

New Mexico BMI Surveillance Report



Healthy Kids New Mexico is a project of the NM Department of Health and many state and local partners that combines and creates healthy programs to give kids what they need to play well, eat well, learn and live healthy and full lives.

Acknowledgements

There are many people who we wish to thank for their support in the creation and first year implementation of the NM elementary school BMI surveillance system.

First, special thanks to Dr. Alfredo Vigil, DOH Cabinet Secretary. Without his leadership and continued support throughout the year, the department's creation and implementation of the system would not have been possible. Thanks go as well to Jessica Sutin, DOH Deputy Secretary, who, once the decision was made to move forward, brought senior staff from the divisions of Public Health, Epidemiology, and Policy and Performance to collaborate in the development of the BMI surveillance system.

Several additional DOH staff also played important roles. First, special thanks to epidemiologist Vicky Howell, whose pragmatic approach and willingness to get the job done kept the development and implementation processes moving forward. In addition, she spent untold hours analyzing the data on BMI profiles for schools, school districts and at the state level. Thanks are owed to epidemiologist Dan Green who assisted Vicky in developing the sampling protocol and conduct the state-level weighted analysis.

Thanks also go to Healthy Kids NM health educator Rita Condon, without whom we would not have been able to collect students' height and weight data for this school year. Her unrelenting willingness to travel the state for weeks at a time training school nurses on the data collection protocol and returning to many of the schools to assist in the data collection far exceeded her job description and is deeply appreciated.

Thanks go to Margo Gomez. Despite the tediousness of the work, she never complained and carefully entered into a statistical software program all data from the 3,442 students included in this study.

Thanks also go to UNM's Prevention Research Center staff which developed the height and weight data collection protocol. Special thanks to Theresa Cruz for creating a protocol that took into account the data collection realities in the field while maintaining scientific integrity.



December 16, 2010

Executive Summary

Introduction

In order to better understand and combat the problem of childhood obesity, the New Mexico Department of Health established an elementary school Body Mass Index (BMI) surveillance system in 2010. The purpose of the system is to assess the prevalence of childhood overweight and obesity in New Mexico; identify at-risk populations in order to better allocate prevention resources; increase awareness among community members and policymakers on the problem of childhood obesity; monitor trends over time; and evaluate efforts to reduce childhood obesity.

Height and weight data were collected on 3,442 kindergarten and third grade students in elementary schools across the state. Using a standard data collection protocol, developed by UNM's Prevention Research Center, surveyors measured children between mid-August and mid-November 2010. Results were weighted to provide state-level findings on the extent of childhood overweight and obesity in New Mexico and identify at-risk groups.

Key Findings

- * The profile of childhood obesity in New Mexico is disturbing with 13.2% of kindergarten and 22.6% of third grade students obese. This compares to an obesity rate of 19.6% for 6 to 11 year olds nationwide. Students in the obese category had weights substantially higher than their counterparts in the healthy weight category. For example, the average weight of third grade students in the healthy weight category was 60.7 pounds compared to obese third grade students' average weight of 98.9 pounds with some weighing between 150 and 200 pounds.
- * Significant differences in the prevalence of obesity between kindergarten and third grade students suggest that obesity increases during the elementary school years. The obesity rate for third grade children was nearly twice that of kindergarten students. The massive weight gain at this early age contradicts the widely held assumption that obesity occurs at older ages. In fact, this early onset of obesity makes it increasingly more difficult for a child to later return to a healthy weight.
- * This problem is affecting American Indian children in New Mexico far more severely. The prevalence of obesity among American Indian kindergarten children is almost three times (25.5%) that of White non-Hispanic children (8.8%) and almost twice that of Hispanic children (12.9%). Obesity only exacerbates the large health disparities already faced by American Indians.

