

# OUARC

The University of Oklahoma Applied Research Center

Tulsa City-County Health Department

*It's All About Kids*

Preliminary Results on Attendance Rates, Mobility Rates, School  
Performance, and Body Mass Index Scores

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Preliminary Results of Tulsa City-County Health Department  
"It's All About Kids" Program  
September 12, 2006

### **Overview and Purpose of Study**

The Tulsa City County Health Department began implementing the It's All About Kids Program in the Spring of 2004. The Program was designed to increase wellness in elementary school children. The Program contains eight components designed to do the following: curb obesity rates, decrease mobility rates (rate of children moving into and leaving the school), increase attendance, decrease suspension rates, improve school performance, enhance social skills, decrease tobacco and illicit drug use, and increase parental involvement. The Program was ultimately implemented in 19 elementary schools located within the Tulsa, Sand Springs, Broken Arrow, and Union school districts. Schools launched the Program on either a "Comprehensive" basis, meaning the schools launched all eight of the Program components; or the schools launched the Program on an "Abbreviated" basis, meaning they launched one or some of the Program components.

This report depicts preliminary results of baseline data analysis for the following:

- Changes in mobility rates
- Changes in Fifth Grade Oklahoma Core Curriculum Test Scores (OCCT scores) for Math and Reading
- Changes in Attendance rates
- Changes in Obesity Rates
- Program School and Community Activities
- Student Knowledge, Attitude, and Behaviors regarding food choices and physical activity

Overall, test scores and attendance rates demonstrated improvement. Obesity rates demonstrated improvement as well. Although obesity appears to be a function of age and gender, in general students who had "Normal" Body Mass Index (BMI) scores had a tendency to remain within the "Normal" range, and students who had "At Risk" BMI scores had a tendency to improve rather than decline. Mobility rates, however, demonstrated an increase during the Program's tenure. The Program was found to have a positive influence on students' knowledge, attitude, and behaviors regarding food choices and physical activity. More analysis is required to determine the Program's long-range effect on obesity rates, as well as the Program's preliminary effect on suspension rates, overall school performance, social skills, tobacco and illicit drug use, and parental involvement. Those studies will be conducted as more data become available.

### **Methodology**

Currently, 19 elementary schools are enrolled in the It's All About Kids Program. The Program launched in six (32%) of the 19 schools between Spring 2004 and Spring 2005. However, in Fall 2005, the Program launched in 12 (63%) of the 19 schools. Such numbers and timing had an impact on the data available for analysis. Attendance, mobility rate, and school performance data for the Fall 2005 (the semester in which the majority of schools launched the Program) and

Spring 2006 school year are not yet available. Therefore, the attendance, mobility rate, and school performance results depicted in this report are considered preliminary in that the data were available for only 32% of the enrolled schools from the time of the Program's launch through the Program's first full year in implementation (Fall 2004 – Spring 2005).

However, with regard to BMI results, data collected from four participating schools during the Fall 2005 and Spring 2006 semesters were available for analysis and are depicted in this report.

In order to determine whether or not a relationship existed between Program implementation and changes in attendance, mobility rates, and school performance, the analysis included data obtained over three years. This report depicts results for 2002-2003 (the year before the Program launched), 2003-2004 (the year the Program launched), and 2004-2005 (the first full year of Program implementation). Data were consistently available for 13 out of the 19 schools.

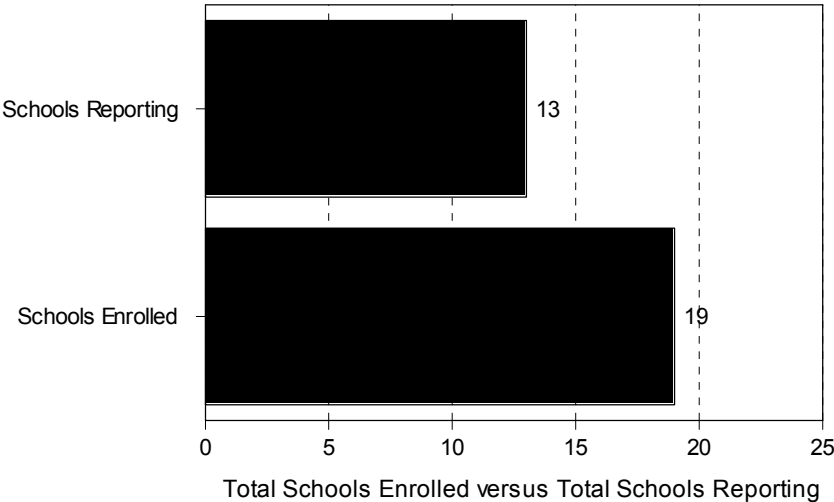
### **Measures**

Mobility rate, attendance, and school performance data were collected from the Tulsa Public School Profile Reports available from the Tulsa Public School District. BMI data were collected by the Tulsa City County Health Department who measured BMI scores in children attending the elementary schools enrolled in the Program.

A total of six schools launched the Program on a "Comprehensive" basis, meaning they launched all eight of the Program components. A total of 13 schools launched the Program on an "Abbreviated" basis, meaning they launched various program components. School performance was operationalized as Fifth Grade OCCT scores due to the availability of consistent data for this particular test and age group.

# It's All About Kids

Total Schools

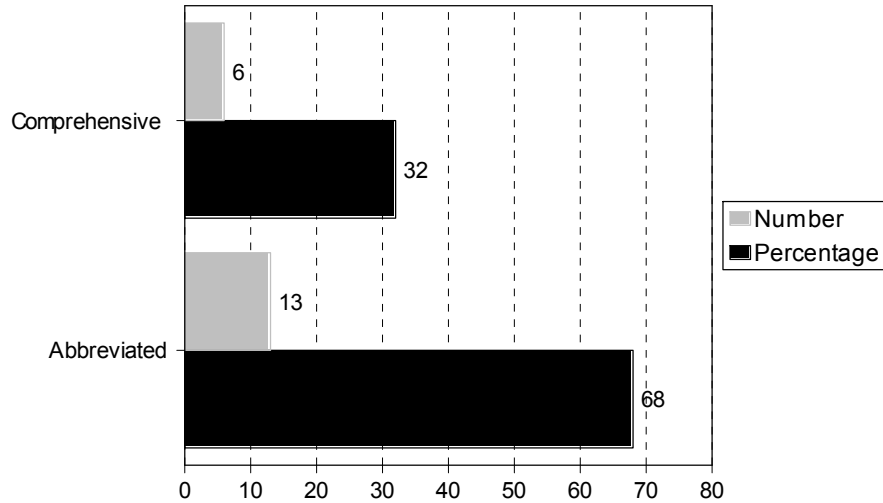


Graph 1: Number of Schools

The graph above depicts the number of schools reporting data for this report and the number of schools enrolled in the It's All About Kids Program. A total of 19 schools are currently enrolled in the Program, and 13 schools provided data for this report.

# It's All About Kids

Number and Percentage of Comprehensive and Abbreviated Schools

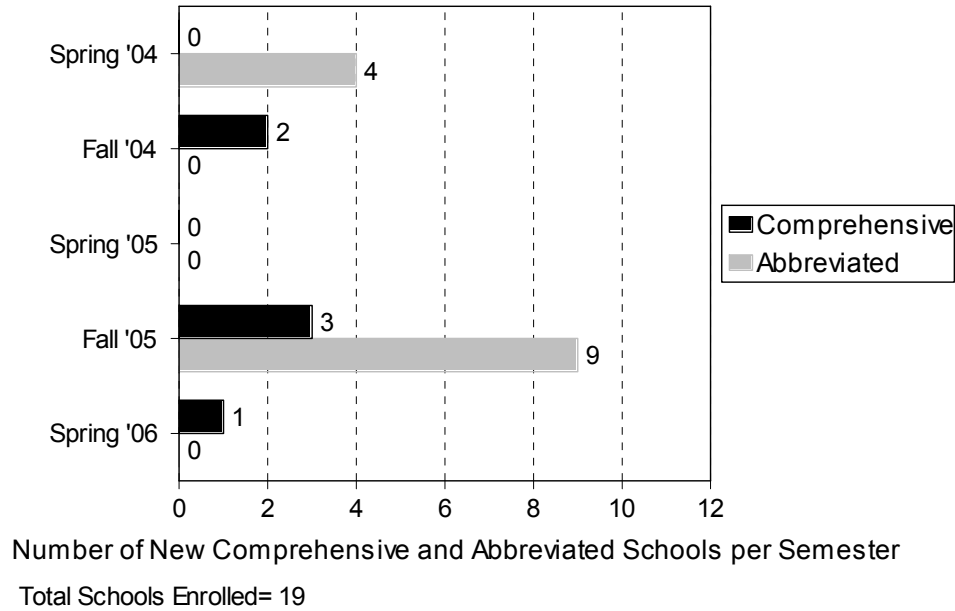


Graph 2 Comprehensive versus Abbreviated Schools

The graph above demonstrates the number and percentages of schools that launched the Program on a Comprehensive or Abbreviated basis. A total of six schools (32%) launched the Program on a Comprehensive basis, meaning they launched all eight of the Program’s components. A total of 13 (68%) schools launched the Program on an Abbreviated Basis, meaning they launched a portion of the Program components.

# It's All About Kids

Number of New Comprehensive and Abbreviated Schools

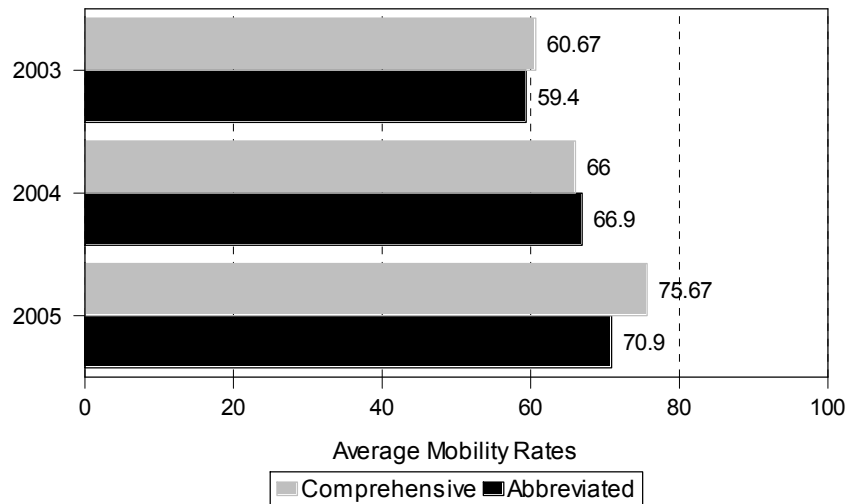


Graph 3 Number of Newly Enrolled Schools per Semester

Currently, 19 schools are enrolled in the It's All About Kids Program. The graph above depicts the number of schools added each semester, on both a Comprehensive and Abbreviated basis. In Spring 2004, the year the Program launched, four schools launched the Program on an Abbreviated basis, and no schools launched the program on a Comprehensive basis. In Fall 2004, two additional schools launched the Program on a Comprehensive basis, while no schools launched the Program on an Abbreviated basis. Schools did not launch the Program on a Comprehensive or Abbreviated basis in Spring 2005. However, in Fall 2005, three new schools launched the Program on a Comprehensive basis and nine new schools launched the Program on an Abbreviated basis. In Spring 2006, one new school launched the Program on a Comprehensive basis and no school launched the Program on an Abbreviated basis. While six schools (32%) of the 19 schools enrolled in the Program between Spring 2004 and Spring 2005, 12 schools (63%) that enrolled in the Program did so beginning in the Fall of 2005. As stated previously, data for the majority of schools enrolled in the Program (because they launched the Program during the Fall 2005 and Spring 2006 school year) are not yet available.

