Transcending the Obesity Challenge: Taking Action

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Transcending the Obesity Challenge: Time to Take Action

Obesity Statistics

Adult obesity prevalence in Texas was 33.6% in 2017.

Children in Texas have rates of obesity that are 21.2% higher than those of children in the U.S. as a whole.

Twenty percent of children in Texas aged 10-17 years are considered obese.

Childhood Obesity Increases:

Asthma
Type-2 diabetes
High blood Pressure
Sleeping problems
Lower academic achievement
Depression
Bullying
Obesity in adulthood

Costs of Obesity in Texas

$32.5 billion per year by 2040
$4 billion just for children 10-17

Obesity is a Major Public Health Challenge in Texas

The high prevalence of obesity in Texas and the rest of the United States across the lifespan has been and continues to be one of our most concerning public health issues. The prevalence of obesity in 2016-16 among US adults aged 20 and older was about 39.8%, and substantially higher among Hispanic (47.0%) and non-Hispanic blacks (46.8%) (Hales et al., 2017). Similar racial and ethnic disparities are seen among US children aged 2-19 years, where the overall prevalence of obesity in 2015-2016 was 18.5%. (Hales et al., 2017), while in Texas the prevalence of obesity among 4th graders in 2015-16 was 23% (SPAN, 2017), a 21.2% difference. In Texas in 2017, data from Behavioral Risk Factor Surveillance System (BRFSS) indicate that 33.6% of adults have obesity (CDC, 2018).

For adults, obesity implies elevated risk for a multitude of diseases, including increased risk of developing type 2 diabetes, high blood pressure, heart disease, stroke, arthritis, sleep apnea, liver disease, kidney disease, gallbladder disease, and certain types of cancer (CDC, 2017: Di Angelantonio et al., 2018; Flegal et al, 2012).

Childhood obesity in Texas is on the rise. The statewide School Physical Activity and Nutrition (SPAN) survey, conducted four times between 2000-2002 and 2015-2016 among 4th, 8th, and 11th grade children across the state, illustrates the variations across ages and years.

Figure 1. Trends in prevalence of obesity in Texas, by grade, SPAN 2000-2002 to SPAN 2015-2016

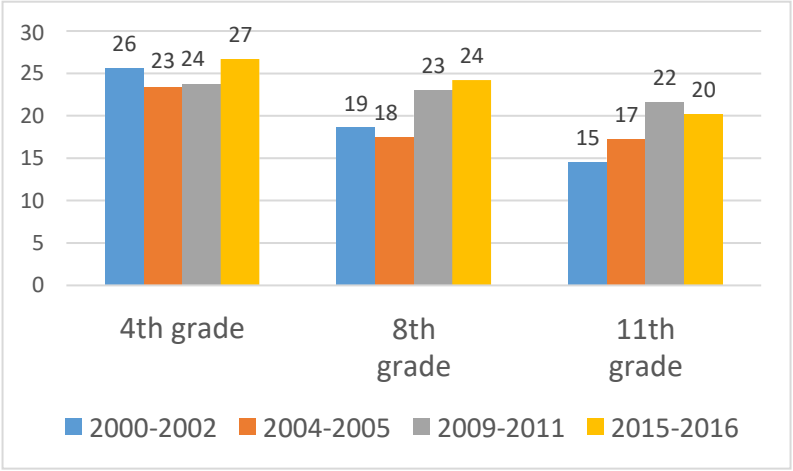


Figure 1 shows that between 2000-2002 and 2015-2016, the prevalence of obesity and overweight has increased in most age groups, particularly middle and high-school aged children (Hoelscher et al., 2017). Childhood obesity can also have devastating effects, including increased risk of asthma, early-onset type-2 diabetes, high blood pressure, sleeping difficulties, and a higher risk of being obese as an adult (McCrindle, 2015). Obesity in childhood is also associated with lower academic achievement (Fedewa & Ahn, 2011), and increases the risk of depression and bullying (Rankin et al., 2016.) Overall, obesity is estimated to be responsible for 19% of all-cause mortality in North America (Di Angelantonio et al., 2018).

While it is difficult to assess the personal costs of diminished health and a shortened lifespan due to obesity, we can quantify the medical costs. For Texas alone, those costs are estimated to be $32.5 billion annually by 2040 (Combs, 2011). On a per person basis, Finkelstein, Grahan & Malkotra (2014) estimate that an obese child will accumulate an extra $12,900 in medical costs compared to a normal weight child. For Texas, with over 20% of children between the ages 10-17 having obesity, and at 1,533,110 children in Texas (US Census Bureau, 2018) the price tag is estimated at $4 billion dollars in medical costs tied to childhood obesity.