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Findings

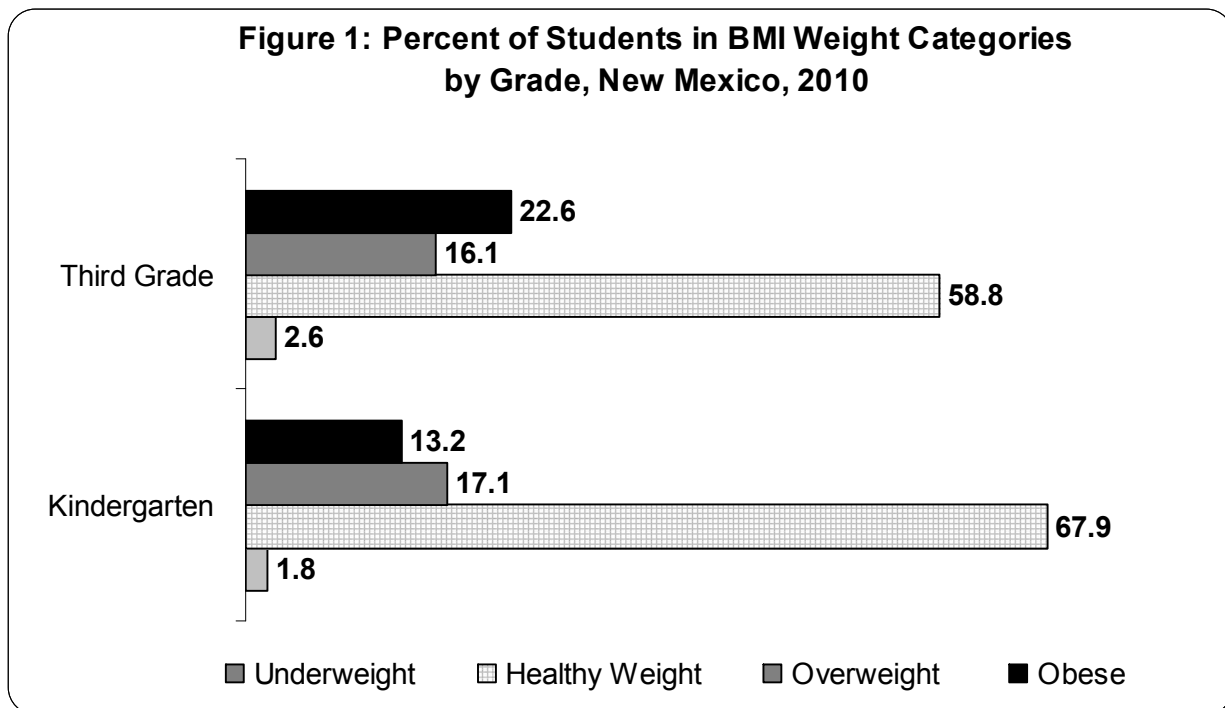
The first statewide elementary school BMI surveillance in New Mexico produced some important results. The data were analyzed by grade, race-ethnicity and gender. The complete results are presented in tables located in Appendix A and methods are described in Appendix B.

Extent of Childhood Obesity

In the fall of 2010, 13.2% of kindergarten students and 22.6% of third grade students were obese. In comparison, 19.6% of 6 to 11 year olds nationwide were obese (NHANES, 2007-2008), suggesting New Mexico's third grade students have higher rates of obesity than the national average.