# It's All About Kids

## Mobility Rates



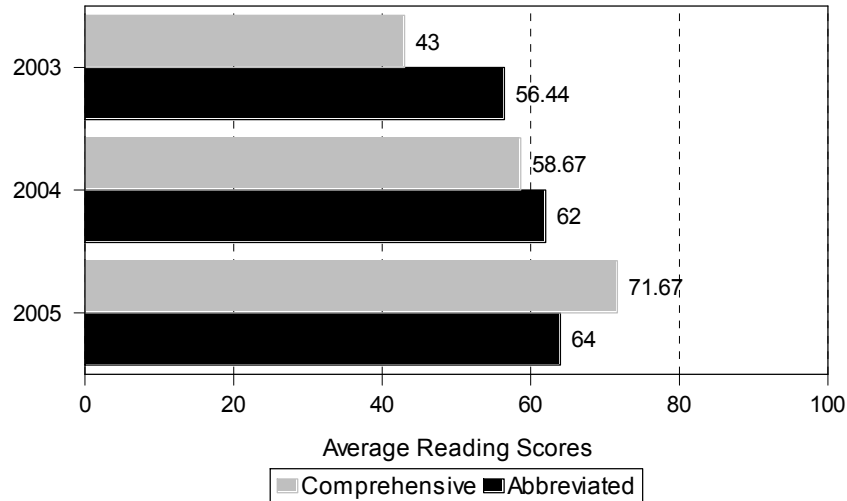
Total Schools Reporting = 13

### Graph 4 Mobility Rates

The graph above demonstrates the changes in mobility rates between May 2003, May 2004, and May 2005. Mobility rates increased each year, for both Comprehensive and Abbreviated schools. In 2003, Comprehensive schools had a 60.67% mobility rate while Abbreviated schools had a 59.4% mobility rate. In 2004, Comprehensive schools' mobility rates averaged 66%, while Abbreviated schools averaged 66.9%. In 2005, Comprehensive schools averaged 75.67% mobility, and Abbreviated schools averaged 70.9% mobility. In reference to the previous graph (Graph 3), it is important to note the majority of schools were phased in during the Fall '05 – Spring '06 school year, the school year for which the data is not yet available.

# It's All About Kids

## Fifth Grade OCCT Reading Scores



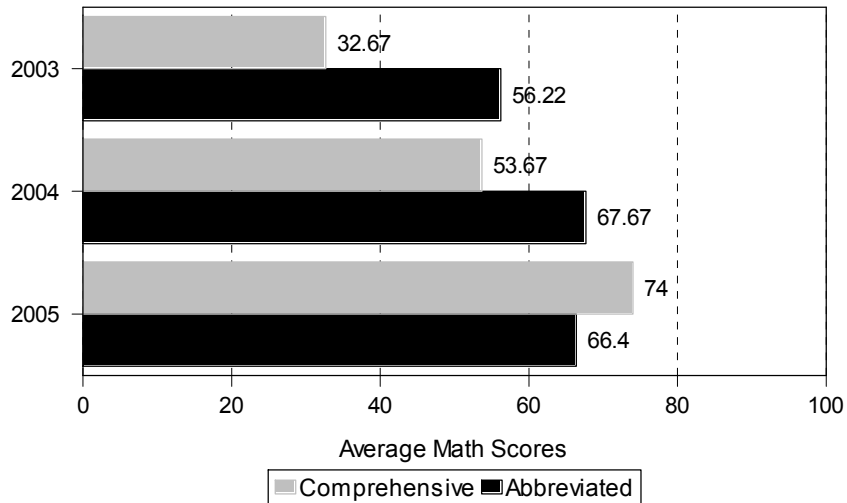
Total Schools Reporting = 13

Graph 5 Fifth Grade OCCT Reading Scores

The graph above depicts a pattern of consistent positive changes in Fifth Grade OCCT Reading scores following Program implementation. In 2003, before the Program was implemented, Fifth Grade OCCT Reading scores averaged 43% for schools that would later implement the Comprehensive Program, and 56.44% for schools that would later implement the Program on an Abbreviated status. In 2004, the year the Program was implemented, Comprehensive schools increased OCCT reading scores to 58.67% (15.67% increase compared to the 2003 scores), and Abbreviated schools increased OCCT reading scores to 62% (5.56% increase compared to the 2003 scores). Following the first complete year of Program implementation, in 2005, Comprehensive schools increased OCCT Reading scores to 71.67% (28.67 % increase compared to the 2003 scores) while Abbreviated schools increased OCCT Reading scores to 64% (representing a 7.56% increase compared to the 2003 scores). Increases in Reading scores are correlated both with the length of time of the Program’s implementation as well as with the extent to which schools implemented the Program (i.e., Comprehensive versus Abbreviated formats), with Comprehensive schools seeing the larger gains in OCCT Reading scores. The reader is reminded that the correlation of program implementation and increased test scores does not mean the program caused the increase in test scores.

# It's All About Kids

## Fifth Grade OCCT Math Scores



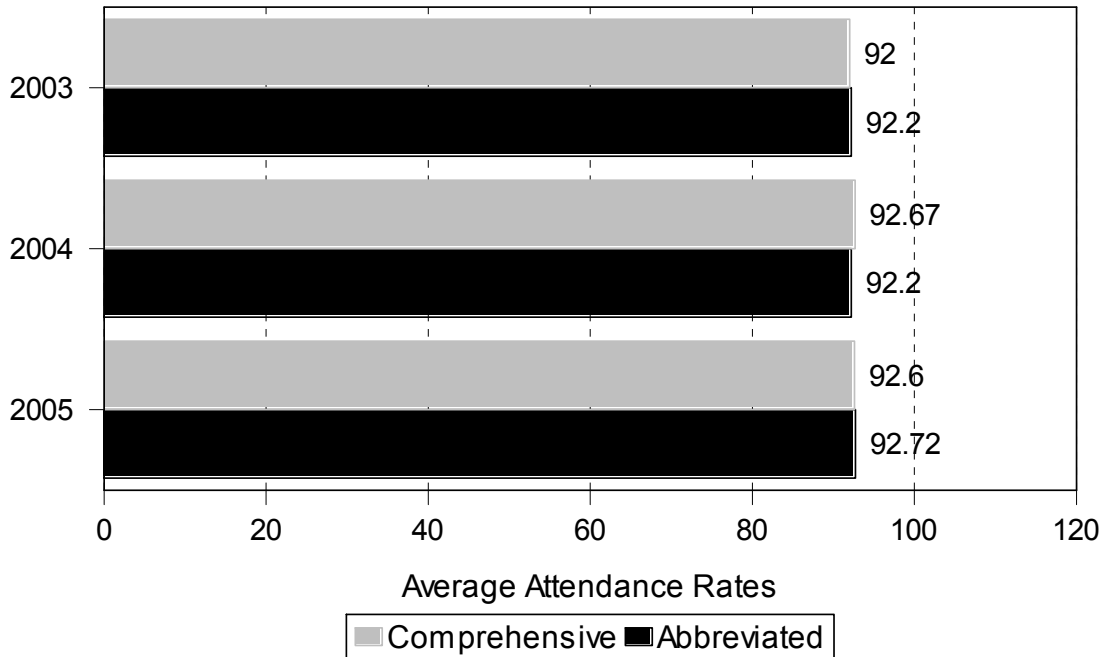
Total Schools Reporting = 13

Graph 6 Fifth Grade OCCT Math Scores

Similar to the Fifth Grade OCCT Reading scores, fairly consistent positive changes are evident in Fifth Grade OCCT Math scores, as depicted by the graph above. In 2003, before the Program was implemented, Fifth Grade OCCT Math scores averaged 32.67% for schools that would later launch the Comprehensive Program, while the same scores averaged 56.22% for schools that would later launch the Program on an Abbreviated basis. In 2004, the year the Program was implemented, Fifth Grade OCCT Math scores increased for both Comprehensive and Abbreviated schools, with Comprehensive schools increasing their average OCCT Math scores to 53.67% (21% increase compared to 2003 scores), and Abbreviated schools increasing their average OCCT Math score to 67.67% (11.45% increase compared to 2003 scores). In 2005, following the Program’s first full year, Comprehensive schools increased their average OCCT Math scores again to 74% (41.33% increase compared to 2003 scores), while Abbreviated schools had and maintained a higher average of 66.4% (10.18% increase compared to 2003 scores). Fifth Grade Math OCCT scores indicated a correlation between Program implementation and test score increases above the pre-Program launch year of 2003. Again, the reader is reminded that correlation in Program implementation and increased test scores does not mean Program implementation caused the increase in test scores.

# It's All About Kids

## Attendance Rates



Total Schools= 13

### Graph 7 Attendance Rates

The graph above depicts changes in attendance rates for schools enrolled in the Program. Slight positive change was apparent in schools the longer the Program was in place. In 2003, the year before the Program launched, attendance rates averaged 92% for schools that would become Comprehensive schools in the Program. Attendance rates averaged 92.2% for schools that would become Abbreviated schools in the Program. In 2004, the year in which the Program launched, Comprehensive schools saw an increase in average attendance rate to 92.67% while Abbreviated schools demonstrated no change in average attendance rates. In 2005, the first full year of the Program, Comprehensive schools maintained their increase in average attendance rates at 92.6%, still representing an increase above the 2003 average. Abbreviated schools increased their average attendance rate to 92.72%, above averages for both 2003 and 2004.

## **It's All About Kids Obesity Study Summary**

Tulsa City-County Health Department (TCCHD) implemented the "It's All About Kid's Program" in order to increase health outcomes for first through fifth grade students. One objective is to reduce the number of incidents of overweight and obese conditions. TCCHD implemented a health and nutrition program including a pre and post test analysis. The data were collected in the Fall of 2005 and Spring of 2006, and then analyzed to determine the effects of the Program on student overweight and obesity rates. In both the Fall and Spring, individual scores were characterized as "Normal," "At Risk," or "Overweight," based on percentiles defined by the CDC. The purpose of this report is to illustrate the rate of change in BMI scores for the participating students.