Reducing childhood obesity

Preschool Children

Higher levels of physical activity among children aged 0-2 are associated with improved motor skill development, psychosocial health, and fitness f (Timmons, et al., 2009). Nutrition in earliest childhood is also critical, establishing lifelong consumption behaviors and food preferences that influence health over an entire lifespan (Gugusheff, Ong & Muhlhausler, 2018). Unique to this age, the effects of screen time are largely negative, often displacing child-adult interactions, language acquisition and reducing physical activity at a developmentally sensitive time (Bortz & Davidson, 2017). In fact, the American Academy of Pediatrics recommends zero screen time for infants less than 18 months, and no more than 1 hour per day for children between 2 and 5 years old (ACA, 2016). Finally, the impact of quality Early Childhood Education is especially strong for disadvantaged children, making this area one of the most important for reducing health and income disparities (Elango et al., 2015).

A Wise Investment

Every dollar spent in quality Early Childhood Education will return 7-10% annually, which is better than the stock market has averaged up to 2008.

Supporting excellence in Early Childhood Education is one of the best investments Texas can make. Every dollar invested in quality Early Childhood Education is estimated to return 7-10% annually—far higher than the stock market average of 5.8% before 2008 (Perry et al., 2010). The influence of high-quality childcare has been linked directly to decreased prevalence in childhood obesity, as demonstrated by a 25% reduction in obesity among children exposed to full day Head Start, compared to those in half

day programs (Frisvold & Lumeng, 2011). **Texas should continue to take steps to ensure that children aged 2- 4 years are given the benefits of good nutrition, physical activity opportunities, and limited screen time while in others' care.**

School age children

Obesity among children continues to be a burden for all Texans, but it is one that can be addressed with evidence-driven policies. We know that intervening in strategic ways can significantly improve obesity outcomes. For example, a high-quality implementation of a coordinated school health program, the Coordinated Approach To Child Health, CATCH, in elementary schools in Central Texas resulted in an 8.3% in obesity reduction compared to schools without CATCH (Hoelscher, et al., 2010). In El Paso, implementation of CATCH together with changes in school rules regarding foods sold at schools, a TV/radio ad campaign, community-based nutrition education, and a walking program, saw a 7% decrease in the prevalence of obesity among 4th graders from 2000-2002 to 2004-2005 (Hoelscher, et al., 2010). Unfortunately, some of these initiatives were not sustained, and some of the school-based policies have eroded over time. When the El Paso area was measured in 2009-2011, the prevalence of obesity among 4th grade children in that area returned to the levels in 2000-2002 (Hoelscher et al., 2017). These data show that it is important to maintain robust policy efforts for obesity prevention through schools over time.

Evidence-Driven Strategies

Coordinated Approach to Child Health (CATCH) was successful in Central Texas, showing an 8.3% decrease in obesity among 4th graders, and in El Paso, where there was a 7% decrease in obesity among 4th graders.

Including Physical Activity Across the Childhood Years and Adolescence

Elementary- and middle school-age children

SOLUTION: Physical Education AND Recess

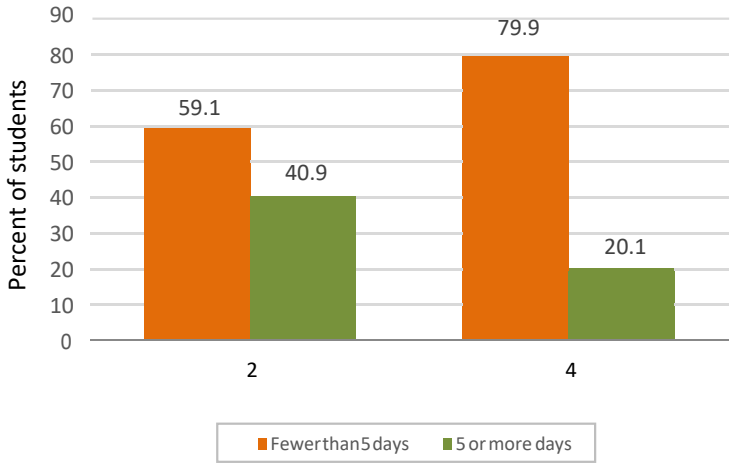
- ✓ Improved cognitive functioning
- ✓ Higher academic achievement
- ✓ Better classroom behavior
- ✓ Social development