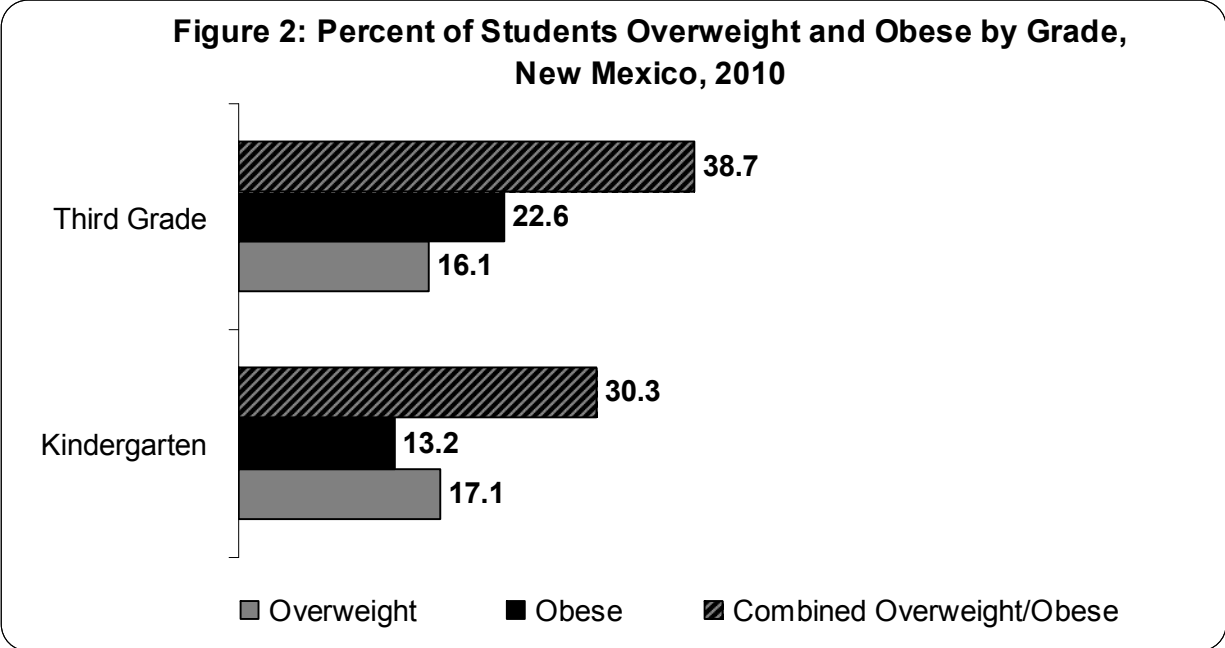
Average weight for kindergarten students in the obese category was 61.6 pounds, with some students weighing more than 100 pounds. In contrast, the average weight for kindergarten students in the healthy weight category was 42.3 pounds. Furthermore, the average weight for kindergarten students in the obese category was similar to that of third grade students (60.7 pounds) in the healthy weight category. Average weight for third grade students in the obese category was 98.9 pounds with some children weighing between 150 and 200 pounds.

Adding the students who were overweight brings the combined percentage of overweight or obese children to 30.3% for kindergarten students and 38.7% for third grade students. Two-thirds of kindergarten students (67.9%) and nearly three-fifths of third grade students (58.8%) were in the healthy weight category. Less than 3% of students in either grade were in the underweight category.