Complete BMI data were collected from 547 students attending four Tulsa Public Schools in the Fall of 2005 and in the Spring of 2006. Of the 547 completed records, 2% (9) students fell within the "underweight" range, and were not considered part of the sample due to low prevalence and Program goals (to reduce overweight and obesity rates).

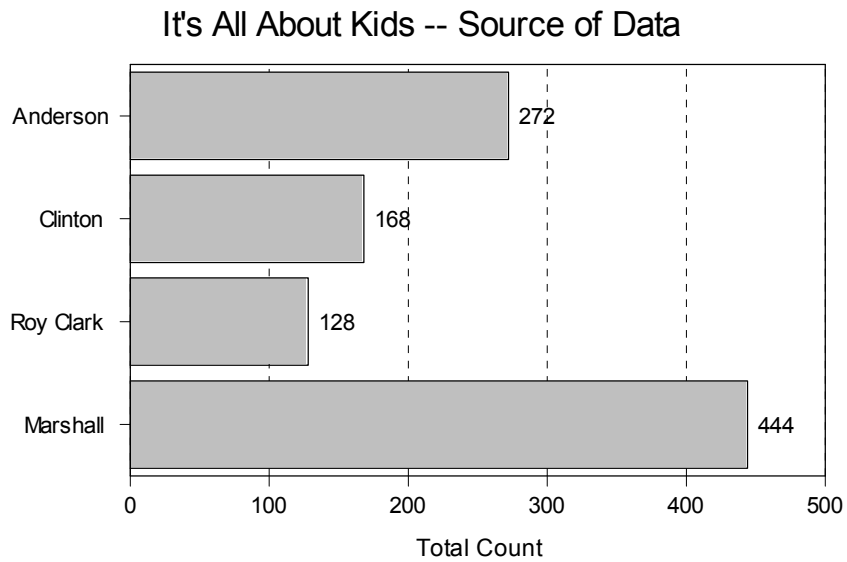
Of the remaining 538 completed records, 48% had Fall BMI scores within the "Normal" range, 19% had BMI scores in the "At Risk" range, and 23% had BMI scores in the "Overweight" range.

- **Generally, students demonstrated no change (83%) in BMI status.**
  1. Most of these students were categorized in the "Normal" BMI range.
  2. Slightly more than 10 percent remained within the "At Risk" range.
  3. Approximately one-third remained within the "Overweight" range.
- **Students who experienced a change in BMI status were more likely to improve than decline.**
  1. Over one-half of those who improved were from the "At Risk" category.
  2. Approximately forty-percent of those who improved were from the "Overweight" category.
- **Some students experienced a decline in BMI status.**
  1. Of those who declined, almost sixty-percent did so from the "Normal" category;
  2. Of those who declined, approximately forty-percent were from the "At Risk" category.

Generally speaking, the children who had Normal Fall BMI scores did not experience change during the Spring measurement. However, many children in At-Risk and Overweight Fall BMI categories experienced improvements when measured in the Spring. Nevertheless, the rates of improvement in these categories appear to be a function of both grade and gender. The following graphs illustrate these BMI changes, by both grade level and gender.

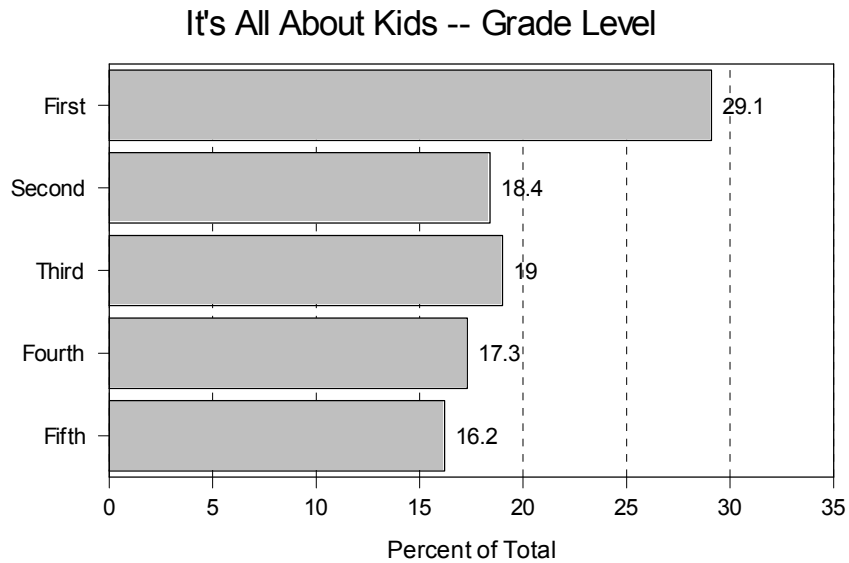
Additional data will be collected over time to determine the Program's long-range effect on BMI.

Preliminary Results of Tulsa City-County Health Department  
"It's All About Kids" Program.



Graph 8 Schools Participating in the Obesity Study

The following preliminary results are based upon 1,012 completed BMI reports provided by Tulsa City-County Health Department (TCCHD) as part of the "It's All About Kids" program. As the chart above indicates, four schools (Anderson, Clinton, Roy Clark, and Marshall respectively) were represented by children in first through fifth grade.



Graph 9 Percentage of Participants by Grade

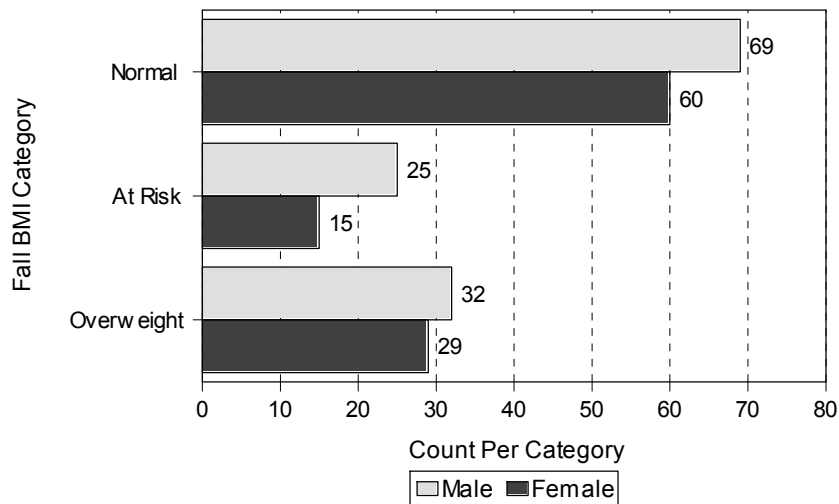
It's All About Kids works primarily with children in first through fifth grade. As the chart above indicates, 29.1% of the students were in the first grade. The other grade levels were evenly distributed ranging from a low of 16.2% (fifth grade) to a high of 19% (third grade).

The third demographic information provided by TCCHD was gender. Of the 1,012 participating students, 42.9% were male and 35.5% were female. 21.7% of the participants' gender was not identified.

**BMI Risk Category by Grade and Gender**

Based upon the available BMI data provided by Tulsa City-County Health Department children were classified into Normal, At Risk and Overweight as defined by the Center for Disease Control (CDC). At Risk and Overweight categories were determined by the CDC's ranking between 85<sup>th</sup> and 95<sup>th</sup> percentile by age and gender, and above 95<sup>th</sup> percentile by age and gender respectively (CDC, 2006). Based upon this information we provide definitions followed by counts and percentile by grade and gender.

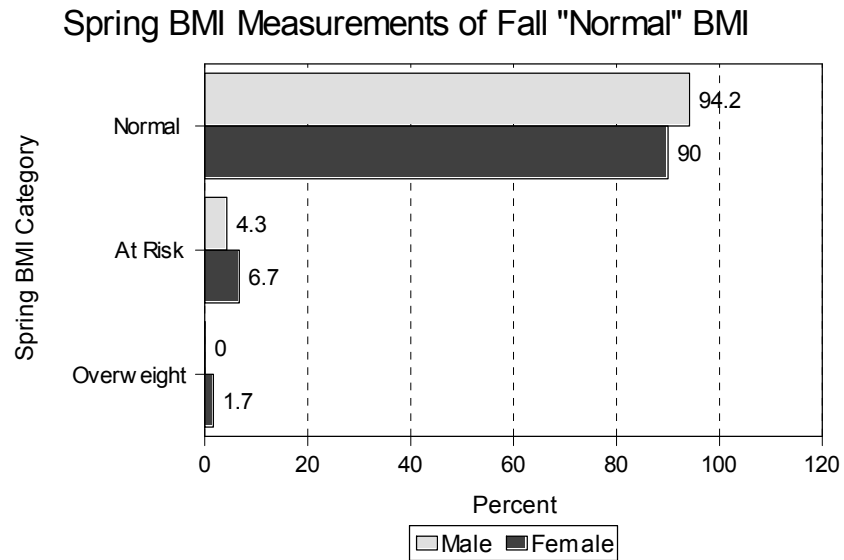
**Fall BMI Category -- First Grade**



Graph 10 Fall BMI Category First Grade

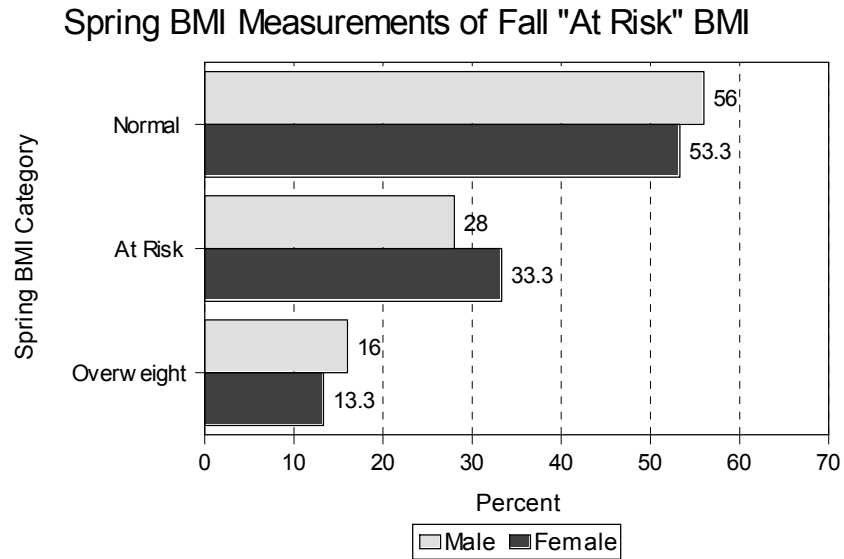
As shown in the graph above, BMI data collected during Fall 2005 from First Grade students revealed that 69 males had normal BMI measurements, as did 60 females. 25 males had BMI scores within the At Risk category, and 15 females had At Risk BMI scores. 32 males and 29 females had BMI scores within the Overweight category. There were no differences between male and female first grade students with respect to their BMI distribution [ $\chi^2 (2) = 1.046; p > .05$ ].

