

Description of Early Childhood Obesity Problem In North Carolina



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Definition of Overweight and Obesity in Children and Adolescents

- BMI percentiles are the recommended measurement for children and adolescents
- When a child's weight rises steeply in comparison to height, overweight or obesity may be indicated.

Weight Status Category	Percentile Range
Underweight	Less than the 5th percentile
Healthy Weight	5th percentile to less than the 85th percentile
Overweight	85th to less than 95th percentile
Obese	Equal or greater than the 95th percentile

Reference: www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

Definition of Adult Obesity

- BMI - Body Mass Index = $\text{weight}/(\text{height})(\text{height})$
- Adult definitions:
 - Healthy weight: BMI between 18.5 & 24.9
 - Overweight: BMI 25-29.9
 - Obesity: BMI \geq 30



Childhood Obesity Awareness Month

- Obesity is a problem that impacts 1 in 4 children in NC
- Amongst the low-income Preschool children 1 of 3 Children are obese or overweight before their 5th Birthday.
- Hispanic and American Indian Children aged 2 to 4 years have the highest rates of obesity.
- Direct and indirect costs of obesity in NC youth were nearly 16 million dollars per year.
- NC is 10th Highest for Obesity-Attributable Costs.
- Obese children are more likely to become obese adults.
- Obese children are more likely to have high blood pressure, high cholesterol, and type 2 diabetes.

Childhood Obesity Problem in the US

- During the past 2 decades, the prevalence of obesity (BMI >=95th percentile) has nearly tripled, from 6.5% to 18.8%, for children aged 6 to 11 years and risen even more, from 5.0% to 17.4%, for adolescents aged 12 to 19.
- One-third of all children born in the year 2000 are expected to develop diabetes during their lifetime.
- Childhood obesity costs more than \$3 billion a year in direct medical expenses.
- By 2050, between one-fifth and one-third of all adults could have diabetes -- with virtually all the increase attributed to type 2 diabetes.

Sources: Solving the Problem of Childhood Obesity Within a Generation, White House Task Force Report Journal of Occupational and Environmental Medicine, Oct 2010

Early Childhood Overweight and Obesity Problem North Carolina (NC) Versus the United States (US)

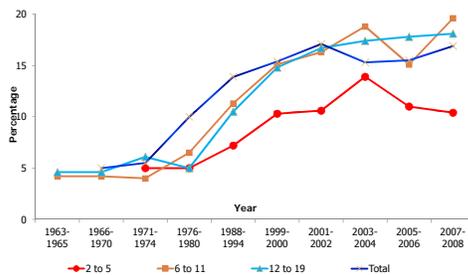
- Based on the 85th percentile, the US prevalence of overweight for children under 5 Years of age increased from 16.5% in 1983 to 27.8% in 2010. The corresponding rates for NC increased from 13.8% to 30.1%.
- Based on the 95th percentile for this same age group and time period, the prevalence increased from 7.7% to 14.4%. The corresponding obesity rate for NC went from 6.8% to 15.5%.
- Data suggests that many American children are not only getting heavier, but that they are often doing so as early as the toddler and preschool years .
- According to the 2010 NC Pediatric Nutrition Surveillance System (PedNSS) 32.0% of low-income NC children age 2-5 are overweight or obese.

Prevalence of obesity among children and teens in the US

- The prevalence of obesity has tripled from 1980 to 2008. In the US the prevalence of obesity (BMI ≥ 95th percentile):
 - among infants and toddlers (1 to 5 yrs) about 10 percent
 - among adolescents (6 to 11) and teenagers (12 to 19) over 18 percent
- Over the past 10 years the obesity rate has stabilized, *except*
 - increase among 6- to 19-year-old boys who are at the very heaviest weight levels
- A recent report from the Early Childhood Longitudinal Study shows obesity prevalence at 18.4% among 4-year-old US children with the highest rates in American Indian/Native Alaskan, Hispanic, and non-Hispanic black children.

References: Prevalence of High Body Mass Index in US Children and Adolescents, 2007-2008 Ogden CL, JAMA, 2010;303(3):242-249; www.obesity.org/information/what_is_obesity.asp; www.hhs.gov/news/press/2010press/01/20100128c.html

US trend in childhood obesity (BMI >=95th percentile), NHANES 1963-1965 through 2007-2008



* ≥ 95th percentile weight-for-length or BMI-for-age, CDC Growth Charts, 2000. 5% of children are expected to fall above the 95th percentile.

