

## Low-Income Adolescents Face More Barriers to Healthy Weight

Theresa A. Hastert, Susan H. Babey, Allison L. Diamant and E. Richard Brown

In California nearly 480,000 adolescents (14%) are obese, and there are large income disparities. Obesity prevalence is more than twice as high among low-income teens compared with those from more-affluent households (21% vs. 8%; Exhibit 1).

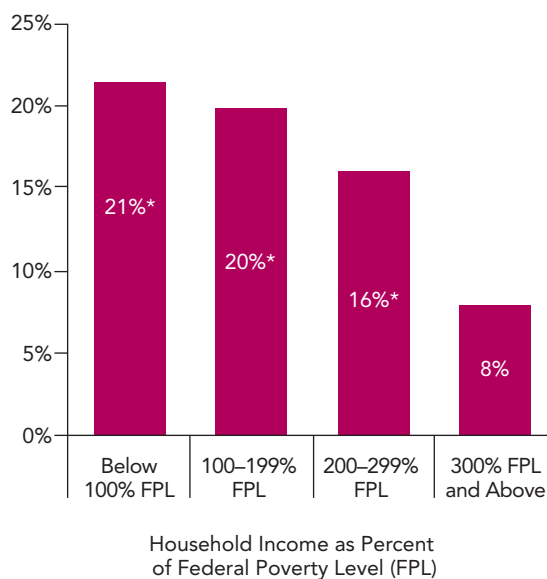
Lower-income adolescents experience more obstacles to healthy weight than their more affluent peers—including living in less healthy food environments and having fewer opportunities for physical activity. These disparities likely contribute to the marked differences in obesity prevalence by income.

Appropriate policy interventions targeted at the barriers faced by lower-income teens can provide opportunities to reduce these disparities and lower obesity rates in this community.

Nationally, the prevalence of obesity in adolescents has more than tripled in the last four decades and has increased significantly in recent years.<sup>1</sup> Obesity increases the risk of chronic medical conditions such as type 2 diabetes. In an attempt to identify factors contributing to the disparities in obesity prevalence by income, this policy brief examines differences in the food environment, dietary behaviors, physical activity, hours watching television and opportunities for physical activity by household income among California adolescents. Obesity is defined as having a body mass index (BMI) at or above the 95th percentile according to the growth charts for gender and age produced by the Centers for Disease Control and Prevention (CDC) in 2000.

### Exhibit 1

**Prevalence of Obesity by Household Income, Adolescents Ages 12-17, California, 2005**



### Higher Proportion of Low-Income Teens Consume Soda and Fast Food

Drinking sugar-sweetened beverages is associated with overweight and obesity in both children and adults.<sup>2</sup> In addition, eating in fast-food restaurants is associated with higher caloric intake and lower consumption of fruits and vegetables.<sup>3</sup> The American

\* Significantly different from 300% FPL and Above;  $p < 0.05$ .

Note: In 2005 the Federal Poverty Level was \$12,755 for a family of two and \$19,971 for a family of four.

Source: 2005 California Health Interview Survey



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Medical Association Expert Committee on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity recommends limiting children's consumption of sweetened beverages and fast food in order to prevent and treat childhood obesity.<sup>4</sup>

A greater proportion of low-income teens consume soda and fast food compared to teens from higher-income households. Among adolescents with household incomes of at least 300% FPL, 55% reported having at least one glass or can of soda on the previous day compared with 67-71% of lower-income teens (Exhibit 2). Additionally, 37% of teens with household incomes of 300% FPL and above reported eating fast food on the previous day compared with 46-49% of lower-income teens.

#### Low-Income Teens Have More Than Twice As Many Fast-Food Outlets Near Home

Differences in soda and fast-food consumption could be influenced by differences in the food environments of lower-income and higher-income teens.

