

# Del Norte County

## A Look at Childhood Obesity, 2013



## Acknowledgements

This report was prepared by The California Center for Rural Policy with funding from The California Endowment's Building Healthy Communities Initiative and in-kind support from Humboldt State University. We specifically want to thank:

- The California Endowment for supporting this work
- Laura Olson, Program Manager, The California Endowment
- Del Norte County Unified School District & Del Norte County Office of Education
- The Children's Health Collaborative

### Suggested Citation:

Van Arsdale J. *Del Norte County: A Look at Childhood Obesity, 2013*. Humboldt State University: California Center for Rural Policy. July, 2013.



Humboldt State University  
California Center for Rural Policy  
1 Harpst Street  
Arcata, CA 95521  
(707) 826-3400  
[www.humboldt.edu/ccrp](http://www.humboldt.edu/ccrp)  
[ccrp@humboldt.edu](mailto:ccrp@humboldt.edu)



# Table of Contents

<b>Executive Summary</b> .....	4
<b>Background</b> .....	6
<b>Why Childhood Obesity Matters</b> .....	6
<b>Measuring Childhood Obesity in Del Norte County</b> .....	7
<b>Findings</b> .....	8
Del Norte County Unified School District—Obesity by Grade .....	8
Del Norte County Unified School District—Obesity by Race/Ethnicity .....	10
Low-Income Children—Obesity by Age .....	11
Low-Income Children—Obesity by Race/Ethnicity .....	12
Del Norte County Unified School District vs. County Office of Education .....	12
<b>Implications for Programs, Policy &amp; Research</b> .....	13
<b>References</b> .....	14
<b>Appendix A:</b>	
A Look at Factors that May Play a Role in Childhood Obesity in Del Norte County .....	15

# Executive Summary

## Background

Childhood obesity has become one of the most pressing public health issues.<sup>1</sup> An extensive body of research shows that being overweight or obese is associated with multiple diseases and high health care costs.<sup>2-5</sup> Del Norte County and the adjacent tribal lands (DNATL) is one of fourteen places in California participating in Building Healthy Communities (BHC), a ten-year initiative of The California Endowment (TCE). The goal of BHC is to “support the development of communities where kids and youth are healthy, safe and ready to learn.”<sup>6</sup> One of the big results the initiative is aiming for is a decrease in childhood obesity. This report was prepared by the California Center for Rural Policy (CCRP) to provide some baseline information about childhood obesity in Del Norte County.

This report focuses on answering the following questions about childhood obesity in Del Norte County:

- What is the prevalence of childhood overweight and obesity in the county?
- How does Del Norte County compare to the rest of the state?
- Are certain groups of children more likely to experience overweight or obesity than others?

## Summary of Findings

### *Obesity and Overweight in Del Norte County*

The following findings are based on data from the Del Norte County Unified School District (DNCUSD) and County Office of Education (COE) as well as the Pediatric Nutrition Surveillance System (PedNSS).

- 43% of students are overweight or obese (DNCUSD, 2012-13).
- Between 2011-12 and 2012-13 there was a slight **increase** in the percent of students who are overweight or obese (increased from 41% to 43%, but this is not statistically significant) (DNCUSD).
- Between 2011-12 and 2012-13 kindergarten students showed a **dramatic increase** in the percent of students who are overweight or obese (increased from 30% to 45% and is statistically significant) (DNCUSD).
- A higher percent of low-income children aged 2 to 4 years in Del Norte County are overweight (20.9%) compared to California (16.1%) (statistically significant difference) (PedNSS).
- Among children aged 5 to 19 years, the percent of low-income children who are overweight or obese in Del Norte County (41.8%) is similar to California (42%) (PedNSS).
- Among DNCUSD students, the percent of students who are overweight or obese does not differ significantly by race/ethnicity.
- Among low-income children under age 5, the percent of Hispanic and American Indian children with obesity is significantly higher than White children (PedNSS).
- COE students have a higher percent of **underweight** students (10.6%) compared to DNCUSD students (1.1%) and this difference is statistically significant.

*Continued on next page*

## ***Factors that May Play a Role in Childhood Obesity in Del Norte County (Appendix A)***

- Less than ¼ of the students are meeting the physical activity recommendations.
- As few as 16% of students have 5 days or more of physical education classes at school.
- Over 75% of students have non-active transport to and from school.
- Up to 45% of students have over 2 hours of screen time per day.
- Slightly over 50% of mothers initiated *exclusive* breastfeeding during the early postpartum period in 2011. Hispanic mothers were the least likely to initiate *exclusive* breastfeeding.
- Up to 30% of students did not eat any fruit in the past 24 hours.
- Up to 42% of students did not eat any vegetables in the past 24 hours.
- Up to 67% of students did not eat breakfast this morning.
- Up to 56% of students ate fast food in the past 24 hours.
- Up to 84% of students drank soda or sweetened beverages in the past 24 hours.
- 15% of households with children in Del Norte County experience very low food security.

## **Implications for Programs, Policy and Research**

A high percentage of youth in Del Norte County are overweight or obese. In the past 2 years, Kindergarten students have shown a significant worsening with an increase of 15 percentage points of those who are overweight or obese. Among low-income children under age 5, Hispanic and American Indian children are generally more likely to experience overweight or obesity than White children in the county.

There are many complex factors that can contribute to childhood overweight and obesity. As shown in Appendix A, many youth in Del Norte County are not receiving enough of the factors that promote healthy weight (physical activity, fruits, vegetables, breast feeding as infants) and are receiving too much of the factors that promote obesity (sedentary activity, skipping breakfast, eating fast food and soda). Programs and policies should aim to increase opportunities for physical activity and healthy eating with a particular focus on very young children and children of color.

There are many efforts currently happening in Del Norte County related to the prevention of childhood obesity. This report provides a baseline and identifies groups that may need more targeted efforts. The data presented in this report should be monitored over time to determine if programs and policies are making a difference. Future work will summarize the programs and policies currently being employed in the county and will make recommendations for next steps in preventing childhood obesity.

## **Background**

Del Norte County and the adjacent tribal lands (DNATL) is one of fourteen places in California participating in Building Healthy Communities (BHC), a ten-year initiative of The California Endowment (TCE). The goal of BHC is to “support the development of communities where kids and youth are healthy, safe and ready to learn.”<sup>6</sup> One of the big results the initiative is aiming for is a decrease in childhood obesity. This report was prepared by the California Center for Rural Policy (CCRP) to provide some baseline information about childhood obesity in Del Norte County.

