

## MEMORANDUM

September 26, 2019

TO: Gwendolyn Johnson  
Director, Health and Medical Services

FROM: Carla Stevens  
Assistant Superintendent, Research & Accountability

SUBJECT: **AN EVALUATION OF PARTNERING FOR EARLY ACCESS FOR SUCCESS (PEAS) – PROJECT PEAS IN HISD, 2018–2019**

CONTACT: Carla Stevens, 713-556-6700

Attached is a copy of the Project PEAS program evaluation. Project PEAS was designed to improve health care and related outcomes for students and their families at Fonwood, Laurenzo, and Mistral early childhood centers. Funding was provided through a grant awarded to HISD by the U.S. Department of Health and Human Services, Maternal and Child Health Division. The evaluation presents activities and academic outcomes of students enrolled in targeted schools during the 2018–2019 academic year. Parents of students were surveyed to determine the program's ability to empower them to improve their child's healthy development.

Key findings include:

- Among the 1,170 students enrolled at targeted schools during the 2018–2019 academic year, 356 were provided health-related services, such as immunizations and well child exams by physicians at Texas Children's Hospital (TCH). Moreover, 473 students were screened for Type 2 Diabetes. Health and medical screenings were conducted for 346 students through the TCH mobile unit. Students who visited the mobile unit were distributed a book to support reading readiness. Preventative dental care, including sealants, was provided to 415 children, while 1,234 children received oral health education.
- More than 80.0% of parents were in agreement that Project PEAS helped them access better services for their families.
- A paired samples analysis of the program's impact on reducing overweight/obesity revealed an increase in the percentage of normal and healthy weight children (55.2% to 72.4%) and a decrease in the percentage of overweight/obese children (37.9% to 27.6%) from baseline (2015–2016) to 1-year after program implementation (2016–2017).
- Gains in academic readiness were achieved for Project PEAS students on English and Spanish language CIRCLE assessments relative to Alliteration, Rapid Letter Naming, and Rapid Vocabulary subtests. Students at each school also achieved gains on the Spanish language Letter Sounds subtest.





# RESEARCH

Educational Program Report

**AN EVALUATION OF PARTNERING  
FOR EARLY ACCESS FOR  
SUCCESS (PEAS) – PROJECT PEAS  
IN HISD, 2018–2019**



## 2019 BOARD OF EDUCATION

**Diana Dávila**  
President

**Holly Maria Flynn Vilaseca**  
First Vice President

**Elizabeth Santos**  
Second Vice President

**Sergio Lira**  
Secretary

**Susan Deigaard**  
Assistant Secretary

**Wanda Adams**  
**Jolanda Jones**  
**Rhonda Skillern-Jones**  
**Anne Sung**

**Grenita Lathan, Ph.D.**  
Interim Superintendent of Schools

**Carla Stevens**  
Assistant Superintendent  
Department of Research and Accountability

**Venita Holmes, Dr. P.H.**  
Research Manager

**Houston Independent School District**  
Hattie Mae White Educational Support Center  
4400 West 18th Street Houston, Texas 77092-8501

**[www.HoustonISD.org](http://www.HoustonISD.org)**

It is the policy of the Houston Independent School District not to discriminate on the basis of age, color, handicap or disability, ancestry, national origin, marital status, race, religion, sex, veteran status, political affiliation, sexual orientation, gender identity and/or gender expression in its educational or employment programs and activities.



# EVALUATION REPORT

BUREAU OF PROGRAM EVALUATION

## *An Evaluation of Partnering for Early Access for Success (PEAS) - Project PEAS in HISD, 2018–2019*

Prepared by Venita R. Holmes, Dr.P.H.

### Abstract

*This program evaluation assessed the implementation of Project PEAS toward improving health care and related outcomes for students and their families at Fonwood, Laurenzo, and Mistral early childhood centers. Among the 1,170 students enrolled at targeted schools during the 2018–2019 academic year, 356 were provided health-related services, such as immunizations and well child exams by physicians at Texas Children’s Hospital (TCH). Moreover, 473 students were screened for Type 2 Diabetes. Health and medical screenings were conducted for 346 students through the TCH mobile unit. Students who visited the mobile unit were distributed a book to support reading readiness. Preventative dental care, including sealants, was provided to 415 children, while 1,234 children received oral health education. Parents in the targeted schools were surveyed to determine the program’s ability to empower them to improve their child’s healthy development. More than 80.0% of parents were in agreement that the program helped them access better services for their families. More specifically, parents strongly agreed that the program has helped them get education (52.5%), health (49.7%), and social services (46.7%) for their children. A paired samples analysis of the program’s impact on reducing overweight/obesity revealed an increase in the percentage of normal and healthy weight children (55.2% to 72.4%) and a decrease in the percentage of overweight/obese children (37.9% to 27.6%) from baseline (2015–2016) to 1-year after program implementation (2016–2017). Gains in academic readiness were achieved for Project PEAS students on English and Spanish language CIRCLE assessments relative to Alliteration, Rapid Letter Naming, and Rapid Vocabulary subtests. Students at each school also achieved gains on the Spanish language Letter Sounds subtest. Continued efforts to expose young children and their families to health care and related services may improve access and boost achievement at early stages of child development.*

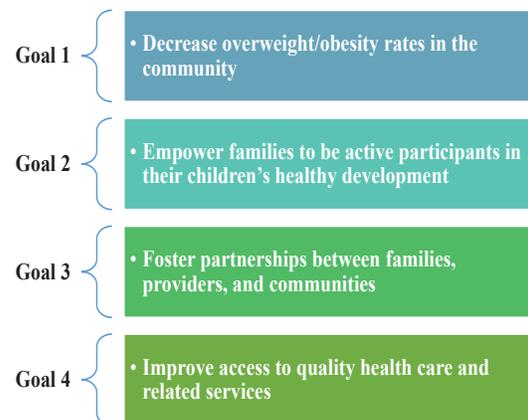
### Background

Childhood and adult obesity are widespread problems with serious academic, social, and health implications. Strategies to address these problems can be found in research that emphasize the association between access to health, education systems, and well-being of children and adults. Healthy children do better in school compared to children with acute or chronic disease (Basch, 2010; Donoghue, 2017; CDC, 2018a). Moreover, healthy parents are better able to support their children during early years, generating better grades in school, healthier lifestyle behaviors, more positive peer interactions, and increased ability to cope with stress later in life (Avis et al., 2015).

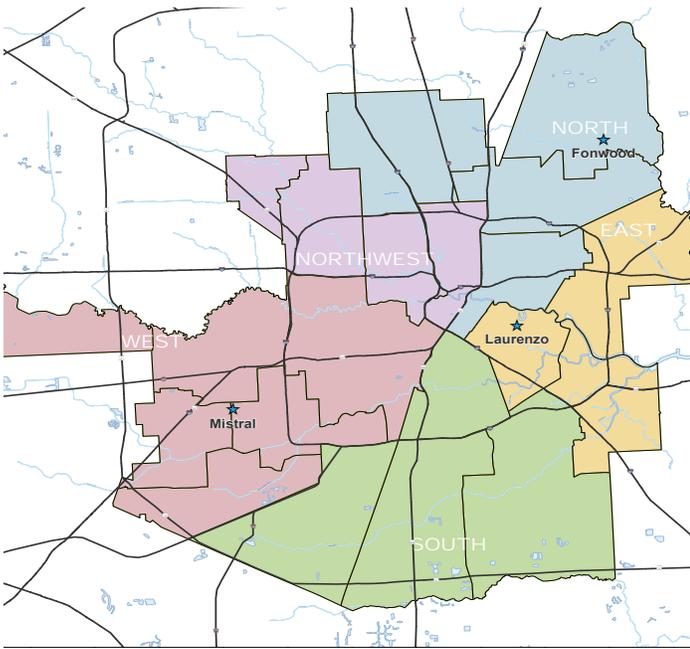
To build healthier communities in Houston, the U.S. Department of Health and Human Services, Maternal and Child Health Division awarded the Houston Independent School District (HISD) the *Partnering for Early Access for Success (PEAS)* grant. Project PEAS was initiated in March 2016, and will be implemented in HISD until February 2021. The HISD Department of

Health and Medical Services has direct oversight of grant responsibilities.