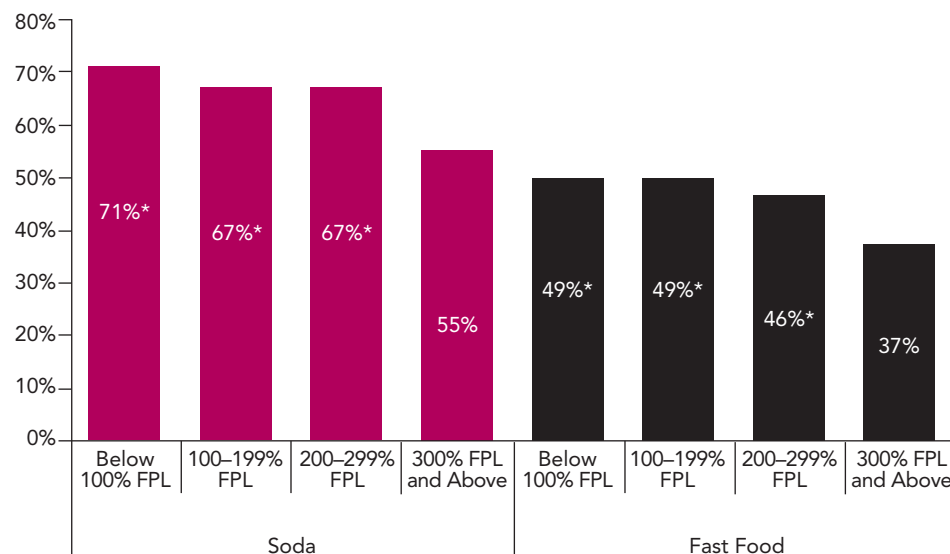
Adolescents with household incomes below the poverty line have an average of 5.5 fast food outlets and convenience stores within one-half mile of home, more than twice as many as teens with household incomes of at least 300% FPL (Exhibit 3).

#### Infrequent Family Meals Twice As Prevalent Among Low-Income Teens

Among adolescents, regular family meals are associated with better dietary behaviors and a lower prevalence of obesity.<sup>5,6</sup> The American Medical Association recommends eating together as a family on most days of the week as a strategy to help prevent childhood obesity.<sup>7</sup> Nevertheless, many teens rarely eat with their parents and this is more prevalent for low-income teens. Among teens with household incomes below 200% FPL, 10-11% report that they never ate dinner with a parent or guardian during the previous week, compared with 4-5% of adolescents with household incomes of at least 200% FPL (Exhibit 4).

Exhibit 2

Percent of Adolescents Ages 12-17 Who Reported Consuming Soda and Fast Food on the Previous Day by Household Income, California, 2005



\* Significantly different from 300% FPL and Above;  $p < 0.05$ .

Note: In 2005 the Federal Poverty Level was \$12,755 for a family of two and \$19,971 for a family of four.

Source: 2005 California Health Interview Survey

### Greater Proportion of Low-Income Teens Are Inactive

The 2005 Dietary Guidelines for Americans recommend that adolescents get at least 60 minutes of physical activity on five or more days per week.<sup>8</sup> However, California teens get at least 60 minutes of physical activity on only 3.7 days each week on average; and very low levels of physical activity are more common among low-income teens. Among adolescents with household incomes below the Federal Poverty Level, nearly one in five (18%) did not get at least sixty minutes of physical activity on any of the previous seven days, compared with 13% of teens from households with incomes of at least 300% FPL (Exhibit 5).

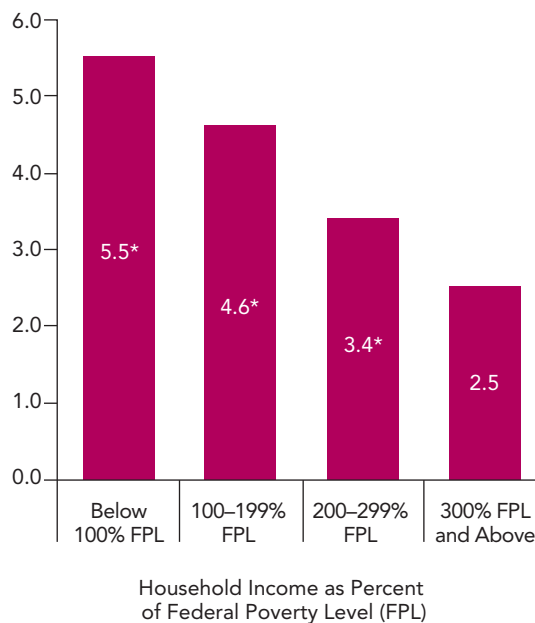
### Greater Proportion of Low-Income Teens Watch At Least Two Hours of Television Per Day

Evidence suggests that television watching may contribute to obesity in children and adolescents.<sup>9,10</sup> The American Medical Association recommends limiting television watching to no more than two hours per day.<sup>11</sup> However, California adolescents spend an average of two hours and twenty minutes per day watching television and playing video games. California adolescents with household incomes of at least 300% FPL have the lowest prevalence of watching two or more hours of television per day (46%), significantly lower than teens with household incomes below 100% FPL (56%).