Changes in BMI status between Fall 2005 and Spring 2006 were assessed for First Grade males and females. The following graphs depict changes in BMI scores between the Fall and the Spring for students who, in the Fall, had Normal, At Risk and Overweight BMI scores.



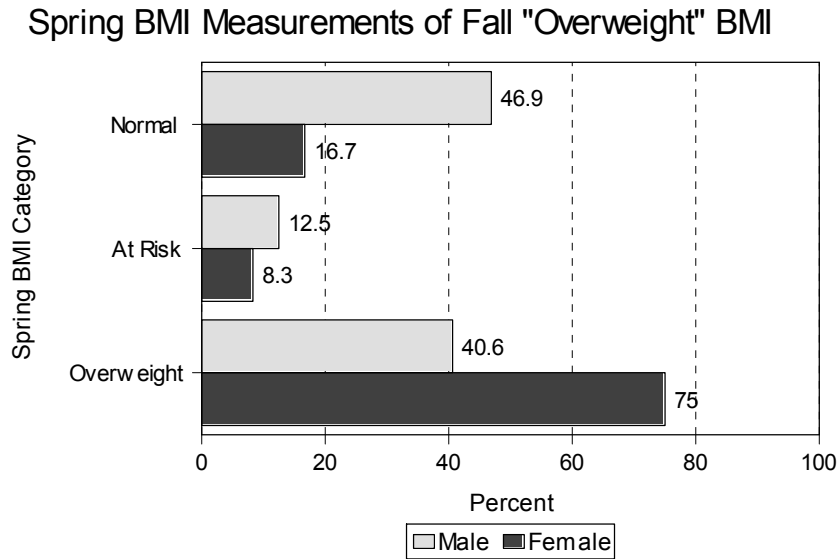
Graph 11 Spring BMI Measurements of Fall Normal BMI

Minimal changes in BMI status occurred between Fall and Spring for First Grade students who had Normal BMI scores during the Fall. Of the First Graders who had Normal BMI scores, 94.2% of the males and 90% of the females remained within the “Normal” range. 4.3% of the males and 6.7% of the females moved from “Normal” to “At Risk” and none of the males and 1.7% of the females moved from Normal to Overweight BMI scores from the Fall to the Spring.



Graph 12 Spring BMI Measurements of Fall At Risk BMI

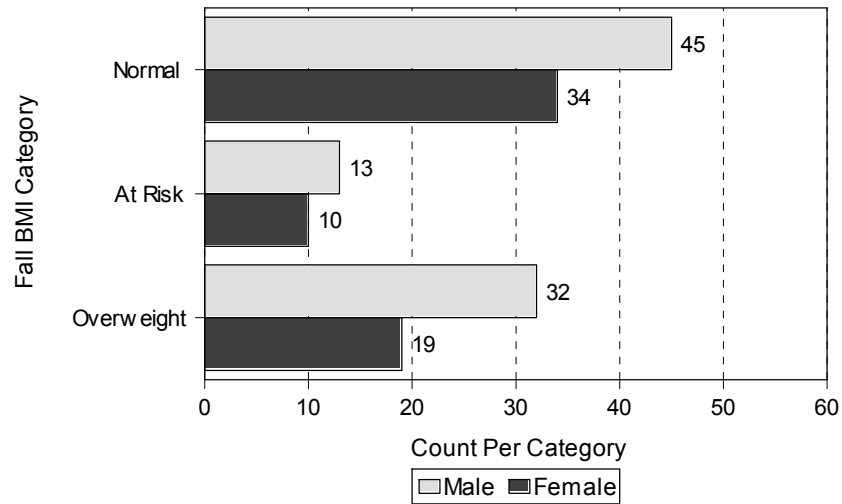
Marked improvement in BMI status occurred between Fall 2005 and Spring 2006 for First Grade students who had At Risk BMI scores during the Fall. More specifically, 56% of the males and 53.3% of the females improved to Normal BMI status in the Spring. 28% of the males and 33.3% of the females who had At Risk BMI scores in the Fall remained At Risk in the Spring. 16% of the males and 13.3% of the females who had At Risk BMI scores in the Fall had a decline in their BMI status from At Risk to Overweight.



Graph 13 Spring BMI Measurements of Fall Overweight BMI

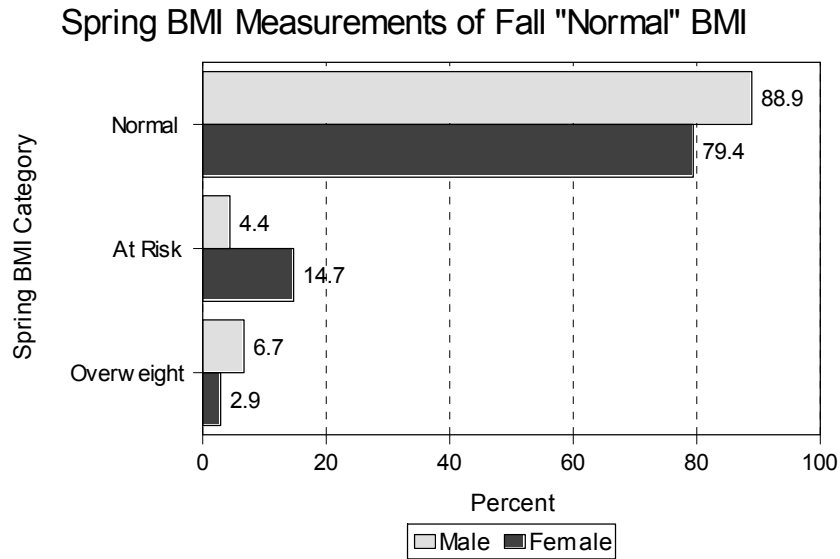
First Grade males scoring in the Fall Overweight category saw a marked rate of improvement in BMI scores. Almost half (46.9%) of the males and 16.7% of the females improved from Overweight BMI scores to Normal scores in the Spring. Additionally, 12.5% of the males and 8.3% of the females improved from Overweight in the Fall to At Risk scores in the Spring. Finally, 40.6% of the males and 75% of the females remained in the Overweight category from Fall to Spring.

## Fall BMI Category -- Second Grade



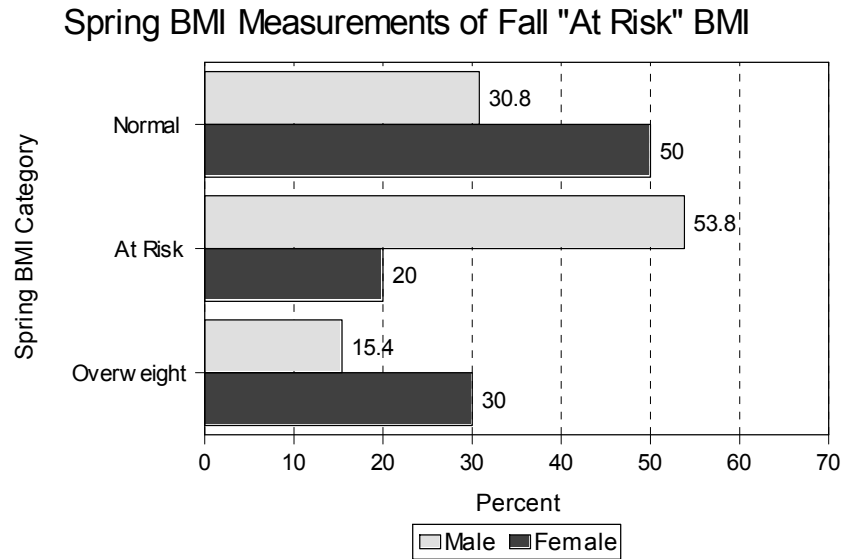
Graph 14 Fall BMI Category Second Grade

The graph above depicts the Fall BMI status of Second Grade students. 45 males and 34 females had Normal BMI scores. 13 males and 10 females had At Risk BMI scores. 32 males and 19 females had Overweight BMI scores in the Fall. There were no statistically significant differences between male and female second grade students with respect to their BMI distribution [ $\chi^2 (2) = 0.487; p > .05$ ].



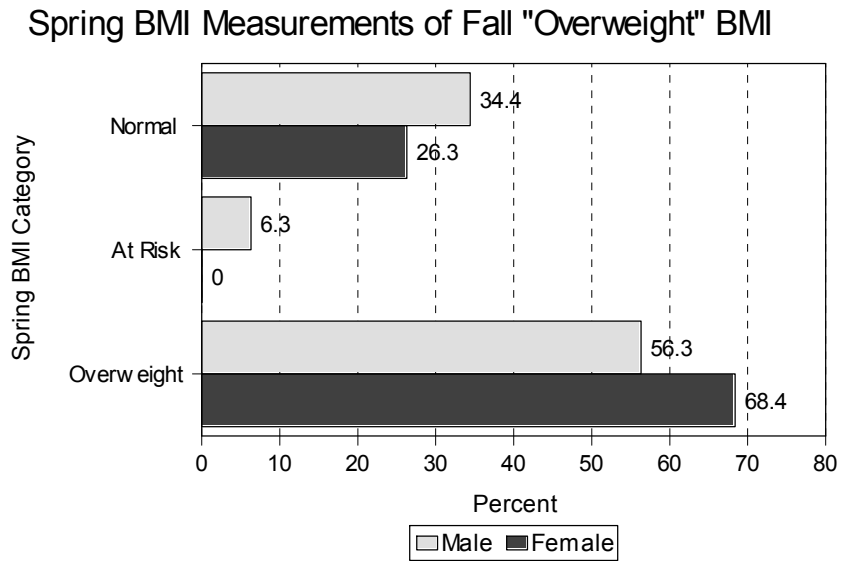
Graph 15 Spring BMI Measurements of Fall Normal BMI

A minimal amount of change in BMI status was found among Second Grade students who had Normal BMI scores in the Fall. Of the 79 Second Grade students who had Normal BMI scores in the Fall, 88.9% of the males and 79.4% of the females remained within the Normal range in the Spring. 4.4% of the males and 14.7% of the females had a decline in BMI status from Normal in to At Risk. 6.7% of the males and 2.9% of the females had a decline in BMI status from Normal in the Fall to Overweight in the Spring.



