About 23 million U.S. children and adolescents are overweight or obese. While obesity affects all children and adolescents, young people from several racial and ethnic groups and from socioeconomically disadvantaged backgrounds are disproportionately affected. Concentrated obesity rates among these children underscores the need for school and community-based interventions that encourage children and youth from vulnerable groups to eat healthier and engage in more physical activity.

Fortunately, there are promising examples of schools and communities that have implemented policy and program changes in an effort to reverse childhood obesity in vulnerable populations.

This article examines the reasons for childhood obesity disparities, explores the research on school and community-based interventions, and highlights examples of promising interventions in schools and communities across the country.

Childhood Obesity Disparities: Who and Why?

Childhood obesity disproportionately affects most racial and ethnic minority populations, including African-American, Latino, and American Indian and Alaska Native children and adolescents. Currently, 34.9 percent of African-American children and adolescents ages 2-19 and 38 percent of Mexican-American children and adolescents are overweight or obese, compared with 31.9 of all children in that age range.1

In addition to increasing the likelihood of being overweight or obese as an adult,2,3 childhood obesity can have negative health and social consequences—including asthma, type 2 diabetes, cardiovascular disease, sleep apnea and social stigmatization.4 Racial and ethnic disparities also exist in the rates of these chronic diseases. For example, Hispanic and
African-American children are more likely than white children to develop diabetes during their lifetimes. Diabetes cases among American Indian and Alaska Native adolescents have also skyrocketed, rising 68 percent for those aged 15 to 19 between 1994 and 2004.

These higher rates of childhood overweight and obesity are rooted in a complex interplay of social, economic, and environmental factors. For example, factors in the physical environment, including transportation infrastructure, community design and recreational assets, can enhance or limit opportunities for physical activity for racial and ethnic minority youth.

Studies have found that transportation enhancements, such as bike lanes, traffic signals, or bicycle paths, can increase active transportation and the number of children walking or bicycling to school. But in a nationwide survey of youth ages 9-13 and their parents, African-American and Hispanic parents reported significantly more barriers to their children being physically active than white parents, including lack of nearby facilities and safety concerns. Lower-income and racial and ethnic minority neighborhoods have fewer recreation facilities than predominantly white neighborhoods.

Wide disparities also exist in access to affordable, healthy foods. Hispanic neighborhoods, for example, have approximately one-third as many chain supermarkets as other communities. Similarly, a study of more than 200 neighborhoods found more than four times as many supermarkets in predominantly white neighborhoods than in predominantly African-American neighborhoods. Access to supermarkets is associated with increased fruit and vegetable consumption.

The social environment, which includes media and cultural influences, also has an impact on opportunities for physical activity and access to healthy foods. Research has found that increased time watching television is associated with increased caloric intake, overweight, and obesity. African-American and Latino youth spend more time watching television than white youth, and African-American youth also spend more time watching movies and playing video games.

Racial and ethnic minority youths are also frequent targets of food advertisements. One study found that African-American adolescents ages 12 to 17 viewed 14 percent more food product advertisements than their white peers, a difference that would have been even greater if the study had taken into consideration the increased time that African-American youth spend watching television. Acculturation to American life by immigrants is also associated with less physical activity, poor eating habits, and obesity risk.

**The Promise of Community and School-Based Interventions**

Strategies to increase opportunities for physical activity and access to healthy foods in communities and schools are needed to reduce rising childhood obesity rates and widening disparities. Two of the nation’s premier authorities on health promotion and disease prevention, the Institute of Medicine (IOM) and the Centers for Disease Control and Prevention (CDC), support policy changes to improve the physical, food, and social environments of communities and schools as strategies likely to be effective in preventing childhood obesity and reducing health disparities.

In its 2005 report *Preventing Childhood Obesity: Health in the Balance*, the IOM recommended that local governments, public health agencies, schools, and community organizations collaboratively develop and promote programs that encourage healthful eating behaviors and regular physical activity, particularly for populations at high risk of childhood obesity. To achieve this objective, the IOM further recommended that sustainable and frequently evaluated community-based programs address the social, economic, and environmental barriers to physical activity and healthy eating that disproportionately affect lower-income and racial and ethnic minority populations. In fact, it touts community-level approaches as among the most promising strategies for closing the disparities gap.