Childhood Obesity Differences by Grade

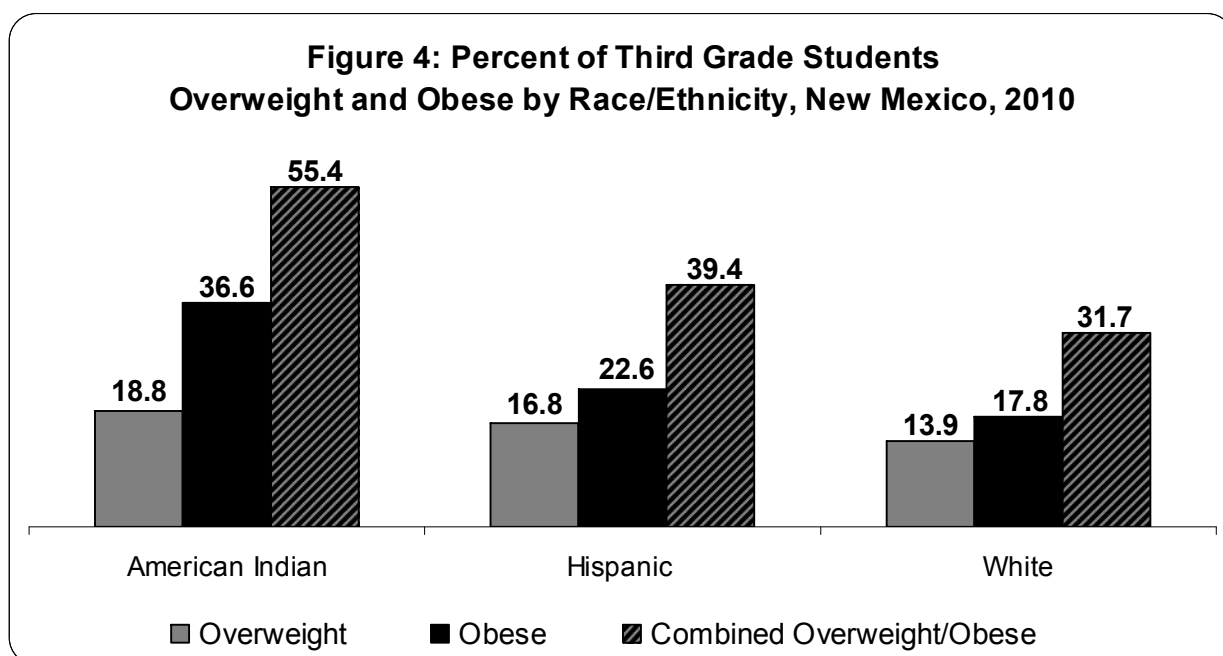
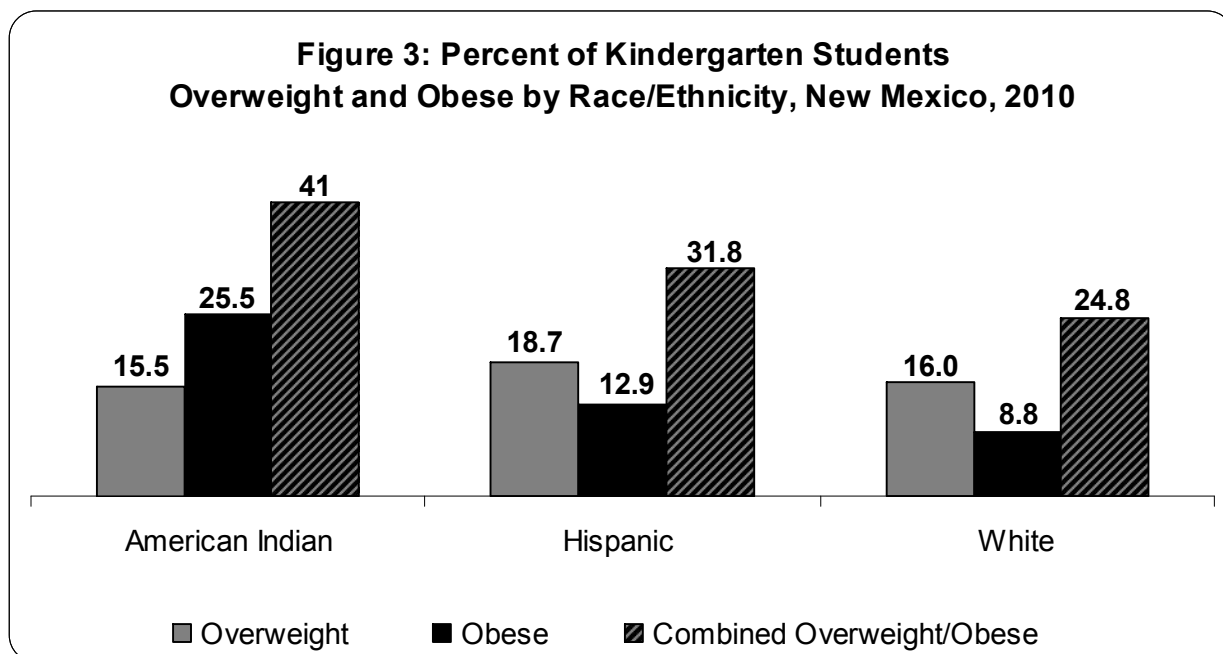
When analyzed by grade, statistically significant differences were noted between the percent of children in kindergarten and the percent of children in the third grade who were obese. The percent of children classified as obese rose from 13.2% of the kindergarten students to 22.6% of the third grade students. By the third grade a greater proportion of children were obese rather than overweight. The difference between kindergarten and third grade was also statistically significant for the combined overweight/obese category.



