ISSUE REPORT

The State of Obesity:

BETTER POLICIES FOR A HEALTHIER AMERICA 2020

With Special Feature on Food Insecurity and its Connection to Obesity

SEPTEMBER 2020

Trust for America's Health
TFAH.ORG

Acknowledgments

Trust for America's Health (TFAH) is a nonprofit, nonpartisan public health policy, research, and advocacy organization that promotes optimal health for every person and community, and makes the prevention of illness and injury a national priority.

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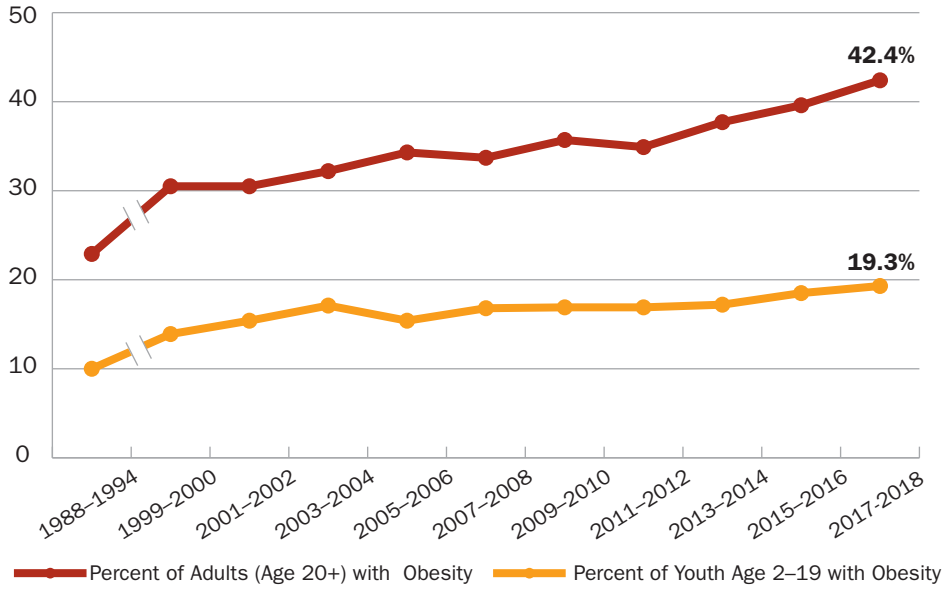
Introduction

The adult obesity rate passed 40 percent nationally for the first time according to the 2017–2018 National Health and Nutrition Examination Survey (NHANES), a 26 percent jump from 2007–2008.[1,2] More recent state-level data from the 2019 Behavioral Risk Factor Surveillance System (BRFSS) confirm the trend that adult obesity rates continue to climb.[3] In 2019, 12 states had obesity rates in the highest category for this survey (35 percent or greater), a jump from three states in 2014 and nine in 2018.

Percent of Adults and Youth with Obesity, 1988–2018



Source: NHANES

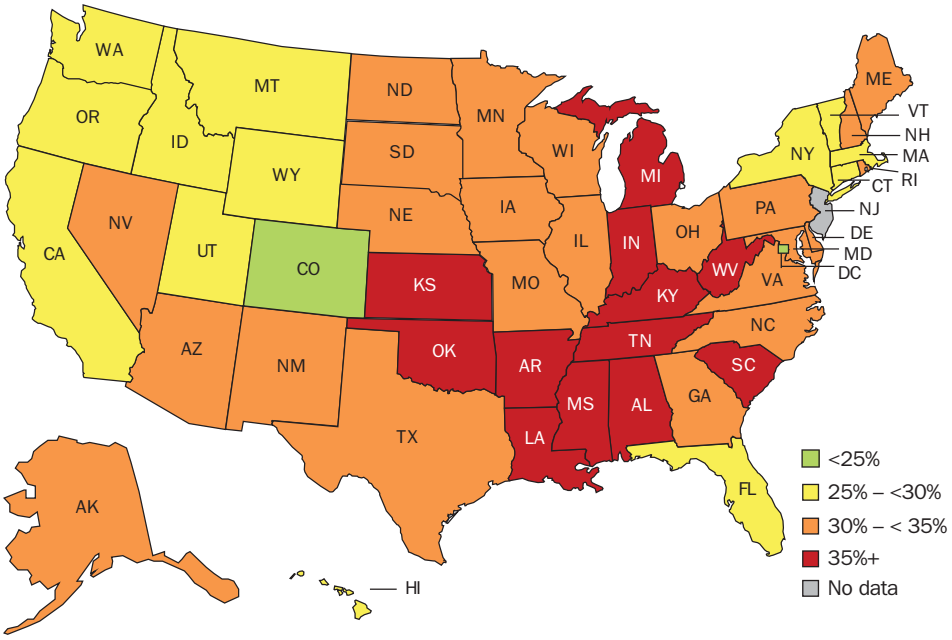
Despite this continuing rise in obesity and its consequences, the United States has failed to create a coordinated and comprehensive response to the obesity epidemic. The higher rates of hospitalization and mortality for COVID-19 patients with underlying conditions, including obesity and related chronic diseases, underscore the importance of working toward an America where current and future generations live healthier lives.[4] Furthermore, the racial and ethnic disparities that characterize COVID-19 and obesity are a sharp reminder of the effects that underlying social and economic conditions and structures can have on the health and well-being of Americans at the individual, family, neighborhood, and national level.

The United States needs bolder policies and more investment in long-term, evidence-based programs that reduce obesity; more collaboration across public and private sectors; more innovation and better solutions to the obesity crisis; and continued attention and more action on addressing the structural and systemic inequities that undermine many Americans' health.

The COVID-19 pandemic has also created new obstacles, and exacerbated existing barriers, to healthy eating and physical activity—like gym closures, reduced food purchasing power for millions due to income loss, and the interruption of school meal programs—as well as forced a rushed reassessment of safety-net benefits and food-assistance programs. As the pandemic continues to make Americans sick across the country and limit normal activity, it is important that policy adjustments designed to sustain and support families' nutrition needs and safe physical activity continue to be in place, and that the nation learns from the current disaster to ensure there are policies in place to protect Americans' health during future crises.

This is the 17th annual report by Trust for America's Health on the obesity crisis in the United States. This year, our special feature highlights the critical issue of food insecurity, a key social determinant of health, and its link to poor diet quality, obesity, and chronic disease, an issue that has increased substantially with the COVID-19 pandemic. Additionally, this report, as in previous years, includes a section that reviews the latest data available on adult and childhood obesity rates (see page 25), a section that examines key current and emerging policies (page 38), and, finally, a section that outlines recommended policy actions (page 63).

Adult Obesity Rates by State, 2019



Source: TFAH analysis of BRFSS data

CONSEQUENCES OF OBESITY: COVID-19 AND BEYOND

Early data suggest that obesity is a risk factor for more severe disease and complications among individuals infected with COVID-19.[5,6] It appears patients with obesity are more likely to require hospitalization: the Centers for Disease Control and Prevention (CDC) data from March 2020 show almost half (48.3 percent) of hospitalized COVID-19 patients ages 18 and older with known health histories had obesity, and data from New York City area hospitals show 42 percent of their COVID-19 patients had obesity and that it was the second-most common underlying condition among COVID-19 patients.[7,8,9]

In addition to COVID-19, obesity is associated with a range of physical and mental diseases; causes additional healthcare costs and productivity losses individually and collectively; and reduces the nation's military readiness. Specifics include:

- Obesity increases the risk of a range of diseases for adults—including type 2 diabetes, high blood pressure, heart disease, stroke, arthritis, depression, sleep apnea, liver disease, kidney disease, gallbladder disease, pregnancy complications, and many types of cancer—and an overall risk of higher mortality.[10,11,12,13 14,15, 16,17,18,19,20]
- Children with obesity are also at greater risk for certain diseases, like type 2 diabetes, high blood pressure, and depression.[21,22,23,24] A 2017 study of new diabetes diagnoses in children between the years 2001 and 2012 found a 7.1 percent annual increase in cases diagnosed per 100,000 children ages 10 to 19 (versus a 1.4 percent increase annually for type 1 diabetes, which is not associated with obesity).[25]
- Studies show individuals with obesity had substantially higher medical costs than healthy-weight individuals.[26] A 2016 study found that obesity increased annual medical expenses in the United States by $149 billion.[27] Indirect, or nonmedical, costs from obesity also run into the billions due to missed time at school and work, lower productivity, premature mortality, and increased transportation costs.[28]
- Being overweight or having obesity is one of the most common reasons young adults are ineligible for military service. In addition, the proportion of active-duty service members who have obesity has risen in the past decade—along with healthcare costs and lost work time. According to Mission: Readiness, a nonpartisan group of more than 700 retired admirals and generals, excess weight prevents one in four young adults from qualifying for military service, and the U.S. Department of Defense is spending more than $1 billion each year on obesity-related issues.[29,30] *(See interview on page 60.)*

SUMMARY OF 2020 STATE OF OBESITY RECOMMENDATIONS

Trust for America's Health directs most of its policy recommendations to national and state officials. TFAH's two guiding principles when making these recommendations are: (1) apply a multisector, multidisciplinary approach (because a single effort in just one sector or discipline is not likely to have a significant impact); and (2) an intentional focus on those populations with a disproportionate burden of obesity first. A summary of TFAH's recommendations are below; the full recommendations are on page 63.

Kit Leong / Shutterstock.com

1. Increase health equity by strategically dedicating federal resources to efforts that reduce obesity-related disparities by:

- Expanding CDC obesity-prevention programs including the State Physical Activity and Nutrition program and Racial and Ethnic Approaches to Community Health program, among others;
- Developing an obesity program best-practices guide to better support state public health agencies that receive CDC grants;
- Creating a new Social Determinants of Health program at CDC that supports multisector collaborations;
- Prioritizing health equity in planning and decision-making at HHS; and
- Adapting federal grantmaking practices to ensure that organizations that are best able to conduct obesity-prevention activities also have the tools to successfully apply for grants.

2. Decrease food insecurity while improving nutritional quality of available foods by:

- Continuing COVID-19 nutrition waivers and policies that USDA has implemented through the duration of the public health emergency;
- Expanding no-cost school meals to all enrolled students for the 2020-2021 school year;
- Encouraging Community Eligibility Program participation and enrollment;
- Maintaining eligibility, increasing value of benefit, ensuring there's no new participation barriers, and extending COVID-19 flexibilities in SNAP;
- Improving diet quality in SNAP through voluntary pilot programs, and supporting programs that promote healthy eating, like SNAP-Ed and GusNIP;
- Expanding access to WIC for young children and postpartum women, extending certification periods to streamline clinic processes, implementing online purchasing, and investing in local community health partnerships;
- Bolstering the Child and Adult Care Food Program by allowing a third meal service option, increasing reimbursements to support healthier standards, streamlining administrative operations, and continuing funding for nutrition and wellness education;
- Supporting access to healthy school meals, regardless of school status or setting; and
- Incentivizing communities towards public land use that supports healthy food options, like adding healthful corner stores, community gardens, and farmers' markets

3. Change the marketing and pricing strategies that lead to health disparities by:

- Closing tax loopholes and eliminating business-cost deductions related to the advertising of unhealthy food and beverages to children on television, the internet, social media, and places frequented by children;
- Clarifying and further enforcing USDA's local wellness policy regulations to apply to school-issued digital devices, applications, and online platforms;
- Discouraging unhealthy food and drink options by enacting state-level sugary drink taxes—and using the revenue to address health and socioeconomic disparities; and
- Reducing food marketing at schools as well as other places that primarily attract children and adolescents.

4. Make physical activity and the built environment safer and more accessible for all by:

- Increasing federal education funding to support physical-education implementation efforts;
- Codifying and funding new evidence-based physical-activity guidelines every 10 years;
- Increasing funding for active transportation projects like pedestrian and biking infrastructure, recreational trails, and Safe Routes to Schools;
- Making Safe Routes to Schools, Vision Zero, Complete Streets, and non-infrastructure projects eligible under the Highway Safety Improvement Program;
- Linking federal infrastructure funding with states' adoption of Complete Streets principles; and
- Working locally to make community spaces more conducive and safer for physical activity and active transport, and encouraging of outdoor play.

5. Work with the healthcare system to close disparities and gaps from clinic to community settings by:

- Clarifying to health insurers that obesity-related preventive healthcare services must be covered with no patient cost-sharing like all other grade A or B U.S. Preventive Services Task Force recommendations;
- Expanding the capacity of healthcare providers and payers to screen and refer individuals to social service needs, coordinate care delivered by health and social service programs, sufficiently reimburse social services providers, and better integrate social needs data into medical records;
- Eliminating barriers to coverage for communities of color, rural communities, and other underserved populations;
- Addressing social determinants of health in communities with high levels of obesity, through community-directed goals and strategies, and evidence-based programs; and
- Covering evidence-based comprehensive pediatric weight-management programs and services in their Medicaid benefits.

WHAT IS OBESITY?

"Obesity" means that an individual's body fat and body-fat distribution exceed the level considered healthy.[31,32] There are many methods of measuring body fat. Body-mass index (BMI) is an inexpensive method often used as an approximate measure, although it has its limitations and is not accurate for all individuals (e.g., muscular individuals often have lower body fat than their BMI would suggest). To calculate BMI, divide a person's weight (in kilograms) by his or her height (in square meters). The BMI formula for measurements in pounds and inches is:

$$\text{BMI} = \left(\frac{\text{Weight in pounds}}{(\text{Height in inches}) \times (\text{Height in inches})} \right) \times 703$$

For adults, BMI is associated with the following weight classifications:

BMI LEVELS FOR ADULTS AGES 20+	
BMI Level	**Weight Classification**
Below 18.5	Underweight
18.5 to ≤ 25	Healthy weight
25 to ≤ 30	Overweight
30 and above	Obesity
40 and above	Severe Obesity

Medical professionals measure childhood obesity differently. That's because weights and heights, which are used to calculate BMI, change as children grow, so percentiles of BMI are used, rather than a single absolute value as used in adults. Doctors determine childhood weight classifications by comparing a child's height and weight with BMI-for-age growth charts developed by CDC using data collected from 1963 to 1965 and from 1988 to 1994.[34]

BMI LEVELS FOR CHILDREN AGES 2-19	
BMI Level	**Weight Classification**
Below 5th percentile	Underweight
5th to ≤ 85th percentile	Healthy weight
85th to ≤ 95th percentile	Overweight
Above 95th percentile	Obesity

Special Feature: Food Insecurity and Obesity

Food insecurity — along with many other social determinants of health — leads to worse health outcomes, is linked with lower quality diets and higher healthcare costs in certain situations, and tracks with higher levels of obesity in many populations.[35]

The United States Department of Agriculture (USDA) defines food security as "access by all people [in a household] at all times to enough food for an active, healthy life during the year."[36] Households with food insecurity report "being worried food would run out"; that "the food bought did not last"; and that they "could not afford a balanced meal." Households with very low food security additionally report they "cut the size of meal or skipped meal"; "ate less food than felt should"; and "were hungry but did not eat."[37]

Food Security Levels:

1 **High food security:** No reported indications of food-access problems or limitations.

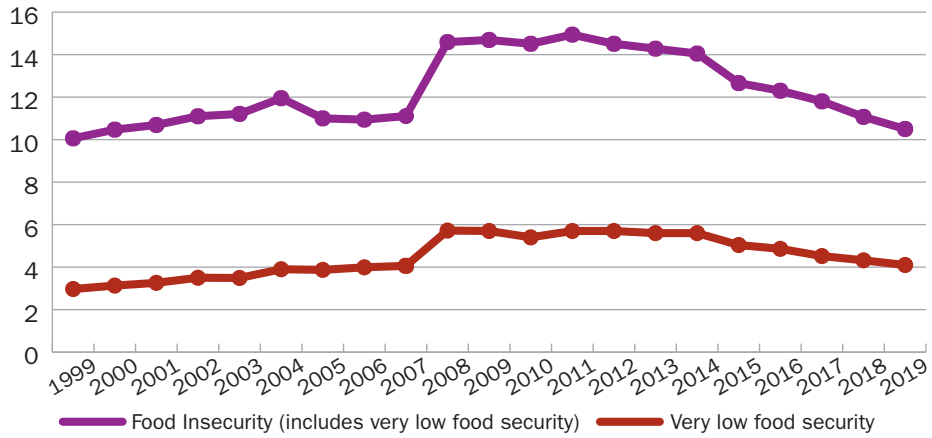
2 **Marginal food security:** One or two reported indications—typically, anxiety over food sufficiency or a shortage of food in the house. Little or no indication of changes in diets or food intake.

3 **Low food security:** Reports of reduced quality, variety, or desirability of diet. Little or no indication of reduced food intake.

4 **Very low food security:** Reports of multiple indications of disrupted eating patterns and reduced food intake.

Source: USDA

Percent of U.S. Household with Food Insecurity, 1999–2019

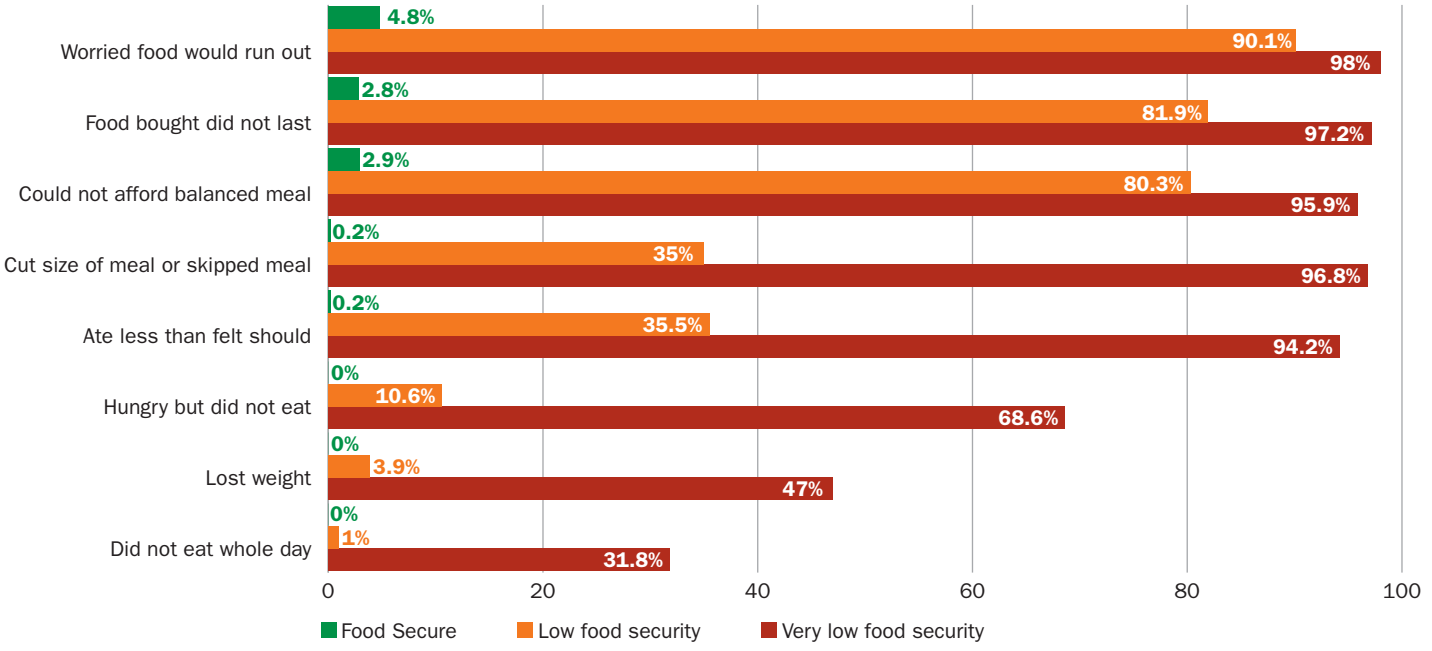


Source: USDA analysis of data from the Current Population Survey Food Security Supplement

The prevalence of food insecurity links closely to economic conditions at the individual and societal level. Low-income households are much more likely to be food insecure than the overall population.[38] And there were higher levels of food insecurity in the United States around the financial crisis and recession in the late 2000s—and all indications point to even higher food insecurity this year from the COVID-19 pandemic.[39,40] According to an analysis from Northwestern University Institute of Policy Research of U.S. Census Bureau's Household Pulse Survey from April 23–June 3, 2020, 25 percent of all respondents and 30 percent of respondents with children reported experiencing conditions of food insecurity.[41] This is an huge increase from the latest USDA figures, from 2019, when 10.5 percent of U.S. households—35.2 million Americans—were food insecure at least part of the year.[42] USDA has also proposed and finalized rule changes over the last few years that would limit eligibility and reduce food safety-net program benefits, all of which may be contributing to food insecurity as well.[43]

This section outlines the research connecting food insecurity to obesity, key programs, and considerations and approaches to the issue.

Percent of U.S Households with Indicators of Adult Food Insecurity, 2018



Source: USDA analysis of data from the Current Population Survey Food Security Supplement

COVID-19'S EFFECT ON FOOD INSECURITY

At the time of this publication, the COVID-19 pandemic has hurt Americans in many ways—it has killed more than 190,000 people and made millions more sick; it has caused a huge economic recession with more than 20 millions lost jobs in April 2020 alone and even more jobs that now have reduced hours and income; and it has forced many societal changes that have intensified food insecurity, like abrupt school closures.[44,45,46] It has also exposed and exacerbated existing racial/ethnic health disparities, and gaps in safety-net programs and the healthcare system.

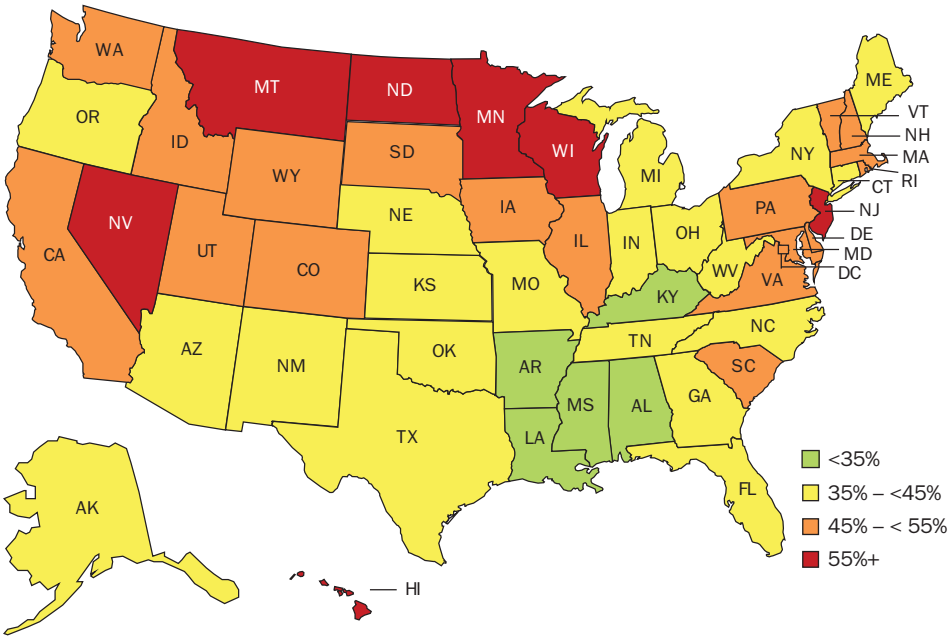
Feeding America, a national nonprofit with a national network of food banks and other community-based agencies, estimates that 54 million more Americans, including 18 million children, may experience food insecurity because of the pandemic.[47] (See appendix on page 74 for state estimates on food insecurity.) Food banks across the country have reported large spikes in demand and a Northwestern University survey from late April 2020 found that food insecurity tripled for families with children due to the pandemic.[48,49] The rise in Supplemental Nutrition Assistance Program (SNAP) enrollment during the pandemic matched these other trends: 2 million more people accessed benefits between February and April in the 17 states that have posted such data, an unprecedented level of need.[50]

For many families, child care and school closures compound this income loss. On an average day in 2018, national school programs served nearly 30 million students lunch, including more than 20 million free lunches, and almost 15 million breakfasts, including almost 12 million free breakfasts.[51,52] In response to school closures, USDA granted states significant program flexibilities for meal-service programs. For example, states could get waivers that allowed schools to serve meals in non-group settings and outside of standard mealtimes, states could serve after-school snacks and meals outside of structured environments, and USDA waived requirements that students be present when meals get picked up.[53] Many cities, states, and school systems have leveraged these and other program flexibilities to continue offering food and other assistance to children in their communities.

On top of all that, higher grocery prices, restaurant closures, new store policies, limited availability of key items, and concerns about exposure to COVID-19 have complicated food access for many individuals and families.[54]

Austin TX residents wait in line at the Central Texas Food Bank, April 2020. *Vic Hinterlang / Shutterstock.com*

Projected Increase in Food Insecurity from COVID-19, from 2018 to 2020



Source: Feeding America

A. CONNECTIONS BETWEEN FOOD INSECURITY AND OBESITY

Food security is a key social determinant of health, which is defined by CDC as "conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks".[55]

Food insecurity and obesity have many of the same risk factors (e.g., income or race/ethnicity) and often coexist in populations. Researchers have hypothesized several mechanisms for how food insecurity might lead to obesity. These include the direct limitations to a healthy diet that come from inadequate food affordability and/or availability; stress and anxiety about food insecurity that generate higher levels of stress hormones, which heighten appetite; and a physiological response in which the body stores higher fat amounts in response to reduced food availability.[56]

FROM FOOD DESERTS TO FOOD SWAMPS: THE KIND OF FOOD AVAILABLE MATTERS

Over the last decade, there have been considerable efforts to eliminate food deserts, which are low-income areas that lack a full-service grocery store. Recent research suggests that a more holistic measure of the kind of food available in an area is more important than supermarket access alone.[57,58] Researchers have found a correlation between fast-food availability and fast-food consumption among low-income respondents.[59] A 2017 study found that food swamps—communities with a high density of outlets selling high-calorie, ultra-processed food, such as fast-food restaurants and convenience stores, compared with ones that sell healthy food—have a stronger association with obesity than communities that only lack supermarkets.[60,61]

Researchers suggest one way to tackle the challenge of food swamps and promote health equity is through zoning laws that incentivize healthy food outlets to open stores in underserved neighborhoods and that restrict fast-food and other outlets that sell primarily unhealthy food.[62] Others have suggested incentivizing or requiring retailers that accept SNAP benefits to stock a certain amount of healthy food, including fresh produce, although this may have an unintended consequence of reducing retailers in neighborhoods that already have limited options.[63] Clearly, additional efforts are necessary to ensure that all Americans live in neighborhoods that offer plenty of opportunities to purchase fresh, nutritious food and fewer opportunities to buy products that may be convenient and affordable but are largely unhealthy.

Research looking at the effect of food insecurity on obesity, while controlling for socioeconomic and demographic factors, has found variations across populations. The strongest associations are among children and women:

- A 2015 study using NHANES data for 2001–2010 looked at the association between food insecurity and obesity among 9,700 children ages 2 to 11 and found personal food insecurity associated with an increased risk of obesity in children ages 6 to 11 years (but not for under age 6).[64]
- A smaller 2016 study found an association between food insecurity and obesity among young Latinx children (ages 2 to 8) in low-income families. The association was stronger in households where mothers were overweight or had obesity.[65]
- A 2017 study of 20,000 adults ages 18 to 59 from National Health Interview Survey data found food insecurity was associated with 41 percent higher odds of being overweight/having obesity for white women and 29 percent higher odds of being overweight/having obesity for Latinx women. They did not find an association among Black women, or men of any race/ethnicity after adjusting for demographic differences.[66]
- A study using 2009 BRFSS data from 66,000 adults across 12 states found that adults who were food insecure had a 32 percent greater chance of having obesity compared with food-secure adults.[67]

The complex relationship between food insecurity and obesity suggests a need for additional research to fully understand the connection, causal mechanisms, and other potential mediating or protective factors.

