

FOUNDATION FOR
HEALTHY COMMUNITIES

New Hampshire Childhood Obesity Report

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WHAT IS THE FOUNDATION?

The Foundation for Healthy Communities is a non-profit corporation that exists to improve health and health care. In 1996, it started with a new mission--to be an incubator that has the potential to affect people's health beyond the hospital and into New Hampshire communities. Today, the Foundation is a partnership involving New Hampshire hospitals, health plans, clinicians, home care agencies and many other organizations concerned with the well-being and health of people in our state.

The Foundation's primary objectives are:

- a. To collect, analyze, and evaluate data about health and about the delivery, quality, management and organization of health services;
- b. To promote, sponsor and conduct applied research and scientific investigation relative to quality, health delivery process improvement and health policy; and
- c. To communicate information, sponsor education and training, and facilitate innovation and access for the improvement of health and the creation of healthy communities.



New Hampshire Childhood Obesity Report

EXECUTIVE SUMMARY

Primary care practices serving communities throughout New Hampshire were invited to participate in a voluntary statewide medical chart review project to document childhood obesity prevalence and better understand how it is addressed in the primary setting. The data is from a convenience sample of 25 primary care practices from 17 different communities. These descriptive statistics are from 1,453 children randomly identified from well-child visits in 2005 and stratified by gender and age (6-9 and 10-12 year olds). Key findings are noted below.

Prevalence:

- Overall, 32.8% of children ages 6-12 years were overweight or obese. For females, 16.5% were overweight and 13.3% were obese. In males, 15.9% were overweight and 19.9% were obese.
- The survey found that among females, ages 6-9 years old, that 25.4% were overweight or obese (overweight: 13.9%; obese: 11.5%) compared to 34.6% for males in the same age range (overweight: 15.2%; obese: 19.4%).
- In the older age range, 10-12 years old, the overall percentage of overweight or obese children for both females and males was 37%. Among females 20.9% were overweight and 16.4% were obese. Among males, 17.1% were overweight and one and 20.3% were obese.
- Among children with private insurance 30.6% were overweight or obese compared to 37.7% of children in the Healthy Kids Program (Gold and Silver). Focusing only on obesity, it was highest among the children enrolled in Healthy Kids at 22.6% compared to 13.5% of children with private insurance.

Documentation:

- Most overweight and obese children, 86% in the younger age group and 72% in the older age group, did not have a diagnosis or note in their medical chart's problem list related to their weight.
- Older children, age 10-12 years, were more likely to have a diagnosis of overweight or obesity documented (28%) in their medical record than younger children age 6-9 yrs (14.2%).
- Examining this issue based on gender, we identified males having a greater likelihood of a diagnosis of overweight or obesity, 27.6% compared to 22.5% for females.

Assessments and Advice

Interventions should start at an early age, but...

- Obese children in the older age group, 10-12 years, were more likely to receive physical activity assessment and advice (79% and 67%, respectively) than obese children in the younger age group (65.2% and 48.9%, respectively).
- Children who were obese were more likely to receive physical activity assessment and advice than those who were overweight for both age groups.
- Obese children in the older age group, 10-12 years, were more likely than their overweight counterparts to receive a diet assessment (76% vs. 68%) and diet advice (57% vs. 37.8%).
- Only 6% of the obese younger children and 11% of the obese older children had a referral to a nutritionist.
- Nearly all children (94% or more) had their blood pressure assessed regardless of age, gender or BMI level.
- A test to assess cholesterol level was done for 4% of the obese children ages 6-9 years and 10% for obese children ages 10-12 years old. Blood sugar levels were assessed less often than cholesterol levels (4% in obese children 6-9 years old and 2% in obese children 10-12 years old).

Patterns by Practice Type

- The majority of the children in the sample were in pediatric practices (48%). Mixed practices (e.g., a mix of pediatricians and family practitioners) accounted for 28% and children in family practices were 23.7% of the sample.
- Physical activity was more likely to be assessed in a pediatric practice than the other two practice settings for children regardless of gender, age or BMI level with the exception of those children who were obese.
- An assessment of diet was more likely in a mixed practice, regardless of BMI status, age or gender. All obese children, ages 6-9 years old, had their diet assessed in a mixed practice compared to three-fourths of those in a pediatric practice and 56% in a family practice. Similarly, nearly all obese children ages 10-12 years old in a mixed practice (93%) had their diet assessed compared to pediatric practices (76%) and family practices (59%).

New Hampshire Childhood Obesity Report

PROJECT OBJECTIVE:

Understand the prevalence of overweight or obese children, as measured by body mass index, in primary care settings in New Hampshire and assess clinician's documentation of prevention or treatment practices.

METHODOLOGY:

Primary care practices were invited to participate in this voluntary chart review project. The data is from a convenience sample of 25 primary care practices from 17 different communities. There is information from 1,453 children randomly identified and stratified by gender and age (6-9 and 10-12 year olds). The state's three largest cities (Manchester, Nashua and Concord) had multiple primary care practice sites in the sample. Four community health centers were included among the 25 primary care practice sites. The Foundation provided a registered nurse and nurse practitioner to conduct the medical record review at each practice based on a mutually convenient time. The Foundation recorded whether the practice utilized a paper chart system or an electronic medical record (EMR) system. The nurse reviewers collected practice mix information including the number of pediatricians, family practice physicians, other physicians, advanced registered nurse practitioners and physician assistants.

Primary care practice sample requirements were:

- Patients must be between the ages 6 to 12 years. Charts pulled should be for patients who were in this age group when they had a well-child visit. If there was no well-child visit documented in the chart and there was no opportunity to pull more well-child charts at the time of the review, then sick-child data was included if the visit occurred within the last two years. These charts will be designated as sick-child visits in the data base. There are 15 sick-child visits in the data base.
- 50% female and 50% male
- Age split in the sample: 6-9 year olds - 35 records; 10-12 year olds - 30 records per practice
- Child must be a currently active patient who has been in the practice for at least 2 years.
- Start with the last currently active patients who had an office visit on December 31, 2005 and go back. All the data was collected from well-child visits in 2005 with the exception of 15 sick-child visits in 2005.
- Body mass index (BMI), if not already provided in the chart for the well-child visit, was calculated using Halls.MD body mass index calculator found at www.halls.md/body-mass-index/bmi.htm.

Obesity Body Mass Index (BMI)

This report uses the American Obesity Association (AOA) definition of the 85th percentile of BMI as the reference point for 'overweight' and the 95th percentile for 'obese'. We selected the AOA definitions because the 95th percentile corresponds to a BMI of 30 which is the marker for obesity in adults and the 85th percentile corresponds to the overweight reference point for adults, which is a BMI of 25. Also, the 95th percentile identifies children who are very likely to have their obesity persist into adulthood and is a criteria for clinical research trials of childhood obesity. The Centers for Disease Control and Prevention (CDC) defines the 85th percentile as 'at risk of overweight' and the 95th percentile as 'overweight'. We use the terms 'obese' and 'overweight' throughout the report when they correspond to the above percentile reference points even though other agencies may use the CDC terms. Unlike adults, children's fatness changes over the years as they grow. Also, girls and boys differ in the fatness as they mature. That is why BMI for children is gender and age-specific. A child who is at the 60th percentile means that, compared to children of the same gender and age, 60% have a lower BMI. The body mass index is a calculation (BMI: kg/m²) or BMI=weight in pounds/(height in inches X height in inches) X 703.

FINDINGS:

Prevalence:

The survey found that among females, ages 6-9.9 years old, that 25.4% were overweight or obese compared to 34.6% for males in the same age range. The younger females were more likely to be overweight (13.9%) compared to being obese (11.5%) while the younger males were more likely to be obese (19.4%) compared to being overweight (15.2%) (see Figure 1a.). In the older age range, 10 to 12.9 years old, the overall percentages of overweight or obese children are higher with the females and males both at 37%. Among the 10-12.9 year olds, females were more likely to be overweight (20.9%) than obese (16.4%) and males were more likely to be obese (20.3%) than overweight (17.1%) (see Figure 1b).

