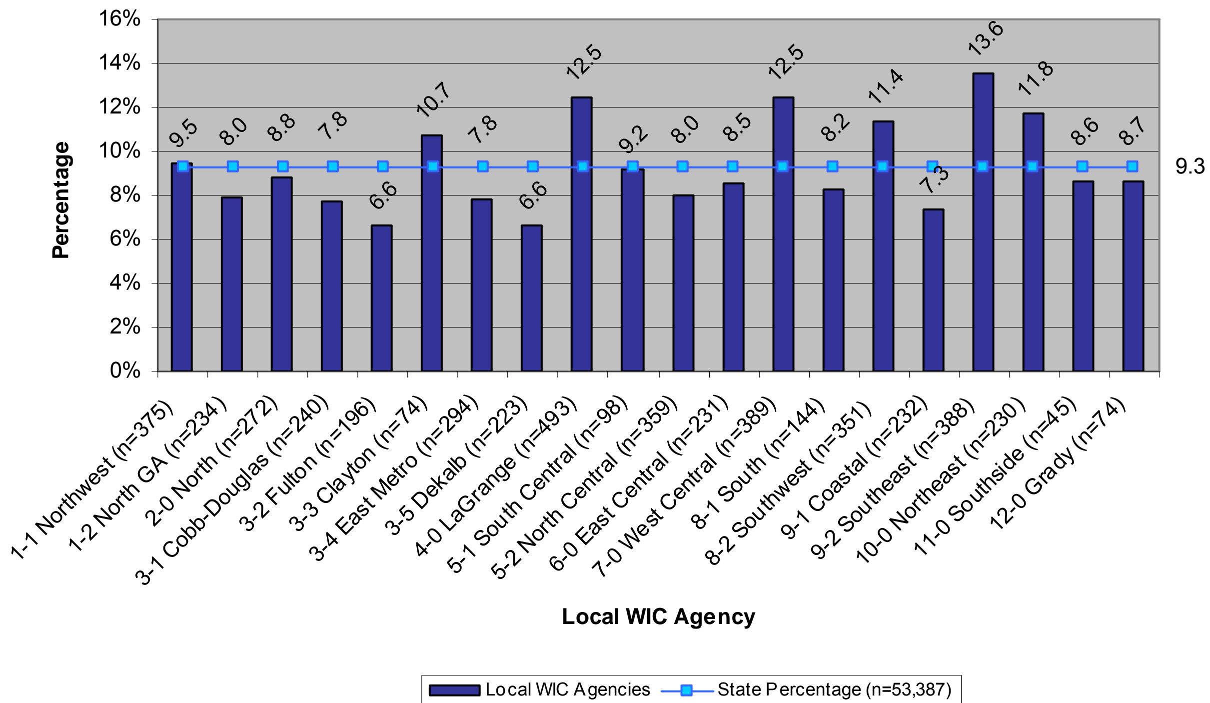


VII. Pregnancy at a Young Age

Pregnancy at a young age for non-breastfeeding women is considered when the delivery date occurred at less than 18 years and 10 months of age. This applies to the most recent pregnancies only.

A third of pregnant teens receive inadequate prenatal care. Babies born to young mothers are more likely to be low birth weight, to have childhood health problems and to be hospitalized than those born to older mothers.[17]

In FFY 2005, the prevalence proportion of pregnancy at a young age among non-breastfeeding women was 9.3%. Southeast district showed the highest percentage of 13.6 and both Fulton and Dekalb districts showed the lowest percentages of 6.6. All of the districts show a percentage lower than 15% for pregnancy at a young age among non-breastfeeding women. This shows that teenage pregnancy prevention educational programs have been effective throughout the state of Georgia WIC Program.

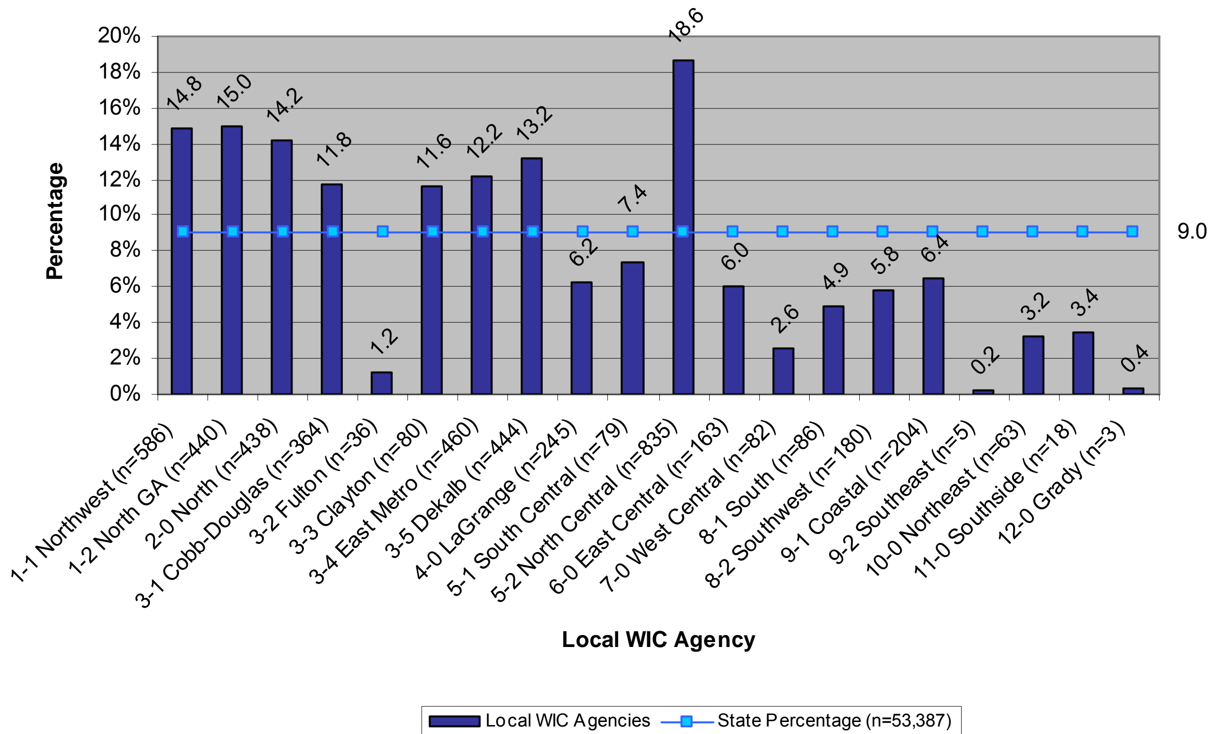


VIII. Recent Major Surgery, Trauma or Burns

Major surgery (including C-sections), trauma or burns among non-breastfeeding women refer to those procedures that were severe enough to compromise nutritional status. Any occurrence within the past 2 months may be self reported. Any occurrence more than 2 months previous must have the continued need for nutritional support diagnosed by a physician or health care provider working under the standing orders of a physician.

Alterations in the metabolism of glucose, protein, and fat occur following injury. There is a marked rise in the regulatory hormones in all phases of injury or after severe burn.[16]

In FFY 2005, the prevalence proportion of recent major surgery, trauma or burns among non-breastfeeding women was 9.0%. North Central district showed the highest percentage of 18.6 and Southeast district showed the lowest percentage of 0.2. More than half of the districts showed a percentage less than the state percentage and all of the districts showed a percentage less than 20%. This shows that there has been a low percentage of major surgery, trauma or burns among non-breastfeeding women throughout the state of Georgia WIC Program.

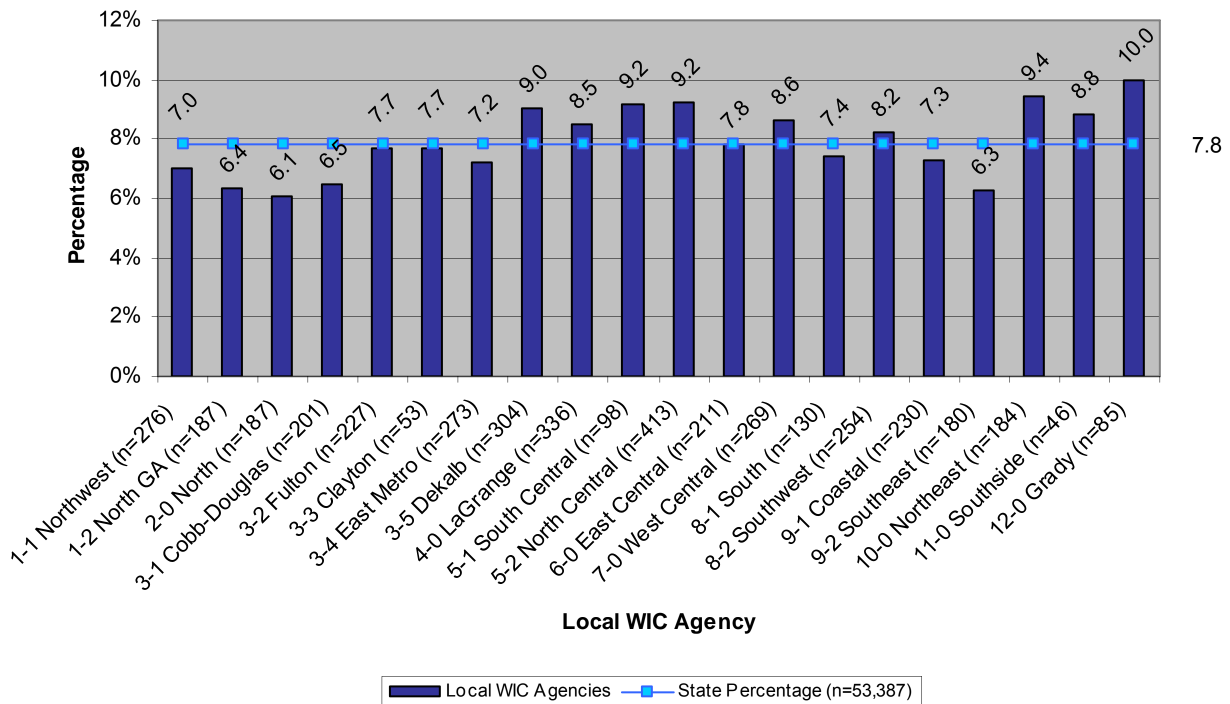


IX. Delivery of Low Birth weight Infant

Delivery of low birth weight infants occurs when a woman has delivered one or more infants with a birth weight of 5 lb 8 oz (2500 gms) or less. This applies to the most recent pregnancy only.

Low birth weight babies may have organs that are not fully developed. This can lead to lung problems such as respiratory distress syndrome, or bleeding in the brain, vision loss and serious intestinal problems. Low birth weight babies are more than 20 times as likely to die in their first year of life as normal weight babies.[23]

In FFY 2005, the prevalence proportion of delivery of low birth weight infants among non-breastfeeding women was 7.8%. Grady showed the highest percentage of 10.0 and North district showed the lowest percentage of 6.1. All of the districts showed a percentage less than or equal to 10%. This shows a low number of low birth weight infants delivered to non-breastfeeding women in the Georgia WIC Program.

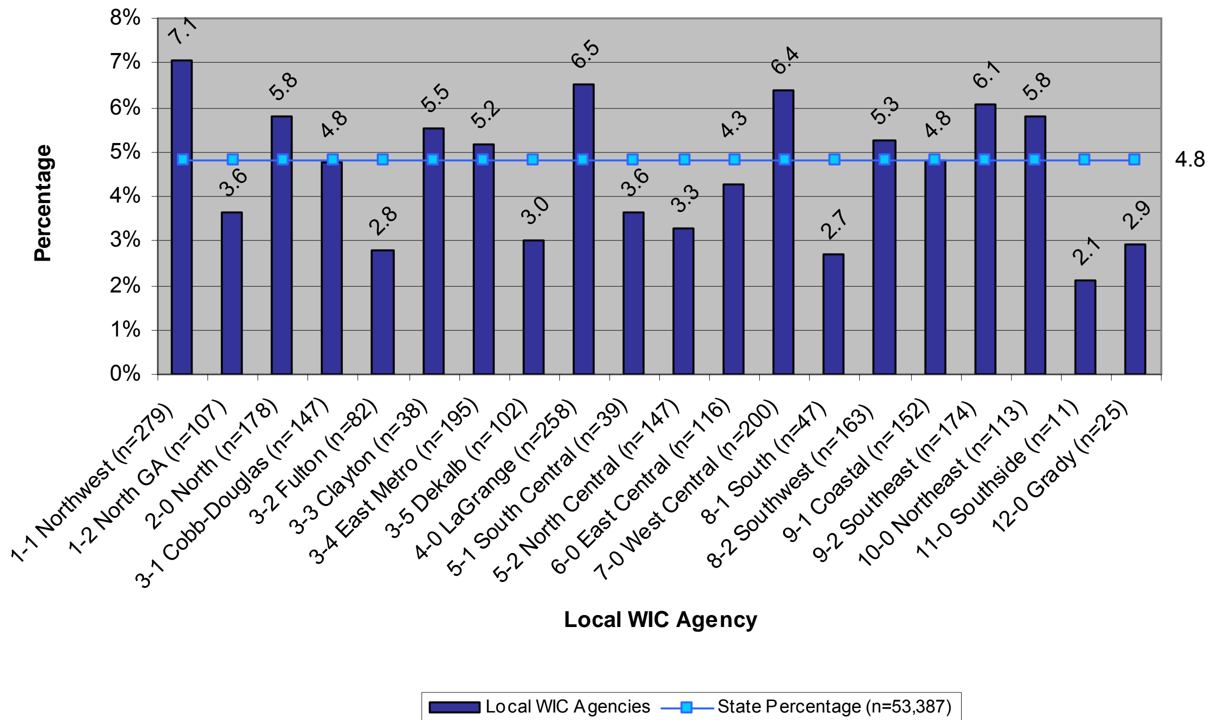


X. Underweight

Underweight among non-breastfeeding women is considered as pre-pregnancy or current weight equal to a Body Mass Index (BMI) of <18.5.

Women who begin their pregnancy underweight are advised to gain between 28 and 40 pounds. An expectant mother that doesn't gain enough weight is at risk of giving birth prematurely and the baby may be considered small for gestational age. This could suggest that the baby was malnourished during the pregnancy.[19,20]

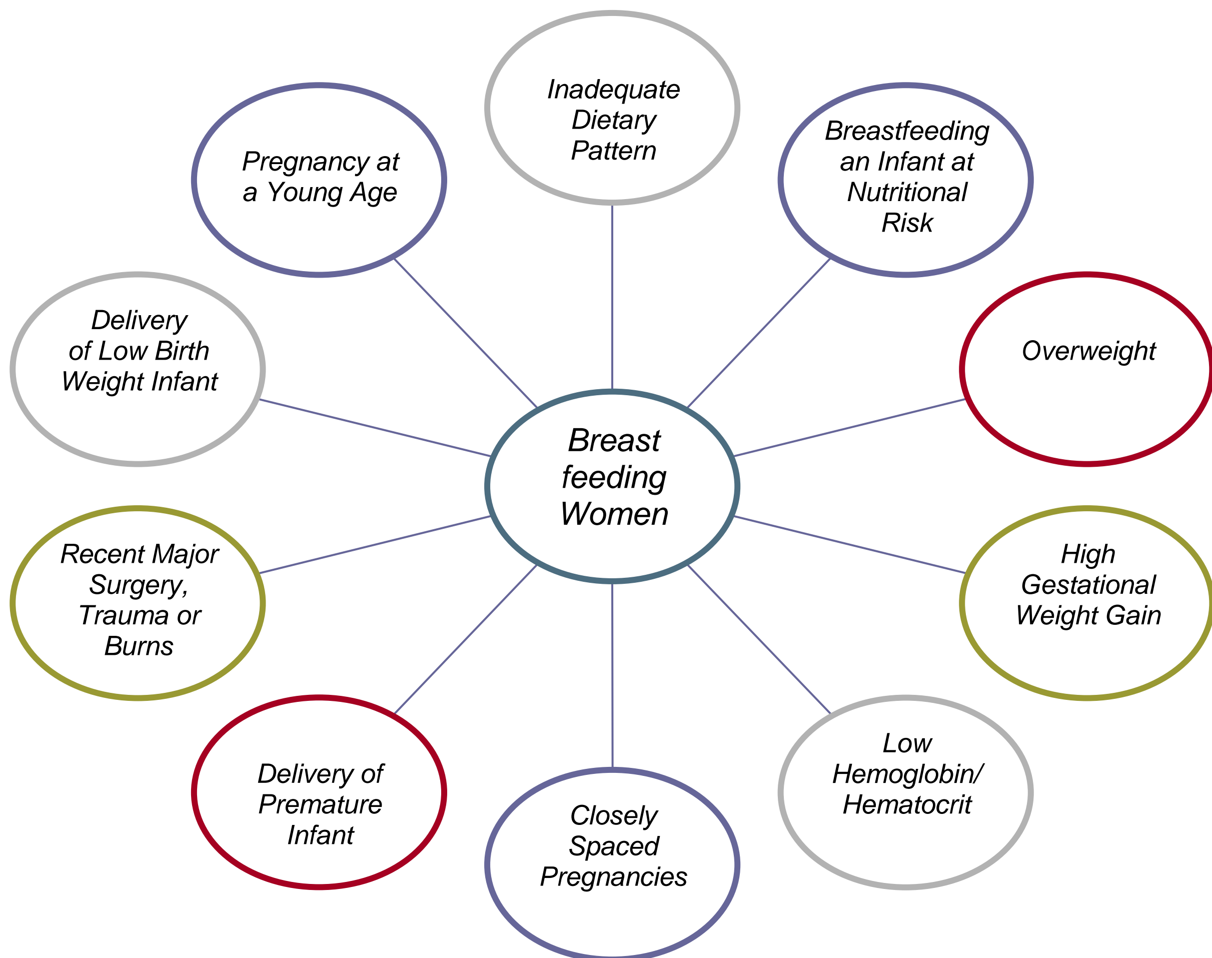
In FFY 2005, the prevalence proportion of underweight among non-breastfeeding women was 4.8%. Northwest district showed the highest percentage of 7.1 and Southside district showed the lowest percentage of 2.1. All of the districts showed a percentage less than 10% which represents a low number of underweight among non-breastfeeding women in the GA WIC Program.