Food insecurity is also associated with a multitude of other poor health outcomes. In adults with food insecurity, rates of diseases like depression, diabetes, hypertension, and high cholesterol, as well as generally being in poor or fair health are higher. Among children, food insecurity is associated with higher odds of having asthma, anemia, and fair or poor health, and it is associated with a higher risk of cognitive issues, aggression, anxiety, depression, behavior problems, depression, suicide, ideation, and hospitalization.[68]

CDC'S RESEARCH AND RECOMMENDATIONS ON FOOD INSECURITY

The Nutrition and Obesity Policy Research and Evaluation Network (NOPREN), supported by CDC's Division of Nutrition, Physical Activity and Obesity, conducts transdisciplinary research related to nutrition and obesity, and it evaluates the effectiveness of obesity-prevention policies. Recognizing the relationship between food insecurity and obesity, NOPREN has a working group focused on food insecurity.[69]

NOPREN food insecurity working group members have proposed the following models to strengthen the anti-hunger safety net:

- Have healthcare providers: (a) write food prescriptions for patients screened positively for food insecurity; and (b) connect them with community organizations that can actively assist them with enrolling in nutrition-assistance programs and finding local food resources, such as food banks. This model will require communities and healthcare systems to invest in improving referral support and training for healthcare providers on how to connect patients with community resources.[70]
- Provide technical assistance to small food retailers in low-income areas that accept SNAP benefits to help them understand the rules that require them to stock a variety of staple and perishable foods, and to increase the availability of healthy foods.[71]

In addition, NOPREN is assessing and strengthening the role of Food Policy Councils—groups of stakeholders from all parts of the food system—to increase access to healthy food options.[72]

B. FEDERAL AND STATE PROGRAMS TO REDUCE FOOD INSECURITY

Food security depends on many factors—like household income, the availability of food locally or via public transportation, the cost of food, and safety-net programs that provide food or supplement purchasing power. To reduce food insecurity, policies that boost income, increase the accessibility and availability of food locally, and strengthen safety-net programs all are essential. These measures are especially true during the COVID-19 pandemic and the resulting economic decline, which have affected millions of Americans and caused many more American to experience food insecurity than is typical. Now is the moment to assess how these programs can be strengthened and can handle an influx at any time; whether the eligible population and benefits are sufficient to maintain the health and well-being of Americans during a crisis; whether new policies should continue; and whether there are other lessons and changes that the nation should implement.

i. Federal Hunger and Nutrition Assistance: WIC, School/Child Nutrition Programs, SNAP, Nutrition Incentive Programs, and Health Food Financing Initiative

Special Supplemental Nutrition Program for Women, Infants, and Children

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), one of the nation's largest nutrition-assistance programs, provides food and educational programs for low-income pregnant, postpartum, and breastfeeding mothers and their children under the age of 5. In 2019, an average of 6.4 million women, infants, and children participated in the program.[73] The federal government funds WIC, and USDA's Food and Nutrition Service (FNS) in conjunction with state agencies administers the program. WIC participants receive vouchers or payment cards that they can use to purchase a discrete set of foods, including milk, infant formula, cereal, eggs, whole grains, fruits, and vegetables. WIC also provides nutrition education, healthcare, and social-service referrals.[74]

WIC strongly encourages participants to breastfeed, as research shows that breastfed children have a reduced risk of obesity and that breastfeeding is associated with a wealth of other health benefits for both mothers and babies.[75,76,77] The program offers breastfeeding education and support, and it tracks breastfeeding rates as a performance measure of the program.[78] WIC breastfeeding rates have increased by 21 percent (from 26.7 percent to 32.4 percent) between 2010 and 2018, when the breastfeeding reporting requirement took effect.[79,80] A 2019 study found that if 90 percent of WIC infants met the breastfeeding goals recommended by the American Academy of Pediatrics, $9.1 billion would be saved in healthcare costs from reduced disease and fewer premature deaths.[81]

Studies show that WIC reduces the prevalence of food insecurity among children by at least 20 percent.[82] Increasing the age of children eligible for WIC could increase food security further. By ending benefits when a child turns 5, some children age out of the program before entering school and becoming eligible for school meal programs. Research has demonstrated that families

often experience an increase in food insecurity around the time their children become age-ineligible for the program, particularly if the children have yet to start kindergarten.

Due to long-term structural inequities, racial and ethnic minorities make up a disproportionate share of WIC recipients relative to their share of the overall population.[85,86] Accordingly, policymakers should take measures to increase racial equity, including making WIC packages more culturally inclusive, providing targeted support based on health disparities, and providing breastfeeding support that is inclusive and relevant for women of color who participate in WIC.[87]

Prior to the COVID-19 pandemic, the number of WIC participants had slowly declined from an all-time high of 9.2 million in 2010 to about 6 million in February 2020.[88] This was likely due to a number of reasons, including an improving economy, a decline in the U.S. birth rate, burdensome administrative enrollment processes, and the 2019 "public charge" rule, which allows immigration officials to consider a person's use of public benefits in making immigration decisions, which in turn depressed participation in benefit programs even before its scheduled enactment in February 2020.[89,90,91,92,93] There have been multiple, on-going court cases on the changes public charge changes over the last year.[94] Most recently, in July 2020, a federal court judge issued a national order blocking the public charge rule during a declared national health emergency due to the COVID-19 pandemic.[95] In August 2020, an appeals court then limited the scope of the order to just three states (Connecticut, New York, and Vermont), meaning the 2019 rules can be enacted in the rest of the country.[96] As of August 2020, there has not been new guidance from the Department of Homeland Security to implement the 2019 rules.[97] Public health advocates also worry that inflation calculation changes proposed by USDA would further lower participation by rendering fewer people eligible for WIC and other safety-net programs.[98,99]

While WIC participation rates for March 2020 and beyond have not yet published, the dramatic increase in unemployment in the wake of COVID-19 has certainly caused participation surges in public-benefit programs. In addition to the increased need, increases in food prices, disruptions in the food supply chain and stay-at-home orders have created other challenges for WIC and other public-benefit programs.

The second coronavirus relief bill, the Families First Coronavirus Response Act (FFCRA), which became law on March 18, 2020, provided USDA with the authority to relax WIC program requirements during the public health emergency.[100] Through June 30, 2020, states could allow participants to re-enroll in the program without visiting a clinic and postpone certain medical tests. The FFCRA also permitted states to issue benefits remotely and substitute certain food-package items when availability was limited.[101] The end-date for these program flexibilities was originally May 31, 2020, before USDA extended them first to June 30, 2020, and then again to September 30, 2020.[102,103]

The federal government initially appropriated $6 billion for WIC in fiscal year (FY) 2020, including $90 million for the WIC breastfeeding peer-counselor program.[104,105] Congress provided an additional $500 million for WIC in the FFCRA.[106]

WIC'S HEALTHIER FOOD PACKAGE SHOWN TO DECREASE CHILDHOOD OBESITY RATES

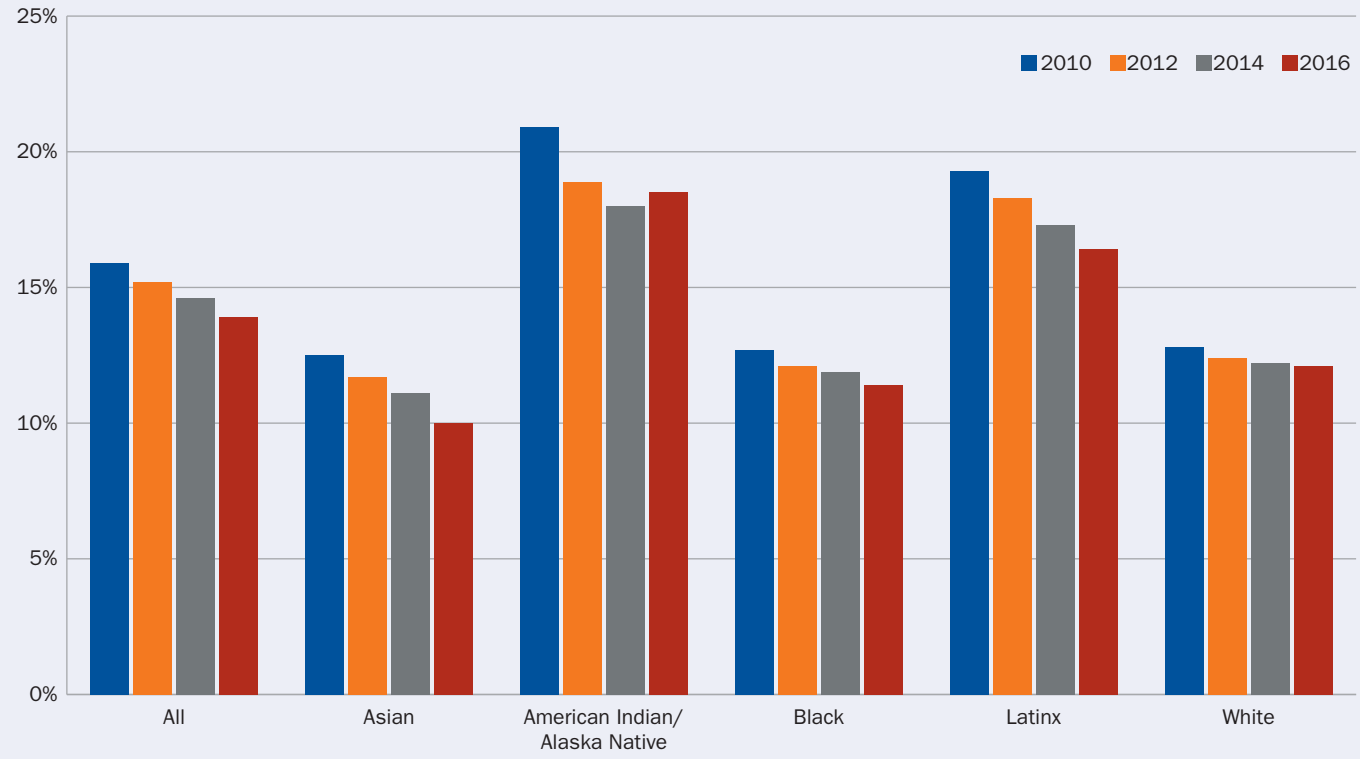
In 2009, USDA revised the food packages for WIC, the first major change to the food packages since the program's creation in the 1970s.[107] The new package added more fruits, vegetables, and whole grains; reduced the fat levels in milk and infant formula; and decreased the juice provision to align with *Dietary Guidelines for Americans*. Program data shows a steady decline in obesity rates for children ages 2 to 4 enrolled in the program between 2010 and 2016 (from 15.9 percent to 13.9 percent) with a small increase in 2018.[108]

Data by demographics from 2016, the latest available, showed widespread reductions in rates of obesity—with lower rates among children across age, sex, and major racial and ethnic groups. The obesity rates among all children enrolled in WIC are now in line with the general population of children in the United States. However, certain races and ethnicities have much higher obesity rates. Specifically, in 2016, 18.5 percent of American Indians and Alaska Natives and 16.4 percent of Latinx children enrolled in WIC had obesity, compared with 12.1 percent of white, 11.4 percent of Black, and 10 percent of Asian and Pacific Islander children. Notably, the decrease in obesity with the revised food package were greater among non-white children.[109]

Two 2019 studies also found benefits among enrollees. The first found 4-year-olds in Los Angeles County who had received the revised WIC food packages since birth were at a reduced risk of obesity—a 12 percent reduction for boys and a 10 percent reduction for girls—compared with those who received the old versions of the package.[110] Another study of the package changes found that they may have helped reverse toddler obesity trends among WIC participants ages 2 to 4; toddler obesity had been increasing by 0.23 percentage points annually before the package changes and began decreasing by 0.34 percentage points annually after the changes went into effect.[111]

For state data on obesity among 2- to 4-year-olds in the WIC program, see page 37.

Percent of Young Children (Ages 2–4) Enrolled in WIC with Obesity, 2010–2016



School/Child Nutrition Programs

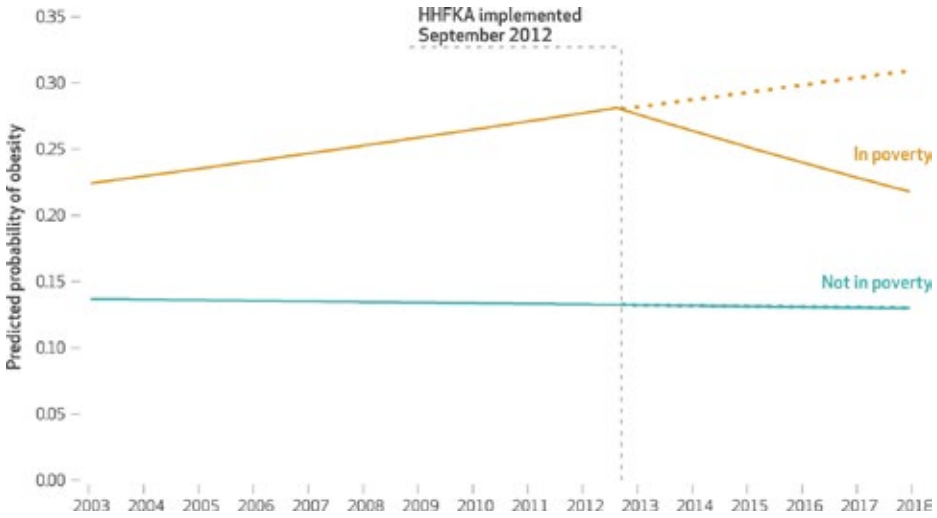
The federal child nutrition programs—including the National School Lunch Program, the School Breakfast Program, and the Summer Meals Program—are key components of the nation's food safety net. The programs reduce food insecurity and ensure that millions of American children are eating healthy meals.[112] The lunch program alone fed nearly 50 million children in 2019.[113] Funded by the federal government and administered by FNS and state agencies, these programs reimburse schools, day-care centers, and after-care programs for the cost of providing nutritious meals and snacks to children in their care.[114]

In 2012, new school food nutrition standards went into effect that more closely aligned with *Dietary Guidelines for Americans*, as required by the Healthy, Hunger-Free Kids Act of 2010. The new standards required more whole grains, fruits and vegetables, skim and low-fat milk, and less saturated fats and sodium.[115,116] A nationally representative study published in 2019 found:

- School meals significantly improved in nutritional quality after the new standards went into effect.
- Participants in the programs ate more fruits, vegetables, whole grains, and milk than nonparticipants, while consuming fewer calories and saturated fat than nonparticipants.
- Plate waste was generally unchanged, suggesting that the new standards did not have a significant effect on student satisfaction with the meals.[117]

A 2020 Health Affairs study also found that the risk of obesity among children age 10–17 living in poverty declined each year after the implementation of the Healthy, Hunger-Free Kids Act. The researchers estimate that the obesity prevalence would have been 47 percent higher in 2018 without the changes in nutrition standards.[118]

Predicted probability of obesity among youth ages 10–17 before and after implementation of Healthy, Hunger Free Kids Act, by poverty status, 2003–18



Source: Kenney EL, et al. Impact Of The Healthy, Hunger-Free Kids Act On Obesity Trends. Health Affairs, July 2020 39:7.

In 2018, USDA issued a rule rolling back several aspects of the 2012 standards, permitting schools once again to serve low-fat flavored milk, refined grains, and foods with higher sodium levels.[119] In April 2020, a federal district court judge struck down the rule, finding that eliminating the whole grain and sodium standards was not a "logical outgrowth" of USDA's interim rule, which only proposed delaying implementation or permitting exemptions.[120] As of this writing, USDA has not indicated whether it will rewrite the rule or appeal the decision.[121]

Due to the success of the child nutrition programs, public health advocates have focused on increasing participation, particularly in the School Breakfast Program, which serves only 58 percent of the students who participate in the National School Lunch Program. While the School Breakfast Program has grown substantially over the past decade, a February 2020 report found

a small reduction in the number of students receiving a free or reduced-cost breakfast at school during the 2018–2019 school year, despite an increase in the number of overall students who ate breakfast at school, which likely reflects a decreased number of eligible students.[122]

Barriers to school nutrition programs include stigma around participation, lack of awareness of program eligibility and benefits, and language and literacy challenges in enrollment.[123] One way to reduce the stigma of program participation is by making school breakfast and lunch free to all students, which more than 25,000 high-poverty schools can do by virtue of the Community Eligibility Provision of the Healthy, Hunger-Free Kids Act.[124] Offering free meals to all students results in administrative savings, improved access to healthy meals, and reduced paperwork for parents and schools.[125] The number of schools taking advantage of the provision increased by 14 percent in the 2018–2019 school year, though there are still thousands of eligible schools not participating.[126] Reducing barriers to participation is particularly important to increasing health equity, as students eligible to participate in the school meal programs are disproportionately racial or ethnic minorities.[127]

The closings of U.S. schools and child-care centers in the wake of COVID-19 created major upheaval to child nutrition programs and raised the prospect of massive food insecurity among America's children. In response, as part of the FFCRA, Congress created a new temporary benefit program, Pandemic Electronic Benefits Transfer (P-EBT), to ensure that children who lost access to their free or reduced-price meals due to school closings will be able to afford nutritious meals during the public health emergency.[128] The benefit levels track with school meal program reimbursement rates: $3.50 for lunch and $2.20 for breakfast, for a total of $5.70 per day or $28.50 per week.[129] As of August 2020, every state except Idaho has been approved by FNS to operate a P-EBT program.[130] However, as of May 2020, only about 15 percent of eligible families are accessing these benefits.[131]

To assist low-income children in rural areas where schools have closed, USDA partnered with the Baylor University Collaborative on Hunger and Poverty, McLane Global, and PepsiCo to launch Meals to You.[132] The program delivers 10 breakfasts and 10 lunches every two weeks to children to replace the meals they would normally receive at school. All meals meet USDA's Summer Food Service Program nutritional standards. Initially designed to serve one million children, USDA announced in May 2020 that it was expanding the program to serve five million children per week.[133]

In addition, due to school closings, the need for social distancing, and disruptions to the food supply chains, FNS introduced temporary flexibilities into the child nutrition programs, including:

- Permitting meal service outside normal school times to make it easier for families to pick up meals;
- Allowing meals service in non-group settings to permit social distancing;
- Permitting states to serve meals that do not meet meal-pattern requirements;
- Allowing parents and guardians to pick up meals for their children;
- Delaying many reporting requirements; and
- Lifting the requirement limiting the summer meals programs to areas where at least half the children live in low-income households.[134]

FNS also launched a website to help families find meal sites and is working with states to increase their availability.[135,136]

Many school nutrition programs have faced higher costs for food, packaging, and distribution in order to provide students with food in a safe manner during the pandemic, and there are concerns about financial sustainability. The School Nutrition Association found that two-thirds of school meal program directors anticipate a financial loss, with another quarter uncertain.[137]

Given the fact that many schools will not reopen for in-person instruction for at least part of the 2020–2021 school year, several groups have asked USDA to extend the current flexibilities and waivers, in order to allow all schools to offer free meals to all students during the coming school year.[138]

For FY 2020, Congress initially appropriated $23.6 billion for the child nutrition programs, including $30 million in grant funding for equipment to allow schools to serve healthier meals, improve food safety, or expand their school breakfast programs.[139] This was an increase of $474 million over the FY 2019 funding level.[140] Congress included an additional $8.8 billion for the child nutrition programs in the third coronavirus bill, the Coronavirus Aid, Relief, and Economic Security (CARES) Act, which became law on March 27, 2020.[141]

MAJOR CHILD NUTRITION PROGRAMS

- The **National School Lunch Program** provides nutritious meals and snacks to more than 29 million students in public and private schools and in residential child-care facilities.[142] In FY 2019, the program served more than 4.8 billion lunches, of which 74 percent were free or low cost, to low-income students.[143]
- The **School Breakfast Program** provides a healthy breakfast to 15 million students each school year. In FY 2019, the program served 2.5 billion meals, 85 percent for free or reduced price.[144]
- The **Summer Food Service Program** provides nutritious daily meals to approximately 2.7 million low-income schoolchildren during summer vacation from school.[145]
- The **Child and Adult Care Food Program** funds two million healthy meals and snacks for children in day-care, preschool, and after-care programs, as well as adults in adult day-care centers.[146]
- The **Special Milk Program for Children** provides free low-fat or skim milk to students who do not participate in the meal programs, such as half-day kindergarten students.[147] It served 35 million half-pints of milk in FY 2019.[148]
- The **Fresh Fruit and Vegetable Program** provides fresh fruits and vegetables as a healthy snack option in select low-income schools and also promotes nutrition education.[149]
- The **Farm to School Grant Program** helps incorporate fresh, local food into the National School Lunch and School Breakfast Programs, and it facilitates hands-on learning activities, including school gardens, farm visits, and cooking classes. During the 2019–2020 school year, the program funded 126 grants serving more than 5,400 schools.[150]

Supplemental Nutrition Assistance Program

The Supplemental Nutrition Assistance Program (SNAP), formerly known as "food stamps," is the nation's largest anti-hunger program. It had 35.7 million participants in FY 2019, down from a record high of 45.8 million in FY 2015.[151] The federal government funds SNAP benefits and shares the cost of administering the program with states.[152] SNAP recipients receive monthly vouchers they can use to purchase food from participating retailers. The average monthly benefit in 2019 was $130 per person.[153]

While studies show SNAP reduces poverty and food insecurity, the program does not provide a very robust safety net. Benefits are the same across the continental United States, despite wide variance in food prices. In addition, a study using 2015 data found SNAP's per-meal benefit does not cover the average cost of a low-income meal in 99 percent of counties in the United States (nationally, SNAP benefit per meal was $1.86 and average meal cost was $2.36).[154] Experts estimate that just raising SNAP benefits enough to cover the average cost of a low-income meal could reduce food insecurity among SNAP participants by 50 percent.[155]

With a few exceptions, such as prepared food, households can use SNAP to purchase any food or beverage regardless of its nutritional value.[156] A 2016 study by FNS found that SNAP households spend 20 cents of every SNAP dollar on sweetened drinks, salty snacks, candy, and other desserts, with more money spent on soft drinks than any other item. These spending patterns are largely consistent with those of non-SNAP households.[157] Some public health advocates have suggested changes that would incentivize participants to make healthier food choices, such as by prohibiting the purchase of sugary drinks, while others have raised concerns that such changes could stigmatize participants and reduce participation.[158,159,160] USDA has historically denied requests by states to pilot such strategies, and Congress has resisted similar legislative proposals.[161,162]

More than 2,500 farmers' markets nationwide are licensed to accept SNAP benefits, increasing opportunities for participants to purchase fresh fruits and vegetables. In 2019, Americans spent $14.3 million in SNAP benefits at farmers' markets and another $8.6 million at direct-marketing farmers, an 18 percent increase since 2015.[163,164]

The SNAP Education (SNAP-Ed) grant program is an evidence-based program that helps people live healthier lives through nutrition education, teaching shopping and cooking skills, and encouraging physical activity. States can apply for SNAP-Ed funding, and states often contract with land-grant universities or nonprofit organizations to implement the program.[165] Examples include:

- The Cooking Matters at the Store program, which teaches Colorado families how to purchase nutritious food on a budget. Of families who participated in the program, 89 percent reported saving money on groceries and 76 percent reported eating more fruits and vegetables.[166]
- Maine's SNAP-Ed program, which is working with the Central Maine Medical Center on a screening tool to identify food-insecure patients and refer them to the local Good Shepherd Food Bank. Maine has the highest rate of food insecurity in New England.[167]

Prior to the COVID-19 pandemic, the number of SNAP recipients had been declining for the last several years. Like

WIC, this is likely due to a number of causes, including an improved economy and discouragement of enrollment due to public-charge rule concerns.[168,169] USDA has proposed several rules that would further reduce SNAP enrollment by: (1) tightening the criteria by which states request waivers from time limits or certain work requirements; (2) restricting SNAP's broad-based categorical eligibility option, which allows states to enroll residents in SNAP when they apply for other income-based programs; and (3) standardizing the method for determining states' standard utility allowances.[170] The Urban Institute estimates that if all these proposed rules were implemented as many as 3.7 million Americans would lose their SNAP benefits.[171] On March 13, 2020, a federal judge issued a nationwide injunction temporarily blocking implementation of the first rule on work-requirement waivers, finding that states need to have flexibility to meet the nutritional needs of their residents, especially during a pandemic.[172] USDA indicated it plans to appeal the decision, noting that the current economic conditions would not "last forever."[173]

Recognizing there would be a spike in need due to COVID-19, Congress included a number of SNAP program flexibilities in the FFCRA. For the duration of the COVID-19 public health emergency, FFCRA permits states to:

- Provide additional allotments to families who do not qualify for the maximum SNAP benefit;
- Extend SNAP certification periods;
- Suspend work-requirement time limits; and
- Have flexibility in complying with a variety of administrative procedures.[174,175]

Jonathan Weiss / Shutterstock.com

All 50 states, along with the District of Columbia, Guam, and the Virgin Islands, have had COVID-19 SNAP waivers granted.[176]

USDA has also expanded the pilot program it began in 2019 that allows SNAP participants to use their benefits to purchase eligible food online. The program now includes 36 states and DC, extending online purchasing to more than 90 percent of SNAP participants.[177]

However, USDA denied a number of program flexibilities requested by states. These included requests to:

- Waive restrictions on student eligibility for SNAP;
- Provide emergency allotments that exceed the maximum SNAP benefit;
- Treat all SNAP applications as eligible for expedited processing;
- Have flexibility regarding requirements to automatically terminate benefits; and
- Waive other administrative requirements.[178]

In May 2020, the U.S. House of Representatives passed the Health and Economic Recovery Omnibus Emergency Solutions Act, or HEROES Act, which would raise SNAP's minimum and maximum benefit level through September 30, 2021, and preserve program flexibilities.[179,180] The Senate, however, has indicated that it is unlikely to pass the legislation in its current form.[181]

Congress initially appropriated $67.9 billion for the SNAP program in FY 2020, including $441 million for nutrition education.[182,183] In March 2020, Congress included an additional $15.8 billion for SNAP in the CARES Act, a technical fix required by the anticipated surge in participation in the wake of COVID-19.[184] SNAP is an appropriated entitlement, which means Congress is obligated to provide enough funding to cover benefits for all who meet the eligibility criteria.[185]

Nutrition Incentive Programs

The Gus Schumacher Nutrition Incentive Program (GusNIP) funds projects that encourage SNAP recipients to purchase more fruits and vegetables.[186] Created by the 2018 Farm Bill, GusNIP is the successor program to the Food Insecurity Nutrition Incentive (FINI) grant program, and FNS and the National Institute of Food and Agriculture administrate it collaboratively.[187,188,189]

Research has demonstrated the success of produce incentive programs. An evaluation of the USDA's Healthy Incentives Pilot program, which provided SNAP participants in Hampden County, Massachusetts with 30 cents for every dollar in benefits spent on fruits and vegetables, found that Healthy Incentives Pilot significantly increased participants' produce consumption.[190] Other studies have shown that produce prescriptions can increase fruit and vegetable consumption and may reduce participants' BMI.[191,192]

Recipients of GusNIP grants in FY 2019 included:

