ISSUE REPORT

F as in Fat: 2011

HOW OBESITY THREATENS AMERICA'S FUTURE

Trust for America's Health

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JULY 2011

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Robert Wood Johnson Foundation

ACKNOWLEDGEMENTS

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For more than 35 years the Foundation has brought experience, commitment, and a rigorous, balanced approach to the problems that affect the health and health care of those it serves. Helping Americans lead healthier lives and get the care they need—the Foundation expects to make a difference in our lifetime. For more information, visit www.rwjf.org.

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Introduction

Letter from Risa Lavizzo-Mourey, M.D., M.B.A., president and CEO of the Robert Wood Johnson Foundation, and Jeffrey Levi, Ph.D., executive director of the Trust for America's Health

Obesity is one of the most challenging health crises the country has ever faced. Two-thirds of adults and nearly one-third of children and teens are currently obese or overweight, putting them at increased risk for more than 20 major diseases, including type 2 diabetes and heart disease. It's not just our health that is suffering: obesity-related medical costs and a less productive workforce are hampering America's ability to compete in the global economy.

For the past five years, the Robert Wood Johnson Foundation (RWJF) and Trust for America's Health (TFAH) have collaborated to produce the *F as in Fat* report. This is a report we are incredibly proud of and one that has become as important to the policy researchers as it is to the policymakers themselves. Our goal is not to rank states as a way to admonish them. We want to raise awareness, drive action, identify solutions, and reverse the epidemic.

The first report that RWJF and TFAH released together in August 2006 warned against applying short-term, limited approaches to fight the obesity epidemic. Instead, that report underscored the need to develop a strategic policy at the national level. Last year's report reflected on the unprecedented level of support obesity-prevention programs have received in the Patient Protection and Affordable Care Act of 2010 and the American Recovery and Reinvestment Act of 2009, as well as the community efforts that have taken root across the country. Still, despite all of the momentum we've experienced in the past several years, the takeaway message from our 2006 report remains relevant: reversing the obesity epidemic is a long-term effort and a defining opportunity for our generation to improve the health of generations to come. This effort will require all of us to remain diligent and work together — as individuals, families, schools, communities, businesses, government, and other organizations — to find ways to make healthier choices accessible for millions of Americans who want and need additional support to be healthy.

Imagine what it is like to live in a neighborhood where there are no supermarkets, sidewalks or community playgrounds, where being outside may not be safe and joining a gym is not an option. Where we live influences our decisions and our health.

Cost, convenience, and cultural preferences influence what we eat. Safety, proximity, and affordability affect how active we are. Competing requirements in our daily lives, from commuting time to family commitments, can add stress and limit how much time we have to focus on our health.

Because of all these factors, it's important to look at policy as a way to help people choose health — by strengthening their ability to make healthy decisions, by removing obstacles to healthy choices, and by creating more opportunities to be healthy — particularly for those groups of people whose options have been most limited.

To focus efforts, last year RWJF identified six policy priorities that are grounded in scientific research and highly likely to affect obesity prevalence. Together, the six priorities offer opportunities for making an impact quickly, while also leaving a legacy of healthy changes that will endure long past the Foundation's 2015 goal of reversing the childhood obesity epidemic.

These priorities are woven into the report, and reflected in the concluding recommendations from TFAH and RWJF. They include:

1. **Ensuring that all foods and beverages served and sold in schools meet or exceed the most recent Dietary Guidelines for Americans.**

2. **Increasing access to high-quality, affordable foods through new or improved grocery stores and healthier corner stores and bodegas.**

3. **Increasing the time, intensity, and duration of physical activity during the school day and in out-of-school programs.**

4. **Increasing physical activity by improving the built environment in communities.**

5. **Using pricing strategies — both incentives and disincentives — to promote the purchase of healthier foods.**

6. **Reducing youths' exposure to the marketing of unhealthy foods through regulation, policy, and effective industry self-regulation.**

Not surprisingly, these priority areas emphasize helping kids — and their parents. As a country, it's up to us to make sure we get our children off to a healthy start in life, and investing in our children is an investment in our future.

In addition to reversing the epidemic among the overall population, these priorities also aim to eliminate persistent disparities in rates of childhood obesity and related health problems. They place special emphasis on improving access to affordable healthy foods and safe places for children to walk, bike, and play in communities that are hardest hit by the epidemic and have the fewest resources.

The experiences of successful communities, backed by the latest scientific research, show that creating healthy environments is key to reversing the childhood obesity epidemic. When children have safe places to walk, bike and play in their communities—like parks, playgrounds, and afterschool programs, they're more likely to be active and less likely to be obese. It's the same with healthy food: when communities have access to healthy affordable foods, families eat better.

Even the best efforts to educate families to exercise more and eat better won't work if their communities don't support healthy lifestyles. RWJF and TFAH recognize that, while it's up to individuals to do their best to keep themselves and their families healthy, creating healthy policies can help people engage in the healthy behaviors we need to see to reverse the nation's obesity epidemic.

*** Supportive facts for statements within this letter may be found in Appendix A: Fast Facts about Obesity at the back of this document.*

F AS IN FAT 2011 - CONTENTS

This is the eighth annual edition of the *F as in Fat* report, which tracks trends in obesity rates and policies aimed at addressing the epidemic. The policies reviewed in the report are important in-roads in the fight to prevent and reduce obesity — but a greater and sustained national investment is required to reverse the epidemic. The report also features commentaries from top experts who offer their perspectives on key strategies for addressing obesity.

The report includes:

Introduction

- **Commentary:** The Surgeon General Looks Back, and Forward (David Satcher, MD, PhD, director, The Satcher Health Leadership Institute and Center of Excellence on Health Disparities, Poussaint-Satcher-Cosby Chair in Mental Health, Morehouse School of Medicine and 16th Surgeon General of the United States)

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- **Commentary:** Increasing the Time, Intensity, and Duration of Physical Activity Through Out-of-School Programs: Dyersburg Makes a Push Against Obesity (Randy Butler, CEO of the Dyer County, Tennessee, YMCA)
- **Commentary:** Growing Healthy Kids and Economies with Farm-to-School Programs (Mel Rader, co-director, Upstream Public Health and Tia Henderson, research coordinator, Upstream Public Health)

3. Legislation for Healthy Communities

- **Commentary:** Marketing of Unhealthy Foods to Children: What Progress Has Been Made Since the 2005 Institute of Medicine Report on Food Marketing (Mary Story Ph.D., RD, professor and associate dean, School of Public Health, University of Minnesota, and director of the RWJF Healthy Eating Research Program)

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3. Safe, Accountable, Flexible, Efficient, Transportation Equity (SURFACE) Act

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- **Commentary:** Fresh Food Financing: A Recipe for Healthy Communities (Judith Bell, president, PolicyLink)
- **Commentary:** Parks and Physical Activity: Green Infrastructure for Healthy Communities (Andy Kaczynski, PhD, assistant professor and co-director of the Physical Activity and Public Health Laboratory with the Department of Kinesiology at Kansas State University and Gina Besenyi, MPH, graduate student and research assistant at the Department of Kinesiology at Kansas State University)

5. Conclusions and Recommendations

Appendix A: Fast Facts about Obesity

Appendix B: Methodologies for Rates and Trends

F AS IN FAT 2011 MAJOR FINDINGS

Adult Obesity Rates and Trends (2008-2010)

- Adult obesity rates rose in 16 states over the past year. No state decreased.
- Twelve states now have obesity rates above 30 percent: Alabama, Arkansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Oklahoma, South Carolina, Tennessee, Texas, and West Virginia. Four years ago, only one state was above 30 percent.
- Obesity rates exceed 25 percent in more than two-thirds of states (38 states).
- Obesity rates rose for a second year in a row in six states (Illinois, Kentucky, Massachusetts, Missouri, Rhode Island, and Texas) and rose for a third year in a row in five states (Florida, Kansas, Maine, Oklahoma, and Vermont).
- Mississippi had the highest rate of obesity at 34.4 percent. Colorado had the lowest rate at 19.8 percent and is the only state with a rate below 20 percent.
- Obesity and obesity-related diseases such as diabetes and hypertension continue to remain the highest in the South. Except for Michigan, the top 10 most obese states in the country are all in the South. In addition, nine of the 10 states with the highest rates of diabetes and physical inactivity are in the South, as are the 10 states with the highest rates of hypertension. Northeastern and Western states continue to have the lowest obesity rates.
- Adult diabetes rates increased in 11 states and Washington, D.C. in the past year. In eight states, more than 10 percent of adults now have type 2 diabetes.
- The number of adults who report they do not engaged in any physical activity rose in 14 states in the past year. Two states (California and Texas) saw a decline in adult physical inactivity levels.
- Obesity increased for men in nine states, and for women in ten states, and decreased for women in one state (Nevada).
- Those who did not graduate high school have the highest rates of obesity (32.8 percent). Those who graduated high school but did not go on to college or a technical school have the second highest obesity rate (30.4 percent), and those who went to college/technical school had an obesity rate of 29.6 percent. Those who graduate from college/technical school had the lowest obesity rate (21.5 percent).
- Households that make less than $15,000 have a 33.8 percent obesity rate. They are followed closely by households that make between $15,000 and $25,000 (31.8 percent), $25,000 and $35,000 (29.7 percent) and $35,000 and $50,000 (29.5 percent). However, households that have an income above $50,000 have a 24.6 percent obesity rate.

Changes in Adult Obesity, Overweight, Diabetes, and Hypertension Over Time

- Twenty years ago, no state had an obesity rate above 15 percent. Fifteen years ago, Mississippi had the highest obesity rate, at 19.4 percent, which is lower than the lowest ranking state today, (Colorado at 19.8 percent).
- Twenty years ago, the state with the highest combined obesity and overweight rate was 49 percent. Ten years ago, only two states had a combined rate above 60 percent. Now, the lowest rate is 54.8 percent, and 44 states are above 60 percent.
- Twenty years ago, 37 states had hypertension rates over 20 percent. Now, every state is over 20 percent, with nine over 30 percent.
- Over the past 15 years, seven states have doubled their rate of obesity. Another 10 states nearly doubled their obesity rate, with increases of at least 90 percent. And 22 more states saw obesity rates increase by at least 80 percent.
- Since 1995, obesity rates have grown the fastest in Oklahoma, Alabama, and Tennessee, and have grown the slowest in Washington, D.C., Colorado, and Connecticut.
- Over the past 15 years, diabetes rates have doubled in ten states. In 1995, only four states had diabetes rates above six percent. Now, 42 states and Washington, D.C. have diabetes rates over seven percent and 31 states and Washington, D.C. have rates above eight percent.
- Ten years ago, no state had an obesity rate above 24 percent, and now 43 states have higher obesity rates than the state that was the highest in 2000.

Childhood and Adolescent Obesity Rates and Trends

The childhood and adolescent findings are from the 2007 National Survey of Children's Health (NSCH) and reflect the same data reported in the 2010 edition of *F as in Fat*. No newer findings are available on a state-by-state basis.

- More than one-third of children ages 10–17 are obese (16.4 percent) or overweight (18.2 percent). State-specific rates ranged from a low of 9.6 percent in Oregon to a high of 21.9 percent in Mississippi.
- Nine states, plus D.C., have childhood obesity rates greater than 20 percent: Arkansas, Georgia, Illinois, Kentucky, Louisiana, Mississippi, Tennessee, Texas, and West Virginia.
- Nine of the 10 states with the highest rates of obese children are in the South, as are nine out of the 10 states with the highest rates of poverty.
- Recent studies have shown that the number of obese children and adolescents may have leveled off since 1999, except among the very heaviest boys ages 6–19, but the rates remain startlingly high.[1]
- Nationwide, less than one-third of all children ages 6–17 engage in vigorous activity, defined as at least 20 minutes of physical activity that makes the child sweat and breathe hard.
- The percentage of children engaging in daily, vigorous physical activity ranged from a low of 17.6 percent in Utah to a high of 38.5 percent in North Carolina.

State Legislation Trends

- Twenty states and Washington, D.C. have stricter standards than the U.S. Department of Agriculture (USDA). Seven years ago, only four states had school meal standards that were stricter than USDA requirements.
- Thirty-five states and Washington, D.C. have nutritional standards for competitive foods. Seven years ago, only six states had nutritional standards for competitive foods.
- Twenty-nine states and Washington, D.C. limit when and where competitive foods may be sold beyond federal requirements. Seven years ago, 17 states had laws about when and where competitive foods can be sold that were stricter than federal requirements.
- Every state has some physical education requirements for students. However, these requirements are often limited or not enforced, and many programs are inadequate.
- Twenty-one states have legislation that requires BMI screening or weight-related assessments other than BMI. Seven years ago, only four states required BMI screening or other weight-related assessments for children and adolescents.
- Twenty-six states and Washington, D.C. currently have established farm-to-school programs. Five years ago only New York had a law that established a farm-to-school program.
- Sixteen states have passed Complete Streets laws. Seven years ago only five states had Complete Streets laws.
- Thirty-four states and Washington, D.C. have sales taxes on sodas.
- Five states have laws requiring the posting of nutrition information on menus and menu boards in chain restaurants with 20 or more in-state locations.

Major Federal Efforts

- The *Let's Move* initiative has raised the issue's profile and has brought together public officials, the food industry, advocacy groups, and others to address the epidemic.
- The Affordable Care Act (ACA) provides a number of opportunities to enhance obesity-prevention efforts, such as through the Prevention and Public Health Fund, Community Transformation Grants, expanding benefits and coverage of preventive services, nutrition labeling, programs by the Center for Medicare and Medicaid Innovation, and the Children's Health Insurance Program Childhood Obesity Demonstration Project.
- The Healthy, Hunger-Free Kids Act, the Agriculture Appropriations Act, the Healthy Food Financing Initiative, the 2010 Dietary Guidelines for Americans, the National Physical Activity Plan, the revised Strategic Plan for NIH Obesity Research, and other new or updated policies and programs can have a significant impact on obesity, nutrition, and physical activity policies in the United States.

Top Recommendations

The report includes recommendations for policies to help leverage change quickly and efficiently, by providing individuals and families with the resources and opportunities to make healthier choices in their daily lives. For instance, the report calls for the strategic implementation of the ACA, the Healthy, Hunger-Free Kids Act, and other federal and state policy changes to help prevent and control obesity in America.

PERSONAL COMMENTARY

The Surgeon General Looks Back and Forward: Some Progress, But Not Enough

– By David Satcher, MD, PhD, director, The Satcher Health Leadership Institute and Center of Excellence on Health Disparities, Poussaint-Satcher-Cosby Chair in Mental Health, Morehouse School of Medicine and 16th Surgeon General of the United States

IN 2001, AS SURGEON GENERAL, I ISSUED A CALL TO ACTION ABOUT THE OBESITY EPIDEMIC IN AMERICA.

Ten years later, the epidemic is still a serious problem. While we have made some important progress to solve this health crisis, we need to do much more.

In 2001, 61 percent of U.S. adults were overweight or obese, and nearly 12 percent of children and adolescents were overweight. Today the rates are even higher: more than two-thirds of adults — 190 million people — are overweight or obese; nearly one third of children and teens fall into these categories. Childhood obesity rates have tripled since 1980. In some places and among some groups, the problem is much worse. In Mississippi, nearly 70 percent of adults and 44 percent of children are overweight or obese. Overall, almost half of African-American women are obese.

The consequences of this extra weight — more than four and half billion extra pounds altogether — are enormous. The U.S. Centers for Disease Control and Prevention (CDC) estimates that obesity kills more than 110,000 Americans a year. Not only that: obesity plays a role in many millions of cases of chronic illness, including high blood pressure, high cholesterol, diabetes, heart disease, stroke, arthritis, and cancer. Even when they don't result in death, these ailments can make life painful and difficult for patients and their families.

Obesity is also enormously expensive. Every year, it costs U.S. employers $73 billion in lost productivity. Even worse, America spends more than $150 billion annually on health care linked to obesity. We all know that our country's health care costs are much too high, and are continuing to rise. Reducing obesity has the potential to significantly ease this problem.

On one level, the problem is simple. Too many Americans continue to eat too much, especially foods with excess calories and few nutrients. We don't get enough physical activity, and spend too much time in our cars and in front of our various digital screens.

But the answers are not so simple. In the Surgeon General's report, I wrote that the obesity crisis would not be solved by treating it as a personal failing on the part of those who weigh too much. This is still true. We must realize that our predicament cannot be solved through individual action alone. Both the public and private sector must pitch in to ensure that we live in a society where gaining weight becomes more difficult and maintaining a healthy weight becomes easier.

Right now, our society makes it especially hard for some groups not to gain weight. More than 20 million Americans, most of them poor, live in "food deserts," areas that lack nearby full-service supermarkets selling fresh fruits and vegetables. People who live in these areas must often make do with

corner and convenience stores, which encourages them to eat more of the low-quality, fattening foods that can lead to weight gain. Millions live in unsafe neighborhoods, or areas with few parks and playgrounds; as a result, they often have few opportunities for physical activity.

One key is prevention. We must teach children to eat well before they begin drinking sodas for breakfast. School cafeterias must feed children more nutritious food. School districts must increase physical education so that students burn more calories and learn the habit and joy of physical activity. Right now, only a quarter of teenagers in public school are required to take any PE at all. That's disturbingly low, especially because adolescence is the time when many of us first become overweight.

The program, Action for Healthy Kids, which I helped to launch as founding chair after leaving office, focuses on children in homes, schools, and communities. The goal is to help children develop lifetime habits of good nutrition and regular physical activity, and to avoid addictions to salts, fats, sweets, high calorie diets, and sedentary lifestyles.

But prevention involves more than children. Employers can encourage weight management and weight loss among workers by ramping up wellness programs. Cities and towns can build bike paths and parks, and can create farmer's markets and community gardens. Churches can set up walking clubs and hold healthy cooking classes.

In many cases, we already know what works. We only need to apply it effectively on a large scale. For example, we know that for people who are obese or overweight, losing just five to 10 percent of body weight can sharply reduce the risks of many chronic diseases. To accomplish this goal on a large scale, we don't need miracle diets; we need common sense, good communication, and a combination of incentives and physical changes.

The private sector must also play a role. For decades, food manufacturers and restaurants have made a great deal of money marketing and selling high-calorie, low-nutrition food to Americans. As good corporate citizens, these companies should do much more to encourage people, especially children, to eat healthier food.

Some companies are starting to help. Walmart, for instance, has agreed to sell more fruits, vegetables, and other healthy foods in their stores. Many of these stores serve poor, rural customers who have few other places to shop for food. At the same time, many corporations continue to aggressively promote unhealthy products to vulnerable populations.

Many cities and towns are working to transform their schools, parks, and neighborhoods to encourage healthy eating and physical activity. Atlanta, where I live, has just started a $2 billion project to build a 22-mile long park that will ring the city. Louisville is funding eight corner stores in underserved neighborhoods so store owners can make upgrades that will enable them to make healthier foods more accessible and affordable for residents. There are dozens of other examples, large and small, across the country.

First Lady Michelle Obama's childhood obesity prevention initiative, *Let's Move*, is another important step. The program takes a sound public health approach, and focuses on getting parents, communities, schools, and corporations involved in helping kids exercise more and eat healthier food.

The new health reform law will also help. Within two years, tens of millions of Americans will have better insurance coverage (many of these people now have no coverage at all). This coverage will allow many obese or overweight people to get better treatment for their weight-related illnesses; and most coverage will also include crucial preventive care, which will help some of them lose excess weight and become healthier.

But even with all these efforts, the numbers tell the story; that story is not, so far at least, a happy one. Obesity rates continue to rise, and for the sake of our economy, our health, and most important, our children, we need to do much more.

Obesity Rates and Related Trends

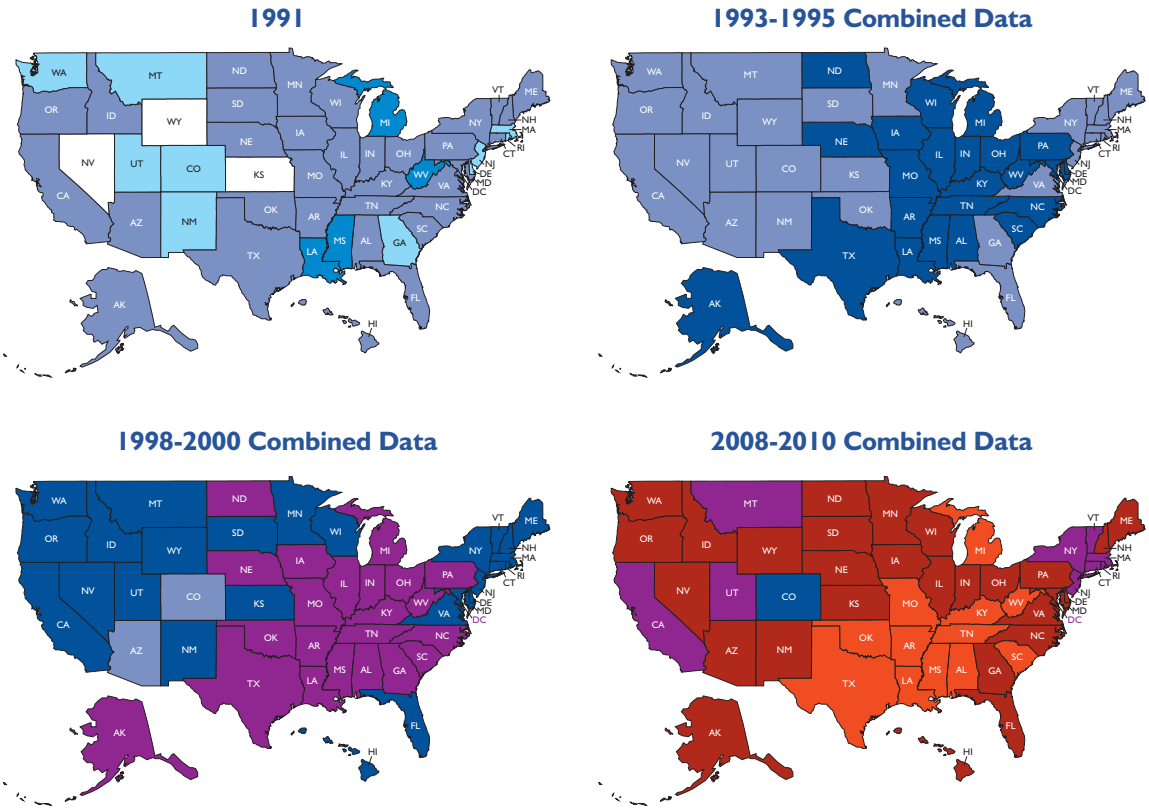
More than two-thirds (68 percent) of American adults are either overweight or obese.[2] Adult obesity rates have grown from 15 percent in 1980 to 34 percent in 2008, based on a national survey.[3, 4]

Rates of obesity among children ages 2–19 have more than tripled since 1980.[5,6] According to the most recent National Health and Nutrition Examination Survey (NHANES), 16.9 percent of children ages 2–19 are obese and 31.7 percent are overweight or obese.[7] This translates to more than 12 million children and adolescents who are obese and more than 23 million who are either obese or overweight. Researchers at CDC report that during the period between 1999 and 2008, there was no statistically significant change in the number of children and adolescents with high BMI-for-age, except among the very heaviest boys ages 6–19.[8]

OBESITY TRENDS* AMONG U.S. ADULTS

BRFSS, 1991, 1993-1995,1998-2000, and 2008-2010 Combined Data

(*BMI >30, or about 30lbs overweight for 5'4" person)



OBESITY AND OVERWEIGHT RATES AND

ADULTS

States	Obesity			Overweight & Obese	Diabetes		Physical Inactivity		Hypertension	
	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Ranking	Percentage Point Change 2007-2009 to 2008-2010	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Ranking	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Ranking	2005-2009 3 Yr. Ave. Percentage (95% Conf Interval)	Ranking
Alabama	32.3% (+/- 1.0)	2	0.7	68.7% (+/- 1.0)	12.2% (+/- 0.6)	1	30.5% (+/- 1.0)	4	33.9% (+/- 1.0)	3
Alaska	25.9% (+/- 1.6)	30	-1.0	64.9% (+/- 1.9)	5.9% (+/- 0.8)	50	22.8% (+/- 1.6)	33	24.3% (+/- 1.4)	48
Arizona	25.4% (+/- 1.4)	35	-0.4	63.7% (+/- 1.5)	9.2% (+/- 0.7)	18	21.4% (+/- 1.1)	40	24.7% (+/- 1.2)	47
Arkansas	30.6% (+/- 1.2)	9	0.5	66.5% (+/- 1.2)	9.8% (+/- 0.6)	11	29.7% (+/- 1.1)	7	31.6% (+/- 1.0)	7
California	24.8% (+/- 0.6)	40	0.5	61.4% (+/- 0.7)	8.7% (+/- 0.4)	23	21.9% (+/- 0.6) ^	38	25.5% (+/- 0.7)	41
Colorado	19.8% (+/- 0.7)*	51	0.7	56.2% (+/- 0.8)	5.9% (+/- 0.3)	50	18.3% (+/- 0.6)	49	21.2% (+/- 0.6)	50
Connecticut	21.8% (+/- 0.9)	49	0.4	59.8% (+/- 1.1)	6.9% (+/- 0.5)	44	21.6% (+/- 0.8)	39	25.7% (+/- 0.8)	38
Delaware	28.0% (+/- 1.2)	21	0.2	63.8% (+/- 1.4)	8.4% (+/- 0.6)	25	23.3% (+/- 1.1)	30	29.4% (+/- 1.1)	12
D.C.	21.7% (+/- 1.0)	50	0.2	54.8% (+/- 1.2)	8.8% (+/- 0.6)	20	20.7% (+/- 0.5)	43	27.3% (+/- 1.1)	24
Florida	26.1% (+/- 0.9)**	29	1.0	62.6% (+/- 1.0)	9.9% (+/- 0.5)	10	24.5% (+/- 0.8)	23	29.0% (+/- 0.8)	15
Georgia	28.7% (+/- 1.1)	17	0.6	65.3% (+/- 1.2)	9.7% (+/- 0.6)	12	24.1% (+/- 1.0)	27	29.5% (+/- 1.0)	11
Hawaii	23.1% (+/- 0.9)	47	0.5	57.5% (+/- 1.0)	8.3% (+/- 0.5)	29	19.5% (+/- 0.8)	45	27.8% (+/- 0.9)	22
Idaho	25.7% (+/- 1.0)	32	0.6	62.1% (+/- 1.2)	7.7% (+/- 0.5)	33	20.7% (+/- 0.8)	43	25.2% (+/- 0.9)	43
Illinois	27.7% (+/- 1.0)**	23	1.0	63.7% (+/- 1.1)	8.4% (+/- 0.5)	25	25.8% (+/- 1.0)	15	27.5% (+/- 0.9)	23
Indiana	29.1% (+/- 0.9)**	15	0.9	65.1% (+/- 1.1)	9.6% (+/- 0.5)	13	27.1% (+/- 0.9)	11	28.5% (+/- 0.8)	18
Iowa	28.1% (+/- 0.9)	20	0.5	65.9% (+/- 1.0)	7.4% (+/- 0.4)	38	24.7% (+/- 0.9)	22	26.5% (+/- 0.8)	31
Kansas	29.0% (+/- 0.8)**	16	0.8	64.9% (+/- 0.8)	8.4% (+/- 0.4)	25	24.2% (+/- 0.6)	26	26.6% (+/- 0.6)	30
Kentucky	31.5% (+/- 1.0)**	6	1.0	67.1% (+/- 1.1)	10.5% (+/- 0.5)	6	29.8% (+/- 0.9)	6	31.6% (+/- 1.0)	7
Louisiana	31.6% (+/- 0.9)	5	0.3	66.0% (+/- 1.0)	10.7% (+/- 0.5)	4	29.5% (+/- 0.8)	8	32.5% (+/- 0.9)	4
Maine	26.5% (+/- 0.8)**	27	0.7	63.2% (+/- 0.9)	8.4% (+/- 0.4)	25	22.2% (+/- 0.4)	37	28.1% (+/- 0.8)	21
Maryland	27.1% (+/- 0.8)	26	0.5	64.1% (+/- 0.9)	9.1% (+/- 0.5)	19	23.6% (+/- 0.8)	29	28.2% (+/- 0.8)	20
Massachusetts	22.3% (+/- 0.6)**	48	0.6	58.6% (+/- 0.8)	7.5% (+/- 0.3)	35	21.2% (+/- 0.6)	41	25.6% (+/- 0.6)	40
Michigan	30.5% (+/- 0.8)*	10	1.2	65.7% (+/- 0.9)	9.5% (+/- 0.4)	16	24.1% (+/- 0.7)	27	28.7% (+/- 0.7)	17
Minnesota	25.3% (+/- 1.0)	38	-0.2	63.1% (+/- 1.2)	6.3% (+/- 0.4)	48	17.6% (+/- 0.9)	51	21.6% (+/- 0.8)	49
Mississippi	34.4% (+/- 0.9)	1	0.6	68.8% (+/- 0.9)	11.8% (+/- 0.5)	3	32.6% (+/- 0.9)	1	34.8% (+/- 0.8)	1
Missouri	30.3% (+/- 1.2)**	11	1.1	65.6% (+/- 1.3)	8.8% (+/- 0.6)	20	27.2% (+/- 1.1)	10	29.1% (+/- 1.1)	13
Montana	23.8% (+/- 0.9)	44	0.3	61.7% (+/- 1.1)	6.8% (+/- 0.4)	46	22.3% (+/- 0.9)	35	25.7% (+/- 0.8)	38
Nebraska	27.6% (+/- 0.9)	24	0.3	64.6% (+/- 1.0)	7.6% (+/- 0.4)	34	24.5% (+/- 0.8)	23	26.1% (+/- 0.8)	34
Nevada	25.0% (+/- 1.4)	39	-0.5	62.0% (+/- 1.6)	8.3% (+/- 0.8)	29	25.0% (+/- 1.3)	21	26.3% (+/- 1.3)	33
New Hampshire	25.6% (+/- 0.9)	33	0.1	63.0% (+/- 1.0)	7.4% (+/- 0.4)	38	20.9% (+/- 0.8)	42	26.1% (+/- 0.8)	34
New Jersey	24.1% (+/- 0.7)	43	0.2	61.8% (+/- 0.9)	8.8% (+/- 0.4)	20	26.6% (+/- 0.7)	13	27.2% (+/- 0.7)	25
New Mexico	25.6% (+/- 0.9)	33	0.2	60.8% (+/- 1.1)	8.3% (+/- 0.5)	29	22.6% (+/- 0.9)	34	25.0% (+/- 0.8)	45
New York	24.7% (+/- 0.8)	41	-0.3	60.6% (+/- 0.9)	8.7% (+/- 0.4)	23	25.5% (+/- 0.8)	19	27.1% (+/- 0.8)	28
North Carolina	29.4% (+/- 0.8)	14	0.0	65.5% (+/- 0.8)	9.6% (+/- 0.4)	13	25.6% (+/- 0.7)	18	29.9% (+/- 0.6)	10
North Dakota	28.0% (+/- 1.1)	21	0.3	66.1% (+/- 1.2)	7.5% (+/- 0.5)	35	25.7% (+/- 1.0)	17	25.4% (+/- 0.9)	42
Ohio	29.6% (+/- 0.8)	13	0.6	65.3% (+/- 0.9)	10.0% (+/- 0.5)	9	26.2% (+/- 0.8)	14	29.1% (+/- 0.8)	13
Oklahoma	31.4% (+/- 0.8)**	7	0.8	67.1% (+/- 0.9)	10.5% (+/- 0.5)	6	30.9% (+/- 0.8)	3	31.9% (+/- 0.8)	6
Oregon	25.4% (+/- 1.0)	35	0.4	61.1% (+/- 1.2)	7.4% (+/- 0.5)	38	18.1% (+/- 0.9)	50	25.8% (+/- 0.8)	37
Pennsylvania	28.5% (+/- 0.8)	19	0.5	64.7% (+/- 0.8)	9.4% (+/- 0.4)	17	25.8% (+/- 0.7)	15	28.9% (+/- 0.7)	16
Rhode Island	24.3% (+/- 1.0)**	42	1.4	61.7% (+/- 1.1)	7.4% (+/- 0.5)	38	24.4% (+/- 0.9)	25	28.3% (+/- 0.9)	19
South Carolina	30.9% (+/- 1.0)*	8	1.0	66.4% (+/- 1.1)	10.4% (+/- 0.5)	8	27.1% (+/- 0.9)	11	31.5% (+/- 0.8)	9
South Dakota	28.7% (+/- 1.0)	17	0.1	65.9% (+/- 1.1)	6.9% (+/- 0.4)	44	25.3% (+/- 0.9)	20	26.9% (+/- 0.8)	29
Tennessee	31.9% (+/- 1.2)	4	0.3	68.3% (+/- 1.2)	10.6% (+/- 0.7)	5	29.9% (+/- 1.2)	5	32.2% (+/- 1.1)	5
Texas	30.1% (+/- 0.9)**	12	1.1	66.5% (+/- 0.9)	9.6% (+/- 0.5)	13	27.5% (+/- 0.9) ^	9	27.2% (+/- 0.7)	25
Utah	23.4% (+/- 0.8)	46	0.2	57.9% (+/- 1.0)	6.2% (+/- 0.4)	49	18.4% (+/- 0.7)	48	20.5% (+/- 0.7)	51
Vermont	23.5% (+/- 0.8)**	45	0.7	58.4% (+/- 1.0)	6.5% (+/- 0.4)	47	19.2% (+/- 0.7)	46	25.2% (+/- 0.7)	43
Virginia	25.9% (+/- 1.2)	30	0.4	61.2% (+/- 1.7)	8.3% (+/- 0.5)	29	22.9% (+/- 1.2)	32	27.2% (+/- 1.0)	25
Washington	26.4% (+/- 0.5)	28	0.1	62.0% (+/- 0.6)	7.4% (+/- 0.3)	38	19.0% (+/- 0.5)	47	25.9% (+/- 0.5)	36
West Virginia	32.2% (+/- 1.1)*	3	0.9	68.1% (+/- 1.1)	12.0% (+/- 0.6)	2	32.4% (+/- 1.0)	2	34.1% (+/- 1.0)	2
Wisconsin	27.4% (+/- 1.1)	25	0.5	64.3% (+/- 1.3)	7.5% (+/- 0.6)	35	22.3% (+/- 1.0)	35	26.4% (+/- 1.0)	32
Wyoming	25.4% (+/- 0.9)	35	0.4	62.7% (+/- 1.0)	7.2% (+/- 0.4)	43	23.0% (+/- 0.8)	31	24.9% (+/- 0.8)	46

Source: Behavior Risk Factor Surveillance System (BRFSS), CDC. To "stabilize" BRFSS data in order to rank states, TFAH combined three years of data (See Appendix B for more information on the methodology used for the rankings.). Red and* a statistically significant change ($P < 0.05$) from 2007-2009 to 2008-2010 (for Hypertension figures - only collected every two years — from 2003-2005-2007 to 2005--2007-2009). Green and ^ indicates a statistically significant decrease. Note: In the 2008 and 2009 F as in Fat reports, the analysis and comparison of hypertension rates for 2001-2007 included pregnant women diagnosed with gestational hypertension (GH). Beginning in 2003, the BRFSS questionnaire included this option in the answers. Last year's analysis only looks at data from 2003 to 2009 and because GH is different from regular hypertension we now able to exclude this category from the overall hypertension rate. Therefore, the rates from this year's calculations are lower than the rates calculated in 2008 for the same 2003/2005/2007 time period. When we compare the hypertension rates that exclude GH from 2003-2007 to 2005-2009 we see a statistically significant change in 47 states.

RELATED HEALTH INDICATORS BY STATE

	Poverty	CHILDREN AND ADOLESCENTS: 2009 YRBS			2009 PedNSS	2007 National Survey of Children's Health		
States	2006-2008 3 Yr. Ave. Percentage (90% Conf Interval)	Percentage of Obese High School Students (95% Conf Interval)	Percentage of Overweight High School Students (95% Conf Interval)	Percentage of High School Students Who Were Physically Active At Least 60 Minutes on All 7 Days	Percentage of Obese Low-Income Children Ages 2-5	Percentage of Obese Children Ages 10-17	Ranking	Percentage Participating in Vigorous Physical Activity Every Day Ages 6-17
Alabama	14.4% (+/- 1.5)	13.5 (11.3-16.1)	17.5 (15.2-20.0)	19.4 (16.9-22.1)	14.4%	17.9% (+/- 3.6)	14	36.5%
Alaska	8.2% (+/- 1.2)	11.8 (9.9-13.9)	14.4 (12.3-16.7)	20.2 (17.4-23.3)	N/A	14.1% (+/- 3.1)	30	30.4%
Arizona	15.6% (+/- 1.4)	13.1 (11.3-15.1)	14.6 (13.1-16.2)	25.7 (23.0-28.5)	14.3%	17.8% (+/- 4.3)	15	28.5%
Arkansas	15.6% (+/- 1.6)	14.4 (12.1-17.2)	15.7 (13.3-18.6)	24.3 (22.0-26.8)	14.2%	20.4% (+/- 3.7)	7	30.7%
California	13.2% (+/- 0.5)	N/A	N/A	N/A	17.0%	15.0% (+/- 5.1)	25	30.0%
Colorado	10.2% (+/- 1.3)	7.1 (5.2-9.5)	11.1 (9.6-12.8)	26.9 (23.9-30.2)	9.0%	14.2% (+/- 4.5)	29	27.6%
Connecticut	8.3% (+/- 1.2)	10.4 (8.4-12.7)	14.5 (13.0-16.2)	24.6 (22.3-27.1)	16.0%	12.5% (+/- 2.9)	40	22.1%
Delaware	9.4% (+/- 1.3)	13.7 (12.2-15.2)	15.8 (14.2-17.5)	23.8 (21.9-25.8)	N/A	13.3% (+/- 3.1)	33	31.1%
D.C.	17.6% (+/- 1.9)	N/A	N/A	N/A	13.6%	20.1% (+/- 4.0)	9	26.3%
Florida	12.4% (+/- 0.7)	10.3 (9.3-11.4)	14.7 (13.7-15.7)	24.7 (23.5-26.0)	13.7%	18.3% (+/- 5.1)	13	34.1%
Georgia	13.9% (+/- 1.0)	12.4 (10.4-14.8)	14.8 (12.4-17.7)	23.7 (21.0-26.6)	14.2%	21.3% (+/- 5.1)	2	29.4%
Hawaii	8.9% (+/- 1.2)	14.5 (11.3-18.3)	14.0 (11.5-16.9)	18.1 (14.1-22.8)	9.3%	11.2% (+/- 2.8)	46	28.0%
Idaho	10.6% (+/- 1.3)	8.8 (7.4-10.3)	12.0 (10.4-13.7)	27.6 (25.3-30.1)	11.9%	11.8% (+/- 2.7)	42	25.0%
Illinois	11.0% (+/- 0.8)	11.9 (9.9-14.3)	15.5 (13.6-17.5)	24.1 (21.1-27.4)	14.6%	20.7% (+/- 3.7)	4	26.1%
Indiana	12.3% (+/- 1.2)	12.8 (10.5-15.4)	15.9 (14.2-17.8)	23.4 (21.0-26.0)	14.3%	14.6% (+/- 3.2)	27	31.3%
Iowa	9.6% (+/- 1.3)	N/A	N/A	N/A	15.0%	11.2% (+/- 2.8)	46	27.8%
Kansas	12.4% (+/- 1.5)	12.4 (10.4-14.7)	13.1 (11.3-15.2)	27.8 (25.5-30.2)	13.2%	16.2% (+/- 3.8)	18	25.2%
Kentucky	16.5% (+/- 1.6)	17.6 (15.1-20.4)	15.6 (13.7-17.7)	21.4 (19.2-23.8)	15.8%	21.0% (+/- 3.6)	3	25.9%
Louisiana	17.1% (+/- 1.6)	14.7 (12.1-17.7)	18.0 (15.8-20.4)	23.0 (19.4-27.1)	12.4%	20.7% (+/- 4.0)	4	34.0%
Maine	11.0% (+/- 1.5)	12.5 (11.7-13.3)	15.1 (14.3-16.0)	17.9 (17.0-18.8)	14.7%	12.9% (+/- 2.8)	37	32.7%
Maryland	8.6% (+/- 1.1)	12.2 (9.9-14.9)	15.6 (13.6-17.9)	20.8 (17.9-24.0)	15.8%	13.6% (+/- 3.3)	31	30.7%
Massachusetts	11.5% (+/- 1.1)	10.9 (9.3-12.9)	14.3 (12.5-16.3)	17.0 (15.5-18.7)	16.8%	13.3% (+/- 3.6)	33	26.6%
Michigan	12.4% (+/- 0.9)	11.9 (10.6-13.5)	14.2 (12.6-15.9)	25.3 (23.2-27.5)	13.7%	12.4% (+/- 3.1)	41	33.1%
Minnesota	9.1% (+/- 1.1)	N/A	N/A	N/A	13.1%	11.1% (+/- 3.1)	48	34.8%
Mississippi	20.5% (+/- 1.7)	18.3 (15.9-21.0)	16.5 (14.2-19.0)	23.0 (20.9-25.1)	13.9%	21.9% (+/- 3.5)	1	29.0%
Missouri	12.5% (+/- 1.3)	14.4 (12.4-16.7)	14.4 (12.5-16.5)	26.7 (24.3-29.3)	13.9%	13.6% (+/- 3.1)	31	29.6%
Montana	13.1% (+/- 1.5)	10.4 (8.4-12.8)	11.9 (10.3-13.8)	21.1 (18.4-24.1)	12.5%	11.8% (+/- 2.8)	42	31.5%
Nebraska	10.2% (+/- 1.4)	N/A	N/A	N/A	14.2%	15.8% (+/- 3.7)	20	26.2%
Nevada	10.0% (+/- 1.3)	11.0 (9.3-13.0)	13.4 (11.9-15.2)	24.9 (22.6-27.3)	13.9%	15.2% (+/- 4.5)	23	24.4%
New Hampshire	6.1% (+/- 1.1)	12.4 (9.9-15.3)	13.3 (11.3-15.6)	23.3 (20.7-26.2)	14.4%	12.8% (+/- 2.9)	39	29.0%
New Jersey	8.9% (+/- 0.9)	10.3 (8.5-12.4)	14.2 (12.1-16.7)	21.3 (19.0-23.9)	18.4%	15.4% (+/- 3.6)	21	29.1%
New Mexico	16.7% (+/- 1.8)	13.5 (11.1-16.3)	14.6 (13.1-16.1)	23.4 (21.0-26.1)	12.0%	16.0% (+/- 4.2)	19	27.0%
New York	14.2% (+/- 0.8)	11.0 (9.5-12.8)	15.6 (14.0-17.5)	23.1 (20.9-25.4)	14.4%	17.1% (+/- 3.7)	16	27.6%
North Carolina	14.4% (+/- 1.1)	13.4 (11.1-16.0)	14.6 (12.4-17.0)	24.1 (22.3-26.1)	15.2%	18.6% (+/- 3.9)	11	38.5%
North Dakota	10.8% (+/- 1.4)	11.0 (9.6-12.7)	13.5 (11.7-15.6)	22.3 (20.2-24.6)	14.1%	11.4% (+/- 2.5)	44	27.1%
Ohio	12.9% (+/- 0.9)	N/A	N/A	N/A	12.3%	18.5% (+/- 4.1)	12	32.1%
Oklahoma	14.1% (+/- 1.5)	14.1 (11.5-17.3)	16.4 (13.9-19.4)	27.5 (24.3-30.8)	N/A	16.4% (+/- 3.5)	17	29.6%
Oregon	11.7% (+/- 1.5)	N/A	N/A	N/A	15.0%	9.6% (+/- 2.7)	51	27.9%
Pennsylvania	10.9% (+/- 0.8)	11.8 (10.4-13.4)	15.9 (14.2-17.7)	27.7 (25.2-30.4)	12.0%	15.0% (+/- 4.0)	25	35.4%
Rhode Island	10.9% (+/- 1.4)	10.4 (8.5-12.6)	16.7 (15.3-18.2)	23.8 (21.1-26.6)	16.2%	14.4% (+/- 3.2)	28	27.6%
South Carolina	13.1% (+/- 1.5)	16.7 (12.7-21.6)	15.0 (12.5-17.9)	17.1 (14.7-19.9)	13.3%	15.3% (+/- 3.1)	22	31.2%
South Dakota	11.1% (+/- 1.3)	9.6 (7.8-11.9)	12.6 (11.3-14.1)	26.4 (23.9-29.1)	16.4%	13.2% (+/- 3.2)	35	25.3%
Tennessee	14.9% (+/- 1.3)	15.8 (13.9-18.0)	16.1 (14.5-17.9)	24.2 (22.1-26.4)	14.0%	20.6% (+/- 3.7)	6	29.8%
Texas	16.3% (+/- 0.7)	13.6 (11.9-15.5)	15.6 (13.3-18.2)	27.2 (24.6-30.1)	16.0%	20.4% (+/- 5.1)	7	28.9%
Utah	8.8% (+/- 1.1)	6.4 (4.8-8.5)	10.5 (8.9-12.4)	17.3 (15.1-19.7)	8.8%	11.4% (+/- 3.6)	44	17.6%
Vermont	8.9% (+/- 1.4)	12.2 (10.8-13.8)	13.6 (12.7-14.5)	23.7 (21.3-26.3)	13.2%	12.9% (+/- 3.4)	37	36.6%
Virginia	9.2% (+/- 0.9)	N/A	N/A	N/A	18.0%	15.2% (+/- 3.2)	23	26.2%
Washington	9.5% (+/- 1.1)	N/A	N/A	N/A	14.4%	11.1% (+/- 3.5)	48	27.6%
West Virginia	14.9% (+/- 1.4)	14.2 (12.0-16.8)	14.4 (12.8-16.1)	22.6 (20.2-25.0)	13.4%	18.9% (+/- 3.2)	10	33.2%
Wisconsin	10.3% (+/- 1.2)	9.3 (8.0-10.8)	14.0 (12.0-16.3)	23.8 (21.5-26.3)	13.7%	13.1% (+/- 2.5)	36	28.5%
Wyoming	10.3% (+/- 1.4)	9.8 (8.6-11.1)	12.6 (11.3-14.0)	25.6 (23.7-27.7)	N/A	10.2% (+/- 2.7)	50	29.8%

Source: U.S. Census Bureau, Percentage of People in Poverty by State Using 2- and 3-Year Averages: 2005-2006 and 2007-2008 . www.census.gov/hhes/www/poverty/poverty08/state.pdf

Source: Youth Risk Behavior Survey (YRBS) 2009, CDC. YRBS data are collected every 2 years. Percentages are as reported on the CDC website and can be found at www.cdc.gov/HealthyYouth/yrbs/index.htm. Note that previous YRBS reports used the term overweight to describe youth with a BMI at or above the 95th percentile for age and sex and at risk for overweight for those with a BMI at or above the 85th percentile, but below the 95th percentile. However, this report uses the terms obese and overweight based on the 2007 recommendations from the Expert Committee on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity convened by the American Medical Association. Physically active at least 60 minutes on all 7 days means that the student did any kind of physical activity that increased their heart rate and made them breathe hard some of the time for a total of least 60 minutes per day on each of the 7 days before the survey.

Source: Pediatric Nutrition Surveillance 2009 Report, Table 2. Available at www.cdc.gov/pednss/pdfs/PedNSS_2009.pdf

Source: National Survey of Children's Health, 2007. Overweight and Physical Activity Among Children: A Portrait of States and the Nation 2009, Health Resources and Services Administration, Maternal and Child Health Bureau. Red indicates a statistically significant increase ($p < 0.05$) from 2003 to 2007. Green indicates a statistically significant decrease.

A. ADULT OBESITY AND OVERWEIGHT RATES

Rates of obesity continued to rise across the nation during the past year. Sixteen states saw a significant increase in obesity, and six of these states experienced an increase for the second year in a row. Five states experienced an increase for the third straight year. No state experienced a significant decrease in obesity rates over the past year.

Two years ago, only four states had obesity rates over 30 percent. Last year eight states had adult obesity rates above 30 percent. This year 12 states have adult obesity rates above 30 percent: Alabama, Arkansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Oklahoma, South Carolina, Tennessee, Texas, and West Virginia.