The primary goals of Project PEAS are summarized in **Figure 1**. These goals are further delineated based on specific objectives as indicated in the grant.



**Figure 1:** Project PEAS program goals, 2018–2019



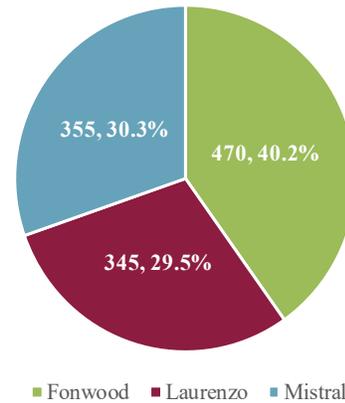
**Figure 2:** Geographical location of Project PEAS schools

Grant objectives include:

- (1) increase physical activity, proper nutrition, and opportunities for students and their families to access health-related services within the school setting, home, and community to reduce childhood obesity, and poor nutrition;
- (2) increase physical fitness and nutrition education for participating students and their families within the school setting that promote and model proper nutrition education and physical fitness to children;
- (3) decrease barriers to accessing healthcare services, resources, and information;
- (4) work with community organizations and service providers that are culturally and linguistically responsive to the needs of the targeted communities;
- (5) train school staff to be culturally and linguistically responsive in their services to the respective targeted communities; and,
- (6) increase opportunities for students to improve literacy skills in the community.

Project PEAS targeted HISD students and families at Fonwood, Mistral, and Laurenzo early childhood centers (**Figure 2**). The Houston communities geographically surrounding the schools had high prevalences of overweight and obese children and adults, along with high poverty levels and limited access to health care services. A total of 1,170 students were enrolled in Project PEAS schools during the 2018–2019 academic year, with the highest representation of students at Mistral (40.2%). The majority of students were Hispanic, economically disadvantaged, and at risk of school failure. The vast majority of students were enrolled in prekindergarten. Background information on the student population compared to the district can be found in **Table 1, Appendix A** (p. 10).

Research questions were conceptualized to address progress toward meeting Project PEAS goals and objectives during the current stage of implementation this academic year. The research questions are as follows.



**Figure 3:** Number and percentage of students enrolled by Project PEAS schools, 2018–2019 (Source: PEIMS)

### Research Questions:

1. What program activities were conducted during the 2018–2019 academic year by Project PEAS partners to improve children and families’ access to health care and related services?
2. What were parents’ perceptions regarding the extent that Project PEAS empowered them to improve the healthy development of their child?
3. What was the impact of Project PEAS on students’ overweight and obesity rates?
4. What was the performance of Project PEAS prekindergarten students on the 2019 CIRCLE school readiness assessment relative to building their reading skills?

There were several limitations to the study. First, student outcomes were reported for all students at Project PEAS schools; however, all students may not have received health care and other related services directly from the program. A parent survey, to assess program impact, was administered at one point in time, which limited the ability to measure change or stability in the program over time (Brutus, Aguinis, & Wassmer, 2013). Further, parents may have overrepresented the significance of events that occurred in the program or as a result of the program in their efforts to respond or recall information.

### Review of the Literature

The Centers for Disease Control and Prevention (2018a) found that, in the United States, the percentage of children and adolescents affected by obesity more than tripled since the 1970s. These trends have been consistent over the years, considering that one in five school-aged children and young adults (6 to 19 years old) in the United States were documented as having obesity in 2015–2016 (Hales et al., 2017).

Children with obesity are at higher risk of chronic health conditions and diseases that influence physical health, including adult obesity, asthma, sleep apnea, bone and joint problems, type 2 diabetes, risk factors for heart disease, metabolic syndrome, and various types of cancer (Singh et al., 2008; Biro & Wien, 2010). Further, obese children are more likely to be bullied and teased compared to their normal weight peers (Lloyd, Langley-Evans, & McMullen, 2012; Haflon, Larson, & Slusser, 2013). Social isolation, depression, and lower self-esteem are also prevalent in this subgroup of the population (van Geel, Vedder, & Tanilon, 2014; Griffiths, Parsons, & Hill, 2010).

Golan and Crow (2004) maintained that family eating patterns may have an “obesigenic” environmental influence on children by establishing cultural values and norms that affect lifestyle behaviors, such as diet and physical activity (Christensen, 2004; Norvilla, Barnes, & de la Cruz et al., 2006; Lindsay, Sussner, Kim, & Gortmaker, 2006). Parents make decisions about food availability in the home, influence children’s opportunities for recreation and physical activity, and may also control access to money that can be used to purchase foods outside the home (Peterson & Fox, 2007). Policymakers have recognized the important role that schools play toward the control and prevention of childhood obesity by educating parents on healthy lifestyles.

Poor health literacy is a lack of understanding concerning one’s wellbeing, of what can be done to improve it, and of what help the healthcare system can offer. There is substantial evidence that low levels of health literacy are associated with excess body weight, particularly in children (Michou, Costarelli, & Panagiotakos, 2018). Several studies investigated the link between parental health literacy and the child’s body weight (Shih et al., 2016; Mo et al., 2016). In one study, the child’s weight and height were measured and body mass index was calculated for assessing overweight or obesity. In children, a high amount of body fat can lead to weight-related diseases and other health issues and being underweight can also put one at risk for health issues (CDC, 2018b). Parents’ awareness of healthy parenting knowledge and skills were also assessed. The study found that “improving health and nutrition literacy could empower people to effectively manage long-term health conditions and reduce the burden on health and social care services” (Michou, Costarelli, & Panagiotakos, 2018, p. 240).

Peterson, Bruce, Patel, and Chamberlain (2018) found that awareness of local resources, such as preschool health and education programs, was lacking and underutilized among low-income, Latino parents. The research surveyed parents of three to six-year old children in 2013 and 2014 to measure their attitudes, behaviors, barriers, awareness, and use of local resources designed to prepare their child for school. Consequently, pediatricians and health care providers within communities can help to empower parents to address their child’s health needs through collaborations with health and education systems in order to ensure that all children become healthy adults.

## Methods

### Study Sample

Descriptive data, including student demographic characteristics, were obtained from the Public Education Information Management System (PEIMS). PEIMS captured students who were enrolled in HISD at the fall snapshot. The Chancery Student Information System (SIS) helped to identify students who were enrolled in HISD by the end of school year.

### Instrumentation

Survey items on the Family Empowerment Scale (FES) were used to assess the program’s ability to empower families to be active participants in their child’s health (Koren, DeChillo, & Friesen, 1992). FES included three subscales, which were Family, Services, and Community. Internal consistency estimates of reliability on FES ranged from .78 to .89 for the subscales, and the split-half estimate of reliability for FES was .93. These results indicated that the survey has robust psychometric properties and

may be useful in assessing the empowerment status of families whose children are at risk. The FES was modified and translated in Spanish, based on feedback from HISD Health and Medical Services staff and piloted among parents in similar communities as Project PEAS. Scores for the subscales were measured by calculating means and percentages of survey respondents who indicated “strongly agree” = 4, “agree” = 3, “disagree” = 2, or “strongly disagree” = 1, with items in each subscale.

Body Mass Index (BMI) was calculated to determine overweight and obesity among children at Project PEAS schools. Body Mass Index (BMI) is a person’s weight in kilograms divided by the square of height in meters (CDC, 2018b). For children, BMI is age- and sex-specific and is often referred to as BMI-for-age. The calculated BMI was, then, expressed as a percentile<sup>1</sup>. The CDC maintains that “if a child or teen has a BMI of  $\geq 30$  kg/m<sup>2</sup>, the child is almost certainly obese” (CDC, 2018b).