- The Community Farm Alliance in Frankfort, Kentucky, to support its Fresh Rx for Moms program, a produce prescription program that increases access for expectant mothers to Kentucky-grown foods;
- The Yukon-Kuskokwim Health Corporation in Bethel, Alaska, to provide fruit and vegetable prescriptions in their service area, which has some of the highest SNAP participation rates in the nation; and
- The Community Outreach and Patient Empowerment Program in Gallup, New Mexico, to support its Navajo Fruit and Vegetable Prescription Program, which is the first produce prescription program in a rural Native community.[193]

Yaroslav Sabitov

The National Institute of Food and Agriculture has issued a request for applications for FY 2020 projects and announced that it has $41.5 million in funding available.[194]

The Emergency Food Assistance Program

The Emergency Food Assistance Program (TEFAP) provides food at no cost to low-income Americans during times of emergency. USDA purchases the food, states provide it to local agencies (e.g. food banks) that distribute it to other community organizations (e.g. soup kitchens and food pantries) that then serve the food to the public. States receive food in proportion to their unemployment rate and the number of residents below the poverty level. FNS administers TEFAP on the federal level.[195]

USDA initially budgeted $54 million for TEFAP for FY 2020.[196] In the wake of the COVID-19 pandemic, Congress provided an additional $850 million for the program: $400 million in the FFCRA and another $450 million in the CARES Act.[197,198,199]

Healthy Food Financing Initiative

Forty million Americans lack easy access to fresh and healthy food options. The Healthy Food Financing Initiative (HFFI) offers grants, technical assistance, and other support for healthy food enterprises or retail projects in underserved areas.[200] The program is a public-private partnership administered by the Reinvestment Fund on behalf of USDA Rural Development. Since its creation in 2014, HFFI has supported nearly 1,000 retail projects in more than 35 states and leveraged an estimated $1 billion in private investment and tax credits.[201] Examples of projects supported by HFFI include:

- The reopening of a closed supermarket on the Pine Ridge Indian Reservation in South Dakota;[202]
- A program to increase access to fresh fruits and vegetables through weekend pop-up shops in Austin, Texas;[203] and
- The establishment of a mobile market to bring fresh foods to rural counties in South Carolina.[204]

For FY 2020, Congress appropriated $5 million in discretionary funding for the program, more than doubling the FY 2019 amount.[205,206] The Reinvestment Fund has announced it will award $3 million in grant funds in the 2020 round, a significant increase in funding over the previous round.[207]

ii. Child Care and Education Settings: Head Start, ECE State Requirements, Local School Wellness Policies, and Smart Snacks

Head Start

Head Start and Early Head Start are federally funded programs that promote school readiness of young children from low-income families by providing education, health, and social services.[208] The federal government provides funding and oversight to local agencies that administer the programs, which served approximately 873,000 children and pregnant women in FY 2019.[209,210]

Head Start and Early Head Start programs provide healthy food to their participants via either the Child and Adult Care Food Program or the National School Lunch Program. Children who participate in Head Start are healthier on a number of scores, and one study found that children who entered Head Start with an unhealthy weight status were significantly more likely to have a healthier BMI when they started kindergarten than a comparison group.[211,212]

Head Start directors have identified obesity as one of the major health challenges facing the children and families in the program, and many Head Start programs focus on nutrition, physical activity, and weight-management services.[213] Since 2016, federal nutrition and physical-activity standards have required programs to actively engage in obesity prevention both in the classroom and through its family-partnership process.[214]

Research shows that early health education in Head Start can make a measurable positive impact. A 2019 study of predominantly Black and Latinx Head Start students in Harlem found that the 4-year-olds significantly improved their knowledge and attitude of a healthy lifestyle after learning about a healthy diet and physical activity.[215]

For FY 2020, Congress appropriated $10.6 billion for Head Start, an increase of $550 million over FY 2019. The Head Start total includes $100 million for the expansion of Early Head Start.[216,217]

ECE State Requirements

The Child Care and Development Fund is a block-grant program funded by the federal government and administered by the states that assists low-income families with the cost of high-quality child care.[218] To receive federal funding, child-care providers must meet state-mandated early childhood education (ECE) health and safety requirements, which often include nutrition and physical-activity benchmarks.[219] In FY 2020, Congress appropriated $5.8 billion for the program, a $550 million increase over FY 2019.[220,221]

THE DISTRICT OF COLUMBIA'S HEALTHY TOTS ACT

One example of a local effort to improve child-care standards related to healthy eating and physical activity is the Healthy Tots Act, which went into effect in Washington, DC, in 2015.[222,223]

The Healthy Tots Act requires DC childcare providers that serve 50 percent or more children from low-income families to participate in CACFP, the federal program that pays for nutritious snacks and meals, and it provides additional funding for each meal they serve that meets the CACFP meal standards.[224,225] Healthy Tots also allots additional funding for child-care providers for each meal they serve that includes a locally grown, unprocessed food, and it reimburses providers with local funds for serving a third meal.[226,227] Finally, the bill established the Healthy Tots Wellness Grant Program, a competitive grant program that awards up to $100,000 per year to organizations to support physical activity, natural play areas, gardens, nutrition education, and farm-to-preschool programs.[228]

Programs funded from the first round of Healthy Tots Wellness grants included:

- City Blossoms' Early Growers program, which connects underserved children ages 2 to 5 with garden-based programming and family-style dining experiences; and
- Community Foodworks, which brings fresh, local food to child-care facilities directly from farmers markets.[229]

Local School Wellness Policies

The federal government requires that every school district that participates in a federal child nutrition program develop and implement a local school wellness policy that promotes the health of students and addresses childhood obesity.[230] These policies, at a minimum, must:

- Establish nutrition-education, nutrition-promotion and physical-activity goals;
- Include nutrition guidelines for all foods and beverages available on campus; and
- Limit food marketing to those products that meet the Smart Snacks in Schools nutrition standards (discussed in more detail below).

A review of school-district wellness policies during the 2014–2015 school year, however, found that only 57 percent of policies included all federally required topics.[231] And, as many schools transition to virtual settings for the 2020-2021 school year, many advocates are calling for updated local school wellness policies to ensure that learning environments, regardless of setting, are health promoting.

Smart Snacks

All food sold at schools—including food sold in vending machines, at school stores, and at school fundraisers—must meet federal nutrition standards, called Smart Snacks.[232] States can exempt infrequent school fundraisers from the standards, although 21 states have policies in place allowing zero exemptions.[233] The nutritional requirements for snacks are similar to requirements covering the National School Lunch and School Breakfast Programs. The Smart Snacks standards exempt snacks sold after school hours, food intended for consumption off school property, or food provided for free—for example, cupcakes brought in for a student's birthday.

CDC GRANTEES AND FOOD BANKS AIM TO INCREASE ACCESS TO HEALTHIER FOODS

Food banks, which store and distribute food to hunger-relief organizations, and food shelves and pantries, which directly serve food to families, are important components of the nation's hunger safety net. These organizations have seen a surge in demand in the wake of the massive unemployment caused by COVID-19 shutdowns. Research has shown that foods traditionally served by food pantries tend to be insufficient nutritionally for a healthy diet and do not include recommended levels of fruits and vegetables.[234] In addition, many people served by these organizations have obesity and obesity-related diseases, such as high blood pressure and type 2 diabetes.[235,236] Consequently, some food banks and pantries are beginning to refuse donations of unhealthy foods and nudge clients to make healthier choices.[237]

A number of organizations are using CDC obesity-related grant funding to improve the healthfulness of food served at local food banks and food pantries:

- With State Physical Activity and Nutrition program funding, the University of Arkansas for Medical Sciences in Little Rock is working with local food pantries to improve the food they serve by requesting healthier donations from donors, providing educational materials and healthy recipes to clients, and sharing ideas among food pantries for sourcing healthful foods.[238,239] Three food pantries that participate in the program have increased their distribution of fruits and vegetables to households from an average of 0.2 servings to 3.3 servings per person.[240]
- Oklahoma State University in Stillwater is working to improve nutrition standards in Adair and Muskogee county food banks as part of its High Obesity Program.[241]
- The University of Kentucky in Lexington, another High Obesity Program recipient, is working with food banks in Martin County, which has the state's highest obesity rate, to offer more healthful foods, including more fruits and vegetables.[242] The University of Kentucky purchased a new side-by-side refrigerator/freezer and a stand-alone freezer for the Appalachia Reach Out food bank, which allows it to store more fresh produce.[243]
- CDC Racial and Ethnic Approaches to Community Health (REACH) recipient Marion County Public Health Department in Indiana is working with local food pantries to adopt healthy food standards and institute nutritional nudges to help pantry clients choose healthier options.[244,245]
- The Hancock Health Improvement Partnership in Georgia is using REACH funding to reduce health disparities in the Black population in Hancock County, including by improving the food-service guidelines in local food banks.[246] The county has a 23.7 percent food-insecurity rate, the highest in central Georgia.[247]

Obesity-Related Data and Trends

A. TRENDS IN ADULT OBESITY

The national adult obesity rate, as measured by NHANES, has been rising for decades, with the most recent data, from 2017–2018, showing adult obesity rates passing 40 percent.[248,249,250] The next sections cover the most recent data available on adult obesity levels by state and by demographics, using the two primary U.S. surveys that track adult obesity rates: NHANES and BRFSS.

DATA SOURCES FOR ADULT OBESITY MEASURES

1. **The National Health and Nutrition Examination Survey** is the source for the national obesity data in this report. As a survey, NHANES has two main advantages: (1) it examines a nationally representative sample of Americans ages 2 years and older; and (2) it combines interviews with physical examinations to ensure data accuracy. The downsides of the survey include a time delay from collection to reporting and a small survey size (approximately 5,000 interviews over two years) that researchers cannot use for state or local data.[251]

2. **The Behavioral Risk Factor Surveillance System** is the source for state-level adult obesity data in this report. As a survey, BRFSS has three major advantages: (1) it is the largest ongoing telephone health survey in the world (approximately 450,000 interviews per year); (2) each state survey is representative of the population of that state; and (3) the survey is conducted annually, so new obesity data are available each year.[252] The downsides of the survey include using self-reported weight and height statistics, which result in underestimates of obesity rates due to people's tendency to over-report their height and under-report their weight. Also, the sample sizes, in some states, prohibit representative data about racial and ethnic groups.

i. State Obesity Rates

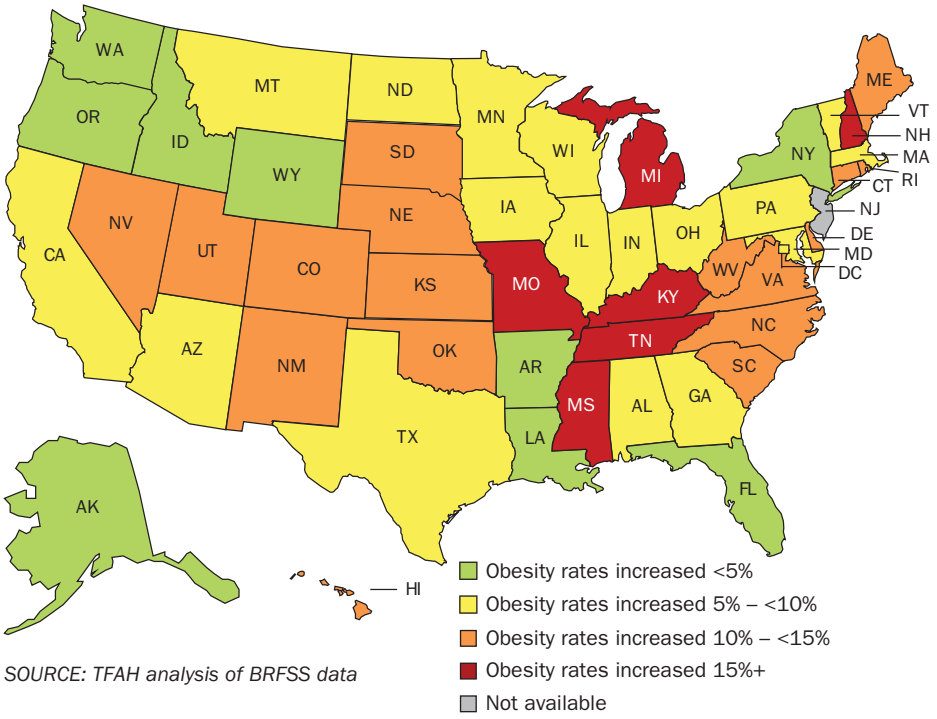
State-level obesity rates vary considerably, from a low of 23.8 percent in Colorado and the District of Columbia, to a high of 40.8 percent in Mississippi, according to 2019 BRFSS data.[253] Other key findings from the newly released data include:

- In 2019, the adult obesity rate was at or above 35 percent in 12 states (Alabama, Arkansas, Indiana, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Oklahoma, South Carolina, Tennessee, and West Virginia), up from nine states in 2018 and two states in 2014. For the first time for BRFSS, a state (Mississippi) surpassed 40 percent obesity rate.

- In 1985, no state had an adult obesity rate higher than 15 percent; in 1991, no state was over 20 percent; in 2000, no state was over 25 percent; and in 2006, only Mississippi and West Virginia were above 30 percent, and as recently as 2012, no state was above 35 percent.255
- Between 2018 and 2019, two states, Michigan and Pennsylvania, had statistically significant increases in their obesity rate; one state, Florida, had a statistically significant decrease. Over the prior five years (2014–2019), more than half of states (33) had statistically significant increases states in their obesity rate.

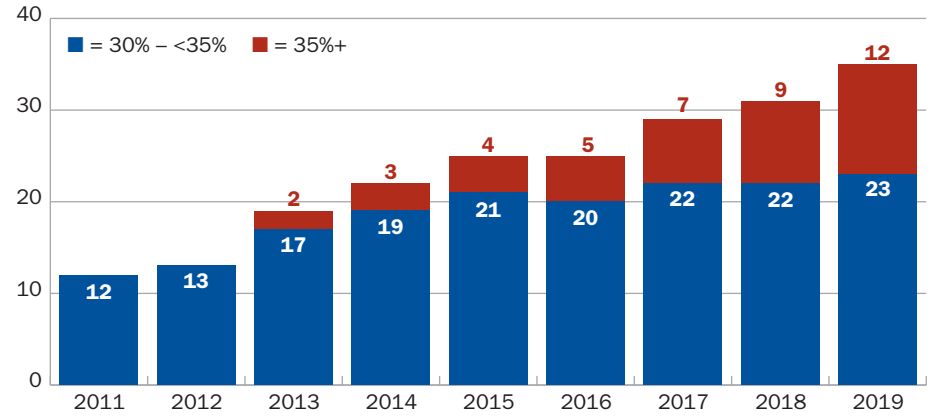
For additional state-level obesity and related indicators from BRFSS, see pages 31-33.

Percent Change in Adult Obesity Rates by State, 2014-2019



SOURCE: TFAH analysis of BRFSS data

Number of States with Adult Obesity Rates At 30 Percent or Higher, 2011–2019

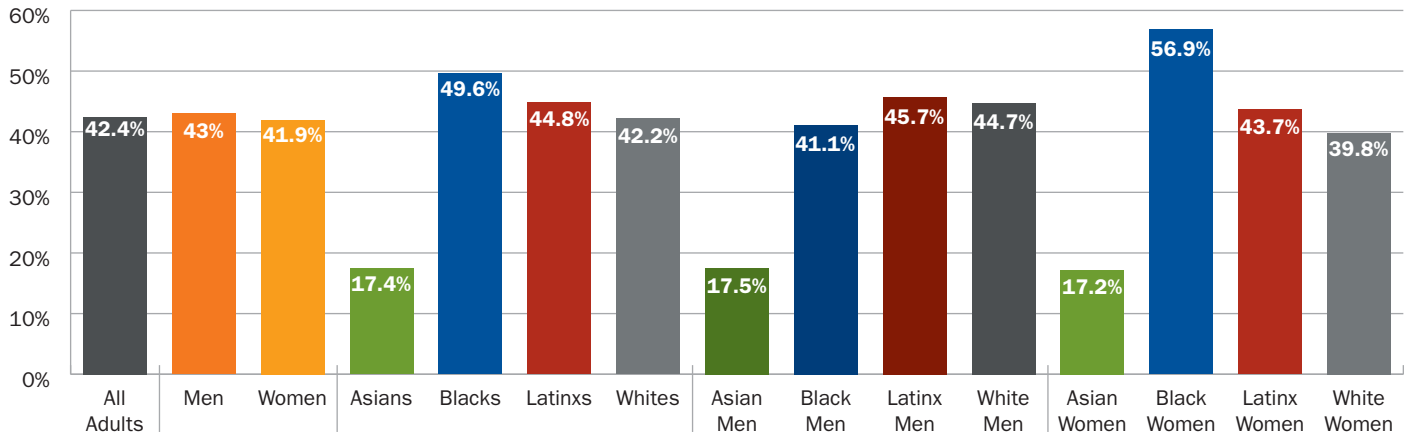


SOURCE: BRFSS

WHY ARE REPORTED NATIONAL OBESITY RATES HIGHER THAN STATE-BY-STATE RATES?

How is it that only 12 states have adult obesity rates exceeding 35 percent, yet the national obesity rate is 42.4 percent? It's because state obesity rates are from the BRFSS, which collects self-reported height and weight. Research has demonstrated that people tend to overestimate their height and underestimate their weight. In fact, one study found that, due to this phenomenon, the BRFSS may underestimate obesity rates by nearly 10 percent.[256] NHANES, from which the national obesity rate is derived, calculates its obesity rate based on measurements obtained at respondents' physical examinations. Accordingly, the higher rates found by NHANES are a more accurate reflection of obesity in the United States.[257]

Percent of Adults With Obesity by Select Demographics, 2017–2018



SOURCE: NHANES

ii. Demographic Trends

Obesity levels vary substantially by race/ethnicity as well as by education, income level, and urban or rural population.

- **Income: Generally, the more someone earns, the less likely they are to have obesity.**
  - According to a CDC analysis of 2011–2014 NHANES data, there is one exception to this trend: the very poor, who live below the federal poverty line (FPL), had lower obesity rates (39.2 percent) than those with incomes just above the poverty line (42.6 percent). (In 2020, FPL was an annual income of $12,760 for an individual and $26,200 for a family of four.)[258] But both income groups—those below the FPL and those at 100 percent to 199 percent FPL—had higher obesity levels than those with incomes at or above 400 percent FPL (29.7 percent).[259] *Note: Differences among white women mostly drive these trends.*
  - This dynamic holds true for children as well. CDC analysis of 2011–2014 NHANES data for youth ages 2 to 19 found that 18.9 percent of youth in the lowest-income group (≤130 percent FPL) had obesity, 19.9 percent of youth in the middle-income group (>130 percent to ≤350 percent FPL) had obesity, and 10.9 percent of youth in the highest-income group (>350 percent FPL) had obesity.[260] The differences in obesity rates among girls have widened substantially between 1999 and 2014, with girls in the highest-income group having a modest decrease in obesity, while girls in the lowest- and middle-income groups saw increases. (Boys had more stable obesity levels at all income levels over this time period.)[261]
- **Race/ethnicity: Racial/ethnic disparities in obesity are stark, with Black women having the highest rates of any group.**
  - According to 2017–2018 NHANES data, Blacks had the highest rate of obesity (49.6 percent) for adults ages 20 and higher, followed by Latinxs (44.8 percent), whites (42.2 person), and Asians (17.4 percent).
  - Black women drive the high obesity rate among Blacks. More than half—56.9 percent—of Black women have obesity. That's the highest sex and race or ethnicity combination included in NHANES—and 43 percent higher than white women (39.8 percent). In contrast, Black men have an obesity rate of 41.1 percent, which is slightly lower than white men (44.7 percent).
  - Asians overall have much lower rates of obesity than any other major race/ethnicity, but there is variation among different ethnicities within the overarching group. For example, the 2014 Native Hawaiian and Pacific Islander National Health Interview Survey found that native Hawaiian adults ages 18 and older had obesity rates of 37.4 percent and Pacific Islander adults had obesity rates of 44.5 percent; in comparison, all Asians had an obesity rate of 11 percent in the 2014 National Health Interview Survey (and whites had a 28.2 percent obesity rate).[262]

- There is also substantial evidence that Asians should have lower BMI cutoffs for overweight and obesity measures than other races and ethnicities, because they have higher health risks at lower BMIs. This includes a higher risk for type 2 diabetes and other metabolic diseases at lower BMIs. Since a high BMI is a factor in determining whether to test for diabetes, fewer Asians get tested and diagnosed. An estimated half of Asians with diabetes have not been diagnosed, which is much higher than the overall population.[263,264]
- It is also important to note that due to relatively small population sizes, many national surveys, including NHANES, do not report data on health measures for American Indians and Alaska Natives (AI/AN). The surveys that do exist do not gather or present findings by tribal nations. Available data shows that the AI/AN population has some of the highest rates of obesity of any race/ethnic population. The 2017 National Health Interview Survey finds 38.1 percent of AI/AN adults had obesity, which is roughly the same as Black adults in that survey and substantially higher than white adults.[265]

RACIAL AND ETHNIC DISPARITIES IN OBESITY

Some of the starkest variation in obesity prevalence occurs across race and ethnicity. While obesity rates depend on many factors, there are persistent inequities in racial and ethnic groups with high obesity rates. Equity issues—including structural racism, poverty, and community context—shape daily life and available choices around things like healthy food, physical activity, education, jobs, and financial security (together often called "social determinants of health"), which, in turn, systematically affect people's weight and health. In the words of a 2017 Annual Review of Sociology article, "Racial inequalities in health endure primarily because racism is a fundamental cause of racial differences in SES [socioeconomic status] and because SES is a fundamental cause of health inequalities."[266] A 2019 study found that racial inequality in income, unemployment, and homeownership—indicators of structural racism—were associated with obesity.[267] The results of that study further suggested that these structural racism indicators tracked with obesity through environmental factors like the number of grocery stores and fast-food restaurants in the community, and social contexts, like stress, which are predictors of poorer health.[268,269,270,271,272]

All together, the research suggests that real change in reducing obesity and improving health at the population level requires understanding and action on all the drivers of high obesity rates—from addressing historical inequities and underinvestments that result in limited resources in communities to ensuring availability and encouraging culturally appropriate, healthy choices for individuals.

An example of one organization that supports research and policy development on how social determinants affect Black communities is the Council on Black Health, formally the African-American Collaborative Obesity Research Network. The council's work includes documenting the heavy exposure of Black Americans to targeted marketing of unhealthy food products, exploring how food and beverage prices influence Blacks' consumption choices, and developing programs to support healthy eating in Black communities.

The council's membership comprises leading researchers, academics, and health and social-justice advocates. Their collaboration with organizations that originate in Black communities is key to the council's mission. Its work recognizes that many of the barriers to good health that exist in Black communities are rooted in historical inequities and contemporary systemic racism. These are inequities that manifest themselves as underserved communities, food deserts, and a lack of access to recreational facilities, which in turn contribute to the high rates of obesity in Black communities.

HOW INEQUITY CONTRIBUTES TO OBESITY: From Living Context to Weight Outcomes

Developed from a presentation at the Roundtable on Obesity Solutions, National Academies of Sciences, Engineering, and Medicine[273]

Historical, social, economic, physical, and policy contexts

Legal risks and protections

Institutional racism and other forms discrimination

Political voice and voter registration

Economics:
- Debt
- Poverty
- Home ownership
- Wealth-building/Inheritance
- Health insurance
- Minimum wage
- Public assistance
- Housing costs
- Employment discrimination
- Marketing
- Cost of living

Employment and occupation:
- Education attainment
- Employment discrimination
- Health insurance/Amenities
- Physical demand of job/Sitting vs. standing
- Job flexibility

Education:
- School district
- Neighborhood segregation
- Housing discrimination
- Public funding for schools
- School quality
- Higher-education access

Neighborhood/Locality:
- Rurality
- Jurisdiction
- Public transportation
- Distance to healthcare
- Retail outlets
- Food access
- Racial segregation
- Poverty rates
- Wage deserts
- Job access
- Housing stock
- School quality
- After-school programs
- Walking and biking infrastructure
- Community centers
- Neighborhood safety
- Parks
- Neighborhood resources (e.g., higher-education institution)
- Policing and law enforcement
- Stigma and interpersonal racism
- Blight, community ecology

Systematic effects on daily life and choices

Food-related:
- Food access, affordability, appeal
- Exposure to food advertising
- Federal nutrition assistance
- Food and nutrition literacy
- Food norms
- Dieting

Physical activity-related:
- Options for safe, affordable recreation
- Personal transportation
- Public transportation
- Exposure to violence
- Activity norms
- Exercise

Resource limitations:
- Discretionary time
- Discretionary income
- Income stability
- Housing stability
- Healthcare access

Chronic stress

Sleep health

Food security

Weight control and related contextual outcomes and effects on individuals

Food intake

Dietary quality

Child feeding and parenting

Physical activity

Sedentary behavior

Excess weight gain

Ability to lose weight

Ability to maintain weight

Body composition and fitness

- **Rural/urban: Rural areas and counties have higher rates of obesity and severe obesity.**
  - According to 2016 BRFSS data, adult obesity rates were 19 percent higher in rural regions than they were in metro areas. More than one-third (34.2 percent) of adults in rural areas had self-reported obesity compared with 28.7 percent of metro adults. Rural areas also have higher levels of obesity-associated chronic diseases (e.g. type 2 diabetes and heart disease).[273]
  - Likewise, a CDC analysis of NHANES data found that adults (ages 20 and older) who lived in the most urban areas of the country (large Metropolitan Statistical Areas) had the lowest obesity rates in 2013–2016. The researchers also found that severe obesity is much higher in rural areas for adults and children. In fact, men who live in rural areas have more than twice the obesity rate of those who live in large Metropolitan Statistical Areas (9.9 percent versus 4.1 percent). Severe obesity among adults also increased at a much faster rate in rural areas between 2001 and 2016.[274]
- **Education: Individuals with lower education levels are more likely to have obesity.**
  - According to 2017 BRFSS data, 35.6 percent of adults with less than a high school education had obesity compared with 22.7 percent of college graduates—a difference of more than 50 percent.[275]
  - The difference is greater when looking at children and the education level of the head of household. A CDC analysis of 2011–2014 NHANES data found that, in homes where the head of household was a high school graduate or less, 21.6 percent of children ages 2 to 19 had obesity; however, in homes with a head of household who graduated college, only 9.6 percent of children had obesity. That means children whose parents who did not attend any college had more than twice the rate of obesity than those with parents who did.[276]