Graph 16 Spring BMI Measurements of Fall At Risk BMI

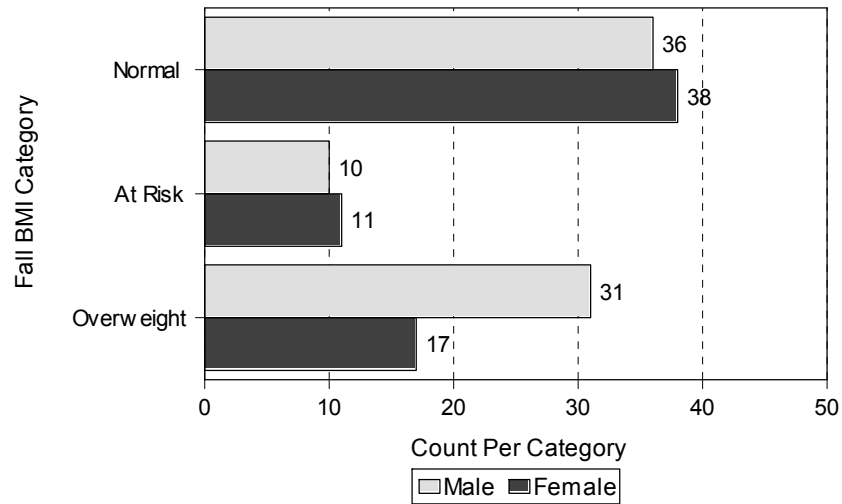
Marked changes in BMI status were found for Second Grade students who had At Risk BMI scores in the Fall. Of the 23 Second Graders who had At Risk BMI scores in the Fall, 30.8% of the males and 50% of the females had improved BMI scores to the Normal range in the Spring. 53.8% of the males and 20% of the females who had At Risk BMI scores in the Fall remained within the At Risk range in the Spring. 15.4% of the males and 30% of the females had a decline in BMI status from At Risk in the Fall to Overweight in the Spring.



Graph 17 Spring BMI Measurements of Fall Overweight BMI

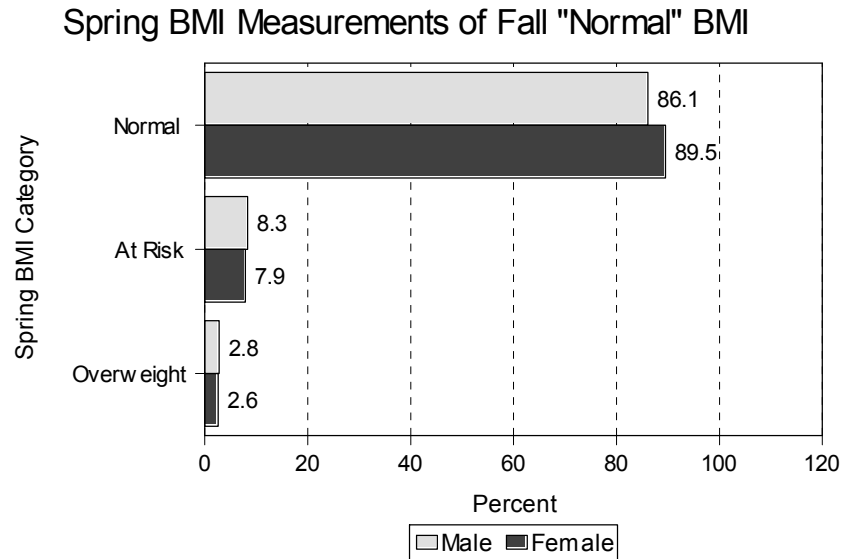
Measurable improvement was found for Second Grade Students who had Overweight BMI scores in the Fall. 51 Second Graders had Overweight BMI scores in the Fall, of those, 34.4% of the males and 26.3% of the females had improved BMI scores in the Normal range in the Spring. 6.3% of the males and none of the females improved from Overweight status in the Fall to At Risk in the Spring. 56.3% of the males and 68.4% of the females remained within the Overweight category between Fall and Spring.

## Fall BMI Category -- Third Grade



Graph 18 Fall BMI Category Third Grade

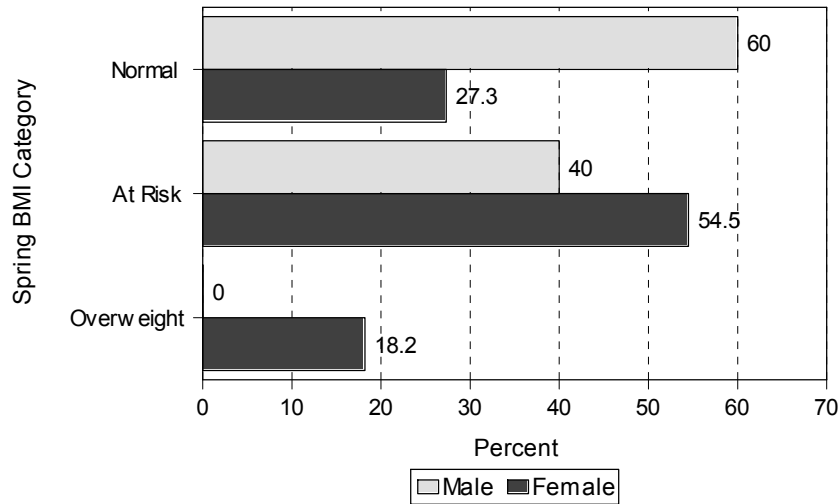
The graph above demonstrates the Fall BMI status distribution of Third Grade Students. For the Normal and At Risk ranges, scores ran closely between genders. 36 males and 38 females in the Third Grade had BMI scores in the Normal range in the Fall. 10 males and 11 females had At Risk BMI scores in the Fall. However, far more males (31) than females (17) had Overweight BMI scores in the Fall. There were no statistically significant differences between male and female third grade students with respect to their BMI distribution [ $\chi^2(2) = 3.36; p > .05$ ].



Graph 19 Spring BMI Measurements of Fall Normal BMI

Minimal change was observed in the BMI status of Third Grade students who had Normal BMI scores in the Fall. Of the 74 Third Grade students who had Normal BMI scores in the Fall, 86.1% of the males and 89.5% of the females had BMI scores that remained within the Normal Range. 8.3% of the males and 7.9% of the females declined from Normal BMI scores in the Fall to At Risk BMI scores in the Spring. 2.8% of the males and 2.6% of the females had a decline from Normal BMI status in the Fall to Overweight BMI status in the Spring.

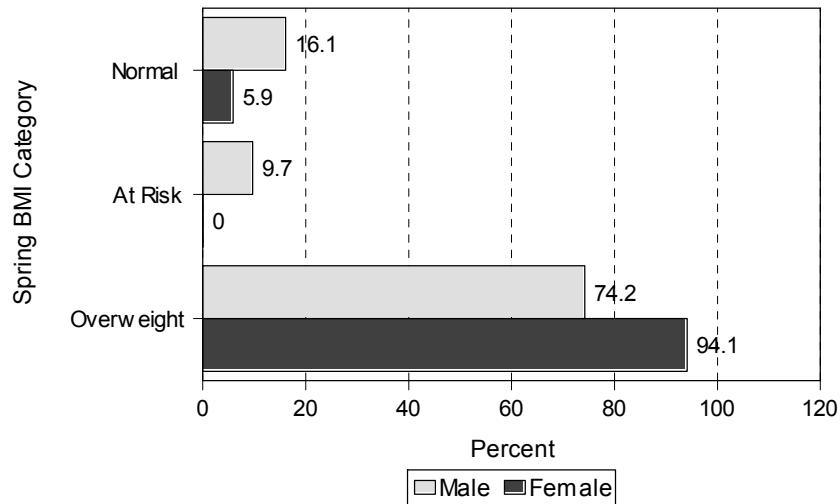
Spring BMI Measurements of Fall "At Risk" BMI



Graph 20 Spring BMI Measurements of Fall At Risk BMI

Noticeable improvements in At Risk BMI scores occurred between Fall and Spring, particularly for Third Grade for males. Of the 21 Third Grade students who had At Risk scores in the Fall, 60% of the males and 27.3% of the females had improved BMI scores to the Normal Range in the Spring. 40% of the males and 54.5% of the females remained within the At Risk range between the Fall and Spring. None of the males and 18.2% of the females declined from At Risk BMI scores in the Fall to Overweight BMI scores in the Spring.

Spring BMI Measurements of Fall "Overweight" BMI

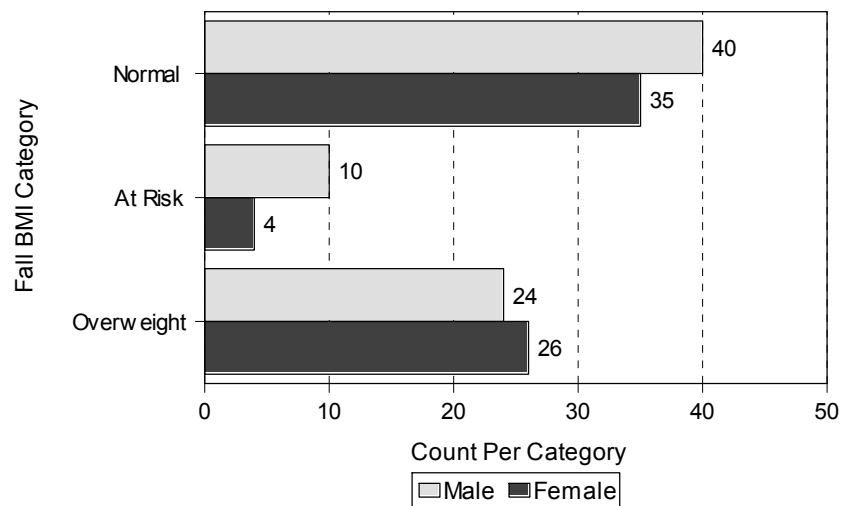


Graph 21 Spring BMI Measurements of Fall Overweight BMI

There was minimal improvement in BMI status for Third Grade students who had Overweight BMI scores in the Fall. Of the 48 Third Grade students who had Overweight BMI scores in the Fall, 16.1% of the males and 5.9% of the females improved to the Normal BMI range in the

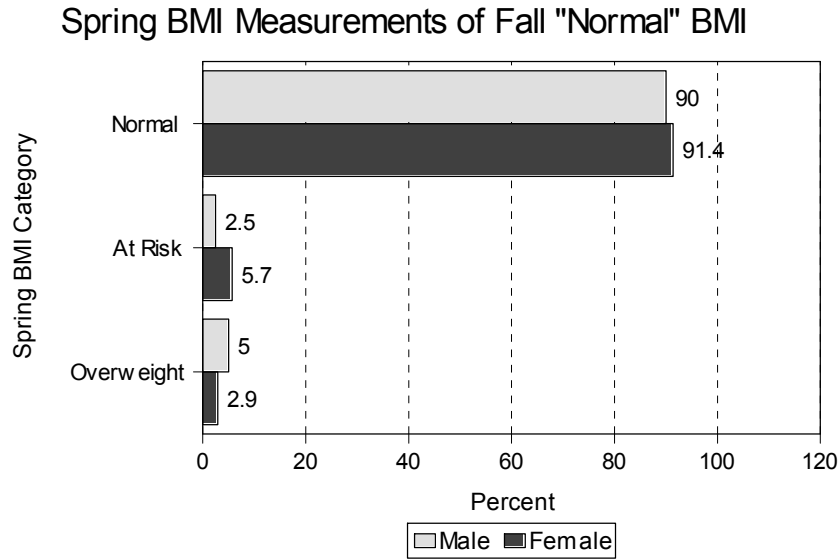
Spring. 9.7% of the males and none of the females improved from Overweight range in the Fall to At Risk in the Spring. 74.2% of the males and 94.1% of the females remained within the Overweight range between Fall and Spring.