The CDC claims that policy and environmental change initiatives that make healthy choices in nutrition and physical activity available, affordable, and easy will likely prove most effective in combating obesity. Promising community strategies include improvements in the social, economic, and physical environments along with community services. The CDC Task Force on Community Preventive Services found strong evidence that enhanced access to places for physical activity combined with informational outreach, urban design, land use policies and practices, and community campaigns are effective in promoting physical activity.
improving community health and addressing racial and ethnic health disparities are closely aligned.\textsuperscript{17}

Since children spend many of their waking hours in school, schools also have an important role to play in preventing childhood obesity and promoting physical activity and healthy food access. The IOM recommends that schools provide a consistent environment conducive to healthful eating behaviors and regular physical activity.\textsuperscript{17} To do so, it recommends that federal, state, local, and school authorities:

- develop and implement nutritional standards for all competitive foods and beverages sold or served in schools;
- ensure that all school meals meet the Dietary Guidelines for Americans;
- develop, implement, and evaluate pilot programs to extend school meal funding in schools with a large percentage of children at high risk of obesity;
- ensure that all children and youth participate in a minimum of 30 minutes of moderate to vigorous physical activity during the school day; and
- expand other opportunities for physical activity both during and outside of the school day.

Furthermore, the IOM recommends that nutrition and physical education be included as components in health curricula, that advertising in schools be reduced, and that school health services are involved in obesity prevention efforts. Each school’s policies and practices related to nutrition, physical activity, and obesity prevention should also be periodically assessed, and pilot programs that explore new ways to teach about promoting wellness, healthful choices, nutrition, and physical activity should be developed, implemented, and evaluated.\textsuperscript{17}

In addition, the CDC Task Force on Community Preventive Services found strong evidence to support increasing the length of physical education classes (or the amount of physical activity in those classes) to improve physical activity levels among school-aged children and adolescents.\textsuperscript{20}

\textbf{Communities Addressing Disparities in Childhood Obesity}

Concurrent with the recommendations of the IOM and the CDC, many communities are implementing policy changes and innovative programs to reduce disparities in the rates of childhood obesity. The examples that follow are a sampling of the large variety of initiatives being implemented in communities and schools nationwide.

In an effort to prevent obesity in high-risk, early-elementary school children, the culturally and economically diverse community of Somerville, Mass. implemented an extensive multi-year environmental change initiative called “Shape Up Somerville.” The program focused on increasing opportunities for physical activity before, during, and after school and improving dietary choices. School-level policy changes included implementing a classroom-based curriculum and after-school activity program focused on improving nutrition and increasing physical activity levels, holding monthly taste tests of new fruits and vegetables, purchasing new school food preparation and serving equipment that would allow schools to serve healthier meals, and improving the nutritional content of meals and à la carte food items.\textsuperscript{21}

Community changes were also made to increase opportunities for physical activity and access to healthy foods outside of school. Supported by a Robert Wood Johnson Foundation grant, the city hired a bicycle/pedestrian coordinator and created and disseminated walking maps that outlined safe routes to school. Traffic calming and walking school bus initiatives were put into place, bicycle racks were installed at all of the elementary schools, and crosswalks were repainted to increase their visibility.\textsuperscript{28}

In addition, city restaurants were encouraged to offer and highlight healthier menu items and smaller-portioned meals in order to become “Shape Up Approved.” The Shape Up Somerville program has been very effective in achieving its mission: in the first year of the initiative, it reduced on average approximately one pound of weight gain over an eight month period for an 8-year-old child—a very significant change in a large population.\textsuperscript{22}

Many communities are also addressing disparities by increasing access to healthy foods in disadvantaged neighborhoods. New York City, for example, implemented a “Healthy Bodegas” initiative, which involves expanding the availability of healthy foods in the city’s underserved neighborhoods through a partnership between the New York City Department of Health and Mental Hygiene’s Physical Activity and Nutrition Program and bodega owners in neighborhoods with high rates of obesity.
and diabetes. The program encourages bodega owners to carry 1-percent milk (rather than just whole milk) and fruits and vegetables.23

Prior to the launch of the Healthy Bodegas initiative in 2006, research found significant disparities in access to healthy foods between lower-income neighborhoods in Brooklyn, Bronx, and Harlem and higher-income neighborhoods in other parts of the city. For example, only one in three bodegas in North and Central Brooklyn sold reduced-fat milk; and one in 10 sold leafy green vegetables.24 Also, fast food restaurants were more than four times as prevalent in East and Central Harlem as on the more affluent Upper East Side.25

New York’s Healthy Bodega initiative was accompanied by the creation of a green cart program in March 2008, which established 1,000 permits for mobile food carts that offer fresh produce in neighborhoods where fruit and vegetable consumption had previously been low. In these neighborhoods, between 15 and 26 percent of residents in 2004 had not eaten a single fruit or vegetable they day before they were surveyed.26 The city estimates that at least 75,000 New Yorkers will increase their fruit and vegetable consumption and more than 50 lives per year will be saved over the long run as a result of this program.27