Mississippi has the highest rate of obesity, physical inactivity, and hypertension. Alabama has the highest rate of diabetes.

Currently, only 11 states and D.C. have obesity rates below 25 percent, compared with 19 three years ago. In Colorado, the only state under 20 percent, rates of obesity increased from 19.1 percent to 19.8 percent.

The U.S. Department of Health and Human Services (HHS) set a national goal to reduce adult obesity rates to 30 percent in every state by the year 2020. Healthy People 2020 also sets a goal of increasing the percentage of people at a healthy weight from 30.8 percent to 33.9 percent by 2020.

Except for Michigan, the top 10 most obese states in the country are all in the South.

States with the Highest Obesity Rates

Rank	State	Percentage of Adult Obesity (Based on 2008-2010 Combined Data, Including Confidence Intervals)
1	Mississippi	34.4% (+/- 0.9)
2	Alabama	32.3% (+/- 1.0)
3	West Virginia	32.2% (+/- 1.1)
4	Tennessee	31.9% (+/- 1.2)
5	Louisiana	31.6% (+/- 0.9)
6	Kentucky	31.5% (+/- 1.0)
7	Oklahoma	31.4% (+/- 0.8)
8	South Carolina	30.9% (+/- 1.0)
9	Arkansas	30.6% (+/- 1.2)
10	Michigan	30.5% (+/- 0.8)

*Note: For rankings, 1 = Highest rate of obesity.

Northeastern and Western states continue to dominate the states with the lowest rates of obesity.

States with the Lowest Obesity Rates

Rank	State	Percentage of Adult Obesity (Based on 2008-2010 Combined Data, Including Confidence Intervals)
51	Colorado	19.8% (+/-0.7)
50	D.C.	21.7% (+/- 1.0)
49	Connecticut	21.8% (+/- 0.9)
48	Massachusetts	22.3% (+/- 0.6)
47	Hawaii	23.1% (+/- 0.9)
46	Utah	23.4% (+/- 0.8)
45	Vermont	23.5% (+/- 0.8)
44	Montana	23.8% (+/- 0.9)
43	New Jersey	24.1% (+/- 0.7)
42	Rhode Island	24.3% (+/- 1.0)

Note: For rankings, 51 = Lowest rate of obesity.

DEFINITIONS OF OBESITY AND OVERWEIGHT

Obesity is defined as an excessively high amount of body fat or adipose tissue in relation to lean body mass.[9,10] Overweight refers to increased body weight in relation to height, which is then compared with a standard of acceptable weight.[11] Body Mass Index (BMI) is a common measure expressing the relationship (or ratio) of weight-to-height. The equation is:

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

Adults with a BMI of 25 to 29.9 are considered overweight, while those with a BMI of 30 or more are considered obese. The National Institutes of Health (NIH) adopted a lower optimal weight threshold in June 1998. Previously, the federal government defined overweight as a BMI of 28 for men and 27 for women.

Until recently children and youth at or above the 95th percentile for BMI for their age and gender were defined as "overweight," while children at or above the 85th percentile for BMI for their age and gender, but below the 95th percentile were defined as "at risk of overweight." However, in 2007, an expert committee recommended using the same cut points but changing the terminology by replacing "overweight" with "obese" and "at risk of overweight" with "overweight" and basing on BMI for age charts not weight for height or weight for age charts.[12]

OBESITY SIGNIFICANTLY REDUCES THE POOL OF POTENTIAL MILITARY RECRUITS AND EMERGENCY RESPONDERS

Our country's obesity epidemic has the potential to undermine national security and public safety. The epidemic is already reducing the number of recruits eligible to join the military or become firefighters and police officers.

Military

- Nearly a third of Americans ages 17–24 are too heavy to join the military.
- Two-thirds of the active duty military personnel, which includes 1.5 million people total, are classified as overweight, and another 12 percent considered obese.
- To reduce the number of overweight soldiers, several service branches, including the National Guard, have recently increased their emphasis on physical fitness tests, which usually involve a combination of fitness exams and body composition assessments. Often, low marks on just one test can result in probation or even dismissal. This emphasis has provided increased awareness of the importance of regular physical activity among members of the armed services, but also requires a balanced understanding where service members do not take unhealthy measures to meet requirements.
- The Army has started to overhaul food choices on bases. Fort Benning, in Georgia, has replaced traditional meals, such as pizza and donuts, with more nutritious, lower-calorie foods, such as fruits and whole grains. The base also has developed a labeling system to help soldiers make healthier choices. Some former military leaders also have expressed concern about how the obesity epidemic could impact U.S. national security. Mission Readiness (www.missionreadiness.org), a nonprofit group led by senior retired military leaders, offered recommendations on how to improve the physical fitness and health of America's children.
- The YMCA is helping to increase recruits' fitness. In recent years, the Navy has struggled to find qualified candidates for its Special Operations branches, which require high levels of physical fitness. Many of those who want to join fail the physical fitness exam; of those who don't pass, 95 percent fail the swimming portion of the test. Five years ago, to reduce the failure rate, the YMCA created a "pre-boot camp" program to help recruits before the test. Participating YMCAs provide recruits with a free six-month membership, as well as help with preparation. Over 5,000 recruits have used the program. Between 85 to 100 percent of recruits in this group passed, compared to 30 to 50 percent among those who do not receive the extra help.[13] The YMCA is also helping military families stay healthy and active. With funding from the Sierra Club and other groups, the YMCA is offering its camping programs to military families at no charge. Since 2007, the organization has sent more than 7,500 children to camp.[14]

Firefighters

- Studies suggest that about half of the over 1.1 million incoming and current firefighters are overweight, while almost a third are obese.
- The National Fire Protection Association recommends minimum physical fitness standards for all firefighters. However, many cities and towns lack such requirements because less than a third of all firefighters are full-time city or county employees. Considering most departments depend on volunteers, imposing fitness standards can be difficult.
- More firefighters die of heart attacks while on the job than from any other cause. The stress from the job can trigger high blood pressure and other health issues that can contribute to heart attacks, but experts believe the recent rise in the number of heart attacks appears to be correlated with the rising rates of overweight and obese firefighters.[15]

Police Officers

- Nationwide, police forces report that many potential recruits are overweight, and many have trouble passing the initial police academy fitness requirement. For example, in Oklahoma's five largest cities, 15 percent of new recruits in last year's spring class failed the physical agility test.
- The National Association of Chiefs of Police produces basic fitness guidelines for police departments and jurisdictions nationwide. However, these are not mandated or enforced at the state or municipal level.

SLIMMING DOWN AT THE STATION: EXAMPLES OF POLICE DEPARTMENTS' EFFORTS TO IMPROVE HEALTH

- In just two months last fall, 25 members of the police department in Manalapan, New Jersey lost a total of 540 pounds. As part of a charity fundraiser, police from five area departments were medically supervised, given free use of local fitness facilities, and coached on how to develop better eating habits. The winner lost more than 45 pounds.[16]
- The Countryside Fire Protection District outside Chicago is making the move to shape up. In the first three months of 2011, one shift of five fire medics increased workouts from one a week to four or five. Additionally, they transformed their on-shift menu, which used to include a lot of carbohydrates and fats and now includes more lean proteins and vegetables. This trend is catching on with other shifts as other medics see the pounds come off the crew that initiated the healthier practices.[17]
- Last year, in Daviess County, Kentucky, the police and fire departments battled to see which department could lose the most weight collectively. In the first eight weeks, police, fire, and county government participants lost a total of 678 pounds. Most people attributed their loss to increased exercise, portion control, and support from colleagues and family.[18]

OBESITY AND AMERICANS WITH DISABILITIES

Obesity rates are nearly 60 percent higher for adults with disabilities than for the general population, and almost 40 percent higher for children with disabilities. Two-thirds of those with disabilities are severely disabled, and obesity rates are particularly high for this group. Severely disabled is defined as anyone who is non-mobile, needing crutches, wheelchair, etc.; and/or unable to perform or needs help with basic functional activities (i.e. Activities of Daily Living); and/or has one or more developmental disability; and/or finds it difficult to perform household tasks or maintain employment (this can include mental health).[19] Experts estimate that one in three severely disabled adults and one in five severely disabled children are obese.[20]

The reasons are not surprising. Many of the 54 million Americans with disabilities have a hard time being physically active, especially those with mobility restrictions.[21] In fact, many experts see obesity as a secondary condition to the disability.

Compared with the general population, the built environment plays a more significant role in the activity level of people with disabilities. Researchers and advocates argue that communities should apply what the disability community calls "universal design" principals to public spaces and building, such as parks and supermarkets, because it would significantly increase people with disabilities' access to key community services, as well as their opportunities for physical activity.

Universal design requirements go beyond those of the Americans with Disabilities Act (ADA), such as cut-outs at curbs. Universal design strategies include tactile maps for blind people, smart buses that tilt to allow easy entry, and "inclusive" housing design which makes new homes accessible to all, regardless of age or ability-level. Proponents of this approach argue that communities should provide easy access to services needed to maintain good health, including public transportation, community and health centers, grocery stores, and green spaces. They also advocate for new technology that can expand public services for individuals with diabilities, as well as for "aging-in-place," the idea that living spaces and communities should be designed to allow people to live in the same place as they age and lose mobility.

Last year, the Department of Justice, which oversees the ADA, implemented new standards for accessible design. All entities (states, counties, cities, private developers, school districts, zoning authorities, etc.) covered by the ADA have until March 2012 to begin following the standards.

FAITH-BASED INITIATIVES AND OBESITY

Faith based organizations are one way of getting communities involved in health movements. Many churches have started adding exercise classes to their morning time and mid-week activities, and parishioners now see more salads, fruits, veggies, and water being served at church events.[22]

Research has found that overall, churchgoers are generally healthier than non-religious people — they live longer, smoke less, and have better mental health.

However, a recent study by Northwestern University researchers found that those who frequently attend religious activities tend to be more obese.[23] The study followed more than 2,400 men and women 18 years and older and accounted for various other factors contributing to obesity such as age, race, sex, education, income, residency, and smoking.

The researchers found that Baptist women were at the highest risk for obesity, followed by Fundamental Protestant women, and that men who sought counseling through religious sources were less likely to be obese.[24]

The researchers are not sure why there is a correlation. Among the possibilities: greater acceptance of obesity among church groups and a tradition of high-calorie comfort foods at religious events. People who are involved with religions also tend to be married, and married people tend to weigh more.[25]

RATES AND RANKINGS METHODOLOGY

The analysis in *F as in Fat* compares data from the Behavioral Risk Factor Surveillance System (BRFSS), the largest phone survey in the world. Researchers compared data from three-year periods 2007 to 2009 and 2008 to 2010 which ensures that the sample sizes are large enough to compare states over time. For a state rate to increase, the change must reach the level of statistical significance ($p<0.05$) for that state's particular sample size.

Washington, D.C. is included in the rankings because CDC provides funds to the city to conduct a survey in an equivalent way to the states.

The data are based on telephone surveys by state health departments, with assistance from the CDC. Surveys ask people to report their weight and height, which is used to calculate BMI. Experts say rates of overweight and obesity are probably slightly higher than shown by the data because people tend to underreport their weight and exaggerate their height.[26]

More information on the methodology is available in Appendix B.

STATE-BY-STATE CHART OF ADULT OBESITY RATES BY SEX,

	Adult Obesity	Obesity Rates by Sex		Obesity Rates by Race/Ethnicity		
STATES	TOTAL	MEN	WOMEN	White	Black	Latino
Alabama	32.3% (+/- 1.0)	32.6% (+/- 1.7)	32.0% (+/- 1.2)	29.0% (+/- 1.2)	42.4% (+/- 2.3)	30.7% (+/- 8.3)
Alaska	25.9% (+/- 1.6)	23.9% (+/- 2.2)	28.1% (+/- 2.2)	24.3% (+/- 1.8)	45.0% (+/- 14.8)	28.6% (+/- 10.6)
Arizona	25.4% (+/- 1.4)	25.8% (+/- 2.1)	24.9% (+/- 1.7)	23.3% (+/- 1.5)	35.9% (+/- 10.2)	32.3% (+/- 4.1)
Arkansas	30.6% (+/- 1.2)	32.1% (+/- 2.0)	29.1% (+/- 1.5)	29.8% (+/- 1.4)	41.5% (+/- 4.4)	30.1% (+/- 7.4)
California	24.8% (+/- 0.6)	25.0% (+/- 0.9)	24.7% (+/- 0.8)	21.8% (+/- 0.7)	35.8% (+/- 3.2)	30.6% (+/- 1.2)
Colorado	19.8% (+/- 0.7)	20.7% (+/- 1.0)	19.0% (+/- 0.8)	18.3% (+/- 0.6)	27.9% (+/- 4.6)	24.8% (+/- 2.0)
Connecticut	21.8% (+/- 0.9)	23.7% (+/- 1.4)	20.1% (+/- 1.0)	20.8% (+/- 1.0)	39.5% (+/- 5.0)	29.0% (+/- 3.8)
Delaware	28.0% (+/- 1.2)	29.3% (+/- 1.9)	26.9% (+/- 1.5)	26.0% (+/- 1.2)	42.5% (+/- 3.9)	31.5% (+/- 8.1)
D.C.	21.7% (+/- 1.0)	17.2% (+/- 1.5)	25.7% (+/- 1.3)	9.3% (+/- 0.9)	34.4% (+/- 1.8)	18.1% (+/- 4.3)
Florida	26.1% (+/- 0.9)	29.1% (+/- 1.4)	23.2% (+/- 1.0)	24.1% (+/- 0.9)	38.8% (+/- 3.2)	28.7% (+/- 3.1)
Georgia	28.7% (+/- 1.1)	28.8% (+/- 1.8)	28.5% (+/- 1.2)	25.6% (+/- 1.2)	38.1% (+/- 2.5)	32.7% (+/- 6.8)
Hawaii	23.1% (+/- 0.9)	25.4% (+/- 1.4)	20.7% (+/- 1.1)	19.3% (+/- 1.4)	35.3% (+/- 10.6)	27.0% (+/- 3.7)
Idaho	25.7% (+/- 1.0)	26.8% (+/- 1.5)	24.6% (+/- 1.2)	25.1% (+/- 1.0)	N/A	29.6% (+/- 4.6)
Illinois	27.7% (+/- 1.0)	28.7% (+/- 1.6)	26.7% (+/- 1.2)	25.5% (+/- 1.0)	39.5% (+/- 3.3)	31.5% (+/- 4.3)
Indiana	29.1% (+/- 0.9)	29.0% (+/- 1.4)	29.1% (+/- 1.1)	28.8% (+/- 1.0)	37.0% (+/- 3.9)	28.4% (+/- 5.1)
Iowa	28.1% (+/- 0.9)	30.0% (+/- 1.4)	26.1% (+/- 1.2)	28.1% (+/- 0.9)	33.0% (+/- 8.9)	29.5% (+/- 7.6)
Kansas	29.0% (+/- 0.8)	30.6% (+/- 1.2)	27.3% (+/- 0.8)	28.4% (+/- 0.7)	41.8% (+/- 4.1)	34.7% (+/- 3.8)
Kentucky	31.5% (+/- 1.0)	32.6% (+/- 1.7)	30.4% (+/- 1.2)	31.0% (+/- 1.1)	43.2% (+/- 5.7)	33.1% (+/- 8.8)
Louisiana	31.6% (+/- 0.9)	32.6% (+/- 1.5)	30.5% (+/- 1.0)	28.4% (+/- 1.0)	39.5% (+/- 2.0)	29.3% (+/- 6.0)
Maine	26.5% (+/- 0.8)	27.1% (+/- 1.2)	26.1% (+/- 1.0)	26.7% (+/- 0.8)	32.2% (+/- 14.6)	21.0% (+/- 5.8)
Maryland	27.1% (+/- 0.8)	26.7% (+/- 1.8)	27.5% (+/- 1.0)	24.3% (+/- 0.9)	36.3% (+/- 1.9)	27.4% (+/- 4.6)
Massachusetts	22.3% (+/- 0.6)	24.6% (+/- 1.0)	20.0% (+/- 0.7)	21.8% (+/- 0.7)	30.5% (+/- 3.1)	29.1% (+/- 2.8)
Michigan	30.5% (+/- 0.8)	30.7% (+/- 1.2)	30.3% (+/- 1.0)	29.1% (+/- 0.8)	41.1% (+/- 2.6)	32.9% (+/- 5.6)
Minnesota	25.3% (+/- 1.0)	26.2% (+/- 1.5)	24.4% (+/- 1.2)	25.2% (+/- 1.0)	28.2% (+/- 6.7)	27.1% (+/- 7.9)
Mississippi	34.4% (+/- 0.9)	33.5% (+/- 1.4)	35.3% (+/- 1.1)	30.4% (+/- 1.1)	42.6% (+/- 1.7)	35.4% (+/- 8.4)
Missouri	30.3% (+/- 1.2)	30.9% (+/- 1.4)	29.8% (+/- 1.0)	29.5% (+/- 1.3)	38.2% (+/- 4.0)	29.0% (+/- 8.0)
Montana	23.8% (+/- 0.9)	25.0% (+/- 1.4)	22.6% (+/- 1.1)	22.9% (+/- 1.0)	17.1% (+/- 13.9)	22.9% (+/- 6.6)
Nebraska	27.6% (+/- 0.9)	29.5% (+/- 1.3)	25.7% (+/- 1.0)	27.0% (+/- 0.9)	39.6% (+/- 7.7)	31.8% (+/- 4.9)
Nevada	25.0% (+/- 1.4)	27.9% (+/- 1.9)	22.0% (+/- 1.6)	24.1% (+/- 1.5)	28.5% (+/- 6.9)	26.5% (+/- 4.0)
New Hampshire	25.6% (+/- 0.9)	27.5% (+/- 1.5)	23.6% (+/- 1.1)	25.8% (+/- 1.0)	32.5% (+/- 12.3)	24.0% (+/- 8.3)
New Jersey	24.1% (+/- 0.7)	25.6% (+/- 1.2)	22.7% (+/- 0.9)	23.1% (+/- 0.8)	35.9% (+/- 2.2)	26.8% (+/- 2.2)
New Mexico	25.6% (+/- 0.9)	25.8% (+/- 1.4)	25.5% (+/- 1.2)	20.8% (+/- 1.1)	31.7% (+/- 9.9)	30.7% (+/- 1.7)
New York	24.7% (+/- 0.8)	25.2% (+/- 4.3)	24.3% (+/- 1.0)	24.1% (+/- 0.9)	31.4% (+/- 2.6)	27.2% (+/- 2.8)
North Carolina	29.4% (+/- 0.8)	29.5% (+/- 1.3)	29.3% (+/- 1.0)	26.7% (+/- 0.9)	42.4% (+/- 2.2)	26.0% (+/- 4.3)
North Dakota	28.0% (+/- 1.1)	30.8% (+/- 1.6)	25.1% (+/- 1.3)	27.4% (+/- 1.1)	23.6% (+/- 12.6)	37.7% (+/- 12.3)
Ohio	29.6% (+/- 0.8)	30.5% (+/- 1.3)	28.7% (+/- 1.1)	28.7% (+/- 0.9)	40.8% (+/- 2.8)	32.5% (+/- 6.4)
Oklahoma	31.4% (+/- 0.8)	32.3% (+/- 1.4)	30.6% (+/- 1.0)	29.7% (+/- 0.9)	41.3% (+/- 3.5)	30.3% (+/- 4.0)
Oregon	25.4% (+/- 1.0)	26.4% (+/- 1.7)	24.4% (+/- 1.3)	25.3% (+/- 1.1)	38.2% (+/- 15.5)	25.4% (+/- 5.5)
Pennsylvania	28.5% (+/- 0.8)	30.0% (+/- 1.2)	27.1% (+/- 0.9)	27.7% (+/- 0.8)	39.4% (+/- 3.5)	34.5% (+/- 5.9)
Rhode Island	24.3% (+/- 1.0)	25.1% (+/- 1.5)	23.6% (+/- 1.2)	23.3% (+/- 1.0)	35.6% (+/- 6.3)	30.9% (+/- 4.2)
South Carolina	30.9% (+/- 1.0)	30.3% (+/- 1.6)	31.5% (+/- 1.3)	27.4% (+/- 1.2)	40.3% (+/- 2.2)	38.2% (+/- 9.9)
South Dakota	28.7% (+/- 1.0)	31.4% (+/- 1.5)	25.9% (+/- 1.2)	28.1% (+/- 1.0)	20.1% (+/- 14.0)	29.2% (+/- 8.8)
Tennessee	31.9% (+/- 1.2)	31.6% (+/- 2.0)	32.3% (+/- 1.3)	30.5% (+/- 1.3)	40.9% (+/- 6.7)	30.3% (+/- 15.6)
Texas	30.1% (+/- 0.9)	30.4% (+/- 1.4)	29.7% (+/- 1.1)	26.7% (+/- 1.1)	38.5% (+/- 3.1)	36.0% (+/- 2.0)
Utah	23.4% (+/- 0.8)	25.3% (+/- 1.2)	21.3% (+/- 1.0)	23.0% (+/- 0.8)	37.1% (+/- 16.9)	27.4% (+/- 3.4)
Vermont	23.5% (+/- 0.8)	24.1% (+/- 1.2)	22.9% (+/- 1.0)	23.6% (+/- 0.8)	21.0% (+/- 11.4)	20.8% (+/- 6.8)
Virginia	25.9% (+/- 1.2)	25.5% (+/- 1.8)	26.3% (+/- 1.6)	25.2% (+/- 1.3)	37.2% (+/- 3.8)	25.1% (+/- 8.5)
Washington	26.4% (+/- 0.5)	27.2% (+/- 0.8)	25.5% (+/- 0.7)	26.2% (+/- 0.6)	33.8% (+/- 4.8)	30.4% (+/- 2.6)
West Virginia	32.2% (+/- 1.1)	32.3% (+/- 1.6)	32.0% (+/- 1.3)	32.1% (+/- 1.1)	39.5% (+/- 7.9)	29.7% (+/- 8.7)
Wisconsin	27.4% (+/- 1.1)	29.4% (+/- 1.8)	25.4% (+/- 1.4)	26.5% (+/- 1.2)	45.8% (+/- 6.0)	21.1% (+/- 7.4)
Wyoming	25.4% (+/- 0.9)	26.4% (+/- 1.4)	24.4% (+/- 1.1)	24.6% (+/- 0.9)	28.9% (+/- 13.6)	32.0% (+/- 5.3)

Notes: To ensure a sufficient sample size for valid obesity estimates, researchers analyzed three years of data (2008-2010) and limited the analysis to three racial and ethnic groups: Whites, Blacks, and Latinos However, in some states the sample size remained very small. Those states were excluded from the analysis.

RACE, AND ETHNICITY 2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)

	Obesity Rates by Sex and Race/Ethnicity					
	MEN			WOMEN		
STATES	White	Black	Latino	White	Black	Latino
Alabama	31.8% (+/- 1.9)	36.0% (+/- 3.9)	31.7% (+/- 13.8)	26.4% (+/- 1.3)	48.5% (+/- 2.4)	29.9% (+/- 10.1)
Alaska	23.2% (+/- 2.6)	N/A	17.7% (+/- 11.0)	25.5% (+/- 2.4)	N/A	39.0% (+/- 16.1)
Arizona	24.6% (+/- 2.3)	19.7% (+/- 12.4)	32.7% (+/- 6.1)	21.9% (+/- 1.8)	52.7% (+/- 13.0)	31.9% (+/- 5.4)
Arkansas	32.7% (+/- 2.1)	36.6% (+/- 7.8)	29.5% (+/- 10.2)	27.1% (+/- 1.7)	45.1% (+/- 5.1)	31.1% (+/- 9.7)
California	23.1% (+/- 1.1)	30.5% (+/- 5.0)	30.0% (+/- 1.3)	20.6% (+/- 0.8)	40.6% (+/- 3.9)	31.3% (+/- 1.5)
Colorado	19.6% (+/- 1.0)	25.0% (+/- 6.5)	23.5% (+/- 2.9)	16.9% (+/- 0.8)	31.6% (+/- 6.4)	26.4% (+/- 2.5)
Connecticut	23.3% (+/- 1.5)	39.5% (+/- 17.1)	27.9% (+/- 6.2)	18.3% (+/- 1.1)	39.5% (+/- 5.8)	29.9% (+/- 4.8)
Delaware	28.1% (+/- 2.0)	41.7% (+/- 6.9)	29.8% (+/- 11.5)	23.9% (+/- 1.5)	43.1% (+/- 4.6)	33.6% (+/- 10.9)
D.C.	9.7% (+/- 1.3)	26.7% (+/- 2.9)	13.3% (+/- 5.9)	8.9% (+/- 1.2)	39.9% (+/- 2.1)	23.6% (+/- 6.1)
Florida	28.0% (+/- 1.4)	38.1% (+/- 5.6)	31.6% (+/- 5.1)	20.3% (+/- 1.0)	39.3% (+/- 3.8)	25.5% (+/- 3.3)
Georgia	27.8% (+/- 1.8)	33.7% (+/- 4.4)	36.6% (+/-11.3)	23.4% (+/- 1.4)	41.8% (+/- 2.6)	28.5% (+/- 7.3)
Hawaii	20.4% (+/- 2.1)	33.9% (+/- 13.5)	28.9% (+/- 5.6)	17.9% (+/- 1.8)	38.2% (+/- 16.5)	25.3% (+/- 4.8)
Idaho	26.5% (+/- 1.6)	N/A	27.8% (+/- 6.7)	23.7% (+/- 1.2)	N/A	32.1% (+/- 5.8)
Illinois	27.8% (+/- 1.6)	35.6% (+/- 5.7)	33.0% (+/- 6.4)	23.4% (+/- 1.2)	42.8% (+/- 3.8)	29.5% (+/- 5.0)
Indiana	29.8% (+/- 1.5)	30.2% (+/- 6.4)	25.6% (+/- 7.2)	27.8% (+/- 1.2)	44.1% (+/- 4.4)	32.3% (+/- 6.6)
Iowa	30.1% (+/- 1.5)	30.6% (+/- 12.3)	27.8% (+/- 10.6)	26.1% (+/- 1.2)	36.6% (+/- 12.3)	31.4% (+/- 11.3)
Kansas	30.4% (+/- 1.2)	42.8% (+/- 6.8)	35.7% (+/- 5.7)	26.4% (+/- 0.9)	40.9% (+/- 5.0)	33.5% (+/- 4.8)
Kentucky	32.1% (+/- 1.7)	47.5% (+/- 10.1)	44.0% (+/- 14.7)	29.9% (+/- 1.2)	39.9% (+/- 6.5)	23.2% (+/- 8.2)
Louisiana	32.0% (+/- 1.7)	35.1% (+/- 3.3)	31.7% (+/- 9.6)	24.9% (+/- 1.1)	43.3% (+/- 2.3)	26.3% (+/- 6.2)
Maine	27.1% (+/- 1.2)	N/A	25.3% (+/- 10.1)	26.3% (+/- 1.0)	13.5% (+/- 12.9)	17.5% (+/- 6.5)
Maryland	26.4% (+/- 1.4)	31.4% (+/- 3.1)	25.4% (+/- 6.2)	22.2% (+/- 1.1)	40.4% (+/- 2.3)	30.0% (+/- 6.5)
Massachusetts	25.3% (+/- 1.1)	27.6% (+/- 5.0)	30.1% (+/- 4.6)	18.5% (+/- 0.8)	33.4% (+/- 3.8)	28.1% (+/- 3.0)
Michigan	30.3% (+/- 1.3)	34.2% (+/- 4.1)	32.0% (+/- 8.3)	27.9% (+/- 1.1)	47.6% (+/- 3.0)	34.1% (+/- 7.1)
Minnesota	26.7% (+/- 1.6)	15.0% (+/- 7.2)	26.9% (+/- 10.7)	23.7% (+/- 1.2)	37.7% (+/- 9.9)	27.2% (+/- 11.5)
Mississippi	33.5% (+/- 1.7)	34.5% (+/- 2.8)	30.9% (+/- 11.9)	27.4% (+/- 1.2)	49.8% (+/- 2.0)	40.3% (+/- 11.1)
Missouri	30.4% (+/- 2.0)	33.5% (+/- 6.3)	33.0% (+/- 13.4)	28.6% (+/- 1.6)	41.5% (+/- 5.2)	25.4% (+/- 8.8)
Montana	24.1% (+/- 1.5)	N/A	22.1% (+/- 10.5)	21.5% (+/- 1.2)	12.0% (+/- 15.6)	23.6% (+/- 7.8)
Nebraska	29.0% (+/- 1.4)	39.7% (+/- 10.7)	32.0% (+/- 7.2)	25.1% (+/- 1.0)	39.6% (+/- 11.0)	31.6% (+/- 6.7)
Nevada	27.2% (+/- 2.3)	20.8% (+/- 9.7)	29.2% (+/- 6.2)	20.9% (+/- 1.8)	35.3% (+/- 9.0)	23.5% (+/- 4.5)
New Hampshire	27.9% (+/- 1.5)	29.2% (+/- 15.4)	25.1% (+/- 13.1)	23.7% (+/- 1.1)	40.1% (+/- 17.5)	22.9% (+/- 10.1)
New Jersey	26.9% (+/- 2.6)	32.3% (+/- 3.6)	25.9% (+/- 3.5)	19.5% (+/- 1.0)	38.9% (+/- 2.6)	27.8% (+/- 2.6)
New Mexico	21.7% (+/- 1.8)	28.4% (+/- 18.8)	30.1% (+/- 2.7)	19.8% (+/- 1.3)	34.9% (+/- 13.1)	31.3% (+/- 2.2)
New York	26.6% (+/- 1.3)	24.0% (+/- 4.1)	27.0% (+/- 4.6)	21.6% (+/- 1.0)	37.4% (+/- 3.2)	27.5% (+/- 3.3)
North Carolina	28.4% (+/- 1.4)	36.8% (+/- 3.5)	26.7% (+/- 6.3)	25.0% (+/- 1.1)	47.0% (+/- 2.6)	24.7% (+/- 4.4)
North Dakota	30.5% (+/- 1.6)	27.8% (+/- 18.5)	38.3% (+/- 18.7)	24.2% (+/- 1.2)	17.2% (+/- 14.0)	37.3% (+/- 16.2)
Ohio	30.4% (+/- 1.4)	36.4% (+/- 4.8)	35.8% (+/- 10.3)	27.1% (+/- 1.0)	43.8% (+/- 3.4)	29.0% (+/- 7.5)
Oklahoma	31.1% (+/- 1.5)	39.6% (+/- 5.7)	29.1% (+/- 5.9)	28.5% (+/- 1.1)	43.3% (+/- 3.9)	31.9% (+/- 4.6)
Oregon	26.4% (+/- 1.8)	N/A	28.4% (+/- 8.4)	24.3% (+/- 1.4)	31.8% (+/- 17.2)	21.8% (+/- 6.7)
Pennsylvania	30.0% (+/- 1.2)	34.0% (+/- 5.5)	39.9% (+/- 9.7)	25.5% (+/- 0.9)	44.7% (+/- 4.0)	29.0% (+/- 6.0)
Rhode Island	24.7% (+/- 1.6)	28.3% (+/- 9.4)	27.2% (+/- 6.4)	22.0% (+/- 1.3)	41.3% (+/- 8.2)	33.9% (+/- 5.5)
South Carolina	29.0% (+/- 1.8)	33.1% (+/- 3.3)	50.9% (+/- 14.3)	25.9% (+/- 1.4)	46.5% (+/- 2.7)	22.6% (+/- 8.3)
South Dakota	31.1% (+/- 1.6)	22.6% (+/- 18.6)	28.5% (+/- 6.7)	25.0% (+/- 1.3)	13.6% (+/- 16.5)	30.0% (+/- 10.7)
Tennessee	30.9% (+/- 2.0)	32.5% (+/- 6.2)	N/A	30.0% (+/- 1.4)	48.2% (+/- 4.1)	15.7% (+/- 7.4)
Texas	29.6% (+/- 1.7)	33.3% (+/- 5.2)	34.1% (+/- 3.0)	23.9% (+/- 1.2)	43.4% (+/- 3.7)	38.2% (+/- 2.3)
Utah	25.2% (+/- 1.2)	N/A	26.0% (+/- 4.9)	20.8% (+/- 1.1)	N/A	28.9% (+/- 4.6)
Vermont	24.3% (+/- 1.3)	7.8% (+/- 8.2)	23.1% (+/- 11.9)	22.8% (+/- 1.0)	N/A	19.1% (+/- 7.5)
Virginia	26.4% (+/- 2.0)	29.5% (+/- 5.6)	24.6% (+/- 13.5)	23.9% (+/- 1.7)	43.3% (+/- 5.0)	25.6% (+/- 9.9)
Washington	27.5% (+/- 0.9)	32.2% (+/- 6.5)	29.8% (+/- 3.9)	25.0% (+/- 0.7)	35.9% (+/- 7.3)	31.1% (+/- 3.3)
West Virginia	32.3% (+/- 1.7)	37.9% (+/- 12.0)	25.5% (+/- 12.9)	31.8% (+/- 1.4)	41.0% (+/- 10.3)	34.2% (+/- 11.4)
Wisconsin	29.0% (+/- 1.9)	41.9% (+/- 10.7)	16.4% (+/- 9.2)	24.0% (+/- 1.4)	48.5% (+/- 6.9)	26.3% (+/- 11.6)
Wyoming	25.6% (+/- 1.3)	24.7% (+/- 15.7)	32.7% (+/- 8.6)	23.5% (+/- 1.1)	N/A	31.2% (+/- 6.0)

B. ADULT OBESITY RATES BY SEX, RACE, AND ETHNICITY

Adult obesity rates for Blacks and Latinos are higher than those for Whites in nearly every state. Adult obesity rates for Blacks are at or above 30 percent in 41 states and D.C. In 14 states, the rates exceed 40 percent, compared with only nine states last year. Meanwhile, adult obesity rates for Latinos are at or above 30 percent in 23 states. Only four states –Kentucky, Mississippi, Tennessee, and West Virginia — have an adult obesity rate for Whites greater than 30 percent, up from only one state last year.

State-specific obesity rates varied substantially, ranging from 17.1 percent in Montana to 45.8 percent in Wisconsin for Blacks, from 18.1 percent in D.C. to 38.2 percent in South Carolina for Latinos, and from 9.3 percent in D.C. to 32.1 percent in West Virginia for Whites.

Obesity rates by sex, race and ethnicity also varied greatly. State-specific rates ranged from 12 percent in Montana to 52.7 percent in Arizona for Black women, from 15.7 percent in Tennessee to 40.3 percent in Mississippi for Latino women, and from 8.9 percent in D.C. to 31.8 percent in West Virginia for White women. State-specific rates for men ranged from 7.8 percent in Vermont to 47.5 percent in Kentucky for Black men, from 13.3 percent in D.C. to 50.9 percent in South Carolina for Latino men, and from 9.7 percent in D.C. to 33.5 percent in Mississippi for White men.

C. OBESITY AND SOCIOECONOMICS

1. Socioeconomics and Obesity

An analysis of the 2008-2010 BRFSS data looking at income, level of schooling completed, and obesity finds that obesity relates to income and education.

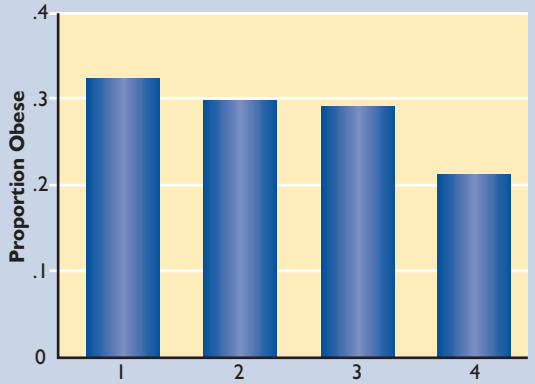
Household Income and Obesity[27]

	Obesity	
Household Income	**Percent of Non-Obese Adults (BMI < 30) (Based on 2008-2010 Combined Data)**	**Percent of Obese Adults (BMI ≥ 30) (Based on 2008-2010 Combined Data)**
Less than $15,000	66.2%	33.8%
$15,000 to less than $25,000	68.2%	31.8%
$25,000 to less than $35,000	70.3%	29.7%
$35,000 to less than $50,000	70.5%	29.5%
$50,000 or more	75.4%	24.6%

Education and Obesity[28]

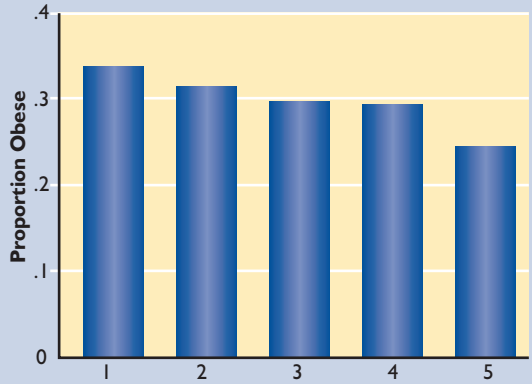
	Obesity	
Level of Schooling	**Percent of Non-Obese Adults (BMI < 30) (Based on 2008-2010 Combined Data)**	**Percent of Obese Adults (BMI ≥ 30) (Based on 2008-2010 Combined Data)**
Did not graduate High School	67.2%	32.8%
Graduated High School	69.6%	30.4%
Attended College or Technical School	70.4%	29.6%
Graduated from College or Technical School	78.5%	21.5%

Figure 1
Association between level of schooling completed and obesity



1 = Did not graduate High School
2 = Graduated High School
3 = Attended College or Technical School
4 = Graduated from College or Technical School

Figure 2
Association between household income and obesity



1 = Less than $15,000
2 = $15,000 to less than $25,000
3 = $25,000 to less than $35,000?
4 = $35,000 to less than $50,000
5 = $50,000 or more

These findings reflect the association between socioeconomic status and obesity.

2. Obesity and Poverty

Six of the states with the highest poverty rates are also in the top 10 for obesity. Seven of the top 10 poverty rate states are in the South, where obesity rates are also higher, while many of the states with the lowest poverty rates are among those with the lowest obesity rates. (The U.S. Census Bureau provided information on the three-year average poverty rates in the charts.[29])

States with the Highest Poverty Rates

Rank	State	Percentage of Poverty (Based on 2006-2008 Combined Data with a 90 percent Confidence Interval)	Obesity Ranking
1	Mississippi	20.5% (+/- 1.7)	1
2	D.C.	17.6% (+/- 1.9)	50
3	Louisiana	17.1% (+/- 1.6)	5
4	New Mexico	16.7% (+/- 1.8)	33
5	Kentucky	16.5% (+/- 1.6)	6
6	Texas	16.3% (+/- 0.7)	12
7 (tie)	Arkansas	15.6% (+/- 1.6)	9
7 (tie)	Arizona	15.6% (+/- 1.4)	35
9 (tie)	West Virginia	14.9% (+/- 1.4)	3
9 (tie)	Tennessee	14.9% (+/- 1.3)	4

*Note: For rankings, 1 = Highest rate of poverty.

States with the Lowest Poverty Rates

Rank	State	Percentage of Poverty (Based on 2006-2008 Combined Data with a 90 percent Confidence Interval)	Obesity Ranking
51	New Hampshire	6.1% (+/- 1.1)	33
50	Alaska	8.2% (+/- 1.2)	30
49	Connecticut	8.3% (+/- 1.2)	49
48	Maryland	8.6% (+/- 1.1)	26
47	Utah	8.8% (+/- 1.1)	46
44 (tie)	Hawaii	8.9% (+/- 1.2)	47
44 (tie)	New Jersey	8.9% (+/- 0.9)	43
44 (tie)	Vermont	8.9% (+/- 1.4)	45
43	Minnesota	9.1% (+/- 1.1)	38
42	Virginia	9.2%(+/- 0.9)	30

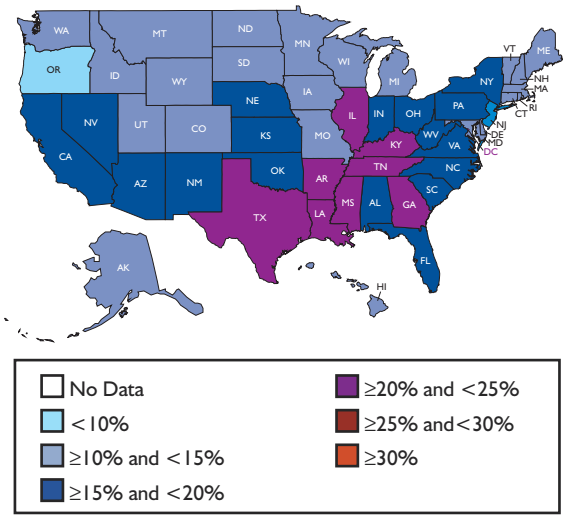
*Note: For rankings, 51 = Lowest rate of poverty.

D. CHILDHOOD AND YOUTH OBESITY AND OVERWEIGHT RATES

1. Study of Children Ages 10–17 (2007)

PROPORTION OF CHILDREN AGES 10-17 CLASSIFIED AS OBESE, BY STATE

Obese 10-17 Year Olds, 2007 NSCH



Source: National Survey on Children's Health, 2007.

The most recent data for childhood statistics on a state-by-state level are from the 2007 National Survey of Children's Health (NSCH).[30] According to that study, obesity rates for children ages 10–17, defined as BMI greater than the 95th percentile for age group, ranged from a low of 9.6 percent in Oregon to a high of 21.9 percent in Mississippi. The NSCH study is based on a survey of parents in each state. The data are derived from parental reports, so they are not as reliable as measured data, such as NHANES, but they are the only source of comparative state-by-state data for children.

Nine of the 10 states with the highest rates of obese children are in the South. In 2003, when the last NSCH was conducted, only Washington, D.C. and three states — Kentucky, Tennessee and West Virginia — had childhood obesity rates higher than 20 percent. Four years later, in 2007, six more states had childhood obesity rates over 20 percent: Arkansas, Georgia, Illinois, Louisiana, Mississippi, and Texas.

States with the Highest Rates of Obese 10- to 17-year-olds

Rank	States	Percentage of Obese 10- to 17-year-olds (95 percent Confidence Intervals)
1	Mississippi	21.9% (+/- 3.5)
2	Georgia	21.3% (+/- 5.1)
3	Kentucky	21.0% (+/- 3.5)
4 (tie)	Illinois	20.7% (+/- 3.6)
4 (tie)	Louisiana	20.7% (+/- 4.0)
6	Tennessee	20.6% (+/- 3.7)
7 (tie)	Arkansas	20.4% (+/- 3.6)
7 (tie)	Texas	20.4% (+/- 5.0)
9	D.C.	20.1% (+/- 3.9)
10	West Virginia	18.9% (+/- 3.2)

*Note: For rankings, 1 = Highest rate of childhood obesity.

Eight of the states with the lowest rates of obese 10- to 17-year-olds are in the West.

States with the Lowest Rates of Obese 10- to 17-year-olds

Rank	States	Percentage of Obese 10- to 17-year-olds (95 percent Confidence Intervals)
51	Oregon	9.6% (+/- 2.7)
50	Wyoming	10.2% (+/- 2.7)
48 (tie)	Washington	11.1% (+/- 3.4)
48 (tie)	Minnesota	11.1% (+/- 3.0)
46 (tie)	Iowa	11.2% (+/- 2.7)
46 (tie)	Hawaii	11.2% (+/- 2.8)
44 (tie)	Utah	11.4% (+/- 3.5)
44 (tie)	North Dakota	11.4% (+/- 2.5)
42 (tie)	Montana	11.8% (+/- 2.8)
42 (tie)	Idaho	11.8% (+/- 2.7)

*Note: For rankings, 51 = Lowest rate of childhood obesity.

TEACHING YOUNG CHILDREN THE VALUE OF PHYSICAL ACTIVITY AND HEALTHY EATING

In 2002, the National Hypertension Association started VITAL (Values Initiative Teaching About Lifestyle) to help reduce childhood obesity and high blood pressure.[31] The program focuses on children between the ages of four and eight, and emphasizes healthy foods and daily physical activity. The program provides teachers with free supplies, including puzzles, exercise equipment, play foods, as well as reading and video materials. VITAL has several key focus areas:

1) Start early: instill healthy lifestyle values in young children before they learn unhealthy habits.

2) Be interesting to children: emphasize participation over lecture, and integrate messages into fun activities.

3) Reinforcement: instill the message every day, and encourage parents to promote the same ideas at home.

The program has expanded to reach more than 30,000 children in 11 states and Washington, D.C. In 2007, the program did an internal study of its efforts in Pittsburgh, Pennsylvania. It compared 300 first and second graders who went through VITAL with 300 who didn't. Those who received the training did not show excessive weight gain, while those who did not began showing such gains.[32]

PRECOCIOUS PUBERTY AND CHILDHOOD OBESITY

Over the past decade, there has been a significant increase in numbers of girls in the United States who start puberty early.[33] As many as 15 percent of all American girls may fall into this group.[34] Some researchers think childhood obesity may play a key role in this increase. Boys in this country may be experiencing a similar increase, but because it is easier to measure female puberty — by age of first period — the trend for girls is clearer.[35]

- **The link between weight and puberty:** puberty is partly triggered when a child reaches a certain weight, generally around 100 pounds.[36] This is especially true for girls. Some studies have found that girls who mature early also have a higher percentage of body fat and a higher BMI than those who mature later. Researchers also have found some racial and ethnic populations begin puberty earlier than others. This may be due in part to the fact that certain groups have higher rates of obesity than others.[37,38]
- **Consequences of childhood obesity and early puberty:** early puberty can cause emotional stress and increase risks for some illnesses, including diabetes, heart disease and breast cancer.
- **The link between weight and puberty remains unclear:** an increase in body fat may predispose children to early puberty; or early puberty may lead to hormonal changes that produce weight gain. These trends may happen simultaneously.[39, 40]

2. Study of High School Students

The most recent state-specific data for obesity and overweight rates for adolescents is the 2009 Youth Risk Behavior Survey (YRBS), a national survey of U.S. high school students.[41] The information in YRBS is based on self-reported information. According to this survey, 12 percent of this group was obese and 15.8 percent were overweight.[42] There has been an upward trend from 1999 to 2009 in the prevalence of students nationwide who were obese (10.7 percent to 12 percent) and who were overweight (14.4 percent to 15.8 percent). Students also reported on whether or not they participated in at least 60 minutes of physical activity on all seven days of the week. Kansas high school students came in with the highest rates at 27.8 percent and Massachusetts reported the lowest with only 17 percent of high school students being physically active for at least 60 minutes seven days a week.

The latest survey, which covers 42 states, found a range of obesity levels: a low of 6.4 percent in Utah to a high of 18.3 percent in Mississippi, with a median rate of 12.3 percent. Overweight rates among high school students ranged from a low of 10.5 percent in Utah to a high of 18.0 percent in Louisiana, with a median rate of 14.6 percent.

Percentage of Obese and Overweight U.S. High School Students by Sex		
	Obese	Overweight
Female	8.3%	15.9%
Male	15.3%	15.7%
Total	12.0%	15.8%

Percentage of Obese and Overweight U.S. High School Students by Race/Ethnicity		
	Obese	Overweight
White*	10.3%	13.6%
Black*	15.1%	21.0%
Latino	15.1%	19.6%
Total**	12.0%	15.8%

Notes: *Non-Latino. **Other race/ethnicities are included in the total but are not presented separately.

Percentage of Obese and Overweight U.S. High School Students by Sex and Race/Ethnicity				
	Obese		Overweight	
	Female	Male	Female	Male
White*	6.2%	13.8%	13.2%	13.9%
Black*	12.6%	17.5%	23.3%	18.7%
Latino	11.1%	18.9%	19.5%	19.7%
Total**	8.3%	15.3%	15.9%	15.7%

Notes: *Non-Latino. **Other race/ethnicities are included in the total but are not presented separately.

3. Study of Children from Lower-Income Families (2009)

The Pediatric Nutrition Surveillance Survey (PedNSS), which examines children between the ages of two and five from lower-income families, found that 14.7 percent of this group is obese, compared with 12.4 percent for all U.S. children of a similar age.[43] The data for PedNSS is based on actual measurements rather than self reports.

The prevalence of obesity among children from lower-income families increased from 12.7 percent in 1999 to 14.8 percent in 2009, although rates have remained stable since 2003. The highest obesity rates were seen among American Indian and Alaska Native children (20.7 percent) and Latino children (17.9 percent).