CIRCLE is a Texas School Ready, technology-driven, progress monitoring tool that is designed to test a child’s literacy skills and measure school readiness (Children’s Learning Institute, 2016). The system has demonstrated high reliability and validity in multiple research studies (Children’s Learning Institute, 2016). Early Language and Literacy assessment results in this evaluation were used as a proxy to measure reading readiness. The assessments included Alliteration, Rapid Letter Naming, Rapid Vocabulary, and Letter Sounds. Alliteration assessed components of phonological awareness, which is an important part of the early literacy process. Rapid Letter Naming evaluated the child’s ability to name letters within a timed format. Rapid Vocabulary required that students provide names for images within a timed format. Letter Sounds required that students make corresponding sounds to given letters. The assessments are typically administered three times each year to HISD prekindergarten students. These windows are referred to as “waves,” typically occurring at the beginning of the year (Wave 1), middle of the year (Wave 2), and end of the year (Wave 3).

Wave 1 was used as a pretest and Wave 3 was used as the posttest measure for Project PEAS students on the Alliteration, Rapid Letter Naming, and Rapid Vocabulary subtests. Wave 2 was used as the pretest and Wave 3 was used as the posttest for the Letter Sounds subtest because this subtest was not administered at the beginning of the year. Only students with measures at the two points in time were used in the analyses. Results were captured on the English and Spanish language versions of the CIRCLE assessment.

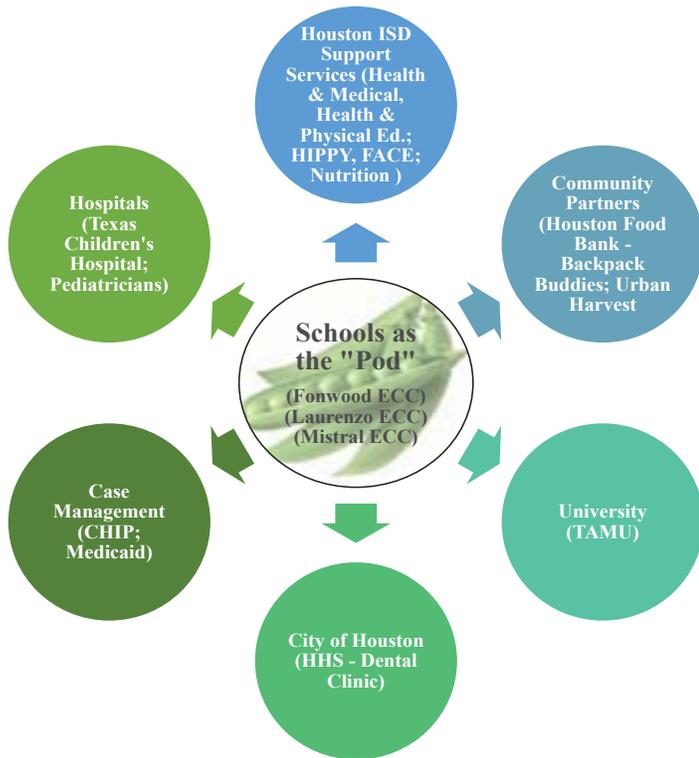
## Results

### What activities were conducted during the 2018–2019 academic year by Project PEAS partners to improve children and families’ access to health care and related services?

During the 2018–2019 academic year, a variety of health care and related activities were provided to students and their families through local service providers who partnered with Project PEAS (Figure 4). A summary of these activities are presented in this evaluation.

---

<sup>1</sup> Percentiles express a child’s BMI relative to children in the U.S. who participated in national surveys that were conducted from 1963-1965 to 1988-1994. Because weight and height change during growth and development, as does their relation to body fatness, a child’s BMI must be interpreted relative to other children of the same sex and age (CDC, 2018b).



**Figure 4:** Project PEAS partnerships

- *HISD Health and Medical Services Department* provided school-based health services and assisted parents in completing applications for Children’s Medicaid and the Children’s Health Insurance Program (CHIP). Community resources were offered by school nurses to educate parents about health coverage options for their children.
- *Home Instruction for Parents of Preschool Youngsters (HIPPIY)* conducted home visits to provide families with activities and materials to use at home and in the community. HIPPIY helped parents help their children develop literacy skills.
- *HISD Family and Community Engagement Department (FACE)* provided assistance to parents through parent education and early reading development.
- *HISD Health and Physical Education Department* provided a certified physical education teacher to support a walking program before and after school (**Figure 5**).



**Figure 5:** Project PEAS families preparing for exercise class, 2018–2019



**Figure 6:** Houston Dental Clinic Project Saving Smiles, 2018–2019

- *Texas Children’ Hospital Mobile Van (TCH)* delivered comprehensive health and medical services, including well child exams, urgent exams, laboratory evaluations, immunizations, and pharmacy services. The TCH Mobile Van collaborated with the *Healthy Tomorrows Partnership for Children Program (HTPCP)* to conduct health screenings for obesity and diabetes-related illnesses and assisted with well child exams by measuring children’s Body Mass Index. Referrals were made for treatment if needed. Pediatricians provided books to parents in English and Spanish to encourage regular reading to their children. The *Reach Out and Read* program also facilitated literacy and school readiness by encouraging reading.
- *Houston Department of Health and Human Services Project Saving Smiles (PSS) Dental Clinic (Figure 6)* provided dental screenings, dental sealants, fluoride varnish, and oral health education to students with signed parental consent. The dental clinic operated on the campuses.
- *The Houston Food Bank - Backpack Buddies* delivered essential foods to children at their school to aid in proper mental and physical development.
- *Urban Harvest* worked with teachers, students, and their families at participating schools and within communities to provide education on earth and life sciences, to build a community garden, and maintain the gardens (**Figure 7**).
- *Children’s Health Insurance Program (CHIP)* and Children’s Medicaid delivered outreach services facilitated by the HISD



**Figure 7:** Project PEAS families preparing garden, 2018–2019

**Table 2: Project PEAS Partners and Key Outcomes, 2018–2019**

| Program Partners                               | Key Outcomes  |
|--|---|
| HISD Health and Medical Services school nurses | 346 students were screened and referred to medical services.  |
| Texas A&M University AgriLife                  | Held 9 cooking sessions with parents.   |
| City of Houston Dental Clinic                  | 415 children received preventative dental care, such as sealants<br>1,234 received oral health education. |
| Houston Food Bank - Backpack Buddies           | Provided fruits and vegetables to 35 families at each of the three campuses.                              |
| Print Books (through TCH mobile van)           | 346 students were distributed a book.   |
| HISD Health and Physical Education             | Distributed 36 pedometers per campus; held exercise classes for children weekly.                          |

Health and Medical Services Department and the TCH Mobile Van. Families were provided assistance to complete applications for health insurance.

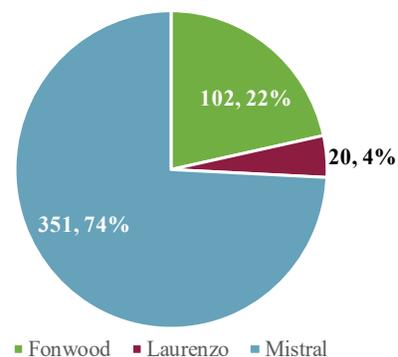
- *Texas A&M University (TAMU) AgriLife Extension Service* assisted families to make knowledgeable choices about food and nutrition, diet, and healthy lifestyles for their children and their families. Cooking classes were held for parents and their families.
- *Scholastic Inc.* provided books for the *Reach Out and Read* program carried out by pediatricians on the TCH Mobile Van.
- Children were distributed *ChopChop* magazines in English and Spanish to share with their families. The magazine was designed to teach families how to cook and have fun learning how to cook.
- *HISD Nutrition Services Department* offered healthier food choices for students by adding more fresh fruits and vegetables to school menus through the United States Department of Agriculture (USDA) *MyPlate* program.