## Fall BMI Category -- Fourth Grade



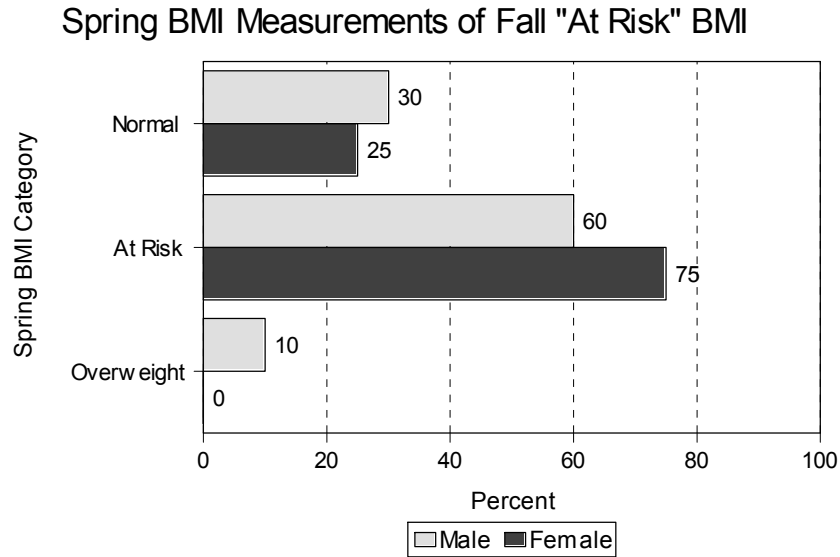
Graph 22 Fall BMI Category Fourth Grade

The graph above demonstrates the Fall BMI status distribution for Fourth Grade Students. Of the 139 Fourth Grade students assessed, 40 males and 35 females had Normal BMI scores. 10 males and 4 females had At Risk BMI scores, and 24 males and 26 females had Overweight BMI scores. There were no statistically significant differences between male and female fourth grade students with respect to their BMI distribution [ $\chi^2 (2) = 2.41$ ;  $p > .05$ ].



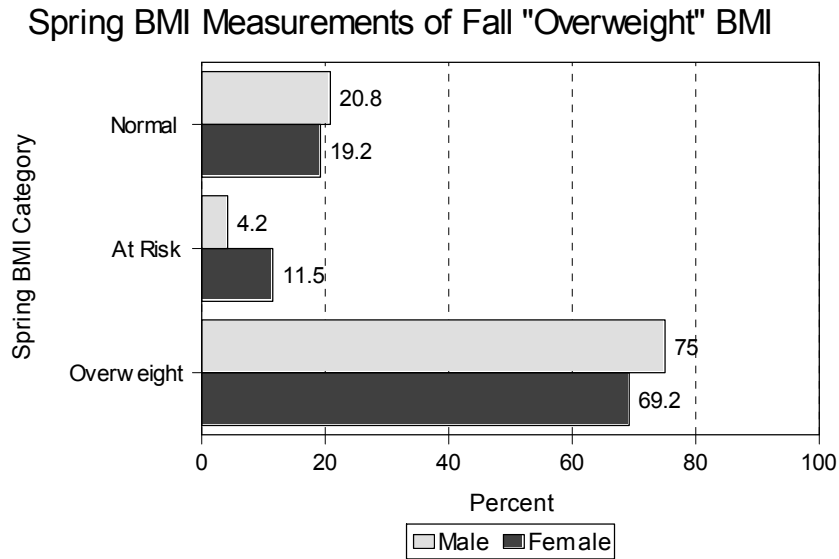
Graph 23 Spring BMI Measurements of Fall Normal BMI

Minimal movement in BMI status occurred between Fall and Spring for students who had Normal BMI scores in the Fall. Of the 75 Fourth Grade students who had Normal BMI scores in the Fall, 90% of the males and 91.4% of the females remained within the Normal range in the Spring. 2.5% of the males 5.7% (more than double the males) declined from Normal BMI scores in the Fall to At Risk BMI scores in the Spring. 5% of the males and 2.9% of the females (slightly more than half of the males) declined from Normal BMI scores in the Fall to Overweight BMI scores in the Spring.



Graph 24 Spring BMI Measurements of Fall At Risk BMI

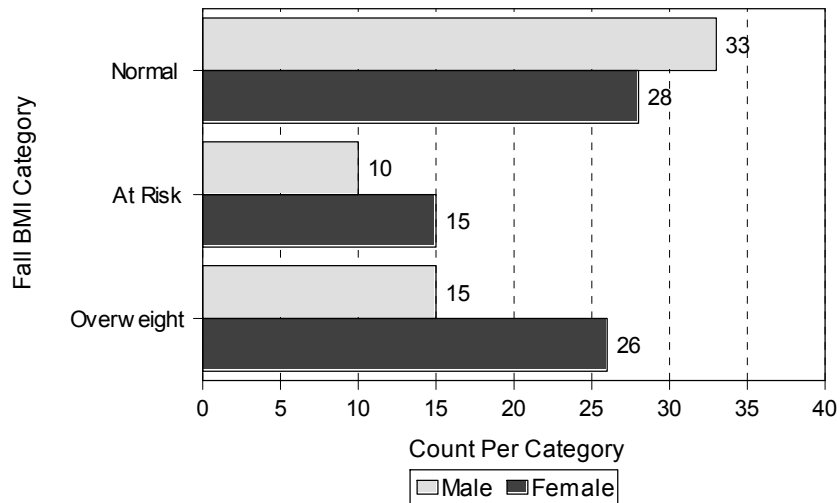
Marked improvement was found in the BMI status of Fourth Grade students who had At Risk BMI scores in the Fall. Of the 14 Fourth Grade students who had At Risk BMI scores in the Fall, 30% of the males and 25% of the females had an improvement from At Risk BMI scores in the Fall to Normal BMI scores in the Spring. 60% of the males and 75% of the females remained in the At Risk category from Fall to Spring. 10% of the males and none of the females had a decline from At Risk BMI scores in the Fall to Overweight Scores in the Spring.



Graph 25 Spring BMI Measurements of Fall Overweight BMI

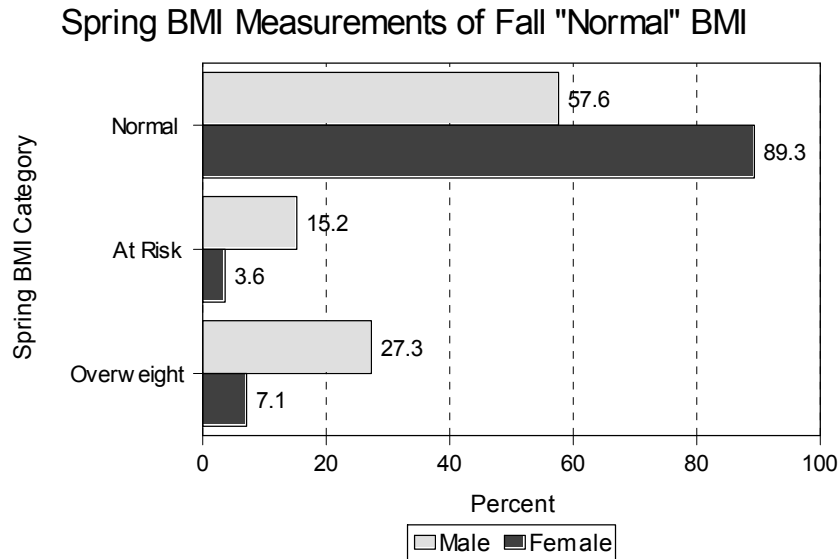
Minimal improvement was found in Fourth Grade students who had Overweight scores in the Fall. Of the 50 Fourth Grade students who had Overweight BMI status in the Fall, 20.8% of the males and 19.2% of the females improved from Overweight BMI status in the Fall to Normal BMI status in the Spring. 4.2% of the males and 11.5% of the females improved from Overweight BMI scores in the Fall to At Risk scores in the Spring. 75% of the males and 69.2% of the females remained within the Overweight BMI range between the Fall and Spring.

## Fall BMI Category -- Fifth Grade



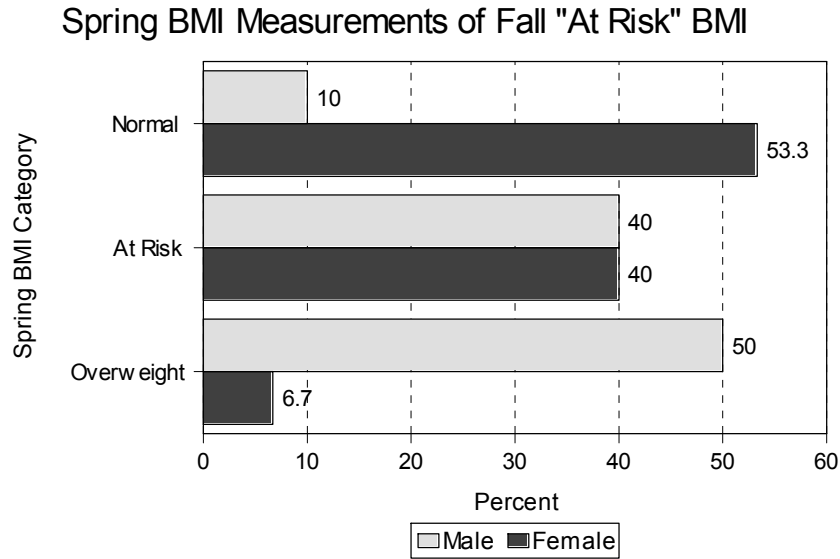
Graph 26 Fall BMI Category Fifth Grade

The graph above demonstrates the Fall BMI status distribution for Fifth Grade Students. Of the 127 Fifth Graders assessed, 33 males and 28 females had Normal BMI scores in the Fall. 10 males and 15 females had At Risk BMI scores in the Fall. 15 males and 26 females had Overweight BMI scores. There were no statistically significant differences between male and female fifth grade students with respect to their BMI distribution [ $\chi^2 (2) = 3.43; p > .05$ ].