School-based physical education (PE) and recess time are important to fulfilling both physiological and psychosocial needs of young children to be active, and to develop social skills and emotional intelligence (Janssen & LeBlanc, 2010). Physical Education is structured, sequential and supervised, and is essential for establishing healthy, regular physical activity habits (Bailey et al., 2009). Recess is also important for a child's healthy development, providing opportunities for unstructured playtime, social interaction

and independent problem solving (Ridgers et al., 2012). The benefits of adequate PE and regular recess time include improved cognitive functioning and academic achievement (Castelli et la., 2007; Chomitz et al., 2009), better classroom behavior (Borros, Silver & Stein, 2009; Ridgway at al., 2003), and overall social development (Burdette & Whitaker, 2005). Further, research among Hispanic youth in Texas suggests that more than half of recess time (66.4%) is spent in moderate-to-vigorous physical activity (Springer at al., 2013).

However, many elementary schools in Texas do not offer recess, or offer recess after lunch (SPAN, 2017), when research shows it is less beneficial to students (Price & Just, 2015). The lack of a statewide recess policy in Texas means that districts create their own policies in some places, and no policies in others, leaving many children with no regular access to the school playground. We have learned that children's opportunities for unstructured play are limited. SPAN 2015-2016 data show that only 32% of 2nd grade children enjoy five or more days of at least 30 minutes of outdoor play in the past week (as reported by parents) (SPAN, 2017) (Figure 2).

Figure 2: Recess Times in Elementary Schools, SPAN data 2015-16



Recess in Texas

No statewide policy means many young children have inconsistent access to recess.

Only 20.1% of Texas 4th graders get 5 days of recess per school week.

Only 40.9 % of 2nd graders get 5 days of recess per school week.

Physical Education in Texas

Starting in middle school and continuing into high school, Texas PE requirements decline. By 11th grade, SPAN data show 11th graders average less than 1 semester of PE.

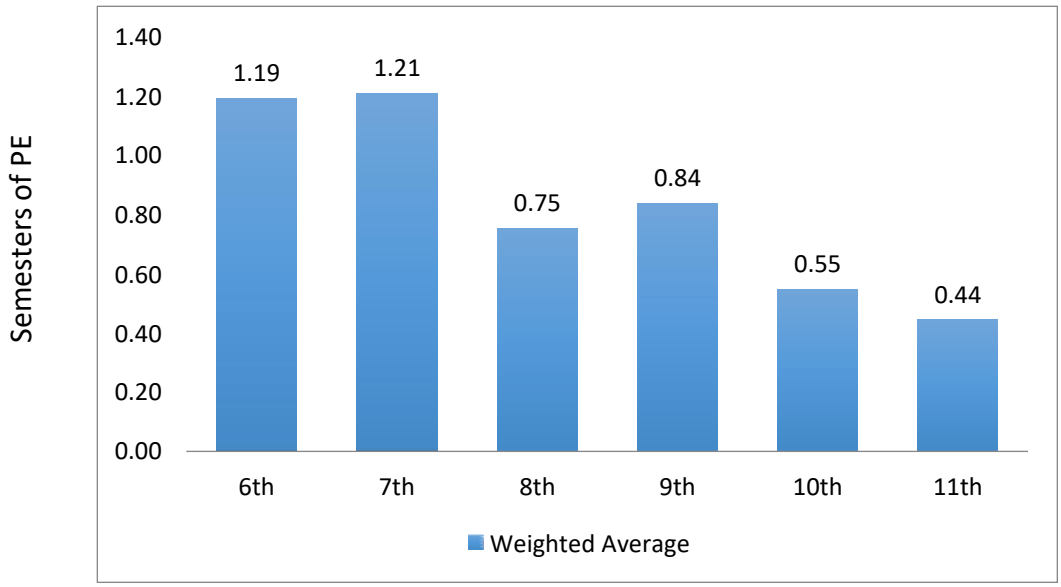
SOLUTION: Statewide Policy is Best

Schools in states with PE policy were 2.8 times more likely to provide recommended minutes of PE (150 minutes/week), and were also 1.8 times more likely to deliver adequate recess (20 minutes/day), compared to schools with district policies.