Prevalence of overweight and obesity among older children and youth, 2010 NC-CHAMP

- In 2010, among NC children ages 10-17:
 - 13.1% were overweight
 - 17.1% were obese
 - a combined 30.2% were overweight or obese
- One-third of NC children typically consumed one serving or less of vegetables per day and 20% of children did not meet the physical activity recommendation of 60 minutes per day.
- In 2010, 45% of children watched more than two hours of television, DVDs, or played video games on a typical day.

Reference: North Carolina Child Health Assessment and Monitoring Program (CHAMP). http://www.esi.state.nc.us/SCHS/champ/2010/bmi_cer10.html

Overview of Pediatric Nutrition Surveillance System (PedNSS) data

The Pediatric Nutrition Surveillance System (PedNSS) is a child-based public health surveillance system that describes the nutritional status of low-income U.S. children who attend federally-funded maternal and child health and nutrition programs.

PedNSS provides data on the prevalence and trends of nutrition-related indicators.

PedNSS was designed as a program-based surveillance system by the Centers for Disease Control and Prevention.

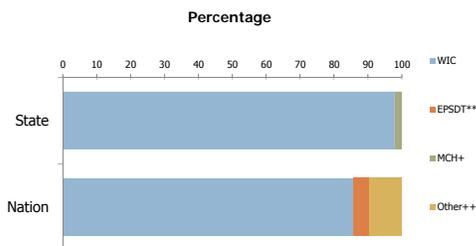
The North Carolina State WIC Program has the responsibility for operating the PedNSS which began collecting data statewide in 1980.

The components of PedNSS can be divided into four main areas: Demographics, Hematology, Anthropometry, and Breast-feeding.

Information collected on PedNSS

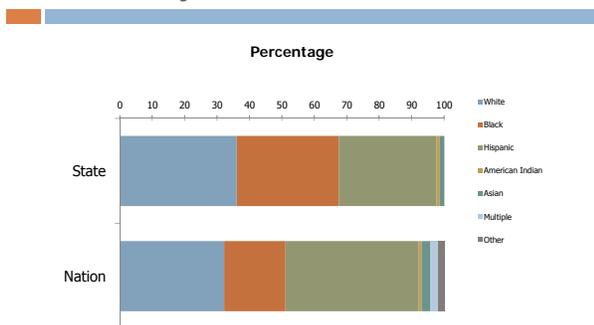
Demography	Birthweight
<ul style="list-style-type: none"> ❖ Race/Ethnic and Age Distribution ❖ Education Level ❖ Poverty Level, ❖ Migrant Status, ❖ Participation in Other Federal Nutrition and Food Assistance Programs, 	<ul style="list-style-type: none"> ❖ Low Birthweight ❖ High Birthweight
	Anthropometry (Growth)
	<ul style="list-style-type: none"> ❖ Short Stature ❖ Underweight ❖ Overweight ❖ Obese
	Hematology (Anemia)
	<ul style="list-style-type: none"> ❖ Low Hemoglobin ❖ Low Hematocrit
	Breastfeeding
	<ul style="list-style-type: none"> ❖ Breastfeeding Initiation ❖ Breastfeeding Duration ❖ Exclusive Breastfeeding

Source of PedNSS data among children under 5 years, NC vs. US 2010

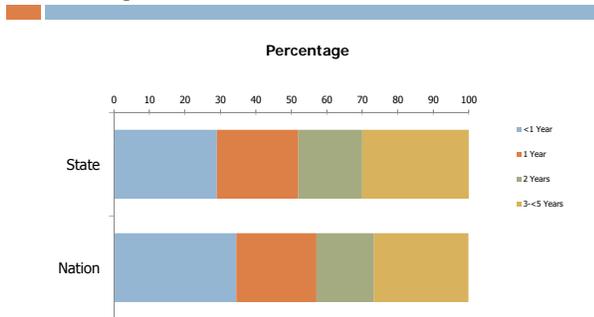


Special Supplemental Nutrition Program for Women, Infants and Children.
 **Early Periodic Screening, Diagnosis, and Treatment Program.
 + Title V Maternal and Child Health Program.
 ++ Includes Head Start.