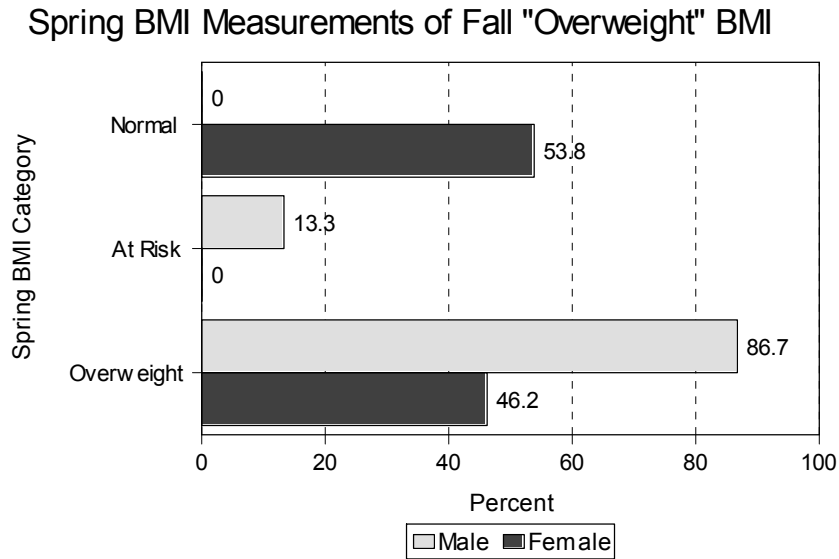
Graph 27 Spring BMI Measurements of Fall Normal BMI

Minimal change in BMI status was found for Fifth Grade females who had Normal BMI scores in the Fall. However, Fifth Grade males had Normal BMI scores in the Fall had a moderate amount of change in their BMI status in the Spring. Of the 61 Fifth Grade students who had Normal BMI scores in the Fall, 57.6% of the males and 89.3% of the females remained within the Normal BMI category between Fall and Spring. 15.2% of the males and 3.6% of the females had a decline from Normal BMI status to At Risk between Fall and Spring. 27.3% of the males and 7.1% of the females had a decline from Normal BMI status in the Fall to Overweight BMI status in the Spring.



Graph 28 Spring BMI Measurements of Fall AT Risk BMI

Marked changes occurred in Fifth Grade students who had At Risk BMI scores in the Fall, with both genders seeing dramatic changes. Of the 25 Fifth Graders who had At Risk BMI scores in the Fall, 10% of the males and 53.3% of the females had an improvement from At Risk BMI scores in the Fall to Normal BMI scores in the Spring. 40% of males and 40% of females remained within the At Risk category between Fall and Spring. 50% of the males and 6.7% of the females had a decline in At Risk BMI scores in the Fall to Overweight BMI scores in the Spring.



Graph 29 Spring BMI Measurements of Fall Overweight BMI

Significant improvement in Fifth Grade females' Overweight BMI status was found. Of the 41 total Fifth Grade students who had Overweight BMI scores in the Fall, none of the males and 53.8% of the females had improvement in Overweight BMI scores in the Fall to Normal BMI scores in the Spring. 13.3% of the males and none of the females had improvement in Overweight BMI scores in the Fall to At Risk in the Spring. 86.7% of the males and 46.2% of the females who had Overweight BMI scores in the Fall remained in the Overweight category in the Spring.

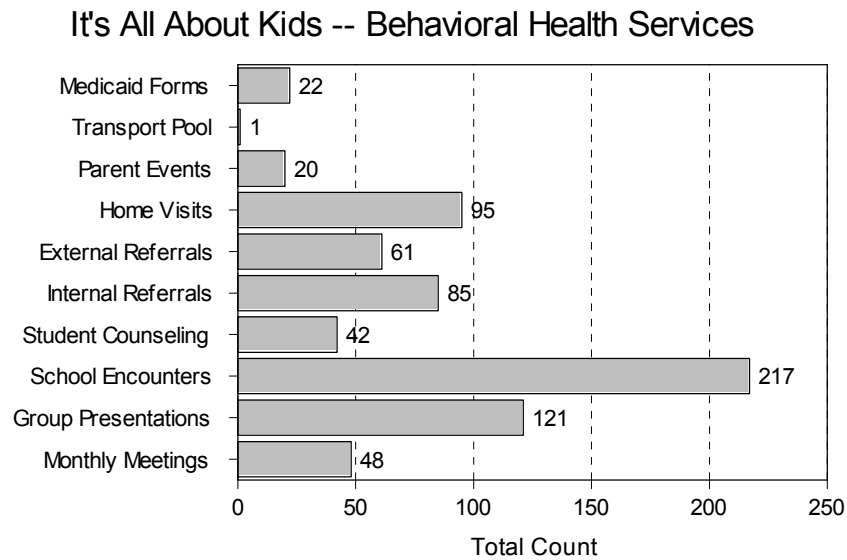
**BMI Data Summary:**

The previous graphs present preliminary data comparing Fall and Spring BMI scores for first through fifth grade students participating in the "It's All About Kids" program. Generally speaking, the children who had Normal Fall BMI scores did not experience change during the Spring measurement. However, many children in At-Risk and Overweight Fall BMI categories experienced improvements when measured in the Spring. Nevertheless, the rates of improvement in these categories appear to be a function of both grade and gender. For example, the rate of change among students with Normal Fall BMI scores did not differ by grade or gender with the exception of the fifth grade. In the fifth grade approximately 42% of the males moved from Normal BMI to At-Risk or Overweight. Additionally, in the fifth grade At-Risk females experienced a higher rate of improvement compared to males. Finally, for the Overweight Fall BMI students, first and second grade males and fourth and fifth grade females experienced a higher rate of improvement.

Body Mass Index will continue to be measured with the children in this cohort being tracked to investigate their rate of change. Additionally, questionnaires are being researched and developed to investigate both knowledge and attitudes of children and their parents with respect to healthy nutrition and physical exercise. As part of this research plan, we will compare BMI changes based upon levels of knowledge, physical activity, and attitudes among children.

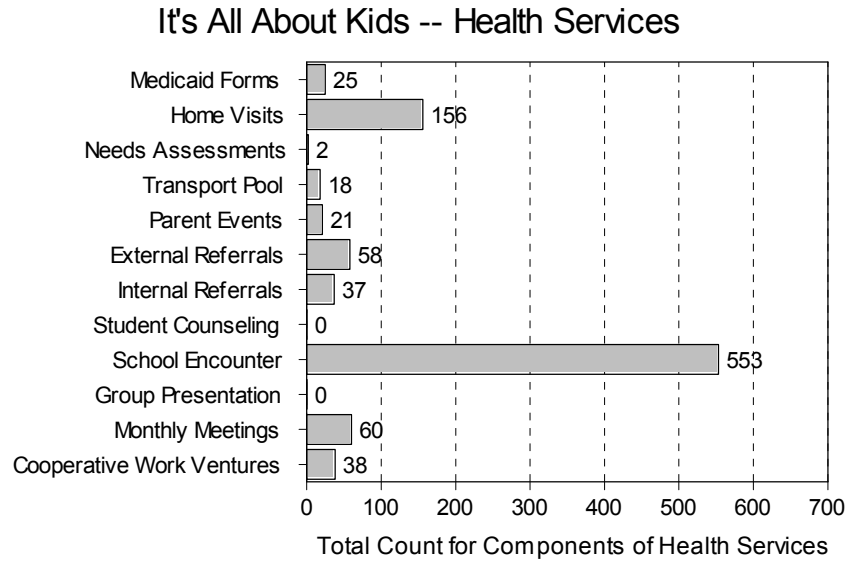
**Monthly Activities by Program**

The following preliminary results are based upon monthly activity reports and school presentation numbers provided by Tulsa City-County Health Department (TCCHD) as part of the "It's All About Kids" program.



Graph 30 Behavioral Health Services

As the chart above demonstrates, between August, 2005 and April, 2006, behavioral health staff helped 22 families complete Medicaid forms, helped one family utilize the transportation pool, participated in 20 parenting events, conducted 95 home visits were, made 61 external referrals, made 85 internal referrals, counseled 42 students, provided 217 school personnel encounters (consultations for school personnel regarding student needs, public health issues, or community resources), facilitated 121 group presentations, and attended 48 monthly meetings.



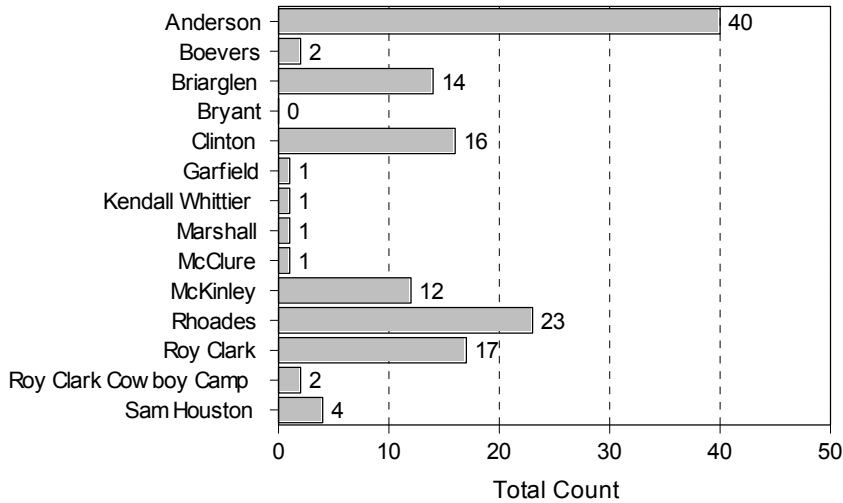
Graph 31 Health Services

As described by the chart above, between August, 2005 and April 2006, 25 families completed Medicaid forms, 156 home visits were conducted, two Needs Assessment were completed, 18 families utilized the transportation pool, 21 parenting events occurred, 58 external referrals were made, 37 internal referrals were made, 553 school personnel encounters occurred, 60 monthly meetings were attended, and 38 cooperative project activities (collaborative community activities with other agencies and organizations) occurred. Students did not participate in individual counseling during the stated time period. Group presentations were not facilitated during the stated time period.

***Health and Dental School Presentations***

Between January 2005 and January 2006, the IAK Program provided a combined total of 179 Health and Dental presentations to 14 schools, reaching a total of 9,213 students.

**It's All About Kids -- Health Education Presentations by School**

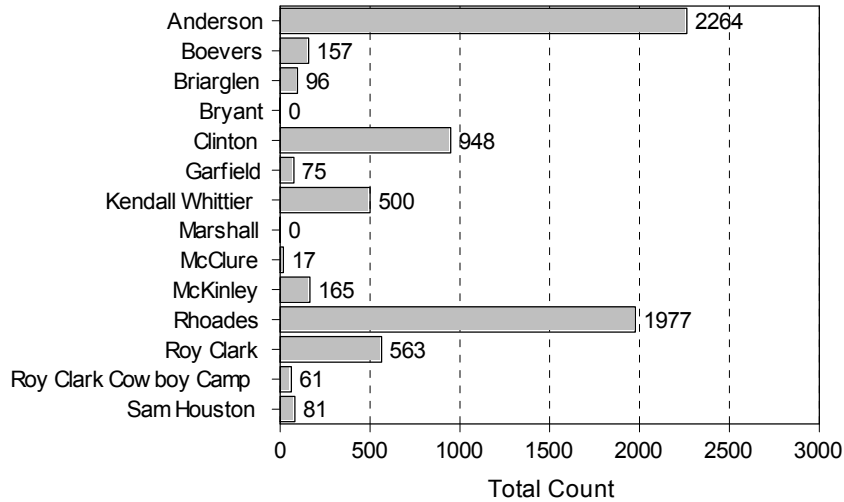


Total Presentations = 134

Graph 32 Health Education Presentations

As demonstrated by the graph above, Between January 2005 and January 2006, 134 Health Education presentations were made in 14 schools. Anderson Elementary received 40 presentations, Boevers Elementary two presentations, and Briarglen received 14 presentations. Bryant Elementary did not receive a presentation while Clinton received 16 presentations. Garfield, Kendall Whittier, Marshall, and McClure each received one presentation. McKinley received 12 presentations while Rhoades received 23. Roy Clark received 17 presentations and Roy Clark Cowboy Camp received two presentations. Sam Houston received four presentations.