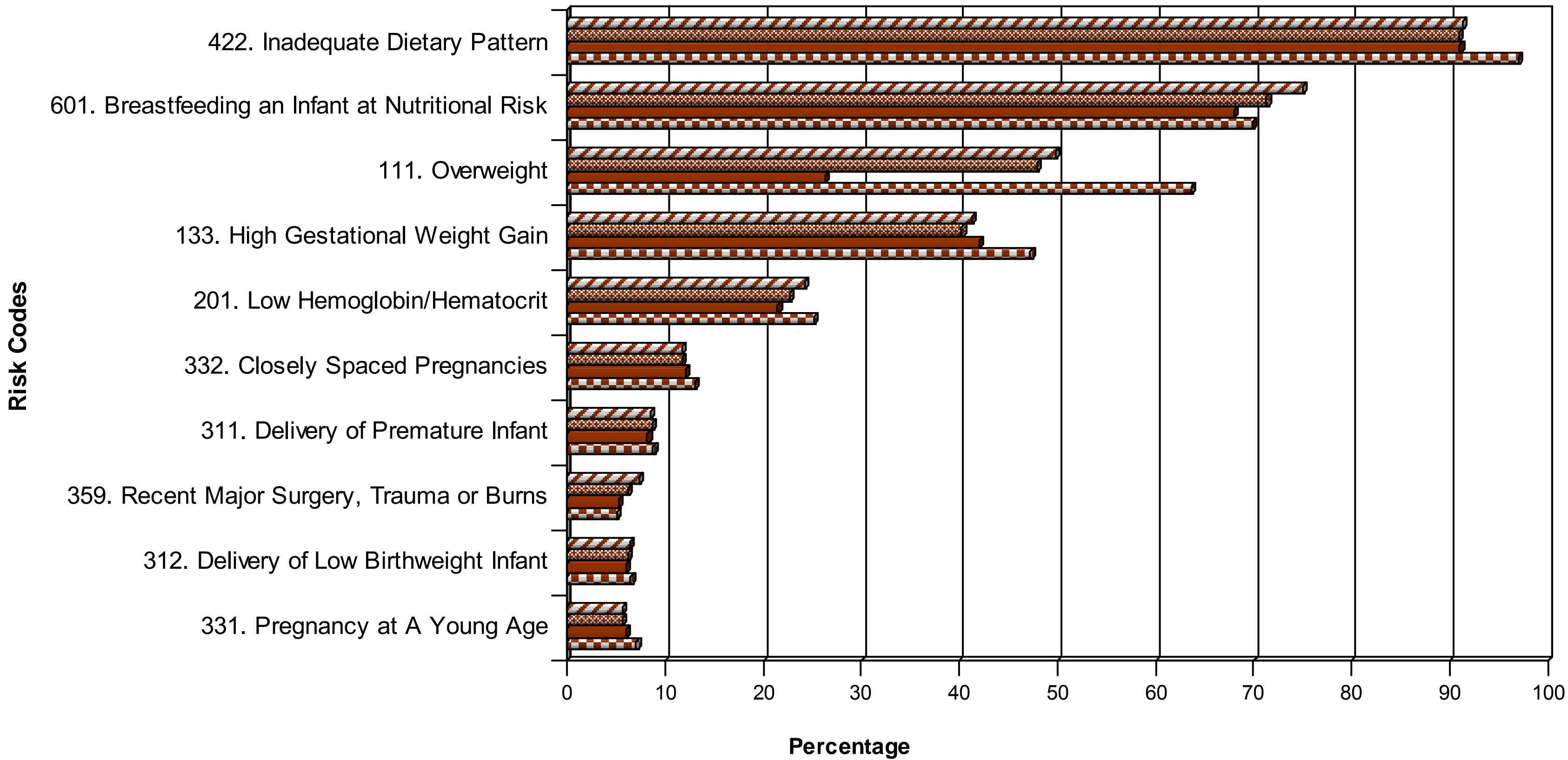
Breastfeeding Women

During FFY 2005, 28,242 breastfeeding women were enrolled in the GA WIC Program. A large percentage of breastfeeding women were reported as having an inadequate dietary pattern and breastfeeding an infant at nutritional risk. Some other risk codes that were reported as being highly associated with breastfeeding women were being overweight, having high gestational weight gain, and low hemoglobin/hematocrit counts.

Below you will find a chart of the top 10 Risk Code Indicators for Breastfeeding Women enrolled in the GA WIC program during FFY 2005 and a graph showing the trends of these risk codes from FFY 2002-2005. When we look at the risk codes from FFY 2002-2005, we see that the proportions in the number of breastfeeding women have varied only slightly throughout the last four years. Since 2002, Breastfeeding an infant at nutritional risk has shown a slight increase in the percentage of breastfeeding women enrolled in the GA WIC Program while Inadequate Dietary Pattern has shown a slight decrease.



Top Ten Risk Code Indicators for Breastfeeding Women Enrolled in WIC

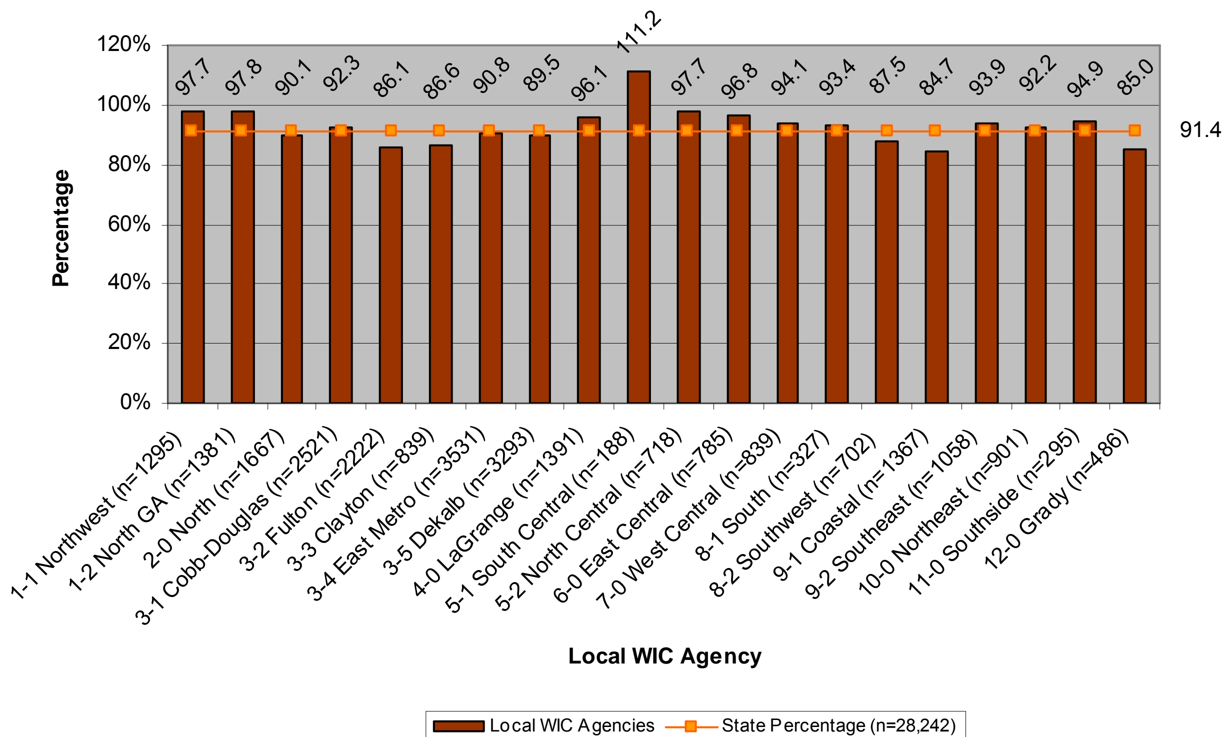


I. Inadequate Dietary Pattern

Inadequate Dietary Pattern among breastfeeding women is considered to be any food group missing based on the Recommended Daily Servings Chart; failure to meet the recommended number of servings for two food groups; practice of two inappropriate food practices (based on the Inappropriate Food Practices List); and the practice of one inappropriate food practice and the failure to meet the recommended number of servings for one food group.

This risk factor has been shown to have both short and long term effects on behavior , cognitive development, physical growth, and general health status.[12]

In FFY 2005, the prevalence proportion of inadequate dietary pattern among breast-feeding women was 91.4%. South Central district showed the highest percentage of 111.2 and Coastal district showed the lowest percentage of 84.7. All of the districts show a percentage greater than 84% which shows a big number of inadequate dietary pattern among breastfeeding women throughout the state of Georgia WIC Program. The highest percentage is greater than 100% which shows that there could be some error in the data collection for this risk code.

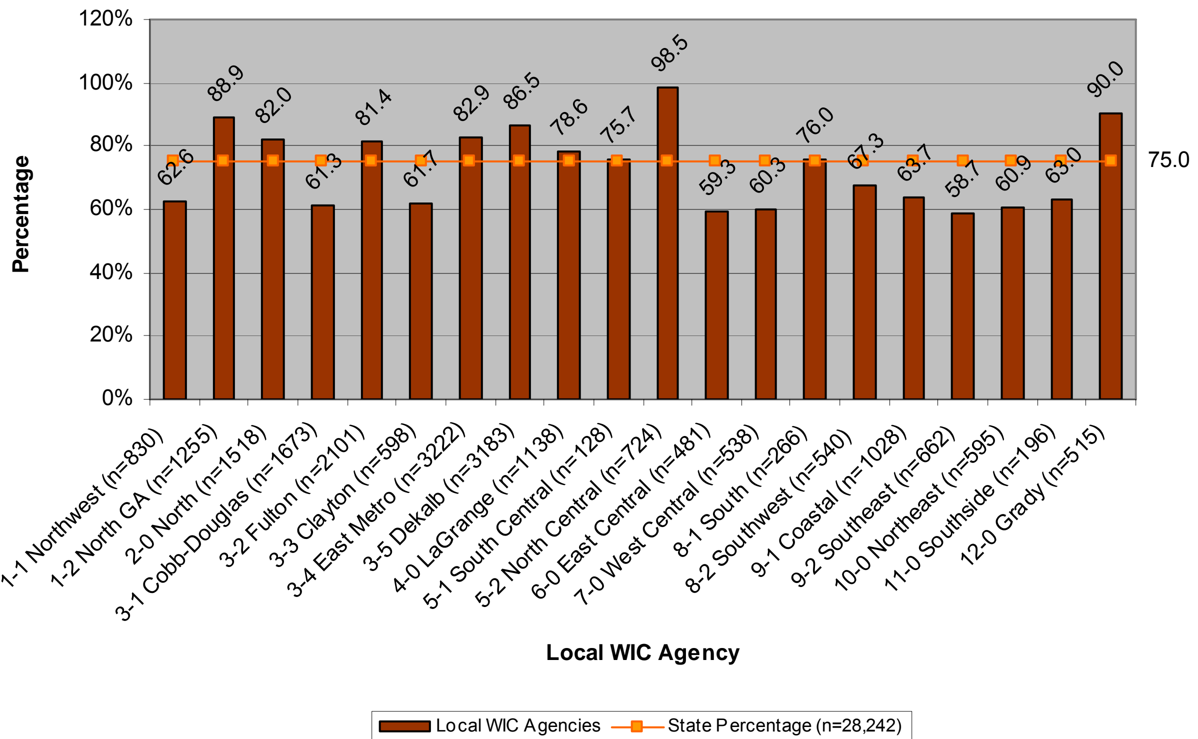


II. Breastfeeding an Infant at Nutritional Risk

This risk factor refers to a breastfeeding woman whose breastfed infant has been determined to be at nutritional risk.

Breast milk is the healthiest food available to a newborn. Breastfed babies are less susceptible to diabetes mellitus and childhood cancers.[21]

In FFY 2005, the prevalence proportion of breastfeeding an infant at nutritional risk among breastfeeding women was 75.0%. North Central district showed the highest percentage of 98.5 and Southeast district showed the lowest percentage of 58.7. The state average is represented as an approximate midpoint throughout the districts because half of the districts are above the state average while the other half are below it.

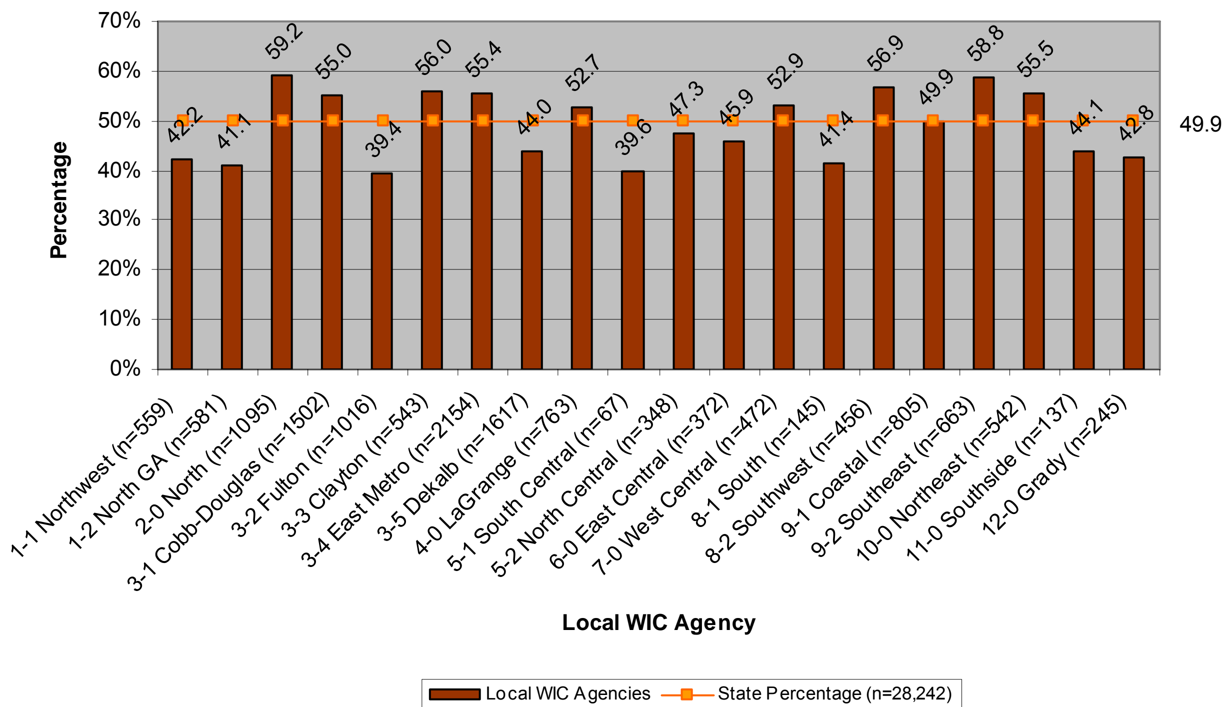


III. Overweight

< *6 months postpartum:* Pre-pregnancy weight is equal to a Body Mass Index (BMI) of >24.9.
> *6 months postpartum:* Current weight is equal to a Body Mass Index (BMI) of >24.9.

Overweight women should gain no more than 15 to 25 pounds during their pregnancy. Obese women with lower weight gains can have successful pregnancies and healthy babies. It is recommended that their gestational gain be limited to no more than 15 pounds.[15]

In FFY 2005, the prevalence proportion of overweight among breastfeeding women was 49.9%. North district showed the highest percentage of 59.2 and Fulton showed the lowest percentage of 39.4. All of the districts have a percentage greater or less than 10% of the state percentage.



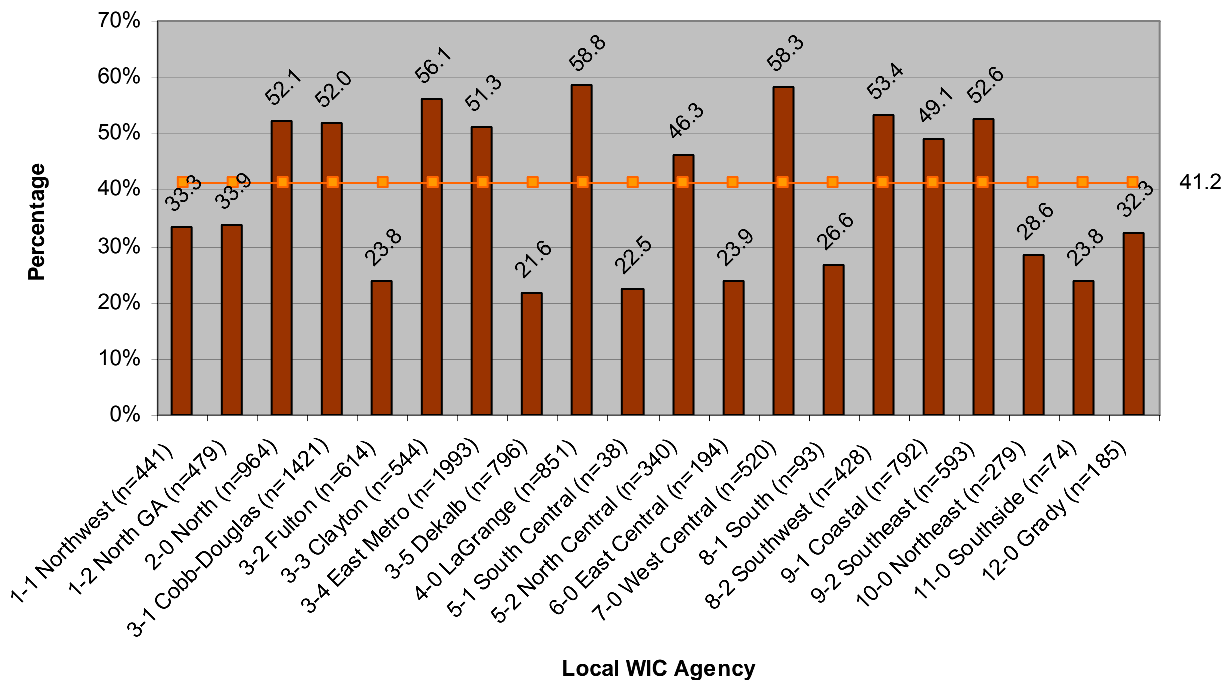
IV. High Gestational Weight Gain

Total gestational weight gain exceeds the upper limit of the recommended range based on pre-pregnancy weight for height or pre-pregnancy BMI. This applies to the most recent pregnancy only.