## **Why Childhood Obesity Matters**

Childhood obesity has become one of the most pressing public health issues.<sup>1</sup> An extensive body of research shows that being overweight or obese is associated with multiple diseases and high health care costs.<sup>2-5</sup> As the seventh leading cause of death in the U.S., being overweight or obese increases the risk for heart disease, gallbladder disease, type 2 diabetes, high blood pressure, stroke, osteoarthritis, respiratory problems, and some types of cancer.<sup>2-5</sup> In addition to health problems, overweight and obese school-aged children are more likely to be victims or perpetrators of bullying, have a greater risk for school absenteeism, and lower grade point averages compared to their healthy-weight peers.<sup>7-10</sup>

The roots of the childhood obesity epidemic are multifactorial and complex with contributions from individual behaviors, genes, home environment, media, schools, and the community. Excess calorie consumption (large portions, soda, fast food) combined with sedentary activities (television, video games, Internet), and too little physical activity can lead to overweight and obese children.<sup>1</sup> Societal factors play a critical role in whether or not the environment supports health or promotes overweight and obesity. Poverty, food insecurity, and poor access to supermarkets with healthy affordable foods can cause families to consume foods that are inexpensive with high caloric and low nutritional value.<sup>1</sup> Built environments without safe convenient places for active transportation and lack of physical education in schools can lead to children not obtaining adequate levels of physical activity. Additionally, parental neglect and childhood stress and depression are predictors of childhood overweight and adulthood obesity.<sup>11,12</sup>

### **Childhood Overweight & Obesity Contributing Factors**

Not being breast fed as an infant<sup>13,14</sup>

Not eating breakfast<sup>15,16</sup>

Drinking soda and sugary beverages<sup>1</sup>

Consumption of excess “empty-calories” (fast foods, junk foods)<sup>1</sup>

Not enough nutrient-dense foods (fruits and vegetables)<sup>1</sup>

Not enough physical activity<sup>1</sup>

Lack of daily participation in school PE classes<sup>1</sup>

Too much sedentary activity<sup>1</sup>

Parental neglect<sup>11,12</sup>

Childhood stress & depression<sup>11,12</sup>

Poverty, Low-Income<sup>1</sup>

Food insecurity<sup>1</sup>

Lack of access to supermarkets with healthy affordable food<sup>1</sup>

Lack of access to safe convenient places to be physically active<sup>1</sup>

Media promotion of non-nutritious, high-fat, high-sugar foods (most influential among young children)<sup>1</sup>

# **Measuring Childhood Obesity in Del Norte County**

This report contains information about childhood obesity in Del Norte County. Two data sources are used to measure the extent of the problem. Both of the data sources rely on direct measurements of children's height and weight by trained professionals. Direct measurements provide a more accurate estimate of overweight and obesity compared to indirect measurements such as self or parent reports.

The first data source is from the Del Norte County Unified School District (DNCUSD) and County Office of Education (COE).<sup>a</sup> School nurses have been measuring height and weight of students for many years. In 2012 a specific protocol was developed to ensure accurate and reliable data collection. During the 2011-12 school year new equipment was obtained and the protocol was implemented. As such, the 2011-12 school year is being used as the baseline. School nurses are measuring height and weight of students in kindergarten, first, third, fifth, seventh, and ninth grades at all schools in the DNCUSD and COE. Measurements are being obtained during the months of February, March, and April each year. Based on a review of the literature regarding school-based body mass index (BMI) measurements, the Children's Health Collaborative recommended that schools in Del Norte County conduct BMI surveillance (to identify trends in groups) rather than screening (to identify and refer individuals).

The second data source is the Pediatric Nutrition Surveillance System (PedNSS).<sup>17</sup> In California the data come from clinics who serve children participating in the Child Health and Disability Prevention (CHDP) Program. The target population is low-income children birth through 19 years of age. Overweight and obesity prevalence reports are produced by the Centers for Disease Control and Prevention (CDC). Unfortunately, no comparison data exists for non low-income children.

BMI is a proxy for body fat and is calculated based on an individual's weight and height. Taking into account age and sex, BMI is categorized as underweight (less than 5<sup>th</sup> percentile), healthy weight (5<sup>th</sup> to 85<sup>th</sup> percentile), overweight (85<sup>th</sup> to 95<sup>th</sup> percentile) or obese (95<sup>th</sup> percentile or greater). The CDC provides spreadsheets for schools, child care, and other professionals who want to compute BMI-for-age for groups of children at [http://www.cdc.gov/healthyweight/assessing/bmi/childrens\\_bmi/tool\\_for\\_schools.html](http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/tool_for_schools.html). Child, teen, and adult BMI calculators are also available at <http://www.cdc.gov/healthyweight/assessing/index.html>.

This report focuses on answering the following questions about childhood obesity in Del Norte County:

- What is the prevalence of childhood overweight and obesity in the county?
- How does Del Norte County compare to the rest of the state?
- Are certain groups of children more likely to experience overweight or obesity than others?

## **What does it mean to be statistically significant?**

Whenever comparisons are made between groups there is always the possibility of finding a difference simply by chance. In research we like to find "true" differences and not differences that have occurred by chance. By convention, most researchers use a significance level of 90 to 95% to determine if a difference is significant. This means there is less than a 5 to 10% probability that the difference observed has occurred by chance alone. For this analysis, tests of statistical significance were conducted where appropriate.

<sup>a</sup> Del Norte County Unified School District (DNCUSD) includes: Bess Maxwell, Crescent Elk, Del Norte High, Joe Hamilton, Margaret Keating, Mary Peacock, Mountain, Pine Grove, Redwood, Smith River and Sunset High. County Office of Education (COE) includes: Bar-O Boys Ranch, Castle Rock Charter, Community Day School, Elk Creek- Juvenile Hall, and McCarthy Center.

## Findings

Analysis of childhood obesity is presented in the following order:

- Del Norte County Unified School District by grade
- Del Norte County Unified School District by race/ethnicity
- Low-Income children by age
- Low-Income children by race/ethnicity
- Del Norte County Unified School District compared to County Office of Education

Appendix A presents data for factors that may play a role in childhood obesity in Del Norte County.

### **Del Norte County Unified School District — Obesity by Grade**

In 2012-13, a total of 1,476 students in the Del Norte County Unified School District were weighed and measured. Of these, 23% were obese, 20% overweight, 56% healthy weight, and 1% underweight (Exhibit 1). Combined, 43% of the students were overweight or obese. Third grade students had the highest percent of overweight or obese (49%), followed by fifth grade (46%), kindergarten (45%), seventh grade (44%), first grade (38%), and ninth grade (37%) (Exhibit 2). Comparing measurements from 2011-12 and 2012-13, for all students combined there was a **slight increase** in the percent of children who were overweight or obese (41% to 43%), however, this change is **not** statistically significant (it could have occurred by chance). **The most notable change was among kindergarten children, which showed a worsening from 30% to 45% overweight or obese between 2011-12 and 2012-13.** This difference was statistically significant, meaning there is less than a 5% probability that the observed difference has occurred by chance. Other grades showed slight changes, but none were statistically significant (Exhibit 3).