Figure 1a

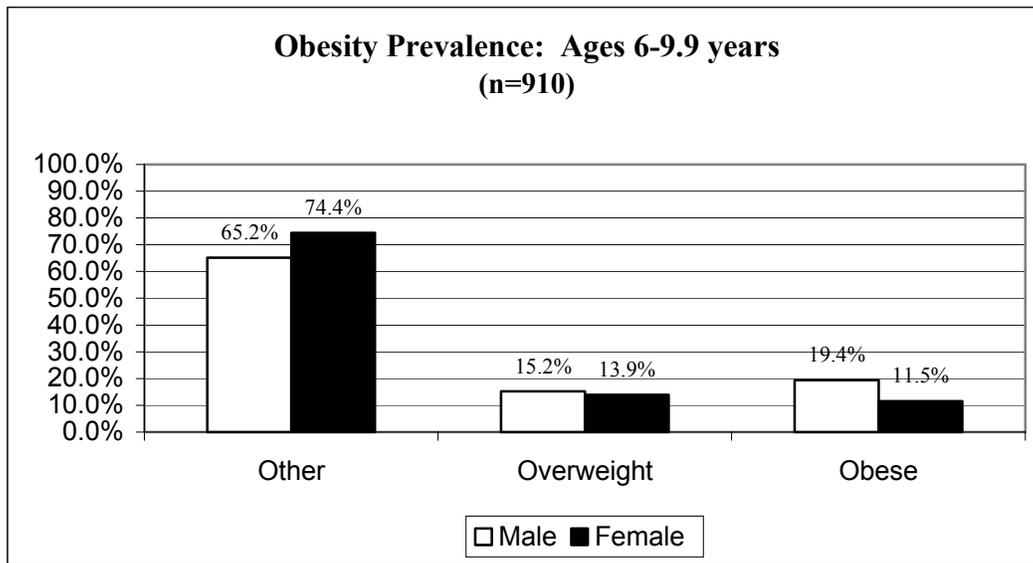
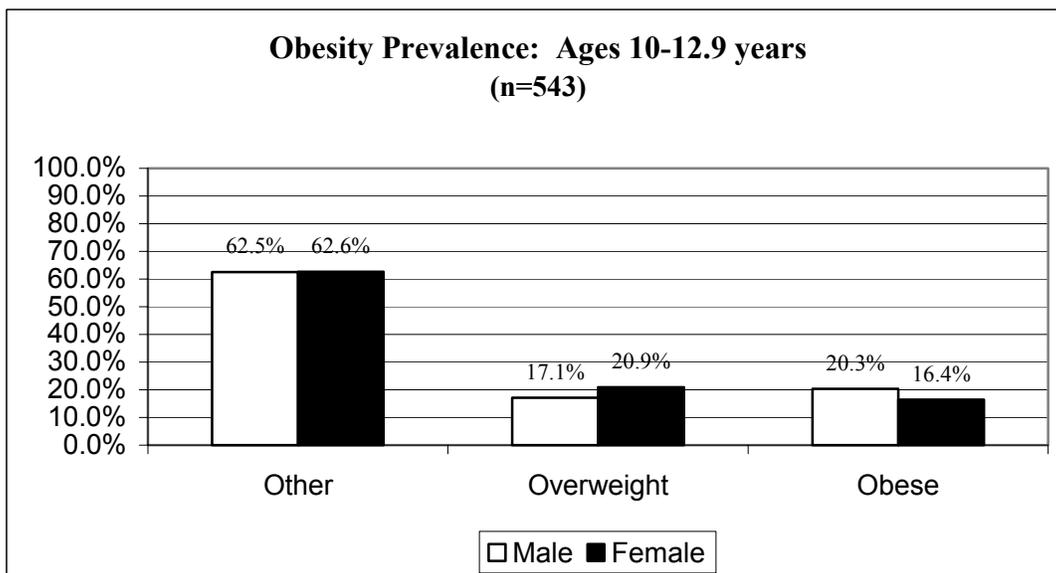
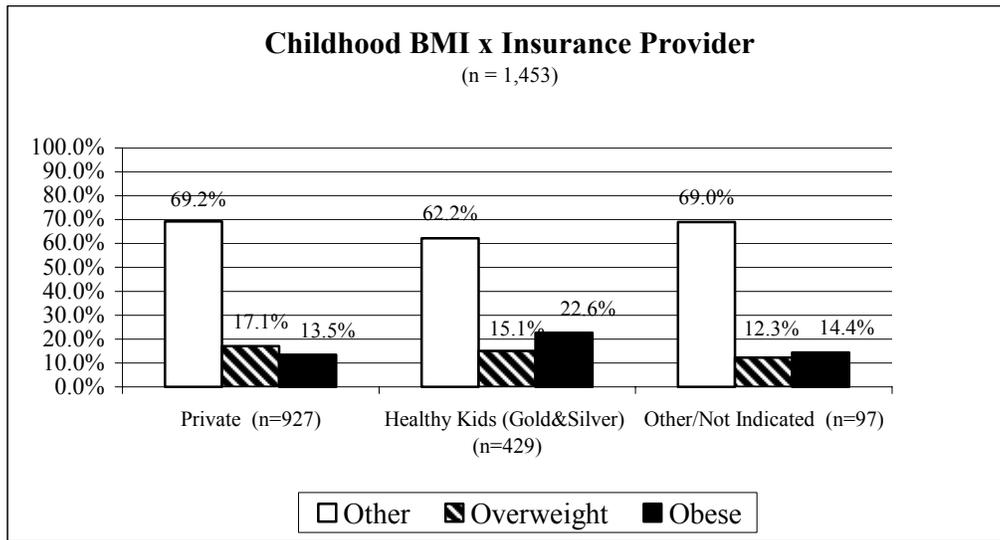


Figure 1b.



The health insurance status of the child was used as a proxy for their socioeconomic status. Private health insurance covered 63.7% or 927 of the 1,453 children in the study sample, Healthy Kids Gold (Medicaid) and Healthy Kids Silver covered 29.5% (429 children). The remaining 97 children (7.8%) did not have insurance or it was not indicated in the chart. (See Figure 2). Among children with private insurance 30.6% were overweight or obese compared to 37.7% of children in the Healthy Kids Program (Gold and Silver). Focusing only on obesity, it was highest among the Healthy Kids children at 22.6% children compared to 13.5% of children with private insurance.

Figure 2



Documentation

The survey sought to understand how a child who is overweight or obese might have it documented by the primary care provider in the child’s medical record. The diagnoses or problem list in each chart was reviewed to identify any documentation of overweight or obese. There were 477 children in the survey sample who had a BMI that identified them as overweight or obese. Only (14.2%) of children ages 6 to 9 years old had a diagnosis or notation of overweight or obesity on the problem list (see Figure 3a). This increased to 28% or 57 children among those ages 10-12 years old. Examining the same issue based on gender found that males had a greater likelihood of having a diagnosis or notation of overweight or obesity in the problem list, 27.6% compared to 22.5% for females (see Figure 3b).

Figure 3a.