The finding that so many California adolescents spend at least two hours watching television or playing video games each day is striking considering data from the 2004 California Teen Eating, Exercising and Nutrition Survey (CalTEENS). CalTEENS found that “no time” was the most frequently cited barrier to getting more physical activity.<sup>12</sup>

### Mean Number of Fast Food Outlets or Convenience Stores Within One-Half Mile of Home by Household Income, Adolescents Ages 12-17, California, 2005

Exhibit 3



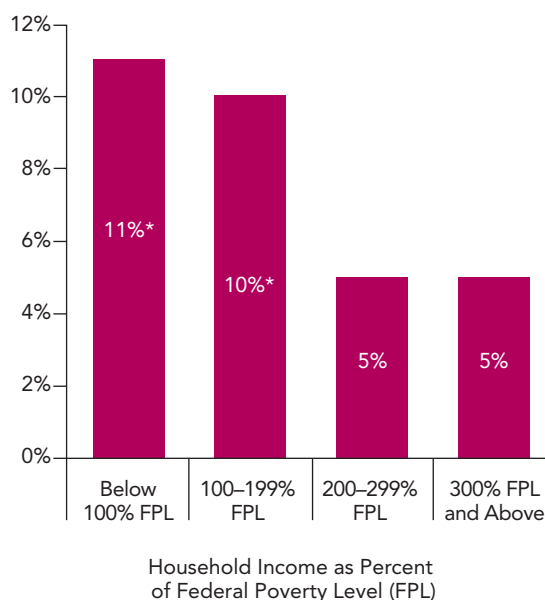
\* Significantly different from 300% FPL and Above;  $p < 0.05$ .

Note: In 2005 the Federal Poverty Level was \$12,755 for a family of two and \$19,971 for a family of four.

Source: 2005 California Health Interview Survey and InfoUSA Business file

### Percent of Adolescents Ages 12-17 Never Eating Dinner with Parent in the Past Seven Days by Household Income, California, 2005

Exhibit 4



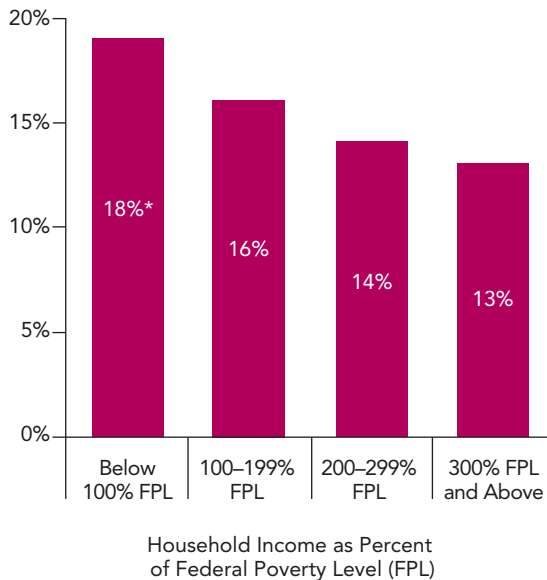
\* Significantly different from 300% FPL and Above;  $p < 0.05$ .

Note: In 2005 the Federal Poverty Level was \$12,755 for a family of two and \$19,971 for a family of four.

Source: 2005 California Health Interview Survey

## Exhibit 5

**Percent of Adolescents Ages 12-17 Not Getting At Least 60 Minutes of Physical Activity on Any of the Past Seven Days by Household Income, California, 2005**



\* Significantly different from 300% FPL and Above;  $p < 0.06$ .

Note: In 2005 the Federal Poverty Level was \$12,755 for a family of two and \$19,971 for a family of four.

Source: 2005 California Health Interview Survey

**Lower Proportion of Low-Income Teens Participate in Sports and Other Physically Active Classes or Lessons**

Child and adolescent participation in organized sports has been associated with additional minutes of moderate-to-vigorous physical activity on the days children participated in the sports, better performance on physical fitness measures and lower body mass index.<sup>13,15</sup> Overall, 70% of California adolescents participate in school sports teams, sports teams outside of school or physically active classes or lessons outside of school such as karate, dance or gymnastics. However, participation in sports teams and active classes or lessons varies widely with income.