Adult Obesity Rates and Related Health Indicators, 2019

States	Obesity		Overweight & Obesity		Diabetes		Physical Inactivity		Hypertension	
	Percent of Adults Who Have Obesity (95% CI)	Rank	Percent of Adults Who Have Obesity or Are Overweight (95% CI)	Rank	Percent of Adults with Diabetes (95% CI)	Rank	Percent of Adults Who Are Physically Inactive (95% CI)	Rank	Percent of Adults with Hypertension (95% CI)	Rank
Alabama	**36.1 (+/-1.5)**	7	70.3 (+/-1.5)	8-T	14 (+/-0.9)	3	**31.5 (+/-1.5)**	5	42.5 (+/-1.5)	3
Alaska	30.5 (+/-2.8)	33	66.6 (+/-2.9)	28	7.3 (+/-1.2)	49	21.7 (+/-2.5)	42-T	32.8 (+/-2.6)	23-T
Arizona	**31.4 (+/-1.7)**	31	65.8 (+/-1.8)	31	10.9 (+/-1)	21-T	**24.1 (+/-1.6)**	35	32.5 (+/-1.6)	25
Arkansas	37.4 (+/-2)	3	70.6 (+/-1.9)	7	13.6 (+/-1.1)	5	31.2 (+/-1.8)	6-T	41 (+/-1.8)	4
California	26.2 (+/-1.1)	46	**62.8 (+/-1.2)**	45	10.1 (+/-0.7)	35	*22.4 (+/-1)	41	27.8 (+/-1)	47
Colorado	**23.8 (+/-1.1)**	49-T	59.1 (+/-1.3)	48	7 (+/-0.6)	50	**18.7 (+/-1)**	49	25.8 (+/-1)	49-T
Connecticut	**29.1 (+/-1.4)**	39	**65.7 (+/-1.4)**	32-T	9.6 (+/-0.7)	36	**23.5 (+/-1.3)**	38	30.9 (+/-1.2)	33-T
Delaware	**34.4 (+/-2.2)**	16	68.9 (+/-2.3)	20	8.7 (+/-1.1)	41-T	19 (+/-2.1)	48	27.2 (+/-2)	48
D.C.	23.8 (+/-2.1)	49-T	55.9 (+/-2.6)	50	12.8 (+/-1.4)	8	26.6 (+/-2)	21	36.4 (+/-2.1)	10
Florida	**27 (+/-1.4)	44	**64.6 (+/-1.7)**	38	11.7 (+/-0.9)	17	**26.5 (+/-1.5)**	22-T	33.5 (+/-1.4)	19-T
Georgia	**33.1 (+/-1.9)**	23	67 (+/-1.9)	26	12 (+/-1)	14-T	**27.9 (+/-1.7)**	16	34.8 (+/-1.7)	14-T
Hawaii	**25 (+/-1.3)**	48	58.2 (+/-1.5)	49	10.5 (+/-0.9)	28-T	***24.4 (+/-1.4)**	34	30.7 (+/-1.4)	36-T
Idaho	29.5 (+/-1.9)	37	64.3 (+/-2.2)	40	**10.3 (+/-1.1)**	31-T	***23.8 (+/-1.8)**	37	30.6 (+/-1.8)	38-T
Illinois	31.6 (+/-1.5)	30	65.7 (+/-1.6)	32-T	11.3 (+/-0.9)	18	25.6 (+/-1.4)	28-T	32.2 (+/-1.4)	26
Indiana	**35.3 (+/-1.3)**	11	***69.1 (+/-1.3)**	18	**12.4 (+/-0.8)**	10	***30.9 (+/-1.3)**	8	34.8 (+/-1.2)	14-T
Iowa	**33.9 (+/-1.1)**	21	68.3 (+/-1.2)	22	10.3 (+/-0.6)	31-T	***26.5 (+/-1)**	22-T	31.8 (+/-1)	27
Kansas	**35.2 (+/-1.1)**	12	**69.9 (+/-1.1)**	11	**10.8 (+/-0.6)	24-T	***27.1 (+/-1.1)**	19	33.5 (+/-1)	19-T
Kentucky	36.5 (+/-1.8)	5-T	*71.8 (+/-1.6)	3	13.3 (+/-1.1)	7	32.8 (+/-1.7)	3	40.9 (+/-1.7)	5
Louisiana	35.9 (+/-1.8)	9	70.9 (+/-1.7)	5-T	12.6 (+/-1.1)	9	**31.9 (+/-1.7)**	4	39.7 (+/-1.7)	6
Maine	**31.7 (+/-1.4)**	28-T	65.5 (+/-1.6)	35	**10.6 (+/-0.8)**	26-T	***30.1 (+/-1.4)**	10-T	36.2 (+/-1.4)	11
Maryland	**32.3 (+/-1.1)**	25	66.7 (+/-1.2)	27	11 (+/-0.6)	20	**23.4 (+/-1)**	39	34.3 (+/-1)	17
Massachusetts	**25.2 (+/-1.3)**	47	59.7 (+/-1.5)	46	8.4 (+/-0.8)	45	***26.4 (+/-1.3)**	25	28.1 (+/-1.2)	46
Michigan	***36 (+/-1.3)**	8	***70.3 (+/-1.2)**	8-T	11.1 (+/-0.7)	19	25.4 (+/-1.2)	30-T	35.1 (+/-1.2)	12-T
Minnesota	**30.1 (+/-0.9)**	34	**65.6 (+/-1)**	34	8.8 (+/-0.5)	40	19.9 (+/-0.8)	45	28.7 (+/-0.8)	45
Mississippi	**40.8 (+/-1.9)**	1	72.7 (+/-1.7)	1	**14.8 (+/-1.1)**	2	***37.7 (+/-1.8)**	1	43.6 (+/-1.8)	2
Missouri	**34.8 (+/-1.6)**	13-T	**68.1 (+/-1.6)**	23	10.3 (+/-0.8)	31-T	***30.6 (+/-1.5)**	9	30.9 (+/-1.4)	33-T
Montana	28.3 (+/-1.4)	41-T	64.7 (+/-1.5)	37	**7.6 (+/-0.7)	48	**19.7 (+/-1.2)	46	29.5 (+/-1.3)	44
Nebraska	**34.1 (+/-1.1)**	18	**69 (+/-1.1)**	19	**10.2 (+/-0.6)**	34	***26.9 (+/-1)**	20	31 (+/-1)	31-T
Nevada	30.6 (+/-2.5)	32	**67.7 (+/-2.5)**	24-T	10.9 (+/-1.7)	21-T	**25.8 (+/-2.4)**	27	32.8 (+/-2.4)	23-T
New Hampshire	**31.8 (+/-1.8)**	27	***67.7 (+/-1.8)**	24-T	9.2 (+/-0.9)	38	**21.7 (+/-1.5)**	42-T	31.5 (+/-1.6)	30
New Jersey	n/a	–	n/a	–	n/a	–	n/a	–	n/a	–
New Mexico	**31.7 (+/-1.8)**	28-T	66.1 (+/-1.8)	30	12.3 (+/-1.1)	11	*25.4 (+/-1.6)	30-T	31.6 (+/-1.6)	29
New York	27.1 (+/-1.1)	43	**63.2 (+/-1.3)**	44	10.5 (+/-0.7)	28-T	*27.2 (+/-1.1)	17-T	29.6 (+/-1.1)	43
North Carolina	**34 (+/-1.8)**	19-T	**69.6 (+/-1.7)**	14	11.8 (+/-1.1)	16	***26.3 (+/-1.6)**	26	35.1 (+/-1.6)	12-T
North Dakota	**34.8 (+/-1.9)**	13-T	70.3 (+/-1.9)	8-T	8.9 (+/-0.9)	39	***28 (+/-1.7)**	15	29.8 (+/-1.6)	42
Ohio	**34.8 (+/-1.3)**	13-T	**69.3 (+/-1.3)**	16-T	12 (+/-0.8)	14-T	***28.3 (+/-1.2)**	14	34.5 (+/-1.2)	16
Oklahoma	**36.8 (+/-1.6)**	4	**71.4 (+/-1.5)**	4	12.2 (+/-0.9)	12-T	***34 (+/-1.5)**	2	37.8 (+/-1.4)	9
Oregon	29 (+/-1.5)	40	63.9 (+/-1.6)	42	**8.6 (+/-0.8)	44	***23.9 (+/-1.3)**	36	30.6 (+/-1.4)	38-T
Pennsylvania	***33.2 (+/-1.5)**	22	**68.4 (+/-1.5)**	21	10.8 (+/-0.9)	24-T	**25.6 (+/-1.4)**	28-T	33.3 (+/-1.4)	21
Rhode Island	**30 (+/-1.8)**	35	64.4 (+/-1.9)	39	10.4 (+/-1)	30	**26.5 (+/-1.8)**	22-T	33 (+/-1.7)	22
South Carolina	**35.4 (+/-1.6)**	10	**69.3 (+/-1.5)**	16-T	**13.4 (+/-1)**	6	**28.8 (+/-1.5)**	13	38.3 (+/-1.5)	8
South Dakota	**33 (+/-2.4)**	24	***70.9 (+/-2.3)**	5-T	10.6 (+/-1.5)	26-T	***30 (+/-2.3)**	12	30.9 (+/-2.2)	33-T
Tennessee	**36.5 (+/-1.8)**	5-T	69.5 (+/-1.7)	15	13.8 (+/-1.1)	4	**30.1 (+/-1.6)**	10-T	39.3 (+/-1.6)	7
Texas	34 (+/-1.7)	19-T	69.8 (+/-1.7)	12	12.2 (+/-1.1)	12-T	27.2 (+/-1.6)	17-T	31.7 (+/-1.5)	28
Utah	**29.2 (+/-1.1)**	38	**63.7 (+/-1.2)**	43	**8 (+/-0.6)**	46	**18.5 (+/-0.9)**	50	25.8 (+/-1)	49-T
Vermont	26.6 (+/-1.7)	45	59.5 (+/-2)	47	8.7 (+/-0.9)	41-T	20 (+/-1.5)	44	30.2 (+/-1.6)	41
Virginia	**31.9 (+/-1.3)**	26	66.4 (+/-1.4)	29	**10.9 (+/-0.7)**	21-T	***25. 3(+/-1.2)**	32	33.6 (+/-1.2)	18
Washington	28.3 (+/-0)	41-T	64 (+/-0)	41	9.4 (+/-0)	37	*19.2	47	30.3 (+/-)	40
West Virginia	**39.7 (+/-1.8)**	2	**72 (+/-1.7)**	2	**15.7 (+/-1.1)**	1	***31.2 (+/-1.6)**	6-T	43.8 (+/-1.7)	1
Wisconsin	**34.2 (+/-1.9)**	17	69.7 (+/-1.8)	13	8.7 (+/-0.9)	41-T	23.2 (+/-1.6)	40	31 (+/-1.6)	31-T
Wyoming	29.7 (+/-2)	36	65.2 (+/-2.1)	36	7.8 (+/-1)	47	***24.6 (+/-1.8)**	33	30.7 (+/-1.8)	36-T

SOURCE: Behavioral Risk Factor Surveillance System (BRFSS) data, CDC

NOTE: For rankings, 1 = Highest Rate, and 51 = Lowest Rate; T = Tie. Red and * indicate state rates that significantly increased between 2017 and 2018; Green and ** indicate state rates that significantly decreased between 2017 and 2018; **Bold** indicates state rates that significantly increased between 2014 and 2019. Tests of significance were not conducted for hypertension. CI= Confidence Interval. Data for New Jersey are not available for 2019.

Adult Obesity Rates by Race/Ethnicity and Sex, 2019

	Black*		Latinx*		White*		Male		Female	
States	Percent of Black Adults Who Have Obesity	Rank	Percent of Latino Adults Who Have Obesity	Rank	Percent of White Adults Who Have Obesity	Rank	Percent of Men Who Have Obesity	Rank	Percent of Women Who Have Obesity	Rank
Alabama	45.0	3-T	33.6	20-T	33.5	11	36.0	6	36.2	11
Alaska	39.8	23-T	33.6	20-T	30.1	26-T	30.5	34	30.6	30-T
Arizona	35.0	33-T	35.2	12-T	27.6	37-T	30.7	31-T	32.1	29
Arkansas	44.7	6	32.5	31	35.6	4	35.9	7	39.0	3
California	35.6	32	32.9	26-T	23.9	47	24.3	49	28.0	42-T
Colorado	29.4	45	29.8	41-T	21.6	48	24.5	48	23.0	49
Connecticut	38.6	26	32.9	26-T	26.1	43	29.9	36	28.3	40
Delaware	39.8	23-T	33.6	20-T	32.3	17	33.7	50	35.0	16
D.C.	38.0	29	24.6	49	11.4	50	19.4	16	27.8	44
Florida	36.6	30	31.0	34-T	26.5	41	26.9	45	27.2	46
Georgia	39.2	25	32.9	26-T	30.1	26-T	32.6	25	33.6	22
Hawaii	31.5	41	34.0	19	18.3	49	28.1	42	21.9	50
Idaho	n/a	–	32.8	29	28.4	35	28.4	41	30.6	30-T
Illinois	40.5	19	34.6	16	30.9	22	31.0	29-T	32.2	28
Indiana	39.9	21-T	38.3	8	33.9	8	34.9	10-T	35.7	13-T
Iowa	43.4	9	37.1	9	35.3	5-T	35.2	8	32.6	25
Kansas	41.0	17-T	36.7	11	33.7	9	34.0	13	36.4	10
Kentucky	39.9	21-T	31.6	32-T	35.8	2	35.0	9	37.9	5
Louisiana	43.6	8	32.7	30	33.0	14-T	33.5	19	38.3	4
Maine	29.0	46	28.6	46	30.4	23	32.9	23-T	30.5	32-T
Maryland	41.0	17-T	30.8	37-T	28.9	33-T	30.0	35	34.5	20
Massachusetts	29.7	44	29.8	41-T	25.8	44-T	26.0	47	24.3	48
Michigan	41.8	14	40.0	2	32.8	16	34.8	12	37.1	8
Minnesota	32.9	38	33.5	23-T	29.5	29	31.1	28	29.1	36
Mississippi	46.0	2	30.8	37-T	35.7	3	36.7	3	44.9	1
Missouri	42.0	13	38.8	5	33.1	13	34.9	10-T	34.6	19
Montana	25.0	48	28.2	47	25.8	44-T	27.3	44	29.5	34
Nebraska	42.6	12	35.1	14-T	33.3	12	33.6	17-T	34.7	18
Nevada	38.3	27-T	31.6	32-T	26.9	40	31.9	26-T	29.2	35
New Hampshire	24.7	49	27.5	48	30.2	24-T	32.9	23-T	30.5	32-T
New Jersey	n/a	–	n/a	–	n/a	–	n/a	–	n/a	–
New Mexico	33.5	37	34.4	17-T	25.1	46	31.0	29-T	32.5	26
New York	35.0	33-T	29.3	44	26.4	42	26.5	46	27.7	45
North Carolina	44.8	5	30.1	40	29.9	28	30.6	33	37.4	6
North Dakota	27.7	47	39.5	4	34.1	7	36.3	5	33.1	24
Ohio	40.1	20	40.2	1	33.6	10	33.9	14	35.7	13-T
Oklahoma	41.7	15	36.8	10	35.3	5-T	36.4	4	37.2	7
Oregon	30.8	42-T	34.4	17-T	29.0	31-T	29.0	39	29.0	37
Pennsylvania	41.5	16	30.9	36	31.3	21	33.3	20	33.2	23
Rhode Island	36.2	31	35.1	14-T	28.2	36	31.9	26-T	28.2	41
South Carolina	43.7	7	29.6	43	31.7	19	33.8	15	36.8	9
South Dakota	30.8	42-T	38.6	7	30.2	24-T	33.6	17-T	32.3	27
Tennessee	45.0	3-T	33.0	25	33.0	14-T	37.1	2	36.0	12
Texas	38.3	27-T	38.7	6	31.5	20	33.1	21	34.9	17
Utah	32.2	40	30.5	39	27.0	39	29.5	38	28.8	38
Vermont	34.5	36	16.7	50	27.6	37-T	27.6	43	25.7	47
Virginia	42.8	11	31.0	34-T	29.4	30	29.6	37	34.2	21
Washington	32.4	39	35.2	12-T	29.0	31-T	28.7	40	28.0	42-T
West Virginia	47.4	1	33.5	23-T	39.0	1	39.7	1	39.8	2
Wisconsin	42.9	10	39.9	3	31.9	18	33.0	22	35.5	15
Wyoming	35.0	33-T	29.0	45	28.9	33-T	30.7	31-T	28.5	39

SOURCE: Behavioral Risk Factor Surveillance System (BRFSS), CDC

NOTE: For rankings, 1 = Highest Rate, and 51 = Lowest Rate; T= Tie.

* For race/ethnicity data, three years of data are needed for sufficient sample size; 2017–2019 data were used here. Some data are not available due to an insufficient sample size.

Adult Obesity Rates by Age, 2019

	Ages 18-24		Ages 25-44		Ages 45-64		Ages 65+	
States	Percent With Obesity	Rank	Percent With Obesity	Rank	Percent With Obesity	Rank	Percent With Obesity	Rank
Alabama	24.6	7	38.3	6	41.3	10	31.3	20
Alaska	15.4	42-T	30.9	34	36.3	31	30.2	23-T
Arizona	20.1	24	32.6	26	39.2	21	25.7	44
Arkansas	26.3	4	40.6	2	42.2	7	32.4	16
California	13.2	48	27.1	44-T	31.8	46	23.3	49
Colorado	12.0	50	24.0	49	27.6	48	24.2	48
Connecticut	18.1	33	30.0	36	32.8	42	28.2	38
Delaware	23.0	49	33.7	24-T	40.3	13	32.6	12-T
D.C.	12.9	13	19.6	50	34.5	35-T	25.9	43
Florida	15.4	42-T	24.3	48	32.5	44	27.6	41
Georgia	15.9	41	35.7	14	39.4	20	29.6	30
Hawaii	18.9	30	29.1	39	27.4	50	18.8	50
Idaho	19.2	29	29.7	37	33.8	38	29.1	32
Illinois	15.4	42-T	32.3	28	36.4	29-T	32.5	14-T
Indiana	25.1	5	36.3	13	39.6	17	33.6	5-T
Iowa	17.7	34-T	35.3	17	40.1	14	33.3	8-T
Kansas	23.8	9	37.0	10	39.9	15-T	32.9	10
Kentucky	24.5	8	37.4	9	42.4	6	32.6	12-T
Louisiana	23.1	12	37.7	7	42.8	5	30.2	23-T
Maine	18.3	31-T	31.6	33	38.1	26	28.7	34-T
Maryland	20.8	18-T	32.1	30	37.4	28	30.4	22
Massachusetts	15.2	46	25.8	47	27.5	49	26.7	42
Michigan	20.0	25	35.6	15-T	43.4	4	34.4	3
Minnesota	19.5	28	29.3	38	35.2	32	29.7	28-T
Mississippi	27.8	1	42.0	1	47.9	1	36.4	1-T
Missouri	22.9	14-T	34.1	22	41.9	9	31.9	17-T
Montana	17.3	36-T	26.6	46	33.4	40-T	29.5	31
Nebraska	19.6	27	34.9	19	39.5	18-T	34.0	4
Nevada	17.7	34-T	32.2	29	34.5	35-T	28.6	36
New Hampshire	23.5	10	34.8	20	34.0	37	28.0	39
New Jersey	n/a	–	n/a	–	n/a	–	n/a	
New Mexico	22.5	16	35.6	15-T	36.4	29-T	24.9	46
New York	16.6	39	27.1	44-T	32.4	45	24.5	47
North Carolina	22.9	14-T	33.9	23	39.9	15-T	31.6	19
North Dakota	16.7	38	39.1	5	39.5	18-T	33.4	7
Ohio	20.8	18-T	34.5	21	41.0	11-T	33.6	5-T
Oklahoma	26.6	3	37.5	8	44.1	3	31.2	21
Oregon	18.3	31-T	28.5	42	33.6	39	28.4	37
Pennsylvania	23.3	11	32.4	27	38.2	25	31.9	17-T
Rhode Island	20.7	20	31.7	32	32.7	43	29.0	33
South Carolina	27.0	2	36.8	12	38.9	23	32.5	14-T
South Dakota	17.3	36-T	33.7	24-T	41.0	11-T	29.8	26-T
Tennessee	21.1	17	39.2	4	42.0	8	32.7	11
Texas	19.9	26	36.9	11	38.8	24	29.8	26-T
Utah	16.3	40	30.1	35	34.9	33	30.1	25
Vermont	15.0	47	28.9	40-T	30.4	47	25.2	45
Virginia	20.2	23	31.8	31	37.8	27	29.7	28-T
Washington	15.4	42-T	28.2	43	33.4	40-T	27.9	40
West Virginia	24.9	6	40.5	3	46.7	2	36.4	1-T
Wisconsin	20.5	22	35.1	18	39.1	22	33.3	8-T
Wyoming	20.6	21	28.9	40-T	34.6	34	28.7	34-T

SOURCE: Behavioral Risk Factor Surveillance System (BRFSS), CDC

NOTE: For rankings, 1 = Highest Rate, and 51 = Lowest Rate; T= Tie.

B. TRENDS IN CHILDHOOD OBESITY

As with adults, obesity has been rising among children for decades. Between the 1976–1980 NHANES survey and the 2017–2018 survey, obesity rates for children ages 2 to 19 more than tripled, from 5.5 to 19.3 percent.[277,278,279,280] In 2007–2008, the rate was 13.6 percent.[281]

Children who are overweight or who have obesity are more likely to have obesity as adults, making interventions at an early age essential.[282] Recently, researchers have focused specifically on the first 1,000 days of life as a critical time to encourage healthy nutrition (e.g. breastfeeding during infancy, no juice or cow's milk until age 1, and encouraging a variety of healthy fruit, vegetables, and whole grains when age-appropriate).[283] It's also an opportunity for family interventions that benefit parents as well as children.

This section includes the latest data available on childhood obesity. As with adults, this report relies on multiple surveys to better understand the full picture of childhood obesity.

DATA SOURCES FOR CHILDHOOD OBESITY MEASURES

1) **The National Health and Nutrition Examination Survey** is the primary source for national obesity data on adults and on children ages 2 to 19 in this report. NHANES is particularly valuable in that it combines interviews with physical examinations while also covering a wide age range of Americans. The downsides of the survey include a time delay from collection to reporting and samples that do not break out local data. The most recent NHANES data are from the 2017–2018 survey.

2) **The National Survey of Children's Health** surveys parents of children ages 0 to 17 about aspects of their children's health, including height and weight for children age 6 and overt. An advantage of this survey is that it includes state-level data. A disadvantage is that height and weight data are parent-reported, not directly measured. The most recent data are from its 2017–2018 iteration.

3) **The Youth Risk Behavior Survey (YRBS)** measures health behaviors, including eating habits and physical activity behaviors, as well as body weight status (determined from self-reported height and weight), among students in grades 9 to 12. As in other surveys that use self-reported data to measure obesity, this survey likely underreports the true rates.[284] YRBS officials conduct the survey in odd-numbered years; 2019 is the most recent dataset available. The 2019 survey includes state-level samples for 44 states plus select large urban school districts, as well as a separate national sample.[285]

i. National Childhood Obesity Rates

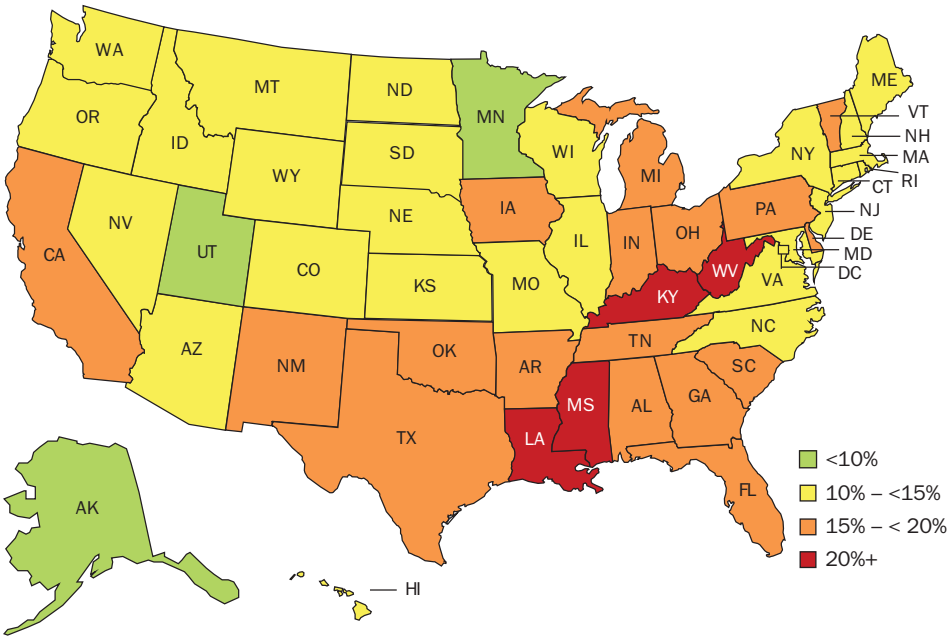
The most recent national data, the 2017–2018 NHANES survey, found that 19.3 percent of youth ages 2 through 19 had obesity. That data release did not include additional demographic data available. The 2015–2016 data show important variation by demographics:

- **Race/ethnicity:** Black and Latinx youth have substantially higher rates of obesity than their Asian and white peers. Obesity prevalence for Asian youth was 11.0 percent, Black youth 22.0 percent, Latinx youth 25.8 percent, and white youth 14.1 percent in 2015–2016.
- **Sex:** Boys are slightly more likely to have obesity than girls. In 2015–2016, 19.1 percent of boys had obesity, and 17.8 percent of girls had obesity.[286]
- **Age:** The prevalence of obesity and severe obesity increases with age. In 2015–2016, 13.9 percent of children ages 2 to 5, 18.4 percent of children ages 6 to 11, and 20.6 percent of children ages 12 to 19 had obesity. Between the 1976–1980 NHANES survey and the 2015–2016 survey, the percentage of children ages 2 to 19 with obesity overall tripled, with obesity among children ages 6 to 11 doubling, and the obesity rates of teens ages 12 to 19 quadrupling.

ii. Obesity Rates in Children Ages 10 to 17

The National Survey of Children's Health reported that nationwide, for their 2017–2018 survey, 15.3 percent of children ages 10 to 17 had obesity and 15.5 percent were overweight. The states with the highest rates of obesity for children ages 10 to 17 were Mississippi (25.4 percent), West Virginia (20.9 percent), Kentucky (20.8 percent), and Louisiana (20.8 percent); the states with the lowest rates of obesity were Utah (8.7 percent), Minnesota (9.4 percent), and Alaska (9.9 percent). See chart on page 37 for more state data.

Percent of Children Ages 10–17 with Obesity by State, 2017–2018



Source: NSCH

iii. High School Obesity Rates

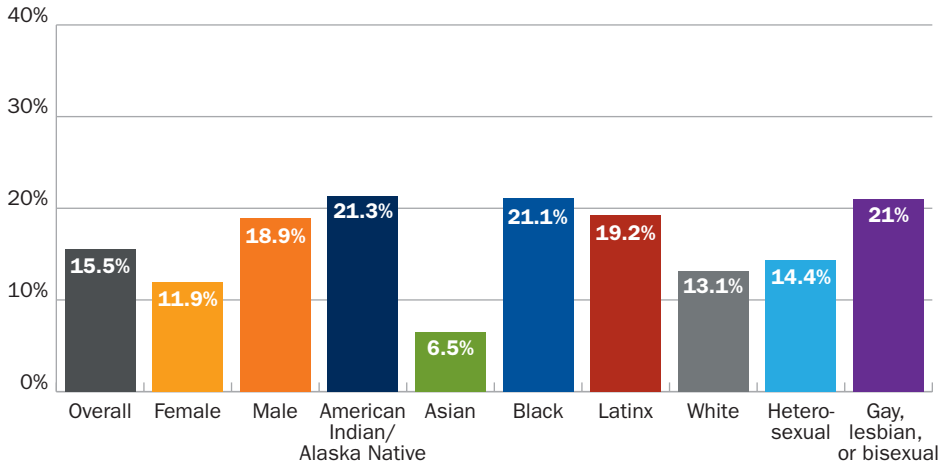
According to 2019 YRBS data, 15.5 percent of high school students (grades 9 to 12) nationwide had obesity and 16.1 percent were overweight. Obesity levels among high school students show a statistically significant increase in the long-term; in 1999, obesity rates among high schoolers participating in the survey were at 10.6 percent.[287]

Other takeaways:

- The prevalence of obesity among high school students in different states varied considerably, from 9.8 percent in Utah to 21.7 percent in Mississippi.
- There were also stark differences in obesity rates across demographic group. Male students (18.9 percent) had higher obesity rates than female students (11.9 percent); gay, lesbian, and bisexual students (21.0 percent) had higher obesity rates than heterosexual students (14.4 percent); and American Indians/Alaska Natives, Black, and Latinx students (all above 19.0 percent) had higher obesity rates than than white (13.1 percent) and Asian (6.5 percent) students.