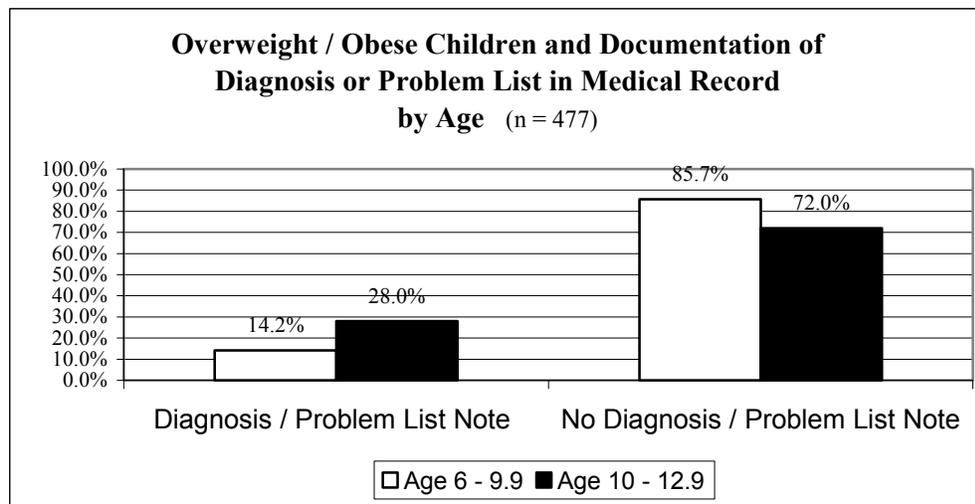
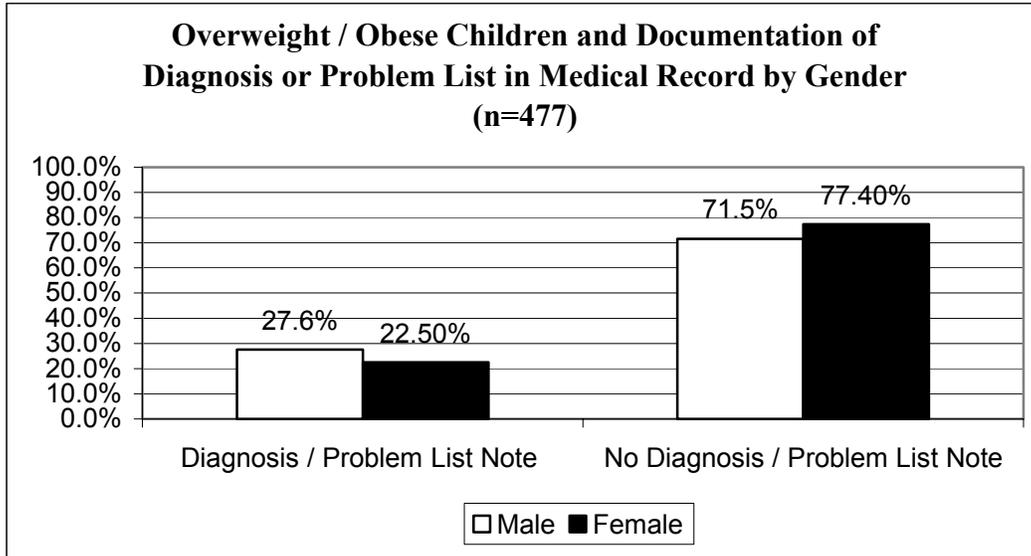
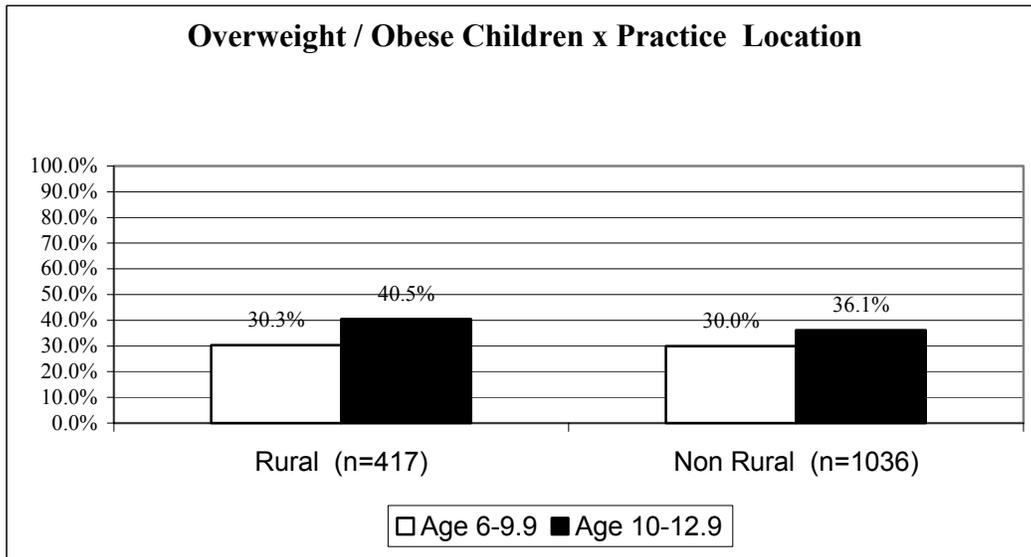


Figure 3b.



We examined the data based on the location practice as a proxy for the children in rural and non-rural areas of the state. Seven of the 25 primary practice sites were classified as rural based on the location of the practice. There were 1,036 children (71.4%) identified as cared for in non-rural practices while 417 children (28.6%) were in classified rural practices. Among the younger age group, 6-9.9 years old, there was no difference in the proportion of overweight and obese children (30%) between rural and non-rural groups. Among the older age group, 10-12.9 years old, there were slightly more (40.5%) overweight or obese children in the rural group compared to the non-rural group (36.1%). (See Figure 4)

Figure 4



Assessments and Advice

Physical Activity Assessment and Advice

The survey examined medical charts for any documentation related to what actions the primary care clinician had taken in terms of physical activity and diet assessment or advice. More than half of all children receive some assessment of physical activity (range: 55.1% to 79%) with obese children more likely than other children to be assessed (65.2% for younger and 79% for older children) (see Figure 5a and 5b). The older children, ages 10-12.9 years old, were more likely to have their physical activity assessed regardless of their BMI. The physical activity assessment for overweight or obese females increased from 60.6% for the younger girls to 71% for the older girls. Advice about physical activity was provided less often among all children (range: 31% to 67%) with the younger obese children (48.9%) and older obese (67%) receiving it more often. Advice about physical activity for overweight or obese boys increased from 45.8% for the younger boys to 50.4% for the older boys.

Figure 5a.