Pre-pregnancy Weight Group/ Cut-off Value
Underweight: > 40 lbs
Normal Weight: >35 lbs
Overweight: >25 lbs
Obese: >15 lbs

Excessive gestational weight gain may be associated with high birth weight. The consequences of high birth weight include prolonged labor and birth, birth trauma, birth asphyxia, caesarean birth and increased risk of perinatal mortality.[15]

In FFY 2005, the prevalence proportion of high gestational weight gain among breastfeeding women was 41.2%. LaGrange district showed the highest percentage of 58.8 and Dekalb district showed the lowest percentage of 21.6. Half of the districts are above the state average while the other half are below it.



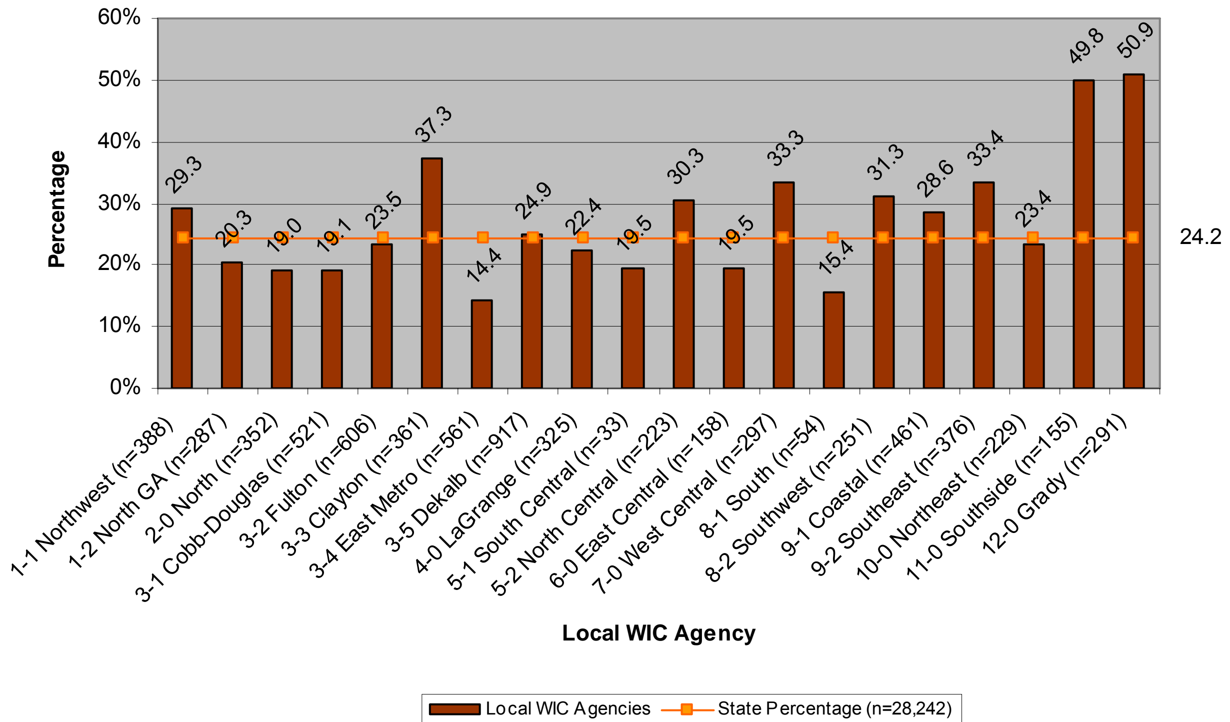
V. Low Hemoglobin/Hematocrit

Non-Smokers: Hemoglobin: 11.9 gm or lower (≥ 15 years of age)
11.7 gm or lower (< 15 years of age)
Hematocrit: 35.8% or lower

Smokers: Hemoglobin: 12.2 gm or lower (≥ 15 years of age)
12.0 gm or lower (< 15 years of age)
Hematocrit: 36.8% or lower

Anemia occurs when you have a below-normal level of hemoglobin or hematocrit counts.[18]

In FFY 2005, the prevalence proportion of low hemoglobin/hematocrit counts among breastfeeding women was 24.2%. Grady district showed the highest percentage of 50.9 and East Metro district showed the lowest percentage of 14.4. Most of the districts, with the exception of Grady and Southside, show a percentage below 38%.

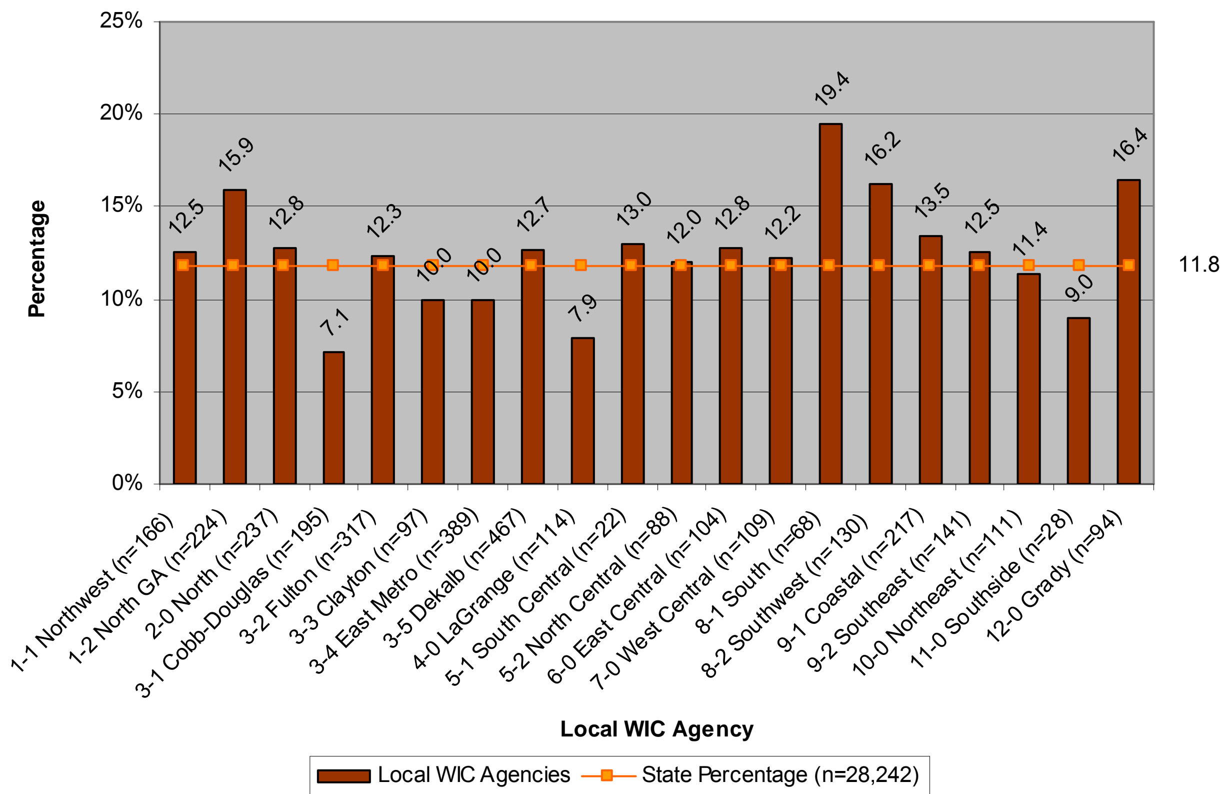


VI. Closely Spaced Pregnancies

Closely Spaced Pregnancies occur when a delivery date occurred less than 25 months after termination of the last pregnancy. This applies to the most recent delivery only.

The evidence on child mortality suggests that conceptions less than 6 months after a birth are detrimental to the survival of the second child.[7]

In FFY 2005, the prevalence proportion of closely spaced pregnancies among breast-feeding women was 11.8%. South district showed the highest percentage of 19.4 and Cobb-Douglas district showed the lowest percentage of 7.1. All of the districts have a percentage less than 20%, showing a low number of closely spaced pregnancies throughout the GA WIC Program.

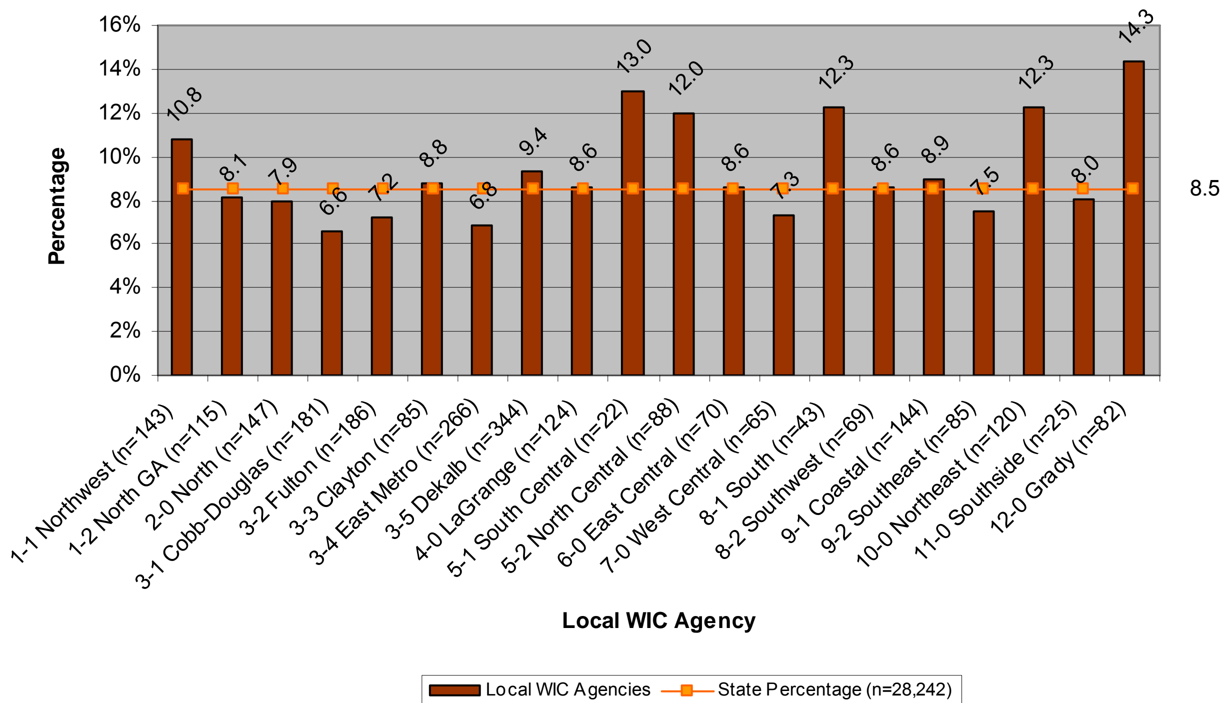


VII. Delivery of Premature Infant

This risk code occurs when a woman has delivered one or more infants at 37 weeks gestation or less. This applies to the most recent pregnancy only.

The most common causes of preterm labor include:
- Placenta problems
- Pregnancy with twins or more
- Infection in the mother
- Problems with the uterus or cervix
- Drug or alcohol use during pregnancy[28]

In FFY 2005, the prevalence proportion of premature infants delivered among breastfeeding women was 8.5%. Grady district showed the highest percentage of 14.3 and Cobb-Douglas showed the lowest percentage of 6.6. All of the districts show a percentage less than 15% for delivering premature infants among breastfeeding women throughout the state of Georgia WIC Program.

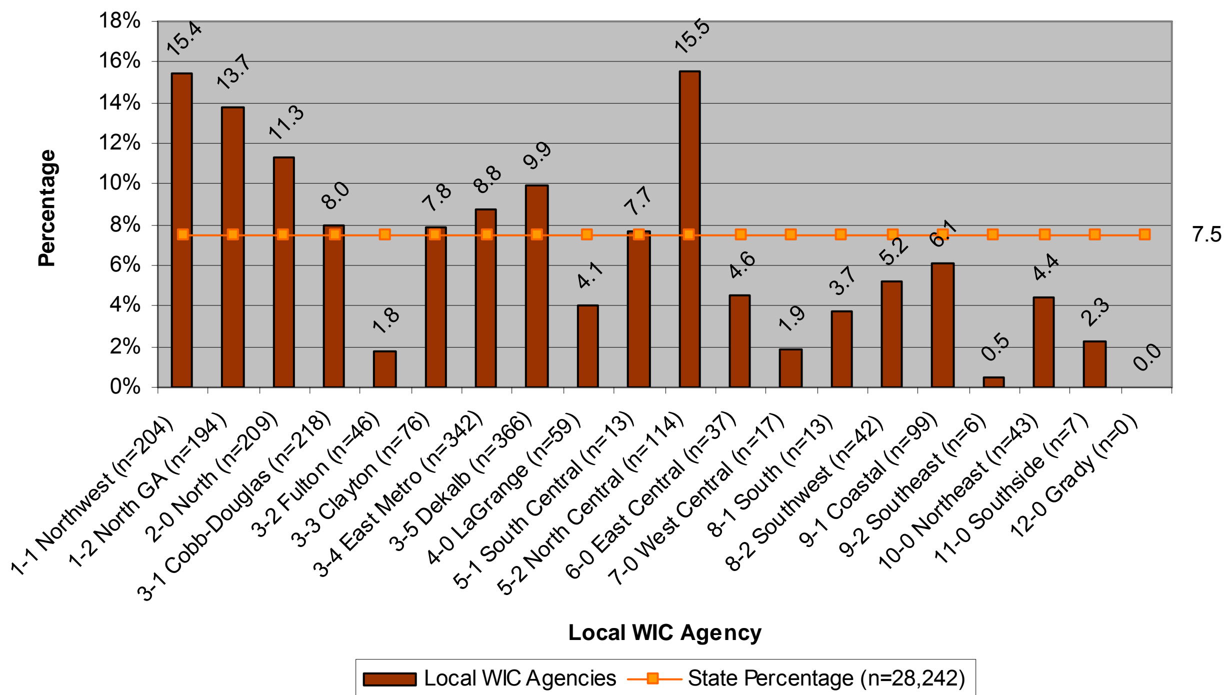


VIII. Recent Major Surgery, Trauma or Burns

Major surgery (including C-sections), trauma or burns among non-breastfeeding women are defined as those that were severe enough to compromise nutritional status. Any occurrence within the past 2 months may be self reported. Any occurrence more than 2 months previous must have the continued need for nutritional support diagnosed by a physician or health care provider working under the standing orders of a physician.

Alterations in the metabolism of glucose, protein, and fat occur following injury. There is a marked rise in the regulatory hormones in all phases of injury or after severe burn.[16]

In FFY 2005, the prevalence proportion of recent major surgery, trauma or burns among breastfeeding women was 7.5%. North Central district showed the highest percentage of 15.5 and Grady district showed the lowest percentage of 0%. All of the districts showed a percentage less than 16% throughout the state of Georgia WIC Program.

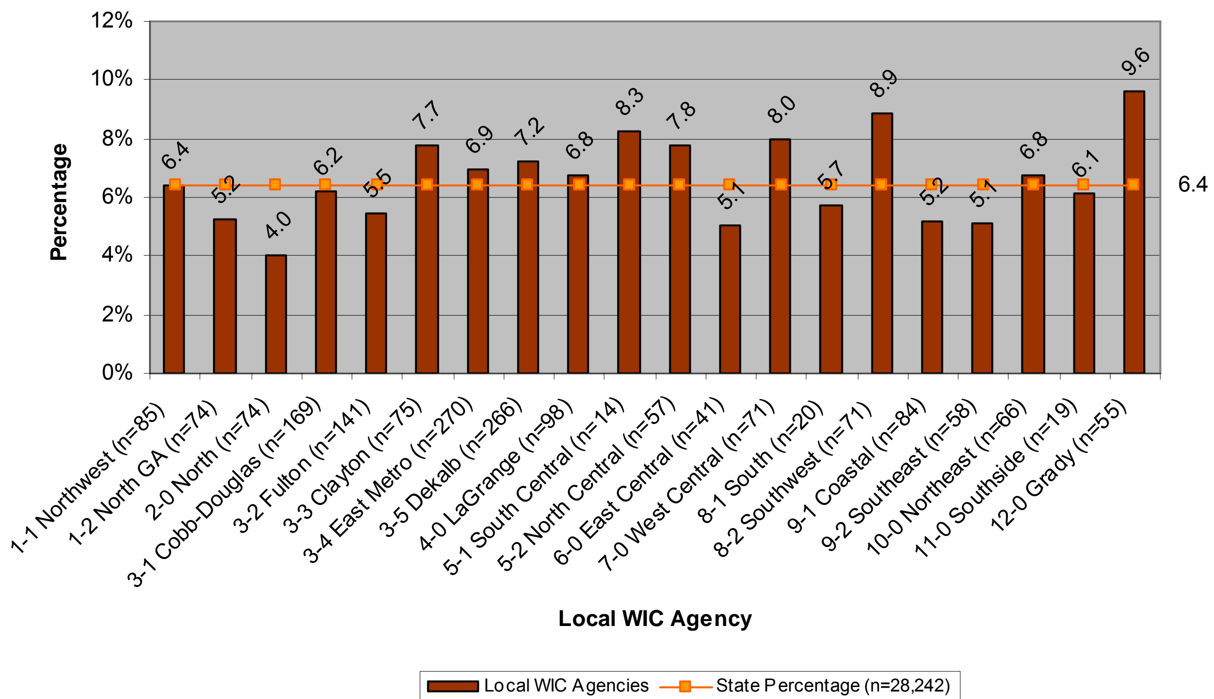


IX. Delivery of Low Birth weight Infant

Delivery of low birth weight infants occurs when a woman has delivered one or more infants with a birth weight of 5 lb 8 oz (2500 gms) or less. This applies to the most recent pregnancy only.