E. PHYSICAL INACTIVITY IN ADULTS

Fourteen states reported an increase in physical inactivity between 2008 and 2010; only twelve reported an increase between 2007 and 2009. Physical inactivity in adults reflects the number of survey respondents who reported not engaging in physical activity or exercise during the previous 30 days other than doing their regular jobs. Two states showed a significant decrease in physical inactivity.

Mississippi, the state with the highest rate of obesity, also had the highest reported percentage of physical inactivity at 32.6 percent. Southern states dominate the highest rates of physical inactivity.

States with Highest Rates of Physical Inactivity in Adults			
Ranking	**State**	**Percentage of Adult Physical Inactivity (Based on 2008-2010 Combined Data, Including Confidence Intervals)**	**Obesity Ranking**
1	Mississippi	32.6% (+/- 0.9)	1
2	West Virginia	32.4% (+/- 1.0)	3
3	Oklahoma	30.9% (+/- 0.8)	7
4	Alabama	30.5% (+/- 1.0)	2
5	Tennessee	29.9% (+/- 1.2)	4
6	Kentucky	29.8% (+/- 0.9)	6
7	Arkansas	29.7% (+/- 1.1)	9
8	Louisiana	29.5% (+/- 0.8)	5
9	Texas	27.5% (+/- 0.9)	12
10	Missouri	27.2% (+/- 1.1)	11

*Note: For rankings, 1 = Highest rate of physical inactivity. According to NIH, a significant gap exists between self-report (30 percent to 40 percent achieving recommended levels of physical activity) and objective measures (3 percent to 5 percent achieving recommended levels) of population prevalence of physical activity.

Minnesota had the lowest rate of inactive adults, with 17.6 percent of adults reporting they do not engage in physical activity.

States with the Lowest Rates of Physical Inactivity in Adults			
Ranking	**State**	**Percentage of Adult Physical Inactivity (Based on 2008-2010 Combined Data, Including Confidence Intervals)**	**Obesity Ranking**
51	Minnesota	17.6% (+/- 0.9)	38
50	Oregon	18.1% (+/- 0.9)	35
49	Colorado	18.3% (+/- 0.6)	51
48	Utah	18.4% (+/- 0.7)	46
47	Washington	19.0% (+/- 0.5)	28
46	Vermont	19.2% (+/- 0.7)	45
45	Hawaii	19.5% (+/- 0.8)	47
43 (tie)	Idaho	20.7% (+/- 0.8)	32
43 (tie)	D.C.	20.7% (+/-0.5)	50
42	New Hampshire	20.9% (+/- 0.8)	33

*Note: For rankings, 51 = Lowest rate of physical inactivity. According to NIH, a significant gap exists between self-report (30 percent to 40 percent achieving recommended levels of physical activity) and objective measures (3 percent to 5 percent achieving recommended levels) of population prevalence of physical activity.

HOW MANY STEPS IN A DAY?

When it comes to the average number of steps taken per day, Americans fall far behind other countries, as well as far below the number recommended by researchers.[44] Public health experts recommend taking at least 10,000 steps a day, which is equal to about five miles of walking. But according to a new study, Americans average just over half that.[45] Other studies show that Americans take far fewer steps than adults in Australia and Switzerland, who average almost 10,000 a day, and adults in Japan, who average about 7,000.[46]

Not surprisingly countries that take more steps also have lower obesity rates, ranging from 3 percent to 16 percent lower than the United States.[47]

F. DIABETES AND HYPERTENSION

Obesity and physical inactivity have been linked to a range of chronic diseases, including diabetes and hypertension. Eight of the 10 states with the highest diabetes rates are also in the top 10 for obesity rates; nine of the 10 states with the highest hypertension rates are also in the top 10 for obesity. Diabetes rates rose in 12 states, and four states experienced an increase in diabetes rates for the second straight year. Hypertension rates rose in 47 states, and 36 states showed an increase in hypertension rates two years in a row.

1. Diabetes

Twelve states showed a significant increase in the rates of adult diabetes; of these, four states showed an increase for the second year in a row. Alabama had the highest rate of adult diabetes at 12.2 percent, while Colorado had the lowest rate at 5.9 percent. Except for Ohio, the states with the highest rates of adult diabetes are all in the South.

States with the Highest Rates of Adult Diabetes

Rank	State	Percentage of Adult Diabetes (Based on 2008-2010 Combined Data, Including Confidence Intervals)	Obesity Ranking
1	Alabama	12.2% (+/- 0.6)	2
2	West Virginia	12.0% (+/- 0.6)	3
3	Mississippi	11.8% (+/- 0.5)	1
4	Louisiana	10.7% (+/- 0.5)	5
5	Tennessee	10.6% (+/- 0.7)	4
6 (tie)	Kentucky	10.5% (+/- 0.5)	6
6 (tie)	Oklahoma	10.5% (+/- 0.5)	7
8	South Carolina	10.4% (+/- 0.5)	8
9	Ohio	10.0% (+/- 0.5)	13
10	Florida	9.9% (+/- 0.5)	29

*Note: For rankings, 1 = Highest rate of diabetes.

THE DIABETES BELT

In the 1960s researchers first identified the Southeastern United States as the "stroke belt," since strokes were much more frequent in that region than the rest of the country. Now, scientists are focusing on a "diabetes belt," made up of 644 counties in 15 mostly Southern states. This belt includes parts of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, West Virginia, and all of Mississippi.[48] The demographics of these 644 counties vary greatly from those of the overall country. They have a high percentage of Blacks, and, not surprisingly, a high number of people who are obese and lead sedentary lives.[49] Policymakers hope to use this new information to target resources to those who most need help.

2. Hypertension

Hypertension rates increased in 47 states between 2003-2007 and 2005-2009. The most recent data available is the 2009 data set. Mississippi had the highest rate of hypertension at 34.8 percent, while Utah had the lowest, at 20.5 percent. All 10 states with the highest rates of hypertension are in the South.

States with the Highest Rates of Adult Hypertension

Rank	State	Percentage of Adult Hypertension (Based on 2005-2009 Combined Data, Including Confidence Intervals, from a Survey Conducted Every Other Year)	Obesity Ranking
1	Mississippi	34.8% (+/- 0.8)	1
2	West Virginia	34.1% (+/- 1.0)	3
3	Alabama	33.9% (+/- 1.0)	2
4	Louisiana	32.5% (+/- 0.9)	5
5	Tennessee	32.2% (+/- 1.1)	4
6	Oklahoma	31.9% (+/- 0.8)	7
7 (tie)	Arkansas	31.6% (+/- 1.0)	9
7 (tie)	Kentucky	31.6% (+/- 1.0)	6
9	South Carolina	31.5% (+/- 0.8)	8
10	North Carolina	29.9% (+/- 0.6)	14

*Note: For rankings, 1 = Highest rate of hypertension.

G. FRUIT AND VEGETABLE CONSUMPTION

Fruit and vegetable consumption, as part of a healthy diet, is important for weight management, optimal child growth, and chronic disease prevention. "Healthy People 2020," the U.S. national health-promotion and disease-prevention initiative, identifies the most significant preventable threats to health and establishes national goals to reduce these threats. It includes two objectives to increase consumption of fruits and vegetables.

To assess how well Americans are meeting these objectives, CDC researchers examined data from the 2005-2009 BRFSS and 2009 YRBS.[50]

Seven of the states with the lowest rates of fruit and vegetable consumption are also in the top 10 for obesity. Seven out of these low-consumption states are in the South, where obesity rates are higher, while many states with the highest rates of fruit consumption are among the states with the lowest obesity rates. In some cases, fruit and vegetable consumption may be an indicator of people's access to healthy, affordable foods.

- Researchers have also found that most teens do not eat the recommended amounts. An analysis of the 2009 YRBS, a survey of U.S. high school students, found that only 18.4 percent of students eat the recommended daily amount of fruits and vegetables. Among the 36 states that participated in the study, rates of fruit and vegetable consumption ranged from 13.7 percent in South Dakota to 24.4 percent in Colorado.

States with the Lowest Adult Fruit and Vegetable Consumption

Rank	State	Percentage of Adults Consuming 5+ Fruits or Vegetables	Obesity Ranking
1	Oklahoma	15.5% (+/- 0.6)	7
2	Mississippi	17.1% (+/- 0.8)	1
3	South Dakota	18.3% (+/- 0.8)	17
4	West Virginia	18.6% (+/- 0.8)	3
5	Kentucky	18.8% (+/- 0.9)	6
6	Louisiana	18.9% (+/- 0.9)	5
7 (tie)	Kansas	19.1% (+/- 0.6)	16
7 (tie)	South Carolina	19.1% (+/- 0.7)	8
9	Iowa	19.3% (+/- 0.8)	20
10	Alabama	20.3% (+/- 0.9)	2

*Note: For rankings, 1 = Lowest rate of fruit and vegetable consumption.

D.C. had the highest rate of fruit and vegetable consumption at 32.1 percent. Northeastern states had the highest rates of fruit and vegetable consumption.

States with the Highest Adult Fruit and Vegetable Consumption

Rank	State	Percentage of Adults Consuming 5+ Fruits or Vegetables	Obesity Ranking
51	D.C.	32.1% (+/- 1.2)	50
50	Vermont	30.1% (+/- 0.9)	45
48 (tie)	New Hampshire	28.5% (+/- 0.9)	33
48 (tie)	California	28.5% (+/- 0.8)	40
47	Maine	28.4% (+/- 0.9)	27
46	Connecticut	28.1% (+/- 0.9)	49
45	Maryland	27.6% (+/- 0.8)	26
44	Massachusetts	27.5% (+/- 0.7)	48
43	New York	26.8% (+/- 0.9)	41
41 (tie)	Virginia	26.6% (+/- 1.1)	30
41 (tie)	New Jersey	26.6% (+/- 0.8)	43

*Note: For rankings, 51 = Highest rate of fruit and vegetable consumption.

USING GROCERY STORES TO INCREASE CONSUMPTION OF HEALTHY FOODS

Last June, RWJF and the Food Trust co-sponsored a meeting that included more than 60 public health leaders, food retailers, food manufacturers, consumer product designers, and marketers, to discuss how to make it easier for shoppers to identify and purchase healthier foods and beverages in grocery stores. The resulting report, *Harnessing the Power of Supermarkets to Help Reverse Childhood Obesity,* offers several recommendations.[51]

Grocery stores, corner stores, bodegas, supermarkets, neighborhood stores, and convenience stores play a vital role in providing healthy food options, and can influence consumer choice. To sell their products, grocery stores focus on "the four P's:" Product, Placement, Price, and Promotion.[52] Existing marketing techniques, such as store layout and atmosphere, in-store activities, and consumer familiarity with the store, could make it easier for consumers to make healthier food selections and help prevent obesity in the long run. The report found that about 60 percent of purchase decisions are made in the store or are unplanned. Healthier purchases also can be promoted through a range of media, including television, newspaper and magazine ads, e-mails and text messaging, product placement, coupons, social media, interactive vending machine promotions, in-store coupons, and sampling programs. Experts claim that shopper marketing can influence consumers by as much as 34 percent.[53]

The report makes several recommendations, including:[54]

- There is a growing connection between healthy diets and healthy profits. Consumer demand for healthy products is growing and many manufacturers and retailers are responding;
- It is essential to make the healthy choice easier, especially for foods and beverages disproportionately consumed by children and adolescents;
- The country must develop a rating system to identify family-friendly stores that meet minimum standards for healthy youth-oriented marketing practices;
- The country should create cross-sector partnerships to develop, evaluate, and spread practical marketing innovations with high potential to make healthy foods more appealing and available, such as replacing candy and snacks at checkout aisles with healthier products, and creating brands for fresh fruit and vegetables;
- It is important to engage youth and community residents in developing healthy, and profitable, in-store and shopper marketing strategies; and
- The country must devote more resources to understanding how to change shopping habits among lower-income and minority shoppers, including those living in rural and urban food deserts.

BRINGING FRESH FOOD TO AREAS IN NEED

Many communities around the country have little or no access to full-service grocery stores; these areas often have poor health. Increasingly, advocates and public officials are trying to bring supermarkets into these "food deserts," both to improve health and to boost the local economy.

- In 2009, Mandela Foods Cooperative, a locally-owned and operated full-service grocery store and nutrition education center, opened in West Oakland, California, which had few health food options for residents. The cooperative sells a range of healthy food, employs local residents, bolsters the neighborhood's economy, provides nutrition education, and supports area farmers.[55]
- Started in 2004, the Fresh Food Financing Initiative operates in underserved communities throughout Pennsylvania, encouraging the development of new grocery stores, and helping existing stores offer healthier food. Organized by the Food Trust, the project has attracted more than $190 million in private funding for supermarkets throughout the state. The state of Pennsylvania appropriated $30 million over three years to the program and the Reinvestment Fund, a national leader in financing neighborhood revitalization, leveraged the investment to create a $120 million initiative. The initiative has provided funding for 88 fresh food retail projects in 34 Pennsylvania counties, creating or preserving almost 5,000 jobs.[56]
- In New York City, the Food Retail Expansion to Support Health (FRESH) program fosters creation of stores that sell healthy foods. The program will offer zoning incentives for grocery stores to open in underserved communities throughout the city.[57]

H. BREASTFEEDING

Children who are breastfed have lower rates of obesity; this is especially true for those who are breastfed exclusively, without formula supplementation.[58] Breastfeeding is also associated with a range of other benefits, and the American Academy of Pediatrics (AAP), the American Academy of Family Physicians, the Academy of Breastfeeding Medicine, the World Health Organization, the United Nations Children's Fund, and many other health organizations recommend exclusive breastfeeding for the first six months of life.

However, according to the CDC's 2010 Breastfeeding Report Card, only 13.3 percent of mothers in the United States are breastfeeding exclusively through six months, which is well below the Healthy People 2020 goal of 25.5 percent.[59] In fact, no states meet this goal.

States with the Highest Rates of Exclusive Breastfeeding at 6 Months

Rank	State	Percentage Breastfeeding Exclusively at 6 Months (2007)	Obesity Ranking
1	Utah	23.7%	46
2	D.C.	23.1%	50
3	Minnesota	23.0%	38
4	Vermont	22.5%	45
5	South Carolina	22.3%	8
6	Washington	21.8%	28
7	Iowa	21.2%	20
8	Alabama	20.5%	2
9	Wyoming	20.4%	35
10	Virginia	19.5%	30

*Note: For rankings, 1 = Highest rate of breastfeeding.

States with the Lowest Rates of Exclusive Breastfeeding at 6 Months

Rank	State	Percentage Breastfeeding Exclusively at 6 Months (2007)	Obesity Ranking
51	California	6.5%	40
50	Arizona	6.7%	35
49	Indiana	6.9%	15
48	Mississippi	7.0%	1
47	North Carolina	7.8%	14
46	New York	8.7%	41
45	Tennessee	8.8%	4
44	Illinois	9.2%	23
43	Connecticut	9.7%	49
42	Maryland	9.9%	26

*Note: For rankings, 51 = Lowest rate of breastfeeding.

I. CHANGES IN OBESITY, OVERWEIGHT, DIABETES AND HYPERTENSION BY STATE FROM 1990 TO 2010

Currently, more than two-thirds of American adults are either overweight or obese. The following analysis demonstrates how the problem has grown significantly since 1990.

Twenty years ago, no state had an obesity rate above 15 percent, the state with the highest combined obesity and overweight rate was 49 percent (for states with data available).

Data was available for the first time for all states starting in 1995. Between 1995 and 2010, obesity, overweight, as well as related health problems including diabetes and hypertension, all increased rapidly.

STATE-BY-STATE CHART ON OBESITY AND OVERWEIGHT RATES AND RELATED HEALTH INDICATORS OVER 20 YEARS

	ADULTS							
	Obesity							
	20 Years Ago		15 Years Ago		10 Years Ago		Current	
States	1988-1990 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	1993-1995 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	1998-2000 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Rank
Alabama	11.2% (+/- 1.0)	21	15.7% (+/- 1.1)	17	22.6% (+/- 1.3)	3	32.3% (+/- 1.0)	2
Alaska	N/A	N/A	15.7% (+/- 1.5)	17	20.9% (+/- 1.5)	11	25.9% (+/- 1.6)	30
Arizona	10.6% (+/- 1.2)	29	12.6% (+/- 1.3)	44	14.9% (+/- 1.6)	50	25.4% (+/- 1.4)	35
Arkansas	N/A	N/A	17.0% (+/- 1.2)	5	21.9% (+/- 1.1)	6	30.6% (+/- 1.2)	9
California	9.9% (+/- 0.9)	37	13.9% (+/- 0.9)	32	18.7% (+/- 0.9)	29	24.8% (+/- 0.6)	40
Colorado	6.9% (+/- 1.4)	45	10.7% (+/- 1.0)	50	14.5% (+/- 1.1)	51	19.8% (+/- 0.7)	51
Connecticut	10.4% (+/- 1.1)	30	11.8% (+/- 1.0)	47	16.0% (+/- 0.8)	45	21.8% (+/- 0.9)	49
Delaware	14.4% (+/- 2.1)	2	15.2% (+/- 1 .1)	20	17.1% (+/- 1.1)	37	28.0% (+/- 1.2)	21
D.C.	14.4% (+/- 1.3)	2	12.8% (+/- 1.5)	42	20.1% (+/- 1.4)	21	21.7% (+/- 1.0)	50
Florida	11.4% (+/- 1.0)	16	14.3% (+/- 0.8)	26	18.4% (+/- 0.8)	31	26.1% (+/- 0.9)	29
Georgia	10.1% (+/- 1.2)	33	13.8% (+/- 1.0)	34	20.6% (+/- 1.1)	15	28.7% (+/- 1.1)	17
Hawaii	8.9% (+/- 1.0)	42	10.6% (+/- 0.9)	51	15.7% (+/- 1.1)	47	23.1% (+/- 0.9)	47
Idaho	9.3% (+/- 0.9)	39	14.1% (+/- 1.1)	30	18.4% (+/- 0.8)	31	25.7% (+/- 1.0)	32
Illinois	12.1% (+/- 1.0)	12	15.3% (+/- 1.0)	19	20.4% (+/- 1.0)	19	27.7% (+/- 1.0)	23
Indiana	13.3% (+/- 0.9)	6	18.3% (+/- 1.0)	2	20.5% (+/- 1.2)	17	29.1% (+/- 0.9)	15
Iowa	12.2% (+/- 1.2)	11	16.2% (+/- 1.0)	13	20.9% (+/- 0.9)	11	28.1% (+/- 0.9)	20
Kansas	N/A	N/A	13.5% (+/- 1.1)	36	19.1% (+/- 0.9)	27	29.0% (+/- 0.8)	16
Kentucky	12.7% (+/- 1.0)	8	16.6% (+/- 1.0)	8	21.7% (+/- 0.8)	7	31.5% (+/- 1.0)	6
Louisiana	12.3% (+/- 2.7)	9	17.0% (+/- 1.2)	5	22.6% (+/- 1.2)	3	31.6% (+/- 0.9)	5
Maine	10.9% (+/- 1.1)	24	14.3% (+/- 1.3)	26	18.9% (+/- 1.3)	28	26.5% (+/- 0.8)	27
Maryland	10.8% (+/- 1.2)	25	15.0% (+/- 1.2)	23	19.6% (+/- 1.0)	25	27.1% (+/- 0.8)	26
Massachusetts	10.1% (+/- 1.1)	33	11.6% (+/- 1.0)	48	15.3% (+/- 1.4)	49	22.3% (+/- 0.6)	48
Michigan	13.2% (+/- 1.0)	7	17.2% (+/- 1.0)	4	22.1% (+/- 1.1)	5	30.5% (+/- 0.8)	10
Minnesota	10.3% (+/- 0.7)	31	14.6% (+/- 0.7)	24	16.4% (+/- 0.8)	43	25.3% (+/- 1.0)	38
Mississippi	15.0% (+/- 2.1)	1	19.4% (+/- 1.4)	1	23.7% (+/- 1.3)	2	34.4% (+/- 0.9)	1
Missouri	11.3% (+/- 1.0)	17	16.9% (+/- 1.2)	7	21.4% (+/- 1.0)	9	30.3% (+/- 1.2)	11
Montana	8.4% (+/- 1.0)	43	13.0% (+/- 1.3)	39	15.6% (+/- 1.0)	48	23.8% (+/- 0.9)	44
Nebraska	11.3% (+/- 1.0)	17	15.2% (+/- 1.1)	20	20.1% (+/- 1.0)	21	27.6% (+/- 0.9)	24
Nevada	N/A	N/A	13.1% (+/- 1.1)	38	16.0% (+/- 1.4)	45	25.0% (+/- 1.4)	39
New Hampshire	9.9% (+/- 1.0)	37	12.9% (+/- 1.1)	40	16.1% (+/- 1.3)	44	25.6% (+/- 0.9)	33
New Jersey	N/A	N/A	12.3% (+/- 1.2)	45	17.0% (+/- 1.0)	39	24.1% (+/- 0.7)	43
New Mexico	8.1% (+/- 1.1)	44	11.6% (+/- 1.2)	48	17.4% (+/- 0.8)	35	25.6% (+/- 0.9)	33
New York	9.3% (+/- 1.1)	39	14.3% (+/- 0.9)	26	17.1% (+/- 1.0)	37	24.7% (+/- 0.8)	41
North Carolina	12.3% (+/- 1.0)	9	16.3% (+/- 1.0)	12	20.9% (+/- 1.1)	11	29.4% (+/- 0.8)	14
North Dakota	11.6% (+/- 1.0)	15	15.2% (+/- 1.1)	20	20.5% (+/- 1.2)	17	28.0% (+/- 1.1)	21
Ohio	11.3% (+/- 1.2)	17	16.1% (+/- 1.3)	15	20.6% (+/- 1.2)	15	29.6% (+/- 0.8)	13
Oklahoma	10.3% (+/- 1.1)	31	12.9% (+/- 1.1)	40	20.1% (+/- 1.0)	21	31.4% (+/- 0.8)	7
Oregon	11.2% (+/- 1.0)	21	13.6% (+/- 0.9)	35	19.9% (+/- 1.1)	24	25.4% (+/- 1.0)	35
Pennsylvania	13.7% (+/- 1.2)	4	16.2% (+/- 0.9)	13	20.3% (+/- 0.9)	20	28.5% (+/- 0.8)	19
Rhode Island	10.1% (+/- 0.9)	33	12.8% (+/- 1.3)	42	16.9% (+/- 0.8)	41	24.3% (+/- 1.0)	42
South Carolina	12.0% (+/- 0.9)	13	16.6% (+/- 1.1)	8	21.1% (+/- 1.0)	10	30.9% (+/- 1.0)	8
South Dakota	10.7% (+/- 1.1)	26	14.5% (+/- 1.1)	25	18.4% (+/- 0.9)	31	28.7% (+/- 1.0)	17
Tennessee	11.1% (+/- 0.8)	23	16.4% (+/- 1.0)	10	20.9% (+/- 1.0)	11	31.9% (+/- 1.2)	4
Texas	10.7% (+/- 1.1)	26	16.0% (+/- 1.2)	16	21.7% (+/- 0.8)	7	30.1% (+/- 0.9)	12
Utah	9.0% (+/- 0.9)	41	12.0% (+/- 1.0)	46	17.3% (+/- 1.1)	36	23.4% (+/- 0.8)	46
Vermont	10.7% (+/- 2.1)	26	13.4% (+/- 0.9)	37	17.0% (+/- 0.9)	39	23.5% (+/- 0.8)	45
Virginia	11.3% (+/- 1.4)	17	14.2% (+/- 1.1)	29	18.7% (+/- 1.1)	29	25.9% (+/- 1.2)	30
Washington	10.1% (+/- 1.0)	33	13.9% (+/- 0.8)	32	18.4% (+/- 0.9)	31	26.4% (+/- 0.5)	28
West Virginia	13.7% (+/- 1.0)	4	17.7% (+/- 1.0)	3	23.9% (+/- 1.1)	1	32.2% (+/- 1.1)	3
Wisconsin	11.8% (+/- 1.2)	14	16.4% (+/- 1.2)	10	19.4% (+/- 1.1)	26	27.4% (+/- 1.1)	25
Wyoming	N/A	N/A	14.0% (+/- 1.5)	31	16.6% (+/- 1.0)	42	25.4% (+/- 0.9)	35

Source: Behavior Risk Factor Surveillance System (BRFSS), CDC. To "stabilize" BRFSS data in order to rank states, TFAH combined three years of data (See Appendix B for more information on the methodology used for the rankings.).

STATE-BY-STATE CHART ON OBESITY AND OVERWEIGHT RATES AND RELATED HEALTH INDICATORS OVER 20 YEARS

	ADULTS							
	Overweight & Obesity							
	20 Years Ago		15 Years Ago		10 Years Ago		Current	
States	1988-1990 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	1993-1995 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	1998-2000 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Rank
Alabama	43.6% (+/- 1.5)	21	51.8% (+/- 1.5)	15	60.4% (+/- 1.4)	2	68.7% (+/- 1.0)	2
Alaska	N/A	N/A	52.3% (+/- 2.1)	11	59.5% (+/- 1.9)	3	64.9% (+/- 1.9)	20
Arizona	40.2% (+/- 1.7)	41	44.7% (+/- 2.0)	49	52.4% (+/- 2.1)	41	63.7% (+/- 1.5)	27
Arkansas	N/A	N/A	51.8% (+/- 1.5)	15	57.9% (+/- 1.2)	11	66.5% (+/- 1.2)	7
California	41.2% (+/- 1.3)	35	48.6% (+/- 1.2)	37	55.3% (+/- 1.1)	29	61.4% (+/- 0.7)	40
Colorado	36.7% (+/- 2.6)	44	43.3% (+/- 1.5)	50	48.4% (+/- 1.5)	51	56.2% (+/- 0.8)	50
Connecticut	42.0% (+/- 1.7)	32	45.2% (+/- 1.6)	48	52.1% (+/- 1.3)	45	59.8% (+/- 1.1)	45
Delaware	47.1% (+/- 2.8)	3	51.3% (+/- 1.5)	21	54.9% (+/- 1.6)	33	63.8% (+/- 1.4)	26
D.C.	44.9% (+/- 1.9)	15	47.7% (+/- 2.3)	41	51.6% (+/- 1.8)	46	54.8% (+/- 1.2)	51
Florida	44.5% (+/- 1.6)	18	49.1% (+/- 1.2)	32	54.7% (+/- 1.0)	34	62.6% (+/- 1.0)	33
Georgia	42.3% (+/- 1.7)	30	51.3% (+/- 1.5)	21	57.2% (+/- 1.3)	15	65.3% (+/- 1.2)	17
Hawaii	36.4% (+/- 1.6)	45	42.2% (+/- 1.6)	51	49.4% (+/- 1.5)	50	57.5% (+/- 1.0)	49
Idaho	41.2% (+/- 1.5)	35	50.0% (+/- 1.5)	28	54.7% (+/- 1.0)	34	62.1% (+/- 1.2)	34
Illinois	45.0% (+/- 1.6)	13	51.5% (+/- 1.4)	17	57.0% (+/- 1.2)	18	63.7% (+/- 1.1)	27
Indiana	46.0% (+/- 1.4)	11	53.8% (+/- 1.3)	3	57.1% (+/- 1.5)	16	65.1% (+/- 1.1)	19
Iowa	46.2% (+/- 2.0)	10	53.1% (+/- 1.3)	5	58.3% (+/- 1.1)	9	65.9% (+/- 1.0)	12
Kansas	N/A	N/A	47.6% (+/- 1.6)	42	56.6% (+/- 1.1)	22	64.9% (+/- 0.8)	20
Kentucky	45.0% (+/- 1.5)	13	52.1% (+/- 1.4)	12	59.2% (+/- 1.0)	6	67.1% (+/- 1.1)	5
Louisiana	44.0% (+/- 4.3)	19	52.1% (+/- 1.6)	12	58.2% (+/- 1.4)	10	66.0% (+/- 1.0)	11
Maine	44.0% (+/- 1.8)	19	51.1% (+/- 1.9)	24	55.2% (+/- 1.6)	31	63.2% (+/- 0.9)	29
Maryland	41.2% (+/- 1.8)	35	50.0% (+/- 1.0)	28	55.8% (+/- 1.2)	27	64.1% (+/- 0.9)	25
Massachusetts	42.1% (+/- 1.8)	31	45.5% (+/- 1.6)	47	51.0% (+/- 1.0)	48	58.6% (+/- 0.8)	46
Michigan	46.7% (+/- 1.5)	6	53.6% (+/- 1.3)	4	59.3% (+/- 1.3)	5	65.7% (+/- 0.9)	14
Minnesota	43.2% (+/- 1.1)	24	50.7% (+/- 1.1)	25	56.8% (+/- 1.0)	19	63.1% (+/- 1.2)	30
Mississippi	47.2% (+/- 2.9)	2	54.3% (+/- 1.7)	2	61.1% (+/- 1.4)	1	68.8% (+/- 0.9)	1
Missouri	43.6% (+/- 1.7)	21	52.9% (+/- 1.7)	7	57.1% (+/- 1.2)	16	65.6% (+/- 1.3)	15
Montana	41.1% (+/- 1.9)	38	49.1% (+/- 1.8)	32	52.4% (+/- 1.5)	41	61.7% (+/- 1.1)	38
Nebraska	46.5% (+/- 1.7)	8	52.0% (+/- 1.5)	14	56.8% 9+/- 1.2)	19	64.6% (+/- 1.0)	23
Nevada	N/A	N/A	48.4% (+/- 1.6)	38	52.4% (+/- 1.9)	41	62.0% (+/- 1.6)	35
New Hampshire	40.7% (+/- 1.7)	39	47.8% (+/- 1.6)	40	52.2% (+/- 1.7)	44	63.0% (+/- 1.0)	31
New Jersey	N/A	N/A	47.0% (+/- 1.8)	43	55.2% (+/- 1.3)	31	61.8% (+/- 0.9)	37
New Mexico	38.2% (+/- 1.8)	43	46.1% (+/- 1.8)	45	54.2% (+/- 1.2)	37	60.8% (+/- 1.1)	43
New York	42.5% (+/- 1.9)	27	49.0% (+/- 1.4)	34	54.1% (+/- 1.3)	38	60.6% (+/- 0.9)	44
North Carolina	45.1% (+/- 1.6)	12	51.5% (+/- 1.3)	17	57.7% (+/- 1.4)	12	65.5% (+/- 0.8)	16
North Dakota	47.0% (+/- 1.6)	4	52.6% (+/- 1.5)	10	59.2% (+/- 1.4)	6	66.1% (+/- 1.2)	10
Ohio	44.7% (+/- 1.8)	16	51.5% (+/- 1.9)	17	56.4% (+/- 1.6)	25	65.3% (+/- 0.9)	17
Oklahoma	41.7% (+/- 1.9)	33	51.3% (+/- 1.6)	21	55.7% (+/- 1.2)	28	67.1% (+/- 0.9)	5
Oregon	42.7% (+/- 1.6)	26	49.8% (+/- 1.2)	30	55.6% (+/- 1.4)	29	61.1% (+/- 1.2)	42
Pennsylvania	47.0% (+/- 1.8)	4	52.9% (+/- 1.2)	7	57.5% (+/- 1.1)	13	64.7% (+/- 0.8)	22
Rhode Island	43.1% (+/- 1.6)	25	47.9% (+/- 1.9)	39	53.4% (+/- 1.1)	40	61.7% (+/- 1.1)	38
South Carolina	46.3% (+/- 1.6)	9	51.4% (+/- 1.5)	20	57.4% (+/- 1.2)	14	66.4% (+/- 1.1)	9
South Dakota	44.6% (+/- 1.7)	17	53.2% (+/- 1.5)	5	56.5% (+/- 1.2)	24	65.9% (+/- 1.1)	12
Tennessee	43.6% (+/- 1.3)	21	50.7% (+/- 1.3)	25	56.8% (+/- 1.2)	19	68.3% (+/- 1.2)	3
Texas	42.5% (+/- 1.8)	27	50.3% (+/- 1.6)	27	58.5% (+/- 1.0)	8	66.5% (+/- 0.9)	7
Utah	40.1% (+/- 1.7)	42	46.0% (+/- 1.5)	46	51.5% (+/- 1.5)	47	57.9% (+/- 1.0)	48
Vermont	40.7% (+/- 3.4)	39	46.5% (+/- 1.4)	44	51.0% (+/- 1.2)	48	58.4% (+/- 1.0)	47
Virginia	41.5% (+/- 2.0)	34	48.9% (+/- 1.6)	35	56.0% (+/- 1.5)	26	61.2% (+/- 1.7)	41
Washington	42.5% (+/- 1.6)	27	49.2% (+/- 1.1)	31	54.7% (+/- 1.2)	34	62.0% (+/- 0.6)	35
West Virginia	46.6% (+/- 1.6)	7	54.6% (+/- 1.3)	1	59.7% (+/- 1.3)	3	68.1% (+/- 1.1)	4
Wisconsin	49.0% (+/- 1.8)	1	52.9% (+/- 1.7)	7	56.6% (+/- 1.4)	22	64.3% (+/- 1.3)	24
Wyoming	N/A	N/A	48.7% (+/- 2.1)	36	54.0% (+/- 1.3)	39	62.7% (+/- 1.0)	32

Source: Behavior Risk Factor Surveillance System (BRFSS), CDC. To "stabilize" BRFSS data in order to rank states, TFAH combined three years of data (See Appendix B for more information on the methodology used for the rankings.).

STATE-BY-STATE CHART ON OBESITY AND OVERWEIGHT RATES AND RELATED HEALTH INDICATORS OVER 20 YEARS

	ADULTS							
	Diabetes							
	20 Years Ago		15 Years Ago		10 Years Ago		Current	
States	1988-1990 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	1993-1995 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	1998-2000 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Rank
Alabama	6.1% (+/- 0.7)	5	5.1% (+/- 0.7)	21	8.3% (+/- 0.7)	2	12.2% (+/- 0.6)	1
Alaska	N/A	N/A	3.7% (+/- 0.9)	50	4.3% (+/- 0.8)	51	5.9% (+/- 0.8)	50
Arizona	3.9% (+/- 0.7)	36	4.6% (+/- 0.8)	33	4.9% (+/- 1.0)	49	9.2% (+/- 0.7)	18
Arkansas	N/A	N/A	5.8% (+/- 0.7)	7	7.0% (+/- 0.6)	16	9.8% (+/- 0.6)	11
California	4.7% (+/- 0.6)	26	4.9% (+/- 0.6)	24	7.5% (+/- 0.6)	3	8.7% (+/- 0.4)	23
Colorado	3.1% (+/- 0.9)	44	3.6% (+/- 0.6)	51	5.2% (+/- 0.6)	45	5.9% (+/- 0.3)	50
Connecticut	4.9% (+/- 0.7)	23	5.5% (+/- 0.7)	12	5.6% (+/- 0.5)	40	6.9% (+/- 0.5)	44
Delaware	5.9% (+/- 1.3)	8	5.4% (+/- 0.6)	14	6.2% (+/- 0.7)	31	8.4% (+/- 0.6)	25
D.C.	8.2% (+/- 1.0)	1	5.0% (+/- 1.0)	23	7.3% (+/- 1.0)	7	8.8% (+/- 0.6)	20
Florida	5.5% (+/- 0.7)	14	5.7% (+/- 0.5)	10	7.5% (+/- 0.5)	3	9.9% (+/- 0.5)	10
Georgia	5.2% (+/- 0.9)	19	4.2% (+/- 0.6)	41	7.0% (+/- 0.6)	16	9.7% (+/- 0.6)	12
Hawaii	5.6% (+/- 0.7)	11	4.4% (+/- 0.6)	37	6.6% (+/- 0.7)	25	8.3% (+/- 0.5)	29
Idaho	3.7% (+/- 0.5)	39	4.5% (+/- 0.7)	34	5.3% (+/- 0.5)	44	7.7% (+/- 0.5)	33
Illinois	5.2% (+/- 0.7)	19	5.5% (+/- 0.6)	12	7.3% (+/- 0.7)	7	8.4% (+/- 0.5)	25
Indiana	5.8% (+/- 0.6)	9	4.8% (+/- 0.5)	28	6.8% (+/- 0.8)	22	9.6% (+/- 0.5)	13
Iowa	5.0% (+/- 0.8)	21	4.7% (+/- 0.5)	30	6.2% (+/- 0.6)	31	7.4% (+/- 0.4)	38
Kansas	N/A	N/A	4.8% (+/- 0.7)	28	5.9% (+/- 0.5)	35	8.4% (+/- 0.4)	25
Kentucky	5.6% (+/- 0.7)	11	4.2% (+/- 0.5)	41	6.7% (+/- 0.5)	23	10.5% (+/- 0.5)	6
Louisiana	5.3% (+/- 1.8)	16	6.2% (+/- 0.8)	4	7.1% (+/- 0.7)	10	10.7% (+/- 0.5)	4
Maine	4.6% (+/- 0.8)	29	3.9% (+/- 0.6)	48	5.7% (+/- 0.7)	37	8.4% (+/- 0.4)	25
Maryland	3.7% (+/- 0.6)	39	5.1% (+/- 0.4)	21	7.1% (+/- 0.6)	10	9.1% (+/- 0.5)	19
Massachusetts	4.7% (+/- 0.8)	26	4.5% (+/- 0.7)	34	6.0% (+/- 0.5)	34	7.5% (+/- 0.3)	35
Michigan	6.4% (+/- 0.8)	4	7.6% (+/- 0.6)	1	7.3% (+/- 0.7)	7	9.5% (+/- 0.4)	16
Minnesota	3.2% (+/- 0.4)	43	4.5% (+/- 0.4)	34	6.3% (+/- 0.5)	27	6.3% (+/- 0.4)	48
Mississippi	6.9% (+/- 1.5)	2	6.5% (+/- 0.8)	3	8.5% (+/- 0.8)	1	11.8% (+/- 0.5)	3
Missouri	5.7% (+/- 0.8)	10	5.7% (+/- 0.7)	10	7.1% (+/- 0.6)	10	8.8% (+/- 0.6)	20
Montana	2.8% (+/- 0.6)	45	4.2% (+/- 0.7)	41	5.5% (+/- 0.7)	41	6.8% (+/- 0.4)	46
Nebraska	4.3% (+/- 0.6)	33	5.2% (+/- 0.6)	19	5.2% (+/- 0.5)	45	7.6% (+/- 0.4)	34
Nevada	N/A	N/A	4.7% (+/- 0.7)	30	6.3% (+/- 1.0)	27	8.3% (+/- 0.8)	29
New Hampshire	4.5% (+/- 0.7)	30	4.9% (+/- 0.7)	24	4.8% (+/- 0.7)	50	7.4% (+/- 0.4)	38
New Jersey	N/A	N/A	4.9% (+/- 0.8)	24	6.3% (+/- 0.6)	27	8.8% (+/- 0.4)	20
New Mexico	4.8% (+/- 0.9)	25	5.3% (+/- 0.8)	17	6.4% (+/- 0.6)	26	8.3% (+/- 0.5)	29
New York	5.3% (+/- 0.8)	16	4.7% (+/- 0.6)	30	7.1% (+/- 0.7)	10	8.7% (+/- 0.4)	23
North Carolina	5.6% (+/- 0.7)	11	5.3% (+/- 0.5)	17	7.0% (+/- 0.6)	16	9.6% (+/- 0.4)	13
North Dakota	4.1% (+/- 0.6)	34	4.3% (+/- 0.6)	39	5.5% (+/- 0.7)	41	7.5% (+/- 0.5)	35
Ohio	5.3% (+/- 0.7)	16	5.4% (+/- 0.8)	14	7.1% (+/- 0.7)	10	10.0% (+/- 0.5)	9
Oklahoma	4.1% (+/- 0.7)	34	3.8% (+/- 0.7)	49	7.0% (+/- 0.6)	16	10.5% (+/- 0.5)	6
Oregon	3.8% (+/- 0.7)	38	4.2% (+/- 0.5)	41	6.1% (+/- 0.7)	33	7.4% (+/- 0.5)	38
Pennsylvania	6.1% (+/- 0.9)	5	5.8% (+/- 0.6)	7	7.0% (+/- 0.6)	16	9.4% (+/- 0.4)	17
Rhode Island	4.9% (+/- 0.7)	23	5.4% (+/- 0.9)	14	6.7% (+/- 0.5)	23	7.4% (+/- 0.5)	38
South Carolina	6.0% (+/- 0.7)	7	6.0% (+/- 0.7)	5	7.4% (+/- 0.6)	6	10.4% (+/- 0.5)	8
South Dakota	3.9% (+/- 0.7)	36	4.2% (+/- 0.6)	41	5.2% (+/- 0.5)	45	6.9% (+/- 0.4)	44
Tennessee	5.4% (+/- 0.6)	15	6.7% (+/- 0.6)	2	7.1% (+/- 0.7)	10	10.6% (+/- 0.7)	5
Texas	4.7% (+/- 0.8)	26	5.9% (+/- 0.7)	5	7.0% (+/- 0.5)	16	9.6% (+/- 0.5)	13
Utah	3.7% (+/- 0.6)	39	4.3% (+/- 0.6)	39	5.7% (+/- 0.6)	37	6.2% (+/- 0.4)	49
Vermont	3.4% (+/- 1.2)	42	4.9% (+/- 0.6)	24	5.4% (+/- 0.5)	43	6.5% (+/- 0.4)	47
Virginia	5.0% (+/- 0.9)	21	5.2% (+/- 0.7)	19	6.3% (+/- 0.8)	27	8.3% (+/- 0.5)	29
Washington	4.4% (+/- 0.7)	31	4.0% (+/- 0.4)	47	5.9% (+/- 0.5)	35	7.4% (+/- 0.3)	38
West Virginia	6.7% (+/- 0.7)	3	5.8% (+/- 0.6)	7	7.5% (+/- 0.6)	3	12.0% (+/- 0.6)	2
Wisconsin	4.4% (+/- 0.8)	31	4.4% (+/- 0.7)	37	5.7% (+/- 0.6)	37	7.5% (+/- 0.6)	35
Wyoming	N/A	N/A	4.2% (+/- 0.7)	41	5.2% (+/- 0.6)	45	7.2% (+/- 0.4)	43

Source: Behavior Risk Factor Surveillance System (BRFSS), CDC. To "stabilize" BRFSS data in order to rank states, TFAH combined three years of data (See Appendix B for more information on the methodology used for the rankings.).

STATE-BY-STATE CHART ON OBESITY AND OVERWEIGHT RATES AND RELATED HEALTH INDICATORS OVER 20 YEARS

	ADULTS							
	Hypertension							
	20 Years Ago		15 Years Ago		10 Years Ago		Current	
States	1988-1990 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	1993-1995 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	1998-2000 3 Yr. Ave. Percentage (95% Conf Interval)	Rank	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Rank
Alabama	23.1% (+/- 1.3)	7	22.7% (+/- 1.5)	16	31.2% (+/- 2.2)	2	33.9% (+/- 1.0)	3
Alaska	N/A	N/A	18.3% (+/- 2.1)	50	21.3% (+/- 2.7)	46	24.3% (+/- 1.4)	48
Arizona	20.7% (+/- 1.4)	26	19.4% (+/- 1.7)	46	14.2% (+/- 2.1)	51	24.7% (+/- 1.2)	47
Arkansas	N/A	N/A	25.1% (+/- 1.6)	5	28.4% (+/- 1.8)	5	31.6% (+/- 1.0)	7
California	20.3% (+/- 1.1)	31	21.6% (+/- 1.3)	33	22.5% (+/- 1.0)	38	25.5% (+/- 0.7)	41
Colorado	16.7% (+/- 1.9)	44	21.3% (+/- 1.5)	36	22.2% (+/- 2.1)	40	21.2% (+/- 0.6)	50
Connecticut	21.5% (+/- 1.4)	17	21.0% (+/- 1.5)	40	20.4% (+/- 1.8)	49	25.7% (+/- 0.8)	38
Delaware	22.4% (+/- 2.2)	13	21.8% (+/- 1.4)	28	25.5% (+/- 2.5)	14	29.4% (+/- 1.1)	12
D.C.	19.3% (+/- 1.5)	40	16.3% (+/- 1.6)	51	24.7% (+/- 2.6)	20	27.3% (+/- 1.1)	24
Florida	24.7% (+/- 1.3)	2	23.8% (+/- 1.2)	8	27.8% (+/- 1.6)	7	29.0% (+/- 0.8)	15
Georgia	20.2% (+/- 1.4)	34	20.5% (+/- 1.3)	43	26.3% (+/- 2.1)	10	29.5% (+/- 1.0)	11
Hawaii	20.3% (+/- 1.3)	31	21.5% (+/- 1.6)	34	22.7% (+/- 2.4)	37	27.8% (+/- 0.9)	22
Idaho	18.8% (+/- 1.1)	41	22.3% (+/- 1.5)	19	23.0% (+/- 1.4)	33	25.2% (+/- 0.9)	43
Illinois	21.9% (+/- 1.2)	15	22.0% (+/- 1.6)	23	25.0% (+/- 1.5)	18	27.5% (+/- 0.9)	23
Indiana	24.4% (+/- 1.1)	3	25.8% (+/- 1.4)	2	25.7% (+/- 2.9)	13	28.5% (+/- 0.8)	18
Iowa	20.1% (+/- 1.5)	36	22.0% (+/- 1.2)	23	24.9% (+/- 1.0)	19	26.5% (+/- 0.8)	31
Kansas	N/A	N/A	23.5% (+/- 1.5)	10	21.4% (+/- 1.4)	45	26.6% (+/- 0.6)	30
Kentucky	22.7% (+/- 1.2)	10	22.2% (+/- 1.3)	20	27.5% (+/- 1.4)	8	31.6% (+/- 1.0)	7
Louisiana	16.5% (+/- 2.7)	45	23.5% (+/- 1.7)	10	26.0% (+/- 2.3)	12	32.5% (+/- 0.9)	4
Maine	20.6% (+/- 1.5)	27	21.3% (+/- 1.4)	36	26.6% (+/- 1.6)	9	28.1% (+/- 0.8)	21
Maryland	21.2% (+/- 1.4)	21	21.0% (+/- 0.9)	40	24.5% (+/- 1.7)	22	28.2% (+/- 0.8)	20
Massachusetts	21.0% (+/- 1.5)	24	22.1% (+/- 1.6)	21	21.8% (+/- 1.6)	44	25.6% (+/- 0.6)	40
Michigan	23.2% (+/- 1.3)	6	23.1% (+/- 1.3)	13	25.2% (+/- 1.9)	16	28.7% (+/- 0.7)	17
Minnesota	20.4% (+/- 0.9)	29	20.5% (+/- 1.0)	43	22.0% (+/- 1.2)	42	21.6% (+/- 0.8)	49
Mississippi	28.2% (+/- 2.6)	1	29.9% (+/- 1.9)	1	33.5% (+/- 2.3)	1	34.8% (+/- 0.8)	1
Missouri	21.7% (+/- 1.4)	16	23.9% (+/- 1.7)	7	24.6% (+/- 1.7)	21	29.1% (+/- 1.1)	13
Montana	18.4% (+/- 1.3)	42	21.7% (+/- 1.5)	30	23.2% (+/- 2.1)	32	25.7% (+/- 0.8)	38
Nebraska	20.6% (+/- 1.3)	27	22.4% (+/- 1.5)	17	22.0% (+/- 1.7)	42	26.1% (+/- 0.8)	34
Nevada	N/A	N/A	22.0% (+/- 1.6)	23	29.1% (+/- 3.1)	4	26.3% (+/- 1.3)	33
New Hampshire	21.0% (+/- 1.4)	24	21.1% (+/- 1.6)	39	23.4% (+/- 2.7)	30	26.1% (+/- 0.8)	34
New Jersey	N/A	N/A	23.5% (+/- 1.9)	10	23.5% (+/- 1.9)	28	27.2% (+/- 0.7)	25
New Mexico	17.4% (+/- 1.5)	43	19.1% (+/- 1.8)	47	20.9% (+/- 1.6)	48	25.0% (+/- 0.8)	45
New York	21.3% (+/- 1.5)	20	22.0% (+/- 1.3)	23	22.9% (+/- 1.9)	34	27.1% (+/- 0.8)	28
North Carolina	22.1% (+/- 1.3)	14	18.9% (+/- 1.2)	48	24.0% (+/- 2.0)	25	29.9% (+/- 0.6)	10
North Dakota	20.1% (+/- 1.2)	36	22.4% (+/- 1.5)	17	25.3% (+/- 1.5)	15	25.4% (+/- 0.9)	42
Ohio	20.2% (+/- 1.5)	34	20.7% (+/- 1.5)	42	26.2% (+/- 1.4)	11	29.1% (+/- 0.8)	13
Oklahoma	21.4% (+/- 1.5)	19	21.7% (+/- 1.3)	30	23.5% (+/- 1.3)	28	31.9% (+/- 0.8)	6
Oregon	21.1% (+/- 1.3)	22	22.9% (+/- 1.2)	15	22.3% (+/- 2.1)	39	25.8% (+/- 0.8)	37
Pennsylvania	23.7% (+/- 1.5)	5	23.7% (+/- 1.2)	9	23.9% (+/- 1.6)	26	28.9% (+/- 0.7)	16
Rhode Island	20.4% (+/- 1.2)	29	23.1% (+/- 1.6)	13	22.9% (+/- 1.5)	34	28.3% (+/- 0.9)	19
South Carolina	22.6% (+/- 1.2)	12	24.4% (+/- 1.5)	6	25.2% (+/- 1.6)	16	31.5% (+/- 0.8)	9
South Dakota	20.3% (+/- 1.3)	31	20.0% (+/- 1.4)	45	23.8% (+/- 1.4)	27	26.9% (+/- 0.8)	29
Tennessee	23.0% (+/- 1.1)	9	25.6% (+/- 1.3)	3	28.1% (+/- 1.1)	6	32.2% (+/- 1.1)	5
Texas	21.1% (+/- 1.4)	22	21.7% (+/- 1.6)	30	24.2% (+/- 1.5)	24	27.2% (+/- 0.7)	25
Utah	21.5% (+/- 1.3)	17	18.7% (+/- 1.3)	49	21.3% (+/- 1.9)	46	20.5% (+/- 0.7)	51
Vermont	19.7% (+/- 2.6)	38	22.0% (+/- 1.4)	23	20.4% (+/- 1.1)	49	25.2% (+/- 0.7)	43
Virginia	19.6% (+/- 1.7)	39	21.8% (+/- 1.3)	28	24.5% (+/- 1.3)	22	27.2% (+/- 1.0)	25
Washington	22.7% (+/- 1.3)	10	21.4% (+/- 1.2)	35	22.1% (+/- 1.6)	41	25.9% (+/- 0.5)	36
West Virginia	24.2% (+/- 1.2)	4	25.4% (+/- 1.1)	4	31.0% (+/- 1.9)	3	34.1% (+/- 1.0)	2
Wisconsin	23.1% (+/- 1.5)	7	22.1% (+/- 1.6)	21	23.4% (+/- 1.5)	30	26.4% (+/- 1.0)	32
Wyoming	N/A	N/A	21.2% (+/- 1.8)	38	22.8% (+/- 1.3)	36	24.9% (+/- 0.8)	46

Source: Behavior Risk Factor Surveillance System (BRFSS), CDC. To "stabilize" BRFSS data in order to rank states, TFAH combined three years of data (See Appendix B for more information on the methodology used for the rankings.).