Childhood Obesity Differences by Race/Ethnicity

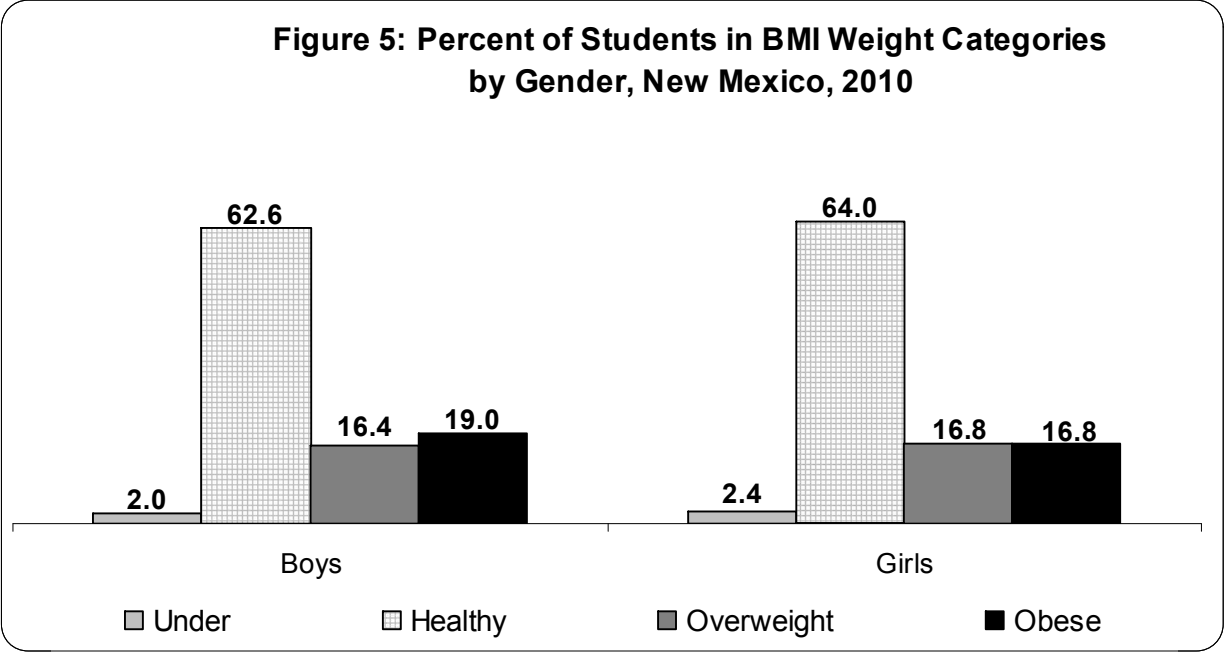
American Indian children were statistically significantly more likely to be obese than other groups.

In looking at the disparities by grade, there were almost three times as many obese American Indian kindergarten students (25.5%) as obese White non-Hispanic kindergarten students (8.8%) and almost twice as many obese Hispanic kindergarten students (12.9%). This pattern of disparity continued for third grade students although the differences were smaller. By third grade more than 1 in 3 American Indian third grade children were obese and more than half were overweight or obese.



Childhood Obesity Differences by Gender

Although boys (19.0%) were more likely to be obese than girls (16.8%) and fewer boys (62.6%) were at a healthier weight than girls (64.0%), these differences were not statistically significant.



Conclusions

Results from the first New Mexico statewide elementary school BMI surveillance suggest that childhood obesity is an epidemic and it occurs at an earlier age than anticipated. Racial and ethnic disparities in the prevalence of obesity appear at a very young age. Particularly striking is the dramatic difference in the prevalence of obesity between kindergarten and third grade.