Low birth weight babies may have organs that are not fully developed. This can lead to lung problems such as respiratory distress syndrome, or bleeding in the brain, vision loss and serious intestinal problems. Low birth weight babies are more than 20 times as likely to die in their first year of life as normal weight babies.[23]

In FFY 2005, the prevalence proportion of low birth weight infants delivered among breastfeeding women was 6.4%. Grady district showed the highest percentage of 9.6 and North district showed the lowest percentage of 4.0. All of the districts showed a percentage less than 10%.

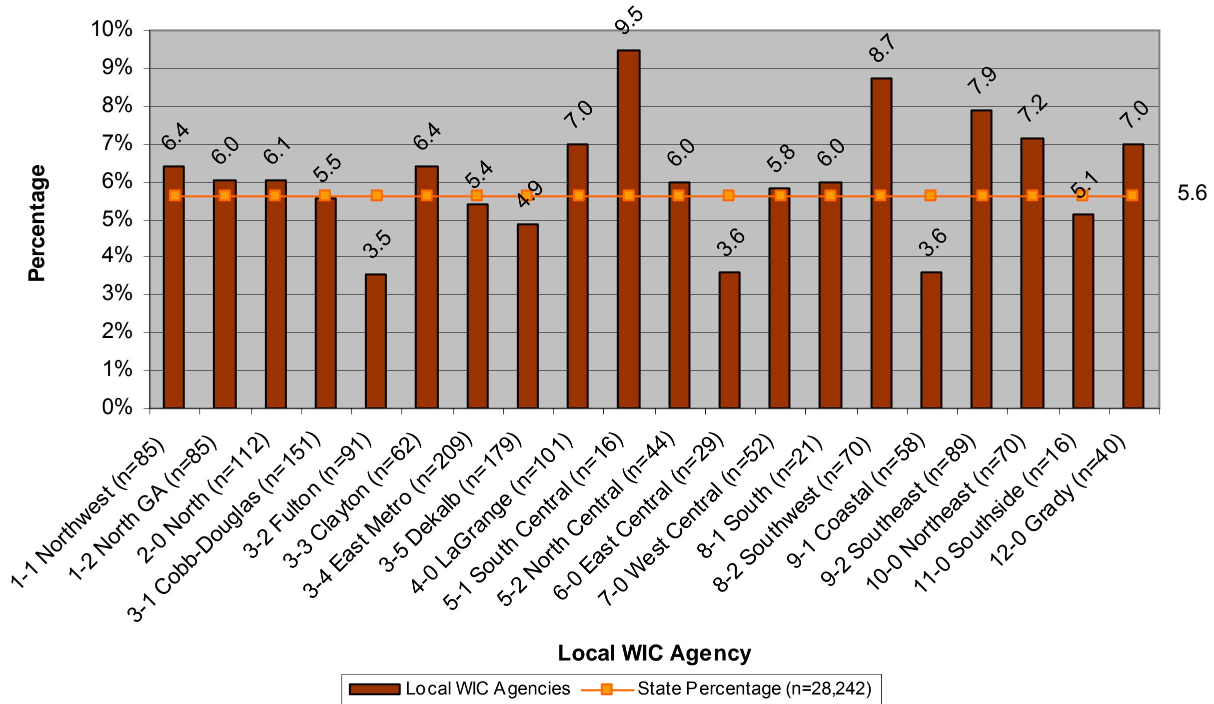


X. Pregnancy at a Young Age

Pregnancy at a young age for non-breastfeeding women is considered when the delivery date occurred at less than 18 years and 10 months of age. This applies to the most recent pregnancies only.

A third of pregnant teens receive inadequate prenatal care . Babies born to young mothers are more likely to be low birth weight, to have childhood health problems and to be hospitalized more than those born to older mothers.[17]

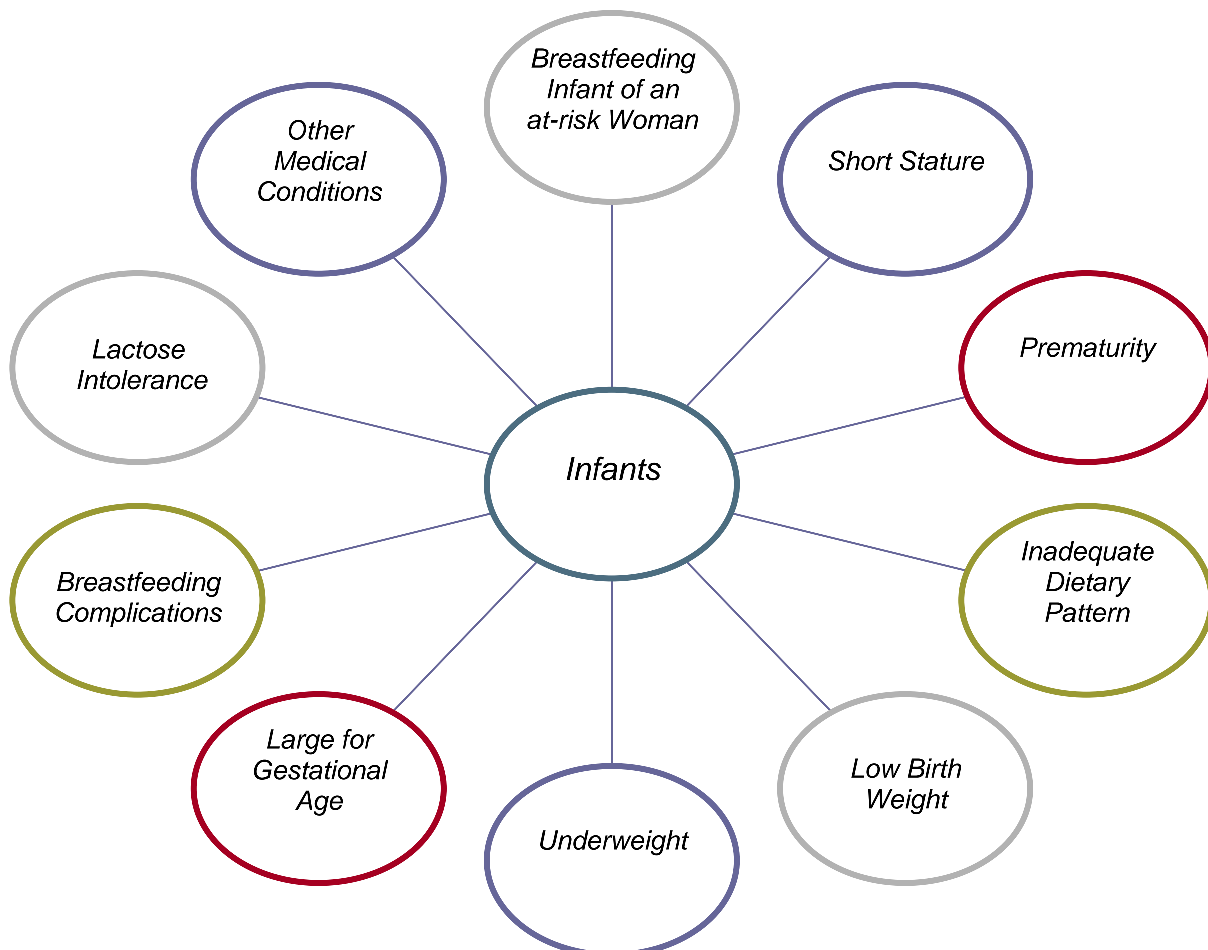
In FFY 2005, the prevalence proportion of pregnancy at a young age among breastfeeding women was 5.6%. South Central showed the highest percentage of 9.5 and Fulton district showed the lowest percentage of 3.5. All of the districts showed a percentage less than 10%. These numbers show that the teenage pregnancy prevention programs throughout the state of GA have been effective.



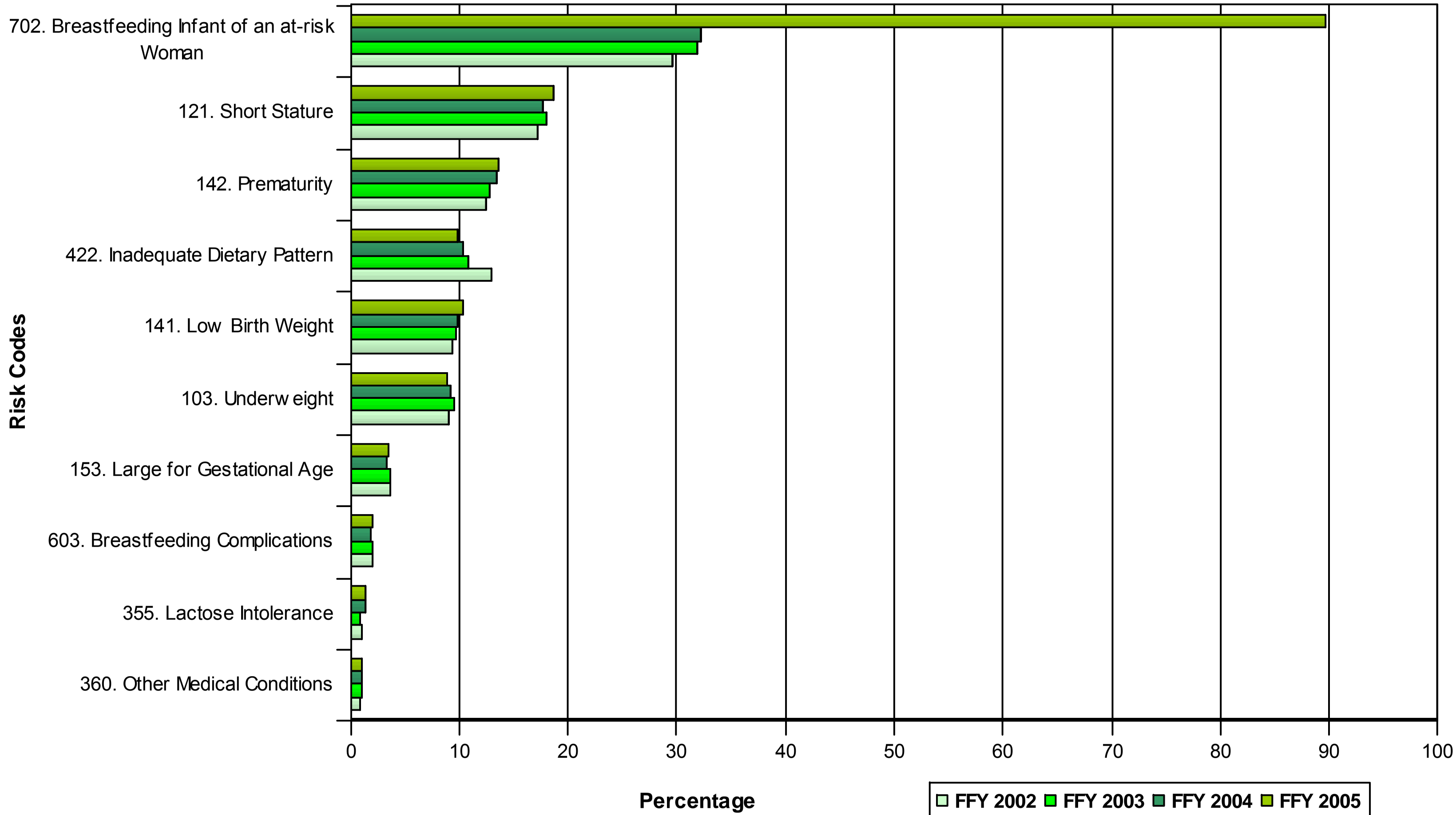
Infants

During FFY 2005, 85,458 infants were enrolled in the GA WIC Program. A large percentage of infants were reported as being a breastfeeding infant of an at-risk woman. Some other risk codes that were reported as being highly associated with infants were short stature and prematurity.

Below you will find a chart of the top 10 Risk Code Indicators for infants enrolled in the GA WIC program during FFY 2005 and a graph showing the trends of these risk codes from FFY 2002-2005. When we look at the risk codes from FFY 2002-2005, we see that the proportions in the number of infants have varied greatly for one of the risk codes. There is a large increase in breastfeeding infant of an at-risk woman from 2004 to 2005. The other risk codes show little variation between the years of 2002 to 2005.



Top Ten Risk Code Indicators for Infants Enrolled in WIC

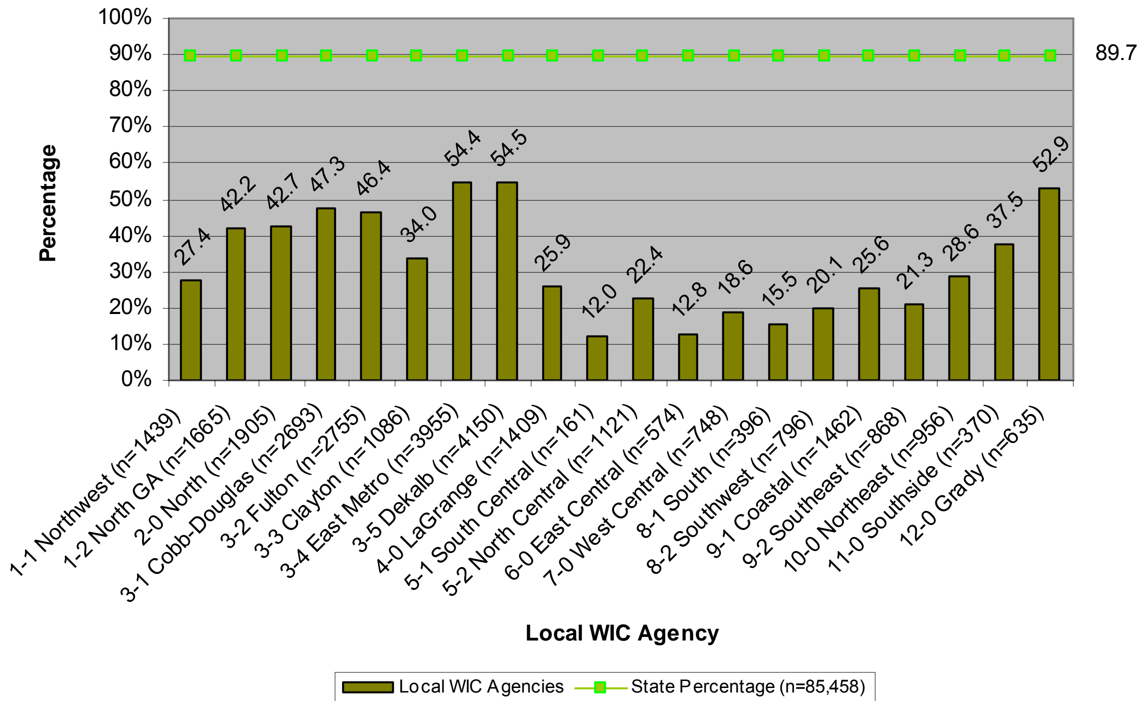


I. Breastfeeding Infant of an at-risk Woman

This risk code refers to a breastfed infant whose breastfeeding mother has been determined to be at nutritional risk.

If the breastfeeding mother does not intake the proper nutrients, the breastfed baby will not receiver the proper nutrients needed in the breast milk.

In FFY 2005, the prevalence proportion of breastfeeding an infant of an at-risk woman among infants was 89.7%. Dekalb district showed the highest percentage of 54.5 and South Central district showed the lowest percentage of 12.0. The state average is almost 45% higher than Dekalb district, which displays the highest percentage of all districts throughout the GA WIC Program. This information shows that there may have been some data collection errors.

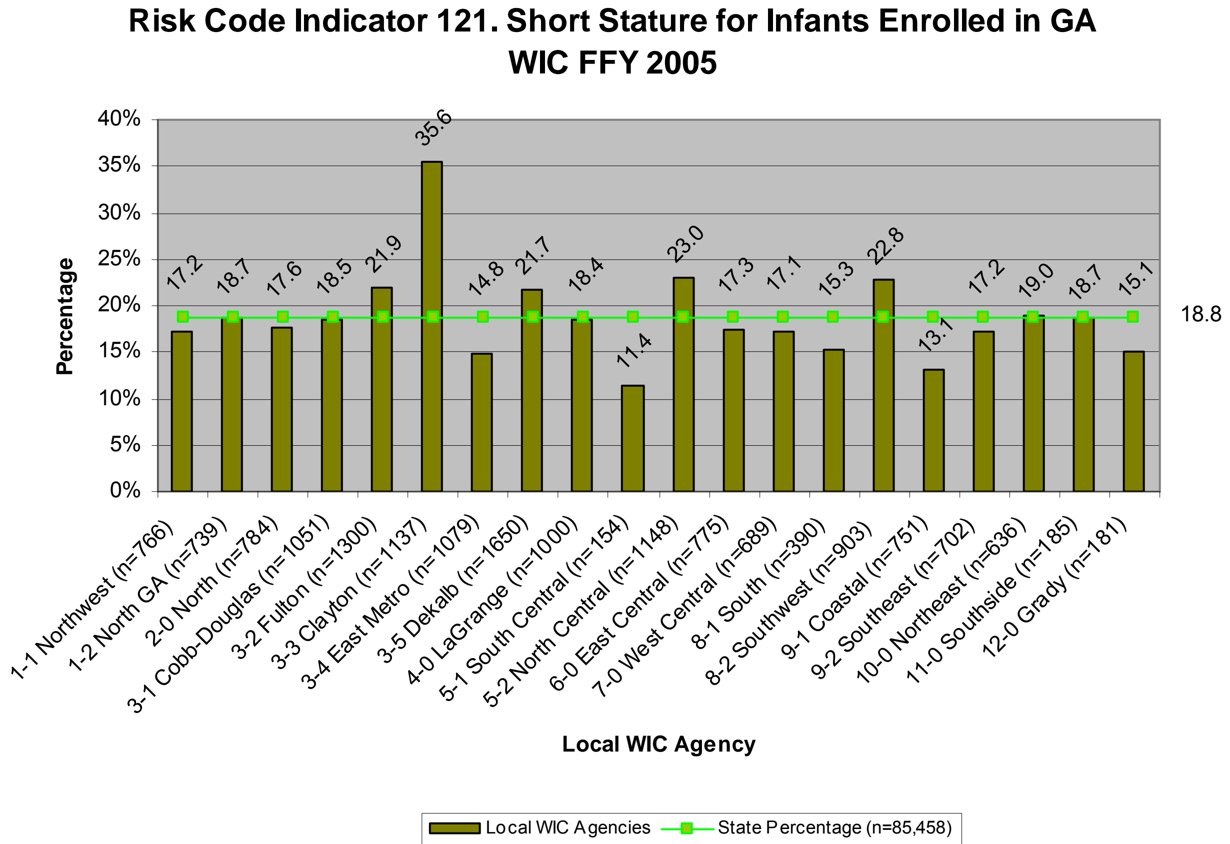


II. Short Stature

This risk code is defined as being less than or equal to the 10th percentile length for age based on National Center for Health Statistics (NCHS) age/sex specific growth charts.