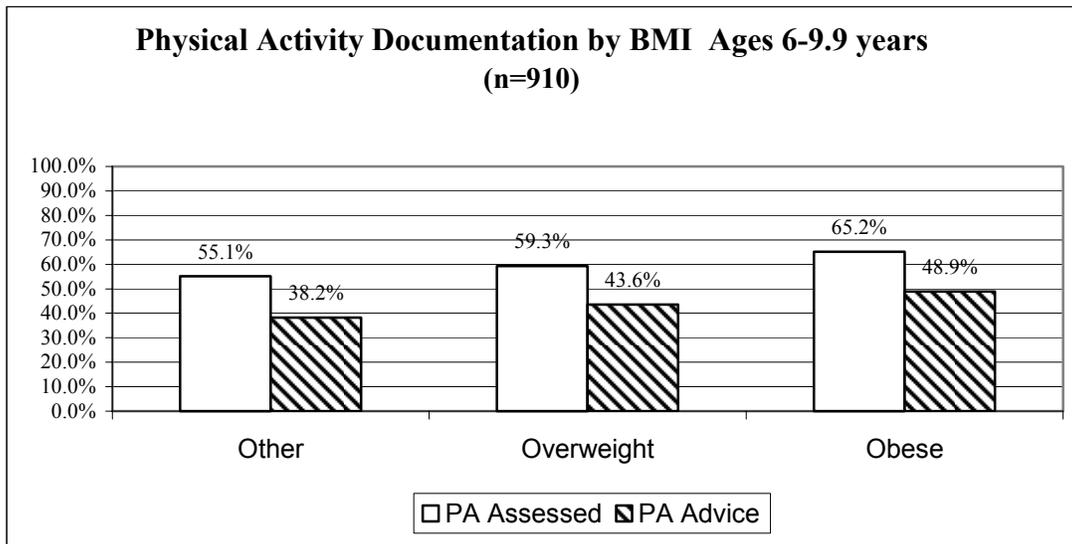
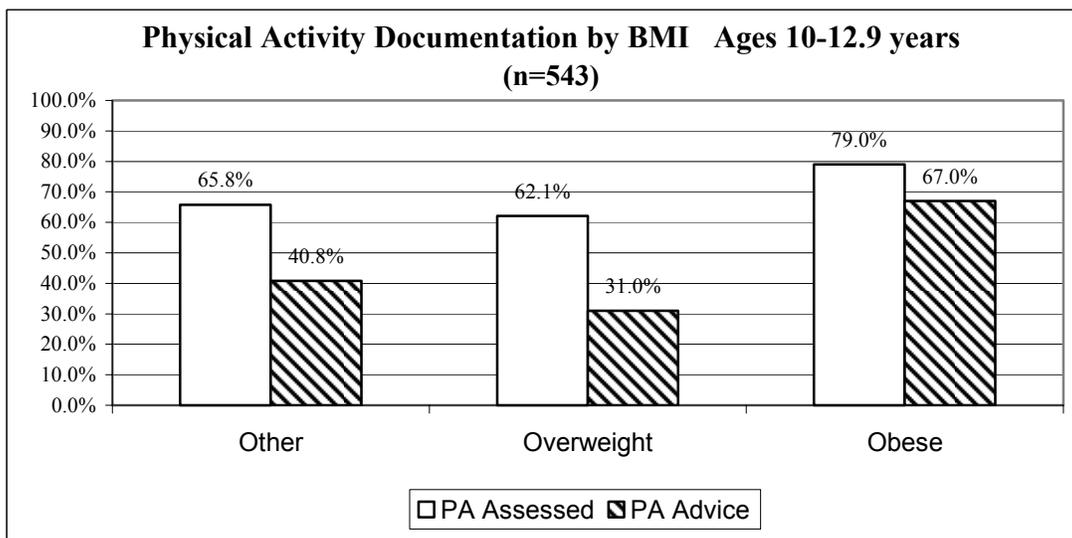


Figure 5b.



Diet Assessment and Advice

More than two-thirds of all children (range: 67.6%-76%) had their diet assessed (see Figure 6a and 6b). Among all the children, fewer received advice about diet (range: 37.8% to 57%) than those whose diet was assessed by the primary care provider. Diet advice was provided most often to the older obese children (57%). Only 6.3% of the younger obese children and 11% of the older obese children had a referral to a nutritionist.

Figure 6a.

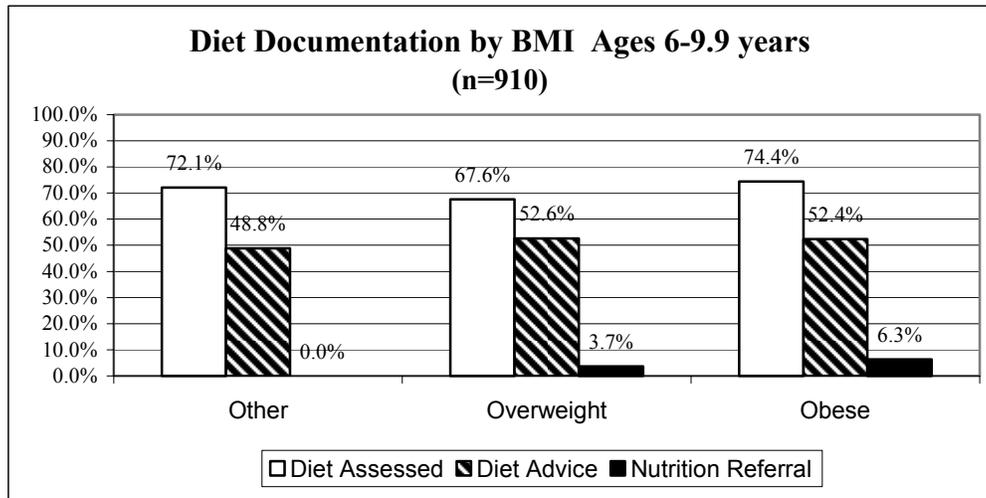
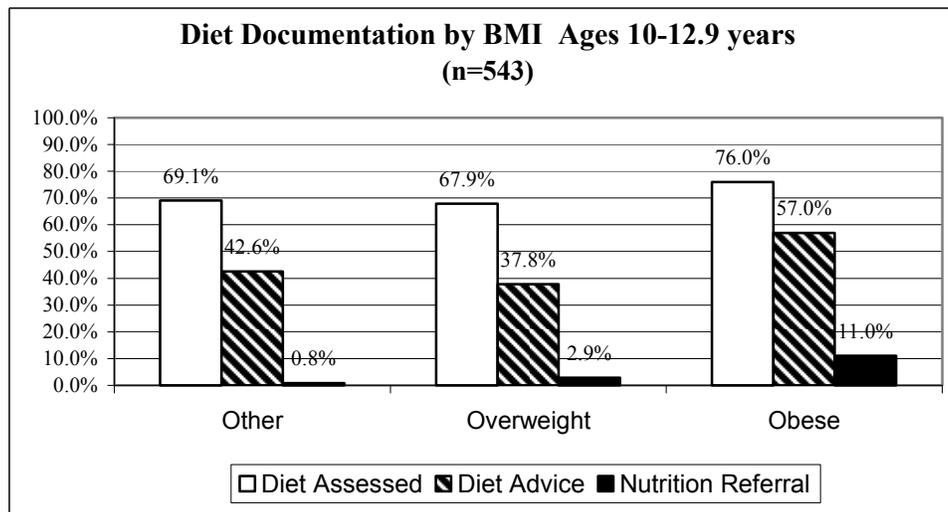


Figure 6b



Other Assessments

Nearly all children had their blood pressure checked regardless of age, gender or BMI level (range: 94.7% to 99.7%). Very few children had their cholesterol or blood sugar checked. Obese children in both age groups (younger - 4.2% and older - 10%) were most likely to have their cholesterol checked than the other children. Blood sugar levels were assessed less often than cholesterol levels. Overweight or obese children in both age groups (range: 3.1% to 5.8%) were more likely to have their blood sugar checked than children in the 'Other' BMI category (range: 0.5 to 17%). (See Figures 7a and 7b.)

Figure 7a.