As children become adolescents, a well-documented decrease in physical activity occurs (Nader et al., 2008). At the same time in Texas, requirements for PE also decrease, as seen in Figure 3, leaving teenagers to fall back on sports teams or outside of school activities for a healthy level of physical activity. Additionally screen time increases dramatically as children become adolescents, which can compete with time for physical activity and is also associated with unhealthy dietary behaviors in adolescents (Pearson & Biddle, 2011). The consequences of this can be serious, as normal BMI and social-emotional health are both closely tied to adequate physical activity in adolescence. The consequences of obesity in adolescence are often sustained into adulthood, with obese teens having an 80% chance of becoming obese adults, significantly increased risks of chronic diseases, and are much more likely to receive disability pensions (Reilly & Kelly, 2011).

Adolescents who are obese have an 80% chance of remaining obese as an adult, and are more likely to receive disability pensions.

Figure 3: Decline in semesters of PE (weighted average) in Middle School and High School, SPAN School Policy Survey, 2015-16



In Texas, there is no statewide recess policy, leaving districts to create policies in some places, and no policies in others, with many children having no regular access to the school playground. Research shows that states, not districts, are the best source of recess and PE policy. Schools in states with PE policy were 2.8 times more likely to provide recommended minutes of PE (150 minutes/week), and were also 1.8 times more likely to deliver adequate recess (20 minutes/day), compared to schools

with district policies (Slater at al., 2012). Adequate PE and recess time were inversely related, suggesting schools were conflating the two and trading minutes of PE for minutes of recess (Slater, et al., 2012)

Requiring Health Education in High School

For most adolescents, the end of high school marks the beginning of a transition into adulthood, with all its responsibilities, expectations and difficulties. To make these challenges even greater, the adolescent brain has not yet developed the ability to adequately assess risk (Romer & Satterthwaite, 2017), and this includes risk from the health behaviors that contribute most directly to the leading causes of death in the United States: poor diet, physical inactivity, tobacco use, alcohol/drug use, unsafe sexual behaviors, and risky behaviors around driving and weapons (Pellmar, Brandt & Baord, 2002). Of these, poor diet and insufficient physical activity is linked to 4 out of the 10 leading causes of death in the United Sates. In Texas, the SPAN study reveals that 11th graders eat less fruit and vegetables than children in earlier grades, while consumption of sugar-sweetened beverages and salty or sweet snacks remains high (Figure 4).

Figure 4. Mean number of times each food group was consumed on previous day, by grade

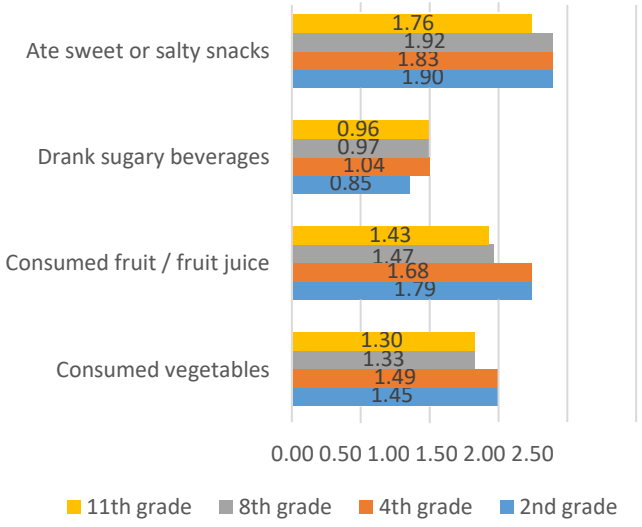
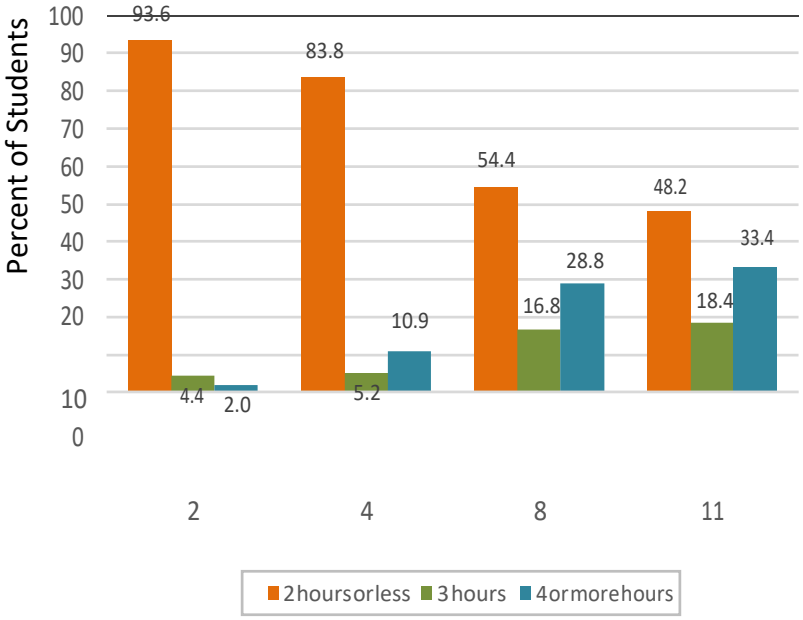