This is caused by stunted linear growth. If a child does not reach their height potential, but does have rapid weight gain during treatment, this may affect body composition (obesity) later in childhood. An infant should double birth weight at six months and triple birth weight at one year.[5,24]

In FFY 2005, the prevalence proportion of short stature among infants was 18.8%. Clayton district showed the highest percentage of 35.6 and South Central showed the lowest percentage of 11.4. More than half of the districts fall below the state percentage of 18.8.

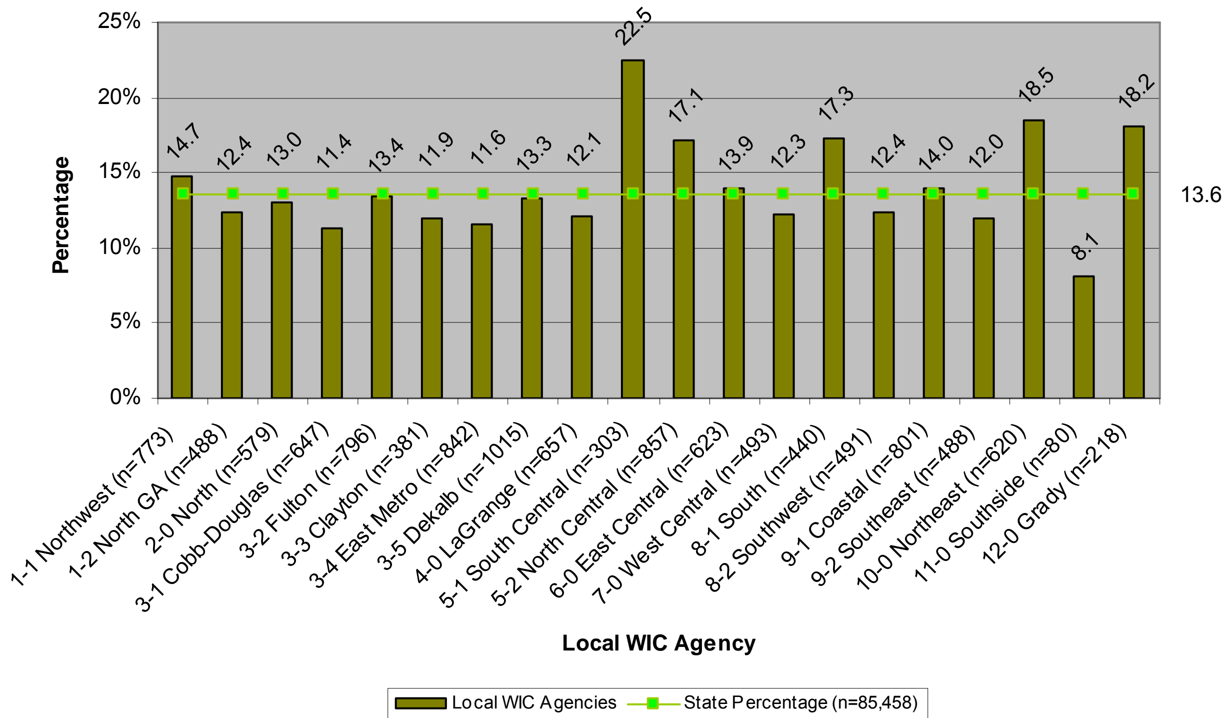


III. Prematurity

Prematurity is defined as an infant born at ≤ 37 weeks gestation.

The health of premature newborns is determined by the week of gestation at birth, type of neonatal care available, birth weight, and general health. When born too early, a preemie's major organs are not fully developed. The earlier a preemie is born, the higher the risk of long-term problems.[28]

In FFY 2005, the prevalence proportion of prematurity among infants was 13.6%. South Central district showed the highest percentage of 22.5 and Southside district showed the lowest percentage of 8.1. All of the districts showed a percentage less than 25% which is a fairly low percentage as a whole. This reflects a low number of premature births throughout the GA WIC Program.

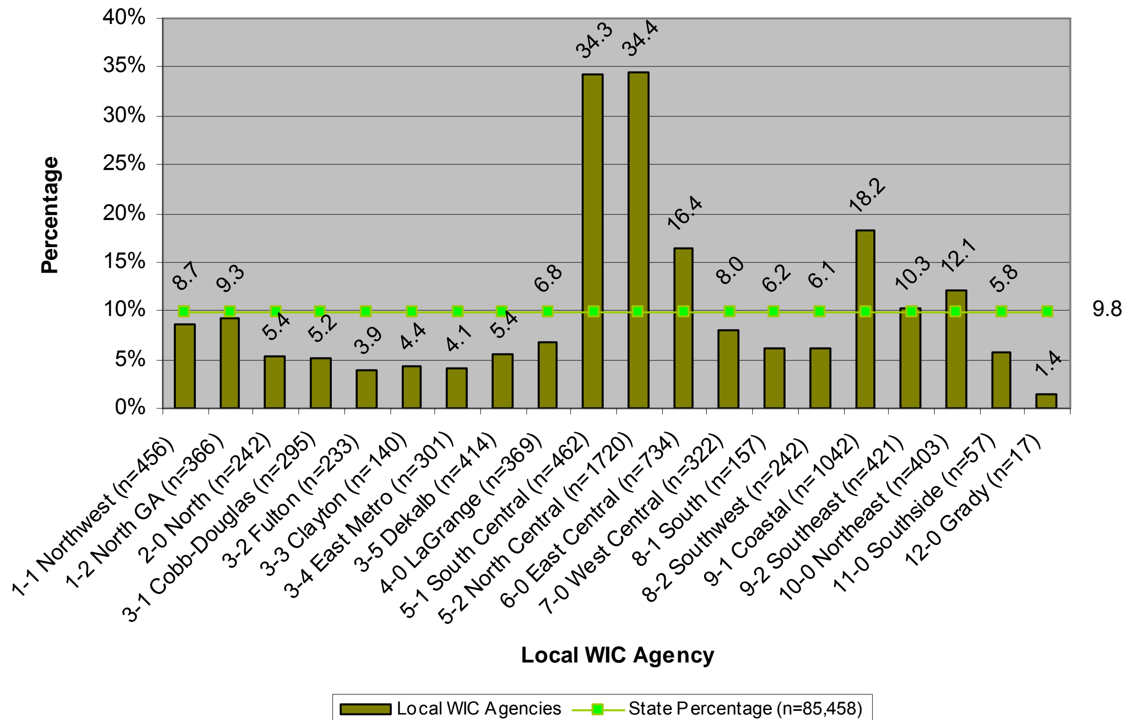


IV. Inadequate Dietary Pattern

Inadequate Dietary Pattern among infants is considered to be any food group missing based on the Recommended Daily Servings Chart; failure to meet the recommended number of servings for two food groups; practice of two inappropriate food practices (based on the Inappropriate Food Practices List); the practice of one inappropriate food practice and the failure to meet the recommended number of servings for one food group; and consuming less than the recommended amount of iron-fortified or prescription formula for infants, or consuming a low-iron formula without a prescription and appropriate diagnosis.

This risk factor has been shown to have both short and long term effects on behavior , cognitive development, physical growth, and general health status.[12]

In FFY 2005, the prevalence proportion of inadequate dietary pattern among infants was 9.8%. North Central district showed the highest percentage of 34.4 and Grady district showed the lowest percentage of 1.4. More than half of the districts showed a percentage lower than the state percentage.

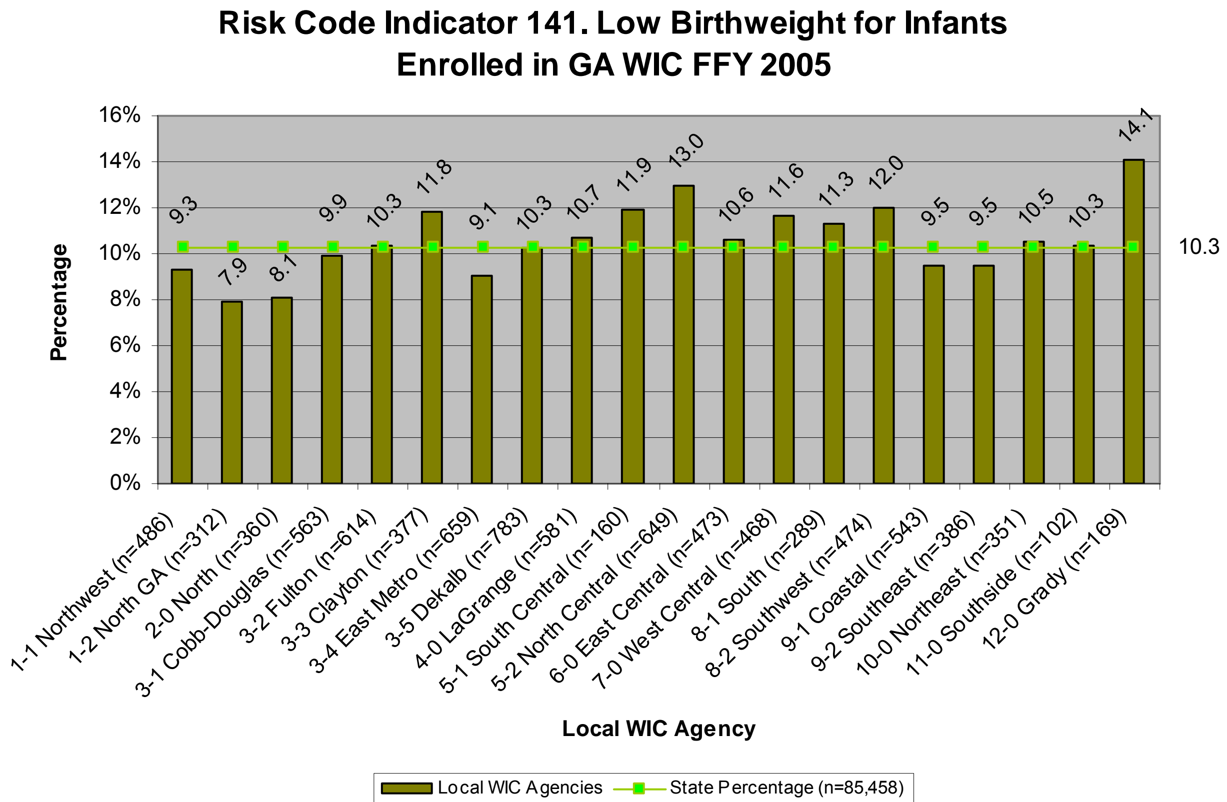


V. Low Birth Weight

This risk code is defined as a birth weight ≤ 5 lbs 8 oz (≤ 2500 g)

Low birth weight babies may have organs that are not fully developed. This can lead to lung problems such as respiratory distress syndrome, or bleeding in the brain, vision loss and serious intestinal problems. Low birth weight babies are more than 20 times as likely to die in their first year of life as normal weight babies.[23]

In FFY 2005, the prevalence proportion of low birth weight among infants was 10.3%. Grady district showed the highest percentage of 14.1 and North Georgia district showed the lowest percentage of 7.9. All of the districts reported information less than 15% showing a low prevalence of low birth weight among infants throughout the state of Georgia WIC Program.

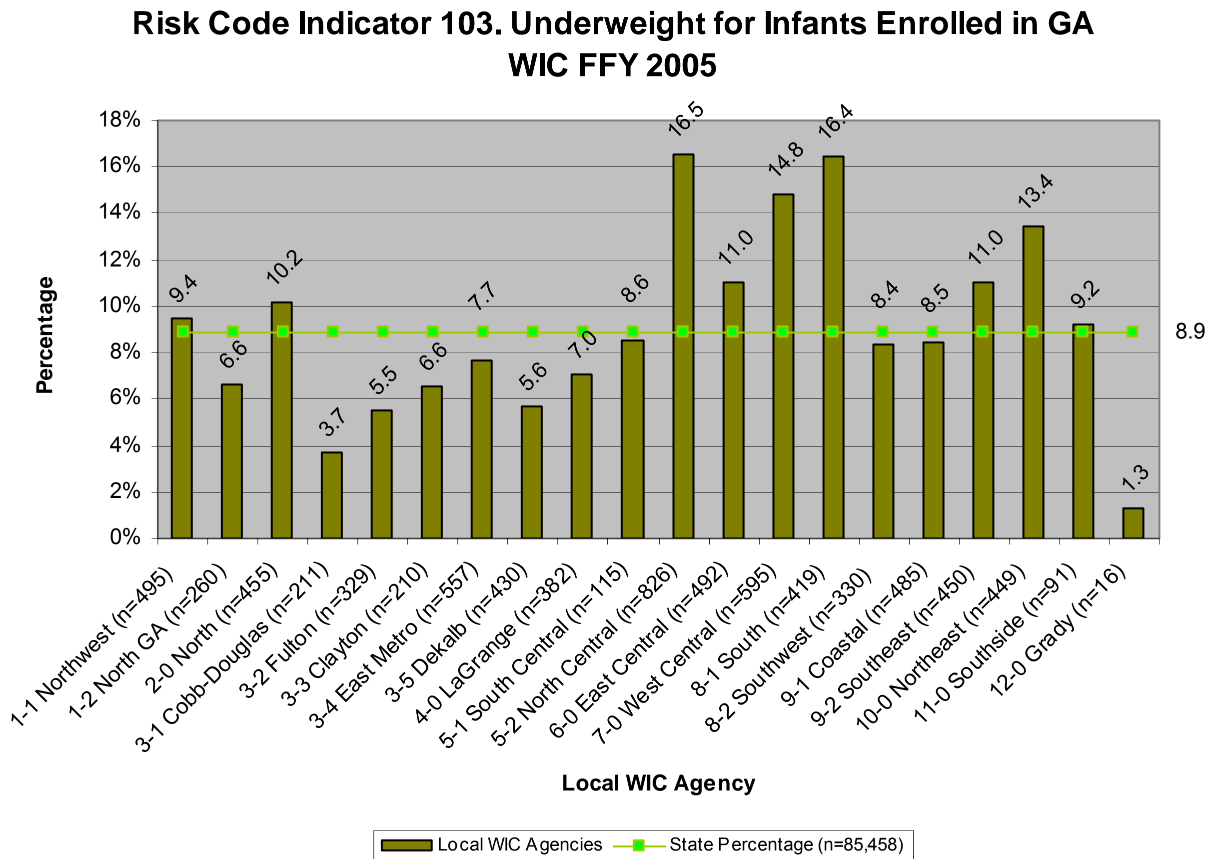


VI. Underweight

This risk code is defined to be less than or equal to the 10th percentile weight for length, based on the Centers for Disease Control and Prevention (CDC) age/sex specific growth charts.

Low maternal weight before pregnancy and poor weight gain during pregnancy are known to result in an increased prevalence of low birth weight infants. An expectant mother that doesn't gain enough weight is at risk of giving birth prematurely and the baby may be considered small for gestational age. This could suggest that the baby was malnourished during the pregnancy.[19,20]

In FFY 2005, the prevalence proportion of underweight among infants was 8.9%. North Central district showed the highest percentage of 16.5 and Grady district showed the lowest percentage of 1.3. All of the districts reported data less than 17% throughout the state of Georgia WIC Program.