See next page for state-by-state data on obesity, overweight, and activity levels among high school students.

Percent of High School Students with Obesity by Select Demographics, 2019



SOURCE: YRBS

Youth Obesity Rates and Related Health Indicators

States	Young Children: Obesity, 2018	Children and Teenagers: Obesity and Physical Activity, 2017–2018			High School (HS) Students: Obesity, Overweight, Physical Activity, 2019		
	Percent of Low-Income Children Ages 2-4 Who Have Obesity	Percent of Children Ages 10-17 Who Have Obesity	Ranking	Percent of Children Ages 6–17 Who Participate in 60 Minutes of Physical Activity Every Day	Percent of HS Students Who Have Obesity	Percent of HS Students Who Are Overweight	Percent of HS Students Who Are Physically Active 60 Minutes Every Day of the Week
Alabama	16.2	16.1	16	24.3	17.2	20.1	23.2
Alaska	20.2	9.9	49	28.9	14.8	15	17.9
Arizona	12.5	13.2	34-T	18.6	13.3	17.4	22
Arkansas	13.1	16.2	15	22.0	22.1	19.8	22.7
California	15.8	15.6	18	25.6	15.9	15.2	20.5
Colorado	8.6	10.7	48	25.9	10.3	11.7	25.4
Connecticut	14.5	11.5	44-T	22.7	14.4	14.9	23.2
Delaware	16.3	15.1	20-T	19.3	n/a	n/a	n/a
D.C.	12.8	14.3	27	22.8	n/a	n/a	n/a
Florida	13.3	17.8	8	22.6	14	16.1	22.7
Georgia	13.6	16.0	17	19.8	18.3	18.1	24
Hawaii	10.7	11.5	44-T	17.1	16.4	14.4	17.1
Idaho	12.0	12.7	36	22.8	12.1	12.4	22.2
Illinois	15.2	14.2	28-T	24.8	15.2	15.5	26
Indiana	13.5	16.6	13	22.9	n/a	n/a	n/a
Iowa	15.6	16.4	14	25.1	17	15.9	25.7
Kansas	13.7	12.2	39	22.7	15.1	15.7	26.5
Kentucky	16.3	20.8	3-T	23.0	18.4	17.8	19
Louisiana	13.1	20.8	3-T	20.3	16.5	17.8	21
Maine	14.6	14.9	23	29.1	14.9	14.8	20.4
Maryland	16.4	14.5	24	20.0	12.8	15.7	19.4
Massachusetts	16.3	14.4	25-T	21.2	14.2	14.8	21.7
Michigan	13.7	18.9	5	24.9	15.3	16.1	21.8
Minnesota	12.4	9.4	50	21.0	n/a	n/a	n/a
Mississippi	14.8	25.4	1	25.2	23.4	18	23.4
Missouri	13.0	12.5	37	25.1	18.4	16.1	25.3
Montana	11.9	10.8	47	23.8	11.5	13	25.3
Nebraska	14.7	12.0	40	20.6	13.3	12.8	27.9
Nevada	11.7	13.7	31	21.0	12.3	16.7	21.7
New Hampshire	17.2	12.3	38	21.9	12.7	14	22.5
New Jersey	14.8	15.0	22	20.9	11.9	14.7	22.7
New Mexico	13.0	16.9	11	21.3	15.2	15.8	26.8
New York	14.0	14.4	25-T	23.4	13.4	16.3	19.2
North Carolina	15.0	13.5	32	23.9	15.4	16	19.9
North Dakota	15.4	13.4	33	27.0	14	16.5	25.2
Ohio	12.6	17.1	10	23.2	16.8	12.2	23.5
Oklahoma	13.6	18.0	6	24.7	17.6	18.1	29.2
Oregon	14.6	11.7	43	23.5	n/a	n/a	n/a
Pennsylvania	12.8	17.4	9	24.9	15.4	14.5	25.4
Rhode Island	17.1	14.0	30	22.1	14.3	14.6	21.1
South Carolina	12.7	17.9	7	25.0	16.6	16.3	19.5
South Dakota	16.0	11.9	41	25.1	14.1	15.6	29.7
Tennessee	15.2	16.7	12	24.2	20.9	18.3	21.6
Texas	15.9	15.5	19	18.3	16.9	17.8	22.9
Utah	8.5	8.7	51	12.6	9.8	12.3	21
Vermont	12.9	15.1	20-T	24.6	13.1	13.7	22.1
Virginia	15.8	13.2	34-T	20.2	14.8	15.8	22
Washington	13.8	11.0	46	19.8	n/a	n/a	n/a
West Virginia	16.5	20.9	2	31.2	22.9	16.5	26.3
Wisconsin	14.4	14.2	28-T	24.1	14.5	14.6	21.5
Wyoming	10.5	11.8	42	24.4	n/a	n/a	n/a

SOURCE: WIC Participants and Program Characteristics Survey, USDA

SOURCE: National Survey of Children's Health, HRSA

NOTE: For rankings, 1 = Highest Rate, and 51 = Lowest Rate. T= Tie.

SOURCE: Youth Risk Behavior Survey, CDC

Obesity-Related Policies and Programs

This section covers policies and programs related to obesity in five subsections: (A) Economics of What We Eat and Drink, (B) Nutrition Education, (C) Community Policies and Programs, (D) Healthcare Coverage and Programs, and (E) Obesity and the Military. Programs and policies specifically related to food insecurity are available in the previous special-feature section on pages 9–24.

A. ECONOMICS OF WHAT WE EAT AND DRINK

i. Fiscal and Tax Policies that Promote Healthy Eating: Beverage Taxes, Healthy Food Financing Initiative, and the New Markets Tax Credit

Fiscal policies are some of the most powerful tools that policymakers can use to impact obesity rates. For example, because pricing significantly influences consumption, enacting taxes on unhealthy food and beverages can be a powerful way to drive down obesity rates.[288] Financial incentives can also spur critical community investments, such as building grocery stores and recreational outlets in communities that lack them. Agricultural policy, however, has historically subsidized ingredients commonly used in unhealthy foods.

Beverage Taxes

Reducing consumption of sugary drinks, the largest source of added sugar in Americans' diets, could have a meaningful impact on obesity rates.[289] Researchers have identified a national sugary-drink tax as the most cost-effective obesity-prevention intervention of seven studied, estimating it could prevent more than half a million cases of childhood obesity over the course of a decade.[290]

Several U.S. cities, as well as the Navajo nation, have enacted sales taxes on sugary beverages. Studies of the short-term impacts of taxes enacted in Berkeley, California, and Philadelphia, Pennsylvania, found that sales and consumption of sugary beverages decreased and consumption of water increased after these taxes went into effect.[291,292,293,294] Longer-term studies found that Berkeley sustained its reductions in sugary-beverage consumption over three years, while Philadelphians' reductions in sugary-drink consumption a year after implementation of the tax were not significantly higher than reductions in nearby cities.[295,296] Longer-term studies are needed to better understand the impact of these measures.

The beverage industry has spent millions of dollars lobbying against sugary-beverage taxes, and their efforts have had an effect.[297] Legislators quickly repealed a beverage tax enacted in Cook County, Illinois, in 2016.[298] Voters defeated proposed taxes in Telluride, Colorado, in 2013 and in Santa Fe, New Mexico, in 2017, and several states—including California, Michigan, Washington, and Arizona—have barred local governments from implementing their own beverage taxes.[299,300,301,302]

Opponents of beverages taxes claim that they disproportionately hurt low-income communities and negatively impact local economies.[303,304] Public health advocates point out that, while low-income consumers disproportionately pay these taxes, they also disproportionately benefit from the improved health benefits. A number of cities direct beverage tax revenue toward programs that promote healthy eating and active living and/or help disadvantaged communities ensure that local policies boost health and reduce inequities—for example, Seattle has committed $5 million to grocery vouchers for food-insecure households between March and July 2020 and Philadelphia just provided $2 million to bolster the city's free pre-K program during the COVID-19 pandemic and.[305,306,307,308309,310,311] Moreover, a recent study in Philadelphia found no merit to the claim that its tax led to higher unemployment in the retail or soft-drink industry there.[312]

New Markets Tax Credit

The New Markets Tax Credit (NMTC) provides tax credits to companies that invest in low-income areas. By incentivizing companies to build projects—which can include healthcare centers, supermarkets, and fitness facilities—in areas that lack access to affordable, healthy food and safe places to exercise, this program removes some of the barriers to a healthy lifestyle that exist in low-income communities.[313] Since 2003, the program has provided $27 billion in tax credits and supported more than 5,300 projects.[314]

Recent development projects supported by the NMTC include:

- Construction of a state-of-the-art industrial kitchen by Meals on Wheels San Francisco to feed food-insecure seniors in San Francisco;[315]
- The renovation of the Downtown Youngstown YMCA in Ohio, which provides physical-activity opportunities in a distressed neighborhood with high rates of chronic disease;[316] and
- Construction of the Prince Avenue Market in Athens, Georgia, a mixed-use project that includes the first full-service urban grocery store in the area.[317]

The NMTC was set to expire at the end of 2019, but Congress extended it for another year and increased its FY 2020 funding to $5 billion for FY 2020, an increase over the $3.5 billion funding level for FY 2019.[318,319]

REIMAGINING AGRICULTURAL SUBSIDIES

The U.S. government spends a lot of money subsidizing the cost of certain agricultural crops, including a number of crops used in the production of unhealthy foods that have contributed to the obesity crisis.[320,321] From 1995 to 2010, about $170 billion was spent to subsidize five commodity crops—corn, soybeans, wheat, rice, and sorghum—along with livestock and dairy, which feed on commodity crops.[322] Most fruit and vegetables, on the other hand, are considered "specialty crops" and do not receive the same federal support.[323] Public health experts have proposed adding fruits and vegetables to the commodity crop program and developing other supports for fruit and vegetable farmers to increase availability and lower prices for consumers, and reduce waste.[324]

ii. Food and Beverage Marketing

The marketing of unhealthy food and beverages has the predictable effect of increased consumption. Studies have found a direct association between television food advertising and obesity.[325] One analysis found that elementary schoolchildren's exposure to fast-food and soft-drink advertisements was positively associated with a 1.1 percent increase in fast-food consumption and a 9.4 percent rise in soft-drink consumption.[326]

The food and beverage industry heavily advertises unhealthy products to American children and to minority youth in particular. Ads for primarily unhealthy categories of food constituted more than 75 percent of food-related ads viewed by American youth in 2016.[327] A 2019 report by the Rudd Center for Food Policy and Obesity found that, even when accounting for differences in TV viewing time, Black children saw 40 percent more candy ads than white children.[328] In addition, food ads airing on Spanish-language television were almost exclusively promoting fast food and other unhealthy food and beverages.[329]

Another concerning trend is the advertising of "toddler milk" with the Latinx community a particular target of this marketing.[330] These drinks often have sugar or other added sweeteners and are not recommended by leading health organizations, including the Academy of Nutrition and Dietetics, the American Academy of Pediatric Dentistry, the American Academy of Pediatrics and the American Heart Association.[331,332] The World Health Organization (WHO) opposes the promotion of these beverages, because they lack ability to meet the nutritional needs of infants yet are often confused with infant formula.[333]

One policy lever that regulators could use to protect children from this type of marketing would be to disallow tax deductions for the marketing of unhealthy food and beverages to children. Both the American Academy of Pediatrics and American Heart Association have recommended this, and modeling has predicted this would save the United States more in healthcare costs than the cost to implement it.[334,335] Public health researchers have also suggested that the Food and Drug Administration (FDA) regulate the marketing of toddler formula to prevent misleading labeling.[336]

INTERNATIONAL LESSONS: EXAMPLES OF TAXES, MARKETING POLICY, AND FARM SUBSIDIES FROM AROUND THE WORLD

Nations around the world use a variety of fiscal and regulatory policies to reduce obesity and promote more healthful eating, and their efforts can be instructive for American policymakers.

More than 40 nations have enacted some type of tax on sugary beverages, a measure the WHO has recommended.[337,338] As with similar excise taxes in the United States, studies have demonstrated a subsequent reduction in sugary-drink purchases. Research of a one-peso-per-liter excise tax enacted in Mexico in 2014 found a 7.6 percent reduction in the purchase of taxed beverages and a 2.1 percent increase in the purchases of untaxed drinks in the two years after the tax went into effect.[339] Sugary-beverage taxes have also sometimes influenced manufacturers to reduce the levels of sugar in their beverages. In England, the combination of a program to encourage companies to reduce sugar levels and an impending sugary-beverage tax resulted in a 28.8 percent reduction in the average sugar content of drinks—and that was before the tax even went into effect.[340]

To educate their residents about the healthfulness of foods, countries use a variety of different types of front-of-pack food labels, including nutrient labels, informative icons, and traffic-light graphics. A meta-analysis of food-label studies found that food labels can increase the amount of people selecting a healthier product by 18 percent and that traffic-light systems, which use green-yellow-red color coding, are marginally more effective than other systems.[341] The United Kingdom has a voluntary front-of-pack traffic-light labeling system, which is displayed on about two-thirds of packaged foods.[342] In 2017, France instituted a similar Nutri-score, which uses a five-color coding system, and which Belgium, Spain, and Portugal have subsequently adopted.[343,344] Chile uses a negative cue (a stop sign) to indicate unhealthy foods, while Singapore, the Czech Republic, Argentina, Nigeria, and the Netherlands use positive messaging (e.g., an icon reading, “healthier choice”).[345]

Chile, which has one of the world’s highest obesity rates, implemented sweeping legislation in 2016 that restricts the marketing of unhealthy food to children, requires front-of-package warning labels, and bans the sale of many unhealthy foods in schools. Following implementation of the law, consumption of sugary beverages dropped by 24 percent.[346] This decrease in consumption is similar to changes after sugary beverage tax and are encouraging, particularly since a change in obesity rates will likely to take many years to see.

Studies of international agricultural policies suggest there is not a simple causation between farm subsidies and obesity.[347] More research is needed to explore the complex relationships among agricultural and trade policies, consumption, and obesity around the world.

B. NUTRITION GUIDELINES & EDUCATION

i. Dietary Guidelines, and Nutrition and Menu Labels

Dietary Guidelines

Dietary Guidelines for Americans, which are issued jointly by USDA and the U.S. Department of Health and Human Services (HHS), help educate Americans about healthy eating, serve as a resource for policymakers and health professionals, and provide the foundation for the federal government's nutrition programs.[348] HHS and USDA revise the guidelines every five years to keep pace with the latest scientific research about nutrition.[349]

The process to develop the 2020–2025 *Guidelines* is currently underway. The Advisory Committee's Final Report was released in July, and CDC expects the new edition to be released later in the year.[350] The agencies are taking a life-stage approach to this edition, and, as mandated by the 2014 Farm Bill, these new guidelines will include advice for babies, toddlers, and pregnant and lactating women.[351] As previously noted, research has revealed that first 1,000 days of life is critical in obesity prevention, as early life feeding behaviors play a role in lifelong food preferences and dietary habits.[352]

The Healthy Eating Index (HEI) is a tool to evaluate how well a group of foods align with the *Dietary Guidelines*, with an ideal score of 100. Nutritionists, using data from the dietary intake interview of the 2015–2016 NHANES survey, calculated that the average HEI score for all Americans was 59 and for children 53.9.[353] These scores have improved slightly over the past decade: in 2005–2006, the average score for all age groups was 56 and the average score for children was 49.5.[354] As discussed above, other studies have found improved health and nutrition outcomes among WIC and School Lunch Program participants since these programs have more closely aligned their nutritional requirements with the *Dietary Guidelines.*[355,356,357]

Not surprisingly, food-insecure households score lower on the HEI than food-secure households. Using 2012-2013 data from the National Household Food Acquisition and Purchase Survey, researchers found that purchases by food-insecure households earned an HEI score of 44, compared with 49 for food-secure households. (Note: these scores are not comparable to the 2015–2016 NHANES data noted above since they're different surveys). Food-insecure households were also more likely than food-secure households to purchase large amounts of refined grains and no fruit, dairy, or protein.[358] This underscores the importance of making healthy food accessible by ensuring availability and affordability. Many studies over decades have found that healthy foods are more expensive than unhealthy ones.[359,360,361]

MyPlate, an educational icon that follows the *Dietary Guidelines* and serves as a reminder for Americans to eat healthfully, also has a suite of interactive online tools, including the MyPlate app and the choosemyplate.gov website. The app allows users to choose healthy food goals, track their progress, and earn badges, while the website provides recipes, tip sheets on healthy eating, and inspiring videos.[362]

Nutrition Labels

Since 1993, food manufacturers have been required to include labels on most packaged foods to help educate consumers about their nutritional content.[363] In 2016, HHS and FDA finalized a rule updating the label requirements to better reflect the latest nutritional science.[364] It requires that nutrition information panels: (1) print "calories" and "number of servings" in larger and bolder type; (2) report "added sugars"; and (3) include serving sizes that more accurately reflect Americans' eating habits.[365] Large manufacturers were required to comply with the new rule by January 2020, while small manufacturers have until January 2021, although many food manufacturers adopted the new labels earlier than required.[366,367]

Research demonstrates that mandatory food labels can alter consumer and industry behavior. A meta-analysis of 60 studies across 11 countries found that consumers ate fewer calories, less total fat, and more vegetables due to the effect of food labels. The study found that the labeling requirements also spurred manufacturers to decrease sodium levels and artificial trans fats in their products.[368]

One study found that food-insecure Australians were less likely than their food-secure counterparts to understand, use, or be influenced by food labels.[369] Further research is needed to understand how food insecurity may influence the effectiveness of food labels in the United States.

Menu Labels

Menu labels provide information about the nutritional quality of restaurant food and allow consumers to make more informed choices when they eat out. Food outside the home tends to have more calories and be of lower nutritional quality than food prepared at home, yet consumers tend to underestimate the number of calories and levels of sodium in out-of-home meals.[370,371,372] The Affordable Care Act required chain restaurants and vending-machine companies to provide nutritional information about their products beginning in May 2018.[373] Chain restaurants with 20 or more locations must now prominently display calorie counts on menus and menu boards, and vending-machine operators with 20 or more machines must also post calorie counts, though for some products sold in glass-front vending machines, the FDA allows the product label to fulfill the calorie-posting requirement.[374,375]

Several studies have demonstrated that posting nutritional information at the point of purchase can result in healthier menu choices, and a 2016 study found that the average BMI fell in jurisdictions in New York that implemented calorie-count laws.[376,377,378,379] Other studies have found that menu labeling leads to significant results only at specific establishments or in certain populations, while other studies have found no changes in consumer behavior.[380,381,382]

There is also evidence that menu labeling may lead restaurants to improve the nutritional content of their food.[383] The Culinary Institute of America and Harvard T.H. Chan School of Public Health's Menus of Change initiative helps restaurants mover towards healthier and more sustainable options.[384]

C. COMMUNITY POLICIES AND PROGRAMS

i. Built Environment: Community Design and Land Use, and Safe Routes to Schools

Levels of physical activity vary substantially across the United States. In 2020, CDC published state maps of physical inactivity, defined as not participating in any leisure-time physical activities (such as walking, running, or gardening) in the past month. Rates ranged from 17.3 percent of adults being inactive in Colorado to 47.7 percent in Puerto Rico.[385] Noticeable differences emerged among different races and ethnicities, with a 31.7 percent physical-inactivity level among Latinx adults compared with 30.3 percent among Blacks and 23.4 percent among whites.[386]

One reason for disparities in physical-activity levels is the difference between communities' built environments—all the human-made physical aspects of a community. One study found that the odds of a child having obesity or being overweight increase by 20 to 60 percent if he or she lives in a neighborhood with unfavorable environmental aspects, such as poor housing, unsafe conditions, and no access to sidewalks, parks, or recreation centers.[387]

Another study looked at military families who moved from base to base, which provided a natural experiment of how the built environment in different communities can impact physical activity. A 2018 study of U.S. Army families found that opportunities for physical fitness in their neighborhoods were significantly and positively associated with increases in the physical activity of the family's teenagers.[388]

To increase physical activity, the Community Preventive Services Task Force recommends built environment approaches that combine one or more interventions to improve pedestrian or bicycle transportation systems (activity-friendly routes) with one or more land use and community design interventions (everyday destinations).[389]

SAFE NEIGHBORHOODS FOR ALL

Safety is essential to encouraging active transportation (e.g., walking, biking, rolling) and outdoor exercise or play, and is a particularly acute issue for communities of color where decades of underinvestment and segregation have led to neighborhoods that are less safe.[390] Research demonstrates that predominantly minority neighborhoods are less likely to have recreational facilities, and Black and Latinx pedestrians' traffic-related death rates are twice as high as whites.[391,392]

Furthermore, what constitutes safe public space for physical activity for someone can vary based on their gender, race and/or ethnicity. For example, a 2017 study found that outdoor physical activity rates of middle class black and whites diverged depending on neighborhood context. Black men were more likely to be physically active in neighborhoods that they perceived to be racially diverse or predominately Black, and less likely in predominately white neighborhoods. In contrast, for Black women, white women, and white men physical activity was higher in neighborhoods as the perception of one's neighborhood becomes increasingly white.[393]

In addition to safety, the perception of safety can impact health and behaviors. A study from Los Angeles County found, after adjusting for socioeconomic and demographic factors, adults who perceived their neighborhoods to be unsafe had higher BMIs than adults who perceived their neighborhood to be safe.[394] A Brookings Institution study suggests that low-income, minority neighborhoods need a holistic approach to community design that incorporates physical investments along with economic and civic development that centers on equity and community input.[395]

Together, these findings demonstrate that community design and land use need to both create an environment that promotes safer transportation, exercise, and play, and make residents feel more secure and comfortable in their neighborhoods, which goes beyond the built environment alone.

Community Design and Land Use

Integrating public health into transportation decision-making is already a practice in some states—including Utah, Colorado, and Washington—and localities.[396] Research demonstrates that thoughtful community design and land-use decisions can encourage physical activity, including:

- Changing zoning laws to encourage mixed-use neighborhoods, which incorporate places to work, shop, and play into residential areas;[397,398]
- Improving conditions for walking and rolling by installing crosswalks and building sidewalks;[399]
- Adding physically protected bike lanes and other bike-friendly measures;[400,401] and
- Expanding public transportation.[402,403]

In 2018, the Safe Routes to Schools Partnership and the YMCA of the USA jointly issued a report card evaluating how each state supported walking, biking, and other physical activities. It found that 31 states have implemented multiple community design and transportation policies that promote physical activity and commended Washington and California for their significant commitments in this area.[404]

Community design can also impact food security. A lack of public transportation or safe walking and rolling conditions can make it more difficult to access grocery stores or food pantries.[405] Recent research conducted by the Urban Institute found that residents and stakeholders in both rural and urban areas identified limited transportation options as a major barrier to accessing food.[406]

Studies have found that investing in policies that promote safe walking and biking can generate revenue and cost-savings in other areas. Active transportation policies can stimulate the economy by increasing retail accessibility, promoting tourism, and increasing sales for cycling-related businesses, while saving healthcare costs by reducing traffic accidents and obesity.[407,408,409,410,411]

Sujatha Vempaty / Shutterstock.com

Federal programs that provide funding for active transportation projects include:

- Fixing America's Surface Transportation (FAST) Act funding, which has a specific funding stream for projects that expand travel choices, and provides most of the federal funding for walking, biking, and trails;
- Formula grant funding, such as the Congestion Mitigation and Air Quality Improvement program, which funds transportation projects that contribute to clean air, and the Surface Transportation Block Grant program, which provides flexible funds for different transportation projects, including walking and biking infrastructure; and
- Discretionary grant funding, including the U.S. Treasury Department's Better Utilizing Investments to Leverage Development, or BUILD, grants (formerly the Transportation Investment Generating Economic Recovery, or TIGER, program), which supports road, rail, port, and transit projects.[412] Since 2009, this program has funded 30 projects focused on improving pedestrian or biking infrastructure.[413]

Safe Routes to Schools

Walking, rolling or biking to school is a goodway for a child to incorporate regular exercise into his or her daily routine. The Community Preventive Services Task Force has found that active travel to school increases walking among students, lowers traffic injury risks, and the economic benefits exceed costs.[414]

Safe Routes to Schools (SRTS) initiatives educate students and families about the benefits of actively commuting to school and ensure that the school environment allows children to do so safely. SRTS programs have resulted in statistically significant improvements in active transportation to school. One study of 800 schools in four states with SRTS programs found that rates of walking and biking to school increased after the program started and could lead to a 25 percent increase over five years in walking and bicycling.[415] In addition, the National Center for Safe Routes to Schools analyzed survey results from 6,500 schools and found that the percentage of schoolchildren walking to and from school increased by more than 20 percent (from fewer than 14 percent to more than 17 percent) between 2007 and 2014.[416]

SRTS programs also decrease injury risk for school-aged bikers and pedestrians.[417] One study found a 33 percent reduction in pedestrian injuries among school-age children in New York City neighborhoods that had implemented SRTS programs, while the rate remained virtually unchanged in neighborhoods that had not implemented the program.[418]

To implement an SRTS initiative, states, localities, and school districts can compete for Transportation Alternatives Program funding, made available to all states under the FAST Act.[419] The amount of total national funding available for these types of projects in FY 2020 is $850 million.[420]

THE EFFECTS OF SOCIAL NETWORKS ON OBESITY

In addition to the built environment, the unique social networks that exist in communities may also contribute to obesity rates. Research suggests that obesity spreads among friends and families as if it were contagious. A study reported in the New England Journal of Medicine in 2007 found that the odds that a person would develop obesity increased from 37 percent to 57 percent if his or her spouse, sibling, or friend developed obesity.[421] A 2018 study found that military families stationed in communities with higher obesity rates were more likely to be overweight or have obesity than families stationed in communities with lower obesity rates, even after controlling for the built environment.[422] This research suggests an area where further study is needed to determine what types of programs or policies might be able to leverage the power of social networks to positively influence obesity rates.

ii. CDC Community Initiatives

CDC sponsors a number of grant programs that fund state and local community efforts to prevent and reduce obesity. For FY 2020, Congress funded CDC's Division of Nutrition, Physical Activity, and Obesity at $56.9 million, and earmarked $15 million for the High Obesity Program and $2 million for the Farm-to-School program.[423]

SELECT OBESITY-RELATED FUNDING OPPORTUNITIES FROM CDC

Grant/Program Name	Grant Number	Grant Goal	Length of Grant	Number of Available Grants	Annual Grant Size	Total Program Funding
State Physical Activity Nutrition (SPAN) Program	1807	Improve nutrition and physical activity at state and local level	5 years starting in September 2018	16 states	$880,000 average annual award in FY 2019[424]	$70 million over 5 years[425]
High Obesity Program (HOP)	1809	Increase access to healthy foods and safe places for physical activity in high-obesity areas	5 years starting in September 2018	15 land-grant universities	$797,000 average annual award in FY 2019[426]	$56 million over 5 years[427]
Preventive Health and Health Services (PHHS) Block Grant	20-2002	Provide each state with flexible support to address its most important health needs	Annual	61 grants: 50 states, DC, two American Indian tribes, and eight U.S. territories	$9.4 million on nutrition and $3.3 million on physical activity in FY 2019[428]	$149 million in FY 2020[429]
Racial and Ethnic Approaches to Community Health (REACH)	1813	Reduce racial and ethnic health disparities in chronic disease	5 years starting in September 2018	31 grants in 21 states[430]	$809,000 average for 2018–2022 funding period[431]	$60 million in FY 2020[432]
Improving Student Health and Academic Achievement through Nutrition, Physical Activity and the Management of Chronic Conditions in Schools (Healthy Schools)	1801	Increase number of students who consume nutritious food and beverages, who participate in daily physical activity, and who can effectively manage their chronic health conditions	5 years starting in June 2018	State education agencies in 16 states[433]	$350,000 average for Priority 1 awards and $450,000 average for Priority 2 awards during the 2018–2022 funding period[434]	$35 million over 5 years[435]