Qualitative data were collected to demonstrate the impact of Project PEAS partnerships toward improving children and families’ access to health care and related activities in targeted communities. The results can be found in **Table 2**. Key findings were that the HISD Health and Medical Services Department screened and referred 346 children for medical services. These students were also distributed a book by the TCH Mobile Van. Further, 415 children received preventative dental care, including sealants, and 1,234 children received oral health education through the Houston Dental Clinic. The HISD Health and Physical

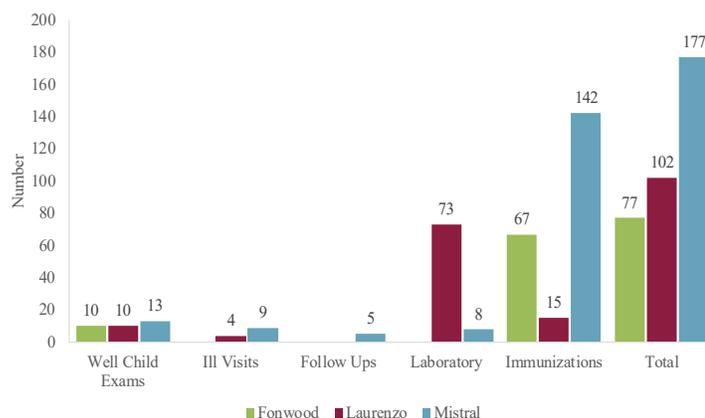
Education Department distributed 36 pedometers to each Project PEAS campus and held weekly exercise classes at the campuses.

**Figure 8** shows that 356 students, including 77 at Fonwood, 102 at Laurenzo, and 177 at Mistral received health care and related services through the TCH Mobile Van during the 2018–2019 academic year. The highest number of students at Mistral and Fonwood received immunizations (n = 142 and n = 67, respectively); whereas, the highest number of students at Laurenzo received laboratory services (n = 73).

Finally, Project PEAS students were assessed by school nurses for risk factors associated with developing diabetes using the Type 2 Diabetes Risk Assessment. A total of 473 students were assessed during the 2018–2018 academic year. **Figure 9** shows that assessments were conducted for 351 (74%) Mistral students, 102 (22%) Fonwood students, and 20 (4%) Laurenzo students.



**Figure 9:** Number and percentage of students assessed for Type 2 Diabetes by Project PEAS school, 2018–2019 (N = 473)

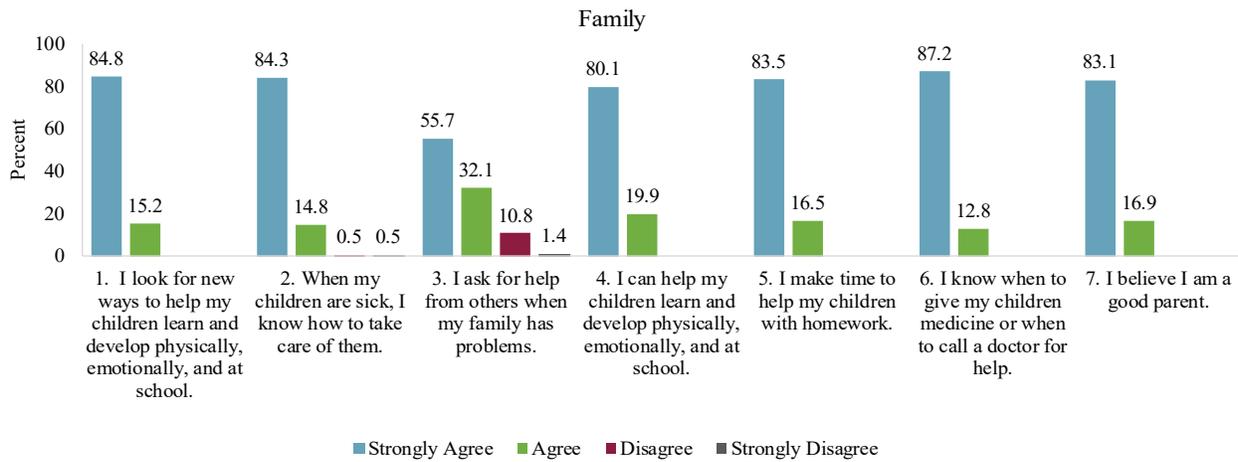


**Figure 8:** Health care and related services provided to Project PEAS children by the Texas Children’s Hospital Mobile Van, 2018–2019

**What were parents’ perceptions regarding the extent that Project PEAS empowered them to improve the healthy development of their child?**

**Figure 10** presents the perceptions of Project PEAS parents regarding the extent that the program empowered them to be active participants in their child’s healthy development. The results are shown by Family Empowerment Survey (FES) subscales (Family, Services, and Community).

On the “Family” subscale, the highest percentage of parents replied that they “strongly agreed” knowing when to give their children medicine or when to call a doctor for help (87.2%). Moreover, at least 84.0% of parents expressed strong agreement to the following items: “I look for new ways to help my children



**Figure 10:** “Family” subscale results of Project PEAS parents on the modified FES, spring 2019

learn and develop physically, emotionally, and at school (84.8%), and “When my children are sick, I know how to take care of them” (84.3%). Surveyed parents were much less likely to strongly agree that they ask for help from others when their families have problems (55.7%). Additional results, including mean ratings on “Family” subscale items can be found in **Table 2a** in **Appendix B** (p. 11).

Parents’ survey responses on the “Services” subscale are shown in **Figure 11**. The highest percentage of parents “strongly agreed” that “What I think is just as important as what doctors and nurses think about my children’s health” (74.2%). In addition, at least 70% of parents expressed strong agreement with the items: “I can work with teachers to decide the services my children need at school” (73.5%) and “I make sure that doctors and nurses know what services I think my children need” (71.2%). The majority of parents expressed strong agreement that their children should not receive healthcare services without their approval (55.7%). Mean ratings on “Services” subscale items can be found in **Table 2b**, Appendix B (p. 11).

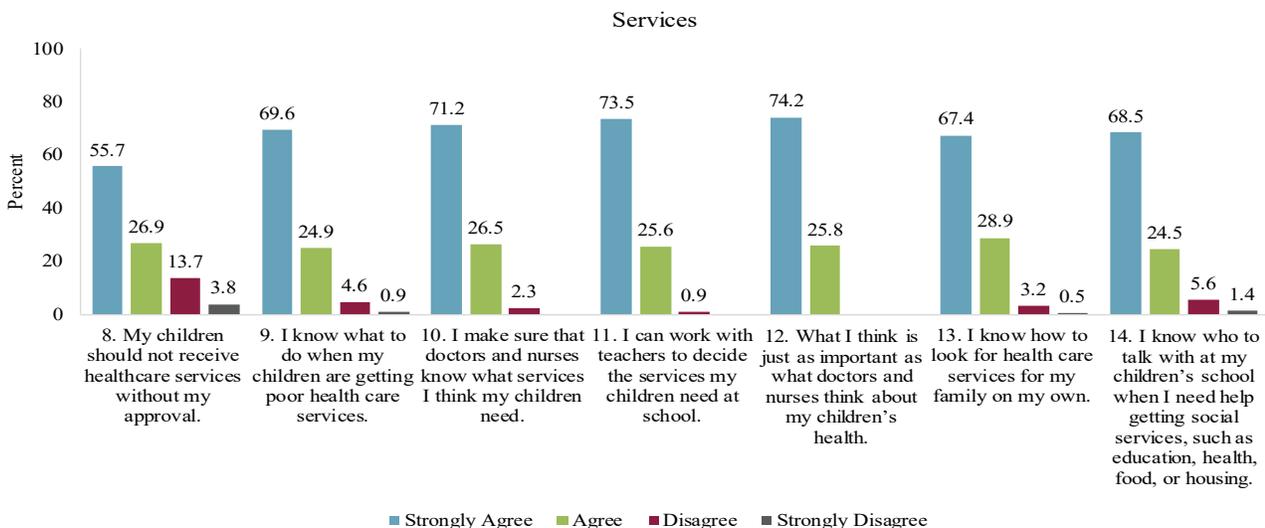
**Figure 12** depicts the perceptions of Project PEAS parents on “Community” subscale items. The highest percentage of parent respondents expressed strong agreement on the item “I know how

the health care program for children and families work” (50.5%). Slightly less than the majority of respondents indicated that they “strongly agreed” with the item “I can help children and families in my community get better health care services” (48.4%) and “I can use my experience as a parent to get better services for children and families in my community” (**Table 2c**, Appendix B (p. 12)).