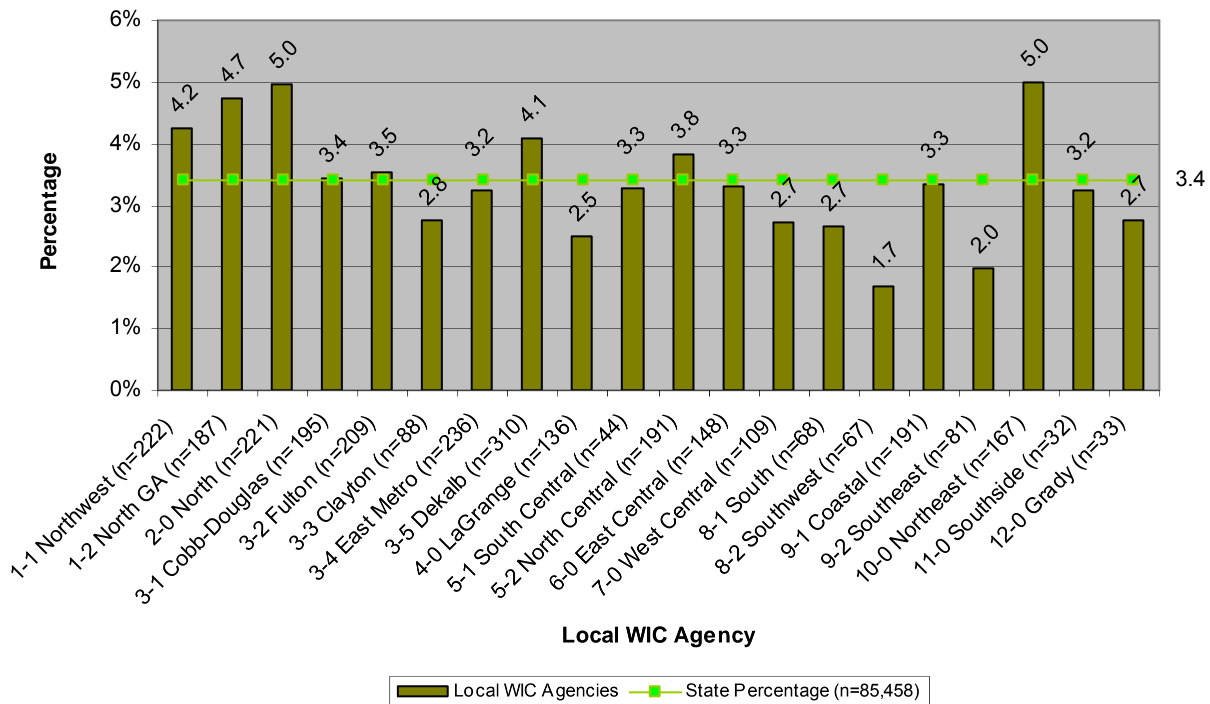


VII. Large for Gestational Age

This risk code is defined to be ≥ 90th percentile weight for gestational age at birth; or birth weight ≥ 9 lbs; or presence of large for gestational age diagnosed by a physician as self reported by applicant/participant/caregiver; or as reported or documented by a physician, or health care professional working under standing orders of a physician.

Most of the time an overweight infant is at risk of being an overweight child.

In FFY 2005, the prevalence proportion of large for gestational age among infants was 3.4%. Both North and Northeast districts showed the highest percentage of 5.0 and Southwest district showed the lowest percentage of 1.7. All of the districts are less than or equal to 5% and most of the districts fall below the state percentage of 3.4%. This information shows that there is a very small number of large for gestational age among infants throughout the state of GA WIC Program.



VIII. Breastfeeding Complications

Any of the following are considered complications or potential complications of breastfeeding:

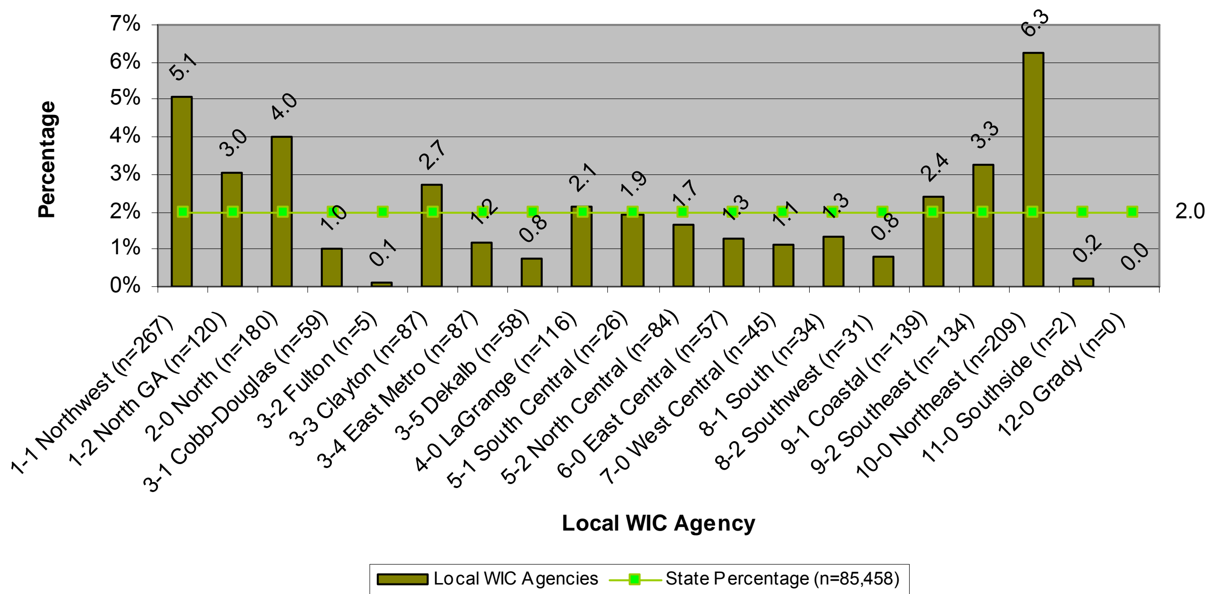
- Breastfed infant with jaundice
- Breastfed infant with weak or ineffective suck
- Breastfed infant with difficulty latching onto mother's breast
- Breastfed infant with inadequate stooling for age (as determined by a physician or other health care provider)
- Breastfed infant who wets diaper less than 6 times per day

There are several other reasons as to why a mother may not be able to breastfeed her baby:

- In a premature delivery, a mother's milk supply may not become established enough to provide milk for her baby.
- A mother who delivers twins or triplets might not have enough milk supply to nourish all of the babies.
- Some medicines taken by the mother can harm the baby.
- A mother may have an infection that could be passed on to the baby through breastfeeding.

Common breastfeeding problems include sore nipples, infections or painful lumps, yeast infections or thrush, and engorged breasts.[4]

In FFY 2005, the prevalence proportion of breastfeeding complications among infants was 2.0%. Northeast district showed the highest percentage of 6.3 and Grady district showed the lowest percentage of 0. All of the districts throughout the state of GA show a percentage less than 7 and more than half of the districts fall below the state percentage of 2%. This information shows that there have not been many breastfeeding complications among infants enrolled in the GA WIC program.

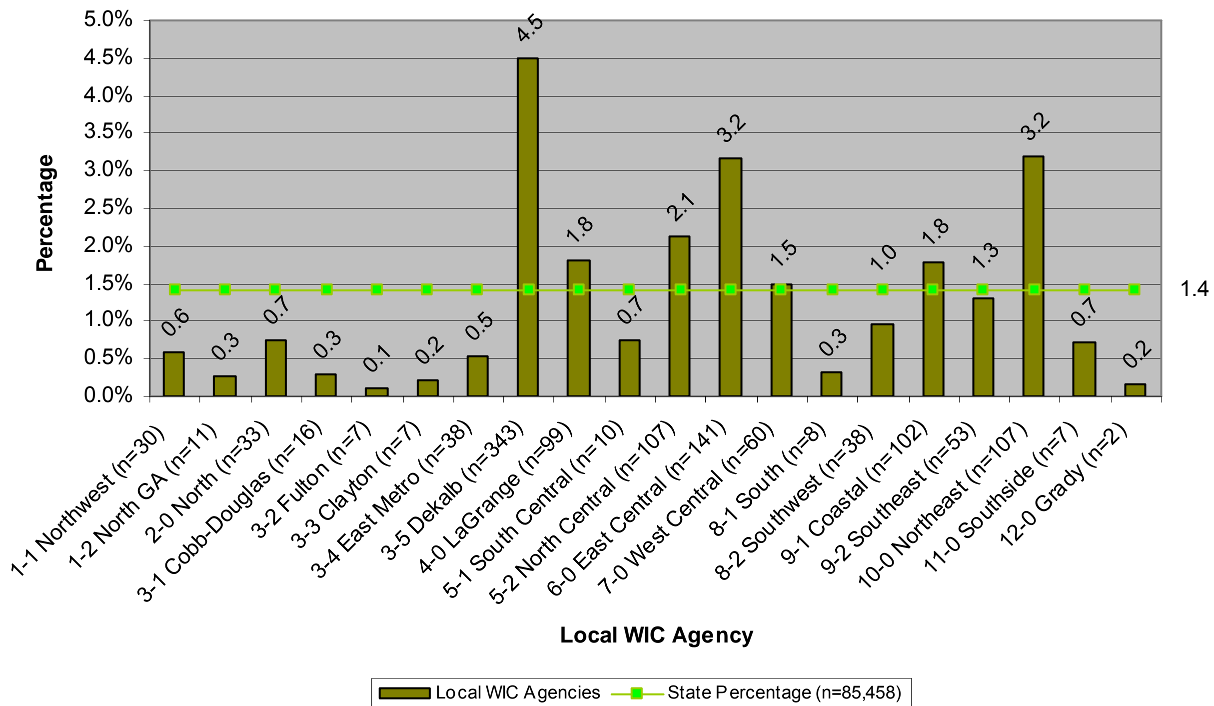


IX. Lactose Intolerance

The presence of lactose intolerance diagnosed by a physician as self reported by caregiver; or as reported or documented by a physician, or health professional acting under standing orders of a physician; or symptoms described by caregiver must be well documented by the competent professional authority.

Sometimes babies can be born with a condition called galactosemia, in which they can't tolerate breast milk. This is because their bodies can't break down the sugar galactose. Babies with classic galactosemia may have liver problems, malnutrition, or mental retardation.[14,27]

In FFY 2005, the prevalence proportion of lactose intolerance among infants was 1.4%. Dekalb district showed the highest percentage of 4.5 while Fulton district showed the lowest percentage of 0.1. All of the districts showed a percentage less than 5% and more than half of the districts showed a percentage less than the state percentage of 1.4. This information reflects a very low number of lactose intolerant infants throughout the GA WIC Program.

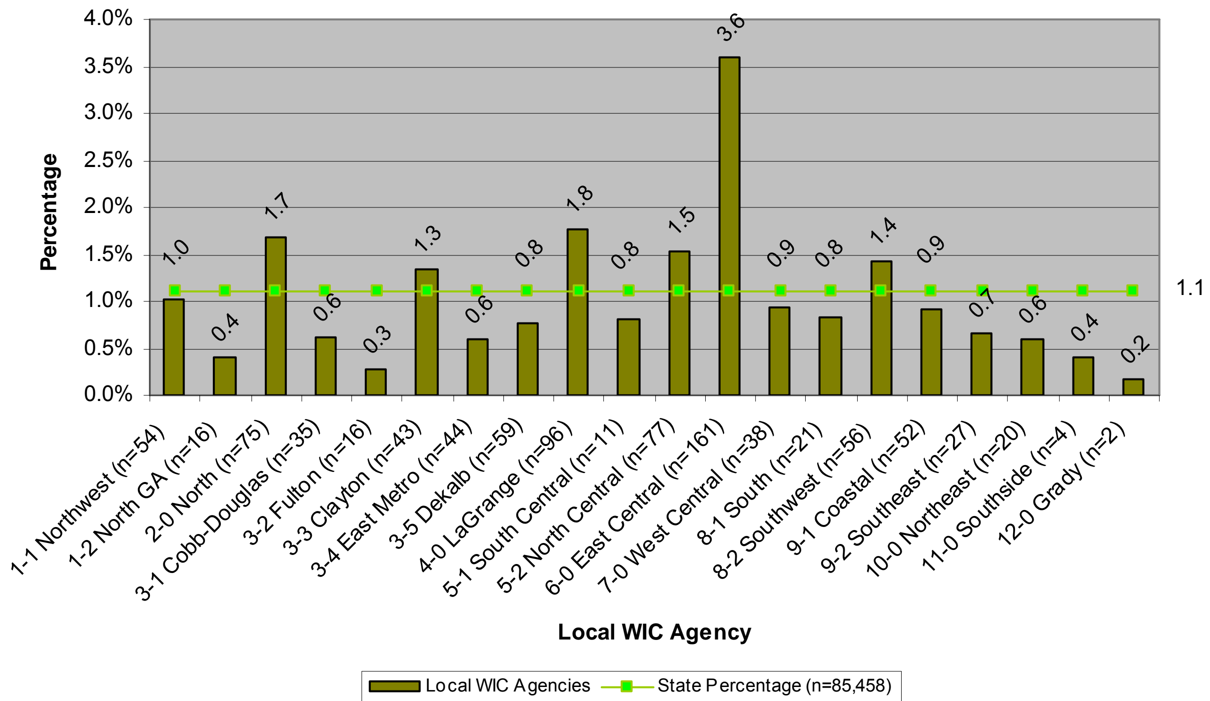


X. Other Medical Conditions

This risk code refers to diseases or conditions with nutritional implications that are not included in any of the other medical conditions. The current condition, or treatment for the condition, must be severe enough to affect nutritional status. Including, but not limited to: juvenile rheumatoid arthritis (JRA), lupus erythematosus, cardiorespiratory diseases, heart disease, cystic fibrosis, moderate persistent or severe asthma.

The presence of other medical conditions must be diagnosed by a physician or health professional acting under standing orders of a physician.

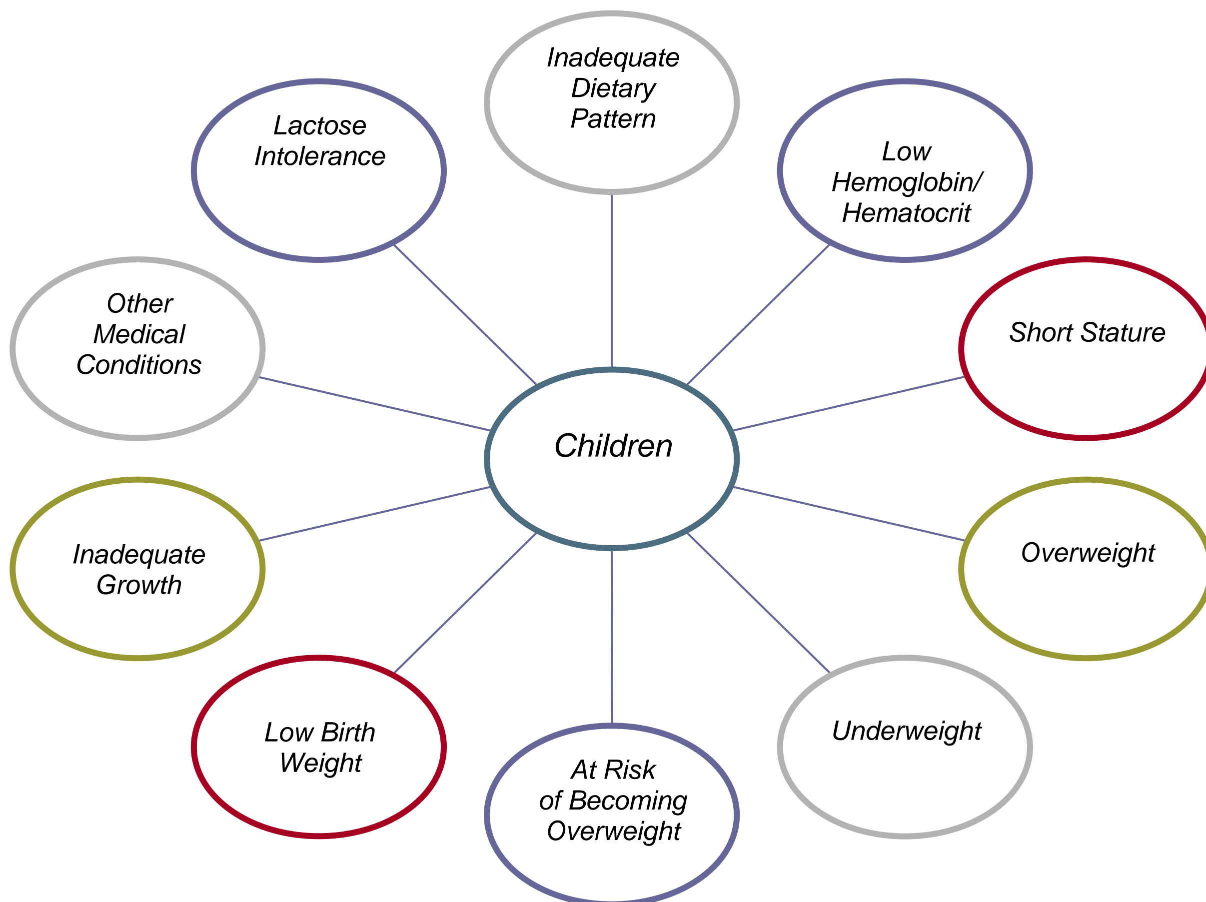
In FFY 2005, the prevalence proportion of other medical conditions among infants was 1.1%. East Central district showed the highest percentage of 3.6 and Grady district showed the lowest percentage of 0.2. All of the districts showed a percentage less than 4% and more than half of the districts showed a percentage less than the state percentage of 1.1. This information reflects a very low number of other medical conditions diagnosed throughout the GA WIC Program.