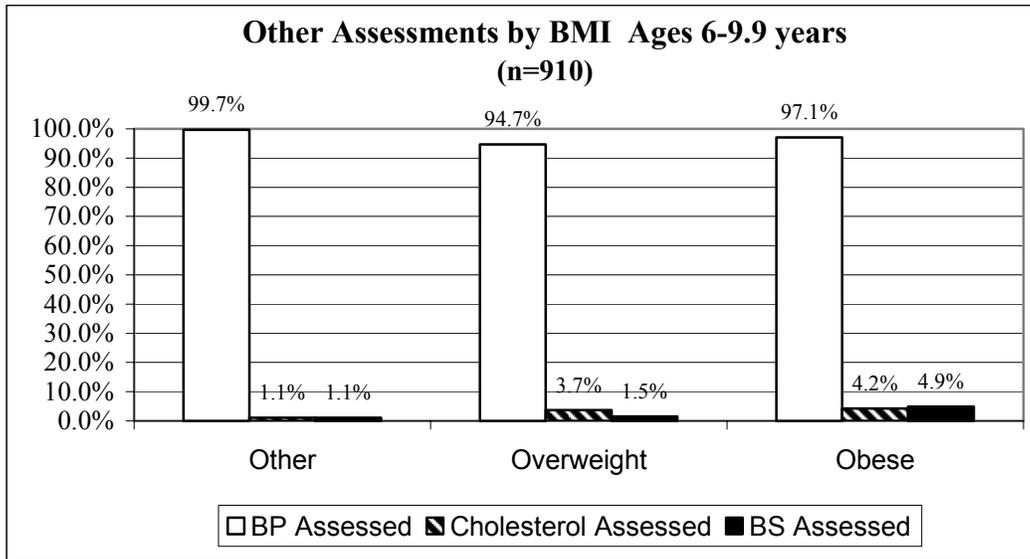
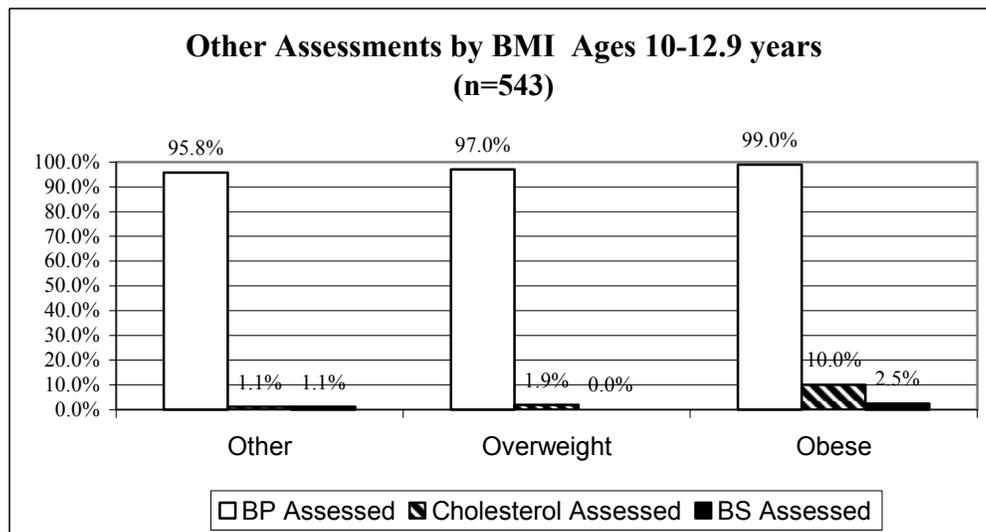


Figure 7b.



Patterns by Practice Type

The majority of the children in the survey sample were in pediatric practices (48.3%). The remainder of the sample was in mixed practices (e.g., a community health center) that had a mix of pediatricians and family practitioners (28%) and family practice (23.7%).

Physical Activity

The survey data was analyzed by the three types of primary care practices (e.g., pediatrics, family practice or mixed) to identify variations in assessments among the three types of practice settings. Physical activity was more likely to be assessed in a pediatric practice than the other two practice settings for children regardless of gender, age or BMI level except for obese children (see Figures 8a and 8b). Obese children in both age groups were more likely to have their physical activity assessed in a mixed setting (younger: 74.2% and older 86.6%)

than a pediatric or a family practice. Advice about physical activity was much more likely for obese children although among the younger children it ranged from 57.1% in pediatrics to 38% in family practice; with mixed practices at 51.4%.

Figure 8a.

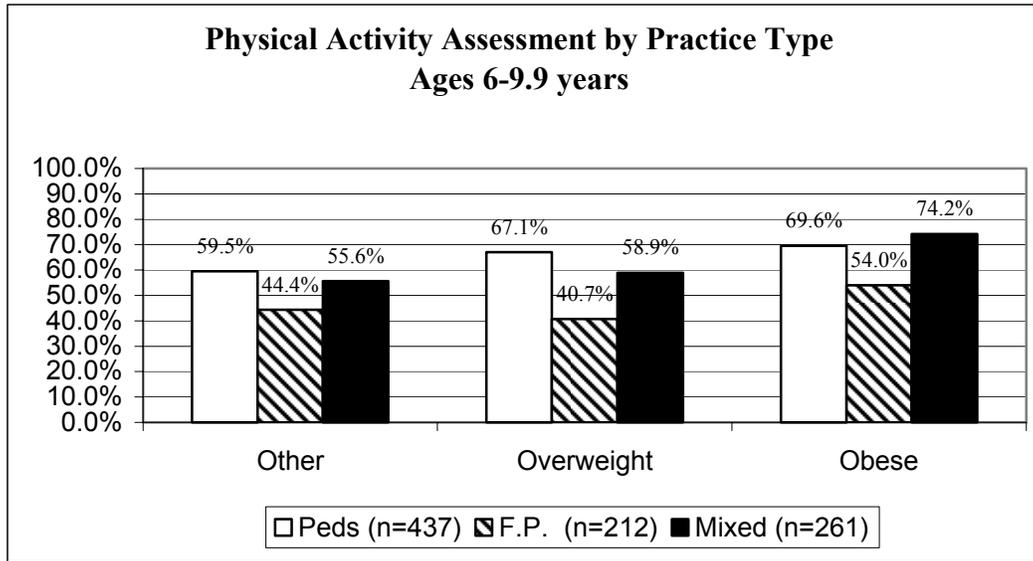
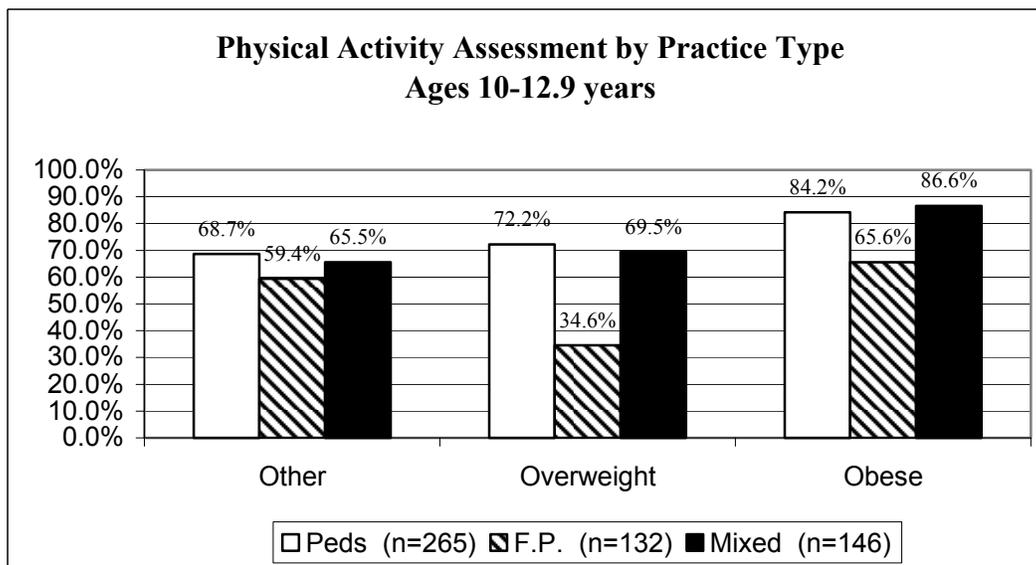


Figure 8b.



Diet

An assessment of diet was more likely in a mixed practice, regardless of BMI status, age or gender, than a pediatric or family practice. (See Figures 9a and 9b) All obese children, ages 6-9.9 years old, had their diet assessed compared to three-fourths of those in a pediatric practice and 56% in a family practice. Similarly, nearly all of the obese children in the older age group in a mixed practice (93.3%) had their diet assessed compared to pediatric practices (76.3%) and family practices (59.3%). A third of children who are not overweight or obese (range: 32.6% to 47.3%) received some diet advice. Diet advice was identified less often than a diet assessment. Pediatric practices and mixed practices usually provided diet advice more often than family practice except among obese children in the older age group where family practices provided diet advice at 59.3% compared to pediatric practices (60.5%) and mixed practices (50%). Referrals to a nutritionist were greater in family practices and mixed practices than in pediatric practices, with family practices reporting the highest referral rates for obese children (younger: 12% and older 15.6%) compared to pediatric practices (younger: 0% and older 7.8%).

Figure 9a.