Parents were also asked the extent that Project PEAS has helped families access health, education, and social services (**Figure 13**). The highest percentage of survey respondents “strongly agreed” the program has helped families access education services (52.5%), followed by health (49.7%) and social services, such as financial help, food, clothing, and shelter (46.7%). Overall disagreement in getting help with access from Project PEAS was most apparent for social services (17.6%). More details are depicted in **Table 2d**, Appendix B (p. 12).

### What was the impact of Project PEAS on students’ overweight and obesity rates?

Body Mass Index (BMI) was calculated to determine overweight/obesity status of students at Project PEAS schools based on CDC criteria found in **Appendix C** (p. 13). Paired



**Figure 11:** “Services” subscale results of Project PEAS parents on the modified FES, spring 2019

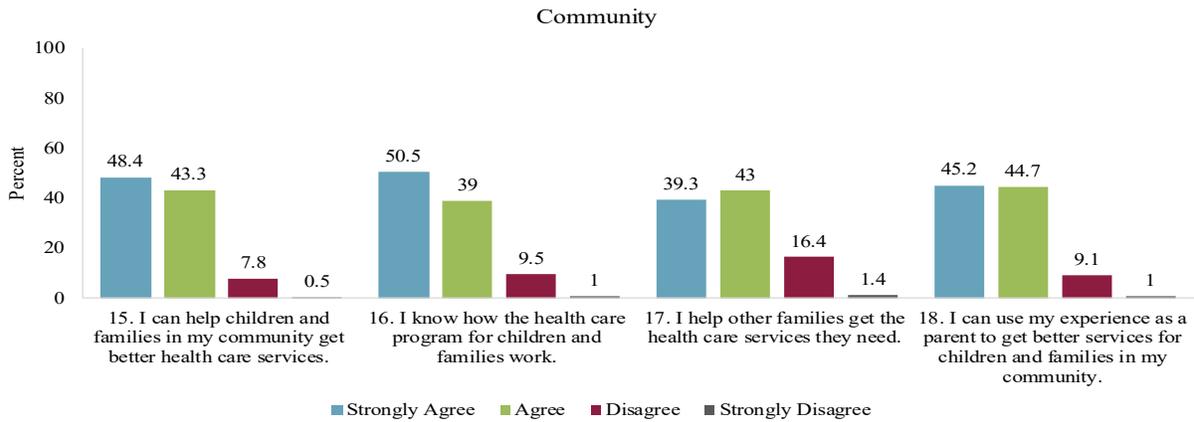


Figure 12: “Community” subscale results of Project PEAS parents on the modified FES, spring 2019

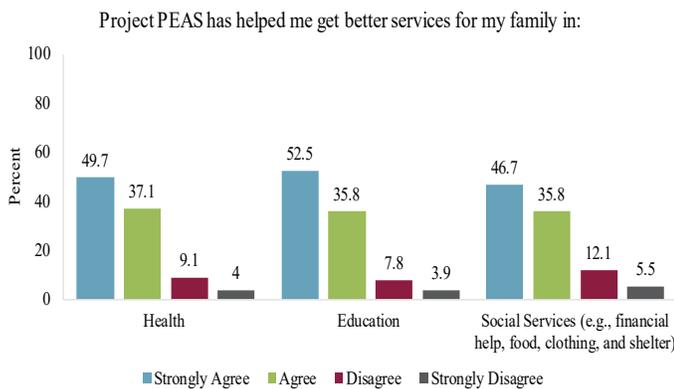


Figure 13: Project PEAS helped to get better services for family

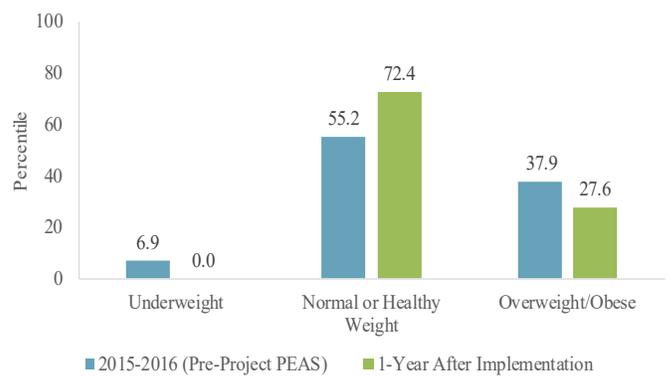


Figure 14: Paired t-test analyses, 2018–2019

samples analyses yielded BMI results for 29 students who attended targeted schools prior to program implementation (2015–2016) and 1-year after implementation (2016–2017). The sample size was small, possibly due to the natural advancement of students from prekindergarten to kindergarten programs where BMI is not measured. Due to the small sample size, the results should be viewed with caution. Figure 14 shows an increase in the percentage of students who fell within the normal or healthy weight category from year-to-year (55.2% to 72.4%). There was a decrease in the percentage of students that fell within the overweight/obese category over the same time period (37.9% to 27.6%). The percentage of students who were underweight also decreased (6.9% to 0.0%).

### What was the performance of Project PEAS prekindergarten students on the 2019 CIRCLE school readiness assessment relative to building their reading skills?

CIRCLE Early Language and Literacy school readiness assessments were used as a proxy to measure reading readiness of Project PEAS students. Wave 1 of CIRCLE was the pretest measure and Wave 3 was the posttest measure for Alliteration, Rapid Letter Naming, and Rapid Vocabulary subtests. Wave 2 and Wave 3 were used as the pretest and posttest measures for the Letter Sounds subtest. Both English and Spanish language literacy CIRCLE assessment data are presented. Only students with both waves were used in the analyses. Gain scores were calculated for prekindergarten students in Project PEAS schools.

A group of prekindergarten students with CIRCLE assessment scores who were not enrolled in Project PEAS schools were used as a comparison group (Non-PEAS).

Table 3a (Appendix D, p. 14) and Figure 15 depict the performance of prekindergarten students at Project PEAS schools on English language CIRCLE assessments. Fonwood students made the largest gains in their performance on the CIRCLE English Alliteration and Rapid Letter Naming subtests (Mean Gains = 2.8 and 30.2, respectively); while Mistral students made the largest gain on the Letter Sounds (Mean Gain = 11.0) and Rapid Vocabulary subtests (Mean Gain = 17.4).

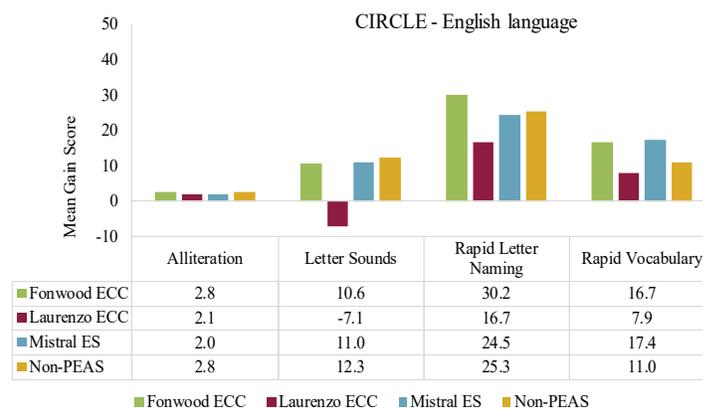
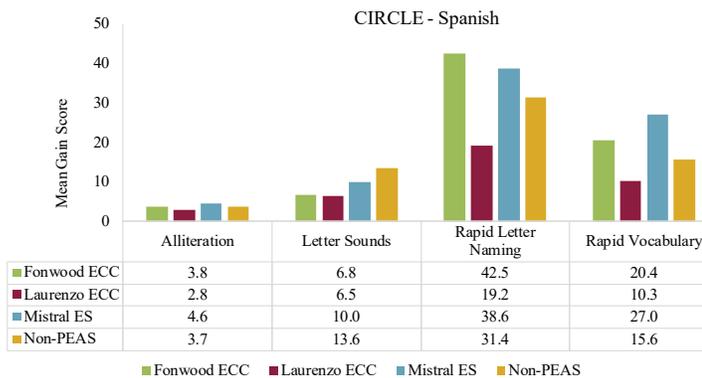