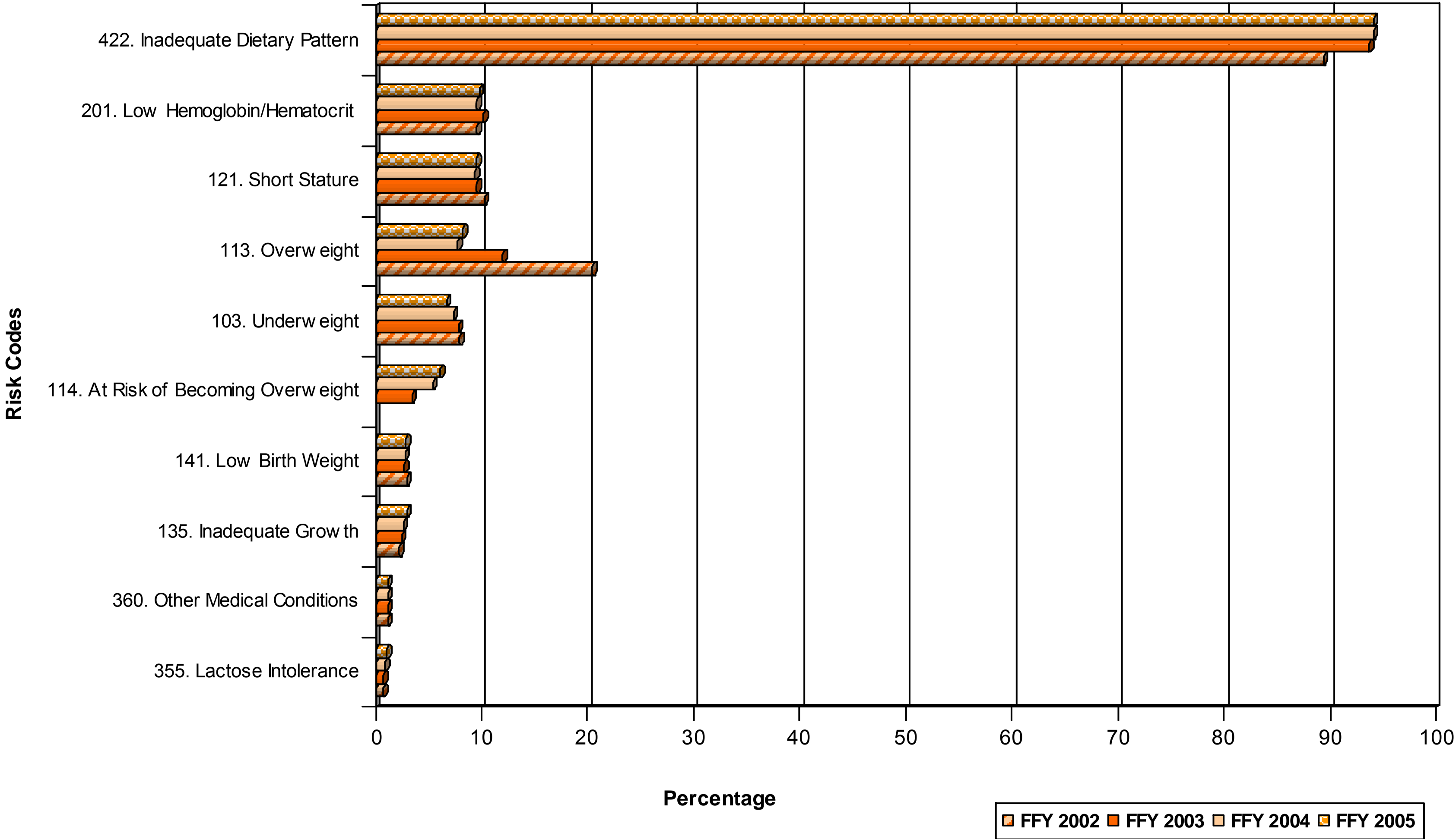
Children

During FFY 2005, 192,059 children were enrolled in the GA WIC Program. A large percentage of children were reported as having an inadequate dietary pattern. Some other risk codes that were reported as being highly associated with children were low hemoglobin/hematocrit counts, short stature, and overweight.

Below you will find a chart of the top 10 Risk Code Indicators for children enrolled in the GA WIC program during FFY 2005 and a graph showing the trends of these risk codes from FFY 2002-2005. When we look at the risk codes from FFY 2002-2005, we see that the proportions in the number of children have decreased significantly for overweight children. There were 20.47% overweight children enrolled in WIC in 2002 but only 8.23% overweight children enrolled in 2005. The other risk codes showed slight variations between the four years. Inadequate dietary pattern showed an increase from 2002 to 2005.



Top Ten Risk Code Indicators for Children Enrolled in WIC

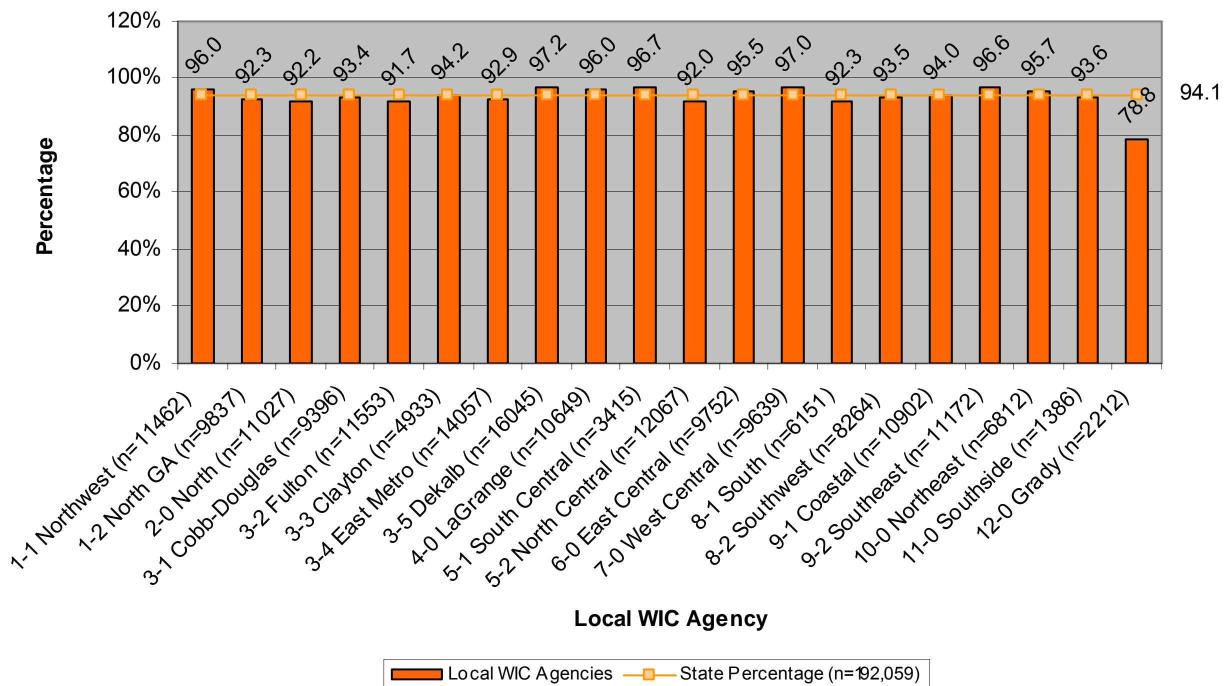


I. Inadequate Dietary Pattern

Inadequate Dietary Pattern among children is considered to be any food group missing based on the Recommended Daily Servings Chart; failure to meet the recommended number of servings for two food groups; practice of two inappropriate food practices (based on the Inappropriate Food Practices List); the practice of one inappropriate food practice and the failure to meet the recommended number of servings for one food group; and consuming less than the recommended amount of prescribed formula.

This risk factor has been shown to have both short and long term effects on behavior, cognitive development, physical growth, and general health status.[12]

In FFY 2005, the prevalence proportion of inadequate dietary pattern among children was 94.1%. Dekalb district showed the highest percentage of 97.2 and Grady district showed the lowest percentage of 78.8. All of the districts have a percentage greater than 75% which shows a great number of inadequate dietary pattern among children throughout the state of Georgia WIC program.



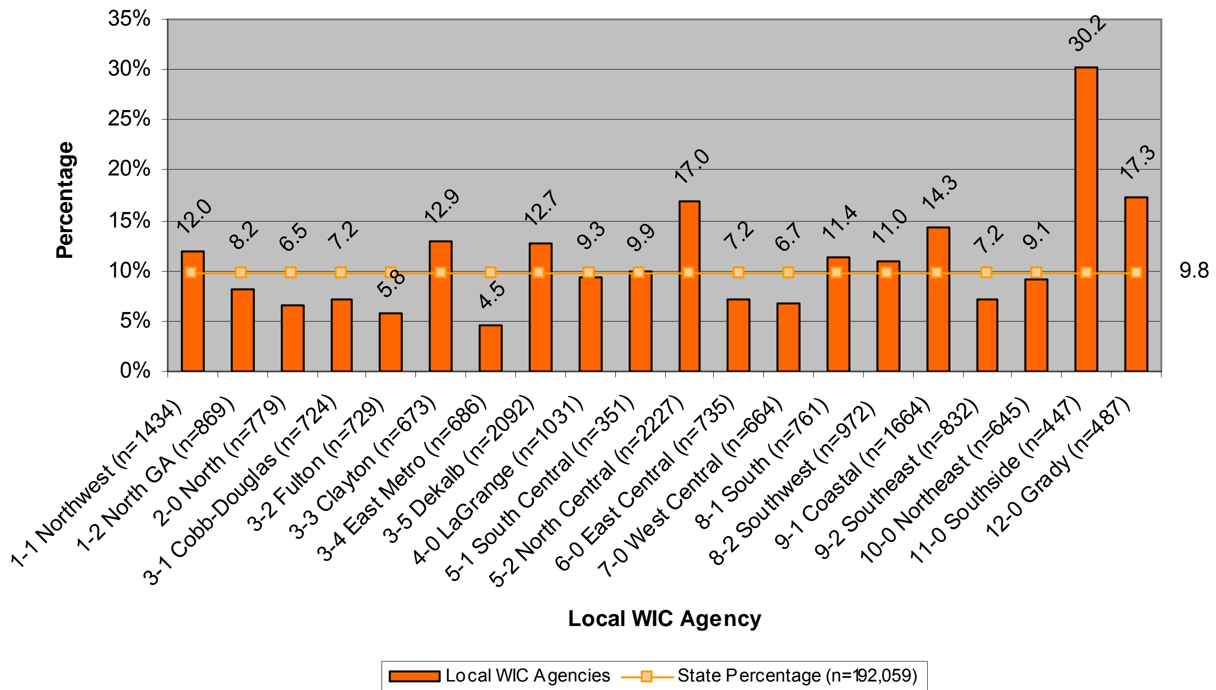
II. Low Hemoglobin/Hematocrit

12-23 months of age:
Hemoglobin: 10.9 gm or lower
Hematocrit: 32.8% or lower

24 months-5 years of age:
Hemoglobin: 11.0 gm or lower
Hematocrit: 32.9% or lower

Anemia occurs when you have a below-normal level of hemoglobin or hematocrit count.[18]

In FFY 2005, the prevalence proportion of low hemoglobin/hematocrit among children was 9.8%. Southside district showed the highest percentage of 30.2 and East Metro showed the lowest percentage of 4.5. Half of the districts falls above the state percentage and the other half falls below the state percentage of 9.8.

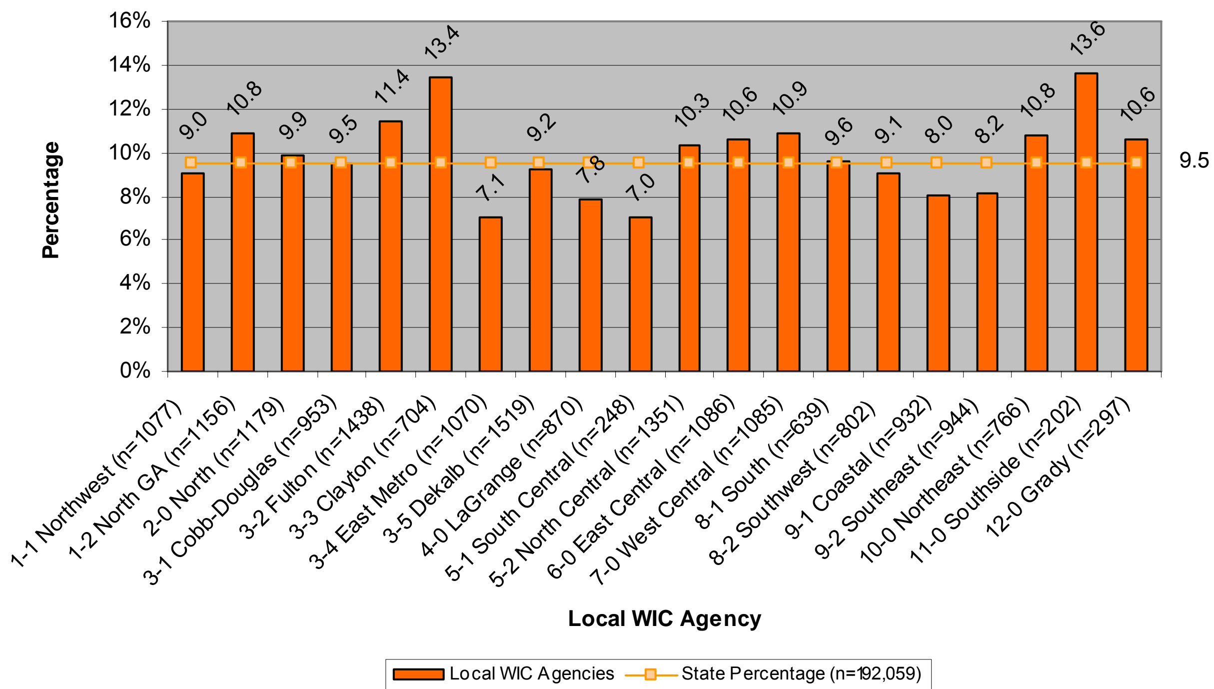


III. Short Stature

This risk code is defined as being less than or equal to the 10th percentile length or height for age based on the CDC age/sex specific growth charts.

This is caused by stunted linear growth. If a child does not reach their height potential, but does have rapid weight gain during treatment, this may affect body composition (obesity) later in childhood.[5,24]

In FFY 2005, the prevalence proportion of short stature among children was 9.5%. Southside district showed the highest percentage of 13.6 and South Central district showed the lowest percentage of 7.0. Most of the districts fall above the state percentage of 9.5 and all of the districts throughout the GA WIC program are less than 14%.



IV. Overweight

This risk code refers to being greater than or equal to 24 months old and having a Body Mass Index (BMI) for age greater than or equal to the 95th percentile based on CDC age/sex specific growth charts. It can only be used if standing height is taken.

BMI is used to identify overweight and at risk of becoming overweight. Research has shown that children who are obese or overweight often have weight problems when they grow up. The may also be at higher risk for other health problems.[26]

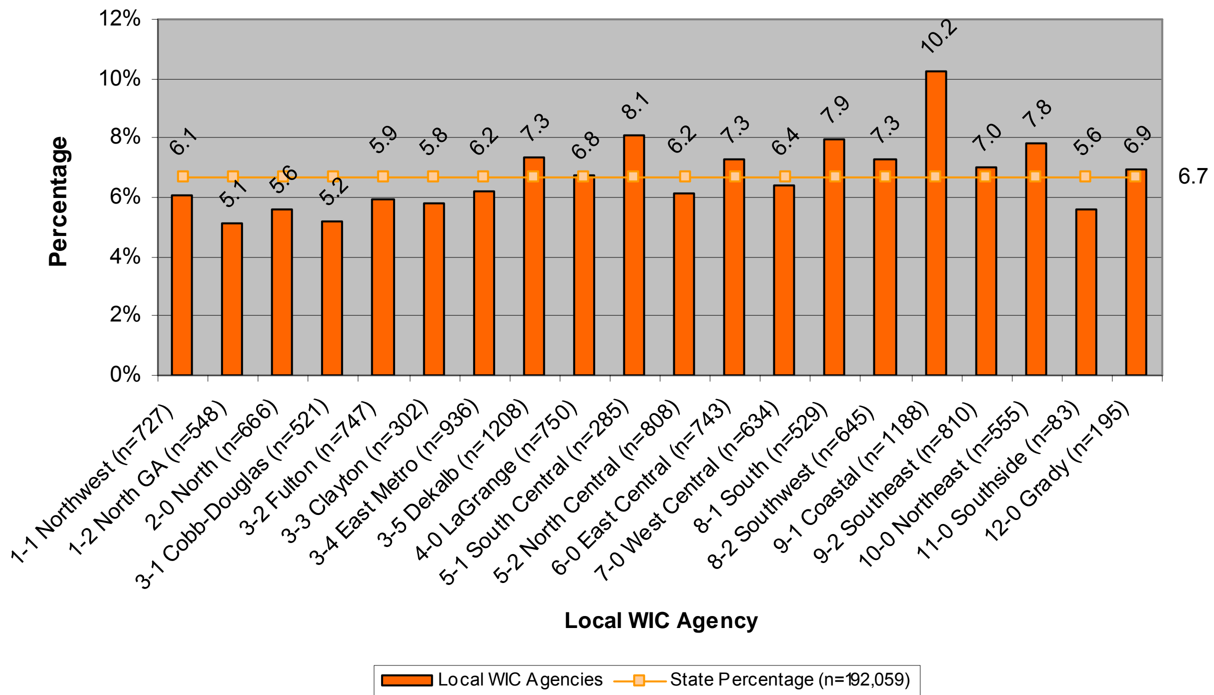
In FFY 2005, the prevalence proportion of overweight among children was 8.2%. North Georgia district showed the highest percentage of 11.0 and Coastal district showed the lowest percentage of 5.1. All of the districts showed a percentage less than or equal to 11%. This shows that there was a small number of overweight children throughout the GA WIC program.

V. Underweight

This risk code refers to being less than or equal to the 10th percentile weight for length or Body Mass Index (BMI) for age based on Centers for Disease Control and Prevention (CDC) age/sex specific growth charts.

Poor eating habits can lead to malnutrition. Poorly nourished children tend to have weaker immune systems, increasing their chances of illness.[29]

In FFY 2005, the prevalence proportion of underweight children was 6.7%. Coastal district showed the highest percentage of 10.2 and North Georgia district showed the lowest percentage of 5.1. Half of the districts fall above the state percentage of 6.7 while the other half fall below it. All of the districts throughout the GA WIC program show a percentage less than 11%.