**Exhibit 1. Del Norte County Unified School District: BMI Measurements by Grade, 2012-13**

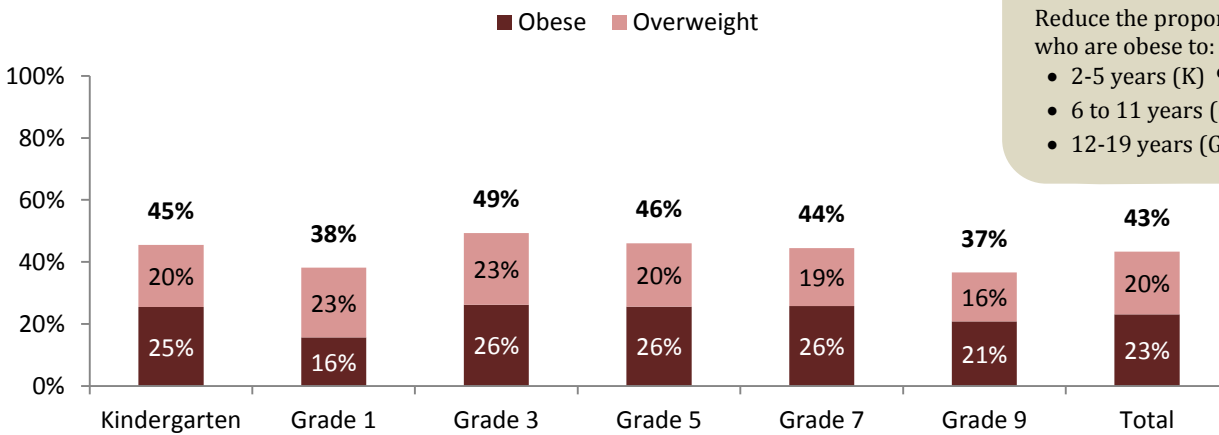
Grade	Obese		Overweight		Healthy		Underweight		Total
	n	%	n	%	n	%	n	%	n
Kindergarten	65	25%	51	20%	137	54%	2	1%	255
Grade 1	45	16%	65	23%	173	60%	5	2%	288
Grade 3	60	26%	53	23%	113	49%	3	1%	229
Grade 5	64	26%	51	20%	132	53%	3	1%	250
Grade 7	65	26%	47	19%	139	55%	1	0%	252
Grade 9	42	21%	32	16%	126	62%	2	1%	202
<b>Total</b>	<b>341</b>	<b>23%</b>	<b>299</b>	<b>20%</b>	<b>820</b>	<b>56%</b>	<b>16</b>	<b>1%</b>	<b>1476</b>

Data Source: Del Norte County Unified School District

Notes: Del Norte County Unified School District includes: Bess Maxwell, Crescent Elk, Del Norte High, Joe Hamilton, Margaret Keating, Mary Peacock, Mountain, Pine Grove, Redwood, Smith River and Sunset High.



**Exhibit 2. Del Norte County Unified School District:  
Percent of Students who are Overweight or Obese by Grade,  
2012-2013**



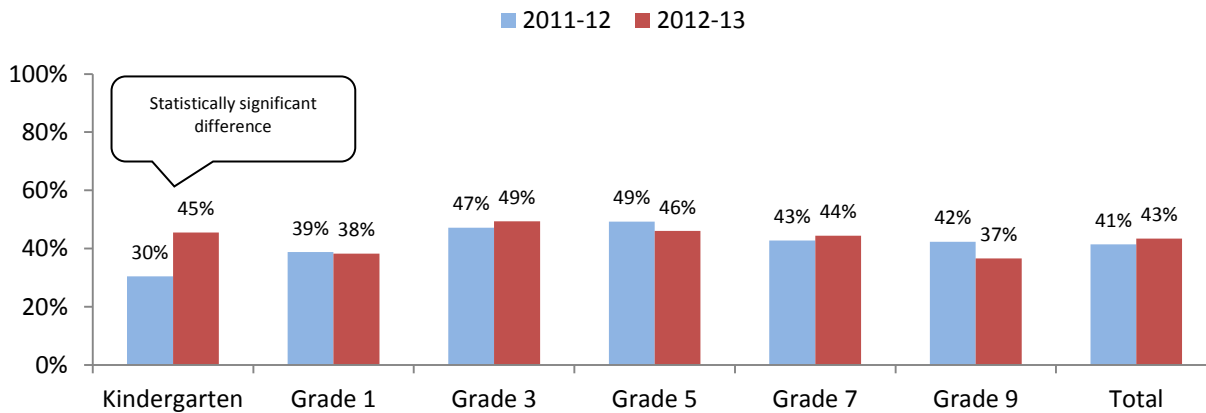
**Healthy People  
2020 Goal:**  
Reduce the proportion of children who are obese to:

- 2-5 years (K) **9.6%**
- 6 to 11 years (Grade 1-5) **15.7%**
- 12-19 years (Grade 7-12) **16.1%**

Data Source: Del Norte County Unified School District

Notes: Overweight is defined as a BMI-for-age between the 85<sup>th</sup> and 95<sup>th</sup> percentiles. Obese is defined as a BMI-for-age at or above the 95<sup>th</sup> percentile. Del Norte County Unified School District includes: Bess Maxwell, Crescent Elk, Del Norte High, Joe Hamilton, Margaret Keating, Mary Peacock, Mountain, Pine Grove, Redwood, Smith River and Sunset High.

**Exhibit 3. Del Norte County Unified School District:  
Percent of Students who are Overweight or Obese by Grade,  
2011-12 and 2012-13**



Data Source: Del Norte County Unified School District

Notes: Overweight is defined as a BMI-for-age between the 85<sup>th</sup> and 95<sup>th</sup> percentiles. Obese is defined as a BMI-for-age at or above the 95<sup>th</sup> percentile. Del Norte County Unified School District includes: Bess Maxwell, Crescent Elk, Del Norte High, Joe Hamilton, Margaret Keating, Mary Peacock, Mountain, Pine Grove, Redwood, Smith River and Sunset High. Between 2011-12 and 2012-13, there was a statistically significant difference (at the 95% level) in the percent of kindergarten students who were overweight or obese. The difference between years for the other grades and the district total was not statistically significant.

## Del Norte County Unified School District — Obesity by Race/Ethnicity

Analysis by race/ethnicity was conducted to determine if certain groups of students are more likely to experience overweight or obesity than others. To avoid unstable estimates, only race/ethnicities with more than 20 students were analyzed separately. Race/ethnicities with small numbers were combined into “other” and include Black/African American, Asian Indian, Chinese, Filipino, Korean, Laotian, Other Asian, Other Pacific Islander, and Vietnamese. This combination of racial/ethnic groups showed the highest percent overweight or obese (52%), followed by American Indian (46%), Hispanic (44%), White (42%), and Hmong (41%); however, none of these differences are statistically significant (Exhibits 4 & 5).