Figure 15: CIRCLE English language assessments, mean gain scores over two points in time during the 2018–2019 academic year



**Figure 16:** CIRCLE Spanish language assessments, mean gain scores over two points in time during the 2018–2019 academic year

Figure 15 shows that Fonwood students had comparable gain scores as Non-PEAS students on the CIRCLE English language Alliteration subtest (Mean Gain Score = 2.8). Fonwood students outperformed Non-PEAS students on the English language Rapid Letter Naming (30.2 vs. 25.3) and the Rapid Vocabulary subtests (16.7 vs. 11.0). Mistral Project PEAS prekindergarten students also outperformed Non-PEAS prekindergarten students on the Rapid Vocabulary subtest (17.4 vs. 11.0) (Figure 15, p. 7).

**Table 3b** (Appendix D, p. 14) and **Figure 16** present the performance of students at Project PEAS schools on Spanish Early Language and Literacy CIRCLE assessments. Mistral students made the largest gains in performance on the CIRCLE Spanish language Alliteration, Letter Sounds, and Rapid Vocabulary subtests (Mean Gain Score = 4.6, 10.0, and 27.0, respectively); and Fonwood students made the largest gain on the Rapid Letter Naming subtest (Mean Gain Score = 42.5).

Figure 16 reveals that Fonwood students outperformed Non-PEAS students on the CIRCLE Spanish language Alliteration subtest (Mean Gain Scores = 3.8 vs. 3.7), Rapid Letter Naming subtest (Mean Gain Scores = 42.5 vs. 31.4), and the Rapid Vocabulary subtest (Mean Gain Scores = 20.4 vs. 15.6). Mistral Project PEAS prekindergarten students also outperformed Non-PEAS prekindergarten students on the Alliteration subtest (Mean Gain Scores = 4.6 vs. 3.7), Rapid Letter Naming subtest (Mean Gain Scores = 38.6 vs. 31.4), and the Rapid Vocabulary subtest (Mean Gain Score = 27.0 vs. 15.6).

## Discussion

This program evaluation assessed the implementation of Project PEAS in HISD toward improving health care and related services for students and their families at Fonwood, Laurenzo, and Mistral early childhood centers. Among the 1,170 students enrolled at targeted schools during the 2018–2019 academic year, 356 students were provided immunizations, well child exams, and laboratory services by physicians through the Texas Children’s Hospital Mobile Van. Health and medical screenings were conducted for 346 students in the van. Moreover, 473 students were assessed for Type 2 Diabetes. Students who visited the van were distributed a book to support reading readiness. Preventative dental care provided by the Houston Dental Clinic included sealants for 415 children and oral health education for 1,234 children. Families also received food through Backpack Buddies.

Parents in the targeted schools were surveyed to determine the program’s ability to empower them to improve their child’s healthy development. More than 80.0% of parents were in agreement that the program helped them access better services for their families. More specifically, parents strongly agreed that the program has helped them get education (52.5%), health (49.7%), and social services (46.7%) for their children.

A paired samples analysis of the program’s impact on reducing overweight/obesity rates revealed an increase in the percentage of normal and healthy weight children (55.2% to 72.4%), and a decrease in the percentage of overweight/obese children (37.9% to 27.6%) from baseline (2015–2016) to 1-year after program implementation (2016–2017). However, the sample size was limited. Collecting BMI data on more children may provide additional evidence regarding the program’s impact in this area.

Reading readiness was assessed using the CIRCLE assessment. Fonwood prekindergarten students had comparable gain scores as Non-PEAS students on the CIRCLE English language Alliteration subtest. Fonwood students also outperformed Non-PEAS students on the English language Rapid Letter Naming subtest. Both Fonwood and Mistral Project PEAS prekindergarten students outperformed Non-PEAS prekindergarten students on the English language Rapid Vocabulary subtest. Fonwood and Mistral students outperformed Non-PEAS students on the CIRCLE Spanish language Alliteration, Rapid Letter Naming, and Rapid Vocabulary subtests.

The evaluation revealed that Project PEAS partners were in a unique position to empower parents within the targeted communities to address the health needs of their children during early years of development. Benefits were observed relative to exposing children and their families to health care and related services using strategies delivered through partnerships. However, there were indications that parents may be hesitant to seek services that their families need. An expansion of marketing strategies, may not only build trust in the health care system, but also support sustainability of the program through the expansion of resources available to families in their communities. Continued support of the program may also help to bridge the gap between health and education systems to ensure that young children become healthy adults.

## References

- Avis, J. L., Cave, A. L., Donaldson, S., Ellendt, C., Holt, N. L., Jelinski, S., ... & Ball, G. D. (2015). Working With Parents to Prevent Childhood Obesity: Protocol for a Primary Care-Based eHealth Study. *JMIR research protocols*, 4(1), e35. doi:10.2196/resprot.4147
- Basch, C. E. (2010). *Healthier Students Are Better Learners: A Missing Link in Efforts to Close the Achievement Gap*. New York: New York. Columbia University. Retrieved from [http://www.equitycampaign.org/i/a/document/12557\\_EquityMattersVol6\\_Web03082010.pdf](http://www.equitycampaign.org/i/a/document/12557_EquityMattersVol6_Web03082010.pdf).
- Biro, F. M., & Wien, M. (2010). Childhood obesity and adult morbidities. *Am J Clin Nutr*, 91(5):1499S–1505S.
- Brutus, S., Aguinis, H., & Wassmer, U. (2013). Self-Reported Limitations and Future Directions in Scholarly Reports: Analysis and Recommendations. *Journal of Management*, 39(1), 48–75. <https://doi.org/10.1177/0149206312455245>
- Centers for Disease Control and Prevention. (2018a). Child-

hood Obesity Facts. Retrieved from <https://www.cdc.gov/healthyschools/obesity/facts.htm>

Centers for Disease Control and Prevention. (2018b). Healthy Weight. Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion. Retrieved from [https://www.cdc.gov/healthyweight/assessing/bmi/childrens\\_bmi/about\\_childrens\\_bmi.html](https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html)

Children's Learning Institute. (2016). CIRCLE Progress Monitoring. Retrieved from, <https://www.childrenslearninginstitute.org/resources/circle-progress-monitoring/>

Christensen, P. (2004). The Health-promoting Family: A Conceptual Framework for Future Research, *Social Science and Medicine*, 59, 377-387.

Donoghue, E. (2017). Quality Early Education and Child Care From Birth to Kindergarten Council on Early Childhood. *Pediatrics*, 140 (2) e20171488; doi: 10.1542/peds.2017-148

Fryar, C. D., Carroll, M. D., & Ogden, C. L. (2014). Prevalence of overweight and obesity among children and adolescents: United States, 1963-1965 through 2011-2012. *Health E-Stats*. Retrieved from [https://www.cdc.gov/nchs/data/hestat/obesity\\_child\\_11\\_12/obesity\\_child\\_11\\_12.htm](https://www.cdc.gov/nchs/data/hestat/obesity_child_11_12/obesity_child_11_12.htm).

Golan, M., & Crow, S. (2004). Targeting Parents Exclusively in the Treatment of Childhood Obesity: Long-term Results of Child-hood Obesity, *Obesity Research*, 12(2), 357-361.

Griffiths, L. I., Parsons, T. J., & Hill, A. J. (2010). Self-esteem and quality of life in obese children and adolescents: a systematic review. *Int J Pediatr Obes.*, 5(4):282-304.\

Hafon, N. H., Larson, K., & Slusser, W. (2013). Associations between obesity and comorbid mental health, developmental and physical health conditions in a nationally representative sample of US children aged 10 to 17. *Acad Pediatr.*, 13(1):6-13.