1. Obesity — 1990 to 2010

Twenty years ago, no state had an obesity rate above 15 percent (for states with data available).

Between 1995 and 2010, obesity rates rose sharply in every state in the country and in Washington, D.C.

Over the past 15 years, seven states have doubled their rate of obesity. Another ten states nearly doubled their obesity rate, with increases of at least 90 percent. And 21 more states saw obesity rates increase by at least 80 percent.

In 1995, 27 states had obesity rates below 15 percent; no state was above 20 percent. By 2010, 39 were above 25 percent, while 12 had risen past 30 percent. By 2010, only 11 states and Washington, D.C. had obesity rates below 25 percent.

The scope of this increase is illustrated by the fact that the state with the lowest obesity rate in 2010 had a higher rate than the state with the top rate in 1995. In 2010, Colorado had the lowest rate in the country, 19.8 percent. Fifteen years earlier, Mississippi had the highest rate in the nation, 19.4 percent.

The three states with the largest increases in percentage were: Oklahoma, which increased from 12.9 percent to 31.4 percent (an 18.5 percent increase); Alabama, which increased from 15.7 percent to 32.3 percent (a 16.5 percent increase); and Tennessee, which increased from 16.4 to nearly 32 percent (a 15.6 percent increase). Twelve of the 14 states with the biggest increases were in the South or Southwest.

The three states with the smallest increases were: Washington, D.C., which increased from 12.8 percent to 21.7 percent (a nine percent increase); Colorado, which increased from 10.7 percent to 19.8 percent (a 9.2 percent increase); and Connecticut, which increased from 11.8 percent to 21.8 percent (a 10 percent increase).

States with the Largest Rise in Obesity Rates, 1995-2010

Rank	State	Increase in Obesity Rate, 1995-2010
1	Oklahoma	18.5%
2	Alabama	16.5%
3	Tennessee	15.6%
4	Kansas	15.5%
5	Mississippi	15.0%
6 (tie)	Georgia	14.9%
6 (tie)	Kentucky	14.9%
8 (tie)	Louisiana	14.5%
8 (tie)	West Virginia	14.5%
10	South Carolina	14.3%

States with the Smallest Rise in Obesity Rates, 1995-2010

Rank	State	Increase in Obesity Rate, 1995-2010
51	Washington, D.C.	9.0%
50	Colorado	9.2%
49	Connecticut	10.0%
48	Vermont	10.1%
47	Alaska	10.2%
46	New York	10.4%
44 (tie)	Minnesota	10.7%
44 (tie)	Massachusetts	10.7%
42 (tie)	Montana	10.8%
42 (tie)	Indiana	10.8%

CHART ON OBESITY AND OVERWEIGHT RATES AND

ADULTS

	Obesity				Overweight & Obese			
	15 Years Ago	Current			15 Years Ago	Current		
States	1993-1995 3 Yr. Ave. Percentage (95% Conf Interval)	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Difference from 1995-2010	Rank (biggest change in 15 years)	1993-1995 3 Yr. Ave. Percentage (95% Conf Interval)	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Difference from 1995-2010	Rank (biggest change in 15 years)
Alabama	15.7% (+/- 1.1)	32.3% (+/- 1.0)	16.5%	2	51.8% (+/- 1.5)	68.7% (+/- 1.0)	16.9%	4
Alaska	15.7% (+/- 1.5)	25.9% (+/- 1.6)	10.2%	47	52.3% (+/- 2.1)	64.9% (+/- 1.9)	12.6%	34
Arizona	12.6% (+/- 1.3)	25.4% (+/- 1.4)	12.8%	19	44.7% (+/- 2.0)	63.7% (+/- 1.5)	19.0%	1
Arkansas	17.0% (+/- 1.2)	30.6% (+/- 1.2)	13.7%	14	51.8% (+/- 1.5)	66.5% (+/- 1.2)	14.6%	13
California	13.9% (+/- 0.9)	24.8% (+/- 0.6)	10.9%	41	48.6% (+/- 1.2)	61.4% (+/- 0.7)	12.8%	29
Colorado	10.7% (+/- 1.0)	19.8% (+/- 0.7)	9.2%	50	43.3% (+/- 1.5)	56.2% (+/- 0.8)	12.9%	28
Connecticut	11.8% (+/- 1.0)	21.8% (+/- 0.9)	10.0%	49	45.2% (+/- 1.6)	59.8% (+/- 1.1)	14.6%	13
Delaware	15.2% (+/- 1 .1)	28.0% (+/- 1.2)	12.8%	19	51.3% (+/- 1.5)	63.8% (+/- 1.4)	12.6%	34
D.C.	12.8% (+/- 1.5)	21.7% (+/- 1.0)	9.0%	51	47.7% (+/- 2.3)	54.8% (+/- 1.2)	7.0%	51
Florida	14.3% (+/- 0.8)	26.1% (+/- 0.9)	11.8%	32	49.1% (+/- 1.2)	62.6% (+/- 1.0)	13.4%	26
Georgia	13.8% (+/- 1.0)	28.7% (+/- 1.1)	14.9%	6	51.3% (+/- 1.5)	65.3% (+/- 1.2)	14.0%	17
Hawaii	10.6% (+/- 0.9)	23.1% (+/- 0.9)	12.5%	23	42.2% (+/- 1.6)	57.5% (+/- 1.0)	15.3%	7
Idaho	14.1% (+/- 1.1)	25.7% (+/- 1.0)	11.6%	36	50.0% (+/- 1.5)	62.1% (+/- 1.2)	12.1%	41
Illinois	15.3% (+/- 1.0)	27.7% (+/- 1.0)	12.4%	25	51.5% (+/- 1.4)	63.7% (+/- 1.1)	12.2%	40
Indiana	18.3% (+/- 1.0)	29.1% (+/- 0.9)	10.8%	42	53.8% (+/- 1.3)	65.1% (+/- 1.1)	11.3%	48
Iowa	16.2% (+/- 1.0)	28.1% (+/- 0.9)	11.9%	31	53.1% (+/- 1.3)	65.9% (+/- 1.0)	12.8%	29
Kansas	13.5% (+/- 1.1)	29.0% (+/- 0.8)	15.5%	4	47.6% (+/- 1.6)	64.9% (+/- 0.8)	17.4%	3
Kentucky	16.6% (+/- 1.0)	31.5% (+/- 1.0)	14.9%	6	52.1% (+/- 1.4)	67.1% (+/- 1.1)	15.1%	9
Louisiana	17.0% (+/- 1.2)	31.6% (+/- 0.9)	14.5%	8	52.1% (+/- 1.6)	66.0% (+/- 1.0)	13.8%	20
Maine	14.3% (+/- 1.3)	26.5% (+/- 0.8)	12.2%	28	51.1% (+/- 1.9)	63.2% (+/- 0.9)	12.1%	41
Maryland	15.0% (+/- 1.2)	27.1% (+/- 0.8)	12.1%	29	50.0% (+/- 1.0)	64.1% (+/- 0.9)	14.1%	16
Massachusetts	11.6% (+/- 1.0)	22.3% (+/- 0.6)	10.7%	44	45.5% (+/- 1.6)	58.6% (+/- 0.8)	13.0%	27
Michigan	17.2% (+/- 1.0)	30.5% (+/- 0.8)	13.3%	17	53.6% (+/- 1.3)	65.7% (+/- 0.9)	12.1%	41
Minnesota	14.6% (+/- 0.7)	25.3% (+/- 1.0)	10.7%	44	50.7% (+/- 1.1)	63.1% (+/- 1.2)	12.3%	38
Mississippi	19.4% (+/- 1.4)	34.4% (+/- 0.9)	15.0%	5	54.3% (+/- 1.7)	68.8% (+/- 0.9)	14.5%	15
Missouri	16.9% (+/- 1.2)	30.3% (+/- 1.2)	13.4%	16	52.9% (+/- 1.7)	65.6% (+/- 1.3)	12.7%	32
Montana	13.0% (+/- 1.3)	23.8% (+/- 0.9)	10.8%	42	49.1% (+/- 1.8)	61.7% (+/- 1.1)	12.6%	34
Nebraska	15.2% (+/- 1.1)	27.6% (+/- 0.9)	12.4%	25	52.0% (+/- 1.5)	64.6% (+/- 1.0)	12.6%	34
Nevada	13.1% (+/- 1.1)	25.0% (+/- 1.4)	12.0%	30	48.4% (+/- 1.6)	62.0% (+/- 1.6)	13.5%	23
New Hampshire	12.9% (+/- 1.1)	25.6% (+/- 0.9)	12.7%	22	47.8% (+/- 1.6)	63.0% (+/- 1.0)	15.2%	8
New Jersey	12.3% (+/- 1.2)	24.1% (+/- 0.7)	11.8%	32	47.0% (+/- 1.8)	61.8% (+/- 0.9)	14.8%	11
New Mexico	11.6% (+/- 1.2)	25.6% (+/- 0.9)	14.1%	12	46.1% (+/- 1.8)	60.8% (+/- 1.1)	14.7%	12
New York	14.3% (+/- 0.9)	24.7% (+/- 0.8)	10.4%	46	49.0% (+/- 1.4)	60.6% (+/- 0.9)	11.6%	47
North Carolina	16.3% (+/- 1.0)	29.4% (+/- 0.8)	13.1%	18	51.5% (+/- 1.3)	65.5% (+/- 0.8)	13.9%	19
North Dakota	15.2% (+/- 1.1)	28.0% (+/- 1.1)	12.8%	19	52.6% (+/- 1.5)	66.1% (+/- 1.2)	13.5%	23
Ohio	16.1% (+/- 1.3)	29.6% (+/- 0.8)	13.5%	15	51.5% (+/- 1.9)	65.3% (+/- 0.9)	13.7%	22
Oklahoma	12.9% (+/- 1.1)	31.4% (+/- 0.8)	18.5%	1	51.3% (+/- 1.6)	67.1% (+/- 0.9)	15.7%	6
Oregon	13.6% (+/- 0.9)	25.4% (+/- 1.0)	11.8%	32	49.8% (+/- 1.2)	61.1% (+/- 1.2)	11.3%	48
Pennsylvania	16.2% (+/- 0.9)	28.5% (+/- 0.8)	12.3%	27	52.9% (+/- 1.2)	64.7% (+/- 0.8)	11.8%	46
Rhode Island	12.8% (+/- 1.3)	24.3% (+/- 1.0)	11.6%	36	47.9% (+/- 1.9)	61.7% (+/- 1.1)	13.8%	20
South Carolina	16.6% (+/- 1.1)	30.9% (+/- 1.0)	14.3%	10	51.4% (+/- 1.5)	66.4% (+/- 1.1)	14.9%	10
South Dakota	14.5% (+/- 1.1)	28.7% (+/- 1.0)	14.2%	11	53.2% (+/- 1.5)	65.9% (+/- 1.1)	12.7%	32
Tennessee	16.4% (+/- 1.0)	31.9% (+/- 1.2)	15.6%	3	50.7% (+/- 1.3)	68.3% (+/- 1.2)	17.5%	2
Texas	16.0% (+/- 1.2)	30.1% (+/- 0.9)	14.1%	12	50.3% (+/- 1.6)	66.5% (+/- 0.9)	16.2%	5
Utah	12.0% (+/- 1.0)	23.4% (+/- 0.8)	11.3%	39	46.0% (+/- 1.5)	57.9% (+/- 1.0)	11.9%	44
Vermont	13.4% (+/- 0.9)	23.5% (+/- 0.8)	10.1%	48	46.5% (+/- 1.4)	58.4% (+/- 1.0)	11.9%	44
Virginia	14.2% (+/- 1.1)	25.9% (+/- 1.2)	11.7%	35	48.9% (+/- 1.6)	61.2% (+/- 1.7)	12.3%	38
Washington	13.9% (+/- 0.8)	26.4% (+/- 0.5)	12.5%	23	49.2% (+/- 1.1)	62.0% (+/- 0.6)	12.8%	29
West Virginia	17.7% (+/- 1.0)	32.2% (+/- 1.1)	14.5%	8	54.6% (+/- 1.3)	68.1% (+/- 1.1)	13.5%	23
Wisconsin	16.4% (+/- 1.2)	27.4% (+/- 1.1)	11.0%	40	52.9% (+/- 1.7)	64.3% (+/- 1.3)	11.3%	48
Wyoming	14.0% (+/- 1.5)	25.4% (+/- 0.9)	11.4%	38	48.7% (+/- 2.1)	62.7% (+/- 1.0)	14.0%	17

Source: Behavior Risk Factor Surveillance System (BRFSS), CDC. To stabilize BRFSS data in order to rank states, TFAH combined three years of data (See Appendix B for more information on the methodology used for the rankings.).

RELATED HEALTH INDICATORS CHANGES OVER 15 YEARS

	Diabetes				Hypertension			
	15 Years Ago	Current			15 Years Ago	Current		
States	1993-1995 3 Yr. Ave. Percentage (95% Conf Interval)	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Difference from 1995-2010	Rank (biggest change in 15 years)	1993-1995 3 Yr. Ave. Percentage (95% Conf Interval)	2008-2010 3 Yr. Ave. Percentage (95% Conf Interval)	Difference from 1995-2010	Rank (biggest change in 15 years)
Alabama	5.1% (+/- 0.7)	12.2% (+/- 0.6)	7.1%	1	22.7% (+/- 1.5)	33.9% (+/- 1.0)	11.2%	1
Alaska	3.7% (+/- 0.9)	5.9% (+/- 0.8)	2.2%	45	18.3% (+/- 2.1)	24.3% (+/- 1.4)	6.0%	18
Arizona	4.6% (+/- 0.8)	9.2% (+/- 0.7)	4.6%	9	19.4% (+/- 1.7)	24.7% (+/- 1.2)	5.2%	25
Arkansas	5.8% (+/- 0.7)	9.8% (+/- 0.6)	3.9%	18	25.1% (+/- 1.6)	31.6% (+/- 1.0)	6.5%	16
California	4.9% (+/- 0.6)	8.7% (+/- 0.4)	3.9%	18	21.6% (+/- 1.3)	25.5% (+/- 0.7)	3.9%	38
Colorado	3.6% (+/- 0.6)	5.9% (+/- 0.3)	2.3%	44	21.3% (+/- 1.5)	21.2% (+/- 0.6)	0.0%	51
Connecticut	5.5% (+/- 0.7)	6.9% (+/- 0.5)	1.4%	51	21.0% (+/- 1.5)	25.7% (+/- 0.8)	4.7%	32
Delaware	5.4% (+/- 0.6)	8.4% (+/- 0.6)	3.0%	34	21.8% (+/- 1.4)	29.4% (+/- 1.1)	7.6%	10
D.C.	5.0% (+/- 1.0)	8.8% (+/- 0.6)	3.8%	22	16.3% (+/- 1.6)	27.3% (+/- 1.1)	11.0%	2
Florida	5.7% (+/- 0.5)	9.9% (+/- 0.5)	4.3%	13	23.8% (+/- 1.2)	29.0% (+/- 0.8)	5.2%	25
Georgia	4.2% (+/- 0.6)	9.7% (+/- 0.6)	5.5%	5	20.5% (+/- 1.3)	29.5% (+/- 1.0)	8.9%	7
Hawaii	4.4% (+/- 0.6)	8.3% (+/- 0.5)	4.0%	15	21.5% (+/- 1.6)	27.8% (+/- 0.9)	6.3%	17
Idaho	4.5% (+/- 0.7)	7.7% (+/- 0.5)	3.2%	28	22.3% (+/- 1.5)	25.2% (+/- 0.9)	2.9%	47
Illinois	5.5% (+/- 0.6)	8.4% (+/- 0.5)	2.9%	38	22.0% (+/- 1.6)	27.5% (+/- 0.9)	5.4%	22
Indiana	4.8% (+/- 0.5)	9.6% (+/- 0.5)	4.8%	7	25.8% (+/- 1.4)	28.5% (+/- 0.8)	2.7%	48
Iowa	4.7% (+/- 0.5)	7.4% (+/- 0.4)	2.7%	40	22.0% (+/- 1.2)	26.5% (+/- 0.8)	4.5%	33
Kansas	4.8% (+/- 0.7)	8.4% (+/- 0.4)	3.6%	24	23.5% (+/- 1.5)	26.6% (+/- 0.6)	3.0%	44
Kentucky	4.2% (+/- 0.5)	10.5% (+/- 0.5)	6.3%	3	22.2% (+/- 1.3)	31.6% (+/- 1.0)	9.3%	5
Louisiana	6.2% (+/- 0.8)	10.7% (+/- 0.5)	4.5%	11	23.5% (+/- 1.7)	32.5% (+/- 0.9)	9.0%	6
Maine	3.9% (+/- 0.6)	8.4% (+/- 0.4)	4.6%	9	21.3% (+/- 1.4)	28.1% (+/- 0.8)	6.8%	14
Maryland	5.1% (+/- 0.4)	9.1% (+/- 0.5)	4.0%	15	21.0% (+/- 0.9)	28.2% (+/- 0.8)	7.3%	11
Massachusetts	4.5% (+/- 0.7)	7.5% (+/- 0.3)	3.0%	34	22.1% (+/- 1.6)	25.6% (+/- 0.6)	3.5%	42
Michigan	7.6% (+/- 0.6)	9.5% (+/- 0.4)	1.9%	47	23.1% (+/- 1.3)	28.7% (+/- 0.7)	5.6%	20
Minnesota	4.5% (+/- 0.4)	6.3% (+/- 0.4)	1.8%	49	20.5% (+/- 1.0)	21.6% (+/- 0.8)	1.1%	50
Mississippi	6.5% (+/- 0.8)	11.8% (+/- 0.5)	5.2%	6	29.9% (+/- 1.9)	34.8% (+/- 0.8)	4.9%	31
Missouri	5.7% (+/- 0.7)	8.8% (+/- 0.6)	3.2%	28	23.9% (+/- 1.7)	29.1% (+/- 1.1)	5.3%	24
Montana	4.2% (+/- 0.7)	6.8% (+/- 0.4)	2.6%	41	21.7% (+/- 1.5)	25.7% (+/- 0.8)	4.0%	37
Nebraska	5.2% (+/- 0.6)	7.6% (+/- 0.4)	2.4%	43	22.4% (+/- 1.5)	26.1% (+/- 0.8)	3.7%	39
Nevada	4.7% (+/- 0.7)	8.3% (+/- 0.8)	3.6%	24	22.0% (+/- 1.6)	26.3% (+/- 1.3)	4.3%	35
New Hampshire	4.9% (+/- 0.7)	7.4% (+/- 0.4)	2.6%	41	21.1% (+/- 1.6)	26.1% (+/- 0.8)	5.0%	30
New Jersey	4.9% (+/- 0.8)	8.8% (+/- 0.4)	3.9%	18	23.5% (+/- 1.9)	27.2% (+/- 0.7)	3.7%	39
New Mexico	5.3% (+/- 0.8)	8.3% (+/- 0.5)	3.0%	34	19.1% (+/- 1.8)	25.0% (+/- 0.8)	6.0%	18
New York	4.7% (+/- 0.6)	8.7% (+/- 0.4)	4.0%	15	22.0% (+/- 1.3)	27.1% (+/- 0.8)	5.1%	29
North Carolina	5.3% (+/- 0.5)	9.6% (+/- 0.4)	4.3%	13	18.9% (+/- 1.2)	29.9% (+/- 0.6)	11.0%	2
North Dakota	4.3% (+/- 0.6)	7.5% (+/- 0.5)	3.2%	28	22.4% (+/- 1.5)	25.4% (+/- 0.9)	3.0%	44
Ohio	5.4% (+/- 0.8)	10.0% (+/- 0.5)	4.7%	8	20.7% (+/- 1.5)	29.1% (+/- 0.8)	8.3%	9
Oklahoma	3.8% (+/- 0.7)	10.5% (+/- 0.5)	6.8%	2	21.7% (+/- 1.3)	31.9% (+/- 0.8)	10.2%	4
Oregon	4.2% (+/- 0.5)	7.4% (+/- 0.5)	3.2%	28	22.9% (+/- 1.2)	25.8% (+/- 0.8)	3.0%	44
Pennsylvania	5.8% (+/- 0.6)	9.4% (+/- 0.4)	3.5%	26	23.7% (+/- 1.2)	28.9% (+/- 0.7)	5.2%	25
Rhode Island	5.4% (+/- 0.9)	7.4% (+/- 0.5)	2.0%	46	23.1% (+/- 1.6)	28.3% (+/- 0.9)	5.2%	25
South Carolina	6.0% (+/- 0.7)	10.4% (+/- 0.5)	4.4%	12	24.4% (+/- 1.5)	31.5% (+/- 0.8)	7.1%	12
South Dakota	4.2% (+/- 0.6)	6.9% (+/- 0.4)	2.8%	39	20.0% (+/- 1.4)	26.9% (+/- 0.8)	6.9%	13
Tennessee	6.7% (+/- 0.6)	10.6% (+/- 0.7)	3.9%	18	25.6% (+/- 1.3)	32.2% (+/- 1.1)	6.7%	15
Texas	5.9% (+/- 0.7)	9.6% (+/- 0.5)	3.7%	23	21.7% (+/- 1.6)	27.2% (+/- 0.7)	5.5%	21
Utah	4.3% (+/- 0.6)	6.2% (+/- 0.4)	1.9%	47	18.7% (+/- 1.3)	20.5% (+/- 0.7)	1.8%	49
Vermont	4.9% (+/- 0.6)	6.5% (+/- 0.4)	1.6%	50	22.0% (+/- 1.4)	25.2% (+/- 0.7)	3.2%	43
Virginia	5.2% (+/- 0.7)	8.3% (+/- 0.5)	3.1%	32	21.8% (+/- 1.3)	27.2% (+/- 1.0)	5.4%	22
Washington	4.0% (+/- 0.4)	7.4% (+/- 0.3)	3.4%	27	21.4% (+/- 1.2)	25.9% (+/- 0.5)	4.4%	34
West Virginia	5.8% (+/- 0.6)	12.0% (+/- 0.6)	6.2%	4	25.4% (+/- 1.1)	34.1% (+/- 1.0)	8.7%	8
Wisconsin	4.4% (+/- 0.7)	7.5% (+/- 0.6)	3.1%	32	22.1% (+/- 1.6)	26.4% (+/- 1.0)	4.3%	35
Wyoming	4.2% (+/- 0.7)	7.2% (+/- 0.4)	3.0%	34	21.2% (+/- 1.8)	24.9% (+/- 0.8)	3.7%	39

2. Overweight — 1990 to 2010

Twenty years ago, the state with the highest combined obesity and overweight rate was 49 percent (for states with data available).

In the 15 years between 1995 and 2010, all 50 states, as well as Washington, D.C., had significant increases in the rate of overweight citizens.

In 1995, no states had more than 55 percent rates of overweight. Twenty-two had less than 50 percent rates of overweight. By 2010 rates of overweight had risen significantly. In 44 states, over 60 percent of the population is overweight.

The three states with the largest increases in percentage were: Arizona, whose rate went from just under 45 percent to just under 64 percent (a 19 percent increase); Tennessee, whose rate rose from 50.7 percent to 68.3 percent (a 17.5 percent increase); and Kansas, which increased from 47.6 percent to nearly 65 percent (a 17.4 percent increase). Ten of the 15 states with the biggest increases were in the South or Southwest. The three states with the smallest increases were: Washington, D.C., which increased from 47.7 percent to 54.4 percent (a seven percent increase); Wisconsin, which went from 52.9 percent to 64.3 percent (an 11.3 percent increase); and Oregon, which rose from 49.8 percent to 61.1 percent (also an 11.3 percent increase).

3. Diabetes and Hypertension — 1990 to 2010

Obesity contributes to a range of chronic diseases, including diabetes and hypertension. Of the 10 states with the highest rates of diabetes, eight are also in the top 10 for obesity; of the 10 states with the highest rates of hypertension, nine also rank in the top 10 for obesity. Between 1995 and 2010, obesity, diabetes, and hypertension also all rose significantly in almost every state and in Washington, D.C.

Diabetes

Between 1995 and 2010, diabetes rates increased significantly in every state, as well as in Washington, D.C.

Over the past 15 years, diabetes rates have doubled in ten states. In 17 more, rates have increased by more than 70 percent. In 1995, 28 states had diabetes rates below five percent. In no state did more than 10 percent of the population suffer from the disease. By 2010, nine states had diabetes rates above 10 percent. No state had less than a five percent rate, and only two were under six percent.

States with the Largest Rise in Diabetes Rates, 1995-2010

Rank	State	Increase in Diabetes Rate, 1995-2010
1	Alabama	7.1%
2	Oklahoma	6.8%
3	Kentucky	6.3%
4	West Virginia	6.2%
5	Georgia	5.5%
6	Mississippi	5.2%
7	Indiana	4.8%
8	Ohio	4.7%
9 (tie)	Arizona	4.6%
9 (tie)	Maine	4.6%

States with the Smallest Rise in Diabetes Rates, 1995-2010

Rank	State	Increase in Diabetes Rate, 1995-2010
51	Connecticut	1.4%
50	Vermont	1.6%
49	Minnesota	1.8%
47 (tie)	Utah	1.9%
47 (tie)	Michigan	1.9%
46	Rhode Island	2.0%
45	Alaska	2.2%
44	Colorado	2.3%
43	Nebraska	2.4%
42	New Hampshire	2.6%

The three states with the largest increases in percentage were: Alabama, whose rate went from 5.1 percent to 12.2 percent (a 7.1 percent increase); Oklahoma, whose rate increased from 3.8 percent to 10.5 percent (a 6.8 percent increase); and Kentucky, which increased from nearly 4.2 percent to 10.5 percent (a 6.3 percent increase). Eleven of the 14 states with the steepest increases were in the South or Southwest. Most of the states with the largest increases were in the "Diabetes Belt," an area made up largely of Southern states, where the disease exists at higher levels than the rest of the country.

The three states with the smallest increases were: Connecticut, which saw a 1.4 percent rise, from 5.5 percent to 6.9 percent; Vermont, which had a 1.6 percent increase, from 4.9 percent to 6.5 percent; and Minnesota, which had a 1.8 percent rise, from 4.5 percent to 6.3 percent.

Hypertension

Twenty years ago, 37 states had hypertension rates over 20 percent (for states with data available).

In the 15 years from 1995 to 2010, rates of hypertension rose in every state but one, as well as in Washington, D.C.

In 1995, just four states had hypertension rates above 25 percent. Fifteen years later, rates had risen in every state but one. In 2010, 45 states had hypertension rates above 25 percent. In nine states, more than 30 percent of citizens had hypertension. Twenty-one states had rates above 28 percent.

States with the Largest Rise in Hypertension Rates, 1995-2010

Rank	State	Increase in Hypertension Rate, 1995-2010
1	Alabama	11.2%
2 (tie)	Washington, D.C.	11.0%
2 (tie)	North Carolina	11.0%
4	Oklahoma	10.2%
5	Kentucky	9.3%
6	Louisiana	9.0%
7	Georgia	8.9%
8	West Virginia	8.7%
9	Ohio	8.3%
10	Delaware	7.6%

States with the Smallest Rise in Hypertension Rates, 1995-2010

Rank	State	Increase in Hypertension Rate, 1995-2010
51	Colorado	0.0%
50	Minnesota	1.2%
49	Utah	1.8%
48	Indiana	2.7%
47	Idaho	2.9%
44 (tie)	Oregon	3.0%
44 (tie)	North Dakota	3.0%
44 (tie)	Kansas	3.0%
43	Vermont	3.2%
42	Massachusetts	3.5%

The three states with the largest increases in percentage were: Alabama, whose rate went from 22.7 percent to 33.9 percent (an 11.2 percent increase); Washington, D.C., whose rate increased from 16.3 percent to 27.3 percent (an 11 percent increase); and North Carolina, which rose from nearly 18.9 percent to 29.9 percent (also an 11 percent increase). Nine of the 14 states with the largest increases were in the South.

The three states with the smallest increases were: Colorado, which had no change — its hypertension rate stayed at 21.3 percent; Minnesota, which went from 20.5 percent to 21.6 percent (a 1.2 percent increase); and Utah, which increased from 18.7 percent to 20.5 percent (a 1.8 percent increase).

**Some of the rise in rates over time might differ slightly (by no more than 0.1%) when subtracting past and current rates because of the weight put on rounding in the statistical analysis.*

State Responsibilities and Policies

SECTION 2

In this section, TFAH and RWJF examine state legislative action relating to obesity.

TFAH and RWJF have also produced a supplement, "Obesity-Related Legislative Action in States," which provides more detail about legislation in each state. The supplement is available on TFAH's website, www.healthyamericans.org and RWJF's website, www.rwjf.org.

This section provides an update to previous years' analyses and includes:

A. State Obesity-Related Legislation;

B. CDC Grants to States; and

C. State and Community Success Stories

A. STATE OBESITY-RELATED LEGISLATION

Since 2003, TFAH and RWJF have tracked state obesity-related legislation relating to schools, including nutrition, physical education, physical activity, and height and weight measurements. The report has also tracked legislation related to tax policy, menu labeling, obesity liability, and Complete Streets initiatives. This section provides an updated summary of legislation enacted between June 1, 2010, and May 31, 2011.

1. Legislation for Healthy Schools

Studies show that school-based programs can help prevent and reduce obesity.[60] Children spend large amounts of time at school and in before- and after-school programs, often eating as many as two meals and several snacks in these settings.

The more than 14,000 school districts in the country have primary jurisdiction for setting local school policies. States can set education policy or pass legislation, but school districts typically can decide what policies they follow or implement, a principle known as local control. States often try to create incentives for districts to follow their policies, such as attaching compliance rules to state funding. For example, New Mexico's failure to meet the academic content and performance standards for elementary physical education programs will result in the cessation of funding for the following school year.[61]

School-based efforts have focused on improving the quality of food served and sold in cafeterias, vending machines, and school stores, limiting sales of less nutritious foods and beverages, improving physical and health education, and increasing physical activity. In recent years, some districts have set up farm-to-school programs that bring fresh, local produce into schools, encouraging both healthy eating and sustainable farming.

OBESITY RELATED STANDARDS IN SCHOOLS -- 2011

	Nutritional Standards for School Meals	Nutritional Standards for Competitive Foods	Limited Access to Competitive Foods	Physical Education Requirement	Physical Activity Requirement	BMI or Health Info Collected	Non-Invasive Screening for Diabetes	Health Education Requirement	Farm-to-School Program
Alabama	✓	✓	✓	✓				✓	
Alaska				✓				✓	✓
Arizona	✓	✓	✓	✓	✓			✓	
Arkansas	✓	✓	✓	✓		✓		✓	
California	✓	✓	✓	✓		✓	✓	✓	✓
Colorado	✓	✓	✓	✓	✓				✓
Connecticut	✓	✓	✓	✓				✓	✓
Delaware		✓		✓		✓		✓	
D.C.	✓	✓	✓	✓				✓	✓
Florida			✓	✓		✓		✓	✓
Georgia			✓	✓				✓	
Hawaii		✓	✓	✓				✓	
Idaho				✓				✓	
Illinois		✓	✓	✓	✓	✓	✓	✓	✓
Indiana		✓	✓	✓	✓			✓	
Iowa		✓		✓		✓		✓	✓
Kansas		✓		✓				✓	
Kentucky	✓	✓	✓	✓	✓			✓	✓
Louisiana	✓	✓	✓	✓	✓	✓		✓	✓
Maine		✓	✓	✓	✓	✓		✓	✓
Maryland		✓	✓	✓				✓	✓
Massachusetts	✓	✓		✓		✓		✓	✓
Michigan				✓				✓	✓
Minnesota				✓				✓	
Mississippi	✓	✓	✓	✓				✓	
Missouri				✓		✓		✓	
Montana				✓				✓	✓
Nebraska			✓	✓				✓	
Nevada	✓	✓	✓	✓		✓		✓	
New Hampshire				✓				✓	
New Jersey	✓	✓	✓	✓				✓	✓
New Mexico		✓	✓	✓				✓	✓
New York			✓	✓		✓		✓	✓
North Carolina	✓	✓	✓	✓	✓	✓		✓	
North Dakota				✓	✓			✓	
Ohio		✓		✓	✓	✓		✓	
Oklahoma	✓	✓	✓	✓		✓			✓
Oregon		✓	✓	✓				✓	✓
Pennsylvania		✓	✓	✓		✓		✓	✓
Rhode Island	✓	✓		✓				✓	
South Carolina	✓	✓	✓	✓		✓		✓	
South Dakota	✓			✓				✓	
Tennessee	✓	✓		✓	✓	✓		✓	✓
Texas	✓	✓	✓	✓		✓		✓	✓
Utah		✓		✓				✓	
Vermont	✓	✓	✓	✓		✓		✓	✓
Virginia		✓		✓				✓	✓
Washington		✓		✓				✓	✓
West Virginia		✓	✓	✓		✓		✓	
Wisconsin				✓				✓	✓
Wyoming				✓				✓	
# of States	**20 + D.C.**	**35 + D.C.**	**29 + D.C.**	**50 + D.C.**	**11**	**21**	**2**	**48 + D.C.**	**26 + D.C.**

Please Note: Checkmarks in chart above that are in red type represent new laws passed in 2010 or 2011.

SCHOOL MEALS AND SNACKS

Young people spend more time at school than any other place except their homes. More than 90 percent of students eat lunch in school, about 40 percent have a snack, and close to 20 percent eat breakfast.[62] This food can make up as much as 40 percent of their daily energy intake.[63] With the Healthy, Hunger-Free Kids Act of 2010, schools will have to adhere to new standards for school meals and snacks. The USDA is required to oversee a transition to healthier school meals, and schools that comply will be eligible for increased federal reimbursements for school meal programs. In addition to improving the quality of school meals, the USDA will establish nutritional standards to govern all foods and beverages served or sold in schools at any time during the day throughout the school campus, to include vending machines, school stores, and a la carte in the cafeteria. In addition, local education agencies (LEAs) will be required to report on nutritional quality, participation in federal nutrition assistance programs, and other related aspects of food policy.

- **Seven years ago, only four states had school meal standards that were stricter than USDA requirements:** Arkansas, South Dakota, Tennessee and Texas.
- **Today, 20 states and Washington, D.C. have stricter standards than the USDA:** Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Washington, D.C., Kentucky, Louisiana, Massachusetts, Mississippi, Nevada, New Jersey, North Carolina, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, and Vermont.

No state implemented new regulations regarding school meals between June 1, 2010, and May 31, 2011.

GOT WATER?

Research shows that children are not drinking enough water during the school day.[64] For decades students have gotten water at school from water fountains. But most schools do not make cups available for children to use to fill and carry water to drink beyond drinking directly from water fountains.

In some school districts, some students and citizens complain that the water does not taste right or may contain excessive lead and should not be consumed by students. For example, in Boston, water in approximately 80 percent of the schools have excessive lead. Also, many schools do not have enough water fountains to supply all the students. Educators say that providing cups is expensive.[65] Encouraging students to drink free water also decreases revenue from bottled water sales, which often fund extracurricular activities.[66]

But evidence shows that making water more available to students can increase water consumption and improve health. In December 2010, Congress passed and the President signed the Healthy, Hunger-Free Kids Act, which requires schools to provide easily-accessible, clean water to students at no cost. However, some advocates worry that the law is too vague about how schools should actually accomplish this.

Two states implemented new regulations on water in schools between June 1, 2010, and May 31, 2011:

- **California** required school districts to offer access to free, fresh drinking water during school meals (HB 1413, 2010).
- **Massachusetts** required that public schools make available plain, potable water to all public school students during the school day at no cost (HB, 4459, 2010).

COMPETITIVE FOODS

The USDA defines competitive foods as any food or beverage served or sold at school that is not part of the USDA school meals program.[67] These foods are sold on à la carte lines, in school vending machines, in school stores, or through bake sales. The nutritional value of these products is largely unregulated by the federal government beyond those classified as Foods of Minimal Nutritional Value (FMNV).[68] FMNV are identified by the school meal program as carbonated beverages, water ices, chewing gum, hard candy, jellies and gums, marshmallow candies, fondant, licorice, spun candy, and candy-coated popcorn.[69] Current federal regulations only restrict FMNV from being sold during mealtimes in food-service areas. However, the Healthy, Hunger-Free Kids Act provides the USDA with the authority to update nutrition standards for all foods served and sold in school including those in vending machines, a la carte lines, and school stores. The USDA is expected to issue draft regulations in Winter 2011-12.

State nutrition standards for competitive food include:

- **Seven years ago only six states had nutritional standards for competitive foods:** Arkansas, California, Hawaii, Tennessee, Texas, and West Virginia.
- **Today, 35 states and Washington, D.C. have nutritional standards for competitive foods:** Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Washington, D.C., Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Nevada, New Jersey, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, Washington and West Virginia.

States that implemented new regulations regarding competitive foods between June 1, 2010, and May 31, 2011:

- **Maine** required that the Department of Education adopt rules to establish standards for food and beverages sold or distributed on school grounds but outside of the school meal program (LD 505, 2011).
- **Massachusetts** required the state's Department of Education to develop nutritional guidelines and standards for the sale or provision of competitive foods in public schools (HB 4459, 2010).
- **Ohio** public and chartered non-public schools will begin limiting the sale of a la carte beverage items during the school day, starting in 2014. The new restrictions limit the number of calories and the types of beverages allowed, based on grade level (SB 210, 2010).

Start time and place standards for competitive foods include:

- **Seven years ago, 17 states had laws about when and where competitive foods can be sold that were stricter than federal requirements:** Arkansas, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Illinois, Kentucky, Louisiana, Maine, Mississippi, Nebraska, New York, North Carolina, Texas, and West Virginia.
- **Today, 29 states and Washington, D.C. limit when and where competitive foods may be sold beyond federal requirements:** Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Washington, D.C., Florida, Georgia, Hawaii, Illinois, Indiana, Kentucky, Louisiana, Maine, Maryland, Mississippi, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, South Carolina, Texas, Vermont, and West Virginia.

No state implemented new regulations between June 1, 2010, and May 31, 2011.

A NEW BREED OF VENDING MACHINES

Some companies are trying to provide healthier snack options to students.

Last year — its first in operation — a San Diego-based company, Fresh Healthy Vending, installed more than 500 machines in schools and community centers across the country.[70] These machines offer natural, low-calorie products, including pita chips, dried fruit and low-fat yogurt smoothies. The results have not yet been reported.

Other companies, such as h.u.m.a.n. Healthy Vending and Yo! Naturals, have seen similar growth in vending machine sales.[71, 72] Another company, Vend-ucation: Healthy Vending Machines for Public Schools, has conducted studies to show how their machines can not only provide better snack options but also extra money for schools.[73]

PERSUADING KIDS TO EAT MORE VEGGIES, LESS CANDY

Some school districts say that even as they increase the number of healthy options, students continue to choose unhealthy foods. Last year, the USDA awarded $2 million to researchers to examine the best ways to encourage kids to pick fruits and vegetables instead of cookies and french fries.[74]

The scientists will examine marketing and placement techniques to see which work best to make the healthier options more available and/or appealing. Some options that are being considered include: hiding chocolate milk behind plain milk, putting the salad bar near the checkout, placing fruit in pretty baskets, and accepting only cash for desserts.

IMPROVING STUDENTS HEALTH BY IMPROVING FOOD IN SCHOOLS

As childhood obesity rates continue to rise, public officials, advocates and parents have focused on improving school meals as a key way to combat the problem. More than nine in 10 of the country's 48 million public elementary and secondary school students eat lunch at school, and nearly 20 percent eat breakfast there. Many students eat half of their total calories at school.

The USDA is now considering how to modify its school meal standards, which many critics say are outdated and unhealthy. Advocates say the rules allow for too much fat, sugar and refined carbohydrates, and don't do enough to encourage students to eat fruits and vegetables, and other healthy fare. Among the proposed changes: fewer potatoes, corn, and other starches, and more green leafy vegetables.

Some schools and districts are taking steps on their own to ensure that students eat healthier food. In 2000, less than one in 20 school districts prohibited vending machines from selling high-calorie, low nutrition products; by 2006, the number had risen to nearly one in three. Over that same period, the number of districts who sold bottled water in the cafeteria or in vending machines rose from 30 percent to nearly half.[75]

In June, the Los Angeles Unified School District decided to stop serving chocolate- and strawberry- flavored milk in school cafeterias. The district, the second-largest in the country, serves 650,000 meals a day. A cup of chocolate milk has 20 grams of sugar, while a cup of strawberry milk has 26 grams — as much as a cup of Coca-Cola.[76]

In Green Bay, Wisconsin, the school district removed deep fat fryers from all middle schools. Whenever possible cafeterias in the district prepare foods by baking rather than frying. They also increased use of whole wheat flour to ensure that students get more fiber.[77]

Many districts and schools are also trying to eliminate or restrict "competitive foods," items sold on school grounds that are not part of official school meals. Often, competitive foods consist of sodas, chips, candy and other unhealthy products. Right now, the federal government does not regulate competitive foods that are sold outside the cafeteria.[78]

Some researchers argue that if children eat fewer competitive foods, they will eat larger amounts of other, healthier fare. A 2008 study by researchers at the University of South Carolina found that in schools that restricted snack foods, students tended to eat slightly more fruits and vegetables.[79]

CDC FINDS THAT STATES HAVE MUCH ROOM FOR IMPROVEMENT

In April 2011, CDC released a state-by-state report highlighting selected behaviors, environments, and polices that affect childhood obesity.[80] The report, with each state's data, can be found at www.cdc.gov/obesity/downloads/ChildrensFoodEnvironment.pdf.

The report found that states can do more to improve food access, promote healthy eating, and prevent childhood obesity. The report also notes that communities, child care facilities, and schools must also play a role.

Thirty-two states and Washington, D.C. scored at or below the national average for the Modified Retail Food Environment Index (mRFEI), a measure of the proportion of food retailers that typically sell healthy foods. States with lower mRFEI scores tend to have a higher number of convenience stores and fast food restaurants, which generally have few healthy options, and fewer supermarkets, which sell fresh fruits, vegetables, and other healthy fare.

Nationally, the average mRFEI score was 10. State-by-state scores ranged from 16 for Montana and 15 for Maine to five for Rhode Island and four for Washington, D.C.

The report also found that as of 2008, only one state, Georgia, had enacted all of the CDC-recommended licensing regulations for child care facilities: restrictions on sugar-sweetened beverages, required access to drinking water throughout the day, and limits on TV and computer screen time. Experts say that preschool offers a crucial early opportunity to teach children good eating and exercise habits.

Twenty-nine states had enacted one of these regulations, while 13 states and Washington, D.C. had enacted none.

According to the report, older children are also at risk. Almost half of all middle and high schools allowed advertising for candy, soft drinks, and fast food on school grounds. In Ohio, nearly three quarters of middle and high schools allowed such advertising, while in New York just under a quarter allowed it.

SCHOOL DISTRICT WELLNESS POLICIES: PROGRESS AND POTENTIAL

The Child Nutrition and Women, Infants, and Children (WIC) Reauthorization Act of 2004 (P.L. 108-265, Section 204) required school districts participating in the National School Lunch Program, School Breakfast Program or other child nutrition programs to adopt and implement a wellness policy by the 2006-07 school year. A recent report by Bridging the Gap, a national program of RWJF, evaluated the progress made by school districts to strengthen their written wellness policies in the three years since the law took effect.[81] Overall, the report found that over the past three years, many districts had improved their wellness policies, but many still did not comply with federal law or align with national recommendations for nutrition and physical activity.

The law required that district wellness policies include:

- Goals for nutrition education, physical activity, and other school-based activities;
- An assurance that school meal nutrition guidelines meet the minimum federal school meal standards;
- Guidelines for foods and beverages served or sold outside of school meal programs ("competitive foods and beverages"); and
- Implementation plans.

During the 2006-07 school year, 81 percent of students went to school in a district with a wellness policy and 44 percent of those policies included all of the required provisions. Two years later, 99 percent of students were in a district that had a wellness policy, but only 61 percent had a fully compliant policy. From 2006-07 to 2008-09, policy strength, which reflects how closely written policies follow federally required elements, increased from 24 to 33 on a scale of 100. Policy strength remained low overall because many provisions included weak or vague language that suggested, but did not require action.

Of all the required provisions, districts made the least progress in setting nutrition guidelines for competitive foods. Three years after the mandate took effect, only two-thirds of students were in a district that had such guidelines, up from just over one-half of students in 2006-07. Among those districts with competitive food policies, the guidelines tended to be weaker for middle and high schools than for elementary schools.

Notably, the report also found that some districts went beyond requirements of the 2004 Child Nutrition Act to set guidelines for physical education or set school meal standards that were more stringent than the federal standards. The Healthy, Hunger-Free Kids Act of 2010 builds on the original wellness policy language included in P.L. 108-265, and calls for:

- Making the content of wellness policies more transparent to help parents, students, and others in the community better understand the provisions;
- Requiring the measurement and evaluation of the wellness policies; and
- Providing resources and training to help with designing, implementing, promoting, disseminating, and evaluating wellness policies.