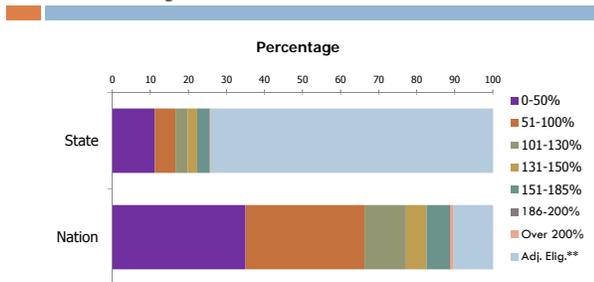
Racial and ethnic distribution among children under 5 years, NC vs. US PedNSS 2010



Age distribution among children under 5 years, NC vs. US PedNSS 2010

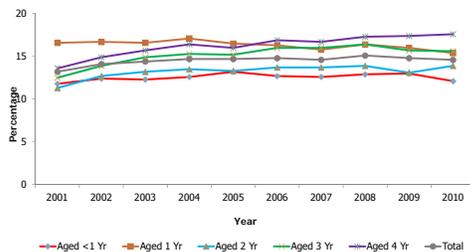


Income distribution* among children under 5 years, NC vs. US PedNSS 2010



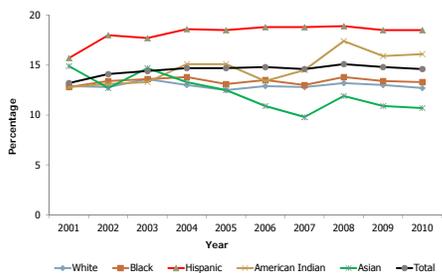
*Percent of poverty level.
 **Adjunctive eligibility: eligible for Medicaid, Food Stamps, or other entitlement programs.

Age-Specific Trends in prevalence of obesity* under 5 Years of Age, NC PedNSS** 2001 to 2010



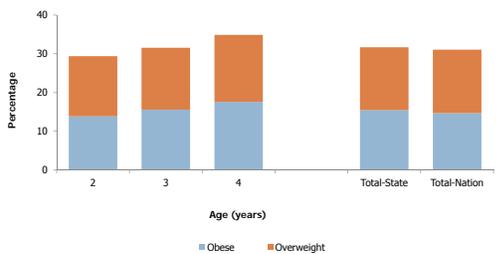
*Obese: \geq 95th percentile BMI-for-age; CDC Growth Charts, 2000. .5% of children are expected to fall above the 95th percentile
 **North Carolina-Pediatric Nutrition Surveillance System (NC-PedNSS) is limited to data on children seen in North Carolina Public Health Sponsored WIC and Child Health Clinics and some School Based Health Centers.

Trends in prevalence of obesity* in children under 5 years by race and ethnicity, NC PedNSS** 2001-2010



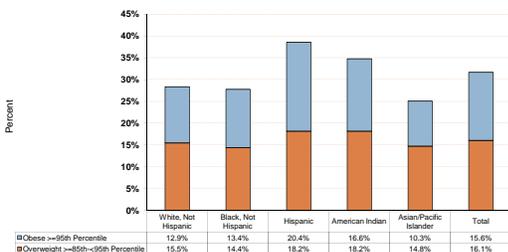
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Prevalence of obesity and overweight* among children aged 2 <5 years, PedNSS** 2010



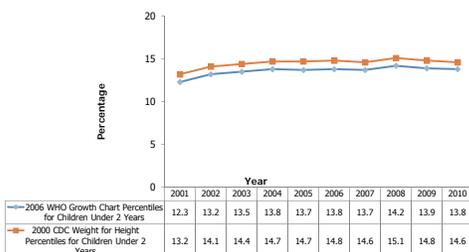
*Obese: \geq 95th percentile BMI-for-age; overweight: \geq 85th <95th percentile BMI-for-age; CDC Growth Charts, 2000. 15% of children are expected to fall above the 85th percentile (5% above the 95th percentile and 10% between the 85th and 95th percentiles).
 **North Carolina-Pediatric Nutrition Surveillance System (NC-PedNSS) is limited to data on children seen in North Carolina Public Health Sponsored WIC and Child Health Clinics and some School Based Health Centers.

Percentage of Overweight¹ and Obese² Children 2 to <5 Years of Age by Race and Ethnicity, NC-PedNSS³ 2010



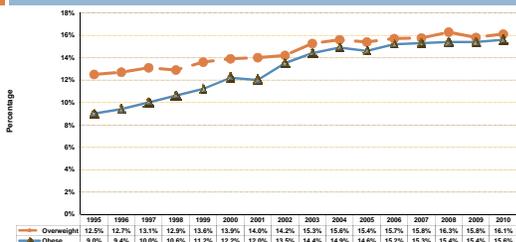
⁽¹⁾ BMI-for-Age Percentiles :85th and <95th Percentile
⁽²⁾ BMI-for-Age Percentiles :95th Percentile
⁽³⁾ North Carolina Pediatric Nutrition Surveillance System (NC-PedNSS) is limited to data on children seen in North Carolina Public Health Sponsored WIC and Child Health Clinics and some School Based Health Centers. Percentiles were based on the CDC/NCHS Year 2000 Body Mass Index (BMI) Reference.