Hales, C. M., Carroll, M. D., Fryar, C. D., & Ogden, C. L. (2017). Prevalence of obesity among adults and youth: United States, 2015-2016. *NCHS Data Brief*. 288:1-8.

Koren, P. E., DeChillo, N., & Friesen, B. J. (1992). Measuring empowerment in families whose children have emotional disorders. *Rehabilitation Psychology*, 37, 305-321.

Lindsay, A. C., Sussner, K.M., Kim, J., & Gortmaker, S. L. (2006). The Role of Parents in Preventing Childhood Obesity, *The*

*Future of Children*, 16(1), 169-186.

Lloyd, L. J., Langley-Evans, S. C., & McMullen, S. (2012). Childhood obesity and risk of the adult metabolic syndrome: a systematic review. *Int J Obes (Lond)*, 36(1):1-11.

Michou, M., Costarelli, V., & Panagiotakos, D. B. (2018). Low health literacy and excess body weight: a systematic review. *Central European Journal of Public Health*, 26(3), 234-241. <https://doi-org.contentproxy.phoenix.edu/10.21101/cejph.a5172>

Mo, X., Xu, L., Luo, H., Wang, X., Zhang, F., & Gai, T. R. (2016). Do different parenting patterns impact the health and physical growth of 'left-behind' preschool-aged children? A cross-sectional study in rural China. *Eur J Public Health*, 26(1):18-23.

Novilla, M. L., Barnes, M. D., & de la Cruz, N. G. et al. (2006). Public Health Perspectives on the Family: An Ecological Approach to Promoting Health in the Family and Community. *Family and Community Health*, 29, 28-42.

Peterson, K. E., & Fox, M. K. (2007). Addressing the Epidemic of Childhood Obesity Through School-Based Interventions: What Has Been Done and Where Do We Go From Here? *Journal of Law, Medicine & Ethics*, 35(1), 113-130. Retrieved from <https://doi-org.contentproxy.phoenix.edu/10.1111/j.1748-720X.2007.00116.x>

Peterson, J., Bruce, J., Patel, N., & Chamberlain, L. J. (2018). Parental Attitudes, Behaviors, and Barriers to School Readiness among Parents of Low-Income Latino Children. *International Journal Of Environmental Research And Public Health*, 15(2). <https://doi-org.contentproxy.phoenix.edu/10.3390/ijerph15020188>

Shih, S. F., Liu, C. H., Liao, L. L., & Osborne, R. H. (2016). Health literacy and the determinants of obesity: a population-based survey of sixth grade school children in Taiwan. *BMC Public Health*. 16:280. doi: 10.1186/s12889-016-2879-2.

Singh, A. S., Mulder, C., Twisk, J.W., Van Mechelen, V., & Chinapaw, M. J. (2008). Tracking of childhood overweight into adulthood: a systematic review of the literature. *Obes Rev.*, 9(5): 474-488.

van Geel, M., Vedder, P., & Taniol, J. (2014). Are overweight and obese youths more often bullied by their peers? A meta-analysis on the correlation between weight status and bullying. *Int J Obes (Lond)*, 38, 1263-1267.

## Appendix A

**Table 1: Demographic Characteristics of Students at Targeted Schools and the District, 2018–2019**

|                                | Fonwood<br>ECC<br>(N = 557) |      | Mistral<br>ECC<br>(N = 355) |      | Laurenzo<br>ECC<br>(N = 345) |       | District<br>(EE, PK, and Kindergarten)<br>(N = 30,999) |      |
|--------------------------------|-----------------------------|------|-----------------------------|------|------------------------------|-------|--|------|
|                                | N                           | %    | N                           | %    | N                            | %     | N  | %    |
| <b>Gender</b>                  |                             |      |                             |      |                              |       |  |      |
| Female                         | 290                         | 52.1 | 167                         | 47.0 | 176                          | 51.0  | 15,264   | 49.2 |
| Male                           | 267                         | 47.9 | 188                         | 53.0 | 169                          | 49.0  | 15,735   | 50.8 |
| <b>Race/Ethnicity</b>          |                             |      |                             |      |                              |       |  |      |
| Asian                          | 0                           | -    | 11                          | 3.1  | 2                            | .6    | 1,332  | 4.3  |
| American Indian                | 0                           | -    | 0                           | -    | 0                            | -     | 45   | 0.1  |
| African American               | 345                         | 61.9 | 38                          | 10.7 | 10                           | 2.9   | 7,680  | 24.8 |
| Hispanic                       | 209                         | 37.5 | 287                         | 80.8 | 329                          | 95.4  | 19,330   | 62.4 |
| Native Hawaiian/Other Islander |                             |      | 1                           | .3   |                              |       | 10   | <0.1 |
| White                          | 1                           | .2   | 16                          | 4.5  | 3                            | .9    | 2,239  | 7.2  |
| Two or More Races              | 2                           | .4   | 2                           | .6   | 1                            | .3    | 363  | 1.2  |
| <b>Eco. Disadvantaged</b>      | 554                         | 99.5 | 351                         | 98.9 | 345                          | 100.0 | 26,838   | 86.6 |
| <b>At-risk</b>                 | 493                         | 88.5 | 342                         | 96.3 | 337                          | 97.7  | 25,392   | 81.9 |
| <b>Special Education</b>       | 29                          | 5.2  | 19                          | 5.4  | 12                           | 3.5   | 1,485  | 4.8  |
| <b>Gifted/Talented</b>         | 0                           | -    | 0                           | -    | 0                            | -     | 661  | 2.1  |
| <b>Limited English</b>         | 170                         | 30.5 | 278                         | 78.3 | 173                          | 50.1  | 13,087   | 42.2 |

Source: PEIMS

Notes: ECC = Early Childhood Center

Population counts include students classified as EE (Early Education), PK (prekindergarten), and kindergarten.

## Appendix B

**Table 2a: “Family” Subscale Results of Project PEAS Parents on the Modified FES, Spring 2019**

|  | Mean Ratings | Strongly Agree |      | Agree |      | Disagree |      | Strongly Disagree |     | Total N |
|--|--------------|----------------|------|-------|------|----------|------|-------------------|-----|---------|
|  |              | N              | %    | N     | %    | N        | %    | N                 | %   |         |
| 1. I look for new ways to help my children learn and develop physically, emotionally, and at school. | 3.9          | 184            | 84.8 | 33    | 15.2 | -        | -    | -                 | -   | 217     |
| 2. When my children are sick, I know how to take care of them.                                       | 3.8          | 182            | 84.3 | 32    | 14.8 | 1        | .5   | 1                 | .5  | 216     |
| 3. I ask for help from others when my family has problems.   | 3.4          | 118            | 55.7 | 68    | 32.1 | 23       | 10.8 | 3                 | 1.4 | 212     |
| 4. I can help my children learn and develop physically, emotionally, and at school.                  | 3.8          | 173            | 80.1 | 43    | 19.9 | -        | -    | -                 | -   | 216     |
| 5. I make time to help my children with homework.  | 3.8          | 182            | 83.5 | 36    | 16.5 | -        | -    | -                 | -   | 218     |
| 6. I know when to give my children medicine or when to call a doctor for help.                       | 3.9          | 190            | 87.2 | 28    | 12.8 | -        | -    | -                 | -   | 218     |
| 7. I believe I am a good parent.   | 3.8          | 177            | 83.1 | 36    | 16.9 | -        | -    | -                 | -   | 213     |

**Note:** Mean ratings were calculated based on the following scale: “strongly agree” = 4, “agree” = 3, “disagree” = 2, or “strongly disagree” = 1