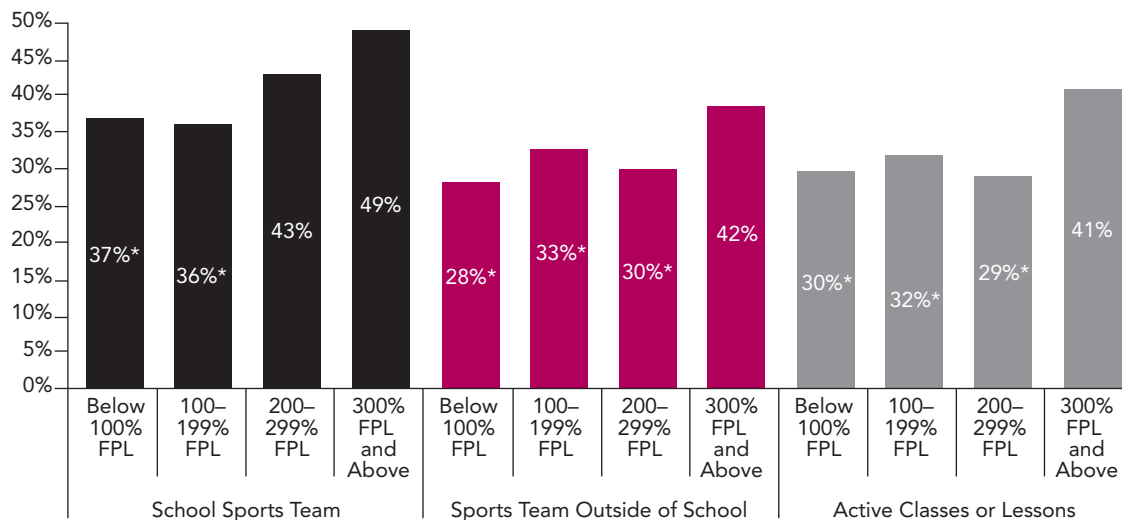
Overall, 43% of California adolescents were on a school sports team in the previous year; however, nearly half of adolescents from households with incomes of at least 300% FPL (49%) were on a school sports team in the previous year compared with 36-37% of the lowest-income teens (Exhibit 6). Similarly, 36% of California teens participated in sports teams outside of school, including 42% of the highest-income teens, but only 28-33% of lower-income teens participated. Finally, 35% of California teens participated in active classes or lessons outside of school, including 41% of the highest-income teens compared to just 29-32% of lower-income teens. These discrepancies indicate that lower-income adolescents have fewer opportunities to participate in organized sports or physically active classes and lessons, and lower chances to reap the health and fitness benefits that those activities provide.

**Conclusions and Policy Recommendations**

The prevalence of obesity is more than twice as high for low-income California teens compared to more-affluent teens. The findings in this policy brief indicate that income inequality is associated with a number of barriers to healthy eating and opportunities for physical activity for lower-income teens, making it especially difficult for these teens to maintain a healthy weight. These barriers include higher fast-food and soda consumption, additional fast-food outlets around home, higher prevalence of never eating dinner with parents or guardians, higher prevalence of watching an average of at least two hours of television each day, higher levels of physical inactivity, and lower prevalence of playing on sports teams or participating in active classes or lessons.

## Percent of Adolescents Ages 12-17 Participating in School Sports Teams, Sports Teams or Active Classes or Lessons Outside of School in the Previous Year by Household Income, California, 2005

Exhibit 6



\* Significantly different from 300% FPL and Above;  $p < 0.05$ .

Note: In 2005 the Federal Poverty Level was \$12,755 for a family of two and \$19,971 for a family of four.

Source: 2005 California Health Interview Survey

Income inequality has profound health implications and contributes to a number of health disparities.<sup>16</sup> The burden of obesity and related diseases falls disproportionately on low-income populations. Interventions and strategies targeted at eliminating disparities are needed. Strategies that promote and support physical activity and healthy eating can help address the obstacles faced by many adolescents and prevent increases in obesity prevalence, especially among low-income adolescents who are at particularly high risk. Recommendations include:

- ***Consider zoning ordinances and incentives to improve food environments.*** Poor food environments have been associated with higher rates of obesity and diabetes.<sup>17</sup> Low-income neighborhoods tend to have disproportionate numbers of fast-food restaurants and fewer grocery stores, limiting residents' access to healthy foods.