Approximately 60% of overweight children ages 5 to 10 years had at least one metabolic risk factor for heart disease and stroke...



As a consequence of childhood obesity, thousands of New Mexico elementary school children face serious health problems. Increases in childhood obesity have resulted in dramatic increases in youth-onset diabetes. Type II diabetes is no longer called adult-onset because of its alarming rates in youth – a phenomenon that rarely existed a generation ago. Further, 60% of overweight children ages 5 to 10 years have at least one metabolic risk factor for heart disease and stroke, including elevated total cholesterol, triglycerides, insulin and high blood pressure. Obesity also leads to increases in non-alcoholic fatty liver disease in children which can lead to liver scarring and cirrhosis.

Although the data represent only one point in time, these findings are a call for action by families, schools, communities and the state to help children at younger ages develop healthy eating habits and active lifestyles. Delay in action will only diminish our ability to curb the childhood obesity epidemic.

While much needs to be done, the tide is already turning in some of New Mexico's schools, communities and state agencies. For example, more and more schools are implementing walking and rolling to school days, creating edible gardens or conducting fruit and vegetable tastings. At least five New Mexico municipalities (Chaves County, Cuba, Gallup, Grant County, and Las Cruces) and at least five tribal communities (Cochiti, Jemez, San Felipe, San Ildefonso and Santa Clara) have created community-wide initiatives to connect and build on a cross-section of community efforts to motivate children and youth to eat healthier and be more physically active. At the state level, health policies enacted include the School Wellness Policy and the Nutrition: Competitive Food Sales Rule and state administered programs include Safe Routes to School, Farm to Table, and the Fruit and Vegetable School Snack Program.

What follows are some childhood obesity prevention strategies recommended by the Centers for Disease Control and Prevention, the Institute of Medicine and other health organizations for families, schools and communities to consider implementing.

What Families Can Do to Nurture a Fit Family

Families play an important role in shaping children's healthy eating and physical activity behaviors. Here are some ways families can instill healthy behaviors in their children.

- * Prepare and eat more meals together: Create routines and traditions that work best for your family, make mealtime a special time to eat and talk together.
- * Boost your family's intake of fruits, veggies and whole grains: Keep washed, ready-to-eat produce within easy reach, try at least 3 bites of a new fruit, veggie or whole grain each time – it can take 7-10 tries before your family likes it.
- * Downsize portions: Share a meal or take half home when eating out, use smaller plates and glasses for family meals.
- * Be active for at least 60 minutes a day: Create family routines and traditions for active living, turn off the TV and play games together.
- * Re-Think your drink: Replace sugar sweetened beverages like sodas with water, 100% fruit juices, tea, and low fat milk.
- * Limit eating out: Stock your fridge and pantry with staples to whip up a meal in 30 minutes or less, cook enough for a second meal.
- * Get the facts: When you eat at a restaurant, ask for the nutritional information of menu items before you order, if unavailable go to www.fastfoodnutrition.org.
- * Tame the TV: make more family time without it, turn it off during meals and remove it from your child's room.
- * Make sure family members get 8 to 9 hours of sleep.



Take the Challenge

Support the American Academy of Pediatrics and other health organizations recommendation to:

- Eat 5 or more fruits and vegetables a day;**
- Restrict TV and video game time to 2 hours a day;**
- Get at least 1 hour of physical activity a day; and**
- Eliminate sugar-sweetened beverages from your diet.**

What Schools Can Do to Build a Healthy Environment

Here are some childhood obesity prevention strategies schools can incorporate.