**Exhibit 4. Del Norte County Unified School District: BMI Measurements by Race/Ethnicity, 2012-13**

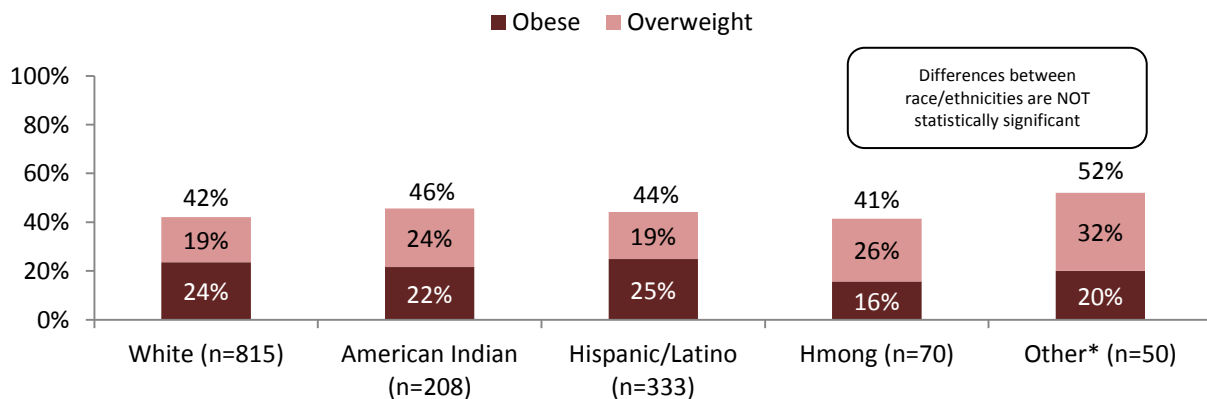
Race/Ethnicity	Obese		Overweight		Healthy		Underweight		Total
	n	%	n	%	n	%	n	%	n
White	192	24%	151	19%	467	57%	5	1%	815
American Indian/ Alaskan Native	45	22%	50	24%	111	53%	2	1%	208
Hispanic	83	25%	64	19%	178	53%	8	2%	333
Hmong	11	16%	18	26%	40	57%	1	1%	70
Other*	10	20%	16	32%	24	48%	0	0%	50
<b>Total</b>	<b>341</b>	<b>23%</b>	<b>299</b>	<b>20%</b>	<b>820</b>	<b>56%</b>	<b>16</b>	<b>1%</b>	<b>1476</b>

Data Source: Del Norte County Unified School District

Notes: Overweight is defined as a BMI-for-age between the 85<sup>th</sup> and 95<sup>th</sup> percentiles. Obese is defined as a BMI-for-age at or above the 95<sup>th</sup> percentile. Del Norte County Unified School District includes: Bess Maxwell, Crescent Elk, Del Norte High, Joe Hamilton, Margaret Keating, Mary Peacock, Mountain, Pine Grove, Redwood, Smith River and Sunset High.

\*Race/Ethnicities with less than 20 students are not shown separately due to unstable numbers. These are combined into “other” and include Black/African American, Asian Indian, Chinese, Filipino, Korean, Laotian, Other Asian, Other Pacific Islander, and Vietnamese.

**Exhibit 5. Del Norte County Unified School District:  
Percent of Students who are Overweight or Obese by Race/Ethnicity,  
2012-2013 (Grades K, 1, 3, 5, 7, 9)**



Data Source: Del Norte County Unified School District

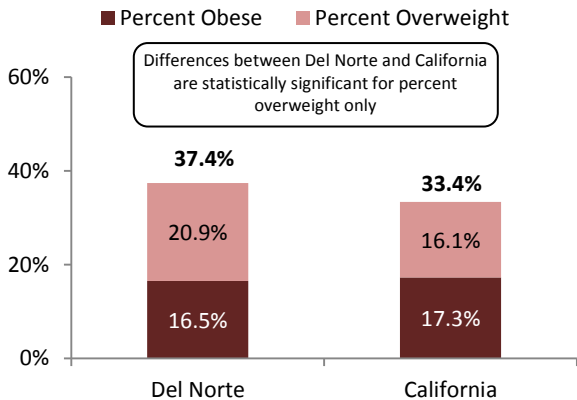
Notes: Overweight is defined as a BMI-for-age between the 85<sup>th</sup> and 95<sup>th</sup> percentiles. Obese is defined as a BMI-for-age at or above the 95<sup>th</sup> percentile. Del Norte County Unified School District includes: Bess Maxwell, Crescent Elk, Del Norte High, Joe Hamilton, Margaret Keating, Mary Peacock, Mountain, Pine Grove, Redwood, Smith River and Sunset High. None of the differences by race/ethnicity are statistically significant.

\*Race/Ethnicities with less than 20 students are not shown separately due to unstable numbers. These are combined into “other” and include Black/African American, Asian Indian, Chinese, Filipino, Korean, Laotian, Other Asian, Other Pacific Islander, and Vietnamese.

## Low-Income Children — Obesity by Age

Data from the Pediatric Nutrition Surveillance System allows for comparison of Del Norte with California as a whole for low-income children. The data contain information about low-income children birth through 19 years of age. A higher percent of low-income children aged 2 to 4 years in Del Norte County are overweight or obese (37.4%) compared to California (33.4%); however, the difference is only statistically significant for the percent overweight (Exhibit 6). Between 2007 and 2010 this percent has increased slightly in Del Norte County and remained fairly stable in California (Exhibit 7). Among children aged 5 to 19 years, the percent of low-income children who are overweight or obese in Del Norte County (41.8%) is similar to California (42%) (Exhibits 8 & 9). Unfortunately, no comparison data exists for non low-income children.

**Exhibit 6.**  
Prevalence of Overweight and Obesity  
Among Low-Income Children  
Aged 2-4 Years, 2010

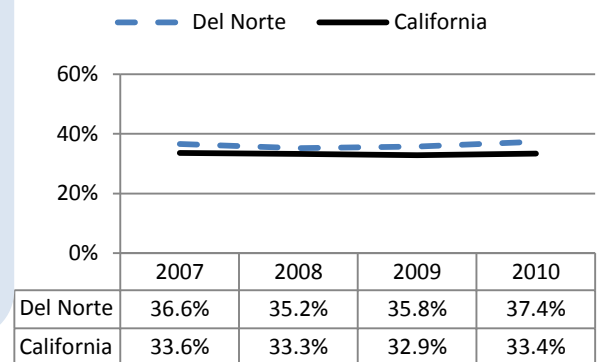


**2010 Del Norte Ranking**  
Compared to other California counties/places (1=best; 62=worst)

Overweight 2-4 yr olds = **60**

Obese 2-4 yr olds = **33**

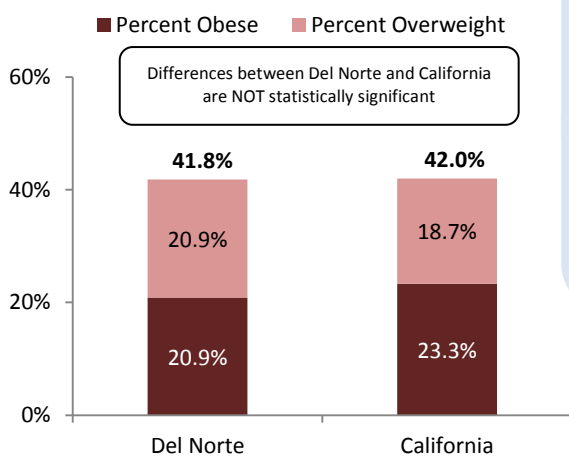
**Exhibit 7.**  
Overweight and Obesity Prevalence Trends Among Low-Income Children Aged 2-4 Years



Data Source: Pediatric Nutrition Surveillance System <http://www.dhcs.ca.gov/services/chdp/Pages/CountySurveillanceData.aspx>

Notes: This is a national surveillance system. In California data comes from clinic data of individuals who participate in the Child Health and Disability Prevention (CHDP) Program. The target population is low-income children birth through 19 years of age. Prevalence reports are produced by the Centers for Disease Control and Prevention. The difference in combined overweight and obese 2-4 year olds was not statistically significant between Del Norte and California. There was a statistically significant difference (at the 90% level) between the percent of 2-4 year olds who were overweight in Del Norte compared to California.