PHYSICAL EDUCATION, PHYSICAL ACTIVITY, AND HEALTH EDUCATION IN SCHOOLS

The HHS *Physical Activity Guidelines for Americans* recommend that children engage in at least 60 minutes or more of physical activity daily.[82] They also recommend that moderate-to-vigorous aerobic physical activity should account for the majority of the activity time and should include vigorous-intensity physical activity at least 3 days a week; both muscle-strengthing and bone-strengthening should be included on at least 3 days of the week; and students should have multiple opportunities throughout their day to achieve the guidelines including home, community, and school settings. Extended periods of inactivity (e.g., more than two hours) are discouraged.

Physical Education

- **Every state has some physical education requirements for students. However, these requirements are often limited or not enforced, and many programs are inadequate.**

States that implemented new regulations between June 1, 2010, and May 31, 2011:

- **Arizona** passed a law ensuring flexibility in physical education requirements so that pupils with chronic health problems may participate in the regular physical education program to the extent that their health permits (HB 2080, 2010).
- **Delaware** required that free and appropriate physical education be provided to students with disabilities (HB 328, 2010).
- **Maine** reconvened the planning and oversight team known as "PE4ME" to implement plans for pilot projects at elementary schools in order to meet national guidelines for providing physical education and physical activity each week (LD 1280, 2011).
- **Maryland** required that new or renovated public schools include a gym and support spaces for physical education (HB 334, 2010).
- **Minnesota** mandated the adoption of the most recent National Association for Sport and Physical Education standards for grades K-12 (SB 2908, 2010).
- **North Carolina** adopted guidelines for evidence-based fitness testing for students in grades K-8 (HB 1757, 2010).
- **Oklahoma** required that at least half of physical education classes consist of actual physical activity, and that the physical activity be at least moderately intense (SB 1876, 2010).

Physical Activity

- Many states have started enacting laws requiring schools to provide a certain number of minutes and/or a specified difficulty level of physical activity. Eleven states require schools to provide physical activity or recess during the school day.

States that implemented new regulations between June 1, 2010, and May 31, 2011:

- **Colorado** passed legislation requiring that each school district board of education adopt a physical activity policy that provides a minimum number of minutes for each student attending an elementary school (HB11-1069, 2011).
- **Illinois** requires the State Board of Education to develop and maintain a nutrition and physical activity best practices database that contains the results of any wellness-related fitness testing done by schools, as well as information on successful programs and policies implemented by local school districts (SB 3706, 2010).
- **Ohio** implemented a pilot program requiring daily physical activity for all students. In schools participating in the program, all students must participate in at least 30 minutes of moderate to vigorous physical activity each day, in addition to recess (SB 210, 2010).
- **Tennessee** requires that school districts integrate a minimum of 30 minutes of physical activity into each instructional school day for elementary and secondary students (HB 9, 2011).

In 2008, HHS issued new physical activity guidelines. According to the guidelines, children and adolescents should engage in a total of one hour or more of physical activity everyday; no period of activity is too short to count toward that goal.

The recent *Bridging the Gap* report found that many districts have made minor improvements in their wellness policies, but that physical education has been almost entirely taken out of the standard curriculum for high schools and physical activity is very low throughout all schools.[83] Some key findings included:

- In 2008, 83 percent of middle school students and 35 percent of high school students were required to take physical education during the school year, but it is likely that half of the high school students only took physical education for one semester or trimester.
- Only a quarter of middle school students and 14 percent of high school students walked or bicycled to school in 2008.
- Only 10 to 13 percent of high school students and 21 to 24 percent of middle school students participated in intramural sports and physical activity clubs in 2008. The rates were lower for girls than boys, and lower among middle school students in low-socioeconomic status schools compared with higher-socioeconomic status schools.

Health Education

- **Only two states — Colorado and Oklahoma — do not require schools to provide health education.**

States that implemented new health education rules between June 1, 2010, and May 31, 2011:

- **New Mexico** will require students entering ninth grade in 2012 to take health education classes (HB 44, 2010).

According to the 2006 CDC study, health education standards and curricula vary greatly from school to school.[84]

- The percentage of states that require districts or schools to follow national or state health education standards increased from 60.8 percent in 2000 to almost 75 percent in 2006; the percentage of districts that required this of their schools increased from 68.8 percent to 79.3 percent.
- Almost 14 percent of states and 42.6 percent of districts required each school to have a school health education coordinator.

BARRIERS TO PHYSICAL ACTIVITY IN SCHOOLS

In recent years many school systems have eliminated or severely cut physical education (PE) to focus on academic subjects. But as childhood obesity rates continue to rise, some states are rethinking the importance of PE.

Legislators across the country have introduced bills requiring physical education or activity at school. Many states have adopted new policies requiring schools to give students minimum levels of physical activity. But not everyone has had a change of heart. Earlier this year, Virginia governor Bob McDonnell vetoed a bill requiring all children at public elementary and middle schools in the state to participate in at least 150 minutes of physical activity a week. Many school districts reportedly lobbied against the bill because "it could extend the school day and lead to cuts in arts and music classes, or increase costs because additional teachers would be needed."[85]

To understand why physical activity requirements are so controversial, researchers surveyed 339 California school board members.[86]

The survey showed that while over 90 percent of respondents believe that physical activity has a moderate or high positive impact on student fitness levels, academic performance, lifetime physical activity, as well as mental health, more than half said they were not prepared to improve physical activity policies and practices in their district.[87] Board members said the three main barriers to increasing physical activity were tight budgets, limited time in the school day, and competing priorities.[88] Respondents also listed opportunities to improve physical activity in schools: integrating physical activity throughout the school day, supporting active transportation to and from school, providing access to physical activity facilities during non-school hours, and integrating physical activity into before- and after-school programs.[89]

PHYSICAL ACTIVITY AND ACADEMIC ACHIEVEMENT

Experts agree that physical activity improves children's health. However, most children still do not get enough physical activity. HHS Physical Activity Guidelines for Americans recommends that **children and adolescents should do 60 minutes (1 hour) or more of physical activity each day.**

In 2010, CDC issued a report *Association Between School-based Physical Activity, Including Physical Education, and Academic Performance,* which was a literature review which examined 23 years of research and 50 studies about the relationship between school-based physical activity, including physical education and academic performance.[90] The majority of the studies found that physical activity was positively related to academic performance and that adding time during the school day for physical activity does not appear to take away from academic performance.

According to data from the 2009 Youth Risk Behavior Surveillance System, the percentage of high school students who were physically active at least an hour on all seven days in the previous week ranged from 27.8 percent in Kansas to 17 percent in Massachusetts.[91]

In recent years, many school systems have eliminated or cut PE. Generally, schools sacrifice PE to give students more time to prepare for standardized tests, which are often required by districts and states.

But research shows a link between physical activity and academic achievement:

- Studies show that physical activity can actually improve children's brain function. For example, researchers at the University of Illinois found that nine- and ten-year-olds who were more physically fit scored better on a series of cognitive tests than those who were less fit.[92] Brain scans showed that in the fitter kids, a key cognitive area of the brain had greater volume. The researchers concluded that being fit enhanced the "executive control" portion of the children's brains.[93]
- Children who perform better on physical capacity tests are more likely to receive higher reading and math scores, even when the added time for physical activity takes away from time in the classroom.[94]
- Intensive physical education programs in school can improve cognitive skills and attitudes, including concentration, attention, and classroom behavior.[95]
- Researchers analyzed FITNESSGRAM® test results from more than 2.4 million Texas students in grades 3 to 12 during the 2007-2008 school year, and found significant school-level correlations between physical fitness achievement and better performance on state standardized tests.[96]

HEALTHCORPS USES PEER MENTORING TO IMPROVE STUDENT AND COMMUNITY HEALTH

Can peer mentors reduce obesity by persuading teenagers to get more exercise and eat better?

That's the goal of HealthCorps, a non-profit program modeled in part on the Peace Corps. The program recruits college graduates headed to medical school or graduate health studies to work with underserved public high schools around the country. HealthCorps coordinators help teens, their teachers and their families become health activists.

Mentors teach about 10 classes a week and lead after-school programs for students and community members. In some communities, HealthCorps coordinators helped improve the nutritional value of products sold at corner stores and repaired parks and other outdoor areas for recreation. Through their efforts, HealthCorps coordinators also help teens and their schools establish important connections with public health departments, community foundations, the business community, city food banks and other community service organizations.

The program was started seven years ago by cardiac surgeon and talk show host Dr. Mehmet Oz. HealthCorps mentors now work in 41 high schools in 11 states. So far, the program has reached approximately 60,000 students.

In 2009, an independent study by Cornell University researchers found that in one New York City high school HealthCorps had significant benefits. Consumption of sugared soda dropped by .61 times a week, and students were 36 percent more likely to report increased physical activity. [97]

Physical Activity in Schools is a 'Win-Win' from an Academic and Health Perspective

By Ginny Ehrlich, MPH, MS, chief executive officer of the Alliance for a Healthier Generation, a nonprofit founded by the American Heart Association and the William J. Clinton Foundation to reduce the prevalence of childhood obesity.

MORE THAN 95 PERCENT OF SCHOOL-AGED YOUTHS IN THE UNITED STATES ATTEND SCHOOL AND, ASIDE FROM TIME SPENT AT HOME, IT IS THE PLACE WHERE CHILDREN AND YOUTH SPEND THE MOST TIME. AS A RESULT, NATIONAL, STATE, AND LOCAL POLICY MAKERS HAVE CARVED OUT A ROLE FOR SCHOOLS TO PLAY IN CONTRIBUTING TO THE PREVENTION OF CHILDHOOD OBESITY, INCLUDING THE PROVISION OF OPPORTUNITIES FOR PHYSICAL ACTIVITY BEFORE, DURING, AND AFTER SCHOOL.

The good news is that there is growing evidence of the academic, as well as the obvious health benefits, of physical activity for children and youth. In a 2010 literature review that examined the effect of school-based physical activity programs on academic performance, CDC found a body of evidence suggesting that:

- Increased time in physical education classes were linked to positive achievement test scores.
- Short classroom physical activity breaks of about 5 to 20 minutes improved students' attention span, classroom behavior and achievement tests scores.
- Participation in sports teams and physical activity clubs, often run before- and after- school, has positive effects on students' grade point averages and likelihood of graduation.
- Recess can play a role in improving students' attention and concentration in class.

These findings make a clear argument for schools to invest time and resources in physical education and physical activity as an integral strategy towards maximizing student performance and minimizing distractors for performance, such as poor behavior and concentration. Unfortunately, the opposite is happening. Schools across the country are reducing time and investment in physical education and slashing before- and after-school physical activity opportunities. According to CDC (2007), fewer than ten percent of middle schools and fewer than five percent of elementary and high schools offer daily physical education. CDC also reported that fewer than half of schools offer physical activity club opportunities for students and of those programs that do exist, approximately one-third are fee-based, reducing access for low-income students. The most frequently cited barriers to offering physical activity opportunities for students are time, resources, and staff capacity.

Despite these challenges, many schools involved in the Alliance for a Healthier Generation's Healthy Schools Program have devised creative ways to infuse physical activity throughout the school day.

- In Firth, Nebraska, the Norris School District developed creative, but simple ways to energize students with physical activity at various times during the school day by integrating school-wide walking breaks, short dance workouts spurred by music played over the loudspeaker, and televised exercise programs.
- In rural Madera, California, Sierra Vista Elementary School instituted structured recess and lunch so that students have the opportunity to toss a ball, play hockey, and hit tennis balls, even hula hoop in lieu of sitting around. Given the economic challenges in this community, recess and physical education are often the only opportunities for kids to be active.
- Thomas Elementary School in Washington, D.C. has organized a variety of after-school programs to ensure its students have free access to physical activity. Students are participating in kickball, cheerleading, yoga, dancing, and even a running club that prepares students for a 5K race. Some programs engage teachers and parents as well, giving adults and kids the chance to enjoy activity together.
- Several Miami Dade County middle school students "ride and read" on a regular basis. Using donated exercise bikes, these middle schools have created bike stations where students can pedal as they do their silent reading before, during or after school.

These schools are clear examples of how a little ingenuity can go a long way in addressing the barriers that schools face in offering physical activity opportunities before, during, and after school.

There is no question that schools are faced with a myriad of competing priorities with limited resources and time to draw upon. Amongst all of the priorities, student academic performance is paramount. To improve student performance though, schools must look broadly at what will hasten student success. Given the strong evidence that physical activity can have a positive effect on student performance, and on student health, schools must invest in more physical education and physical activity programs before, during, and after school. It is a win-win; especially if it can come in a form as simple as a hula hoop.

Dyersburg Makes a Push Against Obesity

By Randy Butler, CEO of the Dyer County, Tennessee, YMCA

DYERSBURG IS LIKE A LOT OF SMALL TOWNS IN AMERICA. MOST PEOPLE MAKE A LIVING BY FARMING OR WORKING IN FACTORIES, AND WE'RE SMALL ENOUGH THAT PEOPLE STILL SAY HELLO ON THE STREET AND WAVE TO EACH OTHER WHEN THEY DRIVE BY. OVERALL, WE'RE NOT A WEALTHY PLACE, BUT WE'RE NOT POOR EITHER.

And somewhere over the past 30 years, a lot of us here gained much too much weight.

Basically, we ate too much and moved too little. Our children watched too much TV, played too many video games, and ate too many french fries and not enough greens. To give you an idea of where things stand: Tennessee is the third fattest state in the country, and Dyer County is one of the least healthy, most overweight counties in the state. More than a third of adults in the county are obese, and almost half of the kids are obese or overweight.

Now we're trying to do something about it.

Last year, the Dyer County YMCA won a grant from the Robert Wood Johnson Foundation, to fight obesity in Dyer County and Dyersburg.

I'm the head of the Dyer County YMCA, and I'm in charge of the project. We're not a large operation, and I have a lot on my plate. I have a total of three full-time employees at the Y, so, for example, when the basement of our rec center flooded this spring, I was down there mopping up.

But luckily, in a small town people know each other, and we're used to cooperating. One of the first things we did was get together a committee of more than 20 town leaders — everybody from bank presidents to church pastors to hospital administrators to middle school PE teachers. We realize that obesity is everybody's problem.

A lot of this is new to us. A few months ago, a couple of us went to Salt Lake City for a conference on active living and obesity. Salt Lake City is a big bicycling city, and I have to admit that seeing so many bicycles on the streets looked a little strange to me. It just wasn't something I was used to. But at the same time, that's what we're pushing for in Dyersburg — more bike lanes, more biking.

I'm a big believer in the do-it-yourself method: Just get started. The community turned an abandoned lumberyard into a farmer's market. An alderman and a couple of private citizens donated some of their unused land for community gardens. We've got four gardens going now.

We've focused on kids, because once you're an adult, it's much harder to lose extra weight. A lot of times, it's not kids' fault that they're overweight. If their parents, schools and communities feed them the wrong foods and don't encourage them to exercise, we can't be surprised when they end up weighing too much.

Parents and communities have to be more involved than they were in the past. I'm 42, and when I was growing up near Atlanta, we'd go outside on a Saturday morning, we'd spend the day running around, and we wouldn't come home until dusk. Society is different now, and a lot of parents don't allow their kids to do that anymore. So we have to do more to make sure kids get the activity they need.

I love football and baseball, but we want to reach the kids who aren't playing team sports too. You can lose weight with all kinds of activities. For instance, one of our elementary schools began an aerobics class once a week during school. A teacher at a city intermediate school started the "Morning Mile Club," where students walk around the track before classes. The kids started tracking how many miles they walked, which got them excited about what they were doing. Now, on sunny days you can see 100 kids out there walking. One student walked 26 miles in just a few weeks. Teachers tell me that they can tell which days the kids are walking because their behavior is better during class.

We also started a contest with all of our 3rd, 4th and 5th graders. Students keep track of how much exercise they get after school; the class that moves the most wins prizes. The kids tell their parents 'I have to go outside and play.' Everybody in the family starts to realize that daily exercise is really important.

Our cafeterias are also changing. We now give students only fresh fruit snacks — no more cupcakes and candy in our city primary school.

And of course the Y can help too. My favorite example one of our teens who got a membership, started working out and taking classes, and lost close to 100 pounds. It was great to see how his confidence grew. He'd always been withdrawn, but as he lost weight, he really began coming out of his shell.

We're a rural area, and we have a lot of open space, which has some beautiful walking and hiking trails running through it. But right now, not enough people use these trails. We're trying to connect these trails to the places that people live so they can just walk out their door and start moving. Dyersburg is 20 miles from the Mississippi River, and we've been talking about creating a blueway there, a designated water trail for canoeists and kayakers. Paddling definitely counts as exercise.

We know we have a lot more to do. We didn't become fat overnight. It might take 15 or 20 years to fix this problem. Maybe if we keep at it, we'll end up like Salt Lake City, with our downtown streets painted with bike lanes, and packs of bikers pedaling to work every day. I'm sure that's something I could get used to.

STUDENT BODY MASS INDEX (BMI) SCREENING AND SURVEILLANCE

Body Mass Index, or BMI, is a common measure expressing the relationship (or ratio) of weight-to-height. As of May 31, 2011, 21 states had legislation that mandates school-based BMI or other weight-related screenings in schools. Such assessments are intended to help schools and communities assess the childhood obesity problem, educate parents and students, and serve as a means to evaluate obesity prevention and control programs in that school and community. The American Academy of Pediatrics (AAP) recommends that BMI should be calculated and plotted annually for all youth as part of normal health supervision within the child's medical home, and the Institute of Medicine (IOM) recommends annual school-based screenings.[98, 99]

- **Seven years ago, only four states required BMI screening or other weight-related assessments for children and adolescents:** Arkansas, Kansas, Louisiana, and Massachusetts.
- **Today, 21 states have legislation that requires BMI screening or weight-related assessments other than BMI.**
  - **States with BMI screening requirements:** Arkansas, California*, Florida, Illinois, Maine, Missouri, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Tennessee, Vermont, and West Virginia.
  - **States with other weight-related screening requirements:** Delaware, Iowa, Louisiana, Massachusetts, Nevada, Rhode Island, South Carolina, and Texas.

States that implemented new regulations between June 1, 2010, and May 31, 2011:

- **Ohio** required that each student enrolled in kindergarten, third grade, fifth grade, and ninth grade in a public or chartered nonpublic school undergo a screening for BMI and weight status category prior to the first day of May of the school year (SB 210, 2010).

**Starting last July, statewide distribution of diabetes risk information to schoolchildren, California Education Code § 49452.7, replaced individual BMI reporting, California Education Code § 49452.6.*

CHILDHOOD BMI AS A RISK FACTOR FOR DISEASES

A recent study in *The New England Journal of Medicine* found that an elevated BMI in adolescence increases the risk of obesity-related disorders in middle age.[100]

The study followed more than 35,000 apparently healthy men from the age of 17 into their mid-thirties. The study adjusted for age, family history, blood pressure, and lifestyle factors, and still found that higher BMI in youth was a significant predictor of both diabetes and coronary heart disease last. The researchers found that the risk of diabetes is mainly associated with increased BMI closer to the age of diagnosis, but that having a high BMI in adolescence was enough by itself to raise the risks of heart disease. In other words, even those who lost weight after adolescence still had a higher risk of heart ailments in adulthood.

THE FARM-TO-SCHOOL MOVEMENT GROWS

Over the last decade, many cities and towns have developed farm-to-school programs, which bring local, fresh fruits and vegetables to school cafeterias. Often, the programs include farm visits, cooking demonstrations, and the creation of school gardens and composting sites. Some states have laws supporting the practice.

Studies show that these programs improve students' diets;[101] for example, a study by researchers at the University of California at Davis found that farm-to-school programs not only increase consumption of fruits and vegetables, but actually change eating habits, causing students to choose healthier options at lunch.[102]

These programs also increase the use of locally grown foods, and teach kids about local food and farming issues.

- **Twenty-six states and Washington, D.C. currently have established farm-to-school programs:** Alaska, California, Colorado, Connecticut, Washington, D.C., Florida, Illinois, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Montana, New Jersey, New Mexico, New York, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Vermont, Virginia, Washington, and Wisconsin. Many of these programs cover portions of the students or schools in these states rather than all of the students or schools in the state. Five years ago only New York had a law that established a farm-to-school program.

States that implemented new legislation between June 1, 2010, and May 31, 2011:

- **Florida** created the Florida Farm Fresh Schools Program, which requires the state's Department of Education to work with the state's Department of Agriculture and Consumer Services to recommend policies and rules that encourage schools and school districts to buy fresh, local food (HB 1619, 2010).
- **Louisiana** created the Louisiana Sustainable Local Food Policy Council, which will examine the foods served to public school students in the National School Lunch and School Breakfast programs, and consider increasing the amount of sustainable, local food used by these efforts (HB 840, 2010).
- **Maryland** now requires that each local educational agency participating in the Farm-to-School Program shall annually report to the Department of Agriculture the types and amounts of farm products purchased from farms in the state (HB 751, 2011).
- **Massachusetts** required the state's Department of Agriculture, in collaboration with the Department of Elementary and Secondary Education, to collect data to increase use of local food by state public schools (HB 4459, 2010).
- **New Jersey** required that the state's Department of Agriculture, in coordination with the state's Department of Education, work with farmers; the New Jersey Farm-to-School Network; public, private, and charter schools; and other groups to establish an annual week of events to be known as "Jersey Fresh Farm-to-School Week" (HB 2854, 2011).

SCHOOLS ACROSS THE COUNTRY RAMP UP THEIR FARM-TO-SCHOOL EFFORTS

According to the National Farm-to-School Network, almost 10,000 schools are now working to increase the amount of local, fresh fruit and vegetables their students eat.

- As part of the federal pilot Fresh Fruit and Vegetable Program, students at schools in **Maine** are eating healthier at school. And teachers are using the foods as learning tools. Some students are encountering foods they'd never tried, or thought they didn't like. One fourth-grader said, "I found out I actually like mushrooms now."[103]
- The Farm-to-School program in **San Diego, California** has helped bring fresh greens to the student cafeteria. Administrators say the program helps the district meet the state's relatively strict nutritional standards. School food service directors say students are sometimes reluctant to eat the new foods; to soothe fearful palates, schools have introduced in-class taste tests and salad bar "coaches." So far this year, San Diego students have tried locally grown apples, tangerines, and squash.[104]
- In **Vermont,** the Farm–to-School program improves students' health; provides agriculture, health and nutrition education opportunities; and supports local farmers. Last fall, 28 different local foods were served in school meals. Monthly in-class taste tests feature produce from local farms. Students also visit local farms, and garden at their schools. The program also helps organize food-related community events, such as cooking classes for young mothers.[105]

FARM STANDS AS PREVENTIVE MEDICINE

Doctors in Massachusetts have started advising patients to eat "prescription produce" from local farmers' markets. To increase the amount of fresh produce eaten by low-income families in the area, some health centers are giving coupons to patients, a dollar a day for each family member.[106] Massachusetts is not alone: 36 states now have similar farmers' market nutrition programs, mostly targeting women and young children.

In Massachusetts, doctors will track participants to see if the produce prescriptions have health benefits. If the program proves successful, others may try the idea. One participant, Leslie-Ann Ogiste, said she and her son lost a combined four pounds in the first month, and said they are eating less snacks and more fresh produce, and drinking less soda and more water.[107]

PERSONAL COMMENTARY

Growing Healthy Kids and Economies with Farm-to-School Programs

By Mel Rader, Co-Director, Upstream Public Health and Dr. Tia Henderson, Research Coordinator, Upstream Public Health

A NEW STUDY DEMONSTRATES HOW LOCAL FOOD PURCHASING AND TEACHING GARDENS PROMOTES A HEALTHIER DIET AMONG KIDS AND BOOSTS THE ECONOMY. UPSTREAM PUBLIC HEALTH, AN OREGON HEALTH POLICY ADVOCACY NON-PROFIT, USED A HEALTH IMPACT ASSESSMENT (HIA) TO EXAMINE THE WAYS THAT A PROPOSED OREGON FARM-TO-SCHOOL LEGISLATION (HOUSE BILL 2800) IMPACTS THE HEALTH OF KIDS AND FARMERS. WE LEARNED THAT FARM-TO-SCHOOL PROGRAMS ARE AN EFFECTIVE WAY TO PROVIDE FRESHER FOODS IN SCHOOL MEALS, PROMOTE ECONOMIC DEVELOPMENT, AND TEACH CHILDREN IMPORTANT LESSONS ABOUT FOOD AND NUTRITION.

The HIA is an information-gathering tool used to inform policy decisions and promote decisions that are the most beneficial for health. Oregon's proposed legislation would reimburse school districts 15 cents a lunch and seven cents a breakfast for purchasing and serving Oregon food in meals as part of the federal breakfast and lunch programs. Additionally, the bill would support food, garden and agricultural activities in up to 150 schools every fiscal year. Farm-to-School programs include purchasing food from local farmers or processors, providing garden and nutritional educational experiences, and can include cooking meals from scratch within a school kitchen.

In order to implement Farm-to-School programs across the country, we will need to invest adequate funds in school meals and redesign food service programs to better handle fresh produce. If well designed and implemented, farm-to-school programs are an effective strategy to increase children's consumption of fruits and vegetables, address obesity, and promote job creation.[108]

Schools are a critical place to start to reduce obesity

Our schools are a critical environment to promote healthy dietary habits and turn back the childhood obesity epidemic. School meals represent nearly half of children's daily nutrients, and many childhood eating habits often continue through adult years.[109, 110, 111] Public and private institutions have a moral imperative to help children develop healthy eating habits. In a span of thirty years the prevalence of obesity in America has more than tripled for adolescents aged 12 to 19 years old.[112] Obesity in the United States costs $147 billion per year in direct medical costs, about 10 percent of all medical spending.[113] Improvements to school meals represent a sound financial investment in America's future.

Programs work best when they include multiple strategies

Farm-to-school initiatives work best when they integrate changes in school meals with cafeteria promotional materials and school curriculum.[114, 115] Promotional materials include educational signs, posters, menus and table-tents that help children identify local food items and understand

where the food comes from and how it affects their body. In Oregon, we have a program called Oregon Harvest for Schools where schools feature an Oregon-grown product such as tomatoes in school meals and use materials to teach children about food nutrients, serving size moderation and physical activity. The educational and promotional components increase children's interest in eating fruits and vegetables, while changes in food purchasing improve the quality of the food being offered. When children visit a local farm and see broccoli grown by a farmer, they are more likely to eat it on the lunch line. Similarly, when students experience the joy of growing and tasting different types of food in school gardens they develop a preference for fruits and vegetables.[116, 117] Research shows that when schools buy local foods and offer fresh, high quality items, they can also increase school meal participation.

Farm-to-School programs create jobs

Equally important is the economic stimulus that farm-to-school purchases generate. When we buy from America's farmers and processors, we create jobs at home. Local purchasing stimulates the economy in economically-depressed areas of the country where unemployment is high. In our HIA, we examined the effects of reimbursing schools for buying Oregon food on the local economy. Based on purchasing data from twenty-eight school districts, we found rural farmers would feel nearly three times the positive impact of job creation when compared to urban counterparts; and every dollar invested in food purchases would add six dollars to the local economy over time.[118] We also learned that when local farmers forge business partnerships with schools, those relationships grow over time creating more jobs in the future. Schools who start buying directly from local farmers sort out typical barriers to buying local such as distribution, delivery and availability that allow them to continue buying items, and potentially increase what they buy over time.

There's no such thing as a free lunch

In our HIA we discovered highly motivated school nutrition service personnel and local farmers. While we are encouraged by these efforts, farm-to-school programs cannot survive simply on the passion of nutrition service directors. In general, schools have little money to spend on food for their students — about $1.20 per lunch from federal funds. At this price, it can be difficult to create healthy meals. Federal, state and local governments must provide more support for school meals, through both incentives and investment. These programs will not only improve students' health, they will help support local economies.

Federal and state Farm to School policy opportunities

The U.S. Congress and state legislatures have the opportunity to invest funds in farm-to-school and school garden programs across the country in order to create jobs and improve health. In the next Farm bill, leaders can help schools overcome barriers to purchasing local foods by providing incentives for small-scale food processing operations and funding technical assistance to enable producers to better meet school meal program needs. Recently, policy makers in ten states stepped up to the plate by appropriating state budgets to fund farm-to-school programs. California and Washington D.C go further by providing reimbursement funds to schools for serving local food in meals.

The obesity crisis makes it imperative that schools set an example by serving healthy meals that include high-quality fruits and vegetables. Farm-to-school programs respond to the needs of children by improving the quality of meals and teaching them where our food comes from. School gardens, agriculture field trips and nutritional curriculum can also teach kids about a healthy diet, provide exciting ways to learn applied science, and build the next generation of a farming workforce.

2. Legislation for Healthy Communities

States also have obesity-related legislation aimed at the general population. These actions include tax policies, menu labeling, restrictions on litigation, and planning and transportation policies.

OBESITY-RELATED STATE INITIATIVES — 2011				
	Has Menu Labeling Laws	Has Soda (Sugar-Sweetened Beverage) Taxes	Has Complete the Streets Policy	Has Limited Liability Laws
Alabama		✓		
Alaska				
Arizona				✓
Arkansas		✓		
California	✓	✓	✓	
Colorado		✓	✓	✓
Connecticut		✓	✓	
Delaware			✓	
D.C.		✓		
Florida		✓	✓	✓
Georgia				✓
Hawaii		✓	✓	
Idaho		✓		✓
Illinois		✓	✓	✓
Indiana		✓		✓
Iowa		✓		
Kansas		✓		✓
Kentucky		✓		✓
Louisiana				✓
Maine	✓	✓		✓
Maryland		✓	✓	
Massachusetts	✓		✓	
Michigan			✓	✓
Minnesota		✓	✓	
Mississippi		✓		
Missouri		✓		✓
Montana				
Nebraska				
Nevada				
New Hampshire				✓
New Jersey	✓	✓		
New Mexico				
New York		✓		
North Carolina		✓		
North Dakota		✓		✓
Ohio		✓		✓
Oklahoma		✓		
Oregon	✓		✓	✓
Pennsylvania		✓		
Rhode Island		✓	✓	
South Carolina				
South Dakota		✓		✓
Tennessee		✓		✓
Texas		✓		✓
Utah		✓		✓
Vermont			✓	
Virginia		✓		
Washington		✓	✓	✓
West Virginia		✓		
Wisconsin		✓	✓	✓
Wyoming				✓
# of States	**5**	**35**	**16**	**24**

Please Note: Checkmarks in chart above that are in red type represent new laws passed in 2010 or 2011.

STATES EXPLORING HEALTH INSURANCE INCENTIVES AND DISINCENTIVES TO WEIGHT

As the cost of obesity-related health problems continues to rise, states are searching for ways to help citizens and employees to eat well and get physically active. Some are experimenting with penalties, while others are trying rewards.

- Arizona is considering a plan to add a $50 annual charge for some obese Medicaid recipients who don't work with a doctor to try to improve their health. Alabama has already adopted measures that raise health insurance rates for state workers who are found to be overweight.
- The South Carolina Senate approved a plan to lower premiums for state workers who try to improve their health in certain ways. Idaho pays for obese workers to enroll in weight loss programs, and gives bonuses to those who lose enough weight.

These approaches mirror strategies used for years by private companies, which have used both fees and incentives to encourage workers to lose weight and become healthier. In both the private and public sector, health care costs are rising rapidly and executives and public officials are trying a range of policies to slow this increase. A 2010 study by researchers at Duke University found that obese workers cost U.S. employers about $73 billion a year.[119]

The Arizona proposal includes not only obese people, but smokers, and those with conditions such as diabetes. The fee would target Medicaid recipients who have a BMI of 30 or higher and are not working with a doctor to improve their health. It is part of a comprehensive plan to attempt to cut Arizona's Medicaid budget by $500 million. The obesity fee has the potential to affect hundreds of thousands of people. Arizona has about 1.3 million Medicaid recipients; overall, more than a quarter of the state's population is obese. The state's entire Medicaid overhaul proposal is now being reviewed by the Federal Centers for Medicare & Medicaid Services (CMS), which oversees state Medicaid plans. If CMS approves the fee, Arizona will likely implement it by early next year. Although Arizona is the first state to propose a Medicaid obesity fee, Florida is also considering a similar charge.

And last year, Alabama began testing workers on a range of health measurements, including weight, blood pressure, and cholesterol levels; those who have a BMI of 35 or above, which is considered morbidly obese (often 30 pounds or more overweight) will pay an extra $25 a month for insurance. Workers who submit these measurements receive a $25 monthly discount, so the "fee" basically cancels out that discount. Alabama has about 35,000 state employees, and an obesity rate of almost 32 percent.

Some states are using the carrot, rather than the stick, and have created incentive programs to encourage state employees to lose weight. In April, the South Carolina Senate approved a plan that would lower premiums for state workers who improve their health in a variety of ways.[120] Idaho pays for obese workers to enroll in weight loss programs, and gives some obese workers a $100 bonus if they lose 10 percent of their weight within six months.[121]

Some critics say the fees unfairly target people who are overweight, and point out that some states, such as Alabama, do little to help obese workers lose weight before charging them extra. Others say it is a fair way to spread higher average health care spending by obese people.

Under the Patient Protection and Affordable Care Act (ACA), underwriting is restricted to age, geography, and smoking history for determining overall premiums, but it does permit employers to provide incentives for healthy behaviors and lifestyles within limits.

SODA TAXES

A number of states have a tax on soda or sugar-sweetened beverages (SSB) in place. While many states instituted the taxes for revenue purposes, some proponents of these taxes believe they can have a health benefit, comparing them to taxes on tobacco products. Twenty years ago, cigarettes were taxed at a relatively low rate. Since then cigarette taxes have tripled, pushing the cost of cigarettes higher by an average of 160 percent. Many experts say the increases played a major role in reducing rates of smoking and tobacco-related disease.[122 123]

- The non-profit group **Bridging the Gap says that 34 states and Washington, D.C. now impose sales taxes on soda:** Alabama, Arkansas, California, Colorado, Connecticut, Washington, D.C., Florida, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Minnesota, Mississippi, Missouri, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, and Wisconsin.[124]

A number of advocates and policymakers have examined the impact of potential federal action on the issue. Researchers at Yale University say a national soda tax of a penny per 12 ounces would generate $1.5 billion a year.[125] A 2008 Congressional Budget Office (CBO) report on options to pay for health reform included a proposal for a Federal excise tax of three cents per 12 ounces of SSB. According to their estimates, this tax could generate an estimated $24 billion between 2009 and 2013.[126]

However, the proposed SSB tax did not gain widespread support during the 2009-2010 health care debate. Supporters blame a $24 million lobbying and advertising campaign by the beverage industry, funneled partly through an industry-funded group called Americans Against Food Taxes.[127]

SODA TAXES AND THEIR EFFECT ON CHILDHOOD BMI

Taxes on soda and other SSB remain controversial. Many studies suggest that when these drinks cost more, people buy them less: a 10 percent increase in price leads to an eight percent drop in consumption.[128] But few studies have found a connection between SSB taxes and weight loss.

However, a study last year by researchers at the University of Illinois at Chicago found that the taxes do reduce consumption among children who are already overweight, come from low-income families, watch a lot of television, or are Black.[129] The outcome was especially pronounced among children who go to schools where soda is sold to students.

BOSTON CUTS MUNICIPAL SODA CONSUMPTION

In April, Boston Mayor Thomas M. Menino required city departments to phase out the sale, advertising, and promotion of SSB on city-owned property.[130] The policy applies to cafeterias, vending machines, concession stands, and beverages served at meetings, city programs, and events where food is purchased with city funds.

FOOD STAMPS FOR JUNK FOOD?

In late 2010, New York City and New York State asked the USDA to prohibit people from using the Supplemental Nutrition Assistance Program (SNAP), better known as food stamps, to buy soda and other SSB. As of April 2011, the USDA has not ruled on this, but in 2004, the agency rejected a similar proposal by Minnesota.[131] The proposed ban would last for two years, followed by an assessment to decide if it should be made permanent. The ban would target drinks that have more than 10 calories per eight ounces, but juices with no added sugars, as well as milk and milk substitutes, would be exempt.

City and state health officials say the rule could decrease consumption of SSB by nine percent. Every year, New York City residents spend an estimated $75 million to $135 million in food stamps on soda.[132] (Overall, New York SNAP recipients spend $2.7 billion.) State and city health officials say that SNAP is a nutrition program, and sodas and SSB contain no nutritional value. But critics argue that setting limits on what people can buy with SNAP unfairly targets the poor.

Elsewhere, fast food corporations are trying to increase SNAP recipients' ability to buy junk food. Yum Brands, which owns KFC and Pizza Hut, is lobbying the state of Kentucky to let individuals with disabilities, elderly, and homeless food stamp recipients buy food at fast food restaurants. The company argues that allowing people to use food stamps at the restaurants would help the underserved.[133] The Community Farm Alliance, an organization that encourages local farming, condemned the proposal, saying it would encourage vulnerable groups to eat more unhealthy food than they already do. Kentucky would not be the first state to let people use food stamps at fast food restaurants; Michigan, Arizona, and parts of California already allow the practice.[134]

MENU LABELING

Menu labeling — including nutrition information on menus and menu boards — is based on the idea that informed consumers make informed choices. Leading health organizations, including the American Medical Association, want labeling that is easy to understand and includes a food's total calories, fat, saturated fat, trans fat, and sodium contents.[135] According to the Yale Rudd Center for Food Policy and Obesity, 80 percent of consumers also want this information.[136]

In recent years, several states and localities have implemented menu labeling laws:

- **Five states — California, Massachusetts, Maine, New Jersey, and Oregon — currently have laws that require the posting of nutrition information on menus and menu boards in restaurant chains with 20 or more in-state locations.** Seattle, Philadelphia, New York City, Nashville, San Francisco, and Montgomery County, Maryland also have menu-labeling provisions.

No state implemented legislation between June 1, 2010 and May 31, 2011.

The ACA requires chain restaurants or food establishments (those with 20 or more locations) to display calorie counts and other nutritional information for standard menu items. Companies that own or operate 20 or more food or beverage vending machines have similar requirements. In August 2010, the U.S. Food and Drug Administration (FDA) released draft guidance about the details of this provision. Although the requirement went into effect as soon as the law passed, the agency has indicated that it will not enforce the provision until regulations are finalized. In March, FDA announced that it would release further details on exactly what information restaurants and vendors must provide.

The federal rules, in most cases, will pre-empt state regulations related to menu labeling.

DOES MENU LABELING WORK?

New evidence from King County, Washington, suggests that added nutrition information on menus does not influence consumer behavior, at least in the first year. The County's labeling policy, put into place in January 2009, affected restaurant chains with 15 or more locations. Researchers from Duke-National University of Singapore, together with the Seattle and King County Public Health Department, found that in the first 13 months, the rules had no effect on what diners bought at Taco Time restaurants in King County. The scientists say that menu labeling alone may not be enough to change consumer behavior, and it may be necessary to add other interventions, such as consumer education on calorie counts and nutrition information.

In another study, researchers examined the influence of menu labeling on fast food choices in New York City. The researchers talked to nearly 1,200 adults at fast-food restaurants in lower-income, minority neighborhoods and compared them to a sample in Newark, New Jersey, which has no menu labeling law. More than a quarter of the New York City diners who saw the calorie information said it influenced their choices. But when researchers analyzed what diners actually bought, they found no difference in the number of calories purchased by the two groups.[137]

However, in another study, researchers examined consumers' behavior at the Starbucks coffee chain over 14 months. When calories were posted prominently at Starbucks, the average number of calories per transaction fell by six percent.[138] Researchers also found that in areas where menu labeling is mandatory, restaurants were 58 percent more likely to offer low-calorie options than restaurants in other areas.[139] Some feared that calorie posting would lower sales, but the study found that did not have any overall affect. Sales of higher-calorie items declined, but customers bought more lower-calorie products, enough to increase overall sales.[140]

With consumers and regulators focusing on calories, some restaurant chains are revising their menus to offer more healthy options. A variety of restaurants, including Austin Grill, California Pizza Kitchen, the Cheesecake Factory, Fuddruckers, Silver Diner, and Sizzler are working on modifications.[141]

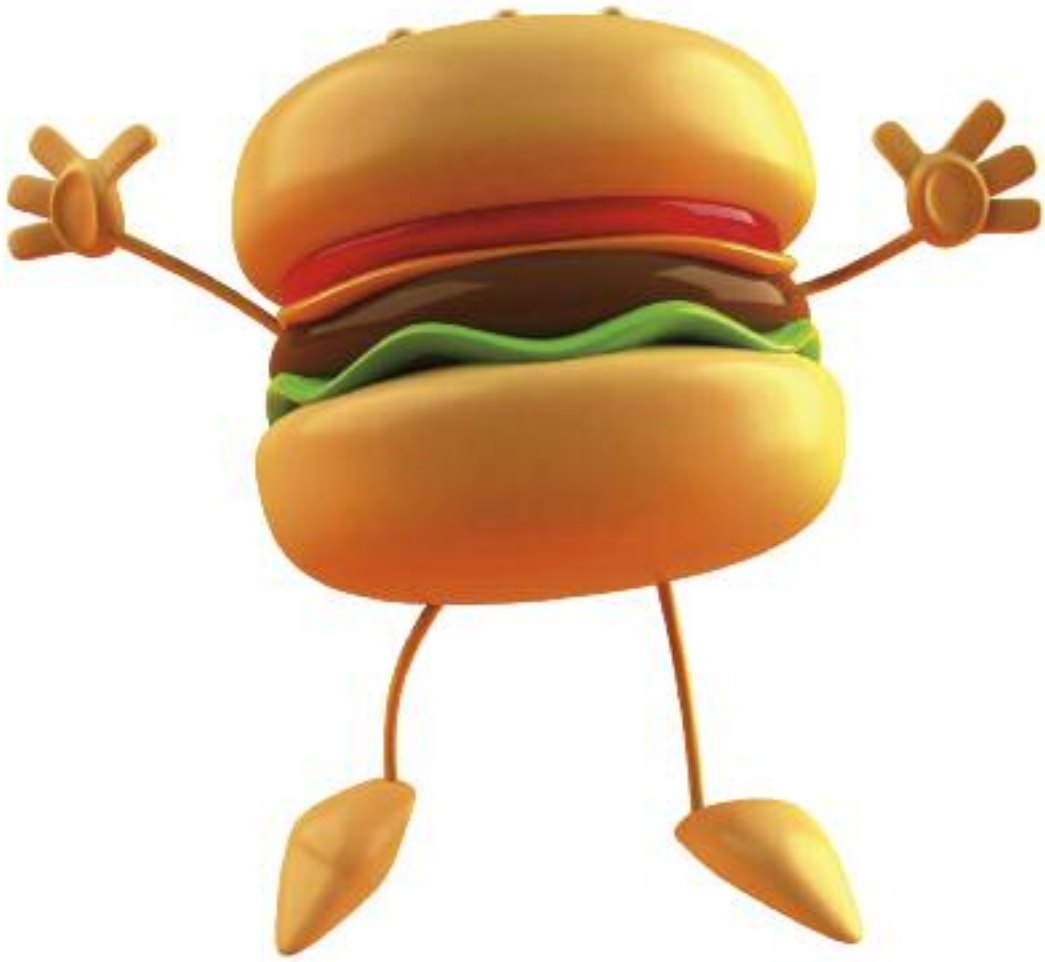
Many restaurants continue to sell a plethora of popular high-calorie dishes, regardless of menu labeling rules. But giving customers more knowledge, as well as a few more healthy choices, may make some difference.

FAST-FOOD MARKETERS FOCUS ON YOUNGEST CUSTOMERS

In a report release last year, the Yale Rudd Center for Food Policy and Obesity analyzed fast-food marketing practices and children's fast-food purchases. The report *Fast-Food FACTS,* focused on 12 of the largest fast-food corporations, including McDonald's, KFC, and Domino's.

The study found that:[142]

- Eighty-four percent of parents report taking their child to a fast-food restaurant at least once a week;
- Only 12 of 3,039 possible kids' meal combinations meet nutrition criteria for preschoolers, and only 15 meet nutrition criteria for older children;
- The average restaurant has 15 product-specific signs in the restaurant, and only four percent promote healthy menu items;
- At McDonald's, Burger King, Wendy's, and Taco Bell, when a healthy side or drink could be added to a kids' meal, french fries or another unhealthy side were automatically served 84 percent of the time, and a soft drink or other unhealthy beverage was served at least 72 percent of the time;
- Snacks and desserts marketed directly to teens contain as many as 1,500 calories;
- Children's exposure to fast-food TV ads is increasing;
- Advertising has spread to company websites, social networks, and other digital media. Most fast-food chains now have websites aimed specifically at kids, such as Ronald.com, ClubBK.com, and HappyMeal.com; and
- Black children and teens see at least 50 percent more fast-food ads than their White peers.



PERSONAL COMMENTARY

Marketing of Unhealthy Foods to Children: What Progress Has Been Made Since the 2005 Institute of Medicine (IOM) Report on Food Marketing

By Mary Story Ph.D., RD, professor and associate dean, School of Public Health, University of Minnesota and director of the RWJF Healthy Eating Research program

ALTHOUGH MULTIPLE FACTORS INFLUENCE WHAT CHILDREN EAT AND DRINK, ONE POTENT FORCE IS FOOD MARKETING. TODAY'S YOUTHS LIVE IN A MEDIA-SATURATED ENVIRONMENT. OVER THE PAST FEW DECADES, U.S. CHILDREN AND ADOLESCENTS HAVE INCREASINGLY BEEN TARGETED WITH AGGRESSIVE FORMS OF FOOD MARKETING AND ADVERTISING PRACTICES, WHICH MOSTLY PROMOTE FOODS AND BEVERAGES HIGH IN CALORIES, FATS AND ADDED SUGARS.

The food and beverage industry spends roughly $2 billion each year to market unhealthy foods and beverages to children and adolescents in the United States. To foster brand loyalty and influence product purchase behavior, advertisers use multiple techniques and channels to reach youth — even toddlers. Food marketing to children now extends well beyond television and product packaging and is expanding rapidly into a ubiquitous digital media culture of new techniques including mobile phones, social networks, interactive games, online videos, and three-dimensional virtual worlds, often without parental supervision. Children are constantly surrounded and bombarded with marketing and promotions of unhealthy foods and beverages in the places they live, learn and play.

In 2005 the IOM released an expert committee report on Food Marketing to Children and Youth: Threat or Opportunity. The IOM committee conducted a rigorous and systematic review of the evidence and reached five conclusions: (1) food and beverage marketing influences the diets and health of children and adolescents. Food marketing influences children's food preferences and purchase requests, dietary intake, and contributes to the high rates of overweight and obesity observed in American children and adolescents; (2) current marketing practices are out of balance with a healthful diet and create an environment that puts their health at risk; (3) companies and marketers have underutilized their potential to apply resources and creativity to market a healthful diet to young people; (4) achieving a healthful diet will require industry leadership and sustained, multisectoral and integrated efforts; and (5) current public policy lack support or authority to address emerging marketing practices that influenced young people's diets.

The report set forth 10 recommendations to guide the development of effective marketing strategies that promote healthier food, beverages and meals for children and youth. The recommendations targeted private- and public-sector stakeholders, specifically food and beverage companies; restaurants; industry trade associations and food retailers; entertainment companies and the media; state and local educational authorities; and federal, state and local government. Among the major recommendations for the food, beverage and restaurant industries was that industry should shift their advertising and marketing emphasis to healthier child- and youth-oriented foods and beverages. If voluntary efforts related to children's television programming are unsuccessful in shifting the emphasis away from high-calorie and low-nutrient foods and beverages to healthful foods and beverages, Congress should enact legislation mandating the shift.

My colleagues, Vivica Kraak, Ellen Wartella, and I recently conducted an in-depth evaluation on progress made by private-sector stakeholders (i.e., food, beverage and restaurant companies; trade associations; entertainment companies and the media) and public-sector stakeholders (i.e., government, educational leaders and schools) to achieve the IOM report recommendations over the past five years from December 1, 2005 to January 31, 2011. We used the IOM LEAD (locate, evaluate and assemble evidence to inform decisions) framework to establish the evidence selection approach, criteria and search strategy. The evidence selection was guided by five qualitative-research criteria (i.e., contextual relevance, research design quality, professional judgment, credibility and data verification). We reviewed 198 data sources (i.e., published articles and reports, press releases) and for each of the 10 IOM recommendations assigned one of four progress evaluation categories: no progress, limited progress, some progress and extensive progress.