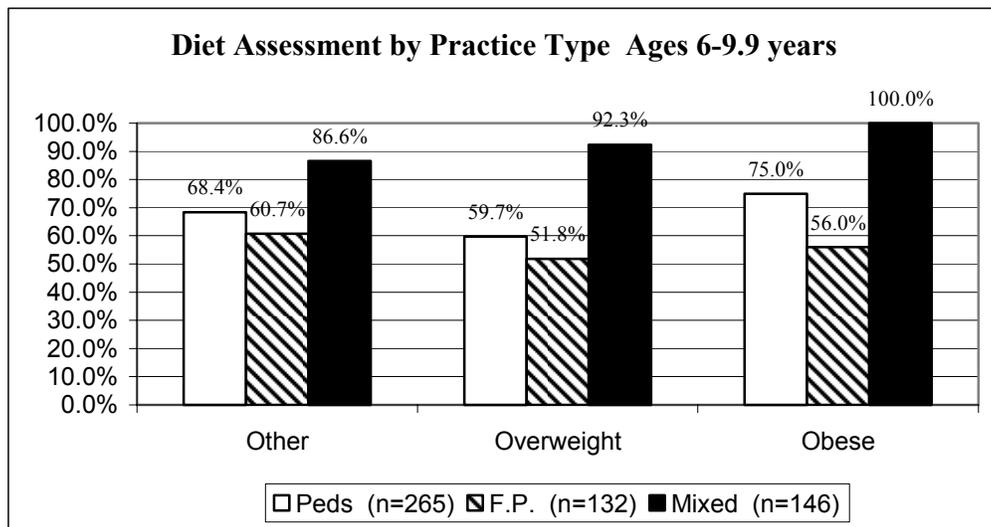
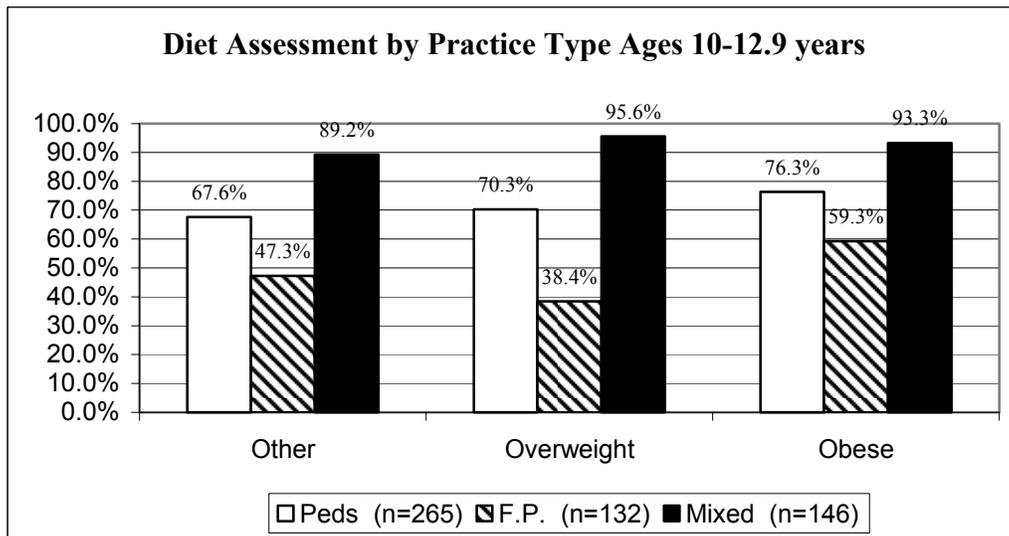


Figure 9b.



Other Assessments

Nearly all overweight or obese children in any type of practice had their blood pressure checked regardless of age or gender (range: 91% to 100%) (See Table 1). Obese children in the older age group were more likely to have their cholesterol assessed in a pediatric practice (15.7%) than a family practice (6.2%) or a mixed practice (6.6%). In the younger age group, mixed practices reported more cholesterol assessments of obese children (8.5%) than pediatrics (0%) or family practice (3.8%). For older obese children, blood sugar levels were assessed more in pediatric practices (10.5%) and mixed practices (10%) than family practices (6.2%). None of the obese children in the younger age group had their blood sugar assessed in pediatric practices compared to mixed practices (8.5%) and family practices (8%).

Table 1

Other Assessments x Practice Type

	BMI	Practice	BP Assessed	Cholesterol Assessed	BS Assessed
Age 6-9.9 years	Overweight	Peds (n=67)	91.0%	4.4%	1.4%
		F.P. (n=27)	100.0%	0.0%	0.0%
		Mixed (n=39)	97.4%	5.1%	2.5%
	Obese	Peds (n=56)	96.4%	0.0%	0.0%
		F.P. (n=50)	98.0%	6.0%	8.0%
		Mixed (n=35)	97.1%	8.5%	8.5%
	BMI	Practice	BP Assessed	Cholesterol Assessed	BS Assessed
Age 10-12.9 years	Overweight	Peds (n=67)	98.1%	0.0%	0.0%
		F.P. (n=27)	92.3%	3.8%	3.8%
		Mixed (n=39)	100.0%	4.3%	0.0%
	Obese	Peds (n=56)	97.3%	15.7%	10.5%
		F.P. (n=50)	100.0%	6.2%	6.2%
		Mixed (n=35)	100.0%	6.6%	10.0%

DISCUSSION

Prevalence

The study sample found that 16.5% of the children ages 6-12 years old were obese. The closest national data set to compare with is from the National Center for Health Statistics, the primary source for national prevalence data on childhood obesity. The National Center for Health Statistics most recent report, based on their National Health and Nutrition Examination Survey (NHANES 2003-2004) found that 19% of children ages 6-11 years old in the United States were obese.¹

Applying our sample findings to New Hampshire's current population, would result in an estimated 17,690 children ages 6-9.9 years old in our state being overweight or obese and 28,270 children ages 10-12.9 years old being overweight or obese.

There are more children in the study sample enrolled in public insurance programs (29.5%) such as Medicaid and Healthy Kids Silver than in the general population. The NH Healthy Kids program estimates (23%) of children in the state were enrolled in their public insurance programs in 2005. This difference may lead to an increase in the overall numbers of overweight or obese children in the sample. This study found that obesity was highest among the Healthy Kids children at 22.6% children compared to 13.5% of children with private insurance.

The Manchester Department of Health has published the most comprehensive local report on child obesity in New Hampshire. In school year 2001-02, they found that 39% of first graders were overweight and 19% were obese as determined by their BMI at or above the 85th percentile and 95th percentile respectively. The Manchester Department of Health report also found 1 out of 3 (33.8%) of first graders who were overweight did not have health insurance or were enrolled in the Healthy Kids Gold (Medicaid) or Silver Program. More than half (51.3%) of the Manchester first graders who were overweight had private health insurance.ⁱⁱ This study found about one third of the privately insured children were overweight or obese with proportion of obesity greater among the children enrolled in Healthy Kids.

Only four states collect BMI data on school children (Arkansas, Tennessee, Illinois and West Virginia). Arkansas has the most comprehensive statewide public policy initiative (Act 1220) related to childhood obesity. All school children are measured annually and their BMI is provided to their parents in a confidential report. The 2005 Arkansas Assessment of Childhood and Adolescent Obesity found 38% of school children were overweight or obese (21% obese and 17% overweight). They found that as students started elementary school more than one third were either obese (17%) or overweight (18%). This increased through the middle school years (24% obese and 18% overweight in sixth grade).ⁱⁱⁱ

The most recent national report on obesity was issued in August 2006 by Trust for America's Health and it uses CDC data to rank the states and identifies trends.^{iv} The report does not include the same age groups in our study but it found that 16.3% of New Hampshire children ages 2 to 5 years old in 2004 were overweight (Range: Utah – 8.5% and California – 17.5%). The national report found 11.4% of New Hampshire high school students in 2005 were overweight (Range: Utah-5.6% and Arkansas-15.4%). The report combined three years of data (2003-2005) for New Hampshire adults for an obesity rate of 21.7% (Range: Colorado-16.9% and Mississippi-29.5%). Obesity among New Hampshire adults increased 1.8% from the prior three year period (2002-2004) and this increase was statistically significant.