**Exhibit 8.**  
Prevalence of Overweight and Obesity  
Among Low-Income Children  
Aged 5-19 Years, 2010

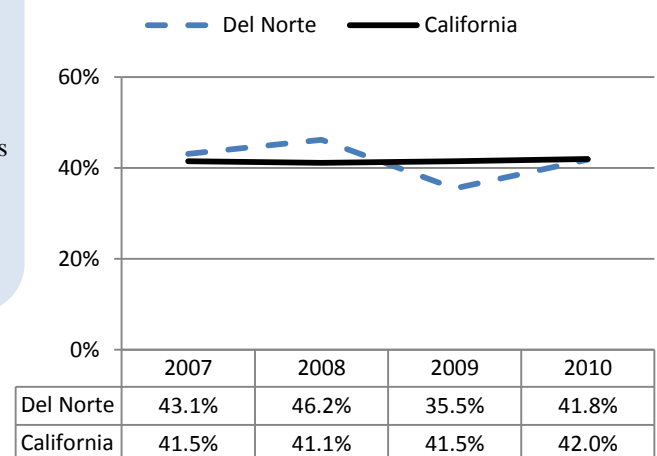


**2010 Del Norte Ranking**  
Compared to other California counties/places (1=best; 62=worst)

Overweight 5-19 yr olds = **53**

Obese 5-19 yr olds = **15**

**Exhibit 9.**  
Overweight and Obesity Prevalence Trends Among Low-Income Children Aged 5-19 Years



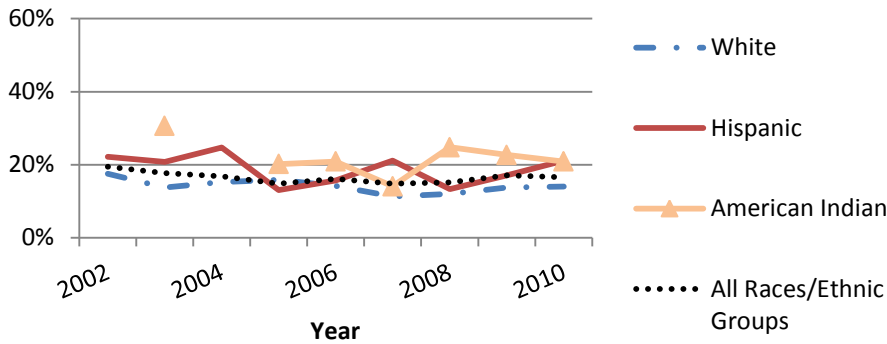
Data Source: Pediatric Nutrition Surveillance System <http://www.dhcs.ca.gov/services/chdp/Pages/CountySurveillanceData.aspx>

Notes: This is a national surveillance system. In California data comes from clinic data of individuals who participate in the Child Health and Disability Prevention (CHDP) Program. The target population is low-income children birth through 19 years of age. Prevalence reports are produced by the Centers for Disease Control and Prevention.

## Low-Income Children — Obesity by Race/Ethnicity

Data from the Pediatric Nutrition Surveillance System from 2002 to 2010 show generally higher rates of obesity among low-income American Indian and Hispanic children under 5 years of age compared to White children (Exhibit 10). There is insufficient data for analysis by race/ethnicity for older children. Unfortunately, no comparison data exists for non low-income children.

**Exhibit 10.**  
**Percent of Low-Income Children with Obesity by Race/Ethnicity (age <5 years) Del Norte County**



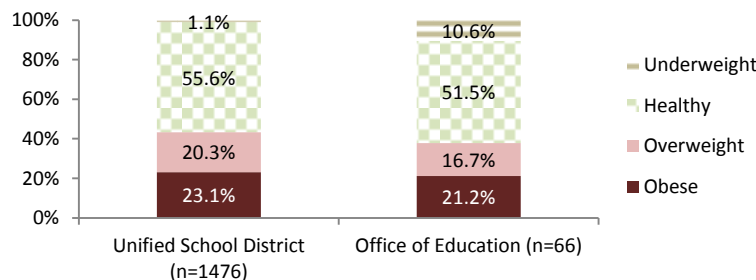
**2010:**  
 Among low-income children under age 5, the percent of Hispanic and American Indian children with obesity is significantly higher than White children.

Data Source: Pediatric Nutrition Surveillance System <http://www.dhcs.ca.gov/services/chdp/Pages/CountySurveillanceData.aspx>  
 Notes: This is a national surveillance system. In California data comes from clinic data of individuals who participate in the Child Health and Disability Prevention (CHDP) Program. The target population is low-income children birth through 19 years of age. Prevalence reports are produced by the Centers for Disease Control and Prevention. In 2002 and 2004 there were less than 100 American Indian children with measurements, so percentages are not available. In 2010, the differences between White and Hispanic and White and American Indian children were statistically significant (at the 90% level).

## Del Norte County Unified School District vs. County Office of Education

BMI measurements were compared between DNCUSD students and COE students. DNCUSD students showed a slightly higher percent of overweight or obese students (43.4%) compared to COE students (37.9%); however, the difference is not statistically significant. Conversely, COE students showed a higher percent of underweight students (10.6%) compared to DNCUSD students (1.1%) and this difference was statistically significant (Exhibit 11). In depth analysis of COE students by grade and race/ethnicity was not possible due to low numbers.

**Exhibit 11.**  
**Body Mass Index Comparison: Del Norte County Unified School District vs. County Office of Education: 2012-13**



Differences between DNCUSD and COE are statistically significant for the percent of students who are underweight only.

Data Source: Del Norte County Unified School District  
 Notes: Del Norte County Unified School District includes: Bess Maxwell, Crescent Elk, Del Norte High, Joe Hamilton, Margaret Keating, Mary Peacock, Mountain, Pine Grove, Redwood, Smith River and Sunset High. County Office of Education includes: Bar-O Boys Ranch, Castle Rock Charter, Community Day School, Elk Creek- Juvenile Hall, and McCarthy Center. There was a statistically significant difference (at the 95% level) between the percent of students who were underweight in DNCUSD and COE.

## **Implications for Programs, Policy and Research**

A high percentage of youth in Del Norte County are overweight or obese. In the past 2 years, Kindergarten students have shown a significant worsening with an increase of 15 percentage points of those who are overweight or obese. Among low-income children under age 5, Hispanic and American Indian children are generally more likely to experience overweight or obesity than White children in the county.

There are many complex factors that can contribute to childhood overweight and obesity. As shown in Appendix A, many youth in Del Norte County are not receiving enough of the factors that promote healthy weight (physical activity, fruits, vegetables, breast feeding as infants) and are receiving too much of the factors that promote obesity (sedentary activity, skipping breakfast, eating fast food and soda). Programs and policies should aim to increase opportunities for physical activity and healthy eating with a particular focus on very young children and children of color.

There are many efforts currently happening in Del Norte County related to the prevention of childhood obesity. This report provides a baseline and identifies groups that may need more targeted efforts. The data presented in this report should be monitored over time to determine if programs and policies are making a difference. Future work will summarize the programs and policies currently being employed in the county and will make recommendations for next steps in preventing childhood obesity.