We found the following:

- None of the stakeholder groups made extensive progress toward the IOM recommendations during the five-year period reviewed.
- Some progress was made by food and beverage companies, schools and diverse groups charged with improving marketing practice standards.
- Limited progress was made by restaurants, industry trade associations, media and entertainment companies, government, and the public-private research capacity to achieve the recommendations.
- No progress was made by government to reach parents, caregivers and families with a national social marketing campaign promoting healthful diets, or by government to designate a responsible agency to monitor and report on progress for all actions.
- Moreover, industry stakeholders used integrated marketing communication strategies to promote primarily unhealthy food and beverage products, which threaten children's and adolescents' health and miss opportunities to create healthy food and eating environments that promote a healthful diet for young people.

To improve children's diets and reduce childhood obesity, we need to decrease youth exposure to marketing of unhealthy foods through a combination of industry self-regulation and achievable actions and policies at the federal, state and local levels. Marketing efforts need to serve and protect rather than undermine children's health.

LEGISLATION TO LIMIT OBESITY LIABILITY

Many states have responded to the obesity epidemic through laws that prevent people from suing restaurants, manufacturers, and marketers for contributing to unhealthy weight and related health problems. These laws have been prompted by corporations that were concerned about potential obesity-related lawsuits similar to the lawsuits tobacco companies have faced.

- **Twenty-four states have obesity liability laws:** Arizona, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Louisiana, Kansas, Kentucky, Maine, Michigan, Missouri, New Hampshire, North Dakota, Ohio, Oregon, South Dakota, Texas, Tennessee, Utah, Washington, Wisconsin, and Wyoming.

Proponents of these laws argue that obesity is an individual choice, a matter of "common sense, and personal responsibility."[143]

Opponents of the laws argue that, in some cases, restaurants, food manufacturers, and marketers withhold crucial information about the dangers of their products, and that lawsuits are an appropriate way to respond to this unethical or illegal behavior.

DOES OUR ENVIRONMENT INFLUENCE HOW MUCH WE MOVE?

Many studies show that in recent decades, walking and biking trips have declined significantly for both children and adults. Between 1977 and 1995, walking trips by adults decreased by almost a third.[151] Residents who live in traditional neighborhoods — which include neighborhoods where there are sidewalks, street signs, safe intersections, and streets with access to nearby destinations — walk more than those who live in typical suburban neighborhoods, where homes are separated from destinations by major roads that hinder walking or biking.[152] Some researchers argue that self-selection rather than environment accounts for this difference — that people who choose to live in traditional neighborhoods do so precisely because they want to live in an area that allows them to be more active. But studies show that on its own, environment plays a significant role in determining activity levels. Many studies have found that regardless of their walking preferences, people in traditional communities walk more for transportation than those living in suburban communities.[153,154]

Researchers have found that certain transportation investments can increase levels of walking and biking among residents. These include:

- Linking neighborhoods to public transit;[155]
- Improving and increasing the number of sidewalks and bicycle lanes;[156, 157]
- Building multi-use trails;[158] and
- Instituting measures to calm traffic and increase safety.[159]

Research on community design and active living has grown significantly over the past decade. Active Living Research, a national program of RWJF, conducts and supports research to identify environmental factors and policies that influence physical activity. The program offers resources for policymakers, officials, and advocacy groups. More information is available at http://activelivingresearch.org/.

DESIGNING STREETS FOR ALL USERS

To encourage physical activity and green transportation, activities that include walking and cycling, transit oriented development, and building or protecting urban transport systems that are fuel-efficient, space-saving, and promote healthy lifestyles, many state and local governments are adopting Complete Streets policies. Complete Streets are roads designed to allow all users — bicyclists, pedestrians, drivers, and public transit users — to access them safely.

Many parents and children say that concerns about traffic safety keep them from walking to school.[144] According to the 2009 National Household Travel Survey (NHTS), only 13 percent of children ages 5–14 usually walked or biked to school, compared with almost half of students in 1969.[145] Conversely, 12 percent of children arrived at school by car in 1969, compared with 44 percent in 2009.[146]

Better traffic safety can promote healthier living. For instance, a 2003 study found that 43 percent of people with safe places to walk within 10 minutes of home met recommended activity levels; just 27 percent of those without safe places to walk met the recommendation.[147] An Australian study found that residents are 65 percent more likely to walk in a neighborhood with sidewalks.[148]

A review by the National Conference of State Legislatures (NCSL) identified the five policies that most encourage biking and walking: [149]

1. Incorporating sidewalks and bike lanes into community design.
2. Providing funding for biking and walking in highway projects.
3. Establishing safe routes to school.
4. Fostering traffic-calming measures (e.g., any transportation design to slow traffic).
5. Creating incentives for mixed-use development.

According to the National Complete Streets Coalition, states, counties, regional governments, and cities have passed more than 250 Complete Streets policies.

- **Sixteen states have passed Complete Streets laws:** California, Colorado, Connecticut, Delaware, Florida, Hawaii, Illinois, Maryland, Massachusetts, Michigan, Minnesota, Oregon, Rhode Island, Vermont, Washington and Wisconsin.

States that implemented legislation between June 1, 2010, and May 31, 2011, are:

- **Colorado** requires that the Colorado Department of Transportation provide transportation infrastructure that accommodates bicyclists and pedestrians, and to include the needs of bicyclists and pedestrians when planning new roads.
- **Vermont** requires that all users of Vermont's transportation system—including motorists, bicyclists, public transportation users, and pedestrians of all ages and abilities—are considered in all state and municipally managed transportation projects and project phases, including planning, development, construction, and maintenance.
- **Washington** requires that the department of transportation establish a complete streets grant program to encourage local governments to adopt urban arterial retrofit street ordinances designed to provide safe access to all users, including bicyclists, pedestrians, motorists, and public transportation users

COMPLETE STREETS CAN HELP THE ECONOMY

Making streets more accessible to bikers and walkers not only improves health; it can also boost the economy. A recent study in Baltimore compared projects that repaired sidewalks, bike lanes, and roads. Researchers found that the bike lane work created 14 jobs per $1 million spent, while footway projects created 11 jobs per $1 million. Road projects only created seven jobs per $1 million.[150]

SAFE ROUTES TO SCHOOL: THE EFFECT OF LEGISLATION ON WALKING AND BIKING TO SCHOOL

In 1969, almost half of kids between the ages of five and 14 walked to school; today only around 13 percent do. Back then, 88 percent of those who lived less than a mile from school walked; today the figure is just 35 percent.[160]

School districts, states, and the federal government are all trying to increase student walking and biking. Bridging the Gap recently examined the relationship between existing state laws and walking and biking at elementary schools around the country. The group found that laws requiring sidewalks, crossing guards, and traffic safety measures increased the number of children walking or biking to school, and that certain laws, such as having busing requirements of less than a mile, decreased biking and walking rates.[161]

B. CDC GRANTS TO STATES FOR OBESITY PREVENTION AND CONTROL

CDC funds many state and local efforts to prevent and control obesity and related diseases. Last year, through its Communities Putting Prevention to Work (CPPW) program, the agency awarded $373 million to cities, towns, and rural areas for evidence-based prevention and wellness programs. More than half the money will go toward obesity prevention efforts.

The table below provides a summary of these grants.

OBESITY-RELATED CDC GRANTS TO STATES — FY 2011

State	ARRA Community Obesity Grants[1]	Nutrition, Physical Activity & Obesity Grants	Coordinated School Health Grants[2]	Healthy Communities[3]	REACH US[4]
Alabama	✓			✓	
Alaska				✓	
Arizona	✓		✓	✓	
Arkansas	✓	✓	✓	✓	
California	✓	✓	✓	✓	✓
Colorado	✓	✓	✓	✓	✓
Connecticut			✓	✓	✓
Delaware				✓	
D.C.					
Florida	✓			✓	
Georgia	✓	✓		✓	
Hawaii	✓	✓		✓	✓
Idaho			✓	✓	
Illinois	✓			✓	✓
Indiana	✓	✓		✓	
Iowa		✓		✓	
Kansas				✓	
Kentucky	✓		✓	✓	
Louisiana				✓	
Maine	✓		✓	✓	
Maryland				✓	
Massachusetts	✓	✓	✓	✓	✓
Michigan		✓	✓	✓	✓
Minnesota	✓	✓	✓	✓	
Mississippi			✓	✓	
Missouri				✓	
Montana		✓		✓	
Nebraska	✓	✓		✓	
Nevada	✓			✓	
New Hampshire		✓		✓	
New Jersey		✓	✓	✓	
New Mexico	✓	✓		✓	✓
New York	✓	✓	✓	✓	✓
North Carolina	✓	✓	✓	✓	✓
North Dakota			✓	✓	
Ohio	✓		✓	✓	✓
Oklahoma	✓			✓	✓
Oregon	✓			✓	
Pennsylvania	✓			✓	✓
Rhode Island		✓		✓	
South Carolina		✓	✓	✓	✓
South Dakota			✓	✓	
Tennessee	✓	✓		✓	
Texas	✓	✓		✓	
Utah		✓		✓	
Vermont				✓	
Virginia				✓	✓
Washington	✓	✓	✓	✓	✓
West Virginia	✓	✓	✓	✓	✓
Wisconsin	✓	✓	✓	✓	
Wyoming				✓	
# of States	**28**	**25**	**22**	**50**	**17**

1 While all 50 states receive some funding through the CPPW State and Territorial Initiative, 39 communities in 28 states receive CPPW Community funding for obesity.

2 Nez Perce Tribe also receives Coordinated School Health funding.

3 REACH U.S. grants are not directed to States, but are instead directed to tribes, local public health departments, and community-based organizations. The states listed here are those that have at least one grantee funded by these programs. Five other states *AL, AZ, GA, IN, WY) have REACH U.S. grantees whose work does not directly relate to prevention and control of obesity-related diseases.

4 Most Healthy Communities grants are not directed to States, but are instead directed to tribes, local public health departments, and community-based organizations. The states listed here have at least one grantee funded by these programs. Healthy Communities funds all States through the Collaborative Funding Opportunity Announcement, but at a minimal level.

C. STATE AND COMMUNITY SUCCESS STORIES

Over the past decade, federal agencies, private foundations, and research institutions have developed a range of successful programs to reduce obesity. The following are recent examples of efforts to develop and implement evidence- and practice-based programs by the Alliance for a Healthier Generation, the YMCA of the USA, and the Communities Putting Prevention to Work grant program.

ALLIANCE FOR A HEALTHIER GENERATION: HEALTHY SCHOOLS PROGRAM

Participation in the Healthy Schools Program, through the Alliance for a Healthier Generation, reached an all-time high this year, with over 12,000 schools participating. The Alliance, founded by the American Heart Association and the William J. Clinton Foundation, started the Healthy Schools Program in 2005 with 231 schools. Since 2006, RWJF has awarded more than $51 million to the program to help schools create environments where physical activity and healthy eating are accessible and encouraged. Participating schools work with a team of experts, who advise educators on the most effective approaches to improving kids' health.

The Healthy Schools Program gives technical advice and support to schools to increase physical activity and healthy eating by working through a six step continuous improvement process that includes convening a wellness council, doing a baseline assessment or "Healthy Schools Inventory," developing an action plan, brokering resources, implementing changes, and celebrating success. The program also offers time and money saving resources such as tools to help food service staff to provide healthier eating options for students, providing resources to help plan healthy fundraisers and school parties, tips to help motivate student movement, and guidance on designing school employee wellness programs.

Schools participating in the Healthy Schools Program are eligible to receive a National Recognition Award, which is a nationally recognized honor that highlights schools that have met the best practices criteria to create healthier school environments. Schools can earn different achievement levels of the award: bronze, silver, gold, and the highest degree platinum.

Some examples of healthy activities by schools participating in the Healthy Schools Program include:

- In Florence, South Carolina, Southside Middle School started a hula-hoop contest and a Biggest Loser Challenge for school employees. School administrators say the program has been a success with students, and helps the school meet state and federal requirements for physical activity and nutrition.[162]
- On Wednesday mornings before class starts, students at Gates Elementary School in Grand Island, Nebraska, walk through the school's halls for 15 minutes. "Walking Wednesday" has been such a success that administrators hope to add "Moving Monday."[163]
- High Bridge Elementary School in Bowie, Maryland, eliminated sugar-sweetened beverages and now offers only water, milk, or unsweetened juice at school events. In 2010 the school partnered with an organic food store to give all students an apple every Monday throughout November. The school eliminated use of candy as a reward and instead offers students extra recess time. High Bridge and another school in the Prince Georges County, Md., school district received the Bronze Recognition Award from the Alliance for a Healthier Generation, for improving students' health.[164]

THE Y FOCUSES ON OBESITY

A total of 190 communities around the country are engaging in the YMCA of the USA's Healthier Communities Initiatives (Pioneering Healthier Communities, Statewide Pioneering Healthier Communities, and ACHIEVE) and are working to make healthy choices easier for families.[165] These initiatives engage community leaders, convened by local YMCAs, in policy and environmental change efforts that support and promote healthy lifestyles. Local leaders are provided with learning opportunities to sharpen their skills for empowering communities to take local action in solving specific health problems and to create and sustain positive, lasting change for healthy living.

Ninety-one communities responded to a survey, showing 14,000 improvements impacting 34.3 million lives. This work has been carried out with funding from CDC and RWJF.[166]

The survey found that YMCAs have helped communities by:[167]

1. Increasing the amount of fresh fruit and vegetables available in neighborhoods.

- 73 new or improved grocery options
- 278 new community gardens
- 32 new healthy corner stores or bodegas

2. Increasing the number of safe routes to school.

- 112 sidewalks designed or improved
- 71 traffic safety improvements or enhancements
- 172 schools created or enhanced a Safe Routes to School Program

3. Working with schools to increase physical education and physical activity.

- 1,261 after-school sites have added or increased the amount of physical activity
- 618 schools added or improved physical education criteria
- 594 schools have instituted classroom physical activity breaks
- 242 schools have added or expanded recess

4. Working with schools to improve access to healthier food and beverages.

- 767 schools changed the food available in their vending machines or sold outside of the lunch line during the school day
- 1,014 schools changed their lunch menu to offer healthier choices

5. Helping worksites incorporate healthier food/beverage options and improving opportunities for physical activity.

- 386 worksites increased the number of healthy vending machine options
- 368 worksites improved food choices available in meetings
- 866 worksites created incentives for employees to be active or learn about nutrition
- 211 worksites encouraged employees to commute in more active ways

Key principles of these initiatives:

- High-level community leaders are involved at every step, utilizing their positions, influence and ability to make changes within their organization and within the greater community;
- Multiple sectors and diverse organizations are involved to maximize experience, assets, resources, and skills;
- The ultimate goal is to influence policy and environmental changes to improve community environments;
- Local initiatives are organically grown with strategies specific to the needs of each community;
- YMCA serves as convener in the community and co-leads with a partner entity.

COMMUNITIES PUTTING PREVENTION TO WORK

In 2009, HHS launched a $373 million initiative to increase physical activity, improve nutrition, and to reduce obesity and smoking. Known as Communities Putting Prevention to Work (CPPW), the initiative provided one-time grants to communities around the country to set up local programs or support existing initiatives using models that have been proven to reduce disease rates. Many of these initiatives are still in progress in many areas. Dozens of communities have used resources from these grants to improve health in a range of ways, some examples focusing on obesity, nutrition, and/or physical activity include:

Increasing Access to Healthy Foods in School

- The **San Diego Unified School District** increased the purchase of locally produced fruits and vegetables in more than 8.6 million breakfasts, 13.5 million lunches, and 2.2 million snacks served annually to 130,000 students and 15,800 staff.
- In **Denver, Colorado,** the city school system has tightened nutrition standards, improving school meals for the city's nearly 80,000 public school students.
- The Bartholomew Consolidated School Board in **Columbus, Indiana,** approved a new wellness policy that improves food served to students, and identifies ways to increase physical activity. The policy will bring healthier meals and increased activity to 17 schools, which serve more than 11,000 students.
- **New York City** installed water jets, a type of water fountain, in 144 public schools, instituted a policy requiring all drinking fountains to have a separate faucet for filling containers, and stopped allowing schools to have bottled water vending machines instead of water fountains. The changes provide more than 110,000 students and staff with greater access to free drinking water.
- In **Hamilton County, Ohio,** 72 schools in three school districts, serving more than 38,000 students, set stricter standards for calories, nutrients, and portion size for foods and drinks sold in school vending machines, a la carte lines, and school stores. The policies will expand to 19 other school districts in Hamilton County by next spring.
- Four school districts in **LaCrosse, Wisconsin** have increased the use of locally produced foods, providing healthier options for almost 5,000 students. By the end of the school year 5,000 pounds of fresh fruits and vegetables were served, and thousands of dollars were put back into the local economy.

Increasing Access to Healthy Foods in the Community

- **Los Angeles County** now requires all food service providers who provide food to the county's employees to make their food more nutritious. The change will improve meals for 100,000 county employees.
- **San Diego, California** is increasing the number of farmers markets that accept food stamps. So far, two farmers' markets accept Electronic Benefit Transfers (EBT), and four more will do so by spring 2012. Between August 2010 and January 2011, EBT sales at the markets came to almost $30,000.
- **Louisville, Kentucky** is building upon its Pioneering Healthier Communities work to further develop nine Healthy Corner Stores in underserved communities. As of May 2011, two stores have opened, and are selling more than 3,500 servings of fresh produce a month. An accompanying nutrition education program, Food Fight, has a reached more than 632,000 residents, including 100,000 students.
- **Boston, Massachusetts** is setting up community gardens in low-income neighborhoods. More than 170 produce beds have been built in the neighborhood of Dorchester. Overall, Dorchester will end up with 400 beds, as well as several greenhouse plots, serving 1,800 people.
- **Minneapolis, Minnesota** has started a program that encourages EBT customers to use farmers' markets by giving them a $5 match to make local, healthful food more affordable with a program called Market Bucks. During the initial pilot project the two participating markets served over 500 SNAP customers.
- **New York City** unveiled a media campaign urging consumers to read product labels and choose foods with less salt. The campaign appeared on one in five New York City subway cars and was seen by riders more than 63 million times. The campaign is new and results are not yet available.
- **Philadelphia, Pennsylvania** has worked with nearly 500 corner stores to offer healthier food. Some stores received better equipment, shelves, and refrigerators to store produce, low-fat dairy products, and lean meats. With USDA funding, almost half of the city's 98 recreation centers are serving 1,000 kids healthier food in after-school programs. And to increase physical activity and healthy eating among students, 200 city schools have created Wellness Councils.
- **Nashville, Tennessee** added to their current Pioneering Healthier Communities efforts and created a Food Policy Council, which will work to improve access to affordable, healthy food for all city residents.
- **Seattle, Washington** has set up a program to bring fresh produce and other healthy options to corner stores, minimarts, convenience stores, and other locations in 20 low-income neighborhoods. The program, Health Foods Here, will improve access to healthy food for about 650,000 residents.
- In **La Crosse County, Wisconsin** a local hospital, Gundersen Lutheran Health Systems, worked with Kwik Trips, a Midwestern convenience store chain, to increase healthy food options at 21 local outlets. Working with hospital dietitians, the stores created low-fat snacks and meals, all under 500 calories. The items include fresh fruit, salads, sandwiches, and combo meals; all receive the hospitals seal of approval. Over the past 25 years, the hospital has convinced 471 local restaurants, supermarkets, and stores to take part in its "500 Club" program.

Restaurant Restrictions and Menu Labeling

- **Los Angeles** is trying to reduce unhealthy eating by restricting new fast food restaurants in neighborhoods with high rates of obesity and poverty. In 2008, the city council put tight restrictions on new fast food chain restaurants in a large part of South Los Angeles. Supporters say the policy helps reduce unhealthy eating choices for the 800,000 residents in these communities.
- In **Louisville, Kentucky** the Healthy Hometown Restaurant Initiative has created partnerships with 16 area restaurants to assist them with the calculation and printing of calorie information for their menu items, providing city residents with information that could help them eat healthier when eating out. The city is working with other restaurants, and plans to expand the program.
- **Portland, Maine** recently rolled out a menu labeling policy for non-chain restaurants. So far, a registered dietitian is working with 13 restaurants to conduct nutritional analysis, and to train and assist restaurant owners and staff.
- **San Antonio, Texas** launched the "¡Por Vida!" healthy menu initiative, branding the effort with easy-to-recognize labels and logos. So far, 100 restaurants are participating.

Increasing Physical Activity in Schools

- **Miami, Florida** is testing standards for day care centers for physical activity, screen-time restrictions, and nutrition. The standards are being tested at 887 day care centers, reaching more than 63,000 children. Lawmakers will consider whether to expand the policy next spring. If such a policy were to pass, it would then cover more than 100,000 children.
- **Kauai, Hawaii** sponsors a "Mayors Walking Workbus," a two-mile walk that takes place once a week. Between 30 to 50 people, both students and government employees, take part every week.
- In **Douglas County, Nebraska,** 12 after-school programs have eliminated sugary drinks and also require students to get 20 minutes of exercise a day.
- **Pueblo of Jemez, New Mexico** now provides kids in the after-school programs with at least 45 minutes of exercise a day, as well as a healthy snack.
- **Hamilton County, Ohio** awarded 20 small grants to underserved communities, allowing 4,000 students in the Cincinnati area to safely walk to school.

Increasing Physical Activity in the Community

- **Boston, Massachusetts** trained more than 2,500 low-income children on how to safely ride bicycles, surpassing its two-year enrollment goal in only five months. The city will continue adding more children over the course of the grant.
- The Health & Human Services Department in **Pueblo of Jemez, New Mexico** allows employees to take 1.5 hours of leave a week for exercise. Since last August, about 160 employees a week have taken advantage of the policy to exercise.
- In **New York City** the Walkers for Wellness program has brought walking clubs and better nutrition to 100 faith-based organizations representing more than 10,000 congregants of many faiths. One of these, Beth Hark Christian Counseling Center/Bethel Gospel Assembly in East Harlem, has started a walking club that meets twice a week. In addition, the group has reduced use of sugar-sweetened beverages at its events, and increased the availability of water.

Improving the Built Environment to Increase Physical Activity

- **Jefferson County, Alabama** passed a zoning amendment that allows for compact, mixed-use development in unincorporated areas, encourages more walkable communities centered around villages and transportation hubs, and preserves more green and open space.
- In **Los Angeles County, California** Long Beach's business districts are trying to increase bicycle and pedestrian trips.
- **Pinellas County, Florida** is improving the Pinellas Trail, which is now used by 70,000 people a month. The county will make the trail safer, and will launch a media campaign to promote its use for transportation as well as recreation.
- In **Kauai, Hawaii** the non-profit group PATH is expanding two unconnected coastal trails, which together run for 6.5 miles, into a unified 18-mile trail for both biking and walking. The trail is now used by 30,000 people a year; once the expansion is finished, PATH says, that number will grow by 50 percent.
- **Nashville, Tennessee** was able to support the city's Complete Streets policy to help ensure that public streets are built to accommodate all modes of transportation, including walking, bicycling, and mass transit for the city's 600,000 residents.
- **La Crosse County, Wisconsin** added six miles of new bike lanes to streets in the city of La Crosse. Prior to that, the city had just two miles of lanes.

Federal Policies & Programs

SECTION 3

Over the past two years, the federal government has unveiled several significant policies designed to reduce obesity.

These efforts are important, but they are only the first step. These policies must be fully implemented and funded.

This section includes highlights of many of these policies, as well as upcoming opportunities for intervention.

A. *LET'S MOVE*

Last year, First Lady Michelle Obama launched the *Let's Move* initiative, an effort to reduce childhood obesity. The initiative emphasizes healthy eating and increased physical activity, at school, at home, and in the community. The initiative has raised the issue's profile, and has brought together public officials, the food industry, advocacy groups, and others to find solutions. *Let's Move* celebrated its one-year anniversary by highlighting how programs like *Chefs Move to Schools* and the *Healthier US Schools Challenge* are working to help children get fit.

MAYORS GETTING INVOLVED ACROSS THE COUNTRY

Mayors across the country are taking steps to improve the health of their towns and cities. Recently, First Lady Michelle Obama spoke with members of the National League of Cities to encourage them make fighting obesity a priority. But many had already started taking action. The following are a number of examples that have come from commitments made as part of the *Let's Move* Cities and Towns program:

- **Nashville Mayor Karl Dean** has launched the "Walk 100 Miles with the Mayor" initiative to get members of the community more physically active. He challenged all Nashvillians to walk 100 miles between April 2 and July 9.
- **Newark Mayor Cory A. Booker** has joined the "Newark Beth Challenge," from the Saint Barnabas Health Care System, a program to encourage all municipal employees to reduce weight, improve health, and achieve healthy lifestyle changes. The Challenge includes education and fitness training supervised by a trained dietitian/personal trainer, one-on-one consultations about diet and fitness, private weigh-ins, and a free 12-week gym membership for all participants. More than 200 Newark employees signed up, including the mayor. Mayor Booker weighed 295 pounds in December; by June he had lost 40 pounds.
- **New Orleans Mayor Mitch Landrieu** announced the Fresh Food Retailer Initiative, an effort to ensure that all city neighborhoods have a supermarket or people in neighborhoods have a way to get to a supermarket. The initiative will help to increase the amount of fresh foods and vegetables available to all residents.
- **Oklahoma City Mayor Mick Cornett** has been trying to improve the health of Oklahoma City since 2007, when he encouraged residents to sign up online to track their weight loss progress. According to the online tracking, residents of the city have lost over 750,000 pounds. Mayor Cornett has helped make healthy choices easier choices in his city by redesigning downtown streets to make them more pedestrian-friendly, constructing new gyms in inner-city schools and wellness centers for seniors, and building 50 miles of new jogging and walking paths in the city.
- **Barstow, California, Mayor Joe Gomez** started with his own health and has lost 40 pounds since he started training for the Los Angeles Marathon, which he completed in March. Mayor Gomez has started the Mayorthon Youth Run, a 45-day program in which children run the equivalent of a marathon. It began April 1 and ended with a free one-mile race on May 14. Around 50 children participated. As part of the program, children also learned about nutrition and healthy eating habits.
- **Flint, Michigan, Mayor Dayne Walling** has partnered the city with the Crim Fitness Foundation, a local non-profit group, to encourage people to make fitness commitments. He hopes to increase the availability of healthy, local food, and improve nutrition education in schools.
- **San Francisco** holds the annual Mayor's Challenge: Shape Up San Francisco Walking Challenge to improve health and wellness and combat childhood obesity. The event encourages residents to create or join a team (within their neighborhood, workplace, school or family), track their physical activity each day, and log their miles. The goal for each team was to collectively walk 1,016 miles — the equivalent length of the state's coastline — within 10 weeks. Groups could continue walking "across the country" or even "around the world" after the contest ended.

INDUSTRY NUTRITION EFFORTS

A number of food and beverage companies recently have announced voluntary initiatives to change their product offerings and inform the public about the nutritional content of their foods. For example:

- In October 2009, a new industry-led organization, the Healthy Weight Commitment Foundation (HWCF), was launched as a national, multi-year effort to help reduce obesity — especially childhood obesity — by 2015.[168] The coalition includes more than 160 retailers, food and beverage manufacturers, restaurants, sporting goods companies, insurance companies, trade associations, non-governmental organizations (NGOs), and professional sports organizations. The Healthy Weight Commitment Foundation focuses on three areas: the marketplace, the workplace, and schools. Under its marketplace initiative, HWCF pledged to remove 1.5 trillion annual calories from the marketplace by the end of 2015. RWJF is funding an independent evaluation of the marketplace initiative.
- In January of this year, Walmart announced an initiative to expand healthy and affordable options sold under its in-house brand.[169] The company pledged to keep healthy alternatives priced competitively and to expand grocery selection in underserved areas. The company imposed a five-year deadline for these healthy changes, but many are calling on the retail giant to take positive steps more quickly.
- In March, the Grocery Manufacturers Association (GMA), in collaboration with the Food Marketing Initiative (FMI), announced a new front-of-package (FOP) labeling system called Nutrition Keys. The program, which is scheduled to be implemented later this year, is expected to print four icons representing calories, saturated fat, sodium, and sugar on packages of food sold at retail. The Keys program is controversial among public health advocates because it precedes an effort by the Institute of Medicine to develop a consistent, effective, evidence-based FOP labeling system.[170] The IOM effort, ordered by Congress, released its first report in fall 2010 and is expected to finish its recommendations in late 2011. To prevent public confusion, many public advocates recommended that the GMA adopt the approach recommended by the IOM—or at least wait until its final report is released.

B. OPPORTUNITIES TO REDUCE OBESITY THROUGH HEALTH REFORM

The Affordable Care Act (ACA), signed into law by President Obama in March 2010, provides the opportunity to significantly enhance obesity-prevention efforts in the United States — if it is strategically implemented and fully funded. The law authorizes new resources and strategic planning initiatives aimed at reducing obesity and increasing opportunities for physical activity and improved nutrition. Additional information about these programs is available at: www.tfah.org/health-reform.

Prevention and Public Health Fund	■ The fund provides more than $16 billion in mandatory appropriations for prevention programs, including obesity-prevention activities, over the next 10 years.
Community Transformation Grants (CTGs)	■ These grants will be awarded for the first time in fiscal year (FY) 2011. CDC released the guidance and funding opportunity announcement for the grants in April 2011. Communities around the country will have the opportunity to bid competitively for grants to prevent obesity, make affordable nutritious foods more widely available, and provide safe places to be physically active.
National Prevention Strategy (NPS)	■ The NPS, released in the spring of 2011, establishes priorities and approaches to preventing health problems, including obesity and obesity-related illnesses.
National Prevention, Health Promotion, and Public Health Council	■ The Council brings together a wide range of federal departments and agencies to consider how their own policies can impact health. The Council has the opportunity to take a "Health in All Policies" approach encouraging policies that help to improve health when possible and avoiding policies that might unintentionally have a negative impact. For instance, HHS and the U.S. Department of Transportation (DOT) could work collaboratively to ensure that new road construction not only keeps traffic flowing, but also includes pedestrian sidewalks and preserves open green spaces.

Essential Benefits and Coverage of Preventive Services	■ All new group benefit plans will be required to cover any preventive service that has received an "A" or "B" rating from the U.S. Preventive Services Task Force (USPSTF), including intensive obesity counseling. USPSTF has given "B" recommendations that clinicians screen all Americans ages six and older for obesity and offer or refer them to comprehensive, intensive behavioral interventions. In addition, insurance plans sold in the new state health insurance exchanges will be required to offer essential health benefits that will be defined by HHS. These can and should include coverage of services — both in clinics and offered by community providers — that are shown to reduce obesity and associated conditions (such as the Diabetes Prevention Program).
	■ Additionally, there are new requirements for coverage of preventive services in the Medicare program. In November 2010, the Centers for Medicare and Medicaid Services (CMS) released a final rule implementing coverage of an annual wellness visit and new covered preventive services for Medicare beneficiaries starting in 2011.
	■ The number of Medicaid beneficiaries is expected to expand dramatically in 2014, as everyone below 133 percent of the federal poverty level will be eligible for coverage. This is likely to increase the number of obese and overweight people served by Medicaid, given the close tie of obesity to poverty. Medicaid will need to ensure that all appropriate clinical and community-based services are offered to patients as a means of containing the costs associated with chronic disease.
	■ CMS is now accepting proposals from states for the Medicaid Incentives for Prevention of Chronic Disease Program (MIPCDP). MIPCPD will reward Medicaid recipients who make an effort to stay healthy. The program must focus on either tobacco cessation, controlling or reducing weight, lowering cholesterol, lowering blood pressure, or either avoiding the onset or improving the management of diabetes.
Nutritional Labeling	■ Chain restaurants or food establishments with at least 20 locations will be required to disclose calorie counts and other nutritional information for standard menu items. Vending machine operators that own or operate at least 20 machines have similar requirements. In August 2010, the FDA released draft compliance guidance. Although this requirement was effective upon enactment of the ACA, the FDA has indicated that they will not enforce this provision until regulations are finalized. The FDA released a proposed rule to this effect in April 2011.
Healthy Aging, Living Well Pilot	■ This pilot authorizes HHS, acting through CDC, to award grants to states and local health departments to conduct disease prevention pilot programs for Americans ages 55–64, to help people stay healthier before they are eligible for Medicare. To date, Congress has not appropriated funds for this program.
Center for Medicare and Medicaid Innovation	■ The Center for Medicare and Medicaid Innovation (the "Innovation Center") examines, evaluates, and expands new policies and programs to improve the quality of care and lower the costs for Medicare, Medicaid, and Children's Health Insurance Program (CHIP) beneficiaries. The Innovation Center affords a unique opportunity to test new population-based approaches to helping patients prevent obesity and/or achieve and sustain weight loss. The Innovation Center was formally established in November 2010 and has already announced demonstration projects aimed at promoting greater use of the medical home model. A dedicated funding stream has been appropriated to carry out these new grant programs as they are being tested and evaluated. One division of the Innovation Center, the Community Improvement Care Models Group, is obligated to help fight the epidemics of obesity, smoking, and heart disease.
National Diabetes Prevention Program	■ The ACA authorized CDC to manage National Diabetes Prevention Program grants and create community-based model sites to help adults at high risk prevent type 2 diabetes. Though the grants component of the program has not yet been funded, the CDC Division of Diabetes Translation has already begun implementation by partnering with the Y and United HealthGroup to recognize sites that offer qualifying interventions. CDC also established the Diabetes Training and Technical Assistance Center at Emory University to support related training to ensure that sites implement interventions efficiently and effectively.

Children's Health Insurance Program Childhood Obesity Demonstration Project	■ From 2010 to 2014, the ACA provides $25 million in funding for the Childhood Obesity Demonstration Project, which was established through the Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA). HHS grants are aimed at fostering the development of comprehensive approaches to reducing childhood obesity. CHIPRA requires that grantees carry out community-based activities that operate through schools, the health delivery system, and community health workers.

"…[W]e shouldn't be waiting for problems — we should be preventing them. And that means tackling the causes of illness where those causes lie — in our communities, our habits, our social supports, our choices — where we live. America is seriously under-invested in using what we know about preventing illness, and we therefore live with the chronic epidemics of obesity, heart disease, asthma, and depression, for example, that we don't need to live with. I intend to guide CMS toward the Triple Aim as our highest-level goal — better care, better health, and lower per capita costs, and I intend to focus our energies, as much as I can, on those three levels of excellence: excellence in care…, excellence in integration, and excellence in prevention at the community level."[171]

* Donald Berwick, Administrator, Centers for Medicare and Medicaid Services

C. OPPORTUNITIES TO REDUCE OBESITY THROUGH NEWLY PASSED LEGISLATION AND FEDERAL INITIATIVES

1. **HEALTHY, HUNGER-FREE KIDS ACT OF 2010 (P.L. 111-296).** A number of provisions in the Healthy, Hunger-Free Kids Act of 2010 could improve the nutritional quality of food and beverages in schools:

   - The USDA is required to oversee a transition to healthier school meals, and schools that comply will be eligible for increased federal reimbursements for school meal programs. (The provision takes effect October 2012. The USDA has updated standards that should proceed with full implementation by the 2012-13 school year.)
   - In addition to improving the quality of school meals, the USDA will establish nutritional standards to govern all foods and beverages served or sold in schools at any time during the day throughout the school campus, to include vending machines, school stores, and a la carte in the cafeteria. In addition, local education agencies will be required to report on nutritional quality, participation in federal nutrition assistance programs, and other related aspects of food policy.
   - The USDA will offer $5 million in competitive matching grants for farm-to-school programs, beginning in October 2012.
   - The USDA will develop enhanced regulations for local wellness policies, working in conjunction with the U.S. Department of Education (ED) and HHS, acting through CDC, to provide technical assistance.
   - Previous requirements that schools carry regular as well as reduced-fat milk have been replaced with provisions mandating that schools serve milk that complies with the Dietary Guidelines for Americans, which recommend only low or no-fat dairy products. Schools must also make free, potable water available when and where food is served.
   - Nutrition and wellness standards were expanded for the Child and Adult Care Food Program, which includes child care settings. Some provisions include requiring the USDA to review and update nutrition standards and meal costs, and publish proposed rules within 18 months; to work in cooperation with HHS to encourage state licensing entities to include criteria for nutrition and wellness standards in licensing determinations; to encourage physical activity and limits on screen time; and to expand the program to cover after-school meals for at-risk children in all states.

2. **FY 2010 AGRICULTURE APPROPRIATIONS ACT (P.L. 111-80).** This Act funded additional child nutrition initiatives relevant to obesity, including authorization and funding for:

   - Projects to test methods for summer month operations for food assistance programs;
   - Grants for purchasing food-service equipment;
   - Grants to improve health outcomes and nutrition habits in Child and Adult Care Food Program (CACFP) child care settings; and
   - New school garden projects.

3. **2010 DIETARY GUIDELINES FOR AMERICANS (DGA).** In January 2011, the USDA and HHS released an updated set of dietary guidelines for Americans. The DGAs are the federal government's evidence-based nutritional guidance to promote health, and reduce the risk of chronic diseases and the prevalence of overweight and obesity through improved nutrition and physical activity. The guidelines recommend eating more vegetables, fruits, whole-grains, seafood, as well as fat-free and low-fat dairy products. They also urge Americans to eat less salt, added sugar, refined grains, and saturated and trans fats. These new standards also serve as guidelines for schools around the country to use to upgrade nutrition standards.

2010 DIETARY NUTRITION GUIDELINES FOR AMERICANS

Published every five years by HHS and the USDA, the Dietary Guidelines for Americans,[172] offer advice on diet and chronic disease. The guidelines are the basis for federal food and nutrition education programs. They also launched a new MyPlate (www.choosemyplate.gov) initiative which includes a range of practical nutrition information and helps translate the guidelines into easy-to-use recommendations, such as filling half of a plate with fruits and vegetables, switching at least half of grains to whole-grains, and switching to fat-free or low-fat (1 percent) milk.[173]

Key Recommendations

- Eat a variety of nutrient-dense foods and beverages within and among the basic food groups, while picking foods low in saturated and trans fats, cholesterol, added sugars, sodium, and alcohol.
- Consume more dark green vegetables, orange vegetables, legumes, fruits, whole-grains, and low-fat milk and milk products.
- Eat fewer calories, refined grains, added sugars, and total fats. Eat foods lower in sodium.
- Increase physical activity.

Specific Recommendations for Adults

- An adult consuming 2,000 calories per day should have two cups of fruit and two-and-a-half cups of vegetables.
- Consume three or more ounce-equivalents of whole-grain products per day. At least half of grain intake should come from whole-grains.
- Consume three cups per day of fat-free or low-fat milk or milk products.
- Increase dietary intake of calcium, potassium, fiber, magnesium, and vitamins A, C, and E.
- Limiting sodium intake to <2300 mg, and for adults 51 and older to limit sodium intake to 1500 mg.
- Avoid inactivity and sedentary behaviors; some physical activity is better than none, but adults are recommended to do at least 150 minutes a week of moderate-intensity or 75 minutes a week of vigorous-intensity aerobic activity.

Specific Recommendations for Children and Adolescents

- Whole-grains should make up at least half of all grains eaten. Children ages two through three should consume two cups a day of fat-free or low-fat milk or milk products; children between four and eight should drink 2.5 cups a day, and children over nine should drink three cups a day.
- Drink fewer sugar-sweetened beverages and monitor amounts of 100 percent fruit juice.
- Increase intake of calcium, potassium, fiber, magnesium, and vitamin E.
- Children should get an hour or more a day of moderate to vigorous physical activity.

In 2009, the IOM issued a *School Meals: Building Blocks for Healthy Children* consensus report, which recommended that the USDA adopt standards for menu planning for the National School Lunch Program and the School Breakfast Program, including:

- Increasing the amount and variety of fruits, vegetables, and whole-grains;
- Setting a minimum and maximum level of calories; and
- Focusing more on reducing saturated fat and sodium.[174]

The report recommended updating the standards from the 1995 Nutrition Standards and Meal Requirements to the 2005 DGA guidelines.

In early 2011, the USDA proposed a new rule to update meals served through the National School Lunch Program and the School Breakfast Program based on the IOM recommendations. The proposed rule has yet to be approved and implemented.

4. **STRATEGIC REALIGNMENT OF CHRONIC DISEASE PREVENTION PROGRAMS AT CDC.** Starting in FY 2010, CDC started a strategic realignment process for the agency's chronic disease program. The goal is to break down traditional silos and focus efforts for related health problems together to maximize efficiency and effectiveness. For instance, programs related to physical activity and nutrition are related to a series of health problems, including diabetes, heart disease, and stroke. The President's FY 2012 budget proposes consolidating all of CDC's National Center for Chronic Disease Prevention and Health Promotion programs into a total of five budget lines. The realignment has the potential to focus resources; however, many of the implications for state, local, and community grantees remain unknown.

5. **STRATEGIC PLAN FOR NIH OBESITY RESEARCH.** To improve obesity research, the National Institutes of Health (NIH) Obesity Research Task Force put together the *Strategic Plan for NIH Obesity Research,* which updates their original plan from 2004. The new plan incorporates information from scientists, public health organizations, and the public. This updated strategic plan is focused on accelerating the translation of new research from the lab to inform the public, policies, and programs as quickly as possible. The report recommends that researchers focus on these areas:[175]

   - Discovering key processes that regulate body weight and influence behavior;
   - Understanding the factors that contribute to obesity and its consequences;
   - Designing and testing new approaches for achieving and maintaining a healthy weight;
   - Evaluating promising strategies to prevent and treat obesity in real-world settings and diverse populations;
   - Using technology to advance obesity research and improve healthcare delivery; and
   - Enhancing research on the effects of policy changes to weight-related behaviors and development of obesity. Several priority areas of policy research include capacity development, agriculture and food supply, economic research, the built environment, and educational policies.

   The report discusses the importance of education and outreach in spreading research results, and highlights the need to use a multidisciplinary approach, including agencies beyond health agencies, such as education and transportation, as well as public-private partnerships. The report will be updated as research continues.

6. **HEALTHY FOOD FINANCING INTIATIVE (HFFI).** The proposed Healthy Food Financing Initiative would work to bring affordable healthy foods to underserved communities, particularly through building new retail food stores in these neighborhoods. The proposal builds off the Pennsylvania Fresh Food Financing Initiative, a successful public-private collaboration that not only accomplished this goal, but also spurred job creation and economic development. For FY 2012, President Obama's budget proposal requests $330 million to fund HFFI. The request includes funding through four federal departments:

   - $35 million for the USDA Office of the Secretary;
   - $25 million for the Department of the Treasury's Community Development Financial Institutions fund;
   - $250 million for Treasury's New Markets Tax Credits program; and
   - $20 million for HHS.

   Neither the House nor the Senate included funding for an HFFI in either the FY 2010 or FY 2011 appropriations laws.

7. **NATIONAL PHYSICAL ACTIVITY PLAN.** In May 2010, the first National Physical Activity Plan was launched after a three-and-a-half year development process. Originally funded by a grant from CDC, the plan lays out an approach to promote physical activity among all Americans. Today, national groups and partners have formed the Make the Move council to guide implementation of the plan. By working with national, state, and local partners, the groups are working to carry the message to new audiences.

   The plan is the product of collaboration between the private and public sector. It encompasses eight sectors: health care; public health; education; business and industry; mass media; parks, recreation, fitness and sports; transportation, land use, and community design; and volunteer and non-profit.

   The plan uses five strategies:

   - Launch a grassroots advocacy effort to mobilize public support for the National Physical Activity Plan.
   - Mount a national program to educate people about how to increase physical activity. Integrate the program with other national health education campaigns.
   - Share the best models, programs, and policies.
   - Create a national resource center to spread effective tools for promoting physical activity.
   - Establish a center for physical activity policy and research.

   Over the past year, the national implementation teams, organized by sector, have worked to develop a national policy agenda based on the plan, including federal priorities for legislative action needed to promote physical activity. Implementation has also focused on a communications and campaign strategy to raise awareness of the plan and provide information, training, and resources to interested parties at the federal, state, and local level.

8. **FDA REVIEWS FRONT-OF-PACKAGE LABELING.** As "front-of-package" labeling becomes more common, there are growing concerns about consumer confusion and the lack of scientific rigor used in developing the various and diverse systems. Congress required CDC to work with the IOM and FDA on a study of FOP labeling. The IOM released the first part of the study in the fall of 2010 focusing on conclusions. The conclusions included that the most useful primary purpose of FOP rating systems and symbols would help consumers identify and select foods based on the nutrients most strongly linked to public health concerns; that calorie and serving size information should be displayed; and that in addition to calories, saturated fats, trans fats, and sodium, are the most critical nutritional components to include in FOP systems. Phase two is expected to be released in the fall of 2011 and will include recommendations to assist FDA in their efforts to address FOP systems.

9. **CHILDHOOD OBESITY DEMONSTRATION PROJECT.** This effort is designed to identify strategies for integrating pediatric care with community support programs and policies, with a focus on underserved children covered under Medicaid. Grantees are required to use the Obesity Chronic Care Model to develop multi-sector policy, systems, and environmental supports to improve nutrition and physical activity levels. The project was included in the Children's Health Insurance Program Reauthorization Act of 2009 (P.L. 111-3) and funded by the ACA at $25 million for 2010-2014. Additional funding will be used to evaluate grantee performance and make recommendations to HHS about expanding the effort.

10. **EXPANSION OF THE USDA's FRESH FRUIT AND VEGETABLES PROGRAM.** In March 2011, Agriculture Secretary Tom Vilsack announced that the Fresh Fruit and Vegetable Program would receive an additional $158 million, allowing an additional 600,000 to 950,000 students to participate during the 2011-2012 school year.[176] Schools in the program provide each with a free fruit or vegetable every day of the school week. Advocates say the program helps students eat healthier food both at school and at home.[177]

11. **FOOD GUIDELINES FOR FEDERAL WORKSITES.** In 2010, the General Services Administration (GSA) released a set of guidelines for federal government cafeterias and vending machine operators. The guidelines encourage vendors to offer more fruits and vegetables, whole-grains, and lean proteins, while limiting foods high in salt, saturated fat, and added sugars. The guidelines apply to federal food concessions and will be updated to keep up with new nutrition research.[178] The guidelines also encourage use of recycled and reusable materials, along with sustainable food sources. CDC initiated this process and worked with GSA, and the Hubert H. Humphrey Federal Office Building, where HHS is located, was the first federal facility to implement the guidelines.

D. UPCOMING POTENTIAL OPPORTUNITES TO REDUCE OBESITY

1. **REAUTHORIZATION OF THE ELEMENTARY AND SECONDARY EDUCATION ACT (ESEA).** While local education agencies that participate in National School Lunch Act or Child Nutrition Act programs are already required to establish local school wellness policies, there is no requirement regarding content or scope of the nutrition education curriculum. There is also evidence that current school efforts to educate kids about nutrition and healthy eating may not be enough to actually change students' behavior. The reauthorization of the ESEA presents an opportunity to require additional nutrition and health education in schools.

   In addition, Congress could expand ESEA to include more physical education and activity requirements in schools. Evidence shows that physical activity can improve academic performance. In February 2011, Senator Tom Udall (D-NM) introduced the Promoting Health for Youth Skills in Classrooms and Life (PHYSICAL) Act (S.392), which proposes: making health and physical education core subjects, such as history and geography, in order to make them eligible for further federal support; creating an Office of Safe and Healthy Students to report to the Deputy Secretary in ED; reauthorizing the Carol M. While Physical Education Program, a competitive grant to support local education agencies for each fiscal year; and creating a new school health grant program to support robust health education programs within LEAs and tribal schools. In March 2011, Senator Tom Harkin (D-IA), and Representatives Ron Kind (D-WI) and Jim Gerlach (R-PA) reintroduced the Fitness Integrated with Teaching (FIT) Kids Act (S. 576, H.R. 1057). The bill would require local education agencies and school boards to publish how much progress they have made in meeting national standards for physical education and activity. The legislation would also expand efforts to hire more physical education teachers, fund research on how health affects academic achievement, and explore new ways to promote physical education in schools.

2. **FARM BILL.** Most of the provisions of the Food, Conservation, and Energy Act of 2008 (P.L. 110-246), often called the Farm Bill, will expire in 2012, but the law may be reauthorized by Congress. The Farm Bill sets priorities for America's food and agricultural system, forming the cornerstone of federal agriculture and rural policy and includes a number of provisions and programs related to obesity.