Recently the Los Angeles City Council unanimously supported a ban on new fast-food restaurants in an area of the city with few healthy food options and high rates of obesity.<sup>18</sup> The measure also included incentives to attract grocery stores and other retailers offering healthier food options to open businesses in the area.

Other cities and municipalities should consider the overall mix of retail food establishments in their jurisdictions, and determine whether zoning ordinances and incentives for development of healthier food retailers are appropriate strategies for improving food environments for their residents, particularly low-income residents with limited resources available for procuring healthy food.

- ***Develop and promote additional opportunities for low-income adolescents to participate in physical activity.*** Low-income teens are more likely to be inactive and watch at least two hours of TV per day. They are also less likely to participate in organized sports or other physically active organized activities. Participation in organized sports teams is associated with increased physical activity and lower body mass index in youth, and has been recommended as a promising strategy for preventing adolescent obesity.<sup>19</sup>

Low-income adolescents attend schools with significantly lower rates of participation in varsity and intramural sports relative to higher-income students.<sup>20</sup> This may be because higher-income students are more likely to attend schools in districts with more resources to provide opportunities for participation in organized sports, and that higher-income students can more easily afford the time and out-of-pocket costs associated with school and intramural sports teams.<sup>21</sup> The state of California should address the income disparities in sports participation and ensure that students in low-income schools have similar opportunities to participate on school sports teams as do students attending higher-income schools.

Efforts should also be made to expand opportunities for low-income teens to participate in physically active after-school activities. For example, obesity-prevention initiatives could consider subsidizing participation in intramural sports and active classes and lessons outside of schools for low-income adolescents who could most benefit from increased physical activity.

Given that lack of time is the most commonly cited barrier to getting more physical activity, and that more than half of California teens spend at least two hours per day watching television or playing video games, developing strategies that encourage teens to engage in physical activity instead of watching television, and making physical activity more appealing could improve overall levels of physical activity. Physically active video games offer one alternative to sedentary television watching.

- ***Address barriers to physical activity cited by low-income teens and parents.*** Transportation problems, lack of opportunities in the area, expense, lack of time for parents, unsafe neighborhoods and negative body image have all been cited as barriers to participation in physical activity for low-income youth.<sup>22</sup> Previous research has found that adequate space, facilities, equipment and adult supervision were associated with higher levels of physical activity in youth.<sup>23</sup> Improving school facilities and providing additional adult supervision, particularly in schools with high proportions of low-income students, is a promising strategy for increasing physical activity levels of low-income adolescents, who have the highest risk of obesity.
- ***Target obesity prevention efforts to low-income teens and families.*** Encouraging family meals, increasing physical activity and decreasing television time to less than two hours per day on average are all messages promoted by obesity-prevention campaigns. Because low-income adolescents disproportionately suffer from obesity and barriers to maintaining a healthy weight, interventions and other efforts should be targeted to this

population and should aim to eliminate disparities. The Network for a Healthy California's *Champions for Change* program includes those themes on its billboards and its Web site,<sup>24</sup> and the American Medical Association's Expert Committee on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity recommends that physicians encourage those behaviors for their adolescent patients.<sup>25</sup> In order to have the greatest impact on obesity prevalence, these messages should be targeted specifically to low-income adolescents and their families, and should include strategies to overcome barriers to healthy behaviors cited by low-income adolescents and their families.

### Data Source

All statements in this report that compare rates for one group with another group reflect statistically significant differences ( $p < 0.05$ ) unless otherwise noted. The findings in this brief are based on data from the 2005 California Health Interview Survey (CHIS 2005). CHIS 2005 completed interviews with over 4,000 adolescents and over 43,000 adults, drawn from every county in the state, in English, Spanish, Chinese (both Mandarin and Cantonese), Vietnamese and Korean. The California Health Interview Survey is a collaboration of the UCLA Center for Health Policy Research, the California Department of Health Services and the Public Health Institute. Geographic Information System (GIS) software was used to identify retail food outlets around the geocoded addresses of CHIS respondents using locations identified in the InfoUSA Business File for 2005. Funding for the CHIS 2005 statewide survey was provided by the California Department of Health Services, The California Endowment, the National Cancer Institute, the Robert Wood Johnson Foundation, the California Children and Families Commission, the California Office of the Patient Advocate, the California Department of Mental Health, the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente. For local funders and other information on CHIS, visit [www.chis.ucla.edu](http://www.chis.ucla.edu).

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**Notes**

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