## References

1. American Public Health Association <http://www.apha.org/programs/resources/obesity/>. Accessed June, 2013.
2. Healthy People: <http://www.healthypeople.gov>. Accessed June, 2013.
3. Kopelman, P. Health risks associated with overweight and obesity. *Obes Rev.* 2007;8(suppl. 1):13-17.
4. McCormick B, Stone I. Economic costs of obesity and the case for government intervention. *Obes Rev.* 2007;8(suppl.1):161-164.
5. Wellman N, Friedberg B. Causes and consequences of adult obesity: Health, social, and economic impacts in the United States. *Asia Pac J Clin Nutr.*2002;11(suppl):S705-S709.
6. The California Endowment. <http://www.calendow.org/healthycommunities/index.html>
7. Davis C, Cooper S. Fitness, fatness, cognition, behavior, and academic achievement among overweight children: Do cross-sectional associations correspond to exercise trial outcomes? *Preventive Medicine.* 2011;52 Supplement(0): S65-S69.
8. Shore S, Sachs M, Lidicker J, Brett S, Wright A, Libonati J. Decreased scholastic achievement in overweight middle school students. *Obesity.*2008; 16: 7, 1535-1538.
9. Geier A, Foster G, Womble L, McLaughlin J, Borradile K, et al. The relationship between relative weight and school attendance among elementary schoolchildren. *Obesity.* 15 (2007): 2157-2161.
10. Janssen I, Craig W, Boyce W, Pickett W. Associations between overweight and obesity with bullying behaviors in school-aged children. *Pediatrics.* 2004;113:1187-1194. <http://www.pediatricsdigest.mobi/content/113/5/1187.abstract> Accessed June, 2013.
11. Lissau, I, Sorensen T. Parental neglect during childhood and increased risk of obesity in young adulthood. *The Lancet.* 1994; 343 (8893), 324-327.
12. Pine, D., Goldstein, R., Wolk, S., & M. Weissman. The association between childhood depression and adulthood body mass index. *Pediatrics.*2001;107 (5):1049-1056.
13. Ip S, Chung M, Raman G, et al. Breastfeeding and maternal and infant health outcomes in developed countries. Evidence Report/Technology Assessment No. 153 AHRQ Publication, 2007.
14. Metzger M, Mcdade T. Breastfeeding as obesity prevention in the United States: a sibling difference model. *Am J Hum Biol.*2010;22:291-296.
15. Smith KJ, Gall SL, McNaughton SA, Blizzard L, Dwyer T, Venn A. Skipping breakfast: longitudinal associations with cardiometabolic risk factors in the childhood determinants of adult health study. *Am J Clin Nutr.* 2010;92:1316-1325.
16. Deshmukh-Taskar PR, Nicklas TA, O'neil CE, Keast DR, Radcliffe J, Cho S. The relationship of breakfast skipping and type of breakfast consumption with nutrient intake and weight status in children and adolescents: the National Health and Nutrition Examination Survey 1999-2006. *J Amer Diet Assoc.* 2010;110(10):869-877.
17. Pediatric Nutrition Surveillance System <http://www.cdc.gov/pednss/>
18. Hoyland A, Dye L, Lawton C. A systematic review of the effect of breakfast on the cognitive performance of children and adolescents. *Nutr Res Rev.* 2009:220-43.
19. Ludwig D, Peterson K, Gortmaker S. Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective, observational analysis. *Lancet.* 2001;357:505-508.
20. Stuff J, Casey P, Szeto K, et al. Household food insecurity is associated with adult health status. *J Nutr.* 2004;134(9):2330-2335.
21. Martin K, Ferris A. Food insecurity and gender are risk factors for obesity. *J Nutr Educ Behav.* 2007;39:31-36.
22. Seligman H, Bindman A, Vittinghoff E, Kanaya A, Kushel M. Food insecurity is associated with diabetes mellitus: results from the national health examination and nutrition examination survey (NHANES) 199-2002. *Society of Internal Medicine.* 2007;22:1018-1023.
23. Casey PH, Simpson PM, Gossett JM, et al. The association of child and household food insecurity with childhood overweight status. *Pediatrics.* 2006;118(5): e1406-13.

## Appendix A

# A Look at Factors that May Play a Role in Childhood Obesity in Del Norte County

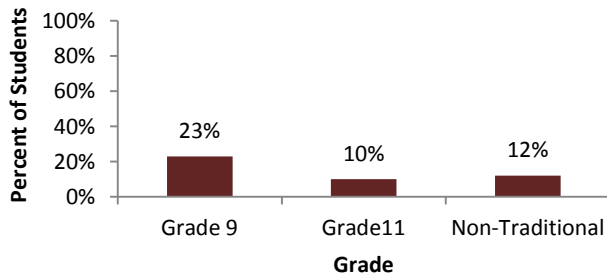
## Physical Activity

- Less than ¼ of the students are meeting the physical activity recommendations.
- Over 75% of students have non-active transport to and from school.
- As few as 16% of students have 5 days or more of physical education classes at school.

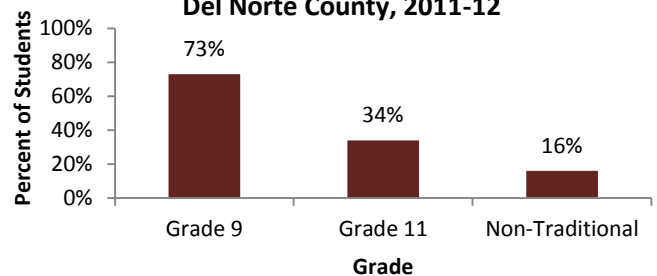
**Recommendation:**  
**60 minutes or more of physical activity each day.**

Centers for Disease Control and Prevention

**Percent of Students Meeting Physical Activity Recommendation: Del Norte County, 2011-12**



**Percent of Students with 5 or More Days of Physical Education Classes During the Past Week: Del Norte County, 2011-12**



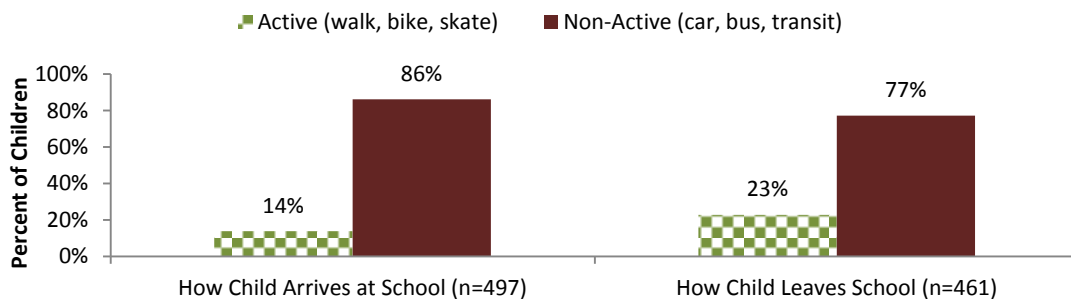
Source: *California Healthy Kids Survey: Del Norte County and Adjacent Tribal Lands*

*Health Communities Report, 2011-2012.* WestEd Health & Human Development Program for The California Endowment.