State Physical Activity and Nutrition Program

CDC's State Physical Activity and Nutrition (SPAN) program supports community efforts to improve nutrition and provide safe and accessible places for physical activity. SPAN only has enough funding to support 16 states, but it has approved grants for all 50 states. The grantees are expected to implement evidence-based strategies that:

- Improve food-service guidelines;
- Support breastfeeding;
- Encourage physical activity by connecting activity-friendly routes to everyday destinations through community planning and transportation interventions; and
- Strengthen physical-activity and nutrition standards for early childhood education.[436]

Total program funding is $70 million over five years, with an average award of about $880,000.[437,438]

A number of funded activities involve increasing access to healthy food in low-income communities and for people struggling with food insecurity. For example, the University of Arkansas for Medical Sciences is developing new food-service guidelines for food pantries, the Missouri Department of Health and Senior Services is promoting the new CACFP meal requirements in early care settings, and the Texas Department of State Health Services is implementing improved food-service guidelines in food banks.[439]

High Obesity Program

The High Obesity Program (HOP) funds 15 land-grant universities to work with the local community to implement policy, systems and environmental changes that improve access to healthier foods and encourage physical activity by connecting activity-friendly routes to everyday destinations. in counties where the adult obesity rate exceeds 40 percent.[440]

Current grantees include:

- Louisiana State University is working with local partners in an effort called the Healthy Access, Behaviors, and Communities II (Healthy ABCs) project to improve accessibility to healthier food and physical activity and to strengthen nutrition guidelines and make healthy food more widely available in seven counties;
- Clemson University in South Carolina is connecting local farmers to vendors, promoting community gardens, developing transportation plans to promote physical activity, and encouraging schools to make their spaces available to the community; and
- South Dakota State University is working in tribal communities to help schools serve as centers for healthier food and provide physical-activity opportunities in extremely rural areas.[441]

Congress appropriated $15 million for HOP in FY 2020.[442]

Preventive Health and Health Services Block Grant

The Preventive Health and Health Services (PHHS) block grant provides states with flexible funding to address important local public health needs.[443] In FY 2019, states spent $9.4 million in PHHS funds to address nutrition and/or weight status and $3.3 million to increase physical activity.[444] For FY 2020, Congress appropriated $160 million for PHHS.[445]

Examples of PHHS-funded programs to prevent obesity include:

- The North Dakota Breastfeeding Friendly Hospital Program encourages more mothers to try breastfeeding and to breastfeed for a longer period;[446]
- Peer trainings in Puerto Rico by teen 4-H club members to promote healthy lifestyles, including eating nutritious food and exercising;[447] and
- The Targeting Obesity in Preschools and Childcare Settings (TOP Star) program in Utah, which endorses child-care facilities that serve healthy food, support breastfeeding mothers, and set aside more time for children to run and play.[448]

Racial and Ethnic Approaches to Community Health

The Racial and Ethnic Approaches to Community Health (REACH) initiative provides funds to community organizations, tribes, universities, and state and local health departments to implement culturally appropriate programs—including obesity prevention efforts—among Blacks, American Indians, Latinxs, Asian Americans, Alaskan Natives, and Pacific Islanders. Between 2014 and 2018, the REACH program improved access to healthy food and beverages for more than 2.9 million people and increased opportunities for 1.4 million people to be physically active.[449]

In FY 2018, REACH funded 31 recipients in 21 states for five-year grants.[450] Between 2014 and 2018, REACH program activities improved access to healthy food and beverages for 2.9 million people and opportunities to be physically active for 1.4 million people.[451] During the current funding period, REACH grantees are undertaking the following obesity-reduction activities:

- The Pima County Health Department in Arizona is developing a multimedia campaign targeted to Native American and Latinx children and their families to encourage physical activity and healthy eating.[452]
- Marion County, Indiana, is collaborating with Black residents to enhance pedestrian infrastructure, to support walking safely in high-risk neighborhoods, and to implement healthy food standards in local food pantries.[453]
- Seattle and King County has expanded their Northwest Harvest's SmartBuys program to include procurement of fresh fruits and vegetables for emergency food providers to help increase the availability of healthy food in Black and Asian American communities.[454]

For FY 2020, Congress increased REACH funding to nearly $60 million, an increase of $4 million over the previous year, in order to awards to five additional grantees.[455,456]

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Q&A with Nicolas Barton

***Nicolas Barton** is the Executive Director of the Southern Plains Tribal Health Board Foundation. He is enrolled with the Cheyenne and Arapaho Tribes. The Southern Plains Tribal Health Board Foundation (SPTHB) was established in 1972 to provide a unified voice on tribal public health needs and policy for the 44 federally recognized tribes located in Kansas, Oklahoma, and Texas.*

TFAH: According to CDC's National Center for Health Statistics, 48 percent of American Indian and Alaska Native adults have obesity; furthermore, the HHS Office of Minority Health reports that American Indian and Alaska Native adults are 50 percent more likely to have obesity than non-Hispanic white adults. What are the factors that have caused these high levels of obesity in American Indian and Alaska Native communities?

Barton: A variety of factors have contributed to the high levels of obesity in American Indian and Alaska Native communities including an overall lack of access to healthy foods, inadequate or overcrowded housing, and living below the poverty level. In general, there are long wait times for HUD housing in tribal communities which can often lead to multigeneration overcrowding in one home. There are some parts of the country where access to running water is not available. Water and sanitation systems need an upgrade on tribal reservations and in tribal communities to produce safe and clean drinking water.

Tribal nations hold the federal government to honor its trust and treaty responsibility. However, many programs operated by the federal government receive inadequate funding levels to maintain services, let alone improve the entire system. The Indian Health Service (IHS), for example, is responsible for providing federal health services to American Indian/Alaska Native peoples across the U.S. The IHS receives an appropriation that is split among 12 areas then further subdivided out in compacts, contracts, and federally-funded facilities. The IHS/Tribal/Urban (I/T/U) health system utilizes the Purchased and Referred Care system to acquire specialized services that go beyond a clinics' primary care services. This can sometimes cause care to be delayed or denied if not within medical priority based on funding.

TFAH: Of course, talking about obesity within Indian Country as if it is one unit ignores the diversity amongst American Indian communities. Your organization works with tribes in Kansas, Oklahoma and Texas. What are some of the barriers to healthy eating and physical activity those tribe members experience?

Barton: Most of our tribal nations are in rural portions of their state. Rural areas are often food deserts and places where many families experience food insecurity. That can also be said for some suburban and even urban areas where there is no grocery store within a given distance or access to transportation, both public and private. There are discount retailers

that attempt to meet the need of the community by providing a pantry section of the store with boxed and canned goods, a frozen foods section, and a refrigerated section. However, there is no fresh produce section. In one small town center I'm familiar with the only convenience store sells candies, sodas, beer, a small pantry section, gasoline, and a food warmer of quick-fried food. The nearest grocery store is 17 miles away.

In addition, it is often the case that the existing environment does not support physical activity (walking trails, sidewalks). Another barrier is food preparation: many households often opt for quick and easy food preparation which often means processed and fried foods. There is also a general lack of nutritional knowledge and skills to make food healthy.

TFAH: The prevalence of obesity has risen dramatically within the last one or two generations of American Indians. What's changed about the life experience of today's generation that has led to the increase in obesity rates?

Barton: What is different from my generation than, say my grandparents, is that now there is more. More food variety, which is both good and bad. More options for entertainment than ever before. And more ways to consume information either by smart phone, laptop, or other handheld device. We have the option of eating quick and easy take-out or going to a convenience store to fill a "Big Gulp" of a tasty and fizzy beverage, those options weren't as prevalent 50 to 60 years ago. I was told stories by older relatives of their walking to and from school, or walking around in the heat of summer with friends or doing manual labor. That's not typical today. Also portion sizes have changed: a small bottle of Coca-Cola in the 50's and 60's was nowhere near the size of a 20-ounce bottle or 1-liter bottle of the same product today.

With the introduction of food staples from the government, I grew up with access to commodities. In the 80's and 90's, there was no emphasis on food nutrition or promotion of fresh produce within these programs. I remember all of the products being canned, boxed, processed, and dehydrated. A staple in my house growing up was canned luncheon meat and a slice from the block of cheese fried up and placed on white bread; i.e. a large calorie count.

TFAH: The overall health status of American Indians tends to be poorer than that of the overall U.S. population. What role does obesity play in these health outcomes?

Barton: Obesity puts a person at a higher risk for a comorbidity with heart disease and diabetes, especially in native communities. In my story of growing up with the fried luncheon meat and cheese sandwich, having too many of those sandwiches would not only increase the number of calories I ingested, but due to the meat being processed, there is a high amount of salt content. If I didn't balance out my calorie intake with an increased amount of time spent riding my bike, I would have likely been a large child.

TFAH: What role should American Indian and Alaska Native community leaders play in planning and implementing obesity prevention programs. How can traditional tribal values be best incorporated into such programs?

Barton: Today, we know more than we ever did before and we're learning more every day. We've learned that eating calorie-rich food is not good, we need more nutrient-rich foods to help maintain a healthy weight. Many of our tribal nations are growing and developing programs to target and educate tribal members about obesity. Some programs are federally-funded, such as the Special Diabetes Program for Indians (SDPI) from IHS or the REACH program from CDC. Others are using tribal dollars to develop programs that use a combination of evidence-based programs as well as practice-based evidence to promote well-being. Using a culture-as-prevention model allows tribal programs to be designed and implemented in culturally relevant ways and earn the support of tribal leaders and administrators.

TFAH: If you could implement one or two policies or programs that you think would have the biggest impact on obesity in Indian Country what would they be?

Barton: According to National Indian Health Board, few programs are as successful as SDPI at addressing chronic illness and risk factors related to diabetes, obesity, and physical activity. SDPI is unmatched in terms of its success, especially in declining incidence of diabetes-related kidney disease over time. I would like for the SDPI program, which again is successful, to have an increase in federal funding so other tribal nations can share in that success. To date, the SDPI program has only received a one-time increase due to COVID-19 funding but that increase is temporary, otherwise funding has remained stagnant for the past 20 years and only a set-number of tribes can participate since it is a grant program.

CDC Childhood Obesity Research Demonstration

Now in in its third funding period, the Childhood Obesity Research Demonstration (CORD) project is currently focusing on creating and packaging obesity-reduction materials and messages that healthcare and community organizations can replicate and use in real-world settings.[457] The CORD 3.0 grantees for the 2019–2024 funding period are:

- Massachusetts General Hospital in Boston;
- Miriam Hospital in Providence, Rhode Island;
- Stanford University in Palo Alto, California;
- University of Nebraska in Lincoln; and
- Washington University in St. Louis, Missouri.[458]

CORD 3.0 builds on progress made during CORD 1.0, which focused on combining obesity-prevention efforts in pediatric settings with public-school interventions, and on CORD 2.0, which focused on weight-management interventions for children in low-income families. CORD 2.0 used electronic records to refer patients for BMI screenings, nutrition and physical-activity counseling, and healthy-weight programs.[459,460] An evaluation of CORD 1.0 found that it resulted in small but positive improvements in BMI and fruit and vegetable consumption among children who received the interventions at some sites.[461] A quasi-experimental trial of two Massachusetts CORD 2.0 sites found modest improvement in BMI at one of the sites compared with a regular treatment control group. The other site did not see BMI improvements, potentially because the program was not fully implemented.[462]

Childhood Obesity Management with MEND Implementation Teams (COMMIT!)

In partnership with HHS's Office of the Assistant Secretary of Planning and Evaluation, CDC provides funding and technical assistance to the National Association of Community Health Centers to implement a proven weight-management strategy program for children called MEND (Mind, Exercise, Nutrition, Do It!) in low-income communities. In four states (Illinois, Mississippi, Arizona, and Florida), 16 programs are receiving funding in Year One, while Year Two will include programs in Arizona, Illinois, Mississippi, and North Carolina. Learning from this project will help CDC, the Office of the Assistant Secretary of Planning and Evaluation, and the National Association of Community Health Centers develop an implementation guide to support future programs.[463]

Childhood Obesity Data Initiative

In order to better assess the efficacy of childhood obesity interventions, CDC has created the Childhood Obesity Data Initiative (CODI). This effort links the individual health records of children across various systems that collect data—such as healthcare systems, insurers, and the U.S. Census—thereby improving research and evaluation capabilities. The data collected include clinical health outcomes, weight-management intervention results, and individual and community demographic information. To protect patient privacy, CODI uses privacy-preserving record linkage, which encodes personally identifiable information before it leaves an individual organization's firewall.[464]

The HHS assistant secretary for prevention and evaluation funds CODI through the Patient-Centered

Outcomes Research Trust Fund.[465] Between 2018 and 2020, CODI is being pilot tested by three major healthcare systems that serve much of the pediatric population in Denver, Colorado.[466]

Research and Evaluation Networks

The Nutrition and Obesity Policy Research and Evaluation Network (NOPREN) and the Physical Activity Policy Research and Evaluation Network (PAPREN) are two thematic research networks within CDC's Prevention Research Centers Program, which funds a network of academic, community, and public health partners to conduct applied public health research.[467,468]

NOPREN's work includes a focus on food security aimed at improving the nutrition policies in the hunger safety net. In the wake of COVID-19, with many schools that feed children shuttered and more families seeking assistance at food banks, NOPREN created a Food Access Work Group to help inform policy in real time and to examine the impact that local decisions related to the pandemic are having on food insecurity and people's diets.[469]

PAPREN's focus is on how the built environment and land use influences physical activity, and is organized across several working groups: parks and greenspace, rural, schools, worksite, transportation, equity and resilience, and pressing issues.[470] Recent PAPREN work include recommendations for equitably and safely opening and maintaining parks, greenspace, and other public facilities for physical activity while social distancing.[471]

National Diabetes Prevention Program

In 2010, CDC created the National Diabetes Prevention Program (National DPP) to help prevent or delay a diagnosis of type 2 diabetes the millions of

American adults with prediabetes, a condition in which an individual has glucose levels that are elevated but not high enough for a diagnosis of diabetes.[472] The critical component of the National DPP is its evidence-based lifestyle-change program, which researchers have found can cut participants' risk of developing type 2 diabetes by 58 percent. Participants over the age of 60 have reduced their risk by 71 percent.[473]

According to CDC, more than one-third (34.5 percent) of all American adults are living with prediabetes, including nearly half (46.6 percent) of people ages 65 or older.[474] Prediabetes is also prevalent among younger people, with 18 percent of adolescents (ages 12 to 18) and 24 percent of young adults (ages 19 to 34) living with prediabetes.[475]

Because diabetes has a disproportionate effect on communities of color, the DPP is an important tool for addressing health disparities. Among adults, American Indians and Alaskan Natives have the highest prevalence of diagnosed diabetes (14.7 percent), followed by those of Hispanic origin (12.5 percent), Blacks (11.7 percent), and Asians (9.2 percent), while the prevalence among whites is 7.5 percent.[476]

Food insecurity increases the risk of type 2 diabetes, and it also makes it more difficult to manage diabetes.[477,478] Research has shown that there is an association between food insecurity and poorer glucose control among persons with diabetes and that food insecurity is a significant risk factor for frequent episodes of severe hyperglycemia.[479,480]

The National DPP program is covered by many private insurers, as well as by Medicare since 2018.[481] To date, 11 states have made the decision to include the program as a benefit under Medicaid and are in various stages of implementation.[482] Congress funded the National DPP at $27.3 million for FY 2020, an increase of $2 million over FY 2019 funding.[483]

Physical Activity Guidelines

In 2018, HHS released the second edition of *Physical Activity Guidelines for Americans.* The guidelines have recommendations for different age groups:

- Children ages 3 to 5 should be physically active throughout the day.
- Children ages 6 to 17 should engage in at least 60 minutes per day of moderate-to-vigorous-intensity physical activity, which should include vigorous-intensity physical activity at least three days per week, muscle-strengthening activities at least three days per week, and bone-strengthening activities at least three days per week.
- Adults should do at least 150 to 300 minutes of moderate-intensity aerobic activity or 75 to 150 minutes of vigorous-intensity aerobic activity per week (or an equivalent combination of the two) and two or more days of muscle-strengthening activity.[484]

Currently, about one-quarter of American adults meet these guidelines, an increase of 32 percent over the past decade (from 18 percent in 2008 to 24 percent in 2018). The increase suggests that the combination of policy and community-design changes and public-awareness campaigns across the country can change behavior over time.[485] In addition, 46 percent of American adults do meet the minimum guideline for aerobic activity alone.[486]

ACTIVE PEOPLE, HEALTHY NATION[SM]

Regular physical activity is associated with reduced health risks, including lower risk of developing obesity-related diseases like cardiovascular disease, type 2 diabetes, and a number of cancers, as well as help with weight management, and improved mental health, regardless of weight status.

In 2020, CDC launched its Active People, Healthy Nation initiative. This program helps 27 million Americans become more physically active by 2027, improving their health and quality of life and decreasing healthcare costs.

The program aims to move:

- 15 million adults from no aerobic activity to some moderate-intensity activity each week;
- 10 million adults from some physical activity to meeting the minimum adult aerobic physical activity guidelines; and
- 2 million young people from some physical activity to meeting the aerobic physical activity guidelines for youth.

To meet these goals, CDC encourages and works with communities to implement equitable and inclusive access to evidence-based strategies that may be tailored to each community, such as:

- Activity-friendly routes to everyday destinations;
- Access to places for physical activity;
- School and youth programs;
- Community-wide campaigns;
- Social supports;
- Individual supports; and
- Prompts to encourage physical activity.[487]

HOUSING MOBILITY PROGRAMS AND OBESITY

Social-service programs designed primarily to address poverty can sometimes also improve obesity rates. For example, housing-mobility programs are initiatives that help families move into neighborhoods known as "higher-opportunity" neighborhoods by providing logistical support and short-term financial assistance with security deposits and other transition costs. Higher-opportunity neighborhoods have less poverty, lower crime rates, and better schools—as well as typically offer improved community resources, such as grocery stores and parks, that make it easier to eat a healthy diet and engage in physical activity.[488]

Research has demonstrated that moving to a higher-opportunity neighborhood is associated with lower obesity rates. Adult participants in the now-completed federal demonstration program *Moving to Opportunity* experienced mixed outcomes: some positive health outcomes, including a lower prevalence of extreme obesity, but no differences in income and education.[489,490] Another study published in the *New England Journal of Medicine* in 2011 found that moving from public housing to low-poverty neighborhoods was associated with "modest but potentially important" reductions in severe obesity.[491] These changes underscore the interconnection between social determinants of health, community context, and obesity. All in all, it is imperative that neighborhood context meet the needs of its residents, regardless of whether residents are able to move to a higher-opportunity neighborhood or stay in a neighborhood where resources and assets are improved.

In 2019, Congress authorized a new federal grant program, the Housing Choice Mobility Demonstration, and appropriated $25 million, the first time Congress had funded a housing-mobility program since the 1990s.[492,493] The program received $25 million in funding in FY 2020, and the U.S. Department of Housing and Urban Development expects to publish a Notice of Proposed Funding Availability later this year.[494,495]

D. HEALTHCARE COVERAGE AND PROGRAMS

The medical costs of the obesity crisis are staggering: a 2016 study found that annual medical spending in the United States that is attributable to obesity exceeds $149 billion.[496] While the healthcare sector incurs many of obesity's costs, it is also in a unique position to help prevent and reduce obesity. Practitioners can help identify patients at risk for obesity, and clinical interventions can help individuals achieve a healthier weight and become more physically active. Health insurers and healthcare systems can use their considerable influence with their patients and communities to boost healthy behaviors and to help address risk factors, such as food insecurity, among patients.

i. Medicare and Medicaid

High obesity rates increase costs for both Medicare, which provides healthcare coverage for Americans ages 65 and older, and Medicaid, which provides healthcare coverage for low-income and disabled Americans. These two programs shoulder approximately half the medical costs of obesity in the United States.[497] One study projected that 8.5 percent of Medicare spending and 11.8 percent of Medicaid spending is attributable to obesity.[498]

Medicare

Medicare covers obesity screenings and behavioral counseling for recipients with a BMI of 30 or higher, and it covers bariatric surgery in certain circumstances for those with a BMI of 40 or higher.[499,500] Medicare also covers the diabetes self-management training and the Medicare Diabetes Prevention Program (MDPP), an expanded model of CDC's National DPP.

Medicaid

Most state Medicaid programs offer some form of obesity coverage. For adults, states can choose whether to provide Medicaid coverage for obesity treatment, and most states offer coverage for at least one obesity-related treatment.[501] A 2018 study found that 42 states covered nutritional counseling, 23 states covered pharmacotherapy, and 49 states covered bariatric surgery.[502] As of 2019, 11 states also provided some form of Medicaid coverage for the national DPP.[503]

For children, states must provide Medicaid coverage for medically necessary screenings, including BMI assessments and diagnostic and treatment services, which may include obesity services such as nutritional assessments or counseling.[504,505] States have significantly improved their monitoring of children's BMI in recent years. In 2019, the Centers for Medicare and Medicaid Services reported that a median of 70 percent of children in Medicaid and CHIP had their BMI documented in their medical records in FY 2018 (37 states reporting), compared with only 36.5 percent in FY 2013 (25 states reporting).[506,507]

Medicaid offers a higher federal match for states that cover all preventive treatments and that have received an A or B rating from the U.S. Preventive Services Task Force (USPSTF).[508] For obesity, USPSTF recommends that adults with obesity be referred to intensive, multicomponent behavioral interventions and that children be screened for obesity and, if necessary, referred for behavioral interventions.[509,510] The USPSTF has also issued a draft Grade B recommendation proposing that adults with cardiovascular-disease risk factors, which include being overweight or having obesity, be referred to behavioral-counseling interventions to promote a healthy diet and physical activity.[511]

ii. Healthcare and Hospital Programs

Hospitals and healthcare providers serve on the front lines of the obesity epidemic and can help address the crisis by training providers, following best practices, sponsoring obesity-prevention community-benefit programs, serving healthy food, and encouraging breast feeding.

Training

Healthcare providers do not receive enough training about nutrition or treating obesity, and physicians themselves desire more obesity training.[512,513,514] For example, a survey of physicians at Massachusetts General Hospital found that 41 percent had received not even an hour of obesity training.[515] In a survey of more than 500 physicians in Wisconsin, more than half reported wanting additional training in obesity management.[516]

The Association of American Medical Colleges recommends that medical schools provide obesity education; yet, in practice, many medical schools fail to provide sufficient training in this area.[517] About half of medical students in a 2017 study reported that they did not feel knowledgeable about recommending weight-loss treatments. After surveying both medical students and faculty, the study identified a need for a more fulsome obesity curriculum in medical schools, specifically better training in how to interview, diagnose, and treat patients with obesity.[518]

To help address the need for a standard minimal level of obesity-related training, the Strategies to Overcome and Prevent Obesity Alliance brought together dozens of health organizations and medical providers in 2017 to develop competencies in obesity management and treatment. These recommendations can serve as a resource for hospitals and healthcare providers and help provide clinicians with a working knowledge of obesity.[519]

Best Practices

Unfortunately, physicians often fail to follow best practices in obesity treatment. Most patients with obesity neither receive an obesity diagnosis nor referrals to behavioral counseling.[520] Hospitals and healthcare institutions should ensure their providers are following practices supported by the latest scientific research. These include:

- **Clinical guidelines on obesity treatment** developed by the American College of Cardiology and the American Heart Association in collaboration with the National Heart, Lung and Blood Institute and other stakeholders. The guidelines can help health practitioners decide which patients they should recommend for weight loss, the best diets and lifestyle changes to help patients lose weight and maintain weight loss, and the benefits and risks of bariatric surgery.[521]
- **Clinical preventive-service recommendations** issued by the USPSTF, which advises healthcare providers to refer their patients with obesity to intensive, multicomponent behavioral interventions.[522,523] The USPSTF's review of the evidence found that behavioral-based counseling programs can lead to weight loss and reduced incidence of diabetes in adults and that obesity screening and interventions can improve weight status in youth ages 6 years and older.[524,525] These are grade "B" recommendations; the Affordable Care Act requires most health plans to cover preventive services that have received an A or B grade from the USPSTF.[526]
- **Screening recommendations** from the American Association of Pediatrics, which advise healthcare providers to screen their patients for food insecurity and connect at-risk patients with nutrition-assistance programs, such as SNAP, WIC, and the school meal programs.[527]

Community-Benefit Programs

Nonprofit hospitals, which constitute the majority of community hospitals in the United States, must provide benefits to their local communities to qualify for tax-exempt status.[528,529] The Affordable Care Act built on this longstanding requirement by mandating that nonprofit hospitals not only provide charity care, but also specifically assess, implement, and evaluate strategies to address their local community's specific health needs.[530]

Obesity prevention has proved to be a critical health need in the communities of many hospitals. A national survey of hospitals conducted in 2016 by Health Care Without Harm found that 71 percent of hospitals identified obesity as a community health need, while 13 percent identified food insecurity or healthy food access as a community health need. The majority of hospitals (54 percent) listed obesity as a priority health need.[531]

Below are several examples of community-benefit programs focused on obesity and/or food insecurity:

- Cooley Dickinson Health Care, an affiliate of Massachusetts General Hospital located in Northampton, Massachusetts, identified high rates of obesity in its community and found that food-insecurity rates exceeded 20 percent in parts of its service area.[532] The hospital's community-benefit initiatives include several food programs, such as Grow Food Northampton, which helps bring fresh farm food to low-income communities.[533] It also is helping expand school gardens and integrate healthy food into the local schools' nutrition programs.[534]
- The community health assessment conducted by St. Jude Medical Center in Fullerton, California, in 2017 found obesity to be a priority health need, and it also identified significant food insecurity in surrounding communities.[535] During the period 2017 to 2020, the hospital is sponsoring a number of initiatives to address obesity and food insecurity, including the Move More, Eat Healthy Campaign, which helps promote physical activity, improved nutrition, and support for healthy lifestyles. The initiative has purchased fitness equipment for local parks, and sponsors monthly community cooking classes and free weekly fitness classes at local community centers.[536,537,538]
- A group of hospitals in Genesee County, Michigan, jointly conducted a community health needs assessment and identified both obesity and food insecurity as local health needs. They found that the county-wide rate of food insecurity (17.8 percent) was higher than the national rate (14.9 percent) and the state-wide rate (15.7 percent), and they observed that many county residents, particularly in Flint, live in food deserts.[539] The hospitals sponsors a number of initiatives aimed at reducing obesity and food insecurity, including Food FARMacy, which provides healthy foods for patients who have been identified as food insecure by their primary care provider.[540]

Serving Healthy Food

U.S. hospitals employ more than 5 million people and admit more than 36 million patients per year.[541,542] Accordingly, hospitals have a tremendous opportunity to influence the nutrition of millions of people though the food they serve to employees, patients, and visitors. Providing healthy food also aligns with hospitals' mission of promoting community health.