Age-Specific Trends in prevalence of obesity* under 5 Years of Age, NC PedNSS** 2001 to 2010



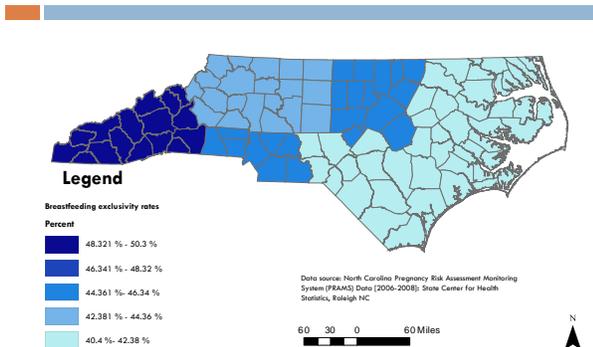
*Obese: > 95th percentile BMI-for-age; CDC Growth Charts, 2000. ~ 5% of children are expected to fall above the 95th percentile
 **North Carolina Pediatric Nutrition Surveillance System (NC-PedNSS) is limited to data on children seen in North Carolina Public Health Sponsored WIC and Child Health Clinics and some School Based Health Centers.

Prevalence of overweight¹ and obese² children 2 to <5 years of age, NC-PedNSS³ 1995 - 2010

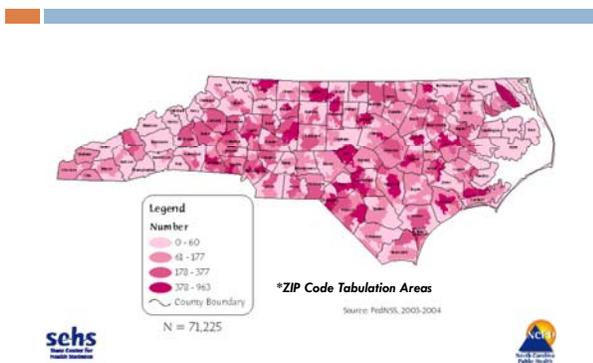


⁽¹⁾ BMI-for-Age Percentiles :85th and <95th Percentile
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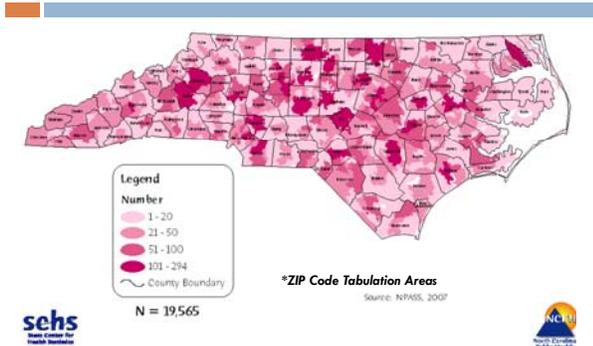
Breastfeeding Exclusivity Rates-Eight Weeks by NC Perinatal Region, NC PRAMS 2006-2008



Infants Never Breastfed by Census ZCTAs*



Children 3 and 4 Years Overweight or Obese by Census ZCTAs*



Child Health Assessment and Monitoring Program (CHAMP)

- A NC statewide comprehensive surveillance system
- Monitors health and risk behaviors for children and adolescents (ages 0-17)
- During the Behavioral Risk Factor Surveillance System (BRFSS) interview, the respondent is asked to participate in a survey about child health
 - The interviewer calls back within a week to administer CHAMP to the primary caregiver of the child.

Prevalence of overweight and obesity in children and youth from CHAMP

- In 2008, among NC children ages 10-17, 17.6% were overweight, and 15.2% were obese (a combined 32.8% were overweight or obese)
- One-third of NC children typically consumed one serving or less of vegetables per day and 20% of children did not meet the physical activity recommendation of 60 minutes per day.
- In 2007, 50% of children watched more than two hours of television on a typical day.

Prevalence of overweight and obesity among NC children by age group, NC CHAMP 2008