**Table 2b: “Services” Subscale Results of Project PEAS Parents on the Modified FES, Spring 2019**

|  | Mean | Strongly Agree |      | Agree |      | Disagree |      | Strongly Disagree |     | Total N |
|--|------|----------------|------|-------|------|----------|------|-------------------|-----|---------|
|  |      | N              | %    | N     | %    | N        | %    | N                 | %   |         |
| 8. My children should not receive healthcare services without my approval.   | 3.3  | 118            | 55.7 | 57    | 26.9 | 29       | 13.7 | 8                 | 3.8 | 212     |
| 9. I know what to do when my children are getting poor health care services.   | 3.6  | 151            | 69.6 | 54    | 24.9 | 10       | 4.6  | 2                 | .9  | 217     |
| 10. I make sure that doctors and nurses know what services I think my children need.   | 3.7  | 153            | 71.2 | 57    | 26.5 | 5        | 2.3  | -                 | -   | 215     |
| 11. I can work with teachers to decide the services my children need at school.  | 3.7  | 161            | 73.5 | 56    | 25.6 | 2        | .9   | -                 | -   | 219     |
| 12. What I think is just as important as what doctors’ and nurses’ think about my children’s health.                                       | 3.7  | 161            | 74.2 | 56    | 25.8 | -        | -    | -                 | -   | 217     |
| 13. I know how to look for health care services for my family on my own.   | 3.6  | 147            | 67.4 | 63    | 28.9 | 7        | 3.2  | 1                 | .5  | 218     |
| 14. I know who to talk with at my children’s school when I need help getting social services, such as education, health, food, or housing. | 3.6  | 148            | 68.5 | 53    | 24.5 | 12       | 5.6  | 3                 | 1.4 | 216     |

**Note:** Mean ratings were calculated based on the following scale: “strongly agree” = 4, “agree” = 3, “disagree” = 2, or “strongly disagree” = 1

## Appendix B (cont'd)

**Table 2c: “Community” Subscale Results of Project PEAS Parents on the Modified FES, Spring 2019**

|   | Mean Ratings | Strongly Agree |      | Agree |      | Disagree |      | Strongly Disagree |     | Total N |
|---|--------------|----------------|------|-------|------|----------|------|-------------------|-----|---------|
|   |              | N              | %    | N     | %    | N        | %    | N                 | %   |         |
| 15. I can help children and families in my community get better health care services.                     | 3.4          | 105            | 48.4 | 94    | 43.3 | 17       | 7.8  | 1                 | .5  | 217     |
| 16. I know how the health care program for children and families work.                                    | 3.4          | 106            | 50.5 | 82    | 39.0 | 20       | 9.5  | 2                 | 1.0 | 210     |
| 17. I help other families get the health care services they need.   | 3.2          | 84             | 39.3 | 92    | 43.0 | 35       | 16.4 | 3                 | 1.4 | 214     |
| 18. I can use my experience as a parent to get better services for children and families in my community. | 3.3          | 94             | 45.2 | 93    | 44.7 | 19       | 9.1  | 2                 | 1.0 | 208     |

**Note:** Mean ratings were calculated based on the following scale: “strongly agree” = 4, “agree” = 3, “disagree” = 2, or “strongly disagree” = 1

**Table 2d: Overall Perceptions Regarding Project PEAS Helping Families Access Health, Education, and Social Services, Spring 2019**

|   | Strongly Agree |      | Agree |      | Disagree |      | Strongly Disagree |     | Total N |
|---|----------------|------|-------|------|----------|------|-------------------|-----|---------|
|   | N              | %    | N     | %    | N        | %    | N                 | %   |         |
| Health  | 87             | 49.7 | 65    | 37.1 | 16       | 9.1  | 7                 | 4.0 | 175     |
| Education   | 94             | 52.5 | 64    | 35.8 | 14       | 7.8  | 7                 | 3.9 | 179     |
| Social Services (e.g., financial help, food, clothing, and shelter) | 77             | 46.7 | 59    | 35.8 | 20       | 12.1 | 9                 | 5.5 | 165     |

## Appendix C

The BMI-for-age percentile growth charts are the most commonly used indicator to measure the size and growth patterns of children and teens in the United States. BMI-for-age weight status categories and the corresponding percentiles were based on expert committee recommendations and are shown in the following table.

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

**Source:** Centers for Disease Control and Prevention (2018a). Retrieved from [https://www.cdc.gov/healthyweight/assessing/bmi/childrens\\_bmi/about\\_childrens\\_bmi.html](https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html)

## Appendix D

**Table 3a: CIRCLE, Language and Literacy Assessments, English, 2018–2019**

| English      | Alliteration     |        |                   |            | Letter Sounds |                  |                   |            |
|--------------|------------------|--------|-------------------|------------|---------------|------------------|-------------------|------------|
|              | Wave 1 (Pretest) | Wave 2 | Wave 3 (Posttest) | Gain Score | Wave 1        | Wave 2 (Pretest) | Wave 3 (Posttest) | Gain Score |
|              | Mean Score       |        |                   |            | Mean Score    |                  |                   |            |
| Fonwood ECC  | 3.2              | 4.9    | 5.9               | 2.8        |               | 35.9             | 46.5              | 10.6       |
| Laurenzo ECC | 2.5              | 3.8    | 4.6               | 2.1        |               | 40.4             | 33.3              | -7.1       |
| Mistral ES   | 3.3              | 4.2    | 5.3               | 2.0        |               | 31.7             | 42.7              | 11.0       |

|              | Rapid Letter Naming |        |                   |            | Rapid Vocabulary |        |                   |            |
|--------------|---------------------|--------|-------------------|------------|------------------|--------|-------------------|------------|
|              | Wave 1 (Pretest)    | Wave 2 | Wave 3 (Posttest) | Gain Score | Wave 1 (Pretest) | Wave 2 | Wave 3 (Posttest) | Gain Score |
|              | Mean Score          |        |                   |            | Mean Score       |        |                   |            |
| Fonwood ECC  | 10.1                | 28.1   | 40.4              | 30.2       | 13.9             | 22.8   | 30.5              | 16.7       |
| Laurenzo ECC | 8.1                 | 16.3   | 24.8              | 16.7       | 14.6             | 20.5   | 22.5              | 7.9        |
| Mistral ES   | 14.1                | 28.2   | 38.6              | 24.5       | 11.4             | 19.6   | 28.8              | 17.4       |

**Table 3b: CIRCLE, Language and Literacy Assessments, Spanish, 2018–2019**

| Spanish      | Alliteration     |        |                   |            | Letter Sounds |                  |                   |            |
|--------------|------------------|--------|-------------------|------------|---------------|------------------|-------------------|------------|
|              | Wave 1 (Pretest) | Wave 2 | Wave 3 (Posttest) | Gain Score | Wave 1        | Wave 2 (Pretest) | Wave 3 (Posttest) | Gain Score |
|              | Mean Score       |        |                   |            | Mean Score    |                  |                   |            |
| Fonwood ECC  | 2.6              | 5.5    | 6.4               | 3.8        |               | 44.9             | 51.7              | 6.8        |
| Laurenzo ECC | 1.6              | 4.1    | 4.4               | 2.8        |               | 29.3             | 35.8              | 6.5        |
| Mistral ES   | 1.4              | 4.7    | 6.0               | 4.6        |               | 38.2             | 48.2              | 10.0       |

|              | Rapid Letter Naming |        |                   |            | Rapid Vocabulary |        |                   |            |
|--------------|---------------------|--------|-------------------|------------|------------------|--------|-------------------|------------|
|              | Wave 1 (Pretest)    | Wave 2 | Wave 3 (Posttest) | Gain Score | Wave 1 (Pretest) | Wave 2 | Wave 3 (Posttest) | Gain Score |
|              | Mean Score          |        |                   |            | Mean Score       |        |                   |            |
| Fonwood ECC  | 5.3                 | 37.2   | 47.9              | 42.5       | 8.9              | 22.6   | 29.4              | 20.4       |
| Laurenzo ECC | 5.6                 | 15.6   | 24.8              | 19.2       | 5.5              | 12.9   | 15.8              | 10.3       |
| Mistral ES   | 3.1                 | 27.4   | 41.7              | 38.6       | 5.3              | 19.6   | 32.4              | 27.0       |