   - **Nutrition programs.** Nutrition programs have a major impact on Americans' diet and eating habits. The largest expenditure in the farm bill is the Supplemental Nutrition Assistance Program (SNAP), formerly known as Food Stamps, which helps millions of low-income Americans buy food. The Farm Bill also authorizes the Emergency Food Assistance Program (TEFAP) and supports the Fresh Fruit and Vegetables Program. In all, the 2008 Farm Bill included $188.9 billion in five-year mandatory spending for nutrition programs.
   - **Commodity supports.** Many farmers receive government incentives to grow certain crops, including wheat, cotton, rice, peanuts, sugar, and dairy products. These payments influence which crops farmers grow, how the crops are grown, and may affect availability and pricing.
   - **The Emergency Food Assistance Program.** This program helps supplement the diets of low-income needy persons, including elderly people, by providing them with emergency food and nutrition assistance. The USDA buys the food, including processing and packaging, and ships it to the states. A formula based on poverty and unemployment that is updated annually determines the amount of food and funds a state receives. Each state decides how to administer and distribute the food. Local organizations, including food banks, food pantries, soup kitchens, and emergency shelters that distribute food directly to low-income households or serve meals, receive TEFAP commodities.

3. **SAFE, ACCOUNTABLE, FLEXIBLE, EFFICIENT, TRANSPORATION EQUITY (SURFACE) ACT.** Obesity and transportation are closely connected in several key ways. For instance, the availability of sidewalks, bike paths, and hiking trails can successfully promote physical activity. In addition, well-designed roads, highways, and bridges make it easier for stores to bring in healthy food and less expensive for people to buy it. On the flip side, a poor transportation system can clog neighborhood roads, increase air pollution, and keep people indoors. The SURFACE Act contains a number of programs that have an effect on physical activity and health. This law expired in 2009, but has since been renewed several times under temporary extensions, and may be reauthorized by Congress.

The potential reauthorization of the SURFACE Act provides a context in which to consider the following proposals:

- **National Objectives.** Establish national transportation objectives that promote "active transportation" such as biking and walking.
- **Complete Streets.** In May 2011 Representatives Doris Matsui (D-California) and Steven LaTourette (R-Ohio) introduced HR 1780, the Safe and Complete Streets Act of 2011 into the U.S. House of Representatives, and Senator Tom Harkin (D-Iowa) introduced the companion bill, S 1056, into the U.S. Senate. The measures would direct states, cities, and counties to adopt policies that provide for pedestrians, bicyclists, and transit users when planning and updating the federally funded transportation system. Encouraging multimodal transportation use reduces the likelihood of injury and makes it easier for people to choose more physically active forms of active transportation.
- **Safe Routes to School.** The Safe Routes to School program gives states money to construct sidewalks and paths that allow children to walk and bike safely to school. In addition to promoting physical activity, this program decreases traffic congestion and air pollution. Safe Routes to School should receive increased funding because it is effective.
- **Improved Health Planning.** The law should encourage or require federal, state, and local governments to use Health Impact Assessments (HIAs) for all proposed transportation projects. An HIA identifies the health risks and benefits of a project or policy and then offers solutions to make the community where the project is taking place a healthier place to live, learn, work, and play. Steps can then be taken to maximize positive effects, such as those that promote physical activity, and minimize negative effects. These policies can be implemented through transportation-specific programs or as part of a broader healthy community design initiative.

FRIED CHICKEN SUB SANDWICH
SEA FOOD GROCERY
G.&.S CARRY OUT
Marlboro
CLOSED

Community Profiles — Where You Live, How Much You Weigh

Health researchers and public officials are increasingly realizing that where you live can play a major role in how much you weigh. Studies have found that some built environments, which can be defined broadly as the human-generated aspects of our living space, including city layout, sidewalks, the number of parks, and neighborhood safety, can significantly affect the average resident's weight.[179, 180] It is clear that your zip code can affect what you eat, how much you eat, and how much physical activity you get.

For example, someone who lives in a town with a fast-food restaurant on every corner is likely to eat more fast food than someone who lives in a town with a fruit and vegetable stand on every block. In addition a person who lives next to a park will probably get more exercise than a person living next to a highway.

The built environment can influence obesity levels in many other more nuanced and indirect ways.

- Many cities and rural districts, especially in lower-income areas, don't have easy access to a full-service supermarket that offers fresh fruits, vegetables, and other healthy food. About 23 million Americans live in such places, which are known as food deserts.[181]
- Most food deserts, as well as many neighborhoods that do have supermarkets, are inundated with fast-food restaurants, carry-outs, and convenience stores, which provide residents with ample opportunity to buy foods with excess calories, but few nutrients.
- Cities that have underdeveloped mass transit systems force many residents to drive more frequently. Studies have shown that people who regularly use public transportation tend to weigh less than those who drive. Why? Mass transit riders tend to walk a fair amount to get to and from stations or bus stops.
- Neighborhoods, towns, and cities that are spread out and don't have a clear central area discourage walking and bicycling, because residents must often drive to shop, commute, or take children to school.
- Some neighborhoods, particularly in lower-income areas, have few adequate parks and playgrounds, which discourages both children and adults from getting physical activity.
- Many areas, especially in suburbs and rural regions, don't have adequate sidewalks, which can significantly increase walking. Lack of bike lanes and bike paths is also a problem in many communities.
- In neighborhoods where residents don't feel safe, people tend to be less active, because they leave their houses or apartments less often.
- In many municipalities, zoning laws bar mixed-use development, and mandate that schools must be on large lots. Mixed-use development encourages walking because people are near stores and restaurants; when schools are built on small lots within neighborhoods, children can walk to school more easily.

All of these issues present serious challenges. Unfortunately, right now much of our country is built to encourage inactivity and unhealthy eating. However, federal, state, and city governments, as well as individuals and the private sector, can modify the built environment in ways that encourage people to exercise more, eat more fruits, vegetables, and other nutritious food, and less unhealthy products.

In this year's report, TFAH and RWJF have highlighted six cities, towns, and regions that are trying to make it easier for their residents to live healthier lives. Many other places around the country are trying innovative approaches as well.

The communities profiled here represent a cross-section of the country. They include rural counties and large cities, poor areas and relatively well-off regions, and extend from the southeast to the west. These six examples offer a snapshot of the challenges we face, as well as the success we can achieve.

- The Salt Lake City metro area is in the middle of a $2.6 billion mass transit project that will make it much easier for thousands of residents to use light and commuter rail to get to work without driving. The city is building a new downtown streetcar line and is reviewing all ordinances to remove obstacles to active living.
- Baltimore started a "virtual supermarket" that allows residents in some food deserts to order food online, at no extra charge, from a full-service supermarket. The food is delivered once a week to a local library.
- Hernando, Mississippi, started a farmer's market and a community garden, and has built miles of new sidewalks. It revamped all of its seven parks and passed a law that requires new road construction to include consideration of pedestrians and bicyclists.
- To counteract high obesity rates, especially among children, Boyd and Greenup counties in Kentucky started a new school policy that requires all students to engage in physical activity during recess. Previously, many students read or watched movies.
- In Spartanburg, South Carolina, the Mary Black Foundation, a local nonprofit group, started a mobile farmers' market by converting an ice cream truck. The truck drives to lower-income neighborhoods and sells fresh fruits and vegetables at affordable prices.
- Omaha, Nebraska, created 20 miles of new bike lanes, printed 5,000 bicycle maps to highlight the city's best biking streets, installed 80 bike racks around the city, and launched a media campaign to encourage drivers to share the road with pedestrians and bicyclists.

These profiles are based on a series of interviews conducted by TFAH staff with experts on obesity and the built environment, as well as with public officials, advocates, and residents in the six locations.

1. The Salt Lake Metropolitan Area: Both Sprawling and Walkable, Depending On Where You Look

Salt Lake City has a reputation as a city whose residents are physically active. Many people there hike, bike, ski, walk, and run in the hills, canyons, and mountains surrounding the city. Last year, *Men's Health* magazine chose Salt Lake City as the "fittest city in the country."

Even so, the Salt Lake City area has not escaped the obesity epidemic that has swept the country over the past few decades. Almost a quarter of all residents are obese.

One reason for this contradictory mix of fit and fat is the area's physical environment. It offers ample outdoor recreation options, it has a robust mass transit system, and several neighborhoods that encourage people to walk and bike. At the same time, it also includes a good number of sprawling, disconnected suburbs that make it difficult for residents to be active.

Many American cities face similar issues. But in Salt Lake City the contrast between the two kinds of environments — those that encourage physical activity, and those that discourage it — is particularly striking.

Overall, the Salt Lake area has several features that increase opportunities for everyday walking. The region has a growing transit system that includes commuter rail, light rail, and buses. More than 143,000 trips are taken on the system each day.

That number will soon grow. The Utah Transit Authority (UTA), the state agency in charge of rail transportation, is now in the middle of a $2.6 billion project that will add four more light rail lines and another commuter line, more than doubling the current 64 miles of track.

In addition, Salt Lake City will soon begin building a $55 million streetcar line, that will extend over two miles through the downtown Sugar House neighborhood. The project has received significant support from Salt Lake City Mayor Ralph Becker, who sees it as a cornerstone of downtown revitalization. The city is working on plans for two additional streetcar lines.

A former city planner who rides his bike to work nearly every day, Becker has played a major role supporting policies that encourage physical activity. Under Becker, Salt Lake City has in-

creased its budget for bicycling from $50,000 to $500,000, and hired a bicycle coordinator. The city now has 170 miles of bike lanes, 47 miles of bike trails, and 26 miles of walking trails. This year it will add another 65 miles of bike lanes.

"We are taking a comprehensive approach," said Becker. "We want to increase biking, walking, and transit service. We've got a long way to go, but we're making good progress."

Last year, the mayor initiated a review of all city ordinances to identify those that impede active living. So far, officials have identified more than 300 that they hope to change, including laws that discourage urban agriculture, and mixed-use zoning. Blending retail and residential use can help increase walking and biking; when stores are close to homes, people don't have to drive to go shopping.

The city also boasts several areas specifically designed to encourage physical activity. Gateway, a decade-old development west of downtown, features apartments built above a range of stores, as well as a nearby supermarket. In recent decades, another neighborhood near downtown, The Avenues, has been revitalized. Built more than a century ago, the area has small lots, gridded street design and sidewalks — all of which make walking easier. And next spring, a new development will open, also downtown: City Creek will encompass 20 acres, and will include condominiums, department stores, and a 50,000-square-foot supermarket. Funded by the Mormon Church, it will cost $1.6 billion.

Fifteen miles south of the city, another community is also emphasizing active living. Daybreak, a planned suburb, opened in 2005 and will eventually encompass 4,000 acres. Building will continue for another two decades; eventually Daybreak will include more than 162,000 houses.

Planners specifically overseeing the development specifically designed Daybreak so that residents can easily walk or bike. Houses are close together, and residential areas are close to shopping areas and schools. Streets are narrow and include sidewalks, which makes it easier to cross and slows vehicle speed. All houses will be a short walk to a park, and the development will eventually have nearly 40 miles of trails. In addition, Daybreak is linked by light rail to downtown Salt Lake City.

"It's a more compact community, and that seems to produce more walking," says University of Utah professor Barbara Brown, who studies the link between obesity and neighborhood layout. "It's a nice example of how a city can be designed to produce more walkability."

She and her colleagues found that children in Daybreak are much more likely to walk to school than kids in a more typical suburban community nearby. According to their research, more than 80 percent of Daybreak students walked to school at least some of the time, compared with about 20 percent in the other neighborhood.

"Judging from this, kids in Daybreak get significantly more physical activity from walking to school than kids in surrounding communities," Brown said.

In another study, Brown looked at how the layout of different Salt Lake area neighborhoods affected the weight of residents. She rated the levels of sprawl in various neighborhoods throughout the area; among other measures, she looked at the density of homes; the mixture of homes and retail businesses; number of streets with sidewalks and crosswalks; the number of stores with ground-floor windows (makes being on foot more appealing); residents' sense of safety from crime and traffic problems; and the degree to which a neighborhood had a central area that residents could reach by walking or biking.

According to her calculations, many Salt Lake area communities had high levels of sprawl. Among the most spread-out were large suburbs south of the city, such as Draper, Sandy, South Jordan, and Herriman.

These communities were part of the sweeping national trend that started in the 1940s and continues with the McMansions of today: "After World War II, the whole development business changed," says Reid Ewing, a professor of planning at the University of Utah who studies environment and obesity. "Spreading out became much more important."

Brown found that people who live in more compact, and hence more walkable, neighborhoods tended to weigh significantly less than those who lived in more sprawling neighborhoods. On average, a typical six-foot-tall male in a sprawling area weighs ten pounds more.

Overall, Ewing says, the Salt Lake area epitomizes what's happening all over the country. As cities and counties begin to engineer and re-engineer communities to promote movement and exercise, they must also deal with the legacy of older areas that in many ways hinder activity.

"There's now a lot of evidence that the built environment affects people's weight," Ewing says. "Sprawling communities produce heavier people."

2. Baltimore: Using the Web to Fight Food Deserts

Over the past 40 years, Baltimore has lost much of its industry and half of its population.

This exodus has contributed to the loss of dozens of grocery stores and supermarkets. As a result, many people in inner-city Baltimore must rely largely on corner stores, fast-food restaurants, and carryout spots for sustenance. This makes it much harder for them to eat nutritious food — and much easier for them to end up overweight or obese.

Overall, the city has an average of 1.75 square feet of grocery store space for each inhabitant; experts recommend that cities should have almost twice that. In many places the situation is worse than this data suggests, because the supermarkets are not spread evenly throughout the city. Ryan Petteway, an epidemiologist with the Baltimore City Health Department, says that large areas of the city's east and west sides — the most densely populated parts of the city — are food deserts.

Last year, the city health department decided to do something about this grocery gap. It started Baltimarket, a program that allows people in three neighborhoods to order online from a supermarket, and then pick up the food close to home, such as at the library or post office. The program serves neighborhoods that lack a local supermarket. The city pays for much of the program's costs, but the Walmart Foundation and the United Way gave $100,000 and $55,250, respectively.

The project began by surveying the entire city, mapping supermarkets, fast-food restaurants, and carryout places. The results surprised even the surveyors. Baltimore has 43 supermarkets — most of them clustered in more affluent neighborhoods — as well as 150 fast-food restaurants and more than 800 carryouts. Not surprisingly, most of the carryouts, which typically sell a range of unhealthy food, including fried chicken and fish, pizza, and burgers, were located in lower-income neighborhoods without grocery stores.

Next, the health department compared this data with other neighborhood information, including poverty levels, vehicle ownership rates, and rates of heart disease and diabetes. Baltimore does not collect information about obesity by neighborhood, so planners used these measurements instead, because high rates of these chronic diseases typically indicate high rates of obesity.

Using this information, the health department chose three neighborhoods that seemed to have the greatest need for healthier food options: Cherry Hill, Washington Village/Pigtown, and a section of east Baltimore. The east Baltimore neighborhood has six fastfood restaurants, 15 corner stores, and 40 carryouts, and no supermarkets. The area's median income is a little over $11,000 per year, and almost three quarters of households don't own a vehicle.

"There are so few healthy choices in these communities," says Petteway. "Eating routines are shaped not only by the absence of healthy food but by the presence of unhealthy options."

Given the dearth of supermarkets, online ordering might seem like a good solution. But for many people in inner city Baltimore, this solution was impossible. Very few supermarkets will deliver to these neighborhoods; the stores say that it doesn't make financial sense because they get so few orders from these neighborhoods. Even if stores did deliver, the delivery fee is typically between $15 and $20. For many neighborhood residents, this extra charge is too much. In any case, many people in these neighborhoods don't have Internet access at home.

The health department found a local grocery store, Santoni's, which was willing to deliver anywhere in the city. To make sure residents without web access could participate, officials set up a weekly ordering schedule at two neighborhood public libraries. One afternoon a week, people can place orders on computers at the library, with help from health department staff, if necessary. Participants who are computer-savvy can order from any computer, at any time. Participants pay regular prices for any food they order, but the health department pays the delivery fee for all orders made through the program.

To streamline the process for Santoni's, delivery takes place once a week, a day after ordering, at the library where orders are submitted. Customers have a one-hour window to pick up their orders.

Participants are asked to spend at least $20 per order, but they can spend less. The program also allows customers to order any food they want. To encourage people to buy more nutritious items, the city gives each Baltimarket customer a $10 coupon that can only be used on healthy food, such as fresh fruits and vegetables, low-fat dairy products, and whole-grain bread.

"We're very strict. It has to be healthy," said Laura Fox, who manages the program along with Petteway.

Even so, she notes that the project's goal extends beyond encouraging better eating habits. Simply by buying items from Santoni's rather than a corner store or a carryout, lower-income residents can save some money and time. Fox has found that many people in the target neighborhoods do go to supermarkets in addition to closer places. But for most residents, supermarket shopping eats up valuable time and money; each trip typically involves buses and taxis, which can take hours each way.

Not surprisingly, Petteway and Fox said, people in these neighborhoods, and in many other parts of the city, buy much of their food at corner stores. They've found that some shop at a corner store almost daily. In this environment, it is extremely hard to eat right. "You can't reasonably expect people to not be at risk for obesity if there aren't any healthy food options," Fox said.

So far, the program has approximately 85 regular users. Most customers are women, a mix of older, retired people and young mothers trying to feed their families. In January 2011, Santoni's delivered 240 orders, which totaled more than $13,000 in grocery sales.

Eventually, the health department hopes to attract 200 regular customers and take at least 1,000 orders a year. Department researchers also plan to evaluate how the program has changed the participants' eating habits and overall health. Fox said that if enough residents join the program, it could be expanded to other stores.

The program is just one of several city initiatives to help residents eat better. Baltimore now has 14 farmer's markets, which take place once a week around the city. Many of the markets accept food stamps, which makes it easier for lower-income shoppers to buy healthy food. Baltimore food czar Holly Freishtat says there are plans to add two more markets this summer.

Freishtat, who started last year in the newly created position, has also set up a program to teach city elementary school students to read food labels so they can become more discerning about the difference between junk and healthy food. As part of the effort, students are designing ads for a range of fruits and vegetables; the best ads will appear on the sides of city buses starting this summer.

"It's really important to help Baltimore residents eat better," she said. "If we can make doing that a little easier, we're succeeding."

3. Boyd and Greenup Counties: In Rural Kentucky, Limited Access to Healthy Food

Sometimes when Regina Stout is walking to work through Ashland, a town of 25,000 in the northeastern corner of Kentucky, a friendly driver will pull over and ask her if she needs a ride somewhere. The neighborhood she walks through is nice, and the distance is short — eight blocks from her front door to her office. People in Ashland just aren't used to seeing pedestrians.

"They're surprised to hear that I'm walking by choice," she said.

Every time this happens, she realizes again just how much work she has ahead of her. Stout, the executive director of the Kentucky Heart Foundation, is in charge of a new project to reduce obesity in Ashland, as well as in surrounding Boyd County and neighboring Greenup County.

The area has one of the highest obesity rates in Kentucky, which is itself one of the heaviest states in the country. More than three quarters of the area's 86,000 residents are overweight or obese and a third get no exercise at all. Not surprisingly, diabetes, heart disease and stroke are common.

A 2009 study of children in after-school programs in the two counties found that half were overweight or obese and three percent had high blood pressure — a very high number for that age group.

The area's health crisis has many causes, but Stout and other experts say that a good part of the problem stems from the physical environment: the plethora of fast-food restaurants, the lack of adequate grocery stores, and the dearth of places to walk and bicycle.

In both counties, fast food is almost the only option for people who want to buy a cooked meal. "We have one restaurant that's not fast food in Greenup County," said Scarlet Shoemaker, who oversees the program in that county. That exception is a family-owned place that serves home-cooked meals, most of which are high in calories.

Neither county has many supermarkets or grocery stores that sell fresh fruits, vegetables, and other healthy fare. Except for the city of Ashland, which has some buses, the area has no public transportation, so anyone without a car has an especially hard time buying nutritious food. Greenup

County has just three supermarkets; these stores are on one side of the county, which means that some people must drive an 80 miles round trip to get fresh lettuce or oranges. Otherwise they must rely on smaller stores that stock only small quantities of fresh food, and tend to charge more for what they do offer. In Wurtland, a town of 1,000 in Greenup County, residents have only a Dollar General store, which carries a limited selection of packaged food, snacks, and soft drinks. The closest supermarket is five miles away.

"Availability is a big issue, and price is a big issue," said Shoemaker. "It's a double whammy."

Poverty plays a major role in the area's high obesity rate. The two counties' per capita income is just over $26,000, and many families must get by on much less. In recent years, many of the region's industries, such as coke processing and steel manufacturing, have shut down or downsized, and unemployment is high. Increasingly, residents survive by taking low-paying service jobs. Stout said many people tell her they just don't have enough money to buy fruits and vegetables.

"Health is not a priority," said Shoemaker. "For a lot of families, a bigger priority is just getting a paycheck and getting food on the table, regardless of quality. You can buy a lot more chips than you can fresh vegetables. People's weight is not usually on the radar."

Another problem: the region does not make it easy for those who want to be physically active. Few areas have streets with sidewalks, and there are not many walking trails; most of those can only be reached by car. "Mostly there are two-lane curvy roads with a ditch on either side," said Shoemaker, who works as the director of school safety and public relations for the Greenup school district. The terrain itself discourages many from exercising. The area is in the Appalachian foothills, and walking the steep hills and valleys can be difficult, especially for those who are already overweight and out of shape.

The region's culture also plays a role. Stout said people in Greenup, Boyd, and throughout Appalachia tend to fry their food, eat a lot of lard and other fats, and not pay too much attention to health or weight. In an era when nearly everyone did physical labor, and many meals included home-grown vegetables, these practices weren't such a problem. But now, with significantly fewer opportunities to burn calories, and the disappearance of backyard gardens and home canning, these habits are contributing to the region's high obesity and chronic disease rates.

Last year, a coalition of 26 local groups, led by the Kentucky Heart Foundation, started an effort to reduce obesity in Boyd and Greenup. The goals: to increase kids' level of physical activity, teach them about good nutrition, and encourage healthier eating. Called Healthy Kids, Healthy Communities, the group (not to be confused with the Robert Wood Johnson Foundation program of the same name) includes county and city governments, school districts, the public health and medical community, and nonprofit groups. The initiative received a three-year, $75,000 grant from a consortium of national groups and government agencies, including CDC, the YMCA, and the National Association of Chronic Disease Directors.

So far, the program has worked with schools to institute an "active recess" policy for the two counties' 12 elementary schools. In the past, recess in Boyd and Greenup often involved very little actual activity. Especially in late fall and winter, students typically spent recess in classrooms, talking or watching movies. Even when recess was outside, many kids didn't exercise much. In addition, many teachers punished students for bad behavior by restricting recess time or using the time for schoolwork.

To help kids move more, the coalition bought exercise equipment, including jump ropes, hula hoops, and balls, for the two school districts. Elementary school PE teachers received information on how to make recess more active. Shoemaker summed up the new policy succinctly: "Everybody moves."

In addition, the group is working with the school districts to improve the quality of school meals. Shoemaker said that in Greenup, school cafeterias are already doing a lot more baking than frying. Still, she said, the food could include more fresh fruits and vegetables.

The coalition is now talking with local governments about the possibility of introducing Complete Streets laws, which would require more bike lanes and sidewalks. And it is talking with some employers about starting wellness programs, which encourage workers to exercise more and eat better.

In the future, the coalition wants to build more trails and bike paths. Each county now has one walking trail. Ashland has a bike route, but Stout says it's not as safe or as continuous as she'd like: riders have to get off their bikes and walk to get across several busy intersections.

She hopes to eventually expand the project to surrounding counties, which will present an even larger challenge. These areas are deeper in Appalachia than Boyd and Greenup, and have higher obesity and poverty rates, and even fewer supermarkets and sidewalks.

But before moving on to that challenge, she'll have to convince the drivers in Ashland that being a pedestrian isn't something out of the ordinary.

4. Hernando, Mississippi: A Small Town Remakes Itself

Last year, when Michelle Obama kicked off *Let's Move,* her signature childhood obesity initiative, she had by her side the mayor of a city that was taking aggressive steps to keep its residents fit and healthy with new playgrounds, walking trails, bike paths, as well as a farmers' market and a community garden.

The mayor looked the part: He was young and trim, had a shaved head, and often walked to work from his downtown home.

The city was not Portland, or San Francisco, or Seattle.

It was Hernando, Mississippi.

Over the past five years, Hernando and its mayor, Chip Johnson, have succeeded in making the city of 14,000 an inspiration for all municipalities with not enough resources and high obesity rates.

Johnson, who has no health background — he owns a carpet cleaning business — came to active living accidentally. After winning election in 2005, he was appointed to a regional health council focused on obesity. He was invited to the Southern Obesity Conference, an annual event partially funded by RWJF. "That's where I had my 'aha' moment," he says. As he listened to speaker after speaker describe the region's urgent weight problem, Johnson had an epiphany. "I realized," He said, "that this was something way bigger than I realized."

Mississippi has the highest obesity rate in the country. More than a third of its adults are obese, as are almost 20 percent of its children.

In some ways, Hernando is not a typical rural Mississippi town. Over the past two decades, it has increasingly become a bedroom community of Memphis, 20 miles to the north. It has a relatively affluent, professional population, and, as a result, has more social and economic resources to support the creation of bike paths and playgrounds.

Even so, Hernando remains a thoroughly Southern place, and even if its obesity rates aren't as high as Mississippi's poorest counties, it still has its fair share of fast food, Southern cooking, and sedentary living. The town doesn't keep its own statistics on obesity, but it's in Desoto County where a third of adults are obese.

Johnson and other city officials have focused much of their work on making it easier for residents to be active within the context of everyday routines. Although he often gets up at 4 a.m. to exercise, he realizes that this approach doesn't appeal to everyone. For people to burn adequate calories every day, they must move almost without meaning to, by walking or biking to and from work or around their neighborhoods.

Hernando began by introducing a design standard requiring sidewalks for all new, and some existing, commercial and residential developments. Research has shown that sidewalks can increase walking by giving pedestrians safe, clearly-marked space to stroll. The city repaired crumbling downtown sidewalks, and the design standard resulted in miles of new sidewalks in suburban developments that previously had none.

With encouragement from Johnson, the city also passed a Complete Streets law that requires new road construction to include consideration of pedestrians and bicyclists. And the city is building almost a mile of sidewalks connecting a lower-income neighborhood to a nearby elementary school, so students can walk to the school more easily.

Over the past three years, Hernando has striped bike lanes on several main streets and added new walking trails in existing parks. "The city has done a lot," said Bo McAnich, a Hernando resident and bicyclist who helps manage the city's bicycle club. "Anything to do with bicycling, they highly encourage. There's been a big improvement since Chip has been mayor."

In 2006, Johnson convinced city officials to create a parks department — Hernando didn't have one. Since then, the city has revamped all seven of its parks, adding modern playgrounds to several. KaBoom, a national nonprofit group that works to increase children's playtime, has recognized Hernando as a one of the country's most "Playful" cities, for improving its parks and playgrounds.

Three years ago, the city started a weekly farmers' market, which offers fresh fruits, vegetables, and meats raised by approximately 65 farmers and vendors from North Mississippi. From March to November, about 400 people visit the market every weekend. This spring, to encourage lower-income families to participate, the market began accepting food stamps. The city started a community garden, which is cultivated by a range of community organizations, including churches and youth groups. Much of the food ends up in the kitchens of Hernando's lower-income residents.

Johnson sees no contradiction between his conservative fiscal beliefs and government involvement in fighting obesity. This year, he notes, Mississippi will spend almost a billion dollars on obesity related healthcare. By 2018, those costs could quadruple, according to state data. "That would bankrupt the

state," Johnson said. "We need to deal with this. It's a dollars and cents issue."

He also argues that reducing obesity rates will increase private investment in Hernando. "We want to recruit corporations to Hernando. They're not stupid. When they make their decisions, they look at healthcare costs." Another plus: all those sidewalks and greenways do more than burn calories. They also raise property values. And, Johnson says, getting people out of their houses and moving fosters a sense of community.

Over the past six years, Johnson himself has become a poster boy for active living. He often walks to work, bikes around town, and visits the farmers' market. He regularly talks to public officials around the state and the country about Hernando's efforts. His message is simple: Get started now, with the resources you have.

"We are doing the best we can without a lot of money," he said. "I tell people to go out and do something, and do it now." And he points out that for enterprising towns and counties, help is available: Hernando has worked with and received funding from a range of private groups, as well as state and federal agencies. Shelly Johnstone, Hernando's director of community development, said that over the past six years, the city has received more than $800,000 from various sources for programs that encourage activity and healthy eating.

Johnson realizes that his policies and programs won't reach everyone.

"Your personal health is a personal choice," he said. "My job is to create an atmosphere and an opportunity for good health. If you want to take advantage of it, that's great. If you want to stay home on your couch, go ahead."

But many residents have bought in. Rev. Michael Minor, the pastor of Oak Hill Baptist Church in Hernando, started Healthy Congregations, which helps local churches set up programs to help members lose weight and improve their health. So far, more than 60 churches from all over North Mississippi have joined. At Oak Hill, members measured a walking track in the church parking lot, and members started a walking club.

"If we can do this in Mississippi," said Minor, "then we can do it anywhere."

5. Omaha: A Midwestern City Chips Away At the Tyranny of the Automobile

In 2002, a nonprofit group called Live Well Omaha (LWO) received a $200,000 grant to persuade the city's residents to be more active.

Over the next three years, the group, a nonprofit that encourages Omaha residents to exercise and eat right, worked hard to increase cycling. But as the campaign rolled on, those involved realized there was a problem: "We were pushing people to bike to work, yet we had only one mile of bike lane in the whole city," said Kerri Peterson, executive director of Live Well Omaha.

The city did have some bike trails — 100 miles throughout the area. But the trails didn't connect to downtown or most neighborhoods, and they only traveled north and south, which left out residents who lived on the east or west sides.

As it studied the issue, LWO realized that the city and its surrounding suburbs were not designed to encourage physical activity. "Here in Omaha, we have engineered healthy living out of our environment," said Peterson. "We've only built for the automobile."

Nebraska's largest city, Omaha, has a population of 410,000. Its geography is determined largely by the automobile: sprawling sidewalk-less suburbs surround the city, malls and big-box stores provide much of the shopping, and fast-food restaurants dot many street corners.

Ironically, Peterson said, the area's relative lack of traffic and gridlock encourages a sedentary lifestyle. "It's too easy to get around," she said. "Getting in your car is the easiest choice."

Over the past six years, LWO and its partners — local governments as well as area health and civic groups — have worked to change this landscape in Omaha and surrounding Douglas County. They have moved beyond bicycling, and are now trying to increase the city's level of walking, exercise, and healthy eating. These efforts got a major boost last year, when the CDC gave LWO and the Douglas County Health Department a two-year, $5.7 million grant to encourage healthy eating and active living.

LWO has focused much of its work on bicycling. At first, not everyone was receptive. In 2003, the group approached the city planning department about the possibility of a network of bike lanes on Omaha's streets. The planners told Peterson that their job was limited to moving automobiles.

But the group persisted, and the planning officials came around. In 2008, the city began creating 20 miles of on-street bike lanes to make riding downtown safer and easier for commuters. The money for the work, $600,000, came from a local charity and an anonymous donor.

Almost all the bike lanes are on streets; many follow former street-car routes, because these streets were already wider to accommodate the tracks. LWO is now working with the city to add more lanes. In addition, the group has helped Omaha's transit agency outfit buses with bike racks, so people can ride for part of their commute, or get from their home to a trail.

Another local group, Activate Omaha, designed and printed 5,000 maps to highlight the city's best streets for bicycling. The maps were distributed to bike shops, libraries and other public places. The group, which receives much of its funding from LWO, started an urban adventure bike race. Every spring for the past three years, 350 or so participants pedal around the city chasing clues from spot to spot.

In addition, both groups convinced the city to start a Bicycle and Pedestrian Advisory Committee. Last year, the city hired its first bicycle and pedestrian coordinator. This spring, to encourage drivers to respect pedalers, LWO rolled out a $250,000 "IRide" media campaign featuring radio ads, social media, and signs at city and county DMV offices. Peterson doesn't blame Omaha drivers for their lack of understanding: "They've never had a large number of people biking in the city."

LWO and its partners have also focused on making it easier for residents to buy healthy food. On the city's east and west sides, several lower-income areas have no supermarkets, and many residents rely on convenience stores and corner markets for most of their shopping. Using just over a third of the CDC grant, LWO and its partners have attacked this problem.

First, the Douglas County Health Department surveyed all 385 food retailers in the city — everything from corner stores to supermarkets. Each outlet received a rating, which depended largely on the amount of fresh fruits, vegetables, and other healthy items. After integrating this data with information about each neighborhood's income, fruit and vegetable consumption, and obesity rate, the researchers identified the three neighborhoods that most needed healthier food.

The program is now working with eight stores in these areas to increase their selection of healthy food, and pays up to $2,500 for the infrastructure — bins, refrigeration etc. — to store and display this food. By offering to spruce up stores, the health department succeeded in getting owners and managers interested. "If we'd just come in and said 'we want to enhance your nutritional profile,' no one would have been interested," said Mary Balluff, who oversees the program for the city.

County agricultural extension officers also visit the stores to give training and advice on subjects such as how best to display vegetables and fruits. This isn't as simple as it might seem: for instance, bananas can't be placed next to apples and other fruits because the apples give off a gas that spoils the bananas.

Activate Omaha recently began working with city schools. This spring, Omaha schools will plant 10 school gardens. And 26 Omaha area schools, most of them in the city, have joined a Safe Routes to School program. At some schools, kids walk with parents or teachers a few times a month; at others they walk almost every day. Julie Harris, who coordinates the program for Activate Omaha, said the group hopes to add more schools, and increase involvement at schools that are already participating. The projects are funded by several public and private groups, including CDC, RWJF, and local charities.

LWO has more projects in the works. This summer, Peterson hopes to add a mobile farmer's market: a converted snack or ice cream truck that stops at downtown offices during the week, selling fresh fruits and vegetables. The city already has four large farmer's markets, but they are only open on Saturdays and Sundays.

And she wants to keep adding bike lanes; she hopes to at least double the mileage.

The work is getting easier, she said: "In 2002, we were the only ones working on this. Now there are so many groups. It's gone a lot faster than we anticipated. We're seeing so much momentum."

6. Spartanburg, South Carolina: Mobile Markets and Free Bikes

Spartanburg, South Carolina is in the throes of the obesity crisis. Almost two-thirds of the 250,000 people who live in the city and the surrounding county are overweight or obese. In some neighborhoods, the rates are even higher.

Ten years ago, the Mary Black Foundation, a private group based in Spartanburg, joined forces with local government and other local groups to confront this problem. The nonprofit foundation, which is dedicated to improving health in the area, decided to focus much of its attention on active living — the idea of helping people get more exercise in the course of daily life, rather than at the gym.

"We want to ensure that our efforts are sustainable, and that we reach the most people in the most places, as often as possible," says Molly Talbot-Metz, director of programs at the Mary Black Foundation. "Gyms are great, but you have to be able to afford them. And you need to have the time to actually go. With active living, it's built into your day. It creates a sustainable context for physical activity. We want being healthy and active to be easy, so that it becomes part of your lifestyle."

Spartanburg, however, was not designed for active living. Like much of the country, the community is built to accommodate cars rather than people. In many places, there are no sidewalks; few streets have bike lanes. The neighborhoods where people live are often miles from where they work and shop. Many neighborhoods, especially areas where poverty rates are high, have no grocery stores, making it difficult for people living there to buy healthy food.

The foundation and its partners attacked the problem from multiple angles: they have increased opportunities for people to bicycle, walk, and do other kinds of exercise; expanded healthy food choices, especially for lower-income residents; and changed the larger policies that shape building and development in the city and county.

The first focus was bicycling. In 2005, one of the foundation's partners, a local nonprofit called Palmetto Conservation Foundation, converted two miles of unused railroad track that ran through the city's center into a biking and walking trail. Another partner, Partners for Active Living (PAL), created a kind of bicycle library, which loans residents refurbished bikes, along with helmets and locks, for three months at a time; the group has a fleet of almost 250 bikes, and a waiting list for rentals.

PAL coordinated the installation of more than 150 bikes racks around the city, and later this year it will roll out a program that rents bicycles for a few hours, at a cost of a few dollars. And because many Spartanburg drivers aren't used to sharing the road, PAL sponsored a $25,000 media campaign — TV, radio, and street signs — to encourage respect for bicyclists and pedestrians.

Since 2005, the area has added more almost 30 miles of bike lanes, and more than 30 miles of bike and walking trails. The Mary Black Foundation has helped build support for the projects, and helped pay for some of the work. In 2007, the League of American Bicyclists named Spartanburg a "Bicycle-Friendly Community;" it was the first city in the state to receive the award.

The foundation has tried to get Spartanburg moving in other ways. It helped pay to rebuild a city recreation center in one of Spartanburg's poorest neighborhoods, and to build a new YMCA from the ground up. Construction on that project has just begun. In recent years, the YMCA has focused on active living, and the centers in Spartanburg will work to include older people and minorities, who tend to exercise less.

In addition, the foundation helped build or refurbish seven playgrounds and parks around the county and city, in neighborhoods that lacked safe places for kids to play.

The groups are also trying to encourage more Spartanburg students to walk. With funding from the foundation and support from PAL, three city public schools have started programs that encourage kids to walk to school at least once a week; next fall, three more schools will join the program.

Food is another focus area for the foundation. Working with a nonprofit called Hub City Farmer's Markets, it started 40 community vegetable gardens, tended by local residents, and two weekly farmers' markets, one of which is located just off the rail trail. Every week, 30 or so farmers from Spartanburg County and other nearby counties sell fresh produce to an average of 650 customers.

The Hub City group has bought an old ice cream truck and turned it into a mobile market that sells fresh fruits and vegetables: two days a week, it sets up in lower-income neighborhoods that lack access to supermarkets. Last year, the truck added bikes to its weekly menu: it began hauling a flatbed trailer filled with PAL's rental bikes. In part because of this partnership, most bike renters are lower-income people who don't have cars.

Spartanburg is trying more innovative strategies too. In 2005, The Mary Black Foundation gave the Palmetto Conservation Foundation more than half a million dollars to start the Glendale

Outdoor Leadership School (GOLS). Housed in a 161-year-old former Methodist church in a small mill town outside Spartanburg, the school teaches rock climbing, mountain biking, canoeing and kayaking to anyone who's interested, including children and seniors.

Spartanburg's strategy differs from that of many other groups dealing with obesity, said Talbot-Metz. Instead of spending years, and a lot of resources, thinking about how to attack the problem, the group got its projects off the ground quickly. It began by looking for local groups to work with; when those groups didn't exist, it helped create them — PAL, for instance.

The projects are having an effect, she said: "There's a buzz about active living in the community. More people are joining our mission." For instance, Eric Turner, the owner of Bike Worx, a local bike store, relocated his shop last year from a strip mall outside the city to one end of the rail trail. On weekends, about half of his customers arrive via the trail.

This year, he used half of a $25,000 grant from the Mary Black Foundation to build trails in a city park. With volunteers, including an expert trail builder, Turner created a 5.5-mile network of biking and walking paths, which would typically have cost more than $100,000. With the other half of the grant, Turner bought kids' bikes for the leadership school to use in outdoor adventure camps.

Even with all their work, the foundation and its partners realize they have a long way to go. The rail trail could accommodate twice as much traffic as it now gets, and some residents don't even realize it's there; to fix this, PAL will increase marketing and promotion. And although the trail is patrolled by police on bikes, and has never had a reported robbery or violent crime, some residents worry about safety. To ease concerns, PAL plans to install cameras and call boxes along the paths.

So far, the foundation has invested more than $6 million on active living; it has no plans to stop. Among the upcoming projects: helping to upgrade two city parks that have become so overgrown that they're barely used; and training every elementary and middle school physical education teacher in the county in a new strategy that has been shown to get kids moving both in school and at home.

"We know that this is an issue that will take a generation, or two, to fix," said Talbot-Metz. "This is a long-term investment."

Fresh Food Financing: A Recipe for Healthy Communities

By Judith Bell, President, PolicyLink

HOW DO PEOPLE BUY HEALTHY FOOD WHEN THE ONLY OPTIONS AVAILABLE ARE JUNK?

In many low-income communities and communities of color, it is virtually impossible for residents to follow official guidelines for eating well because they have limited or no access to fresh, nutritious food. Not coincidentally, these communities have the highest rates of obesity and preventable diet-related chronic illness. That's why it is exciting to see growing momentum behind innovative public-private efforts to help grocers and farmers markets locate in underserved communities, and help small store owners stock healthier food.

More than 23 million Americans have no supermarket within a mile of home, according to a USDA study. Many of these neighborhoods are packed with fast-food outlets and convenience stores full of high-fat, low-nutrient processed fare. This pattern is starkest in poor communities and communities of color in cities and rural areas. In Albany, New York, for example, 80 percent of residents of color live in neighborhoods where one cannot find low-fat milk or high-fiber bread.[182] In the Delta of Mississippi, the state with the highest rates of poverty and obesity, 70 percent of households eligible for food stamps must travel more than 30 miles to the nearest supermarket.[183] Detroit does not have a single major supermarket chain.

This isn't simply a matter of convenience; it is a public health emergency. Research shows that people who live in neighborhoods where fast-food restaurants far outnumber fresh food stores are at significantly higher risk for obesity and type 2 diabetes.[184] A study that used data from North Carolina, Baltimore, and New York City found that adults with no supermarkets within a mile of their homes were 25 to 46 percent less likely to eat a healthy diet than the people with the most supermarkets near home.[185]

On the flip side, study after study has shown that greater access to supermarkets corresponds with healthier eating. A multistate investigation found that for every additional supermarket in a census tract, produce consumption increased 32 percent among African Americans and 11 percent among whites.[186]

Advocates have worked for decades to address food access inequities. Now policymakers and some grocers are getting on board, in response to two seemingly unrelated crises that threaten the nation's future health and productivity: the obesity epidemic and the Great Recession. Turns out, the lack of healthy food retail is not just bad for our bodies. It squeezes family budgets, because convenience store shopping is much more expensive than loading up at the supermarket. It also hurts local economies, because high-quality food retailers create jobs, stimulate foot traffic, and bolster neighborhood commerce.

The Obama Administration has launched an initiative to solve the perplexing problem of food access while improving health, creating jobs, and stimulating local economies. The Healthy Food Financing Initiative (HFFI), a public-private partnership leverages grants, loans, and tax credits from three agencies — Agriculture, Treasury, and Health and Human Services — to encourage supermarkets and other healthy food outlets to locate in underserved areas. Under the Administration's proposed 2012 budget, HFFI would be ramped up to include $330 million across the three agencies. HFFI has won wide support from diverse groups, including community developers, civil rights activists, public health experts, children's advocates, and the National Grocers Association.

HFFI is modeled after the Pennsylvania Fresh Food Financing Initiative, launched in 2004. As of May 2011, that program had led to the creation of 88 supermarkets, grocery stores, farmers markets, and co-ops — 1.7 million square feet of retail space, all in underserved areas. The initiative has also created or protected more than 5,000 jobs, and the new supermarkets are helping to revitalize neighborhoods. With just $30 million from the state government for one-time grants and loans, the program has garnered $190 million in investment, and improved healthy food access for almost half a million people.

The U.S. Centers for Disease Control and Prevention, the National Conference of State Legislatures, and the National Governors Association have lauded the Pennsylvania program as an innovative model for improving public health. New York State and New Orleans have begun similar programs, and more states are poised to start. HFFI would expand this experience at the national scale, bringing the benefits to communities across the country.

An apple a day? Far easier when you can buy one in your neighborhood.

Parks and Physical Activity: Green Infrastructure for Healthy Communities

By Andy Kaczynski, PhD, Assistant Professor and Co-Director of the Physical Activity and Public Health Laboratory with the Department of Kinesiology at Kansas State University and Gina Besenyi, MPH, graduate student and research assistant at the Department of Kinesiology at Kansas State University.

As almost every city, county and state continues to cut budgets and services, few politicians are willing to make big investments in new programs that can combat our country's obesity crisis. Fortunately, most communities have an underused, underappreciated, and economical solution close at hand — their local park system. Ranging from pocket-sized open spaces in neighborhoods to linear trails and greenways to large community-level oases, parks provide the green infrastructure that counterbalances the sprawling development and hectic lifestyles that characterize our modern society.

Given their relatively low maintenance costs and their availability throughout communities, parks are an accessible and affordable resource for facilitating health and wellness among residents. A quality park system can confer a wealth of benefits to communities, ranging from economic (e.g., attracting businesses, raising real estate values) to environmental (e.g., reducing air pollution, cooling ambient temperatures) to social (e.g., fostering community pride and social capital) considerations. However, their potential to promote physical activity among people of all ages may ultimately prove to be their greatest contribution to the advancement of healthy communities nationwide.

Buoyed by initiatives such as Active Living Research, a national program of the Robert Wood Johnson Foundation, our understanding of the role of parks in population-level physical activity promotion has increased dramatically in the past decade. A variety of park variables, including proximity, access, size, features, condition, and safety, influence residents' physical activity in parks and the neighborhoods around them. Much of the prevailing evidence suggests that simply living closer to a park or green space is a major contributing factor in improving physical activity and obesity levels among children and adults. For example, one of our recent studies found that children living within one-half mile of a park were more than twice as likely to meet physical activity recommendations as those without a park nearby. Further, access to increased acreage or a greater array of public recreational infrastructure — including school yards, playgrounds, open green space, trails, and parks — means that residents of all ages are more likely to be active and fit.

Proximity and access are not the only park-related variables that can facilitate physical activity. Within parks, research shows that programs, features, and quality are associated with greater physical activity. For example, specific park facilities (e.g., trails, playgrounds, open green space) provide opportunities for structured or spontaneous activity, while certain amenities (e.g., benches, lighting, restrooms) enhance perceptions of safety and comfort, which can also support physical activity participation. In one recent study, children with access to a park playground within approximately one-half mile from home were five times more likely to be a healthy weight than overweight compared to youth without a nearby playground. For adults and seniors, trails are often found to be some of the most heavily and actively used park areas. Overall, research increasingly shows that parks offering a diversity of features attract a greater range of users who engage in greater levels of activity during their visits.

Given the potential of parks to aid in population-level physical activity promotion, it is especially distressing to observe that access to parks across communities is often unbalanced. This is an issue of environmental justice and contributes to inequities that are observed in rates of physical activity, obesity, and chronic disease across diverse population groups. Areas with a greater proportion of persons from low-income and/or minority backgrounds are less likely to be endowed with parks and other recreational resources. Moreover, when parks are present in such neighborhoods, they often contain fewer physical activity-promoting facilities (e.g., playgrounds, courts) and fewer supporting safety and comfort amenities (e.g., lights, shade). The overall park environment is also likely to be in worse shape (e.g., graffiti, litter), and the parks are more likely to be surrounded by neighborhood attributes that deter access or detract from an enjoyable experience (e.g., busy roads, industrial sites). All told, this contributes to a situation referred to as "deprivation amplification," wherein persons who have fewer personal resources that might support physical activity (e.g., income, knowledge) also tend to reside in areas that are more deprived of neighborhood physical activity resources (e.g., sidewalks, parks). In a time when parks can offer economical physical activity venues for those who need them the most, steps must be taken to unearth the factors contributing to such disparities and to initiate policies that can level the playing fields.

In summary, parks are valuable community resources that can play an important role in the battle against rising rates of obesity and chronic disease in rural and urban areas across the country. Better understanding and investing in their contributions to population-level physical activity promotion will help to ensure green and healthy communities for the enjoyment and well-being of generations to come.

Conclusions and Recommendations

SECTION 5

There is serious momentum to prevent and reduce obesity to improve the health of Americans. Carrying that momentum forward will require increased and sustained efforts across the country.

In the past two years, the ACA, the Healthy, Hunger-Free Kids Act, the revised DGA, and other federal policy changes have provided new opportunities to support these efforts — but the difficult economic climate has also created new obstacles, particularly major cuts to federal, state, and local governments. Last year, 33 states reduced funding for public health. In the past two years, approximately 15 percent of local public health jobs have been cut, and major cuts are proposed to CDC's core budget. These cuts put obesity prevention programs and implementation of policies in jeopardy.