Variables that have been consistently associated with children's physical activity are: gender (male), intention to be active, time spent outdoors, physical activity preferences, previous physical activity, perceived barriers (inverse), program/facility access, healthy diet and parental overweight status.^v Sedentary behaviors have been correlated with obesity. A study in the Journal of Pediatrics found that energy balance increased significantly when targeted sedentary behaviors (TV/VCR, video games and recreational computer use) increased. The research found that 82% of the caloric intake was associated with targeted sedentary behaviors and activity calorie expenditure decreased by 21% when sedentary behaviors were increased.^{vi}

The risks of being overweight or obese increase with age and increase the risk of one or more of the following conditions: heart disease and stroke; hypertension; Type II diabetes; osteo-arthritis; sleep apnea; respiratory problems and some cancers (e.g., uterus, breast, cervix, colon, rectum, prostate). There has been a 61% increase in the prevalence of obesity among US adults between 1991-2000. A recent study of Medicare charges associated found that total charges for overweight, obese and severely obese adults were all significantly higher than non-overweight adults. For severely obese men the figures were \$6,192 or 84% higher than non-overweight men and for women the figures were \$5,168 more or 88% higher.^{vii}

Documentation

The diagnosis of a child as overweight or obese according to their BMI and its documentation in the medical chart is a key step in addressing individual prevention or treatment strategies. This study found that the medical charts of most children who are overweight or obese did not have documentation about weight in the problem list.

Documentation in our study was more likely to be in the medical records of children ages 10-12 years old and more likely in males than females. Childhood obesity is often under-diagnosed according to a study by the University of Rochester Medical Center. The study, using national ambulatory care data sets, found that physicians diagnosed obesity less than 1% of the time during 33,000 office visits for 2-18 year olds.^{viii} It is encouraging to note that the study reported counseling rates for nutrition and exercise increased ten-fold when obesity was identified. A Michigan State University study of ambulatory care data found that less than 7% of all children who were obese had the diagnosis of obesity recorded in their medical record.^{ix}

According to a report in the American Family Physician, only a small percentage (less than 10%) of childhood obesity is associated with a hormonal or genetic defect.^x Their report recommends obese children be evaluated for associated co-morbidities such as an assessment of cardiac risk factors, weight related orthopedic problems, skin disorders, potential psychiatric issues and their level of physical activity.

Assessment and Advice

A careful assessment of factors that can contribute to being obese or overweight, physical activity and diet, is important to developing prevention and treatment recommendations. This study found that most children received some assessment of physical activity and diet and a smaller proportion received advice about these two factors that influence weight. Very few of the overweight or obese children were referred to a nutritionist for further consultation. Among the 25 practice sites in the study, there were a few who assessed physical activity and diet for every overweight or obese child. No practice site in this study provided advice on physical activity or diet to every overweight and obese child.

A national survey of pediatricians, pediatric nurse practitioners (PNPs) and registered dietitians to understand child and adolescent obesity was published in 2002 in Pediatrics.^{xi} Identifying a child who is overweight or obese is the first step in preventing or treating the problem. Most clinicians report multiple methods to assess a child being overweight. Pediatricians most often reported clinical impression (82.1%) or weight for age percentile (80.8%) while PNPs most often reported weight for height percentile (81.5%) or weight for age percentile (78.7%). Very few providers reported using BMI as an assessment method (pediatricians -19.2% and PNPs – 16.6%). A majority of pediatricians (65.6%) and PNPs (55.3%) reported a total cholesterol laboratory evaluation for obese children while fewer reported a glucose test (pediatricians-29% and PNPs-31.3%).^{xii} Among pediatricians and pediatric nurse practitioners, more than 90% reported assessing physical activity and obtaining a diet history, although 20% of the clinicians reported obtaining the diet information in a history obtained from others.^{xiii}

A study in a large primary care practice serving low-income urban minority children found that for all children who met the definition of obesity only 53% of the reviewed visits had documentation of obesity. Most had an adequate dietary history (69%) although only 15% included a description of the child's physical activity level or television viewing. Among the children identified as obese by a clinician, 22% had a referral to a dietitian and 13% had lab screenings.^{xiv}

Practice Type

A national cross-sectional study of pediatricians and family practitioners found that 19% of respondents were aware of national recommendations on the management of childhood obesity although only 3% reported adherence to all the recommendations.^{xv} Knowledge of the recommendations was not associated with greater likelihood of adherence. Physicians who were aware of national recommendations were more likely to have positive attitudes about their personal counseling ability. Lack of patient motivation, patient non-compliance and treatment futility were the most often cited barriers to obesity treatment.

The largest national inventory of programs related to pediatric obesity can be found in Shaping America's Youth (SAY). This report was published in September 2004 and is a registry of 1,831 programs addressing childhood physical inactivity and excess weight. It identified the major barriers to physical activity as: lack of parent

involvement, lack of patient motivation and a lack of reimbursement. The SAY registry contains only 222 programs (22%) linked to healthcare and with even fewer (n=136) in health settings. Most health programs focus on nutrition and only 81 programs engage physicians.

According to a report by the 2001 UC Berkeley Center for Weight and Health, students in home-based programs reported more behavior change while students in school-based programs gained more knowledge about the risks and protective factors associated with obesity.^{xvi} They recommended a need to initiate more home and community activities because school time and resources are limited. An experimental study conducted at Children's Hospital in Columbus, Ohio demonstrated that a non-athletic, non-competitive physical activity program for children can have a significant impact on physical activity.^{xvii}

Study Limitations:

There are limitations in the process employed in collecting this information that must be considered in reviewing this data. The primary care practices that agreed to participate in this medical chart review may represent those health care organizations in New Hampshire that are more concerned about childhood obesity. This could bias the overall study to show more favorable results. The chart audit tool review instrument was modified to be HIPPA compliant and therefore not as precise as possible.

This study sample has more low income children than the overall population. There were no resources available for specific reliability checking of the data between the two nurses who did the chart audits. This process is limited by the available documentation in the medical chart and it may not identify events that occurred but were not recorded in the medical chart. The focus on ages 6 to 12 years old does not include factors in younger age children that may influence their weight. In addition, the study does not address underweight children or related eating disorders.

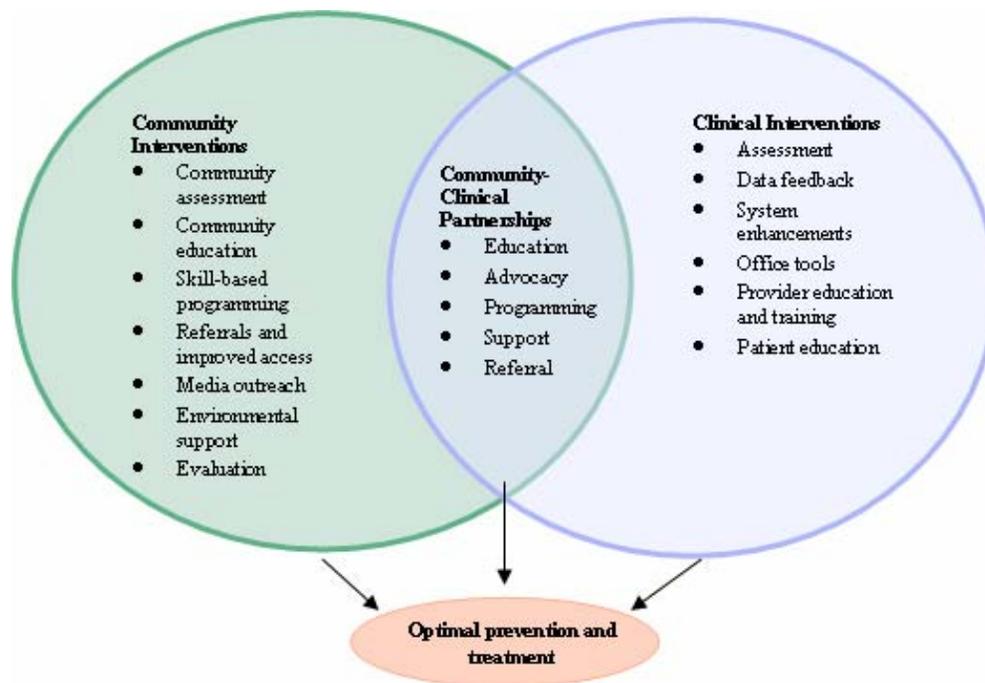
CONCLUSION:

This represents the first effort to collect statewide information from health providers about the issue of childhood obesity in New Hampshire. The project also identified much variation among the health care organizations that submitted data. The data suggest areas for further study such as other factors that may influence diagnosis or documentation (e.g., use of an electronic health record), assessment or advice (e.g., reimbursement policies related to a well-child visit or follow-up referral).