One-third of U.S. hospitals are part of the Healthy Food in Health Care network, which improves the nutritional quality of the food hospitals serve and which supports a more environmentally sustainable food system. Of the hospitals in the network, 79 percent purchase locally grown food, 58 percent serve less meat, 26 percent sponsor community-benefit programs that support healthy foods, and 14 percent have fruit and vegetable prescription programs.[543]

CDC's Healthy Hospitals initiative helps support efforts by hospitals to provide healthier food options and has developed evaluation tools to help hospitals assess their food, beverage, and physical-activity environment, so they can make their hospitals healthier for their employees and patients.[544]

Supporting Breastfeeding

Breastfed children are at a significantly lower risk for childhood obesity.[545] Because 98 percent of U.S. births take place in a hospital, these facilities are uniquely positioned to support breastfeeding during the critical postpartum period.[546] The Baby-Friendly Hospital Initiative, a joint program of the WHO and the United Nations Children's Fund, designates hospitals as "Baby Friendly" when they offer the optimal level of care for lactation. In 2019, 28 percent of children in the United States were born at facilities designated as Baby Friendly, compared with fewer than 3 percent a decade earlier.[547,548]

Baby-Friendly USA (BFUSA), the accrediting body for the Baby-Friendly Hospital Initiative, has permitted Baby Friendly Hospitals to deviate from certain baby-friendly requirements due to COVID-19. For example, it is permitting families to take home small quantities of formula upon discharge due to retail shortages in some areas. However, BFUSA has criticized formula companies for taking advantage of the relaxation of that standard to resume aggressive marketing tactics to mothers.[549] BFUSA has also asked hospital staff to remind their patients that breastfeeding provides immunological benefits.[550]

In their role as major employers, hospitals can also support breast-feeding employees by creating lactation rooms, providing break time to nursing mothers, and providing access to high-quality breast pumps.[551]

E. OBESITY AND THE MILITARY

i. Recruitment

Obesity poses a significant challenge to the U.S. military's recruitment efforts. A 2018 report found that a majority of Americans of recruitment age cannot meet service requirements, and obesity prevents 31 percent of youth from eligibility for service.[552] Obesity rates are particularly high in the South, a traditionally fertile source of recruits.[553]

In 2018, the U.S. Army fell approximately 6,500 short of its 76,500 enlistment goal.[554] The following year, it instituted a pilot program that allowed recruits who exceeded body fat requirements to enlist, as long as they met other recruiting requirements for physical fitness.[555]

Q&A with Major General (Ret.) Steven J. Lepper

Major General Steven J. Lepper *spent 35 years in the U.S. Air Force, ultimately becoming the Air Force's deputy judge advocate general, a position to which the president nominated him and the Senate confirmed him in 2010. He retired from service in 2014. He is a member of the nonprofit organization, Mission: Readiness.*

TFAH: Please describe Mission: Readiness's goals and purpose.

Lepper: Mission: Readiness is a national security organization of more than 750 retired admirals and generals. We support smart investments in America's children to help ensure that they are ready to succeed academically, stay physically fit, and abide by the law. That way, they can enter the workforce with many options, including a career in the military if they choose to pursue one.

TFAH: The military played an important role in the creation of the National School Lunch Program. Please tell us more about that.

Lepper: Even though obesity has become a more pressing problem in recent years, work by military leaders to ensure that kids have access to fresh and nutritious foods dates back far longer. In 1945, Major General Lewis Hershey, the director of the Selective Service System, testified to Congress that they had rejected at least 40 percent of World War II recruits due to reasons related to poor nutrition. In response, Congress established the National School Lunch Program the following year. In doing so, they called the program a "measure of national security, to safeguard the health and well-being of the nation's children."

The military leaders of yesterday knew that promoting healthy, nutritious eating for America's children was central to the goal of protecting national security. Likewise, the retired military leaders of Mission: Readiness understand that same truth today. Making sure that more kids have access to healthy meals through nutrition programs, like the National School Lunch Program, will help keep our kids healthier so that they can pursue any path in life, including military service if they so choose.

TFAH: You report that 71 percent of today's young adults are ineligible for military service due to being overweight or because they have a criminal record or past drug abuse. That's a shockingly high figure. Does it put the nation's security at risk?

Lepper: As noted above, over 70 years ago, America's military leaders sounded the alarm that poor nutrition among the nation's youth was threatening our military's readiness. Today, the retired admirals and generals of Mission: Readiness are standing up to say that this threat still exists. Obesity is one of the main disqualifiers amongst the 71 percent who are ineligible to serve, and youth obesity rates are rising—posing the risk that our pool of potential recruits will shrink even further in the future.

As annual military recruitment goals are consistently difficult to attain due to disqualifiers, the retired admirals and generals of Mission: Readiness believe that America must prioritize efforts to combat childhood obesity throughout a child's development in order to safeguard national security.

TFAH: What are the solutions? How do we put young people on a healthy pathway?

Lepper: Key to good health is good nutrition. A lack of access to fresh and nutritious food is linked to obesity, and the reality is that many children do not have consistent access to fresh and nutritious food. COVID-19 has magnified this insecurity. The disruption to daily life caused by the pandemic has illuminated the important role that federal nutrition programs play.

Some of these essential programs are the National School Lunch Program, the Summer Food Service Program, the Supplemental Nutrition Assistance Program, and the Women, Infants, and Children program. The National School Lunch Program, the oldest food and nutrition-assistance program in the United States, provides vegetables, fruit, lean protein, whole grains, and low-fat or fat-free milk with each school lunch. Children who eat school lunches consume fewer empty calories and more fruits and vegetables than their peers who do not eat school lunch.

Then during the summer, food insecurity rates increase because many students lose the consistent access to healthy foods that they get via the academic year school lunch program. This need was especially accurate this summer as millions of parents lost jobs due to the COVID-19 crisis. The Summer Food Service Program provides children from low-income families with healthy meals, but it is important to mention that the program only reaches a fraction of the children who participate in the National School Lunch Program.

The WIC program provides nutrition education and promotes healthy eating for pregnant women and children under 5 years old. Today, WIC focuses on improving access to fresh and nutritious foods in communities where participants live. Participation in WIC links to better overall dietary quality, increased fruit and vegetable consumption, and reduced intake of added sugars. From 2010 to 2016, many WIC agencies across the United States saw decreased rates of obesity in children between 2 and 4 years old.

These programs are crucial for making fresh, nutritious food more accessible to children. Every child needs healthy food in order to grow into a healthy adult. By treating this issue with the gravity and the urgency of a national security issue, we can ensure that we have a healthy next generation of Americans who are ready to contribute to the nation—through military service or whatever path they may choose.

TFAH: Obesity is a growing problem in all branches of the military. What are the services doing to help current soldiers, sailors, and Marines maintain a healthy weight?

Lepper: Before I entered the Air Force Academy, I was an obese child. Although I lost enough weight and enhanced my physical fitness enough to enter the military, those who have experienced obesity and poor fitness know that maintaining a healthy lifestyle is a constant struggle especially when the community conditions in a child's life aren't conducive to healthy eating. The military has recognized the challenge that exists and has instituted programs like Operation Live Well that provide nutrition, physical-activity, and wellness resources to help the defense community maintain healthy lifestyles. There are also training and readiness programs across all branches that help recruits get in shape.

ii. Service Members and Families

Despite U.S. Department of Defense (DOD) body-fat standards, the majority (65.7 percent) of American military service members are overweight or have obesity, reducing force fitness and readiness.[556] The medical costs of military obesity are considerable: DOD spends about $1.5 billion annually on obesity-related healthcare for current and former service members and their families.[557] In addition, active-duty service members miss more than 650,000 days of work annually due to obesity-related issues.[558]

A DOD report analyzing 2018 data found an overall obesity rate of 17.4 percent among service members, up from 15.8 percent in 2014.[559] Service members with obesity are more likely to get injured, with one study finding they are 33 percent more likely to suffer musculoskeletal injury. Among these injured soldiers, 30 percent either never return to active duty or return to duty with limitations.[560] Like their civilian counterparts, military families have high rates of obesity: 70 percent of service members and their family members are either overweight or have obesity.[561]

Food insecurity also impacts service members and their families. A survey conducted by Blue Star Families in 2018 found that 7 percent of military families had experienced food insecurity in the past year, while 9 percent had gotten emergency food assistance from a food pantry or similar source.[562] In addition, in 2019, recipients spent $40 million in SNAP benefits at military commissaries.[563]

In January 2020, the Joint Chiefs of Staff announced that Total Force Fitness would be the new framework for improving military readiness and resilience, including physical and nutritional fitness. The Defense Health Agency will help educate service members and their families about the Total Force Fitness concepts, and the agency expects the project to launch as a Joint Chiefs of Staff directive later this year.[564]

DOD has a number of additional, existing programs in place to prevent and reduce obesity among service members and their families:

- Operation Live Well is DOD's overarching prevention initiative to promote health, well-being, and readiness among service members and in military communities. It offers resources in the areas of nutrition, physical activity, wellness, and tobacco-free living to help members of the military community live a healthy lifestyle.[565]
- "Go for Green" (G4G) is a joint-service nutrition initiative that promotes healthy eating. G4G labels in dining facilities and galleys rate foods based on a stoplight green-yellow-red system that indicates a food's nutritional quality based on the Dietary Guidelines for Americans and uses a salt shaker icon to identify sodium levels.[566,567] The initiative encourages service members to fill half their plate with green-coded foods.[568]
- The 5210 Healthy Military Children public-education campaign promotes four daily goals for children: (1) eat five or more servings of fruits and vegetables; (2) spend two or fewer hours on a screen; (3) engage in one or more hours of physical activity; and (4) drink zero sweetened beverages.[569]
- Military OneSource, a DOD program that provides resources to active-duty service members and their families, has health and wellness coaches who can help service members and their dependents with weight management.[570]

iii. Veterans

A 2018 analysis of data from the National Health and Resilience in Veterans Study found that 32.7 percent of American veterans have obesity and that obesity rates are particularly high among younger and non-white veterans.[571] A longitudinal study of nearly half a million veterans of the Iraq and Afghanistan wars found that those who suffer post-traumatic stress disorder and depression are at the greatest risk of obesity.[572]

Despite their history of service, veteran households, on average, have rates of food insecurity that are not different than those of nonveteran households in any statistically significant way.[573] A 2018 survey found that 12 percent of veteran families had experienced food insecurity in the past year, while 18 percent reported using a food bank or other emergency food assistance.[574] According to the Center on Budget and Policy Priorities, about 1.3 million veterans live in households that participate in SNAP.[575]

The U.S. Veterans Administration sponsors a weight-management program called Move!, which the VA's National Center for Health Promotion and Disease Prevention supports. The evidence-based program encourages healthy eating and physical activity, and it offers several treatment options, including clinician-led group sessions, telephone coaching, and a smartphone app called "Move! Coach," which allows veterans to track their progress toward diet and weight-loss goals.[576]

Recommendations

Obesity prevention efforts have been insufficient for decades in the United States. We have a fragmented national food environment that incentivizes access to quick, cheap, highly processed, high-calorie, low-nutrient foods and beverages instead of quality, nutrient-dense food; an increase in sedentary work and recreational activities; a lack of access to active, affordable, and safe transportation alternatives to driving; and defunding of physical activity and education in schools. Public health infrastructure is under-resourced and spending for obesity prevention does not align with the size of the problem: a mere 31¢ per person is allocated for CDC obesity prevention efforts, though obesity accounts for nearly 21 percent of all healthcare spending.[577,578]

The COVID-19 pandemic has only further weakened and disrupted an already fragile food environment and safety net. While food insecurity has been a longtime problem and social determinant of obesity, the COVID-19 pandemic has exacerbated the issue: as of July 2020, an unprecedented 6-7 million more people have applied and been approved for Supplemental Nutrition Assistance Program (SNAP) for benefits since February 2020.[579]

Obesity is a national issue, but community context and environments vary widely across communities. Under-resourced neighborhoods and racially segregated neighborhoods tend to have a greater number of features that promote obesity and fewer resources that support health and wellness.[580,581] A 2019 study found that racial inequality in income, unemployment, and homeownership—indicators of structural racism—were associated with obesity.[582] The results of that 2019 study suggested that the structural racism indicators tracked with obesity through factors like the number of grocery stores and fast-food restaurants in the community, and social contexts, like stress, which are predictors of poorer health.[583,584,585,586,587]

Because obesity is a chronic disease with multifaceted causes often enmeshed with culture and society, obesity needs a systems-approach—with public policy changes across key sectors (e.g. within healthcare, transportation, and education sectors) to ensure healthy choices are available and easy for everyone. This includes changes to reduce longstanding structural and historic inequities, which have been intensified by the pandemic; targeted obesity prevention programs in communities with the highest needs; and the scaling and spreading of evidence based initiatives that promote healthy behaviors and outcome.

The remainder of this section focuses on recommendations for federal, state, and local governments in five areas: (1) increase health equity by strategically focusing on efforts that reduce obesity-related disparities; (2) decrease food insecurity while improving nutritional quality of available foods; (3) change the marketing and pricing strategies that lead to health disparities; (4) make physical activity and the built environment safer and more accessible for all; and (5) work with the healthcare system to close disparities and gaps in clinic-to-community settings.

1. Increase Health Equity by Strategically Dedicating Federal Resources to Efforts that Reduce Obesity-Related Disparities.

As the main funder of community-based obesity-prevention activities, the federal government is very influential in reinforcing or undoing policies that contribute to obesity. In any policymaking, including the recommendations below, equity should be prioritized by:

1. Empowering communities by providing a backbone of flexible support, funding, and technical assistance tailored to a community's specific needs; and
2. Focusing on communities with the highest rates of obesity first, particularly those with low historic investment and structural inequities related to poverty, racism, adverse childhood experiences, disability, and other social and economic factors.

Recommendations for the federal government:

- **Expand statewide obesity-prevention programs.** Congress should fully fund CDC's Division of Nutrition, Physical Activity and Obesity's State Physical Activity and Nutrition Program (SPAN) grants for all 50 states. State health departments use SPAN to implement effective multisector campaigns based on the latest research that combat obesity. Yet, CDC's current funding level can only support 16 states (out of 50 approved applications).
- **Increase funding for equitable obesity-related initiatives.** Congress should increase funding for initiatives that center equity, such as CDC's REACH program, which delivers effective, local, culturally appropriate, obesity-related programs to those who bear a disproportionate burden of chronic disease and only has enough funding to support 31 grantees (out of a total 261 approved but unfunded applications), among other CDC initiatives and programs.
- **Develop an obesity program best-practices guide.** Congress should ensure that every state public health agency receives skilled assistance in promoting active living and healthy eating by funding CDC's Division of Nutrition, Physical Activity and Obesity to develop and disseminate a guide to implement statewide, effective obesity-prevention programs. Such an evidence-informed guide would provide the support needed to successfully implement the SPAN grants. Both the Better Tools for Healthy Living Act (S. 1805) and the Lower Health Care Costs Act (S. 1895) would authorize this guide.

- **Support multisector collaborations that address the social determinants of health.** Congress should create a Social Determinants of Health program at CDC that funds states, local agencies, and nonprofits to promote meaningful partnerships between public health and other sectors, such as healthcare, transportation, housing, community planning, and education. While not exclusively focused on obesity, such a program could create community conditions that foster optimal health, including access to healthy foods, safe places to be physically active, and other initiatives that reduce poverty and discrimination. The Improving Social Determinants of Health Act (H.R. 6561/S. 4440) would authorize the creation of such a program at CDC.
- **Prioritize health equity in goals planning.** All relevant divisions at HHS should establish goals, develop annual related strategies and actions, and publicly report on efforts and progress toward achieving health-equity goals, as required by Section 10334 of the Affordable Care Act. In particular, HHS divisions that work toward obesity and chronic disease prevention should assess and heighten the impact of decisions about policies, programs, and resources to reduce health disparities and advance health equity.
- **Adapt grantmaking practices to account for differential needs, resources, and capacity.** Grantmaking agencies that support obesity prevention efforts should consider health impact assessments, disease burden and social context when determining grantmaking eligibility criteria, so that communities with the greatest health-related needs can benefit from competitive grant mechanisms. Community-based organizations may be well-situated to implement obesity-prevention activities in impacted communities but need technical assistance or flexibility to meet procedural requirements of federal grants.

2. Decrease Food Insecurity While Improving Nutritional Quality of Available Foods.

Food insecurity is a root cause, or social determinant, of obesity. Families need support to make the necessary changes in their eating habits. The money the federal government spends on anti-hunger programs (like SNAP) and nutrition-assistance programs (like WIC) make critical differences in the health of millions of Americans. In 2018, SNAP helped 40 million every month,[588] while in 2017 WIC served almost half (45 percent) of all infants in the U.S.[589] These numbers have only grown exponentially in 2020 due to the pandemic. Special attention is necessary for those communities with the greatest barriers to healthy food access, such as limited incomes and a lack of local stores with healthy food, particularly produce. Expansion in the scope and funding levels for these programs, especially during times of economic downturn, such as during the COVID-19 pandemic, would help millions more Americans make the right choice for themselves and their families.

Recommendations for the federal government:

- **USDA should maintain COVID-19 nutrition waivers and policies through the entirety of the public health emergency.**[590] All enacted nutrition waivers and programs should always strive to provide the healthiest food available. For instance, schools should continue to provide information on supply chain issues when receiving meal pattern waivers and USDA must provide technical assistance and work with schools and suppliers to resolve any COVID-19 related supply chain issues.
- **Provide universal school meals for the 2020-2021 school year.** Because of the COVID-19 pandemic, millions of children are expected to be newly eligible for the free or reduced-priced school meals program during the 2020-2021 school year. Federal funding for no-cost meals for all enrolled students will help program finances recover from losses during the pandemic, and mitigate the time and resources needed to deal with an application and verification process already fraught with challenges.
- **Improve child nutrition and reduce administrative burden by encouraging Community Eligibility Program enrollment.** In addition to universal schools meals for 2020-2021 school year, and continuing in years after, USDA should ease the administrative burden for school food-service programs by making participation in USDA's Community Eligibility Provision (CEP) as easy as possible, including educating schools about CEP and providing technical assistance. CEP provides meals for all enrolled students if 40 percent or more of students are directly certified for free school meals, and schools are reimbursed according to the percentage of directly certified children. Participating schools report that CEP improves children's access to healthy meals, cuts paperwork for parents and schools, and makes school-meal programs more efficient.[591]
- **Extend benefits in the Supplemental Nutrition Assistance Program.** Congress must oppose any legislative or regulatory efforts that would effectively limit SNAP eligibility, reduce the value of benefits, or create any

other barriers to participating, such as opposing additional work requirements or time limits, opposing eliminating broad-based categorical eligibility, etc. Congress should prioritize raising the maximum SNAP benefit level by 15 percent. Additionally, Congress must extend Pandemic-EBT (P-EBT) for students and children who qualify and the Child and Adult Care Food Program (CACFP) through the next school year (even if the benefit is retroactive), and food assistance block grants that U.S. territories use.

- **Improve diet quality in the Supplemental Nutrition Assistance Program.** Without decreasing access or benefit levels in SNAP, USDA and Congress should identify opportunities to improve diet quality, such as piloting voluntary programs that test healthier eating strategies. With its expressed authority, USDA should expand projects to evaluate innovative approaches to optimizing SNAP purchases and disincentivize the purchase of sugary beverages with SNAP benefits. Additionally, Congress should double investments in SNAP-Ed, and USDA should continue to strengthen the highly effective GusNIP, which supports projects that increase fruit and vegetable purchases among SNAP beneficiaries.

- **Extend the benefits and scope of the Special Supplemental Nutrition Program for Women, Infants and Children.** WIC has proved effective at reducing obesity and promoting good health,[592,593] in part due to the 2009 changes to the food package to align the nutritional quality of WIC foods with independent scientific recommendations from the National Academies.[594,595] Congress should expand access to WIC for young children and postpartum women, extend certification periods to streamline clinic processes, implement an online purchasing solution to simplify the shopping experience, and invest in community health partnerships at the local level. These steps will enhance WIC's effective interventions by addressing existing nutrition gaps and reducing duplicative paperwork requirements on both participants and service providers. Several of these provisions are included in the WIC Act (H.R. 6811/S. 2358) and the CARE for Families Act (H.R. 3117/S. 3354). Additionally, Congress should extend COVID-related WIC waivers, set to expire on September 30, including allowing clinics to adapt to remote services, and eliminating or minimizing in-person requirements.

- **Expand access to the Child and Adult Care Food Program.** Congress should expand CACFP by allowing a third meal service option, increasing reimbursements to support healthier standards, streamlining administrative operations, and continuing funding for CACFP nutrition and wellness education. CACFP provides reimbursement for nutritious meals and snacks served to children and seniors to Head Start programs, family child-care, child-care centers, afterschool programs, homeless shelters, domestic-violence shelters, and senior day-care centers. Low-income preschoolers attending CACFP-participating child-care centers are less likely to have obesity than similar children attending nonparticipating centers.[596] CACFP providers have been affected exceptionally hard by the pandemic, and while providers are eligible for the child nutrition waivers that USDA has enacted in response to the pandemic, they have not received the same level of financial support as schools and other providers in legislative efforts.

Recommendations for state/local government:

- **Support access to healthy school meals.** In the absence of federal action, states should transition to universal school meals for the 2020-2021 school year and continue strengthening school nutrition standards by, at minimum, meeting the 2012 federal government standards. Additionally, states and school districts should prepare for alternative schedules by encouraging partnerships with out-of-school time providers, community partners and food banks to ensure children have access to food and critical enrichment opportunities. In anticipation of a standard school year for 2021-2022, schools should prepare to offer nutritious school-meal programs and expanding flexible school breakfast programs, such as second-chance breakfasts, breakfast on-the-go, and breakfasts in classrooms, while following CDC's Whole School, Whole Community, Whole Child framework, which provides information on the components of a school nutrition environment.
- **Community design should encourage healthy food options.** Local communities should incentivize — through land use planning, zoning, and personal property tax credits — fresh produce grocery stores, healthy corner stores, community gardens, food marts and farmers' markets to locate or renovate in designated food deserts and meet certain requirements for the amount of healthy food they provide. Local communities and schools should be incentivized to partner with local farms as these food producers have been hit especially hard during the pandemic: local farms are expected to experience an estimated $613 million revenue loss due to the pandemic.[597]

3. Change the Marketing and Pricing Strategies That Lead to Health Disparities.

From infancy through adulthood, Americans are exposed to effective advertising via television, radio, new media, online, and retail ads encouraging the consumption of fast food, soda, and calorie-dense low-nutrient food products. While these messages reach virtually all populations, companies disproportionately market to children of color.[598,599] Television advertising for unhealthy snacks and sugary drinks that target Black youth increased by 50 percent over the last five years.[600] While the industry has made some modest adjustments to its practices, companies still spent $9.3 billion in 2017 on the marketing of soda, fast food, candy, and unhealthy snacks to children.[601] Since many students have transitioned to virtual school settings in 2020, there is now a growing concern that students have been exposed to food marketing that would normally be prohibited in physical classrooms through popular online education platforms.[602]

Lastly, there is now a substantive and growing body of evidence showing that increasing the price, through excise taxes, of unhealthy items like sugary drinks reduces consumption (similar to pricing strategies that helped decrease the smoking rates), especially when that revenue goes to programs and services that improve population health. Policies in several communities show clear evidence that this approach works to reduce the consumption of sugary drinks.[603,604]

Recommendations for the federal government:

- **End unhealthy food marketing to children.** Congress should close tax loopholes and eliminate business-cost deductions related to the advertising of unhealthy food and beverages to children on television, the internet, social media, and places frequented by children, like movie theaters and youth sporting events. Researchers project that eliminating advertising subsidies for unhealthy foods and beverages would prevent approximately 129,000 cases of obesity over a decade while generating approximately $80 million annually in tax revenue.[605]
- **Further enforce and clarify local wellness policy regulations.** The USDA should issue guidance clarifying that local wellness policy regulations that apply for physical school settings should also apply to food and beverage marketing on school-issued digital devices, applications, and online platforms that students are required to use for schoolwork.

Recommendations for state governments:

- **Discourage unhealthy options.** States should increase the price of sugary drinks, through an excise tax, with tax revenue allocated to local efforts to reduce health and socioeconomic disparities. A sugary-drink tax to address childhood obesity is the most cost-effective strategy, leading to the potential prevention of 575,000 cases of childhood obesity and a healthcare savings of $31 per dollar spent over 10 years.[606] Elected officials should avoid undue influence from the financial contributions of soda companies or from industry-led campaigns to pass state preemption laws that prohibit local action to tax these unhealthy foods.
- **Reduce unhealthy food marketing to children.** Local education agencies should consider incorporating strategies in their local wellness policies that further reduce unhealthy food and beverage marketing and advertising to children and adolescents, like by prohibiting coupons, sales, and advertising around schools and school buses, as well as by banning sugary drinks as branded sponsors of youth sporting events.[607]

4. Make Physical Activity and the Built Environment Safer and More Accessible for All.

While many individuals can take steps to be active, there are often larger social, economic, and environmental barriers that communities should address, such as modifying community design so it is easier and safer for people to walk, bike, or roll; strengthening public-transportation options; ensuring that children have daily opportunities for physical activity inside and outside of school; and creating accessible recreational options for people of all ages, racial and ethnic backgrounds, abilities, and incomes. While some communities have made progress, obstacles to physical activity are disproportionately greater in those communities where social and economic conditions have resulted in a lack of safe space for physical activity due to a variety of barriers such as fewer recreational facilities, underfunded school systems, car-dependent transportation, and both overt discrimination and institutionalized racism.

What constitutes safe public space for physical activity for someone can vary based on their gender, race and/or ethnicity. Safety from traffic and crime are vitally important to overcome perceived and real barriers to physical activity. However, systemic racism causes Black, Brown, and Indigenous People of Color to face additional, unique challenges being physically active in public space.

All physical-activity recommendations below should prioritize adaptations for the COVID-19 pandemic during the length of the public health emergency in order to ensure that individuals (especially in congregate settings, like schools or gyms) can safely be physically active.

Recommendations for the federal government:

- **Fund programs that support physical-education implementation efforts.** Congress should increase funding for the Student Support and Academic Enrichment grant program (under Every Student Succeeds Act Title IV, Part A) until it reaches at least its authorized level of $1.6 billion. Student Support and Academic Enrichment grant recipients can use the funding to support health and physical education, among other activities.

- **Prioritize evidence-based physical-activity guidelines.** Congress should codify and appropriate funds for HHS to publish *Physical Activity Guidelines for Americans* at least every 10 years based on the most current scientific and medical knowledge, including information for population subgroups, as needed. Appropriations should also fund communication, dissemination, and support for the guidelines. Since the release of the first *Physical Activity Guidelines for Americans* in 2008, the percentage of adults meeting the guidelines increased from 18 percent to 24 percent by 2017.[608] The *Guidelines* were last updated in 2018.

- **Fund active transportation.** Congress should increase funding for active transportation projects like pedestrian and biking infrastructure, recreational trails, and Safe Routes to Schools projects by requiring that at least 10 percent of the Surface Transportation Block Grant program is set aside for active transportation policies through the Transportation Alternatives Program.

- **Make physical activity safer.** The U.S. Department of Transportation should add Safe Routes to Schools, Vision Zero, Complete Streets, and non-infrastructure projects as eligible initiatives of the Highway Safety Improvement Program. The Department of Transportation should conduct national road-safety audits to identify high-risk intersections and other hazards, and states and large cities with higher rates of pedestrian deaths should implement safety-improvement projects.
- **Support incorporation of physical-activity components into infrastructure funding.** Congress should ensure that all federal infrastructure bills mandate state adoption of Complete Streets principles as a condition for the receipt of federal funding for major transportation projects.