As governments at all levels are facing difficult budget decisions, it is critical to think about the other side of ledger — that cuts to obesity programs today mean higher health costs and a less healthy workforce down the road. Investing in preventing and reducing obesity is one of the most common-sense ways we can start to bend the cost curve on health spending, improve the productivity of the American workforce, and speed the economic recovery.

Policies can help leverage change quickly and efficiently, by providing individuals and families with resources and opportunities to make healthier choices easier in their daily lives.

RWJF has identified six top policy priorities and key strategies to reduce childhood obesity in the United States. These priorities, outlined below, provide direction to help target many of the fastest and most effective policy changes.

In addition, the strategic implementation of ACA and other policies have the potential to support adults, families, and efforts in neighborhoods around the country.

The following are RWJF's top policy priorities, and strategies for achieving these priorities — and a series of recommendations for strategically implementing newly created policy opportunities in a time of tightening government resources.

A. RWJF POLICY PRIORITIES TO REVERSE THE CHILDHOOD OBESITY EPIDEMIC

As part of its efforts to reverse the childhood obesity epidemic by 2015, the Robert Wood Johnson Foundation has outlined six broad policy priorities that evidence suggests will have the greatest and longest-lasting impact on our nation's children. There are likely a variety of policy pathways to achieve each priority. Some of these approaches, as recommended by the Centers for Disease Control, Institute of Medicine and other key governmental and research organizations, are listed below.

1. Ensure that all foods and beverages served and sold in schools meet or exceed the most recent Dietary Guidelines for Americans.

- Finalize and implement updated nutrition standards for all food and beverages served and sold in schools.
- Increase federal reimbursement for the National School Lunch Program.
- Expand access to the School Breakfast Program.
- Ensure schools have the resources they need to train cafeteria employees and replace outdated and broken kitchen equipment.

2. Increase access to affordable foods through new or improved grocery stores and healthier corner stores and bodegas.

- Create incentive programs to attract supermarkets and grocery stores to underserved neighborhoods. These may include tax credits, grant and loan programs, and small business/economic development programs.
- Introduce or modify land use policies and zoning regulations to promote, expand and protect potential sites for community gardens, mobile markets and farmers' markets. Potential sites may include vacant city-owned land or unused parking lots.

3. Increase the time, intensity and duration of physical activity, in both schools and out-of-school programs.

- Require physical education (PE) in schools.
- Implement a minimum standard of 150 minutes per week of PE in elementary schools and 225 minutes per week in middle schools and high schools.
- Increase opportunities for physical activity in schools outside of PE, such as classroom activity breaks, intramural and inter-scholastic sports.

4. Increase physical activity by improving the built environment in communities.

- Establish joint use agreements that will allow community residents to use school playing fields, playgrounds and recreation centers when schools are closed. If necessary, adopt regulatory and legislative policies to address liability issues that might block implementation.
- Build and maintain parks and playgrounds that are safe and attractive for playing, and located close to residential areas.
- Adopt community policing strategies that improve safety and security for park use, especially in higher-crime neighborhoods.
- Plan, build, and maintain a network of sidewalks and street crossings that creates a safe and comfortable walking environment that connects to schools, parks, and other destinations.

5. Use pricing strategies – both incentives and disincentives – to promote the purchase of healthier foods.

- Implement fiscal policies and local ordinances (e.g., taxes, incentives, land use and zoning regulations) that discourage the consumption of foods and beverages that are high in calories but low in nutrients.
- Provide incentives through federal food assistance programs to help families purchase healthier options. Examples may include "double bucks" programs that match Supplemental Nutrition Assistance Program dollars spent on healthy foods.

6. Reduce youths' exposure to the marketing of unhealthy foods through regulation, policy, and effective industry self-regulation.

- Adopt voluntary, industry-wide nutrition standards developed by the federal Interagency Working Group on food marketing and ensure that the definition of "marketing" includes marketing via social media (e.g., text messaging, Facebook, Twitter, etc.).
- Adopt a research-based, industry-wide, front-of-package labeling system.
- Eliminate advertising and marketing of calorie-dense, nutrient-poor foods and beverages near school grounds and public places frequently visited by youths.
- Use zoning policies to limit the number of fast-food outlets near schools and other settings frequented by youths.
- Set nutritional standards for children's meals that include a toy or other incentive item.
- Limit advertising that directly appeals to children (e.g., celebrities, cartoon characters, toys, gifts, games, food packaging).

B. RECOMMENDATIONS FOR STRATEGIC IMPLEMENTATION OF NEW POLICY OPPORTUNITIES

1. Support the *Let's Move* Initiative

The *Let's Move* initiative has raised awareness of childhood obesity. The program should continue to bring together public officials, the food industry, advocates, and others to find constructive, targeted solutions.

2. Emphasize Obesity Prevention in a Reforming Health System

The ACA provides an opportunity to significantly improve obesity prevention efforts. It calls for new resources and initiatives to reduce obesity:

- **Prevention and Public Health Fund.** The fund provides more than $16 billion in mandatory appropriations for prevention programs, including preventing obesity and diseases related to obesity through increased wellness screenings, counseling and care, and community-based prevention programs, over the next 10 years. TFAH and RWJF recommend that the fund not be cut, that a significant portion be used for obesity prevention, and that it not be used to offset or justify cuts to other CDC programs.
- **Community Transformation Grants.** CTGs will be awarded for the first time in fiscal year 2011. TFAH and RWJF encourage health departments around the country to work with members of their communities to develop applications that reflect evidence-based, innovative, sustainable, and high-impact approaches that improve nutrition and make physical activity more accessible and safe to compete for these resources.
- **National Prevention, Health Promotion, and Public Health Council and the National Prevention Strategy.** The council provides a new opportunity to bring together a range of federal departments and agencies to consider how policies beyond HHS can impact health. The Council released a National Prevention Strategy (NPS) in the spring of 2011, which established priorities and approaches to preventing health problems, including obesity and obesity-related illnesses. TFAH and RWJF recommend that each federal department look for ways to improve health through their policies and create an implementation plan that includes measurable goals, a timeline, a description of how the department's budget will fund health-related activities, and evaluation mechanisms. TFAH and RWJF recommend that the NPS be fully implemented and actively engage all 17 federal agencies who joined in developing the NPS to maximize the impact on reducing obesity in America and be used to guide investments from the Prevention and Public Health Fund.
- **Centers for Medicare and Medicaid Innovation.** CMS Administrator Donald Berwick has stated that reducing obesity should be a major health goal for the nation to help improve health and reduce health care costs. The Innovation Center provides a range of opportunities to examine, evaluate, and expand models for treating and preventing obesity. For instance, reimbursement of various community-based obesity prevention efforts could provide increased incentive and implementation of these programs.
- **Children's Health Insurance Program Childhood Obesity Demonstration Project.** From 2010 to 2014, the ACA provides $25 million in funding for this demonstration project to foster the development of comprehensive approaches to reducing childhood obesity. In January 2011, CDC released a new funding opportunity to support programs aimed at reducing obesity in lower-income children and to identify specific approaches that effectively combine primary care with public health disease prevention. The Funding Opportunity Announcement (FOA) closed in April 2011. TFAH and RWJF encourage public health departments to work with care providers to develop applications that reflect evidence-based, innovative, and high-impact approaches to compete for these resources, and recommend:
  - Coordinating the demonstration project with *Let's Move*;
  - Minimizing duplication of efforts and promoting coordination with existing funding streams, including Community Transformation Grant recipients, other CDC grantees, privately funded efforts, and the health care delivery system and related stakeholders;
  - Funding grantees to test a variety of methods and strategies across childhood settings;
  - Encouraging the role of parental involvement in funded activities; and
  - Ensuring that adequate funding and compliance measures are used to conduct thorough evaluation.

3. Fully Implement Nutrition Related Legislation and Programs: the Healthy, Hunger-Free Kids Act, the Agriculture Appropriations Act, and the Healthy Food Financing Initiative

If fully implemented, the Healthy, Hunger-Free Kids Act of 2010 includes many provisions that could dramatically improve the nutritional quality of food and beverages in schools, strengthen wellness policies, and encourage increased physical education and physical activity. The USDA should move quickly to implement changes to school meals to ensure that all schools meet the new nutrition standards based on the Dietary Guidelines. The USDA has issued strong draft guidelines for improving nutrition of food served or sold in schools throughout the school campus and school day. TFAH and RWJF recommend that the USDA act quickly to fully implement the provisions in the law, particularly the draft guidelines to improve nutrition of food in schools, and work with other agencies including ED and CDC to promote healthy school environments.

If fully implemented, the 2010 Agriculture Appropriations Act also supports a range of child nutrition initiatives that could have a major impact on reducing obesity. TFAH and RWJF recommend that the $833 million in cuts made in the FY 2011 continuing resolution be restored and that programs to improve nutrition in child care settings and nutrition assistance programs such as WIC be fully funded and carried out.

The Healthy Food Financing Initiative provides the opportunity to improve nutrition, by providing incentives for new retail food locations in underserved communities. For FY 2011, the Council for Economic Development program will provide up to $10 million to CDC for projects located in food deserts and designed to improve access to healthy affordable foods by developing grocery stores, small retailers, corner stores, and farmers markets that will make available nutritious food in these areas. TFAH and RWJF recommend that support for the Healthy Food Financing Initiative be increased and fully implemented to provide important incentives to increase healthy food options in lower-income communities.

4. Implement the National Physical Activity Plan

TFAH and RWJF recommend full implementation of the policies, programs, and initiatives outlined in the National Physical Activity Plan. This includes a grassroots advocacy effort; a public education program; a national resource center; a policy development and research center; and dissemination of best practices.

5. Be Strategic in Realigning Chronic Disease Programs at CDC

In fiscal year (FY) 2011, CDC started to strategically realign chronic disease programs to improve the coordination and targeting of resources to address related health issues, including nutrition, physical activity, obesity, diabetes, and heart disease. TFAH and RWJF recommend that CDC be thoughtful in their approach to leveraging resources to have a maximum impact on reducing disease rates and improving health.

6. Industry Should Fully Implement the IOM Recommendations for Food Marketing to Children

TFAH and RWJF recommend that the recommendations from the IOM report on food marketing to children be fully carried out by the food, beverage, and restaurant industries; food retailers and trade associations; the entertainment industry and the media; parents and caregivers; schools; and the government. TFAH and RWJF recommend that industry should adopt strong, consistent standards for food marketing similar to those proposed in April 2011 by the Interagency Working Group (IWG), comprised of representatives from four federal agencies — the Federal Trade Commission (FTC), CDC, FDA, and the USDA — and work to implement the other recommendations set forth in the IOM report.

7. CDC Should Strengthen the Health and Sustainability Guidelines for Federal Concessions and Vending Operations, Work with Employers to Implement Wellness Programs, and Use Strong Guidelines for Federal Workplace-Based Food Contracts

Employers around the country should support workplace wellness programs to provide employees and their families with the opportunity to be healthier, and should offer healthy food options in the workplace. These efforts should focus on incentives rather than penalties. Businesses should also support disease prevention and health programs in surrounding communities.

8. Improve Policies to Increase Opportunities for Physical Activity and Access to Healthy Nutrition for People with Disabilities

TFAH and RWJF recommend taking targeted action to improve nutrition and increase activity for people with disabilities, given the extremely high rates of obesity within this community. Health care providers should receive more training and education about how to assist people with disabilities to be more active and improve nutrition. All legislation related to obesity should include implementation and monitoring of the requirements of the 1990 ADA and Section 504 of the Rehabilitation Act of 1973 for the active inclusion and participation of people with disabilities.[187] In addition, there should be more research on how gender, age, ethnicity, and income contribute to the high rates of obesity among people with disabilities and on the best ways to remove barriers to healthy choices for the disabled.

Fast Facts about Obesity

APPENDIX A

The information below provides a quick guide to obesity and overweight in the United States.

The section includes a summary of the many factors that influence nutrition and physical activity, including those that can be influenced by government policies. It also has information on the health effects and economic costs of obesity; a summary of the 2008 Physical Activity Guidelines for Americans and physical activity trends; summary of eating trends; and, finally, a look at bias, discrimination, and obesity.

WHAT IS BEHIND THE OBESITY EPIDEMIC?

MANY ISSUES INFLUENCE NUTRITION AND PHYSICAL ACTIVITY BEHAVIORS

Food Choices and Changes

- Adjusted for inflation, prices for low-nutrient, energy-dense foods and beverages, such as soda and fast food, have declined sharply.[188]
- Greater consumption of low-nutrient, energy-dense foods.[189]
- The dramatic rise in price of more nutritious foods, such as fruits, vegetables, lean meats, and low-fat dairy products. One study found a 19.5 percent increase in prices for these healthy foods between 2004 and 2006.[190]
- Increases in caloric intake; adults consumed approximately 300 more calories daily in 2008 than they did in 1985.[191]
- Limited access to supermarkets and nutritious, fresh foods in many urban and rural areas.
- "Portion distortion," the increasing size of meal portions, both at home and in restaurants.
- "Value sizing," the marketing of large quantities of food, often at the expense of quality.
- Decreased in-home cooking and an increased number of meals eaten at or bought from restaurants.

Schools

- The increased availability of low-nutrition foods and beverages in à la carte lines, school stores, vending machines, and other school environments.
- Reduced time for physical education, recess, and other physical activity.
- Fewer possibilities for students to walk or bike to school.
- Limited opportunities for health education that includes information about nutrition as well as physical activity and fitness.
- Increased marketing of unhealthy foods in schools.

Community Design

- Communities that encourage driving rather than walking or biking: low-density neighborhoods where housing, shopping, work, and schools are not located close to each other.
- Lack of public transportation.
- Fewer sidewalks; in some places, those that exist are crumbling.
- Not enough safe and convenient walking areas.
- Limited park and recreation space.
- Not enough safe, well-maintained parks.
- Lack of affordable indoor physical activity options.
- Zoning codes that block strategies to encourage physical activity and healthy eating.

Marketing and Advertising

- Increased advertising and marketing of unhealthy foods, particularly to kids.
- Newer forms of marketing to kids, including online promotions and text messaging, which take place largely out of parents' view.
- Marketing of extreme or fad weight-loss programs.

Workplace

- Increasing number of jobs require almost no physical activity.
- Worksites typically not designed to foster movement.
- Many jobs offer little or no opportunity for physical activity during the workday.
- Many work cafeterias and lunch sites offer unhealthy options.
- Many employers don't have bike racks or shower facilities, which discourages people from biking or walking to work.
- Many employers offer little or no support for breastfeeding mothers.

Economic Constraints

- Health insurance coverage for obesity-prevention services is often limited or unavailable.
- People without health insurance have little or no access to preventive services or follow-up care.
- High-calorie, low-nutrition foods tend to cost much less than nutritious foods, encouraging many to eat unhealthy food.
- Expense, including taxes, of gym memberships, exercise classes, equipment, facility use, and sports league fees.
- Lack of grocery stores in lower-income neighborhoods, which reduces residents' access to affordable fruits and vegetables.

Family and Home Influences

- Influence of other family members' habits on eating and exercise.
- Plethora of digital devices and TVs discourages physical activity.
- More people working outside the home or far from home.

Limited Time

- Increased number of people working far from home, as well as increased time spent driving and commuting reduces time available for physical activity. Increased number of people working longer hours leads to more meals from restaurants, which tend to have more calories.

RISK FACTORS AND OTHER ISSUES THAT AFFECT WEIGHT GAIN

Genetics, Physiology, and Life Stages

- Metabolism.
- Childbearing.
- Increased risk of obesity and related diseases in children with obese parents, particularly obese mothers.
- Aging factors, including menstruation, premenopause, and menopause for women.
- Weight gain as a side effect of commonly used medications, including insulin, antiretrovirals, antidepressants, oral contraceptives, and injectable contraceptives.

Psychology

- Body image concerns.
- Eating disorders.
- Consumers' frustration with conflicting nutrition information and advice.
- Eating to combat stress, anxiety, or depression.
- Depression and stigma.
- Using food as a replacement for smoking or other unhealthy behaviors.

HEALTH IMPACT OF OBESITY

Obesity is linked to a range of health hazards. Physical activity and healthy eating can help reverse or prevent many of these problems.

Type 2 Diabetes

- In just a decade, the number of newly diagnosed diabetes cases in the United States nearly doubled, from 4.8 per 1,000 in 1995-1997, to 9.1 per 1,000 in 2005-2007.[192]
- More than 80 percent of people with type 2 diabetes are overweight.[193]
- More than 25 million adults in this country have diabetes.[194]
- Almost two million people aged 20 or older were diagnosed with diabetes in 2010.[195]
- Another 79 million Americans are pre-diabetic, and have prolonged stretches during which their blood sugar level is too high. This can contribute to the development of diabetes.[196]
- Diabetes is the seventh leading cause of death in the United States and accounts for $174 billion in U.S. health care costs.[197]
- The CDC projects that as many as one in three U.S. adults could have diabetes by 2050.[198]
- Approximately 215,000 people under the age of 20 have diabetes.[199]
- Two million adolescents ages 12–19 have pre-diabetes.[200]
- The National Institute of Diabetes and Digestive and Kidney Diseases found that among people at risk for diabetes, moderate weight loss, combined with moderate levels of physical activity (walking 30 minutes a day, five days a week) decreased the number of new type 2 diabetes cases by more than half.[201]

Heart Disease and Stroke

- People who are overweight are more likely to have high blood pressure, high levels of blood fats, and LDL, or bad cholesterol, which are all risk factors for heart disease and stroke.[202]
- Compared with regularly active people, physically inactive people are twice as likely to develop coronary heart disease.[203]
- Heart disease is the leading cause of death in the United States, and stroke is the third leading cause.[204]
- One in four Americans has some form of cardiovascular disease.[205]
- One in three adults has high blood pressure, and high blood pressure is the leading cause of stroke. About a third of hypertension may be attributable to obesity, and the figure may be as high as 60 percent in men under 45.[206]

Cancer

- People who are overweight may have higher risks for colon, esophageal, and kidney cancer. For women, being overweight is linked with uterine and postmenopausal breast cancer.[207]
- About 20 percent of cancer in women and 15 percent of cancer in men is attributable to obesity.[208]
- Cancer is the second leading cause of death in the United States.[209]
- It is not clear why being overweight can increase cancer risk. Some researchers argue that fat cells may affect overall rate of cell growth.[210]

Neurological and Psychiatric Diseases

- Obesity may increase adults' risk for dementia. A review of 10 published studies found that subjects who were obese at the beginning of the studies were 80 percent more likely to later develop Alzheimer's disease than those who had a normal weight.[211]
- An analysis of a health survey of more than 40,000 Americans found a correlation between depression and obesity. Obese adults were more likely to have depression, anxiety, and other mental health conditions than adults whose weight was normal.[212] The odds of experiencing any mood disorder rose by more than half among obese people, and doubled among the extremely obese.[213]

Kidney Disease

- Obese people are 83 percent more likely to develop kidney disease than people whose weight is normal, while overweight people are 40 percent more likely to develop kidney disease.[214]
- About a quarter of kidney disease among men and a third among women is related to overweight and obesity.[215]

Liver Disease

- Obese people are at greater risk of nonalcoholic steatohepatitis (NASH), a liver disease that can lead to cirrhosis, in which the liver is permanently damaged. NASH is one of the major causes of cirrhosis in America, behind hepatitis C and alcoholic liver disease.[216]
- NASH affects two percent to five percent of Americans. An additional 10 to 20 percent have excess fat in their liver, but no inflammation or liver damage, a condition called "fatty liver." Both types of liver disease have become more common as obesity rates have risen.[217]

Arthritis

- Obesity is a risk factor for the development and progression of osteoarthritis of the knee and possibly of other joints. Obese adults are up to four times more likely to develop knee osteoarthritis than healthy-weight adults.[218]
- Among individuals who have been diagnosed with arthritis, more than two-thirds are overweight or obese.[219]
- For every pound of body weight lost, there is a four percent reduction in knee joint stress among overweight and obese people with osteoarthritis of the knee.[220]

HIV/AIDS

- Antiretroviral treatments don't work as well for obese patients. One study found that obese people had significantly smaller gains in CD4 cell count after starting HIV treatment than both patients of normal weight and those who were overweight.[221]

Obesity and Children's Health

Almost a third of U.S. children and adolescents between the ages of two and 19 are overweight or obese.[222]

- The prevalence of obesity among children ages 6–11 years increased from 6.5 percent in 1980 to 19.6 percent in 2008. The prevalence of obesity among adolescents ages 12–19 increased from five percent to 18.1 percent.[223]
- Children who are obese are more than twice as likely to die before the age of 55 as children whose BMI is in the normal range.[224]
- The number of fat cells a person has is determined by late adolescence; although overweight and obese children can lose weight, they do not lose the extra fat cells.[225]
- Children who are obese after the age of six are 50 percent more likely to be obese as adults, regardless of parental obesity status.[226]
  - ▲ Among children who were overweight at ages 10–15, 80 percent were obese at age 25.[227]
- About 70 percent of obese youth have at least one additional risk factor for cardiovascular disease, such as elevated total cholesterol, triglycerides, insulin or blood pressure, and nearly 30 percent have at least two or more additional risk factors.[228]
- At least one out of five U.S. teenagers has abnormal cholesterol levels, a major risk factor for heart disease.[229]
  - ▲ Among obese teenagers, the rate jumped to more than two out of five.[230]
- Among children and adolescents, being overweight and obese is associated with a 52 percent increased risk of being diagnosed with asthma.[231]
- Children and adolescents with a BMI greater than 28 are four to five times more likely to experience sleep-disordered breathing than their peers with a lower BMI.[232]

WEIGHT BIAS AND QUALITY OF LIFE

As obesity has increased, so has weight discrimination. Researchers at the Yale University Rudd Center on Food Policy and Obesity say that in the United States, weight discrimination has increased by two-thirds over the past decade, and has reached a rate comparable to racial discrimination.[239,240]

The researchers reviewed the topic and found:

Weight Bias In Employment

- In one survey of overweight and obese women, a quarter said they experienced on-the-job discrimination because of weight, while more than half felt that co-workers were biased, and 43 percent felt that supervisors were biased.[241]
- A 2007 study of more than 2,800 adults found that overweight subjects were 12 times more likely to report weight-based employment discrimination, while obese subjects were 37 times more likely, and severely obese subjects were 100 times more likely.[242]
- Compared with job applicants with the same qualifications, obese applicants are rated more negatively and are less likely to be hired.[243]
- Overweight people earn one to six percent less than non-overweight people in comparable positions.[244]

Weight Bias in Health Care

- More than half of primary care physicians surveyed viewed obese patients as awkward, unattractive, ugly, and noncompliant. A third of the doctors described obese patients as weak-willed, sloppy, and lazy.[245]
- Surveys of nurses,[246] medical students,[247] fitness professionals[248] and dietitians[249] revealed similar biases.

Weight Bias in Education

- Teachers view overweight students as untidy, more emotional, less likely to succeed on homework, and more likely to have family problems.[250] They also have lower expectations for overweight students.[251]

Physical and Emotional Health Consequences of Weight Bias

- Weight bias is associated with psychological consequences, including depression,[252] lower levels of self-esteem,[253] and body image dissatisfaction.[254]
- Weight bias also is associated with unhealthy eating behaviors,[255] physical activity levels,[256] and cardiovascular health outcomes.[257]
- Weight-based teasing of overweight and obese adolescents is related to increased susceptibility to depression, according to a literature review of the psychological and social effects of obesity or overweight.[258]
- A review of the effects of obesity and overweight on children and adolescents found that higher BMI is associated with more severe and frequent victimization.[259]
- Overweight and obese youths are more frequently rejected by their peers, chosen less as friends, and are generally not as well liked as healthy-weight children.[260]

OBESITY AND PREGNANCY

- There is increasing evidence a range of health risks before, during and after birth.[233]
- Children born to obese mothers are twice as likely to be obese and to develop type 2 diabetes later in life.[234]
- Many pregnant women are overweight, obese, or have diabetes, all of which can have negative effects on the fetus as well as the mother. According to the CDC, approximately half of women of child-bearing age (between 18 and 44) were either overweight or obese in 2002; three percent experienced high blood pressure and nine percent had diabetes.[235]
- Teenage mothers who are obese before pregnancy are four times more likely than their healthy-weight counterparts to develop gestational diabetes, a form of the disease that occurs during pregnancy and increases the risk of subsequently developing type 2 diabetes.[236]
- In a recent study, the CDC and the Kaiser Permanente Northwest Center for Health Research found that obesity during pregnancy is associated with increased use of health care services and longer hospital stays.[237] The study analyzed more than 13,000 pregnancies, and found that obese women required more outpatient medications, were given more obstetrical ultrasounds, and were less likely to see nurse midwives or nurse practitioners in favor of physicians. Cesarean delivery rates were 45.2 percent for extremely obese women, compared with 21.3 percent for healthy-weight women.[238]

2008 PHYSICAL ACTIVITY GUIDELINES FOR AMERICANS

In 2008, HHS issued the first-ever Physical Activity Guidelines for Americans.[261] The guidelines provide physical activity recommendations for Americans over the age of six.

Adults

- The guidelines recommend that adults engage in a minimum of two-and-a-half hours each week of moderate-intensity exercise, or one-and-a-quarter hour of vigorous physical activity.
  - Moderate-intensity aerobic activity includes brisk walking, water aerobics, ballroom dancing and gardening. Vigorous-intensity aerobic activities include race walking, jogging or running, swimming laps, jumping rope, and hiking uphill or with a heavy backpack.
- Aerobic activity should be performed in chunks of at least 10 minutes.
- For more health benefits, adults should increase their aerobic physical activity to five hours a week of moderate-intensity, or two-and-a-half hours a week of vigorous-intensity aerobic physical activity.
- At least two days per week, adults should incorporate muscle strengthening activities such as weight training, push-ups, sit-ups, carrying heavy loads or heavy gardening.

Older Adults

- With the guidance of a health care provider, most older adults can safely do some form of physical activity. Older people should stay as physically active as they can — the key is to increase physical activity. This can be done through everyday activities, such as walking briskly or gardening, and by exercising. Four types of exercises that improve health benefits include: endurance, build strength, increasing flexibility, and improving balance. Older adults should also have their provider assess their risk of falling.

Pregnant Women

- During pregnancy and after delivery, healthy women should get at least two-and-a-half hours of moderate-intensity aerobic activity a week, preferably spread throughout the week.
- Pregnant women who regularly get vigorous aerobic exercise can continue during pregnancy and after delivery. They should discuss their regimen with their health care provider.

Adults with Disabilities

- If they can, adults with disabilities should get at least two-and-a-half hours of moderate aerobic activity per week, or one-and-a-quarter hour of vigorous aerobic activity a week.
- Adults with disabilities should incorporate muscle-strengthening activities involving all major muscle groups two or more days a week.
- Those who can't meet the guidelines should exercise as much as possible.

People with Chronic Medical Conditions

- Adults with chronic conditions get important health benefits from regular physical activity. They should do so with the guidance of a health care provider.

Children and Adolescents

- Children and adolescents should get an hour or more of exercise a day.
  - Aerobics: most exercise time should include either moderate- or vigorous-intensity aerobic physical activity, and should include vigorous-intensity physical activity at least three days a week. Examples of moderate-intensity aerobic activities include hiking, skateboarding, rollerblading, bicycle riding, and brisk walking. Vigorous-intensity aerobic activities include bicycle riding, jumping rope, running, and sports such as soccer, basketball and ice or field hockey.
  - Muscle-strengthening: daily physical activity should include muscle-strengthening activities at least three days a week. Muscle strengthening activities for younger children include gymnastics, playing on a jungle gym, and climbing a tree. Muscle strengthening activities for adolescents include push-ups, pull-ups, and weightlifting exercises.
  - Bone-strengthening: daily physical activity should include bone-strengthening activities at least three days a week. Examples include jumping rope, running, and skipping.
- It is important to encourage young people to participate in physical activities that offer variety, are enjoyable, and are age-appropriate.

TRENDS IN PHYSICAL ACTIVITY

Adults

- The World Health Organization estimates that 1.9 million deaths worldwide are attributable to physical inactivity. Chronic diseases associated with physical inactivity include cancer, diabetes, and coronary heart disease.[262]
- More than a quarter of U.S. adults do not engage in any leisure-time physical activity, such as running, calisthenics, golf, gardening or walking.[263]
  - ▲ The percentage of adults who do not engage in any leisure-time physical activity is higher among Blacks (31.9 percent) and Latinos (34.6 percent) than Whites (22.2 percent.)[264]
- Sixty percent of adults are not sufficiently active to achieve health benefits.[265]
- A study of more than 30,000 healthy adult U.S. women found that middle-aged women need at least an hour of moderate activity a day to maintain a healthy weight without restricting calories.[266]
  - ▲ For middle-aged women who are already overweight, even more exercise is recommended to avoid gaining weight without eating less.[267]
- Physical activity is significantly associated with better survival and function among those above the age of 85.[268]
- Sedentary adults pay $1,500 more a year in health care costs than physically active adults.[269]
- Studies suggest that moderate-to-high levels of physical activity substantially reduce, or even eliminate, the mortality risk of obesity.[270]
- Non-leisure time physical activity has decreased substantially in the past 20 to 30 years, due to increasing mechanization at work and at home.[271]
  - ▲ "Non-leisure time physical activity" is defined as physical activity outside of sports, exercise, and recreation. It includes physical work, walking, and biking to work and household chores.[272]
- Most U.S. adults between the ages of 20 and 74 walk less than two to three hours per week and accumulate less than 5,000 steps a day.[273] U.S. physical activity guidelines recommend that adults walk 10,000 steps daily.
- Increased use of cars for short errand and shopping trips has significantly reduced physical activity.[274]

Youth

- Studies show that most youth do not meet physical activity guidelines, which recommend an hour or more of moderate-to-vigorous physical activity a day.[275,276]
- Only 42 percent of children between the ages of 6 and 11 exercise for an hour or more a day five or more days per week.[277] Only eight percent of adolescents between the ages of 12 and 15 and, 7.6 percent of adolescents between 16 and 19 exercise this much.[278]
- According to a CDC review of 50 studies, physical activity improves students' academic performance, including grades and standardized test scores.[279]

THE IMPACT OF THE BUILT ENVIRONMENT ON NUTRITION AND PHYSICAL ACTIVITY

Nutrition

- A 2003 study showed a direct relationship between living near at least one supermarket and meeting the DGA for fruit and vegetable intake. The presence of each additional supermarket was linked to a 32 percent increase in fruit and vegetable consumption among Blacks and an 11 percent increase among Whites.[280]
- A study of nearly 700 neighborhoods found that low-income areas have access to half as many supermarkets as the wealthiest areas. Predominantly minority and racially-mixed communities have access to fewer supermarkets compared with predominantly White communities.[281]

Physical Activity

- A study of more than 12,000 students in urban, suburban, and rural areas linked neighborhood safety to decreased levels of physical activity.[282] The study found students' perception of safety going to and from school was also associated with physical activity levels.[283]
- Children and youth living in neighborhoods with more green space were less likely to be overweight than those living in less-green neighborhoods.[284]
- Poor neighborhoods are much less likely to have places where children can be active, such as parks, green spaces, and bike paths and lanes.[285]
- States with the highest levels of bicycling and walking tend to have the lowest levels of obesity, high blood pressure, and diabetes, and have the greatest percentage of adults who exercise for 30 or more minutes a day.[286]

AMERICANS' EATING HABITS

American meals tend to provide portions that are too large, and have too much fat and too many calories. According to the USDA, many Americans are not meeting the agency's dietary guidelines. To meet these standards, most Americans should substantially **lower** the intake of added fats, refined grains, sodium, as well as added sugars and sweeteners, and **increase** the consumption of fruits, vegetables, whole grains, and low-fat milk and milk products.[287]

In recent decades, our country has adopted an increasingly unhealthy diet:

More Calories

- On average, Americans eat 300 more calories a day than in 1985 and 600 more than in 1970, according to the USDA.[288]
- Children between the ages of two and 18 eat almost three snacks a day, which accounts for as much as a quarter of their daily calories.[289]

Bigger Portion Sizes

- Between 1977 and 1998, portion sizes for certain popular foods, as well as overall energy intake, increased, both for food bought in restaurants and for food made at home. The increases ranged from 49 to 133 calories for all foods, which include salty snacks, hamburgers, soft drinks, and french fries.[290]

Fewer Fruits, Vegetables and Whole Grains

- Consumption of fruits and vegetables in the United States increased by 19 percent from 1970 to 2005; however, Americans are still not meeting the Dietary Guidelines' recommendations of two cups of fruit and two-and-a-half cups of vegetables a day.[291]
- Children are eating less fruit and consuming more beverages, such as fruit drinks, sport drinks, and fruit juice.[292]

More Sugar

Consumption of added sugar is nearly three times the USDA's recommended amount.[293]

- Average consumption of added sugars increased 14 percent from 1970 to 2008.[294]
- Children who reduced sugar by the equivalent of one can of soda per day improved their glucose and insulin levels. Improved glucose and insulin measures can reduce the risk of type 2 diabetes, regardless of other diet or exercise changes.[295]

Dietary Fat

- Americans consumed an average of 640 calories worth of added fats per person per day in 2008.[296]

Soda and Fruit Juice Consumption

- Sugar-sweetened beverages make up nearly 11 percent of children's total caloric consumption.[297]

A Major Increase in Eating Out

- Since the 1960s, the amount Americans spend on foods eaten outside the home has nearly doubled.[298]
- In 2004, 63 percent of children between the ages of one and 12 ate at a restaurant one to three times per week.[299]

ECONOMIC COSTS OF OBESITY

Health Care Costs

- Based on 2006 data, obesity-related medical costs total $147 billion a year, or nearly 10 percent of all annual medical spending. The bulk of the spending is related to treatment of obesity-related diseases such as diabetes.[300]
  - Of the $147 billion, Medicare and Medicaid are responsible for $61.8 billion. If no one were obese, Medicare and Medicaid spending would be 8.5 percent and 11.8 percent lower, respectively.[301]
  - Obese people spend 42 percent more on health care costs than healthy-weight people.[302]
- Childhood obesity alone is responsible for $3 billion in direct costs.[303]
- Annually, the average total health expenses for a child treated for obesity under Medicaid is $6,730, while the average health cost for all children covered by Medicaid is $2,446. The average total health expenses for a child treated for obesity under private insurance is $3,743, while the average health cost for all children covered by private insurance is $1,108.[304]
- Hospitalizations of children and youths diagnosed with obesity nearly doubled between 1999 and 2005, while total costs for children and youth hospitalized for obesity-related conditions increased from $125.9 million in 2001 to $237.6 million in 2005, measured in 2005 dollars.[305]
- In California, the economic costs of overweight, obesity, and physical inactivity are estimated at $41 billion a year.[306]

Decreased Worker Productivity and Increased Absenteeism

- Obesity-related job absenteeism costs $4.3 billion annually.[307]
- Obesity is associated with lower productivity while at work (presenteeism), which costs employers $506 per obese worker a year.[308]
- As a person's BMI increases, so do his or her number of sick days, medical claims and health care costs.[309]

Higher Workers' Compensation Claims

- Several studies have shown that obese workers have higher workers' compensation claims.[310, 311, 312, 313, 314, 315]
- Obese employees had more than $50,000 in medical claims costs per 100 full-time employees, compared with only $7,503 in costs for workers who are not overweight. Obese workers had almost $60,000 in indemnity claims costs per 100 full-time employees, compared with about $5,400 in such costs for healthy-weight employees.[316]

Occupational Health and Safety Costs

- Emergency responders and health care providers face unique challenges in transporting and treating the heaviest patients. According to one study, the number of severely obese (BMI ≥ 40) patients quadrupled between 1986 and 2000, from one in 200 to one in 50. The number of super-obese (BMI ≥ 50) patients grew fivefold, from one in 2,000 to one in 400.[317]
- A typical ambulance that can transport a 400-pound patient costs $70,000. A specially-outfitted ambulance built to transport patients weighing up to 1,000 pounds costs $110,000.[318]
- A standard hospital bed can hold 500 pounds and costs $1,000. A hospital bed that can hold double that weight costs $4,000.[319]

DEFINITIONS OF OBESITY AND OVERWEIGHT

Obesity is defined as an excessively high amount of body fat or adipose tissue in relation to lean body mass.[320,321] Overweight refers to increased body weight in relation to height, which is then compared with a standard of acceptable weight.[322] Body Mass Index (BMI) is a common measure expressing the relationship (or ratio) of weight-to-height. The equation is:

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

Adults with a BMI of 25 to 29.9 are considered overweight, while those with a BMI of 30 or more are considered obese. The National Institutes of Health (NIH) adopted a lower optimal weight threshold in June 1998. Previously, the federal government defined overweight as a BMI of 28 for men and 27 for women.

Until recently children and youth at or above the 95th percentile of BMI for their age and gender were defined as "overweight", while children at or above the 85th percentile for BMI of their age and gender, but below the 95th percentile were defined as "at risk of overweight." However, in 2007, an expert committee recommended using the same cut points but changing the terminology by replacing "overweight" with "obese" and "at risk of overweight" with "overweight."[323]

Many researchers still say BMI is a valuable tool for examining obesity. BMI has several strengths:

- Correlates with body fat;
- Easy to measure;
- Noninvasive;
- Less expensive than more invasive techniques;
- Good sensitivity and specificity;
- Most recommended measure by the public health community;
- There is U.S. reference data so it can be used to track trends;
- Child BMI correlates with adult obesity levels;[324] and
- Correlates with cardiovascular risks and long-term mortality.[325, 326]

However, some researchers have noted that BMI is not a perfect measurement:

- It does not distinguish between fat and muscle, and people with a lot of lean muscle will have higher BMIs even though they don't have an unhealthy level of fat. The use of BMI as a measure of exercise fatness is more valid for those with a BMI > 30 than for those with lower BMIs.
- Researchers have found that BMI may miscalculate health risks for other groups as well. A June 2005 study found that current BMI thresholds "significantly underestimate health risks in many non-Europeans."[327] For example, some Asian and Aboriginal groups, despite "healthy" BMIs, had high risk of "weight related health problems."[328] Some researchers have suggested that BMI levels for Asians be dropped to 23 and 25 for overweight and obesity, respectively.
- Some experts argue that for adults, waist circumference may be a better way to measure obesity.[329] A study conducted in 1998 and recently reported on by the Harvard Medical School showed that women with a healthy-weight BMI are more likely to suffer from coronary disease if they have a larger waist circumference.[330] But waist circumference is also hard to measure because current measuring tools don't take height into account. The International Journal of Obesity recently reported that the waist-to-height ratio might be a better indicator of health. Using this measure, an adult's waist circumference should be less than half of his/her height.[331]

Many experts recommend using multiple factors in addition to BMI, particularly to evaluate an individual's health, such as waist size, waist-to-hip ratio, blood pressure, cholesterol level, and blood sugar levels.[332] In 2008, an expert panel of 15 health organizations recommended that physicians and other providers perform a yearly assessment of children's weight, and that this assessment include calculation of height, weight, and BMI for age, as well as plotting those measures on a growth chart.[333]

Methodologies for Rates and Trends

APPENDIX B

METHODOLOGY FOR OBESITY AND OTHER RATES USING BRFSS

Annual Data

Data for this analysis was obtained from the Behavioral Risk Factor Surveillance System (BRFSS) dataset (publicly available on the web at www.cdc.gov/brfss). This analysis was conducted by Edward N. Okeke, PhD, MBBS, of the Department of Health Management and Policy of the University of Michigan, School of Public Health.

BRFSS is an annual cross-sectional survey designed to measure behavioral risk factors in the adult population (18 years of age or older) living in households. Data are collected from a random sample of adults (one per household) through a telephone survey. The BRFSS currently includes data from 50 states, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands. The most recent data available was 2010.

To account for the complex nature of the survey design and obtain estimates accurately representative at the state level, researchers used sample weights provided by the CDC in the dataset. The main purpose of weighting is to reduce bias in population estimates by up-weighting population sub-groups that are under represented and down-weighting those that are over represented in the sample. Also estimation of variance, which indicates precision and is used in calculating confidence intervals, needs to take into account the fact that the elements in the sample will generally not be statistically independent as a result of the multistage sampling design.

Researchers specified the sampling plan to STATA[334] using the svyset command and the following set of weights: sample weight variable (FINALWT), first-stage stratification variable (STSTR), and primary sampling unit variable (PSU). Omission of the stratification variable in STATA implies no stratification of PSUs prior to first-stage sampling. Omission of the primary sampling unit variable implies one-stage sampling of elements and no clustering of sampled elements. Omission of the sample weight implies equally weighted sample elements. Mean proportions for each variable were estimated using the svy: proportion command.

Variables of interest included BMI, physical inactivity, diabetes, hypertension, and consumption of 5 or more servings of fruits and vegetables. BMI was calculated by dividing self-reported weight in kilograms by the square of self-reported height in metres. The variable 'obesity' is the percentage of all adults in a given state who were classified as obese (where obesity is defined as BMI greater than or equal to 30). Researchers also provide results broken down by race/ethnicity — researchers report results for whites, blacks, and Hispanics — and gender. Another variable 'overweight' was created to capture the percentage of adults in a given state who were either overweight or obese. An overweight adult was defined as one with a BMI greater than or equal to 25 but less than 30. For the physical inactivity variable a binary indicator equal to one was created for adults who reported not engaging in physical activity or exercise during the previous thirty days other than their regular job. For diabetes, researchers created a binary variable equal to one if the respondent reported ever being told by a doctor that he/she had diabetes. Researchers excluded all cases of gestational and borderline diabetes as well as all cases where the individual was either unsure, or refused to answer.

To calculate prevalence rates for hypertension, researchers created a dummy variable equal to one if the respondent answered "Yes" to the following question: "Have you ever been told by a doctor, nurse or other health professional that you have high blood pressure?" This definition excludes respondents classified as borderline hypertensive, and women who reported being diagnosed with hypertension while pregnant. Data for hypertension is only available in odd-numbered years so no new data is available for 2010.

Researchers calculated rolling three year averages, first by averaging data from 2007-2009 and then by averaging data from 2008-2010 (after merging data from the relevant time periods).[335] Researchers report mean proportions for each three-year period as well as standard errors and 95% confidence intervals for all variables of interest. In addition researchers carried out a Pearson statistical test of proportions and report which states experienced a significant increase or decrease between periods (significant at the 5% level).

The 2007-2009 sample consisted of 1,217,016 observations while the 2008-2010 sample consisted of 1,235,441 observations. Researchers excluded observations with missing values from the analysis.[336]

Over the Years Data

Data for this analysis was obtained from the Behavioral Risk Factor Surveillance System (BRFSS) dataset (publicly available on the web at www.cdc.gov/brfss). BRFSS is an annual cross-sectional survey designed to measure behavioral risk factors in the adult population (18 years of age or older) living in households. Data are collected from a random sample of adults (one per household) through a telephone survey. The BRFSS currently includes data from 50 states, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands.

To account for the complex nature of the survey design and obtain estimates accurately representative at the state level, researchers used sample weights provided by the CDC in the dataset. The main purpose of weighting is to reduce bias in population estimates by up-weighting population sub-groups that are under represented and down-weighting those that are over represented in the sample. Also estimation of variance, which indicates precision and is used in calculating confidence intervals, needs to take into account the fact that the elements in the sample will generally not be statistically independent as a result of the multistage sampling design.

Researchers specified the sampling plan to STATA[337] using the svyset command and the following set of weights: sample weight variable (FINALWT), first-stage stratification variable (STSTR), and primary sampling unit variable (PSU). Omission of the stratification variable in STATA implies no stratification of PSUs prior to first-stage sampling. Omission of the primary sampling unit variable implies one-stage sampling of elements and no clustering of sampled elements. Omission of the sample weight implies equally weighted sample elements. Mean proportions for each variable were estimated using the svy: proportion command.

Variables of interest included BMI, physical inactivity, diabetes, hypertension, and consumption of 5 or more servings of fruits and vegetables. Researchers evaluated changes in each of these variables over the last ten years, then over the last fifteen years, and finally over the last twenty years. To do this researchers calculated state-by-state percentages for three time periods: 1988-1990; 1993-1995, and 1998-2008 and researchers compared the results with estimates from 2008-2010. In most cases, 2010 is the latest year for which researchers have data. For the earliest time period, data is only available for some states. Data availability for each variable (by state) for each year covered by the time periods of our analysis is in the attached Excel file.

Obesity

BMI was calculated by dividing self-reported weight in kilograms by the square of self-reported height in metres. The variable 'obesity' is the percentage of all adults in a given state who were classified as obese (where obesity is defined as BMI greater than or equal to 30). Another variable 'overweight' was created to capture the percentage of adults in a given state who were either overweight or obese. An overweight adult was defined as one with a BMI greater than or equal to 25 but less than 30.

Diabetes

For diabetes, researchers created a binary variable equal to one if the respondent reported ever being told by a doctor that he/she had diabetes. Before 1994, a respondent could choose one of three options in response to this question: (1) Yes, (2) No, or (3) Don't Know. They could also refuse to answer. From 1994 however, women who chose "Yes" were asked if the diabetes was diagnosed during pregnancy and if the answer to this question was also "Yes", they were classified as a separate group. To allow for comparison with previous years, researchers collapsed this group of women into the "Yes" category. For 2008-2010, borderline diabetes is also reported as a separate category (in addition to diabetes in pregnancy). To account for this, and to allow for comparison with data from earlier years, researchers report three separate estimates for 2008-2010: (i) using the current classification i.e. people classified as having diabetes do not include women with gestational diabetes or individuals with borderline diabetes; (ii) researchers expand the diabetes classification to now include diabetes in pregnancy (the assumption here is that women with diabetes in pregnancy would have been classified as a "Yes" in earlier years); and (iii) researchers expand the classification to include diabetes in pregnancy and borderline diabetes (here the assumption is that both these groups would have been classified as a "Yes" in previous years. Not surprisingly as researchers made their definition of diabetes less restrictive, the percentage of people in each state reported as having diabetes increases. Researchers made the comparison with previous years using the most conservative estimates i.e. from (i) above.

Hypertension

To calculate prevalence rates for hypertension, researchers created a dummy variable equal to one if the respondent answered "Yes" to the following question: "Have you ever been told by a doctor, nurse or other health professional that you have high blood pressure?". The reference time period for nearly all the other variables is 2008-2010, but because there is no data available for hypertension in 2008 and 2010, researchers create a 3-year reference period using the three most recent years for which hypertension data is available i.e. 2005, 2007, and 2009.

Like with the diabetes variable, the categories were modified over time. Prior to 2003, when asked the question, "Have you ever been told by a doctor, nurse or other health professional that you have high blood pressure?", respondents could choose either (1) Yes, (2) No, or (3) Don't Know. From 2003 however, female respondents who answered "Yes" to the initial question were now asked a follow-up question: "Was this only when you were pregnant?" If the answer to the follow-up question was also "Yes", the respondent was classified as having gestational hypertension. This category did not exist before. An additional category was also created in 2005 for individuals with borderline hypertension.

To account for this, and to allow for comparison with data from earlier years, researchers report three separate estimates for 2005-2009: (i) using the current classification i.e. people classified as having hypertension do not include women with hypertension during pregnancy or individuals with borderline hypertension; (ii) researchers expand the hypertension classification to now include hypertension in pregnancy (the assumption here is that women with hypertension in pregnancy would have been classified as a "Yes" in earlier years); and (iii) researchers expand the classification to include hypertension in pregnancy and borderline hypertension (here the assumption is that both these groups would have been classified as a "Yes" in previous years.

As before, as researchers make the definition of hypertension less restrictive, the percentage of people in each state reported as having hypertension increases. Researchers make the comparison with previous years using the most conservative estimates i.e. from (i) above.

Socioeconomic Status and Obesity

Researchers merged individual-level BRFSS data on income, level of schooling completed, and obesity from 2008 to 2010. BRFSS does not collect information on years of schooling as a continuous variable, but has information on the level of schooling completed. Researchers estimated obesity rates within each schooling category. Researchers found a significant association between obesity and schooling: obesity rates decrease in a monotonic fashion with higher levels of schooling. When researchers estimated obesity rates within each income category, they obtained a similar finding. These findings reflect the well-known relationship between socioeconomic status and obesity.

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335 Reported data on hypertension is the same as for last year. We compare data averaged from 2003/2005/2007, with data averaged from 2005/2007/2009.

336 In all cases, observations with missing values accounted for less than 5 percent of the total number of observations.

337 STATA Version 11

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