Figure 5. Hours spent by Texas school-age children on a computer or tablet/iPad® outside of school for anything except school work, SPAN 2015-16



We know that Texas 11th graders are eating fewer healthy foods, an abundance of unhealthy foods, and spending a great deal of the day in sedentary activity (Figure 5). As detrimental as these behaviors are in the present, they are also worrisome precursors of the health outcomes these children can anticipate in the future.

High school health education offers a unique opportunity to develop and enhance adolescent's ability to understand, access and act on health

SNAP in Texas in 2018

Enrollees: 3,756,058

Benefits: $5.27 billion

Reaches **14%** of all Texans

Prevalence of obesity is 24.8% higher compared to higher income Texans

information, one that is not available after graduation. For more than half of American adults, understanding and acting on health information is a challenge; one that results in diminished health outcomes for themselves, their families and their communities (Kindig, Panzer & Nielsen-Bohlman, 2004). The cost of health illiteracy to the United States is estimated to be $1.6 - $3.6 trillion annually (USDHHS, 2016). Students who participate in an evidence- based health education class have reduced rates of obesity, better nutrition and higher rates of physical activity (Melnyk et al., 2013; Hoelscher et al., 2010). Equipping our young adults with critical health information can help young Texans enjoy longer, healthier lives.

Addressing obesity through programs targeting low-income Texas

Despite the negative trends in childhood obesity in Texas, there are reasons to be hopeful, and clear indications of how policies can move the needle in the right direction. Effective policies can make a difference, even among disadvantaged populations that are often the most difficult to reach. For example, in 2009, the Women, Infants and Children program (WIC) food packages were updated to increase in the number of healthy foods available to WIC participants.

Over the next five years, between 2010 and 2014, the obesity rate among preschoolers in WIC decreased in 31 states and three territories, increased in four states, and remained stable in the rest. In fact, a study published in 2017 using national data found a significant association between revisions in the WIC program and increases in purchases of fruits and vegetables, as well as decreases in purchases of sugar-sweetened beverages, refined grains and grain-based desserts (Ng et al., 2017). Obesity rates among 2-4 year old Texans enrolled in WIC declined from 2010 to 2014, from 16.9% to 14.9% (CDC, 2016).

Table 1. BMI categories by SNAP eligibility

	Total	Normal weight (%)	Overweight (%)	Obese (%)
BRFSS 2017	18,995,074	30.6	36.4	33
SNAP Eligible	5,022,717	26.1	35.2	38.7
Non SNAP	13,972,357	32.2	36.9	31

Data obtained from BRFSS 2017

The Supplemental Nutrition Assistance Program (SNAP) enrolls

3,756,058 Texans in 2018, providing $5.27 billion in monthly benefits to 14% of the state of Texas (USDA, 2018). By definition, SNAP participants are economically disadvantaged. Low-income Texans who are eligible for SNAP[1] also have a significantly higher prevalence of obesity than higher-income Texans (Table 1). In the 2017 BRFSS, nearly two in five low-income Texans was obese, compared to about 30% in higher-income Texans populations, presenting a significant opportunity to improve the nutrition of a wide swath of the state, with a particular emphasis on under-resourced communities. The lower income and higher prevalence of obesity among SNAP recipients in Texas may present an opportunity to improve nutrition in a high priority population.

There is also evidence that SNAP-Ed, the nutrition education and obesity prevention component of SNAP, can effectively increase the purchase and consumption of healthy foods among eligible populations (Long, 2013). Strengthening SNAP-Ed and other obesity prevention programs that target low-income populations in Texas has the potential to improve the health of adults and children in these populations.

Conclusion

Obesity in Texas, among both children and adults, is a serious and persistent problem that threatens the long-term health and wellbeing of millions of our citizens. However, evidence-driven policies show promise for slowing and reversing this trend, offering the hope for more Texans to live healthy and productive lives.

[1] Data on obesity prevalence among SNAP-eligible participants are obtained from Texas BRFSS 2017 data. Although BRFSS does not directly obtain information on SNAP-eligibility, we were able to create an approximate indicator based on household size and income level, and published SNAP income-eligibility criteria.

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