It's All About Kids -- Health Education Attendance by School

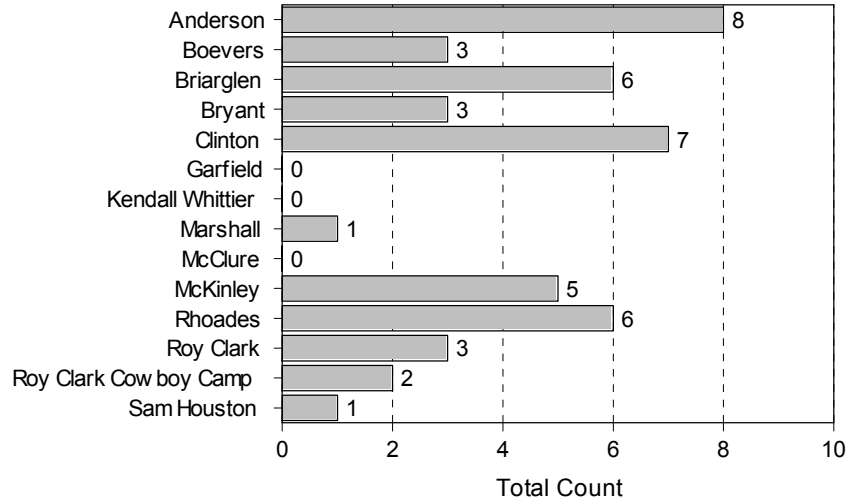


Total Attendees = 6,904

Graph 33 Health Education Attendees

The chart above describes the number of Health Education Attendees by school. Between January 2005 and January 2006, a total of 6,904 students attended IAK Health Education Programs in 14 schools. The number of participants varied by school. Anderson had 2,264 participants, Boevers had 157 and Briarglen had 96 participants. Bryant Elementary did not have participants. Clinton had 948 participants, Garfield had 75, Kendall Whittier had 500, while Marshall did not have participants. McClure had 17 participants while McKinley had 165 participants. Rhoades had 1,977 participants while Roy Clark had 563. More than 60 participants attended the Program through the Roy Clark Cowboy Camp, and 81 participants attended through Sam Houston Elementary. All health and dental programs are offered to participating schools. In order to receive health and dental programs, the school principal and counselor are required to request presentations.

It's All About Kids -- Dental Presentations by School

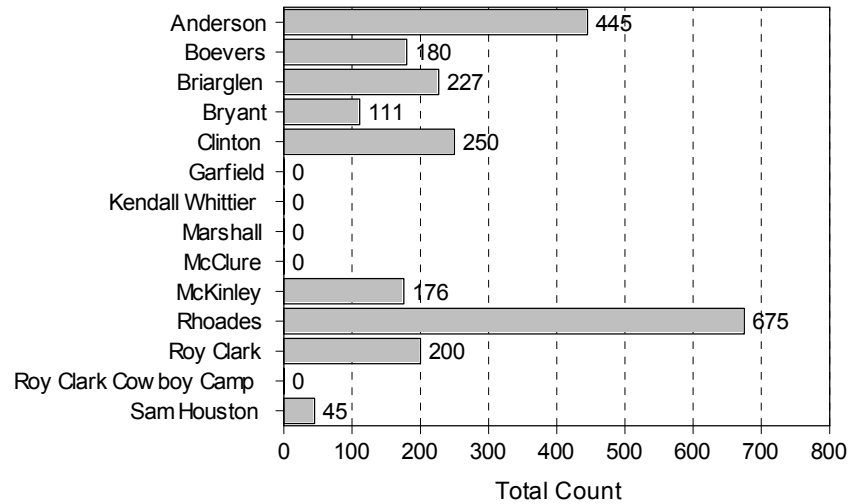


Total Presentations = 45

Graph 34 Dental Presentations

As depicted by the chart above, 45 Dental Health presentations were made in 14 schools between January 2005 and January 2006. The number of presentations varied by school. Anderson had eight presentations while Boevers had three. Briarglen had 6 presentations, Bryant had three, and Clinton had seven. Garfield, Kendall Whittier, and McClure each did not have Dental Presentations. Marshall and Sam Houston each had one presentation, while Roy Clark had three. Two Dental Presentations were made to the Roy Clark Cowboy Camp. McKinley had five presentations while Rhoades had six. All Dental Presentations are made at the request of school officials.

It's All About Kids -- Dental Health Education Attendance by School



Total Attendees = 2,309

Graph 35 Dental Health Presentation Attendees

Between January 2005 and January 2006, 2,309 students attended Dental Health presentations in 14 schools. Attendance varied by school. Anderson had 445 attendees, while Boevers had 180 and Briarglen had 227. Bryant had 111 and Clinton had 250 attendees. Garfield, Kendall Whittier, Marshall, McClure, and the Roy Clark Cowboy Camp each did not have attendees for the Dental Health Education Presentations. McKinley had 176 attendees while Rhoades had 675. Roy Clark Elementary had 200 and Sam Houston had 45 attendees. All Dental Health Presentations are made at the request of school officials.

# Preliminary Findings

## Nutrition Study

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### BACKGROUND

Childhood overweight is increasing in Tulsa, Oklahoma as it is in the United States in general. The percentage of U.S. children aged 6-11 years with a Body Mass Index (BMI) above the 85<sup>th</sup> percentile (at risk of overweight) of the 1963 National Health Examination Survey was 15% in 1963 and increased to 22% in 1994. At pretest of the It's All About Kids program in Tulsa Oklahoma in 2006, 47% of the 4<sup>th</sup> grade students in the sample were above the 85<sup>th</sup> percentile (at risk of overweight) for BMI and 31% were above the 95<sup>th</sup> percentile (overweight).

### RESEARCH QUESTIONS

How effective were the nutrition and physical activity components of the It's All About Kids intervention program?

1. Were there positive changes in the students' knowledge, attitudes, and behavioral intentions related to nutrition and physical activity after the intervention?
2. Were there positive changes in the actual self-reported food choices after the intervention?
3. Were there positive changes in physical fitness after the intervention?
4. Were there positive physical changes in body composition after the intervention?

### RESEARCH DESIGN AND PROCEDURE

- This outcomes measures intervention was a controlled trial.
- The program covers grades 1-5. A convenience sample of all 4<sup>th</sup> grade classes in 5 intervention schools and 5 control schools was selected for outcome measures.
- Principal consent was obtained for the 10 schools. Parental consent was obtained for 143 (27%) of the 529 4<sup>th</sup> grade students in the 10 schools.
- Fourth grade classes in the sample completed a classroom-administered questionnaire and a prior-day food checklist at pretest, posttest and 3-week followup for the nutrition component of the program. Physical fitness measures were taken at pretest and posttest for the physical activity component of the program.

### METHOD

- To answer the four research questions, we performed an analysis of variance on the intervention and control groups at pretest, posttest, and 3 week followup for the nutrition component and at pretest and posttest for the physical activity component.
- To answer question 1, we used a modified version of the Pathways KAB questionnaire to measure Knowledge, Attitudes, and Behavioral intent.
- To answer question 2, we used the CATCH Food Checklist to measure self-reported actual prior day food choices

- To answer question 3, we used the Coopers FitnessGram<sup>®</sup> to measure physical fitness, in terms of aerobic capacity, muscular strength and endurance, and body composition.
- To answer question 4, we used the BMI z-scores calculated by the Center for Disease Control and Prevention's EpiInfo program.

## **FINDINGS**

### Knowledge, Attitudes, and Behavioral Intent as measured by the KAB Questionnaire

- The It's All About Kids intervention program had a positive impact on knowledge, attitudes, and behavioral intent related to specific aspects of healthy eating and physical activity.
- The program was associated with significant positive changes in the student's healthy food choice intention as well as knowledge of which food has more fat.
- The percentage of students who changed what and how much they eat to lose weight and the percentage of students who exercised more to lose weight increased while the percentage of students who skipped meals or went without eating for a whole day to lose weight decreased.

### Actual Food Choices as self-reported by the CATCH Food Checklist

- There were positive changes in (decreased level of) saturated fat and sodium in the self-reported actual prior day food choices after the intervention and at followup.
- Actual food choices also improved in other areas, although the change did not reach a level of statistical significance.
  - An increased consumption of 2% milk was noted at posttest for the intervention group. [Week 3 of the nutrition curriculum contains a segment called "Think Your Drink" in which a butter display is used to visually illustrate the amount of fat in nonfat, 2% fat, and whole milk by adding teaspoons of butter to a cup of nonfat milk to reflect the amount of fat that would be present in each type of milk.] The percentage of intervention students who reported consuming 2% fat milk on the Food Checklist increased from 31% at pretest to 38% at posttest while the percentage of intervention students who consumed whole milk decreased from 42% to 33%.

### Physical changes as measured by the Coopers FitnessGram<sup>®</sup> and EpiInfo

- The changes in physical fitness and BMI z-scores will be assessed when the missing data for one school is available in August.

## **CONCLUSIONS**

- The results of this study document the feasibility of implementing a multicomponent program to prevent overweight in elementary schools.
- Significant improvements were made in the students' knowledge of which food has more fat and in their intention to make healthy food choices.
  - These results are based on looking at only one grade level during the first year of the program. As a multi-year intervention building on the gains of previous years, students will be starting at a new higher baseline in subsequent years.
  - More reinforcement over time may be needed to sustain the level of improvement in some areas.

- In summary, the It's All About Kids study showed
  - Significant improvement in knowledge, attitudes, and behavioral intent related to diet and exercise can be achieved by nutrition classes and increased physical activity.
  - Students in the intervention group improved significantly, compared to the control group, in their knowledge of which foods have more fat and in their healthy food choice intentions.
  - Positive trend in actual healthier food choices related to saturated fat and sodium.
- The data analysis for the physical activity component is not yet complete.
- Planned intervention over several school years will reinforce and sustain the positive changes in knowledge, attitudes, and behavioral intent, and may see the positive trend in actual healthier food choices reflected in a significant improvement in physical fitness and body composition for this population.