VI. At Risk of Becoming Overweight

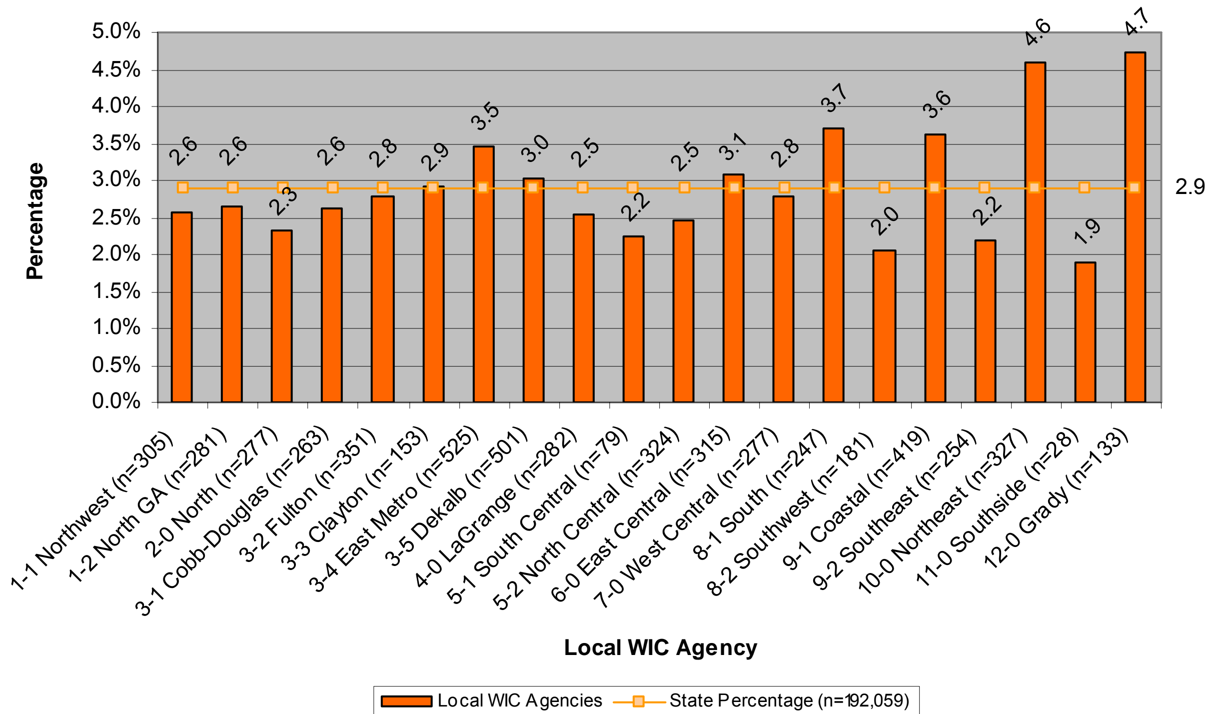
This risk code is defined based on the CDC age/sex specific growth charts to be greater than or equal to 24 months old and BMI for age greater than or equal to the 85th percentile and less than the 95th percentile. It can only be used if standing height is taken.

BMI is used to identify overweight and at risk of becoming overweight.

These factors increase the risk that a child will be obese by age 7:

- Parental obesity
- Higher birth weight
- Spending more than eight hours per day watching TV when 3 years old
- Sleeping less than 10.5 hours per night when 3 years old
- Size in early life
- Rapid weight gain in the first year of life
- Rapid catch-up growth between birth and 2 years
- Early development of body fat in the preschool years (before age 5-6 years, when body fat should be increasing)[26]

In FFY 2005, the prevalence proportion of at risk of becoming overweight among children was 2.9%. Grady district showed the highest percentage of 4.7 while Southside showed the lowest percentage of 1.9. All of the districts show a percentage less than 5% and most of the districts fall below the state percentage of 2.9. This information shows a low prevalence of this risk code throughout the GA WIC Program.

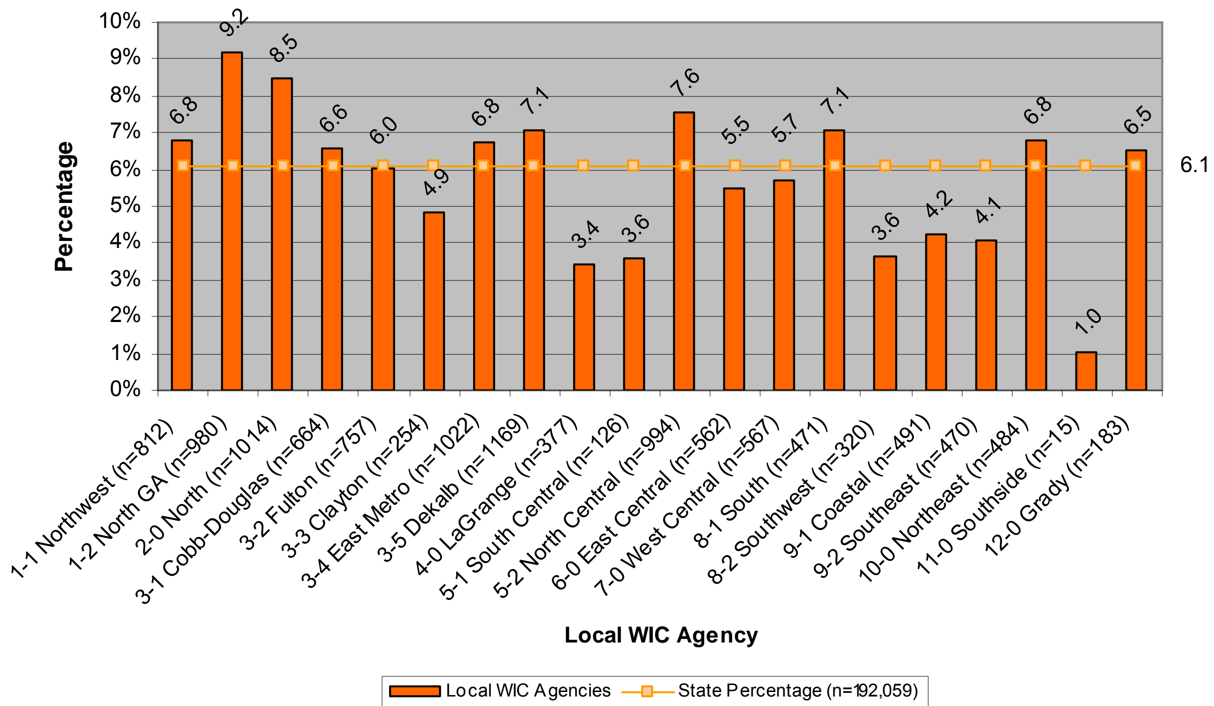


VII. Low Birth Weight

This risk code refers to children < 24 months of age with a birth weight ≤ 5 lbs 8 oz (≤2500 g).

Low birth weight babies may have organs that are not fully developed. This can lead to lung problems such as respiratory distress syndrome, or bleeding in the brain, vision loss and serious intestinal problems.[23]

In FFY 2005, the prevalence proportion of low birth weight among children was 6.1%. North GA showed the highest percentage of 9.2 and Southside showed the lowest at 1.0. All of the districts show a percentage less than 10% and half of the districts have a percentage less than the state percentage of 6.1 while the other half show a percentage greater than the state percentage.

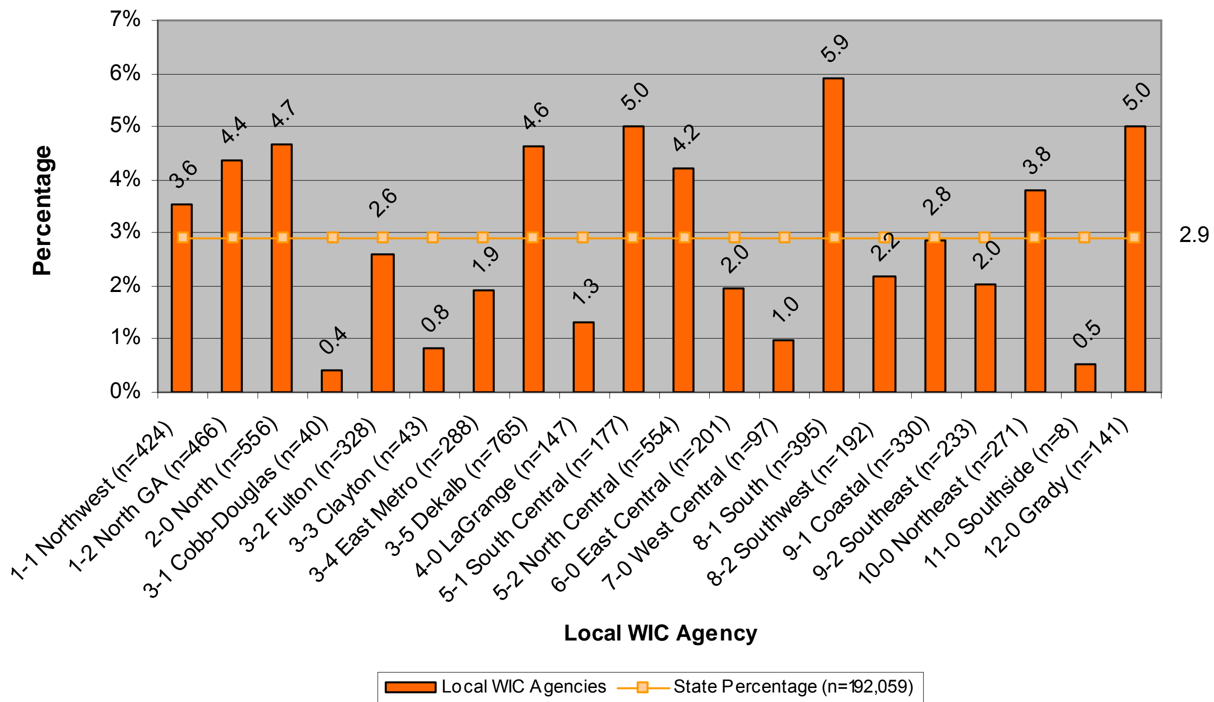


VIII. Inadequate Growth

This risk code refers to a low rate of weight gain over a six-month period as defined by the following chart:
Age in Months at Certification/ Weight gain in previous 6-month interval
12 months: ≤ 3 pounds
> 12-60 months: ≤ 1 pound

Physicians and other health care workers use standard growth charts to measure children's growth. Based on the charts, children could be diagnosed as 'failure to thrive.' Children who show a severe failure to thrive are at risk of short stature.[5]

In FFY 2005, the prevalence proportion of inadequate growth among children was 2.9%. South district showed the highest percentage of 5.9 and Cobb-Douglas showed the lowest percentage of 0.4. All of the districts showed a percentage below 6% and half of the districts fell above the state percentage of 2.9 while the other half of the districts fell below the state percentage.

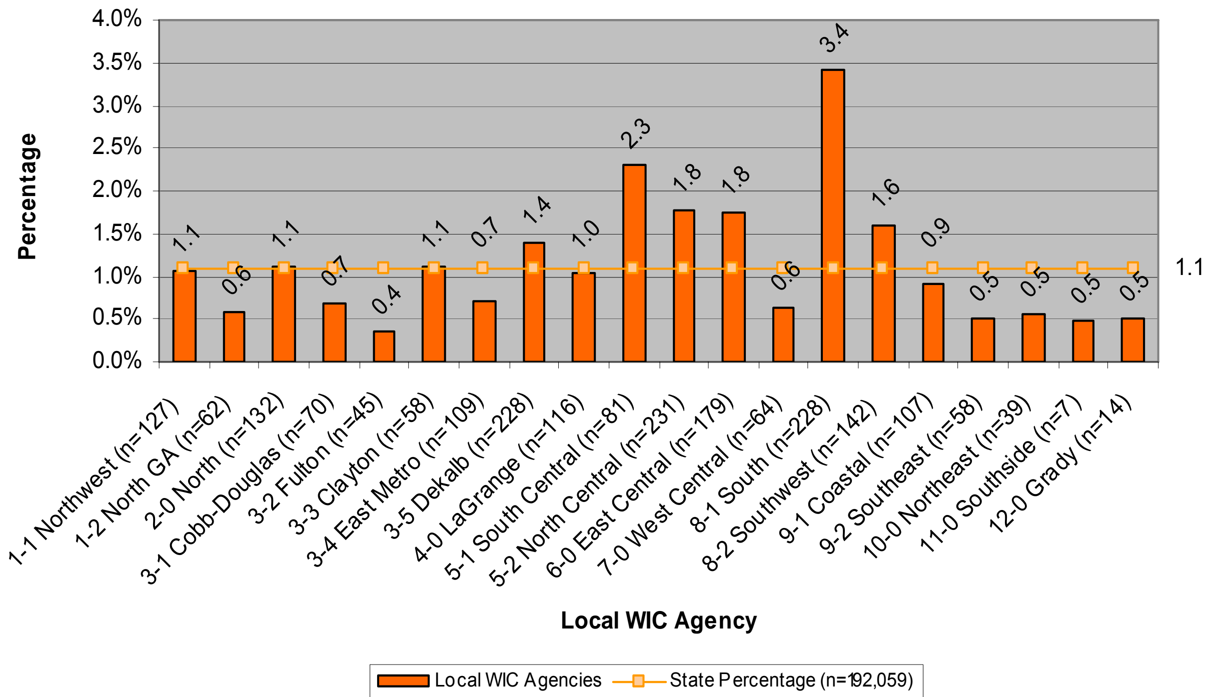


IX. Other Medical Conditions

Diseases or conditions with nutritional implications that are not included in any of the other medical conditions. The current condition, or treatment for the condition, must be severe enough to affect nutritional status. Including, but not limited to: juvenile rheumatoid arthritis (JRA), lupus erythematosus, cardiorespiratory diseases, heart disease, cystic fibrosis, moderate persistent or severe asthma.

Presence of other medical conditions diagnosed by a physician as self reported by a caregiver or health professional acting under standing orders of a physician.

In FFY 2005, the prevalence proportion of other medical conditions among children was 1.1%. South district showed the highest percentage of 3.4 and Fulton district showed the lowest percentage of 0.4. All of the districts showed a percentage less than 5% and most of the districts showed a percentage less than or equal to the state percentage of 1.1.

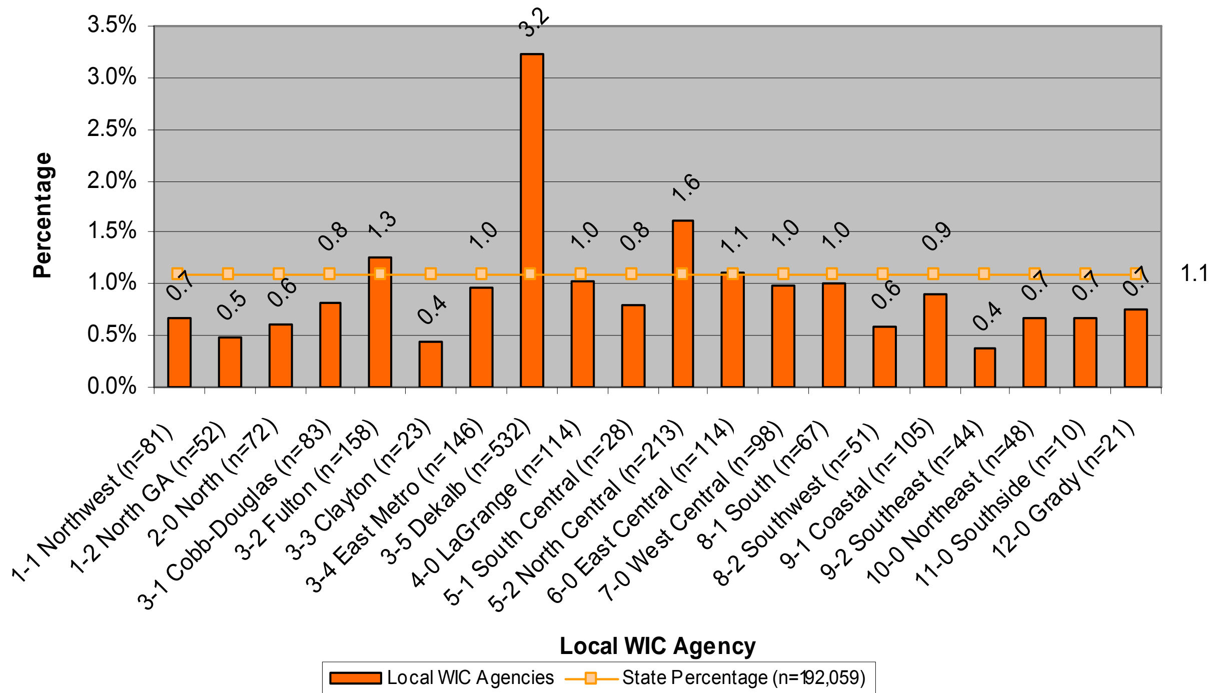


X. Lactose Intolerance

The presence of lactose intolerance diagnosed by a physician as self reported by caregiver; or as reported or documented by a physician, or health professional acting under standing orders of a physician; or symptoms described by caregiver must be well documented by the competent professional authority.

Lactose intolerance occurs when the body cannot easily digest lactose, the kind of sugar found in milk and dairy products. This happens when the small intestine does not make enough lactase to digest lactose. Symptoms of lactose intolerance include bloating, pain or cramps, gas, loose stools or diarrhea, and throwing up.[22,27]

In FFY 2005, the prevalence proportion of lactose intolerance among children was 1.1%. Dekalb district showed the highest percentage of 3.2 and both Clayton and Southeast districts showed the lowest percentage of 0.4. All of the districts show a percentage below 4 and most of the districts have a percentage lower than the state percentage of 1.1.



Glossary

Anemia: Occurs when you have a below-normal level of hemoglobin or hematocrit.

Birth asphyxia: Failure to initiate and sustain breathing at birth.

Body Mass Index (BMI): Used to identify overweight and at risk of becoming overweight.

Diabetes: A disease in which the body is unable to produce or use insulin properly.

Gestational Weight: Weight of the fetus at the specified week of gestation.

Hematocrit: The percentage of red blood cells in a blood sample.

Hemoglobin: The oxygen-carrying part of red blood cells.

High Birth Weight Infant: An infant weighing more than 4000 grams or 8.8 pounds.

Lactose Intolerance: Occurs when the body cannot easily digest lactose, the kind of sugar found in milk and dairy products.

Low Birth Weight Infant: An infant weighing les than 2500 grams or 5.5 pounds.

Pregravid Weight: Weight before pregnancy of a prenatal woman.

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