Notes: This analysis is for the question, “On how many of the past 7 days did you exercise or do physical activity that breaks a sweat for a total of at least 60 minutes a day?” and, “On how many of the past 7 days did you have a physical education class during school?”

Non-Traditional schools include continuation, community day and alternative schools. Charter schools are included with the Traditional schools.

**How Children Get to and From School on Most Days: Active vs. Non-Active Del Norte County, 2012**

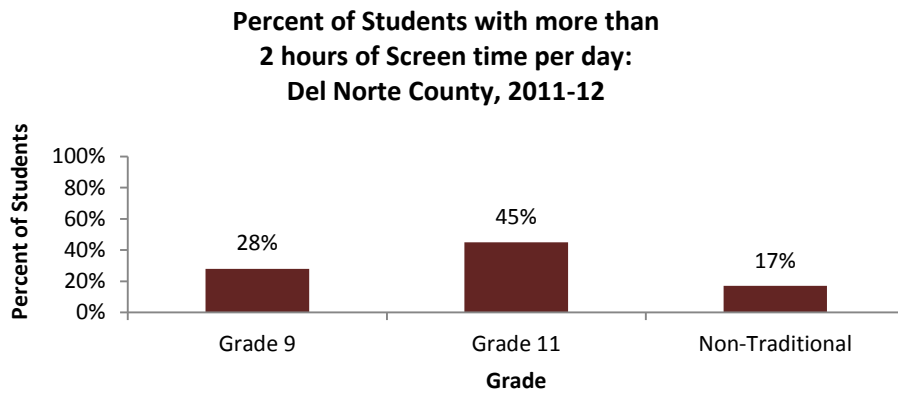


Source: National Safe Routes to School Parent Survey, Del Norte County, October 2012

Notes: In October 2012, The Del Norte Local Transportation Commission coordinated an effort to assess travel to and from school among a sample of six schools in Del Norte County (Bess Maxwell Elementary, Mary Peacock Elementary, Del Norte High School, Klamath River Early College of the Redwoods Crescent City Campus, Castle Rock Charter School, and McCarthy Center. This analysis was for the question, “On most days, how does your child arrive at school and leave from school?” Responses were coded as “Active” if child walked, biked, or skated and “Non-Active” if child went in a car, bus, or other transit method.

## Screen Time

- Up to 45% of students have over 2 hours of screen time per day.



“The amount of time spent watching television, surfing the web, or playing video games correlates significantly with childhood overweight.”

American Public Health Association

**Recommendation:**  
No more than 1 to 2 hours of screen time per day.

The American Academy of Pediatrics

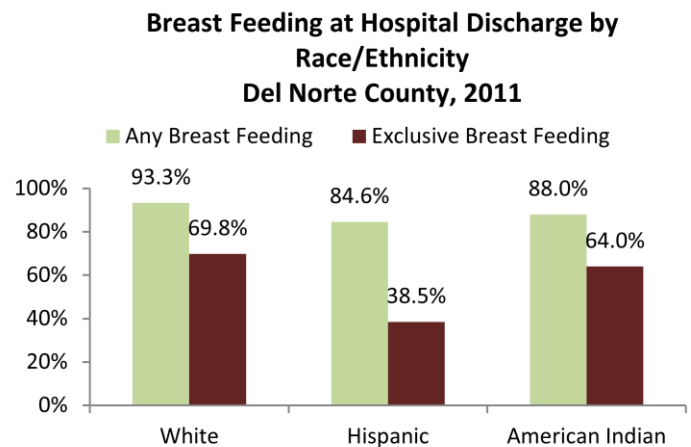
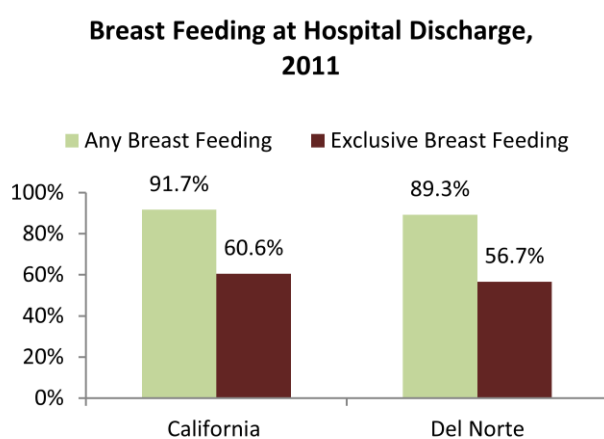
Source: *California Healthy Kids Survey: Del Norte County and Adjacent Tribal Lands Building*

*Health Communities Report, 2011-2012.* WestEd Health & Human Development Program for The California Endowment.

Notes: This analysis is for the question, “On an average school day, about how many hours do you watch TV, play video games, or use a computer for fun?” Non-Traditional schools include continuation, community day and alternative schools. Charter schools are included with the Traditional schools.

## Breast Feeding

- Slightly over 50% of mothers initiated *exclusive* breastfeeding during the early postpartum period in 2011.
- Hispanic mothers were the least likely to initiate *exclusive* breastfeeding.



Breast feeding is associated with lower rates of obesity and numerous other health benefits.<sup>13</sup>  
Breast feeding is an important public health approach to obesity prevention.<sup>14</sup>

**Recommendation:**  
Exclusive breastfeeding for the first 6 months of life.

The American Academy of Pediatrics

Source: *California Department of Health Services, Center for Health Statistics.* <http://www.cdph.ca.gov/data/statistics/Pages/BreastfeedingStatistics.aspx>

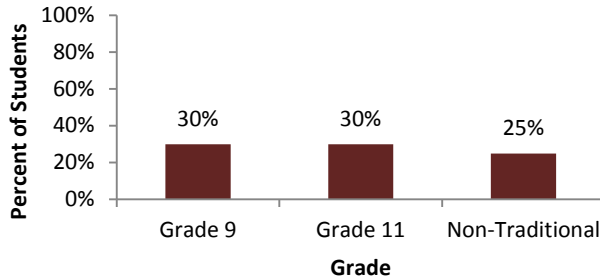
Notes: Only race/ethnicities with more than 20 people are shown.



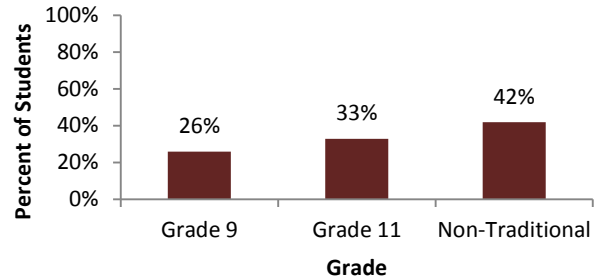
# Fruits and Vegetables

- Up to 30% of students did not eat any fruit in the past 24 hours.
- Up to 42% of students did not eat any vegetables in the past 24 hours.