The Foundation for Healthy Communities has developed the Community Prevention and Treatment Initiative (see Figure 10) over a 3-year period in several pilot communities to create a model or approach that intentionally links community or public health education strategies with primary medical care. Working with an evaluation team from Dartmouth Medical School we demonstrated success in pilot testing of the model. The focus of our program development included two coronary heart disease (CHD) risk factors; elevated cholesterol and lack of physical activity. CHD was selected because it is the leading cause of mortality and morbidity in our state. We selected these two risk factors because there are evidence-based interventions that can be applied. Our pilot program phase found an increase of 11% (66% to 77%) for persons screened for cholesterol (LDL test) without a CHD diagnosis and a 17% increase (80% to 97%) for persons screened with a CHD diagnosis.

The CPTI model builds upon a social-ecological model as a framework for understanding multiple factors that influence behavior. Spheres of influence include the individual, interpersonal/lifestyle, institutional/organizational, community, and public policy.^{xviii} The issues we addressed to date through the CPTI model carry a significant burden of illness in New Hampshire and have an evidence-based approach. Childhood obesity is an important health problem that may be addressed through the CPTI approach because there are both community and clinical factors related to its prevention and treatment.

Figure 10 - The CPTI Model



This study is intended to stimulate further work on developing, testing and implementing effective, practical strategies to prevent or treat childhood obesity. Numerous individuals and organizations in New Hampshire are concerned about the long-term implications of this childhood disease. The Foundation for Healthy Communities plans to partner with others to recommend practical strategies in our state. The US Preventive Services Task Force, the official national authority that systematically reviews the research literature to make recommendations on the efficacy of prevention strategies.^{xix} Our strategies will build upon their work. We will test the application of strategies using the community prevention and treatment initiative model to address the issues that this study documents. The Foundation for Healthy Communities welcomes new opportunities to collaborate on strategies.

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- ^{xv} Kolagotla, L. and Adams, W. "Ambulatory Management of Childhood Obesity", *Obesity Research*, 2004, 12, pp.275-283.
- ^{xvi} University of California at Berkeley Center for Weight and Health, "Pediatric Overweight: A Review of the Literature, June 2001, p. 75.
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APPENDIX

New Hampshire Childhood Obesity Report

General Instructions

Confidentiality

The chart abstractor must not discuss the contents of a patient's chart or medical record other than for necessary discussions with other personnel involved in this project. It is important that all data collection instruments which have a patient's name, medical record number, or other identifiers never be left unattended or in such a manner that they would be seen or read by other people. All data will be handled with strict confidentiality and the reporting of aggregate data will not attribute specific data to any patient or organization.

Completing the Record Review

Every field must be completed

Name of practice

Reviewers name – Name of nurse reviewing the chart.

Date of review – The date nurse reviewed conducted the chart review.

- 1a. **Patient sex** - Check the appropriate box.
- 1b. **Age of patient** – Check the appropriate box. Record the patient's age as indicated in the medical record.
- 1c. **Type of healthcare coverage** – Check the appropriate box for the primary insurance carrier for the patient.
2. **Date of the most recent well-child visit** – Record the date of the most recent well-child visit as indicated in the medical record (month/day/year order).
Height – Record the height in inches of the patient on the most recent well-child visit.
Weight – Record the weight in pounds of the patient on the most recent well-child visit.
BMI – Calculate the body mass index of the patient using height and weight data from the most recent well-child visit, if not already provided in the medical record for that visit.
3. **Number of well-child visits in the past 2 years** – Record the number of well-child visits the patient has had in the past two years.
4. **Patient Diagnosis** – Check the appropriate box for patient diagnosed as overweight, obese, or no diagnosis.
5. **Documentation of services**– Check the appropriate box for all assessment, advice and referral services as found in the medical record for any of the three most recent office visits.
Assessed blood pressure, assessed cholesterol, assessed blood sugar – Indicate whether the child's blood pressure, total cholesterol or blood sugar level was assessed in the last three office visits. For blood pressure indicate as systolic/diastolic. For cholesterol and blood sugar, check box to indicate whether patient was fasting or not fasting when test was performed.

**New Hampshire Childhood Weight Study
Community Prevention and Treatment Initiative
Medical Record Review Tool (2/1/06)**

Name of Practice:

Reviewers name:	Date of review:	
1. a. Please indicate sex of the patient: <input type="checkbox"/> Male <input type="checkbox"/> Female	1 b. Age of patient: <input type="checkbox"/> 6.0 - 6.49 <input type="checkbox"/> 9.5 - 9.99 <input type="checkbox"/> 6.5 - 6.99 <input type="checkbox"/> 10.0 - 10.49 <input type="checkbox"/> 7.0 - 7.49 <input type="checkbox"/> 10.5 - 10.99 <input type="checkbox"/> 7.5 - 7.99 <input type="checkbox"/> 11.0 - 11.49 <input type="checkbox"/> 8.0 - 8.49 <input type="checkbox"/> 11.5 - 11.99 <input type="checkbox"/> 8.5 - 8.99 <input type="checkbox"/> 12.0 - 12.49 <input type="checkbox"/> 9.0 - 9.49 <input type="checkbox"/> 12.5 - 12.99	1 c. What type of healthcare coverage does the patient have? <input type="checkbox"/> Medicaid/Healthy Kids Gold <input type="checkbox"/> Healthy Kids Silver <input type="checkbox"/> Private Insurance Plan (HMO/PPO) <input type="checkbox"/> Medicare <input type="checkbox"/> Other <input type="checkbox"/> None of the above
2. What was the date and level of the <u>most recent well-child visit</u> : Date: _____ Height: _____ inches BMI: _____ Weight: _____ pounds		
3. How many well-child visits has the child had in the past 2 years*? _____ number of visits * Routine physicals or well child visits are usually every 2 years for ages 6-10 years old, and annually ages 11-12.	5. Is there documentation that any of the following services occurred during any of the <u>three most recent</u> office visits? (check all that apply) <input type="checkbox"/> Assessment of physical activity/exercise <input type="checkbox"/> Advice about physical activity/exercise education <input type="checkbox"/> Assessment of diet/nutrition <input type="checkbox"/> Advice about diet/nutrition education <input type="checkbox"/> Referral for nutrition counseling/education	
4. Has the patient been diagnosed (on the problem list) with: <input type="checkbox"/> Overweight <input type="checkbox"/> Obese <input type="checkbox"/> No Diagnosis	<input type="checkbox"/> Assessed blood pressure (_____/_____) <input type="checkbox"/> Assessed cholesterol (total:_____) <input type="checkbox"/> Fasting <input type="checkbox"/> Not Fasting <input type="checkbox"/> Assessed blood sugar (level:_____) <input type="checkbox"/> Fasting <input type="checkbox"/> Not Fasting	