- ✦ Implement a strong school-wide wellness policy, including the establishment of a School Health Advisory Council.
- ✦ Support local and regional food purchases for school lunches through the Farm to School Program.
- ✦ Encourage your school meals staff to work toward meeting USDA's Healthier US School Challenge which is open to all schools participating in the National School Lunch Program.
- ✦ Offer a different fruit and vegetable in school meals every day a week and offer a serving of whole grains at least 3 times a week.
- ✦ Offer only skim or low fat milk in school meals.
- ✦ Prohibit the use of food as a reward.
- ✦ Prohibit the use of restricting physical activity as a means of punishment.
- ✦ Partner with community members to establish and maintain a school edible garden.
- ✦ Allow students to bring water bottles to school and permit them to drink water throughout the day.
- ✦ Implement safe walking and biking programs, such as walking school buses and Safe Routes to School.
- ✦ Train teachers to incorporate movement in the classroom with academic benchmarks, such as the Take 10 curriculum.
- ✦ Offer at least 30 minutes of quality physical activity daily.
- ✦ Convert outdoor school space to active and safe space for children and families to use during non-school hours.
- ✦ Schedule recess before lunch.
- ✦ Establish a 5.2.1.0 Challenge which supports the American Academy of Pediatrics recommendation to eat 5 or more fruits and vegetables a day; restrict TV and video games time to 2 hours a day; get at least 1 hour of physical activity a day; and eliminate sugar-sweetened beverages from your diet.
- ✦ Participate in TV and video game turnoff activities.



What Communities Can Do to Build a Healthy Environment



Local communities play an important role in creating and sustaining healthy environments and policies to support healthy eating and physical activity. Check out ways your community can address the problem of childhood obesity.

- * Create a community-wide childhood obesity prevention initiative to connect and build on a cross-section of community efforts to motivate children and youth to eat healthier and be more physically active.
- * Establish a municipal Complete Street Policy to ensure that transportation planners and engineers consistently design and operate the entire roadway with all users in mind - including bicyclists, public transportation vehicles and riders, and pedestrians of all ages and abilities.
- * Create an interconnected network of greenways, trails and parks to support active transportation and active recreation.
- * Establish a joint-use agreement between the municipality and the school district to permit public access to school facilities, especially outdoor green or open space during non-school hours.
- * Establish a Food Policy Council to examine the operation of the local food system and provide ideas and recommendations for improvement through public policy change.
- * Support local farmers' markets to provide opportunities for farmers to sell their produce directly to consumers while providing consumers opportunities to buy locally grown produce directly from farmers.
- * Support community edible gardens by providing free access to land to grow fresh fruits and vegetables as a way to encourage families and individuals to eat well and nurture a spirit of community.
- * Establish a community-wide 5.2.1.0 Challenge which supports the American Academy of Pediatrics recommendation to eat 5 or more fruits and vegetables a day; restrict TV and video game time to 2 hours a day; get at least 1 hour of physical activity a day; and eliminate sugar sweetened beverages from your diet.

Appendix A

Table 1: Percent of Students in BMI Weight Categories by Grade*

BMI Weight Categories	Kindergarten			Third Grade			Significant Difference
	Percent	**CI/Lower	CI/Upper	Percent	CI/Lower	CI/Upper	
Underweight	1.8	1.16	2.5	2.6	1.6	3.6	No
Healthy Weight	67.9	64.2	71.6	58.8	55.0	62.6	Yes
Overweight	17.1	13.9	20.4	16.1	13.3	18.8	No
Obese	13.2	10.8	15.6	22.6	19.2	26.0	Yes
Combined Overweight/Obese	30.3	26.7	34.1	38.7	34.9	42.4	Yes
Number in Sample	1800			1642			

*Only those groups with sufficient sample size are included.

**CI-Confidence Interval

Table 2: Percent of Kindergarten Students in BMI Weight Categories by Race/Ethnicity*

BMI Weight Categories	American Indian			Hispanic			White			Significant Difference
	Percent	**CI/Lower	CI/Upper	Percent	CI/Lower	CI/Upper	Percent	CI/Lower	CI/Upper	
Underweight	0			2.3	1.3	3.3	1.9	0.6	3.2	No
Healthy Weight	59	51.0	66.9	65.9	60.3	71.5	73.3	66.9	79.7	No
Overweight	15.5	10.7	20.4	18.7	13.8	23.7	16.0	10.2	21.9	No
Obese	25.5	17.8	33.1	12.9	9.3	16.6	8.8	5.7	11.9	Yes
Combined Overweight/Obese	41	33.1	49.0	31.8	26.3	37.3	24.8	18.5	31.2	Yes
Number in Sample	232			927			466			

*Only those groups with sufficient sample size are included.