**Percent of Students who Did Not Eat Any Fresh Fruit in the Past 24 Hours: Del Norte County, 2011-12**



**Percent of Students who Did Not Eat Any Vegetables in the Past 24 Hours: Del Norte County, 2011-12**

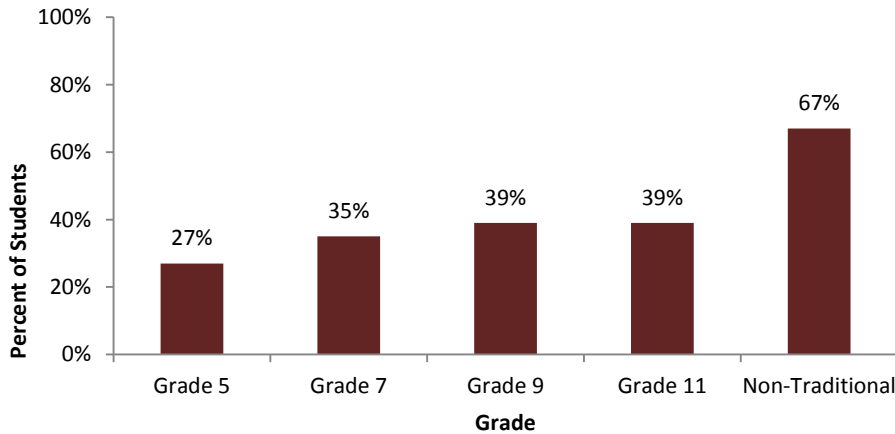


Source: *California Healthy Kids Survey: Del Norte County and Adjacent Tribal Lands Building Health Communities Report, 2011-2012*. WestEd Health & Human Development Program for The California Endowment.  
 Notes: This analysis is for the question, “During the past 24 hours, how many times did you eat raw or whole fruit?” and , “During the past 24 hours, how many times did you eat vegetables?” Traditional schools include continuation, community day and alternative schools. Charter schools are included with the Traditional schools.

# Breakfast

- Up to 67% of students did not eat breakfast this morning.

**Percent of Students who Did Not Eat Breakfast this Morning: Del Norte County, 2011-12**



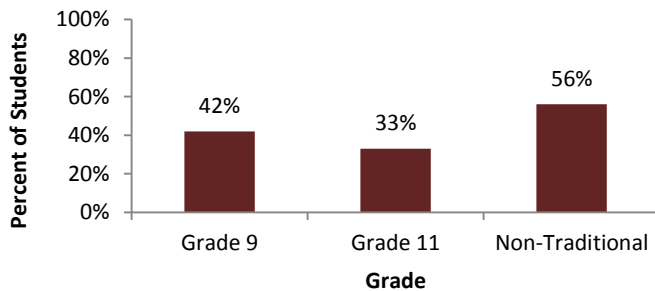
Skipping breakfast is associated with many health risks, including obesity, reduced intake of essential nutrients, higher cholesterol levels, and higher fasting insulin.<sup>15,16</sup> Breakfast consumption has positive effects on cognitive performance among children.<sup>18</sup>

Source: *California Healthy Kids Survey: Del Norte County and Adjacent Tribal Lands Building Health Communities Report, 2011-2012*. WestEd Health & Human Development Program for The California Endowment.  
 Notes: This analysis is for the question, “Did you eat breakfast this morning?”  
 Non-Traditional schools include continuation, community day and alternative schools. Charter schools are included with the Traditional schools.

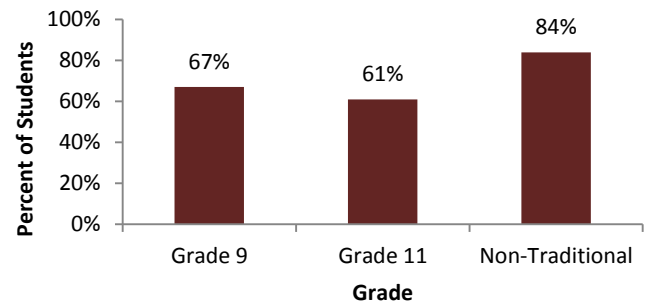
## Fast Food & Soda

- Up to 56% of students ate fast food in the past 24 hours.
- Up to 84% of students drank soda or sweetened beverages in the past 24 hours.

**Percent of Students who ate Fast Food  
1 or more times in the Past 24 hours:  
Del Norte County, 2011-12**



**Percent of Students who Drank Soda or  
Sweetened Beverage  
1 or more times in the Past 24 hours:  
Del Norte County, 2011-12**



Each additional 12 oz. soda consumed per day by children increases the odds of becoming obese by 60%.<sup>19</sup>

Source: *California Healthy Kids Survey: Del Norte County and Adjacent Tribal Lands Building*

*Health Communities Report, 2011-2012.* WestEd Health & Human Development Program for The California Endowment.

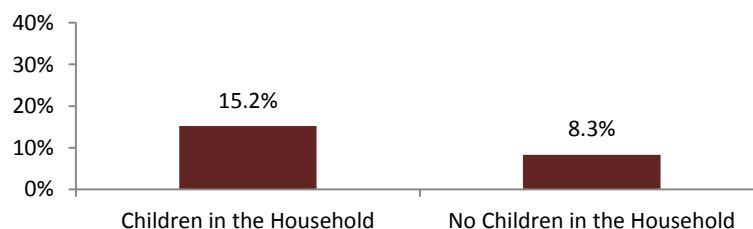
Notes: This analysis is for the question, “During the past 24 hours, how many times did you eat fast food?” and , “During the past 24 hours, how many times did you drink a glass or can of sweetened soda, a sports drink, or other sweetened soft drink?”

Non-Traditional schools include continuation, community day and alternative schools. Charter schools are included with the Traditional schools.

## Food Insecurity

- 15% of households with children in Del Norte County experience very low food security.

**Percent of Households with Hunger (Very Low Food  
Security), Del Norte County, 2006**



Food insecurity increases risk for health problems such as overweight/obesity, diabetes, heart disease, and high blood pressure.<sup>20-23</sup>

Data Source: Rural Health Information Survey, 2006, California Center for Rural Policy

<http://www.humboldt.edu/ccrp/rural-health-information-survey>

This was a mail survey conducted by the California Center or Rural Policy (CCRP) in the 4 counties of Del Norte, Humboldt, Trinity and Mendocino in 2006. CCRP developed a four page survey containing questions about general health, mental health, preventive health, access and utilization of healthcare, transportation, food security, sources of health information and access to phones, electricity, and internet. Surveys were mailed to a random sample of post office box holders in each county and adults 18 or older were asked to participate. The sample size for Del Norte County was 421.

This analysis was for the question, “In the last 12 months were you or people living in your household ever hungry because you couldn’t afford enough food?” Analysis was restricted to respondents who answered yes or no to the question and provided information on children living in the household.



Building Healthy Communities  
<http://www.bhconnect.org/health-happens-here>

Building Healthy Communities is a ten-year initiative of The California Endowment to support the development of communities where kids and youth are healthy, safe and ready to learn.



Please visit the CCRP website for additional reports, briefs and maps.

Humboldt State University  
California Center for Rural Policy  
1 Harpst Street  
Arcata, CA 95521  
(707) 826-3400  
<http://www.humboldt.edu/ccrp/>  
ccrp@humboldt.edu

The California Center for Rural Policy at Humboldt State University is a research and policy center committed to informing policy, building community, and promoting the health and well-being of rural people and environments.