Another example of a community-based policy change that has been successful in increasing access to healthy foods in underserved communities is the Pennsylvania Fresh Food Financing Initiative. Before the implementation of this initiative, Philadelphia had the second lowest number of supermarkets per capita of all major U.S. cities, and the lack of supermarkets in lower-income communities is linked with high rates of chronic diseases among its residents.28

The Pennsylvania Fresh Food Financing initiative is the nation’s first state-level public-private partnership to attract supermarket development in underserved rural and urban communities. Funded through a $30 million, three-year state appropriation and additional support from the Reinvestment Fund, a $210 million development finance corporation, the program is designed to serve the financing needs of supermarket developers in communities where infrastructure costs and credit needs are not met by conventional financial institutions.28 To help supermarkets and grocery stores move into underserved areas, the initiative analyzes market conditions, leverages capital, and encourages public policy to stimulate development.28

The Fresh Food Financing Initiative has been successful in increasing access to healthy foods in underserved Pennsylvania communities and in improving local economies. More than $63.3 million in funding has been committed for 68 supermarket projects in 27 Pennsylvania counties,28 and the program is being replicated in several other cities, including New York City, Chicago, and New Orleans.27

**Schools Addressing Disparities in Childhood Obesity**

Schools across the nation are also implementing innovative policies to address disparities in childhood obesity.

To increase opportunities for physical activity, the Owensboro Public Schools (OPS) Board of Education in Owensboro, KY, a small city with a median household income significantly below the national average, created the OPS Instructional League in 2007 to reduce financial and other barriers to physical activity for Owensboro youths.

In response to rising obesity rates, lack of participation in organized sports among young students, and the lack of opportunities for physical activity outside of physical education, the school board budgeted funds for a free Saturday sports league for boys and girls in grades 3 through 6. School administrators, middle and high school sports team coaches, physical education teachers, and school volunteers collaborated to form the league, and the district funded basic equipment. The program has been successful in not only increasing physical activity and physical fitness among the more than 300 students who participate in the sports league each season, but also in increasing parental involvement and strengthening school and community partnerships.29

In Rio Grande City, TX, a predominantly Latino community on the Mexican border with more than three in four students receiving free or reduced price lunches, the school district launched extensive policy changes to reduce the high rates of obesity among students in the district.30 To increase opportunities for physical activity, all students have daily physical education.

The district uses the innovative and evidence-based Coordinated Approach to Child Health physical education curriculum at the elementary level, which promotes physical activity by providing opportunities for
students to participate in a wide range of competitive and non-competitive activities. The district also leverages state-level grant funds to increase physical fitness programs that focus on lifelong physical activity instead of team sports. Joint-use agreements are also in place to allow school gyms and other recreation facilities to be open to the community outside of school hours.

To increase access to healthy foods, the district added full-service kitchens to all of its schools and made changes to school breakfast and lunch menus to improve their nutritional quality, including eliminating fried foods, desserts, whole milk and fat-laden salad dressings, and instituting salad and fruit bars. Students with diabetes or other chronic conditions are also provided with customized menus to help them manage their health and make better choices.

School-level policy changes that increase access to healthy foods have also been effective in reducing disparities in childhood obesity prevalence.

Universal breakfast programs, which offer breakfast at no charge to all students, are another way to increase access to healthy foods in schools. Students who participate in a school breakfast program are more likely to consume needed nutrients and have higher levels of academic achievement and psycho-social functioning than those who do not eat breakfast.

Many lower-income students who are eligible for free or reduced price school breakfasts do not eat breakfast at school due to the social stigma of participating in the program, but universal programs can help reduce this stigma. In school districts with a large proportion of students eligible for free or reduced-price meals, schools can break even and save on administrative costs. Such programs have been implemented in a number of school districts, including Washington, D.C., Trenton, NJ, Columbus, OH, and parts of Massachusetts.

Conclusion

The examples highlighted above demonstrate that there are important policy and program approaches that can be adopted to address racial, ethnic, and socioeconomic health disparities. To increase the effectiveness of these approaches, leaders should collaborate to create school and community environments that provide mutually reinforcing opportunities to support health and wellness for disadvantaged children. It is also important for school and community leaders to incorporate evaluation measures that can help determine whether their interventions are closing health disparities among children most at risk. The examples in this article provide guidance to school and community leaders who want to make sure that vulnerable children are given the support they need to grow into healthy and productive adults.

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15 Lisa M. Powell, Glen Szechpka, and Frank Chaloupka, “Adolescent Exposure to Food
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