Recommendations for state/local governments:

- **Prioritize schooltime physical activity.** States and local education agencies should identify innovative methods to deliver physical activity everyday while students are physically distancing, such as partnering with out-of-school time providers for before/after school activity, providing virtual options for physical education, active recess or class-based activities, and more. States should consider using the Every Student Succeeds Act Title I and/or IV funding for physical education and other physical-activity opportunities.[609]
- **Make local spaces more conducive to physical activity.** Local school districts and states should evaluate schoolyard suitability and enhance schoolyard spaces to account for active play, outdoor classroom space, access to nature, and mitigation of urban heat islands. Schoolyards should be open to communities outside of school hours.
- **Make communities safer for physical activity and active transportation.** States and cities should enact Complete Streets and other complementary streetscape-design policies to improve active transportation and to increase outdoor physical-activity opportunities.
- **Encourage outdoor play.** States should build on the successful federal Every Kid Outdoors program—which provides fourth graders with a free-entry park pass for themselves and their families to visit federal public lands—to include state-managed lands and/or expand to other age groups. The American Academy of Pediatrics states that outdoor play "can serve as a counterbalance to sedentary time and contribute to the recommended 60 minutes of moderate to vigorous activity per day."[610]

5. Work with the Healthcare System to Close Disparities and Gaps in Clinic-to-Community Settings.

While the Affordable Care Act has granted health-insurance coverage to an additional 20 million adults, millions of individuals in the United States still lack coverage, and there are significant disparities in access to care by sex, age, race, ethnicity, education, and family income.[611] The COVID-19 pandemic has made the situation far more tenuous. A May 2020 Kaiser Family Foundation report estimates that nearly 27 million people have potentially lost their employer-sponsored insurance.[612] Health insurance and access to care are foundational to obesity prevention and treatment as well as to overall health. Any recommendations below are in addition to the assumption that all individuals in the United States, regardless of race, income, immigration status, or any other factor, deserve and have access to quality healthcare. As such, TFAH advocates for an expansion of Medicaid in all states and protection of the Affordable Care Act.

All healthcare payors should establish quality measures that prioritize screening and counseling to prevent obesity and, when necessary, to cover obesity-related services that meet the National Academy of Medicine health-equity definition of "providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status."[613]

Recommendations for the federal government:

- **Enforce U.S. Preventive Services Task Force recommendations.** By law, most insurance plans must cover, with no cost-sharing, preventive services with a grade of A or B that the USPSTF recommends. While there are several grade A or B obesity-related USPSTF recommendations, including referrals to intensive behavioral interventions for adults and children, there is a wide variety of actual implementation or uptake of these recommendations across insurers.[614,615] HHS, the U.S. Department of Labor, and the U.S. Treasury Department should jointly communicate to insurers that they require coverage of grade A and B recommendations by publishing FAQs, something the departments have previously done on other USPSTF recommendations. Insurance plans should also incorporate quality measures that incentivize screening and counseling for overweight and obesity, with an emphasis on prevention.
- **Expand opportunities for public health and healthcare coordination.** Agencies and Congress should explore opportunities to expand the capacity of healthcare providers and payers to screen and refer individuals to social service needs leveraging existing billing code options, coordinate care delivered by health and social service programs, sufficiently reimburse social services providers, and more fully integrate social needs data into Electronic Medical Record (EMR) systems. The Social Determinants Accelerator Act (H.R. 4004/S. 2986) would expand opportunities for coordination of health and social service programs by funding acceleration planning grants to state, local and Tribal governments to create innovative, evidence-based approaches to coordinate services across sectors and improve outcomes and cost-effectiveness.

- **Eliminate barriers to coverage for underserved communities.** Congress should pass the Health Equity and Accountability Act (HEAA) of 2020 (H.R. 6637), a comprehensive bill that broadly addresses healthcare disparities and improves the health and well-being of communities of color, rural communities, and other underserved populations across the United States.[616]

Recommendations for state/local governments:

- **Prioritize Social Determinants of Health strategies.** Public health departments should partner with healthcare and community entities to address social determinants of health, including increasing the availability of and participation in obesity-prevention or -control initiatives, with a particular emphasis on communities with high levels of obesity. Such efforts could include promoting evidence-based policies that improve community conditions; supporting processes that center community members' views when setting goals and strategies; providing counsel and referral strategies to better use electronic health records; establishing referrals to and funding for the National Diabetes Prevention Program, ParkRx, and other community-based programming; employing community health workers in low-resourced areas to connect residents with relevant safety-net and social-support resources; and aligning state and local efforts to national initiatives (such as CDC's Million Hearts).
- **Cover pediatric weight management programs.** Medicaid should reimburse providers for evidence-based comprehensive pediatric weight-management programs and services, such as Family-Based Behavioral Treatment programs and Integrated Chronic Care Models.[617]

Obesity-Related Indicators and Policies by State

The appendix covers 32 indicators spanning state-level conditions, policies, and performance measures across five themes: Social and Economic Conditions, Built Environment, Nutrition Assistance Programs, K-12 School Nutrition, and K-12 School Physical Activity. Some of the indicators are updated annually and are regularly included in the State of Obesity report, while others are based on one-time reports or were included this year since they particularly relate to the report's special feature (i.e. food insecurity) or other timely issues (e.g. COVID-19). The data included are the most recently available, although some items have a substantial delay before release.

Social and Economic Conditions

	Household Food Insecurity (Average 2016–2018)[1]	Projected Food Insecurity (2020)[2]		Poverty (2018)[3]		Health Insurance Coverage (2018)[4]	
	What percentage of households experience low or very low food security?	What is the projected percent increase in food insecurity among the overall population from 2018 to 2020, given the impact of COVID-19?*	What is the projected percent increase in food insecurity among children from 2018 to 2020, given the impact of COVID-19?*	What percentage of residents live below the poverty level?	How much higher is the poverty rate for Black residents as compared with White residents?	What percentage of residents age 0-64 are uninsured?	How much higher are uninsured rates for Black residents (age 0-64) as compared with White residents (age 0-64)?
Alabama	15%	31%	40%	17%	145%	12%	40%
Alaska	11%	44%	56%	11%	N/A	14%	N/A
Arizona	12%	42%	52%	14%	111%	13%	38%
Arkansas	15%	30%	40%	17%	121%	10%	25%
California	11%	49%	63%	13%	122%	8%	20%
Colorado	9%	54%	78%	10%	157%	9%	50%
Connecticut	12%	40%	52%	10%	200%	6%	75%
Delaware	11%	41%	48%	12%	125%	7%	0%
D.C.	11%	46%	50%	17%	350%	4%	400%
Florida	12%	44%	52%	13%	110%	16%	31%
Georgia	11%	42%	58%	14%	100%	16%	15%
Hawaii	8%	57%	63%	9%	N/A	5%	N/A
Idaho	10%	49%	75%	12%	N/A	13%	N/A
Illinois	11%	50%	69%	12%	200%	8%	100%
Indiana	14%	39%	51%	13%	160%	10%	63%
Iowa	9%	51%	62%	11%	300%	6%	260%
Kansas	14%	39%	48%	12%	211%	10%	63%
Kentucky	15%	35%	48%	17%	93%	7%	0%
Louisiana	16%	35%	41%	19%	150%	9%	0%
Maine	14%	40%	48%	11%	127%	10%	N/A
Maryland	11%	47%	57%	9%	117%	7%	133%
Massachusetts	9%	53%	81%	10%	143%	3%	67%
Michigan	13%	38%	61%	14%	145%	6%	17%
Minnesota	9%	60%	69%	10%	300%	5%	50%
Mississippi	16%	29%	42%	20%	158%	15%	23%
Missouri	12%	39%	60%	13%	127%	11%	30%
Montana	10%	55%	64%	12%	N/A	10%	N/A
Nebraska	11%	41%	53%	11%	133%	10%	38%
Nevada	9%	57%	69%	13%	133%	13%	33%
New Hampshire	8%	55%	67%	7%	N/A	6%	N/A
New Jersey	9%	56%	75%	9%	220%	9%	80%
New Mexico	17%	38%	43%	20%	92%	11%	50%
New York	11%	45%	52%	14%	122%	6%	50%
North Carolina	14%	37%	48%	14%	110%	13%	20%
North Dakota	9%	77%	96%	10%	N/A	9%	433%
Ohio	13%	37%	47%	14%	155%	8%	43%
Oklahoma	16%	36%	45%	15%	150%	16%	42%
Oregon	11%	45%	59%	12%	55%	9%	14%
Pennsylvania	11%	45%	58%	12%	178%	7%	33%
Rhode Island	11%	45%	52%	13%	88%	5%	N/A
South Carolina	11%	46%	59%	15%	150%	13%	18%
South Dakota	11%	49%	57%	13%	N/A	11%	N/A
Tennessee	12%	38%	53%	15%	125%	12%	40%
Texas	14%	35%	43%	15%	150%	20%	23%
Utah	10%	47%	75%	9%	186%	10%	157%
Vermont	10%	46%	60%	11%	N/A	5%	N/A
Virginia	10%	53%	74%	11%	125%	10%	71%
Washington	10%	49%	63%	10%	150%	8%	120%
West Virginia	16%	39%	48%	18%	53%	8%	57%
Wisconsin	9%	57%	63%	11%	313%	7%	80%
Wyoming	13%	47%	65%	11%	N/A	13%	N/A
Total	**12%**	**N/A**	**N/A**	**13%**	**144%**	**10%**	**38%**

*Projected changes in food insecurity are based on projected changes to unemployment and poverty.

Sources:

1. Coleman-Jensen A, Rabbitt MP, Gregory CA, and Singh A. Household Food Security in the United States in 2018, ERR-270, U.S. Department of Agriculture, Economic Research Service, 2019. https://www.ers.usda.gov/webdocs/publications/94849/err-270.pdf?v=4386.1

2. Feeding America, The Impact of Coronavirus on Food Insecurity, June 2020. https://www.feedingamericaaction.org/the-impact-of-coronavirus-on-food-insecurity/

3. Kaiser Family Foundation estimates based on U.S. Census Bureau's American Community Survey.

Kaiser Family Foundation. Poverty Rate by Race/Ethnicity, 2018. https://www.kff.org/state-category/demographics-and-the-economy/

4. Kaiser Family Foundation estimates based on U.S. Census Bureau's American Community Survey.

Kaiser Family Foundation. Uninsured Rates for the Nonelderly by Race/Ethnicity, 2018. https://www.kff.org/state-category/health-coverage-uninsured/nonelderly-uninsured/

Built Environment

	Food Infrastructure Ranking (2018)[1]	Complete Streets State Laws and Provisions (as of December 2018)[2]				Neighborhood Sidewalks and Parks (2017–2018)[3]	
	How does the state rank on distribution of healthy food retailers, number of farmers markets, and other food infrastructure*?	Has the state adopted a Complete Streets Legislative Statute*?	Does the statute encourage or require non-motorized accommodations in local plans?	Does the statute apply to state and federally-funded roads?	Does the statute refer to network connectivity as an intent of the statute?	What percentage of children live in neighborhoods with sidewalks or walking paths?	What percentage of children live in neighborhoods with parks/ playgrounds?
Alabama	44					50%	51%
Alaska	36					67%	72%
Arizona	39					82%	79%
Arkansas	48					57%	57%
California	6	√	√		√	92%	87%
Colorado	8	√				92%	89%
Connecticut	15	√		√		66%	78%
Delaware	7					70%	70%
D.C.	N/A	√			√	98%	92%
Florida	18	√	√		√	78%	74%
Georgia	37					59%	61%
Hawaii	3	√	√			85%	89%
Idaho	33					76%	71%
Illinois	32	√				88%	89%
Indiana	40					70%	63%
Iowa	11					80%	75%
Kansas	10					76%	75%
Kentucky	43					59%	58%
Louisiana	42	√			√	54%	56%
Maine	2					60%	68%
Maryland	13	√			√	82%	83%
Massachusetts	12	√				84%	82%
Michigan	23	√	√		√	72%	77%
Minnesota	25	√	√			78%	87%
Mississippi	41					40%	47%
Missouri	31					66%	70%
Montana	20					72%	72%
Nebraska	21					89%	81%
Nevada	16					90%	82%
New Hampshire	34					59%	70%
New Jersey	27					84%	88%
New Mexico	28					75%	73%
New York	14	√		√		77%	87%
North Carolina	9					58%	60%
North Dakota	35					77%	80%
Ohio	22					76%	76%
Oklahoma	50					51%	62%
Oregon	4	√	√			79%	79%
Pennsylvania	26					72%	77%
Rhode Island	17	√		√		78%	83%
South Carolina	38					52%	54%
South Dakota	49					80%	76%
Tennessee	45					51%	56%
Texas	47					74%	74%
Utah	46					92%	87%
Vermont	1	√	√		√	64%	75%
Virginia	19					71%	73%
Washington	5	√	√			76%	79%
West Virginia	30	√	√	√	√	53%	61%
Wisconsin	24	√		√		69%	79%
Wyoming	29					79%	80%
Total	**N/A**	**18 states & D.C.**	**9 states**	**5 states**	**7 states & D.C.**	**75%**	**76%**

*Maryland and Rhode Island have each adopted two separate Complete Streets statues; the other states noted as having a statute have one statute.

Sources:

1. Union of Concerned Scientists, 50-State Food System Scorecard, June 2018. https://www.ucsusa.org/food-agriculture/food-system-scorecard#bycategory

2. Union of Concerned Scientists, 50-State Food System Scorecard, June 2018. https://www.ucsusa.org/food-agriculture/food-system-scorecard#bycategory

3. Child and Adolescent Health Measurement Initiative. 2017-2018 National Survey of Children's Health (NSCH) data query. Data Resource Center for Child and Adolescent Health supported by HHS, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB).

Nutrition Assistance Programs

	Supplemental Nutrition Assistance Program Participation (2016)*[1]	Supplemental Nutrition Assistance Program Reach (FY 2019)[2]	SNAP Online Purchasing Program Pilot (as of July 2020)[3]	Special Supplemental Nutrition Program for Women, Infant, and Children Participation (2017)[4]	Women, Infant, and Children Breastfeeding Performance Measurements FY 2018)[5]	Food Investments Ranking (2018)**[6]
	What percentage of people who are eligible participate in SNAP?*	What percent of state residents participate in SNAP?	Is the state using new flexibility in SNAP to pilot an online purchasing program in response to COVID-19?	What percentage of people who are eligible participate in WIC?*	What is the percentage of breastfed infants (fully or partially breastfed) among WIC participants in the state?	How does the state rank based on 2017 per capita spending levels for key USDA programs?*
Alabama	87%	15%	√	53%	12%	38
Alaska	71%	12%		39%	46%	10
Arizona	74%	11%	√	46%	31%	22
Arkansas	72%	12%		49%	14%	35
California	72%	10%	√	61%	38%	13
Colorado	78%	8%	√	41%	34%	32
Connecticut	91%	10%	√	49%	36%	18
Delaware	99%	13%	√	43%	28%	21
D.C.	97%	13%	√	46%	41%	N/A
Florida	92%	13%	√	51%	35%	46
Georgia	86%	13%	√	47%	28%	43
Hawaii	84%	11%		43%	46%	9
Idaho	84%	8%	√	42%	44%	47
Illinois	100%	14%	√	42%	28%	42
Indiana	80%	9%	√	48%	27%	24
Iowa	88%	10%	√	51%	27%	23
Kansas	77%	7%	√	41%	30%	29
Kentucky	76%	12%	√	49%	20%	16
Louisiana	84%	17%		47%	12%	31
Maine	90%	12%		50%	31%	4
Maryland	91%	10%	√	64%	41%	17
Massachusetts	91%	11%	√	56%	35%	5
Michigan	100%	12%	√	53%	23%	11
Minnesota	84%	7%	√	59%	36%	20
Mississippi	83%	15%	√	55%	14%	30
Missouri	89%	11%	√	46%	23%	41
Montana	87%	10%		36%	33%	6
Nebraska	80%	8%	√	49%	32%	15
Nevada	83%	14%	√	48%	33%	26
New Hampshire	80%	6%	√	37%	30%	33
New Jersey	81%	8%	√	53%	44%	37
New Mexico	100%	21%	√	42%	31%	1
New York	93%	14%	√	54%	45%	12
North Carolina	86%	12%	√	51%	31%	40
North Dakota	62%	6%		51%	30%	49
Ohio	85%	12%	√	47%	17%	27
Oklahoma	82%	14%	√	49%	18%	39
Oregon	100%	14%	√	52%	40%	8
Pennsylvania	99%	14%	√	48%	20%	25
Rhode Island	100%	14%	√	58%	24%	3
South Carolina	80%	12%	√	43%	21%	34
South Dakota	83%	9%	√	47%	26%	28
Tennessee	93%	13%	√	43%	21%	44
Texas	73%	12%	√	53%	51%	48
Utah	70%	5%	√	38%	40%	45
Vermont	100%	11%	√	51%	46%	2
Virginia	75%	8%	√	42%	22%	36
Washington	100%	11%	√	49%	42%	7
West Virginia	95%	17%	√	49%	16%	14
Wisconsin	94%	11%	√	49%	23%	19
Wyoming	56%	5%	√	43%	34%	50
Total	**85%**	**12%**	**43 states and D.C.**	**51%**	**32%**	**N/A**

*These are estimated participation rates and represent the best available estimates given current data and analytic models. For most of these estimates, there is a 90 percent chance the true participation rate falls within +/- 6 percentage points of the estimate. Estimated 100 percent participation are the result of differences between the data used to estimate eligibility versus participants, not that every eligible person participated in SNAP. **Ranking ranges from 1 (most per capita spending) to 50 (least per capita spending) and captures spending levels (i.e., federal grant dollars per resident or participant) for USDA programs that complement and enhance SNAP. The ranking also includes percent of farmers markets accepting SNAP and other federal nutrition program benefits.

Sources:

1. U.S. Department of Agriculture Food and Nutrition Service. Estimates of State Supplemental Nutrition Assistance Program Participation Rates in 2016, March 2019. https://fns-prod.azureedge.net/sites/default/files/resource-files/Reaching2016.pdf

2. Nchako C and Cai L. A Closer Look at Who Benefits from SNAP: State-by-State Fact Sheets, Center on Budget and Policy Priorities, March 20200. https://www.cbpp.org/research/a-closer-look-at-who-benefits-from-snap-state-by-state-fact-sheets

3. Center on Budget and Policy Priorities, State USDA-Approved SNAP Waivers and Options, as of July 16, 2020, July 2020. https://www.cbpp.org/research/food-assistance/most-states-are-using-new-flexibility-in-snap-to-respond-to-covid-19

4. U.S. Department of Agriculture Food and Nutrition Service, National- and State-Level Estimates of WIC Eligibility and WIC Program Reach in 2017, December 2019. https://fns-prod.azureedge.net/sites/default/files/resource-files/WICEligibles2017-Volume1.pdf

5. U.S. Department of Agriculture Food and Nutrition Service (August 2019). WIC Breastfeeding Data Local Agency Report (https://fns-prod.azureedge.net/sites/default/files/resource-files/FY2018-BFDLA-Report.pdf).

6. Union of Concerned Scientists, 50-State Food System Scorecard, June 2018. https://www.ucsusa.org/food-agriculture/food-system-scorecard#bycategory

K–12 School Nutrition

	Comprehensiveness of School Nutrition Policies (2017–2018)*[1]	Smart Snacks Standards (2017–2018)[1]	Food Marketing (2017–2018)[1]	School Breakfast Program (2018–2019)[2]	Community Eligibility Provision (2019–2020)[3]
	How comprehensive* are state policies that promote nutrition in schools?	Do state laws meet Smart Snacks Standards for all grade levels?	Does the state restrict the marketing of unhealthy foods and beverages in schools?	What percentage of the children in the School Lunch Program are also in the School Breakfast Program?	What percentage of eligible districts have adopted community eligibility?*
Alabama	Low			60%	42%
Alaska	No			55%	80%
Arizona	Low			56%	60%
Arkansas	Moderate	√		67%	47%
California	Moderate		√b	57%	49%
Colorado	Moderate			58%	33%
Connecticut	Low			51%	66%
Delaware	Low			63%	79%
D.C.	Moderate	√	√b	69%	90%
Florida	Moderate	√		52%	66%
Georgia	Low	√		61%	79%
Hawaii	Low			39%	92%
Idaho	No			55%	60%
Illinois	Low	√		51%	53%
Indiana	Low	√		51%	40%
Iowa	Moderate	√		43%	26%
Kansas	Low			52%	19%
Kentucky	Moderate	√		67%	99%
Louisiana	Low			59%	96%
Maine	Low		√a	64%	49%
Maryland	Low			62%	52%
Massachusetts	Moderate			55%	64%
Michigan	Low			59%	53%
Minnesota	Low			55%	43%
Mississippi	Moderate	√		61%	51%
Missouri	Low			63%	47%
Montana	Low			61%	79%
Nebraska	No			45%	17%
Nevada	Low			60%	88%
New Hampshire	Low	√		45%	27%
New Jersey	Low	√	√a	60%	50%
New Mexico	Moderate	√		69%	87%
New York	Low			52%	79%
North Carolina	Low			58%	71%
North Dakota	Low			52%	100%
Ohio	Low			57%	70%
Oklahoma	Low	√		58%	48%
Oregon	Low			55%	68%
Pennsylvania	Low			53%	57%
Rhode Island	Moderate	√		54%	31%
South Carolina	Low	√		63%	74%
South Dakota	No			46%	63%
Tennessee	Moderate	√		65%	66%
Texas	Low			63%	46%
Utah	Low	√		40%	81%
Vermont	Low			70%	82%
Virginia	Moderate		√b	62%	46%
Washington	Low			47%	53%
West Virginia	Comprehensive	√	√b	83%	93%
Wisconsin	Low			52%	47%
Wyoming	Low			49%	89%
Total	**1 state comprehensive, 13 moderate, 33 low, 4 no coverage**	**17 states and D.C.**	**5 states and D.C.**	**58%**	**58%**

*Comprehensiveness assessed based on the percentage of key nutrition-related topics covered by state education policies, which ranged from 0 (Alaska, Idaho, Nebraska, and South Dakota) to 86 percent (West Virginia). Topics included marketing of healthy foods, standards for foods outside traditional school meals, and provisions for unpaid school meal debts. The two subsequent indicators - Smart Snacks Standards and Food Marketing - are also included topics.

a. Recommend marketing be consistent with Smart Snacks standards b. Require marketing be consistent with Smart Snacks standards

*Community eligibility allows high-poverty schools and school districts to offer free meals to all students, and it eliminates the need for household school meal applications.

K–12 School Nutrition

	Legislation to Address Unpaid School Meal Debt (as of September 2019)[4]	School Meal Mandates (as of November 2019)[5]	Seat-Time Laws (as of November 2019)[5]
	Has the state passed a law supporting or restricting* access to school meals for students with meal debt?	Has the state mandated that schools with specific qualifications participate in the National School Lunch and/or Breakfast Program?	Has the state passed a law requiring or encouraging public schools to set mealtime long enough for students to consume their meal?
Alabama			
Alaska			
Arizona		√c	
Arkansas		√d	
California	Supporting	√a	
Colorado		√d	
Connecticut		√d	Encouraging
Delaware		√d	
D.C.		√d	
Florida		√d	
Georgia		√b,d	
Hawaii	Restricting	√a	
Idaho			
Illinois		√d	
Indiana		√d	
Iowa	Supporting		
Kansas		√d	
Kentucky	Supporting		Encouraging
Louisiana		√c,d	
Maine	Supporting	√c,d	
Maryland		√b	
Massachusetts		√d	
Michigan		√b,d	
Minnesota	Supporting	√d	
Mississippi			Requiring
Missouri		√d	
Montana			
Nebraska			
Nevada		√d	Requiring
New Hampshire			Encouraging
New Jersey	Restricting	√d	
New Mexico	Supporting		Requiring
New York		√d	Encouraging
North Carolina		√b	Requiring
North Dakota			
Ohio		√d	
Oklahoma			
Oregon	Supporting	√d	Encouraging
Pennsylvania	Restricting		
Rhode Island		√a	
South Carolina		√a	Requiring
South Dakota			
Tennessee			
Texas	Supporting		
Utah			
Vermont		√a	
Virginia	Supporting	√d	
Washington	Supporting	√c,d	Encouraging
West Virginia	Supporting	√a	Requiring
Wisconsin			
Wyoming			
Total	**11 states supporting, 3 states restricting**	**31 states and D.C.**	**6 states requiring, 6 states encouraging**

*Supporting legislation explicitly supports access to meals for students with meal debt, whereas restricting legislation allows schools to limit access to meals for unpaid meal debt in at least some cases

a. Mandates participation in the NSLP and SBP

b. Mandates participation in the NSLP

c. Mandates participation in the NSLP, under specific circumstances (e.g., schools over a certain size)

d. Mandates participation in the SBP, under specific circumstances

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K–12 School Physical Activity

	Comprehensiveness of School Physical Activity Policies (2017–2018)	National Physical Education Standards (2017–2018)	Physical Activity Throughout the Day (2017–2018)	Recess (2017–2018)
	How comprehensive* are state policies that promote physical education and activity in schools?	Does the state address or refer to the National Physical Education Standards within the state physical education curriculum laws?	Does the state have laws that address providing physical activity throughout the day (e.g., during classroom breaks)?	Does the state have laws that address providing physical activity through recess?
Alabama	Moderate	√		√c
Alaska	Moderate	√	√a	√c
Arizona	Moderate	√		
Arkansas	Moderate		√a	√c
California	Moderate			√c
Colorado	Moderate	√	√a	√c
Connecticut	Moderate		√a	√d
Delaware	Moderate	√		
D.C.	Moderate	√	√a	√c
Florida	Moderate	√		√d
Georgia	Moderate	√		
Hawaii	Low			
Idaho	Low	√		
Illinois	Moderate			
Indiana	Moderate		√a	√c
Iowa	Low		√b	
Kansas	Low			
Kentucky	Moderate	√	√a	
Louisiana	Moderate	√	√a	
Maine	Low			
Maryland	Moderate	√		
Massachusetts	Low	√		
Michigan	Low			
Minnesota	Moderate	√	√a	√c
Mississippi	Comprehensive	√	√a	√c
Missouri	Moderate		√a	√d
Montana	Moderate	√		
Nebraska	Low			
Nevada	Low			
New Hampshire	Moderate	√	√a	√c
New Jersey	Low			
New Mexico	Moderate	√	√a	
New York	Moderate			
North Carolina	Low			
North Dakota	Low			
Ohio	Moderate	√		
Oklahoma	Moderate	√	√a	√c
Oregon	Moderate	√		
Pennsylvania	Moderate			
Rhode Island	Moderate	√	√b	√d
South Carolina	Comprehensive	√	√a	√c
South Dakota	Low	√		
Tennessee	Low		√b	
Texas	Moderate	√		√c
Utah	Low			
Vermont	Moderate	√	√a	√c
Virginia	Moderate		√a	√d
Washington	Moderate	√	√a	
West Virginia	Moderate	√	√a	√d
Wisconsin	Moderate			
Wyoming	Low	√		
Total	**2 states comprehensive, 32 states and D.C. moderate, 16 states low**	**28 states and D.C.**	**21 states and D.C.**	**19 states and D.C.**

*Comprehensiveness assessed based on the percentage of key physical education and physical activity related topics covered by state education policies, which ranged from 8 (Hawaii) to 75 percent (Mississippi and South Carolina). Topics included the extent and content of physical education standards, as well as opportunities for physical activity throughout the day. The three subsequent indicators - National Physical Education Standards, Physical Activity Throughout the Day, and Recess - are also included topics.

a. Encourages providing physical activity throughout the day

b. Requires providing physical activity throughout the day

c. Addresses or requires recess less than daily

d. Requires daily recess

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