**CI-Confidence Interval

Appendix A

Table 3: Percent of Third Grade Students in BMI Weight Categories by Race/Ethnicity*

BMI Weight Categories	American Indian			Hispanic			White			Significant Difference
	Percent	**CI/Lower	CI/Upper	Percent	CI/Lower	CI/Upper	Percent	CI/Lower	CI/Upper	
Underweight	0.9	0	2.1	2.3	1.4	3.2	4.3	1.0	7.6	No
Healthy Weight	43.8	36.1	51.4	58.3	53.3	63.4	64	55.8	72.2	Yes
Overweight	18.8	12.4	25.2	16.8	13.0	20.5	13.9	8.5	19.3	No
Obese	36.6	29.1	44.0	22.6	18.1	27.0	17.8	10.4	25.3	Yes
Combined Overweight/Obese	55.4	47.7	63.1	39.4	34.3	44.4	31.7	23.6	39.8	Yes
Number in Sample	194			983			369			

*Only those groups with sufficient sample size are included.

**CI-Confidence Interval

Table 4: Percent of Students in BMI Weight Categories by Gender

BMI Weight Categories	Boys			Girls			Significant Difference
	Percent	*CI/Lower	CI/Upper	Percent	CI/Lower	CI/Upper	
Underweight	2.0	1.2	2.7	2.4	1.5	3.4	No
Healthy Weight	62.6	58.7	66.5	64.0	60.3	67.7	No
Overweight	16.4	14.0	19.6	16.8	14.0	19.6	No
Obese	19.0	16.0	22.0	16.8	13.8	19.8	No
Combined Overweight/Obese	35.4	31.5	39.3	33.6	30.0	37.3	No
Number in Sample	1685			1757			

*CI-Confidence Interval

Appendix B

Methods

Sample Selection and Response Rate

A sample was selected from public elementary schools across the state based on 2009-2010 school enrollment data. Schools with both a kindergarten and third grade were selected systematically with probability proportional to enrollment in kindergarten and third grade using a random start. Of the selected schools, 29 schools (59%) participated in the first NM statewide BMI surveillance. Student participation was very high with BMIs calculated for 3,442 students (91% of the children in kindergarten and third grade of the participating schools).

Data Collection

A standard measurement protocol was used to collect heights and weights on all kindergarten and third grade students in the selected schools. Data collection occurred from August 18, 2010 through November 22, 2010. A standardized data collection protocol and form were developed by UNM's Prevention Research Center and were used to collect the height and weight information throughout the state. The protocol included measuring each child's height and weight twice as well as quality control checks on a periodic basis. In addition standardized scales and stadiometers were used throughout the state. Healthy Kids NM staff were involved in the data collection at 90% of the schools. All school nurses were trained on the height and weight data collection protocol. These data were converted into BMI percentiles for sex, age and gender using a tool¹ developed by the Centers for Disease Control and Prevention (CDC). All data entry into the CDC tool was completed by the same individual at the Department of Health. Based on BMI percentiles, students were classified as underweight (<5th percentile), healthy weight (5th to less than the 85th percentile), overweight (85th to less than the 95th percentile), and obese (95th percentile and above).

Data Analysis

The data were then analyzed by grade, sex and race/ethnicity using the statistical software SAS and weighted to represent the kindergarten and third grade public school populations in New Mexico. The weighting process involved the probability of selecting the school and a student-level non-response adjustment for each school.

¹http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/tool_for_schools.html.

Contact Information for Program

If you would like technical assistance in implementing any of these activities, please contact Rita.Condon@state.nm.us or Patty.Morris@state.nm.us and we will link you with appropriate resources.

Additional information is on the Healthy Kids NM webpage www.HealthyKidsNM.org.
It provides hands-on tools and resources to engage students in healthy eating and physical activity lessons.